

restoration of cumberland gap
and the wilderness road
development concept plan
interpretive prospectus
environmental assessment

DRAFT

CUMBERLAND GAP

NATIONAL HISTORICAL PARK • KENTUCKY / VIRGINIA / TENNESSEE

1917


development concept plan
interpretive prospectus
environmental assessment

draft

december 1989

RESTORATION OF CUMBERLAND GAP AND THE WILDERNESS ROAD
CUMBERLAND GAP NATIONAL HISTORICAL PARK • KENTUCKY/VIRGINIA/TENNESSEE

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE



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SUMMARY

This *Development Concept Plan/Interpretive Prospectus/Environmental Assessment* (hereafter referred to as DCP) amplifies recommendations regarding restoration of Cumberland Gap National Historical Park, which were made in the 1979 *Master Plan*, and it serves as the intermediate step between the *Master Plan* and comprehensive design.

Cumberland Gap National Historical Park was established in 1940 to set apart as a public park for the benefit and inspiration of the people certain lands, structures, and other property, including Cumberland Gap and the Wilderness Road passing through the Gap. This resource, made famous by pioneers such as Daniel Boone, is of national significance because it was one of the first passageways through the Appalachian Mountains used during the early years of westward expansion.

Two of the management objectives for the park are to preserve as closely as possible the appearance of Cumberland Gap that existed at the turn of the 18th century, and to foster public understanding and appreciation of the park's historical and natural significance through various interpretive programs and facilities. The intent is to provide the opportunity for visitors to walk to the Gap along the Wilderness Road and to feel what it must have been like to cross the Gap during the pioneer days of 1780-1810; to see the landscape as it might have existed then; and to experience some of the thoughts and emotions of the pioneers crossing from civilization as they knew it into the unknown land and life that lay to the west. Historian Frederick Jackson Turner summed it up well in 1893 when he said, "Stand at Cumberland Gap and watch the procession of civilization marching in single file—the buffalo following the trail to the salt springs, the Indian, the fur-trader and hunter, the cattle-raiser, the pioneer farmer—and the frontier has passed by." Interpretive waysides and visitor center exhibits will convey to visitors the importance of the Gap in the continuum of transportation – from the migration of large animals, especially buffaloes, which first established a trail, to the passage of people by way of horse and wagon, to the modern day use of motor vehicles.

The major obstacle to accomplishing the stated objectives is the presence of U.S. Highway 25E (US 25E) along the trace of the Wilderness Road and over the Gap, and the presence of other modern structures and utilities. Soon after the park was established, concern arose over the presence of US 25E and the other structures in the area because of the adverse impact they had on the historical integrity and setting of the primary resource for which the park was created – the Gap itself and the site of the Wilderness Road. Because of this concern, US 25E is currently being rerouted away from the Gap and through Cumberland Mountain to the south, so that the Gap and the Wilderness Road can be restored to their approximate historic setting during the 1780-1810 period. Completion of the work will enhance interpretation of Cumberland Gap and the Wilderness Road for generations of Americans today and in the future.

This DCP presents alternatives for restoration, along with proposals for interpretation, visitor use and development, and associated impacts on the visitor experience and the environment. Three action alternatives are presented – complete, partial, and minimal revegetation. They all address proposals for restoration and revegetation of the Gap and Wilderness Road; management of Cudjo Caverns, a cave whose entrance is along US 25E within 1/2 mile of the Gap; and visitor parking and access to the Gap and Cudjo Caverns. The alternatives differ primarily in their degrees of restoration and provisions for visitor use and new facilities. A fourth alternative, no restoration, is also presented. Alternative 2, partial restoration, is the National Park Service's preferred alternative.

The public is invited to send their comments regarding the alternatives and proposals presented in this document to the superintendent of Cumberland Gap National Historical Park within 30 days upon receipt of the document. A postage-paid, self-addressed response form is located in the back of this document for that purpose.

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INTRODUCTION

PURPOSE OF AND NEED FOR THE STUDY

Cumberland Gap National Historical Park was established by Congress on June 11, 1940 (54 Stat. 262), "as a public park for the benefit and inspiration of the people, . . ." not to exceed 50,000 acres of "land, structures, and other property . . . as necessary or desirable for national historical park purposes. . . ."

The primary resource of the park is the Gap itself, through which passed the Wilderness Road to the west, made famous by pioneers such as Daniel Boone. The Gap possesses national significance because it was one of the first passageways through the Appalachian Mountains for westward expansion of the country. The Gap and associated Wilderness Road are located within the Cumberland Gap Historic District, which was listed on the National Register of Historic Places in 1980. Today, a major north-south paved highway, U.S. 25E, passes over the Gap and along part of the Wilderness Road.

Not long after the establishment of the park, concern developed over the presence of US 25E in the Gap and the adverse impact it had on the historic setting. In 1954, Acting Director of the National Park Service E.T. Scoyen expressed the opinion of "restoration of the Gap to approximately its original topography with . . . the present highway through the gap . . . removed from the scene . . . favor construction of a tunnel." Pressures to widen the highway prompted action, and a preliminary study by the Appalachian Regional Commission in 1973 presented various alternatives. Forced into the lead, the National Park Service in the 1979 *Master Plan* stated, "The principal proposals of the plan are to relocate US 25E from the historic Gap to a better location and then to re-create a wilderness appearance at the Gap which prevailed during the heyday of the Wilderness Road." Highway Trust Fund monies became available in 1978 to reroute 25E through a twin-bore

tunnel, making possible the restoration of the Gap. Construction for the rerouted US 25E is currently ongoing, and is expected to be completed in the mid-to-late 1990s.

To date, no overall plan has been prepared to guide the many aspects related to restoration of the Gap and Wilderness Road. The project involves new road alignment, earthwork and revegetation, interchanges, parking areas, trails, new orientation, content, and exhibitry for the interpretive program, and a new look at appropriate visitor use and development. Therefore, a development concept plan/interpretive prospectus is needed to address these concerns. This document has been prepared to fulfill that need.

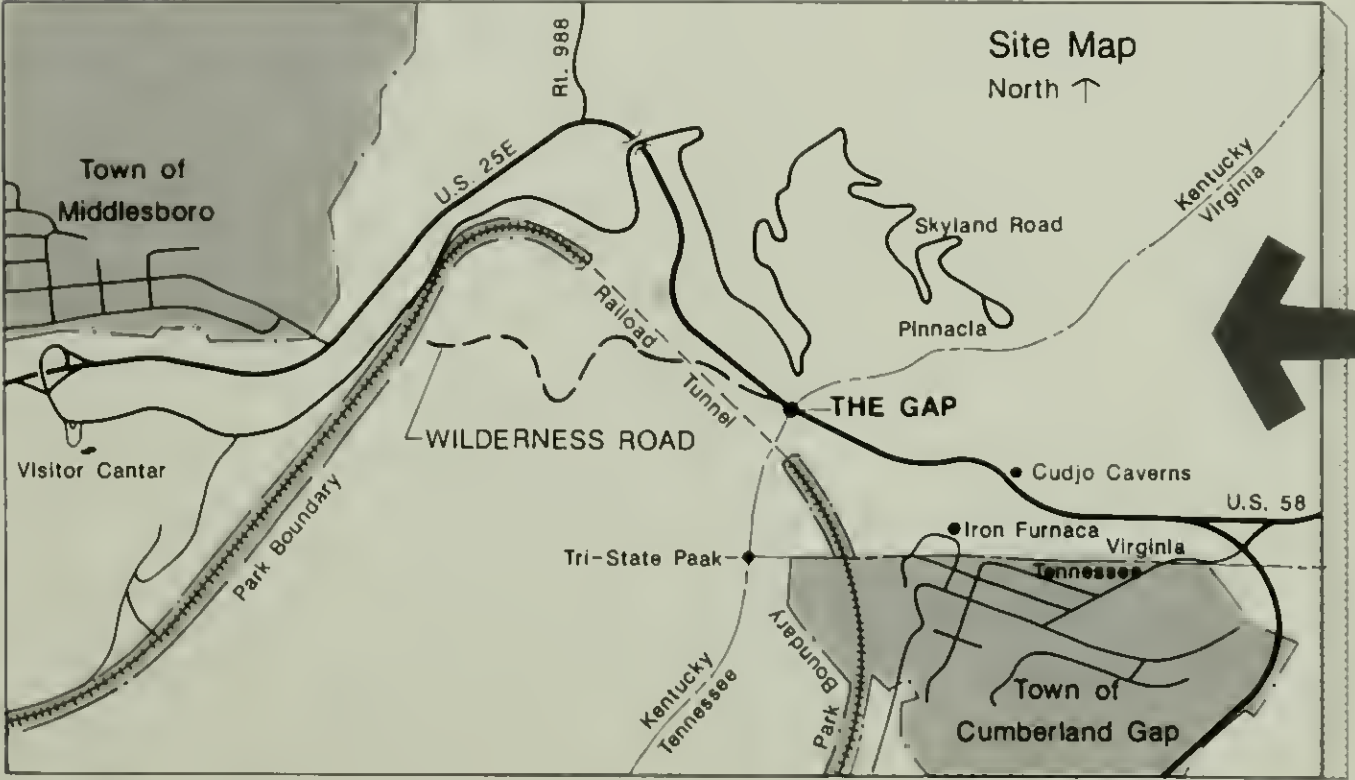
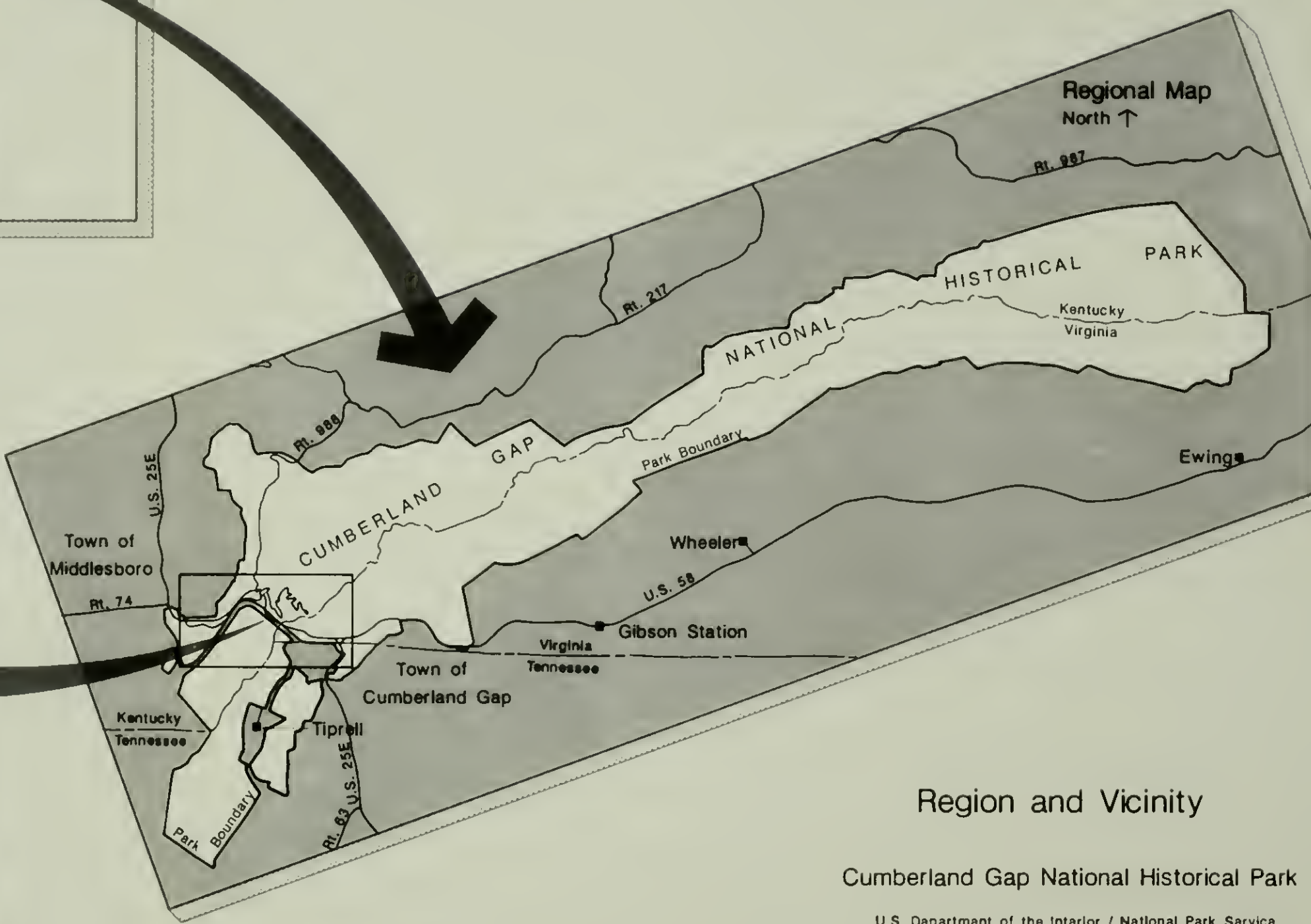
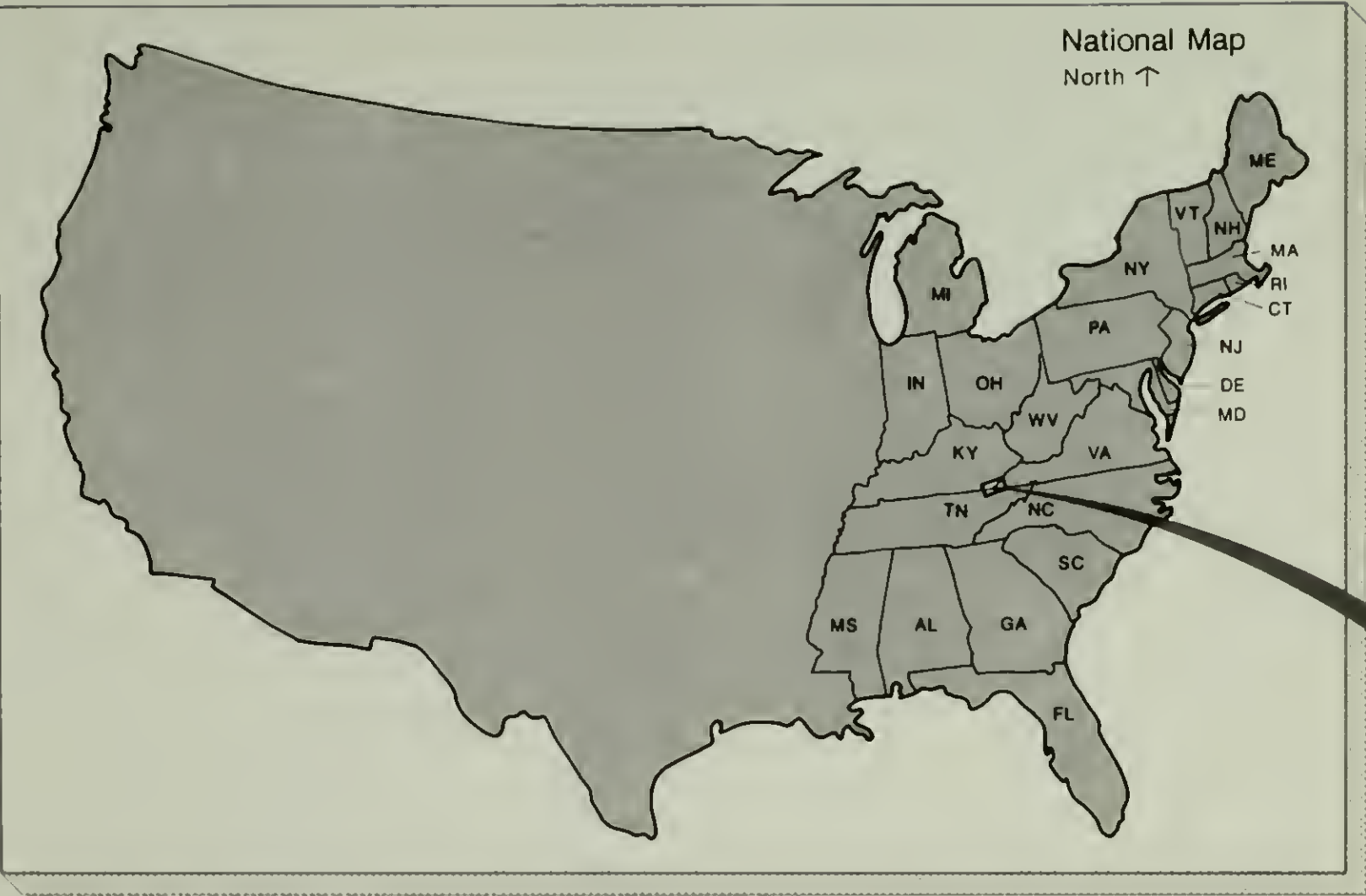


Region and Vicinity

Cumberland Gap National Historical Park

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Region and Vicinity

Cumberland Gap National Historical Park



Cumberland Gap Prior to
U.S. 25E Tunnel and Road Construction

VISITOR EXPERIENCE, INTERPRETIVE THEMES, AND MANAGEMENT OBJECTIVES

In keeping with the established purpose of the park and in recognition of its most significant resource, the vision of the park visitor's most important experience is that of being able to pass through the Gap as it appeared during the historic period of 1780-1810. Also, in recognition of the park's resources and to tell the story of Cumberland Gap to the visitor, the following two interpretive themes have been defined:

- The concept that Cumberland Gap represents a continuum of westward travel, transportation, and expansion; for most who came this way it was a "place of passing," although a few stayed and settled here.
- The concept that Cumberland Gap's geology and landscape is integrally interrelated with its prehistory and history; that its physical setting dictated its being a most traveled early passageway through the Appalachian Mountain barrier.

Of the 17 long-term management objectives written for the park's 1986 *Statement for Management*, at least eight of them are directly related to the restoration of the Gap. Along with the vision of the visitor experience and the interpretive themes, these management objectives have guided the planning team in its efforts to formulate alternatives for visitor use and development. The eight management objectives are as follows:

1. To preserve the cultural values of the park by protecting the 1796-1800 appearance of Cumberland Gap and the historic resources at Civil War sites, the Hensley Settlement, and other sites. (The relevant historic period for this project has been expanded to 1780-1810, considered to be more representative of the period of heavy settler traffic through the Gap.)

2. To manage cultural resources listed on the National Register of Historic Places in a manner consistent with historic preservation policies.
3. To perpetuate the natural values of the park by protecting resources in natural zones from uses that would endanger or alter their natural values.
4. To foster public understanding and appreciation of the park's historical and natural significance through varied interpretive programs and facilities such as living history, craft displays, self-guiding trails, and other interpretive devices.
5. To reduce traffic and pedestrian congestion, as well as resource deterioration, by ensuring adequate public access to and circulation within the park.
6. To ensure opportunities for outdoor recreation such as camping, hiking, picnicking, and other activities in appropriate settings that do not impair preservation of significant historic and natural resources, and to provide facilities essential for administration and park use in development zones.
7. To cooperate with the Federal Highway Administration and State Highway Departments in the relocation of U.S. Highway 25E to restore and protect the historical appearance of Cumberland Gap in order to reduce traffic congestion.
8. To work with other public agencies and private concerns to minimize the adverse effects on the park's resources, setting, and visitation due to strip mining, highway rights-of-way, utility lines, pollution, poaching, and other uses and developments.

In addition, one mid-term objective applies to this document:

- To promote public knowledge and understanding of the long-term values to be gained by the construction of new highway tunnels and restoration of the Gap within park boundaries.

RELEVANT ISSUES

In order to provide the desired visitor experience at and near the Gap and along the Wilderness Road, there are a number of obstacles to overcome and some opportunities of which to take advantage. They represent the following primary issues relating to the project:

- Existing topography, lack of appropriate vegetation, and presence of modern development create a scene that is different than the historical appearance of the Gap and Wilderness Road of the 1780-1810 time frame. Essential to providing the desired visitor experience is restoring the Gap and Wilderness Road to an appearance that represents as closely as possible the scene that existed about 1780-1810.
- Cudjo Caverns is a tourist attraction within the park boundary. Although vested in the United States, it is operated by nearby Lincoln Memorial University (LMU). The entrance to the cave is located less than 1/2 mile to the east of the Gap on US 25E, and is of some historical and geological importance. How the cave is to be used and managed in the future must be decided.
- Pedestrian access to the Gap is currently inadequate. A single trail leads up from the town of Cumberland Gap. Parking at the trailhead is limited and is provided primarily for visits to the historic Iron Furnace on the site. Additional access is from the small parking area at the Tri-State Peak trailhead near the Gap on US 25E on the Kentucky side. Parking here is also limited and primarily for the Tri-State Peak trail. To provide for the desired visitor experience at the Gap, additional pedestrian access and significantly more parking must be developed.

- On-site interpretation of a restored Gap and Wilderness Road is currently nonexistent and was not addressed in the most recent *Interpretive Prospectus* (1971). In order to meet management objective 4 regarding interpretive programs and facilities, and to enhance the visitor's understanding and appreciation of the park's primary resource, a new interpretive prospectus is required.
- Numerous utility lines currently cross Cumberland Mountain at or near the Gap, serving as a visual presence of 20th-century society. If the Gap is to be restored to the historic scene of 1780-1810, the utility lines must be removed out of sight from the Gap and from viewpoints looking towards the Gap.
- A store and a concrete water reservoir are currently located east of the Gap along US 25E across from the entrance to Cudjo Caverns. As with the utility lines and US 25E itself, the store and the reservoir are modern-day structures that must be removed if the Gap and Wilderness Road are to be restored to a historic setting.
- Hiking trails in the vicinity of the Gap are currently inadequate and poorly connected. Restoration of the Gap and Wilderness Road would make possible a significant increase in day-use recreation opportunities. In order to meet management objectives 5 and 6, and to enhance the visitor's recreational experience, a trail plan for the restored Gap and Wilderness Road corridor must be completed to tie into the park's current trail system.

DESCRIPTION OF THE ENVIRONMENT

LOCATION AND ACCESS

Cumberland Gap National Historical Park, the nation's second largest historical park, is located on the tri-state boundaries of Kentucky, Tennessee, and Virginia. The park contains 20,271 acres, of which approximately 1,500 acres are within the scope of this project. The project area extends from the intersection of US 25E and US 58, near the town of Cumberland Gap, Tennessee, on the east side of the Gap, to park headquarters near Middlesboro, Kentucky, on the west side of the Gap. The project area lies in portions of Bell County, Kentucky; Claiborne County, Tennessee; and Lee County, Virginia. Although somewhat isolated from population centers such as Lexington, Kentucky, or Knoxville, Tennessee, the park is accessible by US 58 from the east, and by US 25E – an often-used connecting route between Interstate 75 west of the Gap and Interstates 40 and 81 east of the Gap. It is at this place where a vivid understanding of the relationship of physical geography and history may be grasped and a continuum of transportation understood.

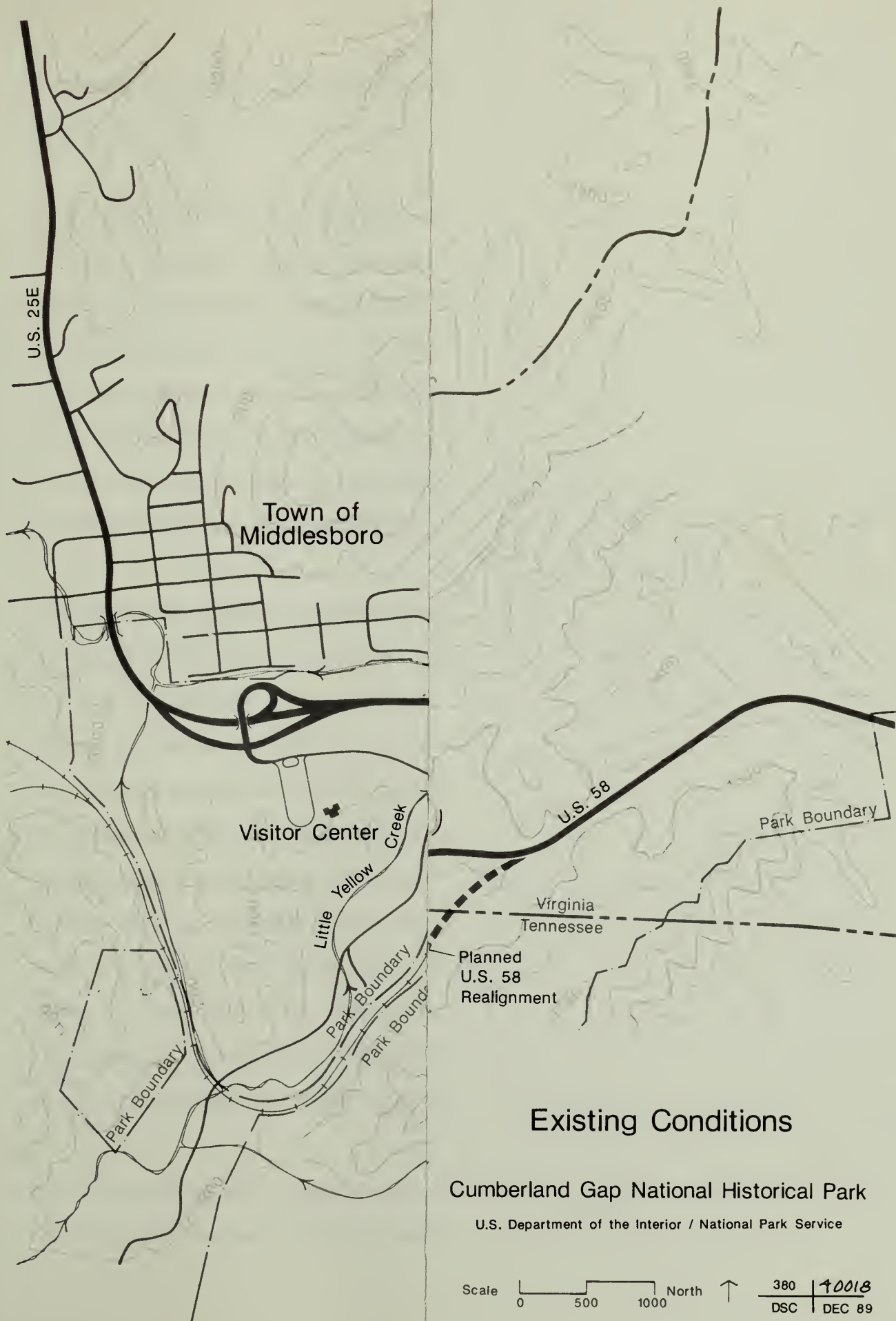
HISTORICAL CONTEXT

Cumberland Gap National Historical Park contains historic Cumberland Gap – a natural gap, or low point, on Cumberland Mountain – and a segment of the historic Wilderness Road which crosses Cumberland Mountain through the Gap. Herein lies the national significance of the national historical park. The Gap and the Wilderness Road passing through it was the first feasible two-way passageway through the Appalachian Mountain barrier.

The Wilderness Road served as the principal route from the colonies to the interior lands drained by the Ohio River. Prior to heavy commercial and settler traffic on the road between 1780 and 1810, the route was heavily used by migrating herds of buffalo and by several tribes of American Indians traveling between villages and hunting grounds. Commercial use, especially by drovers, came increasingly to the fore with the passage of the 19th century.

During the 17th century, the American buffalo – after a 1,100-year hiatus – resumed a migratory pattern into the southeast portions of North America. Besides grazing areas, these pathmakers sought the numerous salt licks that dotted present Kentucky and Virginia, and in so doing beat out a well-defined trace. During the next two centuries travelers could follow such traces on roads extending from near Roanoke, Virginia, to central Illinois.

The network of traces laid down by buffalo formed the basis of trails used by American Indians, and in time, frontiersmen and settlers. Foremost among Indian routes in the eastern United States was the Warriors Path, which looped southward through the Gap connecting the Ohio Valley and that of the Shenandoah and Potomac. Branches of the road also continued southeast to the Cherokee and Creek settlements. In short, the path laid down

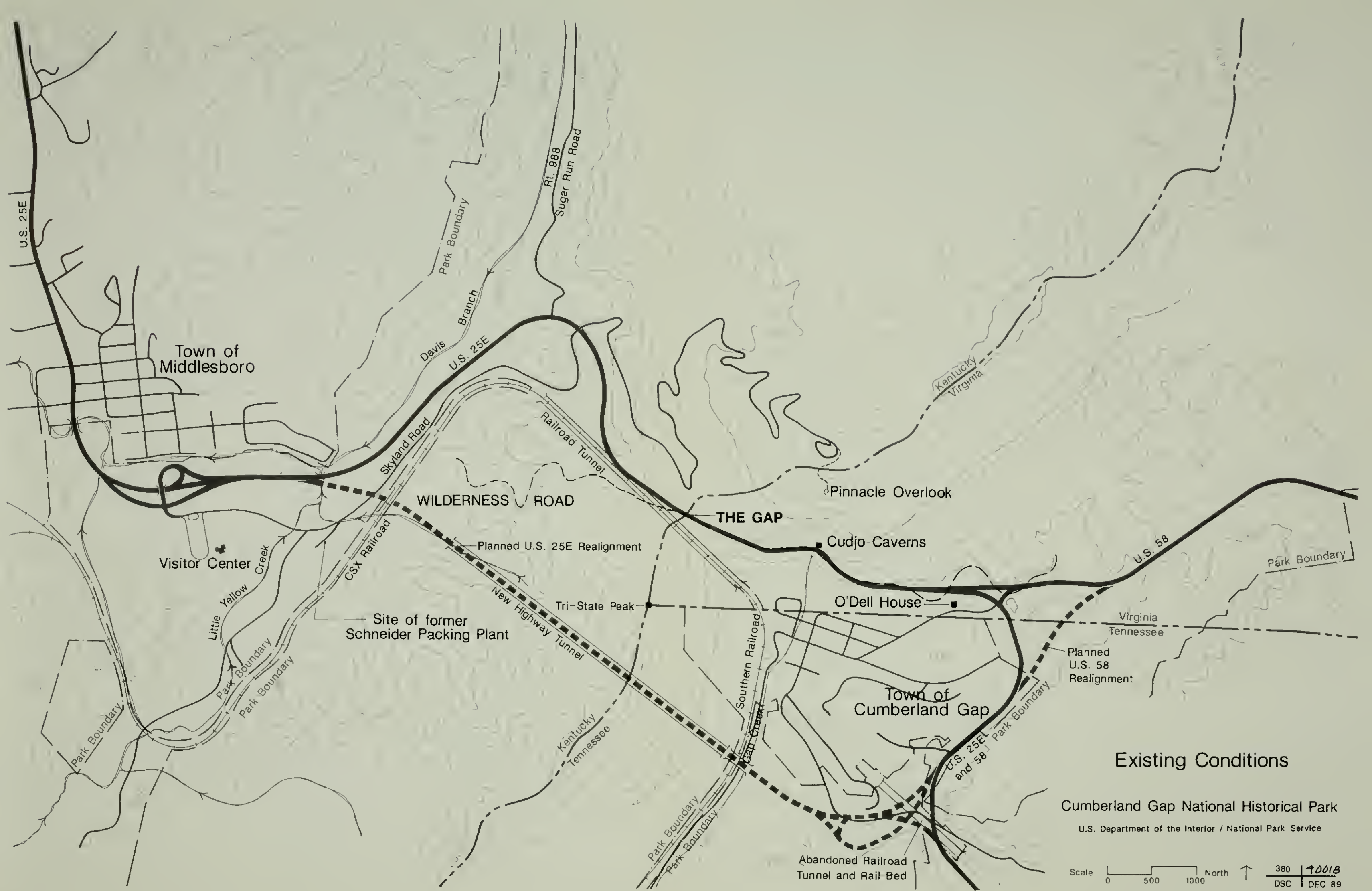


Existing Conditions

Cumberland Gap National Historical Park

U.S. Department of the Interior / National Park Service

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Existing Conditions

Cumberland Gap National Historical Park

U.S. Department of the Interior / National Park Service

by animals and native peoples was easily adapted by opportunists from the colonies on the Atlantic seaboard.

Early travelers included Gabriel Arthur and Dr. Thomas Walker in the 17th and 18th centuries, respectively. Walker's account in 1750 gives us the first Anglo eyewitness description of Cumberland Gap, the entrance of the present Cudjo Caverns, the spring emanating from it, and the Indian road Walker followed. During the French and Indian War (1754-1763), exploration and travel temporarily halted, but in 1763 a group of long hunters led by Elisha Walden (Wallen) crossed into Kentucky through Cumberland Gap. Success of the hunt brought others to Kentucky, including Daniel Boone, the individual most identified with the Gap, who traversed it in 1769.

Working for Judge Richard Henderson, Boone explored Kentucky for productive lands which returned profits to investors and marked the well-defined trail in 1775. Four years later the first of a still-continuing series of road improvements began; Virginia passed a law for building "a good waggon [sic] road through the great mountains." In 1780 the builders requested payment for the road over Cumberland Gap in a petition that stated that wagons had passed over it to the convenience of travelers. From then on, Virginia followed by Kentucky passed laws to improve the road over Cumberland Mountain. Commensurate with roadwork was the population boom in Kentucky: 73,000 in 1790 and 220,000 in 1800. Demand for improvements became a constant in order to facilitate settlers and commercial traffic. The route became the most direct and easiest from the lower Ohio Valley to Philadelphia until the opening of the Erie Canal and roads across the mid-Atlantic states during the third decade of the 19th century.

After the heyday of settler usage (about 1810), east-west traffic tended to be much more commercial in orientation, particularly livestock droving from Kentucky into the southeastern

states. During the Civil War, 1861-1865, the Gap became a strategic location for both Union and Confederate troops, and many defensive positions and an attendant road network left an imprint on the landscape.

During this century more modern road building techniques have left an imprint. An Object Lesson Road with macadamized surface replaced the old road in 1908. Built by the Bureau of Public Roads (U.S. Department of Agriculture), the 2-1/2 miles demonstrated the efficacy of modern technology and all-weather surface for roads in the area. On the Kentucky side the alignment replaced the route of the Wilderness Road (Kentucky State Road) when the County Court abandoned the old road. The Object Lesson Road thus held its own place of historical importance in the story of the Gap. What had begun as a buffalo trace and Indian trail in due course became a pathway for explorers and land speculators, then a major route for settlers, travelers, and drovers, and an instrument for learning how to construct roads. Subsequently, present US 25E used much of the same alignment of the Wilderness Road, as modern day boosters proclaimed it to be the Dixie Highway from Detroit to Miami.

Cumberland Mountain and the attendant gap through which the Wilderness Road passed retain many of the topographical features known to its earliest users. The Gap, the pinnacle, Tri-State Peak, and vegetative cover convey much of the historic scene for which the park was set aside. Watercourses remain basically the same, the most important of which is Gap Creek. It still emanates from Cudjo Caverns as recorded by Dr. Thomas Walker in 1750. However, the first few yards of its course in daylight are now covered by road fill of US 25E. Nearly all structures associated with 20th-century development have been removed in the course of developing the park, and the landscape closely reflects that of the focal period 1780-1810. Of principal importance, sections of the historic road still exist in the

corridor on which this plan focuses. Several features remain from the Civil War, including historic roads and several fortifications.

Nevertheless, heavy impact can be identified – the alignment of US 25E, a commercial store, a water reservoir, the modern community of Cumberland Gap, Tennessee, and the Seaboard System Railroad. Road construction, mainly this century, has also caused considerable impact, most noticeably in the saddle of the Gap where large amounts of quarrying and leveling occurred. Elsewhere road cuts and fills (present and former), culverts, rock faces, and embankments intrude on the historic setting.

NATURAL RESOURCES

INTRODUCTION

The primary natural resources of concern relating to the restoration project are the topography and vegetative land cover. Significant alterations in terms of cut and fill and vegetation are proposed in order to restore the scene near the Gap to its approximate 1780-1810 appearance.

TOPOGRAPHY/GEOLOGY/SOILS

Although 25E travels through a relatively narrow section of Cumberland Gap, in a broader sense Cumberland Gap is a large notch, approximately 500 feet deep, cut by former stream activity into the monocline ridge of Cumberland Mountain. At its eastern opening adjacent to the town of Cumberland Gap, Tennessee, the Gap is approximately .6 mile wide and begins at an elevation of 1,300 feet. It rises to its narrowest point on the Virginia-Kentucky line to an elevation of 1,650 feet in about .3 mile. The Gap then drops and widens northwest into Kentucky to an elevation of 1,300 feet in about .8 mile.

To the northeast of the gap, Cumberland Mountain rises to an elevation of 2,500 feet. Along its southern edge the mountain appears as a steep ridge. A prominent feature and popular destination, the Pinnacle is located at the summit of this ridge and affords visitors a view down the 1,200-foot vertical south face to the town of Cumberland Gap and a view of Middlesboro to the west. Cumberland Mountain slopes more gently to the northwest, ending in valleys 1,300 feet below. To the southwest of the gap, Cumberland Mountain

risers to a ridge at about 2,100 feet. The nearest prominent feature is Tri-State Peak, which marks the boundaries of Tennessee, Virginia, and Kentucky.

Traveling up to Cumberland Gap, along US 25E from the intersection with US 58, the alignment traverses the steep southern slope (35 to 45 degrees) of Cumberland Mountain. Rocky outcrops along these slopes exhibit the bedding predominant in the geology of the area. While the road traverses across primarily shales, an extensive outcrop of limestone is visible just above the road, running from the entrance to Cudjo Caverns to the saddle of the Gap.

The soils in the area around the intersection of US 25E with US 58 on the east side of the Gap consist of the Jefferson class of stony fine sandy loam. These soils have numerous large sandstone rocks (3-10 inches) and are considered well-drained. Moving approximately 500 feet west on US 25E the road alignment passes through the Montevallo shaly silt loam soils. These soils, derived from the shale substrate, are considered subject to high erosion due to their shallow depth (approximately 15 inches) and the steepness of slope. From this point to the saddle of the Gap the soils are defined as rough stony land comprised of limestone material with 35 to 90 percent of the surface being limestone outcrops. According to the U.S. Department of Agriculture, Soil Conservation Service, the most feasible use of these soils is for forest. The SCS state soil scientist reports that there are no soils in the project study area that are classified as prime or unique farmlands.

Near the intersection with US 58, at an elevation of 1,480 feet, US 25E crosses a series of cuts and fills for 1.1 miles to the Gap. Some of these fills exhibit signs of downslope movement. The largest cut and fill along this portion of the road is the area around the Cudjo Caverns store and cavern entrance.

In the saddle of the Gap, on the north side of the highway, is an abandoned quarry and large borrow pit. To the south lies a bench 10-15 feet above the road. To the northwest of the Gap and slightly downhill, the road crosses a level area, a portion of which is occupied by a Tri-State Peak trailhead. This area is at the head of an intermittent stream drainage. From this area the historic Kentucky State Road travels west past two abandoned borrow pits and contours around the southern edge of the drainage. The historic Object Lesson Road travels north and contours around the northern edge of the drainage until it reaches a relatively level area near the Skyland Road bridge. US 25E parallels the drainage through a cut, crosses the drainage on a fill, and contours around this level area on a series of cuts and fills. After passing under the Skyland Road bridge, US 25E parallels Davis Branch for .3 mile on cuts and fills to its intersection with the new US 25E alignment.

Soils on the west side of the Gap are primarily of the Jefferson Variant, which are very stony and loamy soils, and are either below sandstone cliffs or with sandstone outcrops. Depth to bedrock, which is primarily sandstone, can range from a few inches to more than 60 inches. The most feasible use is for forest. The last portion of the alignment, that which parallels Davis Branch, is through Pope sandy loam soils, which are well-drained and usually deeper than 60 inches. According to the Soil Conservation Service, these soils are fair for cropland and pasture use.

Material that is being taken out of the new US 25E tunnels is comprised primarily of sandstone, shale, and limestone. Most of this material should be available for use as fill in the restoration of the Gap and Wilderness Road.

VEGETATION

The vegetation in the vicinity of Cumberland Gap has been substantially affected since the time Daniel Boone and westward pioneers traversed the area ca. 1780-1810. Logging, to provide wood for the Iron Furnace, railroads, and most significantly, to clear the area during the Civil War, effectively denuded the Gap of all virgin stands of timber. Chestnut blight and continued human development has since influenced the vegetation around the Gap. Yet, the second-growth vegetation, though somewhat less mature, has come to represent approximately the same composition as that of the 18th and 19th centuries.

The predominant trees and shrubs that currently exist along US 25E within the scope of this project are listed below. They fall within seven separate sections and are shown on the Existing Vegetation map. The variation in vegetation from section to section is caused by variations in soil and aspect.

Section 1 – from the US 58–US 25E intersection west for approximately 500 feet: These stands are comprised of Virginia pine, yellow poplar, white oak, and a few white ash. Sassafras, blackberry, and rhododendron are common understory species.

Section 2 – from the above point to just west of the Cudjo Caverns entrance: These stands are comprised of red oak, white oak, and yellow poplar with a few sycamore and buckeye. Grass, cinquefoil, mountain laurel, and blackberry are common understory species. Japanese kudzu, an exotic species, is common on the fill slopes and has proven to be a strong competitive species.

Section 3 – to the quarry near the saddle of the gap: Most of the vegetation in this section is to the south, or downhill, side of the highway; the north side consists primarily of a prominent limestone outcrop. Species include white oak, red oak, hickory, and white ash. Mountain laurel and serviceberry are common understory species.

Section 4 – the saddle of the gap: The area has been heavily modified by man and is predominantly grass-covered open space. Nearby are Virginia pine, sycamore, and yellow poplar. Rhododendron is the most conspicuous understory species.

Section 5 – just west of the Gap to the west intersection of US 25E and the historic Object Lesson Road: Dominant species include sycamore, yellow poplar, red maple, red oak, white oak, and chestnut oak. Virginia pine saplings, dogwood, rhododendron, and grasses dominate the understory. The historic Object Lesson Road has many Virginia pine saplings growing in it.

Section 6 – to just east of the Skyland Road bridge: Sycamore, yellow poplar, and white oak dominate these stands. The understory is predominantly Virginia pine saplings and grasses.

Section 7 – to the intersection with new US 25E: This area was heavily altered by a tornado in 1987, and now there are few mature trees. The dominant species include sycamore, yellow poplar, red maple, and white oak. Eastern redbud, dogwood, elderberry, as well as saplings of the above species, are common in the understory.



Existing Vegetation

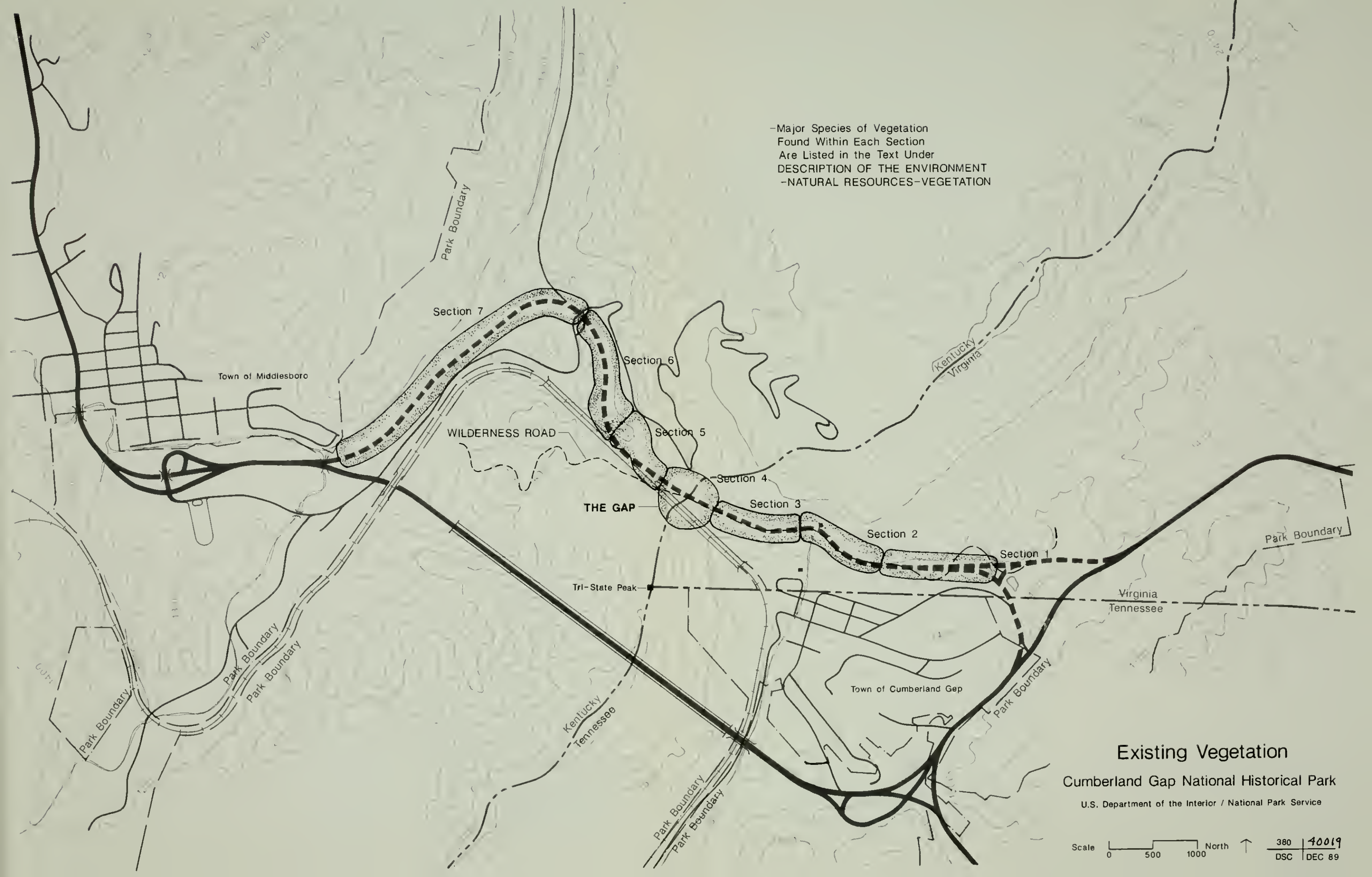
Cumberland Gap National Historical Park

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-Major Species of Vegetation
Found Within Each Section
Are Listed in the Text Under
DESCRIPTION OF THE ENVIRONMENT
-NATURAL RESOURCES-VEGETATION



Existing Vegetation

Cumberland Gap National Historical Park

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WILDLIFE

Larger mammals typical of the region, including foxes, raccoons, opossums, rabbits, squirrels, woodchucks, deer, and bobcats, range through most of the park. Black bears are occasionally seen. Among the larger birds found in the park are wild turkeys, ruffed grouse, turkey vultures, and several species of hawks and owls. Along the US 25E road corridor within the project area, the large volume of vehicular traffic is prohibitive to significant wildlife residence.

The U.S. Fish and Wildlife Service has identified the presence of the threatened fish species blackside dace (*Phoxinus phoxinus*) in the Davis Branch within the project area. Available information on reproduction and development suggests that silt-free nests are needed by this fish for maintaining a viable population. Thus, the danger to this species is due to possible siltation from nearby construction activities.

The Indiana bat (*Myotis sodalis*) and gray bat (*Myotis grisescens*), both listed as endangered, are present in the region. Indiana bats are known to hibernate in Cumberland Gap Saltpeter Cave – approximately 2 miles north of the project area – but which is connected to Cudjo Caverns. Threatened or endangered species are not known to inhabit Cudjo Caverns. The Eastern small-footed bat (*Myotis subulatus leibii*) and Rafinesque's big-eared bat (*Plecotus rafinesquii*) have also been identified in the region. Both species are listed as Category 2 species, which means that current information may indicate that a proposal to list the species as endangered or threatened is possibly appropriate; however, conclusive data on biological vulnerability or threat is not available to support the proposed rules. Other Category 2 species include the Appalachian Valley Cave amphipod (*Crangonyx antennatus*) and the Lee County Cave beetle (*Pseudonophthalmus hirsutus*), as listed in the *Federal Register*, 50 CFR 17 (FWS, USDI 1989). As indicated in *Brimleyana*, *The Journal*

of the North Carolina State Museum of Natural Sciences (Holsinger and Culver 1988), other rare or sensitive species include the following:

Cudjo Caverns

Pseudoscorpion (*Kleptochthonius lutzid*) type locality

Pseudoscorpion (*Microcredgris valentinei*) type locality

Isopod (*Trichoniscus pusillus*)

Millipede (*Pseudotremia valga*) type locality

Springtail (*Pseudosinella hirsuta*)

Cumberland Gap Saltpeter Cave

Millipede (*Pseudotremia* n. sp) undescribed species

Amphipod (*Bactrurus* n. sp.) undescribed species

Cliff Cave

Amphipod (*Stygobromus cumberlandus*)

Isopod (*Caecidotea* n. sp.) undescribed species

CLIMATE

The climate at Cumberland Gap is comparatively mild year-round, in spite of occasional snowfalls. This allows for a relatively comfortable visitor experience during all seasons. The average yearly temperature at Middlesboro, Kentucky (elevation 1,140 feet), is 59.9°F. The warmest month is July with an average temperature of 75.5°F, and the coldest is January with an average of 38.1°F. The average annual precipitation is 50 inches, which is well-distributed throughout the growing season. March is the wettest month averaging 5.20

inches of precipitation, and October is the driest with an average of 2.64 inches of precipitation. Three to six snows occur each year with normal accumulation of 3 to 6 inches for each storm. The snow causes temporary closure of the Skyland Road and the campground until they can be plowed. However, the only facilities permanently closed for the winter season – from the first of November through mid-to-late March – are the picnic areas at Sugar Run and in Virginia. The freeze-free period is approximately 180 days from mid-April to mid-October.

HYDROLOGY

Originating within Cudjo Caverns, Gap Creek flows under US 25E, through the western portion of the town of Cumberland Gap, through Tiprell, Tennessee, and on to the Powell River, approximately 10 miles to the south. Lincoln Memorial University retains the water rights to Gap Creek at the mouth of Cudjo Caverns and has a water collection system near the mouth of the cave. The water from this system is sold to the city of Cumberland Gap and is piped to the LMU campus in Harrogate, Tennessee. LMU is also connected to the Arthur Shawanee Water District. The water quality of Gap Creek is good. Because of the uses of water in the creek for human consumption, it is essential to maintain a high quality of water. There are no sportfisheries in Gap Creek.

Davis Branch, which flows into Yellow Creek on the east side of Middlesboro, Kentucky, drains a complete watershed entirely within the boundaries of the park. Davis Branch flows from north to south on the west side of the Gap, paralleling a portion of Kentucky State Highway 988 and approximately .3 mile of US 25E. Davis Branch provides a native critical habitat for the federally threatened blackside dace. The water quality in Davis Branch is

good. Because of the presence of the blackside dace, it is important that good water quality be maintained.

CUDJO CAVERNS

Cudjo Caverns is a limestone cave located along US 25E approximately halfway between the intersection with US 58 and the saddle of the Gap. Although Cudjo Caverns is vested in the United States, Lincoln Memorial University operates a commercial guide service for the cave under a deed reservation, and also collects the waters of Gap Creek that flow from the mouth of the cave for distribution to its campus at Harrogate, Tennessee, and to the town of Cumberland Gap, Tennessee.

Cudjo Caverns is part of an extensive cave network that also includes Cumberland Gap Saltpeter Cave and Cliff Cave. Therefore, any management action in Cudjo Caverns must take into account possible related impacts on these other two caves.

Cudjo Caverns was initially two separate caves – the lower King Solomon's Cave and the upper Soldiers Cave. During the 1930s the original entrance to King Solomon's Cave was sealed and a new entrance was opened. In addition, a short tunnel was blasted out to connect it with Soldiers Cave.

Although Cudjo Caverns has been explored approximately 2 miles, the full extent of the cave is unknown. Some mapping of the cave has been performed (Holsinger 1975); however, a more complete map describing all significant natural and cultural features and tying into proposed management actions is needed.

Currently, a guided tour of Cudjo Caverns begins at its entrance adjacent to US 25E. The tour, which costs \$3.50 per adult and \$1.50 per child aged 6-12 (group rate \$2.50 per adult and \$1.00 per child aged 6-12), lasts about one hour and is approximately 1,200 feet in length. In 1988 an estimated 35,000 people toured the cave. From the entrance the tour follows an asphalt path through several rooms to an overlook of Gap Creek. It is known that the creek flows for at least 1 mile through the cave. From this point the path ascends to a wooden staircase, which in turn leads to a higher, well-decorated level. From this level the blasted tunnel leads into the section that was Soldiers Cave. The most notable features on the tour are here – the Big Room (100 feet long by 50 feet wide by 50 feet high) with a large stalagmite (10 feet in diameter by 45 feet high) known as the Pillar of Hercules. The path then leads to the entrance room of Soldiers Cave (and the exit for the tour). The exit is about 100 feet above the road and 350 feet southeast of the entrance.

Besides the asphalt path and wooden staircase, other man-made features include numerous railings and support posts and an electric lighting system. There is also an abundance of litter along the tour route. In many places cave features, especially stalagmites and stalactites, have been damaged or removed. Some have been used in construction of the railings. Graffiti is prevalent on some features. Most of the features are covered with algae, a result of the artificial lighting that has been illuminated almost continuously. Many features are also covered with a black substance, the cause of which is unknown. The cave is inhabited by rodents, insects, and bats, but not by any threatened or endangered species.

VISITOR USE

EXISTING PATTERNS AND PROFILES

Cumberland Gap National Historical Park is an "itinerary park," as opposed to a "destination park," plus a local use park. Nearly three-fourths of all park visitors are on their way to or from some other destination. An additional one-fourth of park visitors are local residents who use the park primarily for day-use recreation, such as walking, hiking, jogging, picnicking, winter sledding, and bird-watching. The remaining visitors, estimated at less than 1 percent, are destination visitors, staying in either the Wilderness Road Campground or backcountry campsites while they experience the park in depth.

Total park visitation during the decade of the 1980s has shown a net increase of over 50 percent (from 487,000 in 1981 to 760,000 in 1988). Visitation peaked at 788,000 in 1986, but has decreased slightly in the past two years. The decrease may be due primarily to on-going highway construction.

Visitation in 1988 to the five primary visitor use sites in the Wilderness Road corridor is shown below.

<u>Developed Area</u>	<u>1988 Visitors</u>	<u>Percent of Total 1988 Visitors</u>
Headquarters Visitor Center	102,000	13%
Pinnacle Summit*	119,000	16%
Iron Furnace Area	56,000	7%
Wilderness Road Campground**	8,900	1%
Cudjo Caverns (currently owned and operated by Lincoln Memorial University)	35,000	5%

* The Pinnacle parking area of 80 spaces frequently fills to capacity.

** The Wilderness Road Campground has not been filled to capacity in recent memory.

Total park use has distinct seasonal variations, with heaviest visitation during the summer (40 percent), followed by fall (30 percent), spring (21 percent), and winter (9 percent).

During the summer months, family groups are dominant, for both "through-traffic" and weekend local recreational use.

During the fall, couples – often senior citizens – are predominant, with some continuing weekend recreational use by local family groups.

The spring months bring a mixture of visitors to the park – local residents, school groups, and early vacationing families (many on spring break trips).

The winter brings mostly local visitors.

Two-thirds of all park visitors are adults (including senior citizens, who compose one-sixth of all visitors).

Special populations, including the disabled, the non-English speaking, and minorities, constitute a small fraction of park visitation (1/2 of 1 percent for each of these three groups).

Park visitation is predominantly regional in place of origin. Three-fourths of all park visitors are either local park neighbors (25 percent) or live within a two- to three-hour drive of the park (50 percent).

Approximately 10 percent of all visitors participate in personal services interpretation offered by the park staff.

The above data suggest that park is primarily a day-use area with visits of relatively short duration, even though the opportunity exists for longer overnight stays. Recreation is of a relatively passive nature and is tied closely to automobile accessibility. Although information on repeat visitation is not available, the predominance of regional and local visitors suggests that repeat visits are numerous.

Implications for future visitor use planning and development are that an increased variety of day-use pursuits would be welcomed, especially by return visitors. If accessibility to major visitor attractions, such as the Gap itself, by private automobile is removed, then alternative means of transportation should be made available for those unable to reach the destination on foot. This might be a relatively high percentage of visitors.

ESTIMATED FUTURE VISITATION

Federal Highway Administration officials have projected that traffic through the park on US 25E will increase by 50 to 100 percent after the completion of the US 25E tunnels in the mid-to-late 1990s. Whether or not total park visitation or visitation to primary visitor use sites increases by 50 to 100 percent remains to be seen. Based on 1981 and 1988 figures, total park visitation in 1995 could be approximately 1,033,000 visitors, and in 2010 – 20 years from now – approximately 1,618,000 visitors. This would translate to 134,000 visitors to the Headquarters Visitor Center in 1995 and 210,000 visitors in 2010.

Although visitation over the next 20 years would not likely continue to grow at the same rate it did from 1981 to 1988 – whatever method is used to calculate future visitation – it is clear that the total number of park visitors and the demand for day-use recreation will increase significantly. Furthermore, any increase in opportunity for recreation created by the

National Park Service will tend to further increase visitation. Support facilities for this increase must be provided accordingly.

Critical to this study is the need to estimate the amount of parking necessary for visitor access to proposed day-use areas, including the Gap and the proposed trail network connected thereto and Cudjo Caverns. This is difficult to do since projections cannot be based on extensions of past and existing conditions. However, based on the above data, the expected popularity of day hikes to the Gap, the parking needs at other caves operated by the National Park Service, and the parking needs for the proposed visitor information center at the O'Dell House, it is estimated that a minimum of 200 new parking spaces will be needed when the new US 25E is opened and if all proposed development were to take place.

ALTERNATIVES

INTRODUCTION

The primary issue addressed in this document is the restoration of the Gap and the Wilderness Road. Restoration will begin after the relocated US 25E through the tunnels is opened to traffic, expected to occur in 1995 or soon thereafter. Four alternatives for the restoration are presented in this section. They are considered the determining alternatives, to which alternatives for most of the other issues are related.

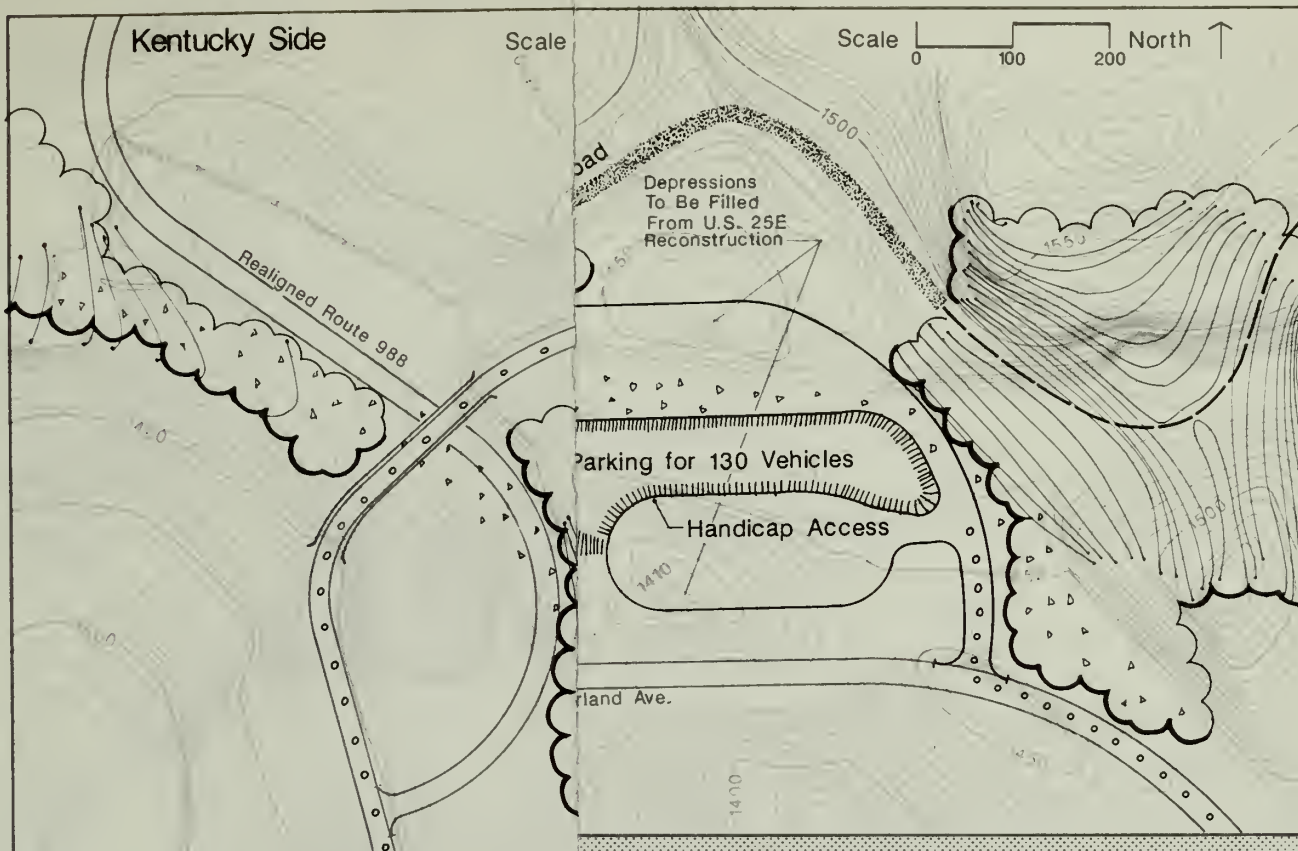
Throughout the following discussion, the term Gap refers to the cleared and heavily impacted saddle area on the Cumberland Mountain ridge through which passes US 25E. Historically, the Wilderness Road was an integral part of the Gap, and could be considered an extension of the Gap, connecting Kentucky on the west to Virginia and Tennessee on the east.

ALTERNATIVE 1: COMPLETE RESTORATION






RESTORATION OF THE GAP AND WILDERNESS ROAD (see Alternative 1 - Proposed Development and Visitor Use Plan)

Under the complete restoration alternative, the Gap and its immediate surroundings (within a radius of approximately 500 feet) would be returned as nearly as possible, by a combination of earth moving (cut and fill) and revegetation, to the appearance and contours that existed in the 1780-1810 time frame. The vertical and horizontal trace of the Wilderness Road (i.e., its original location, both vertically and horizontally) would be restored as nearly as possible to the appearance, width, and profile it had during the same historic period. Orientation/interpretive wayside exhibits would need to clearly differentiate between the surviving segments of the original Wilderness Road and those segments created through these restoration activities. (See Typical Cut and Fill Sections illustration for the Gap and Wilderness Road.) Restoration would extend for 2 miles from the Kentucky side of the Gap to a point near the current intersection of US 25E and US 58 on the Virginia side of the Gap.

The surface of the restored Wilderness Road would be 15 feet wide, and is intended to appear similar to the existing Wilderness Road on the Kentucky side. Relatively short sections on the Kentucky side would require restoration, especially from Indian Rock to the top of the ridge near the Tri-State Peak trailhead. The Virginia side of the Wilderness Road would require the most restoration. The surface must be able to support heavy foot traffic, emergency vehicles, and vehicles for the mobility impaired, yet it must appear like a backwoods, unpaved, and ungraveled country road. A suitable base, such as gravel, covered with a layer of topsoil and planted with native grasses, would be required.

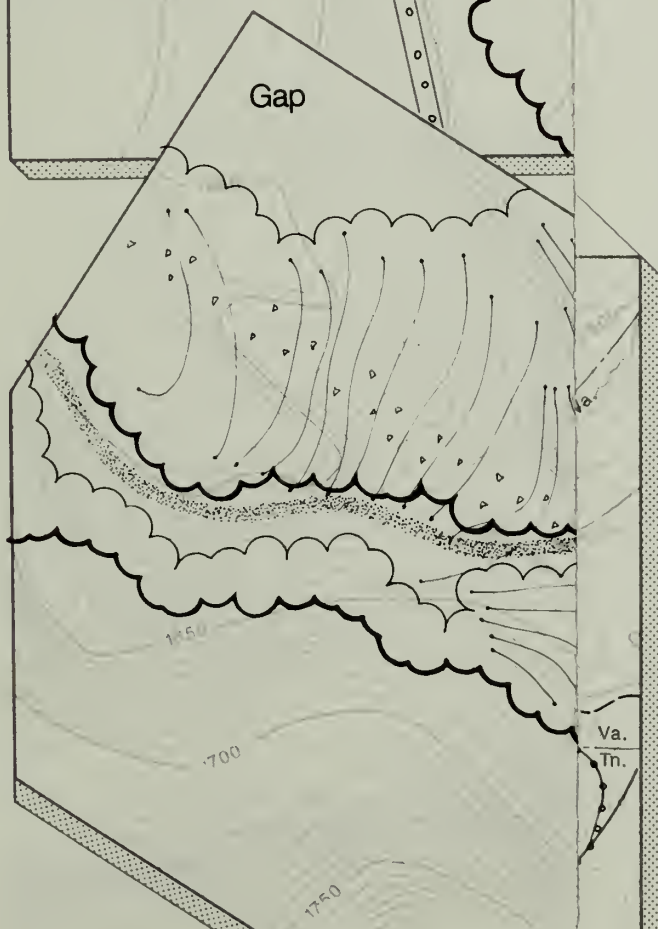


Legend :

- | | | |
|---|---|---------------------------------------|
|  |  | Wilderness Road (1780-1810) |
|  | | Proposed Trails |
|  | | Van Route |
|  | | Obliterate, Recontour, and Revegetate |

Notes :

- Obliterate U.S. 25E, and Object Lesson Road. Restore Landscape to Historic Appearance.



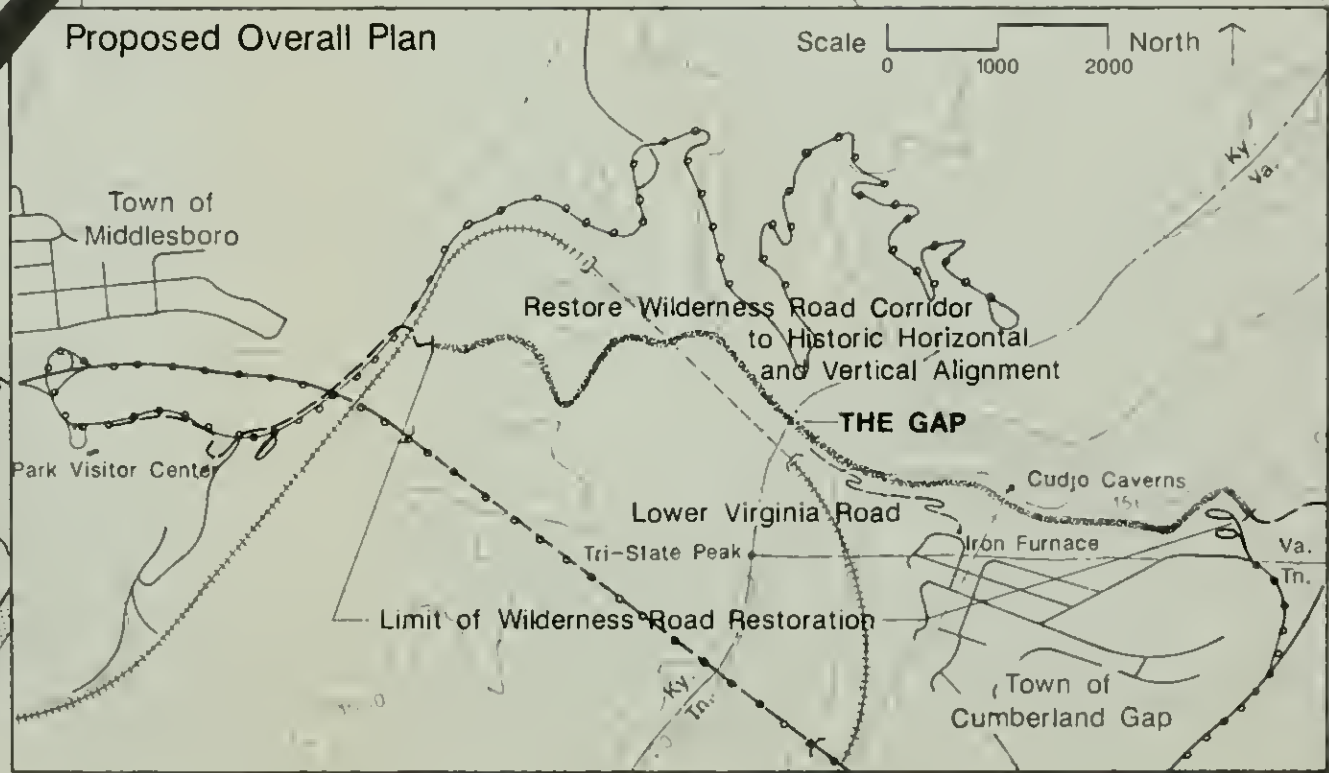
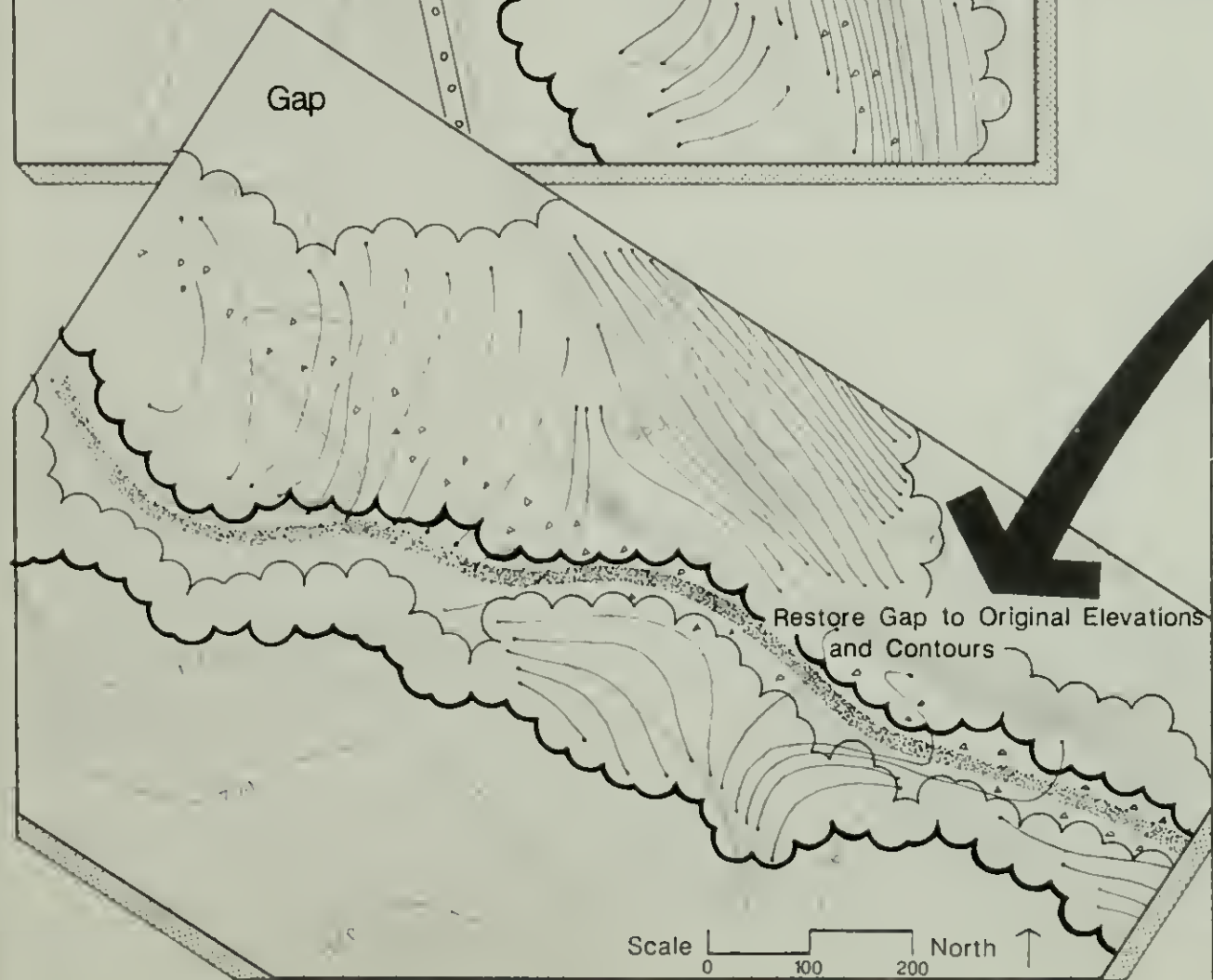
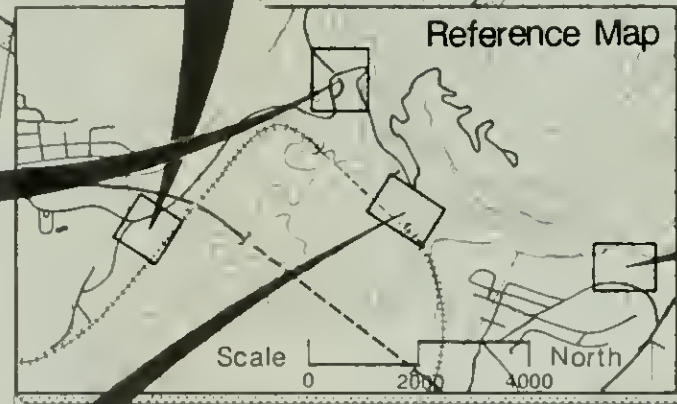
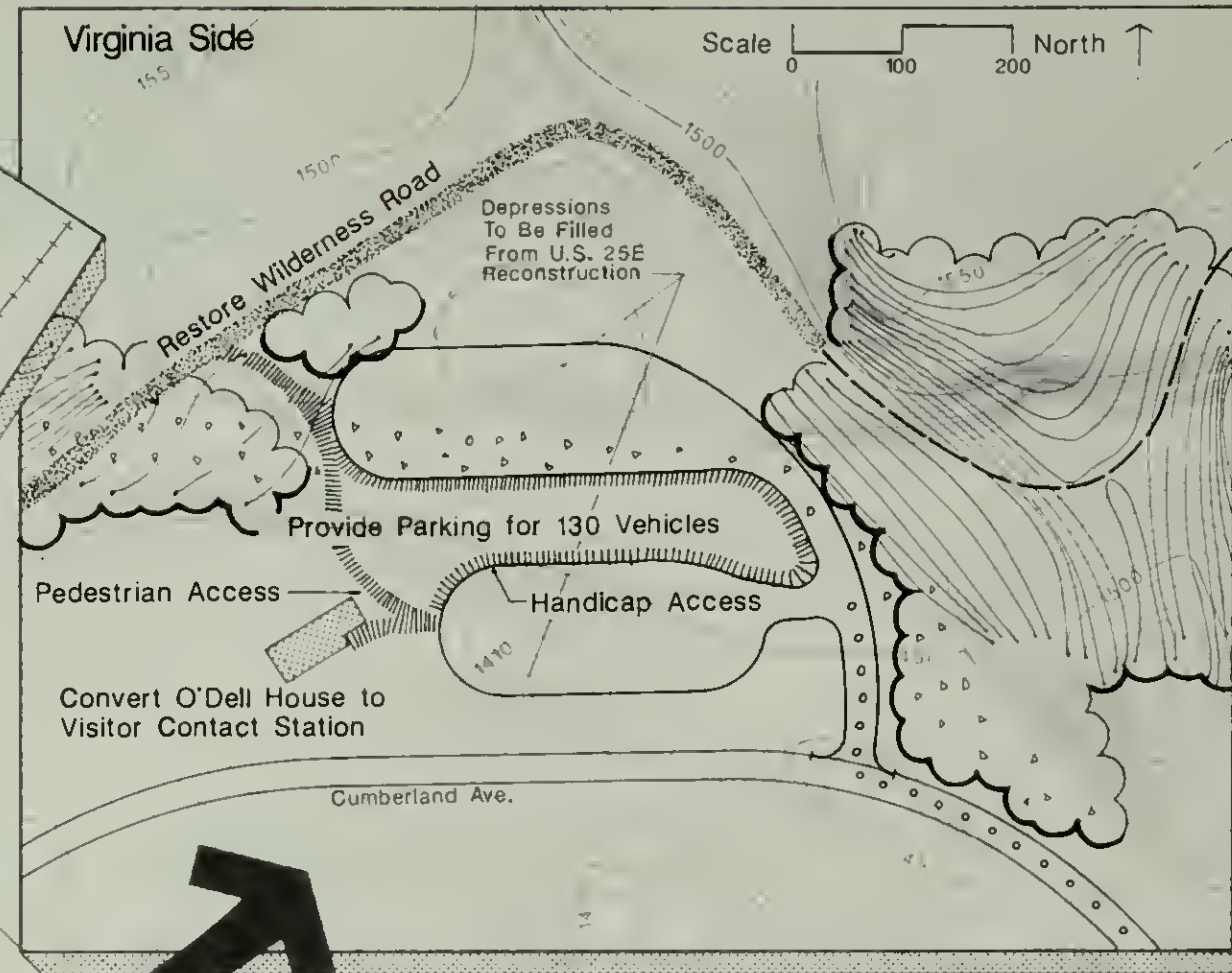
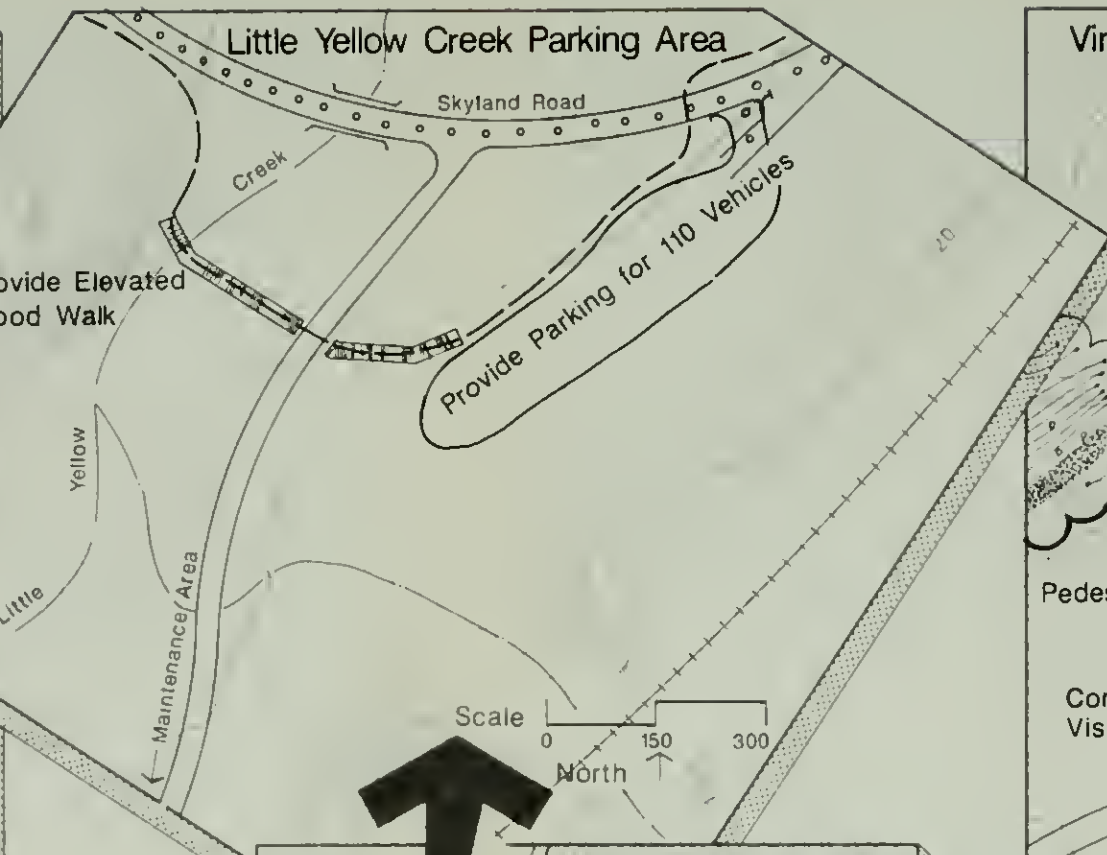
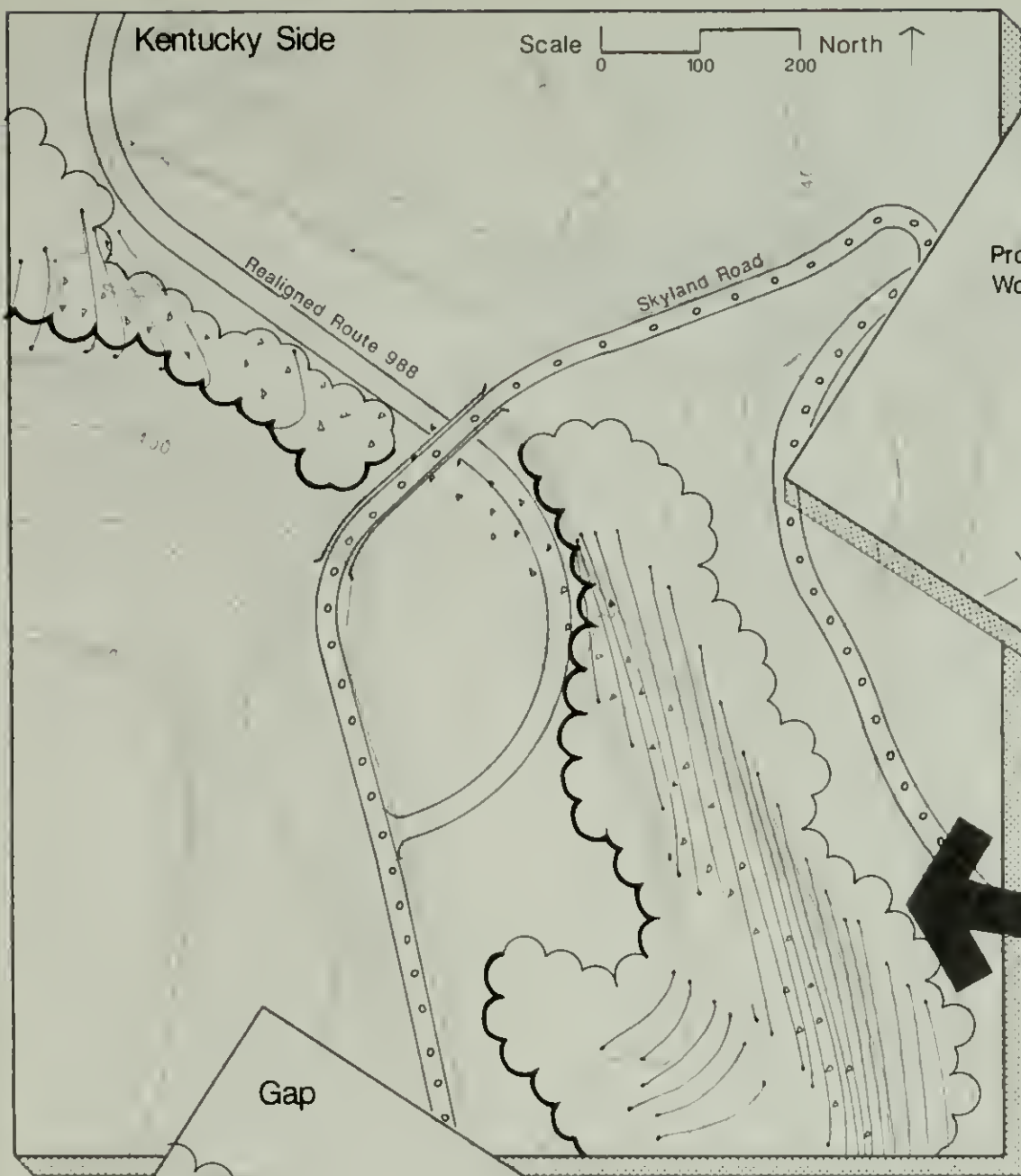
ALTERNATIVE ONE

Proposed Development and Visitor Use Plan

Cumberland Gap National Historical Park

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Legend :

- Wilderness Road (1780-1810)
- Proposed Trails
- Van Route
- Obliterate, Recontour, and Revegetate

Notes :

- Obliterate U.S. 25E, and Object Lesson Road. Restore Landscape to Historic Appearance.

ALTERNATIVE ONE

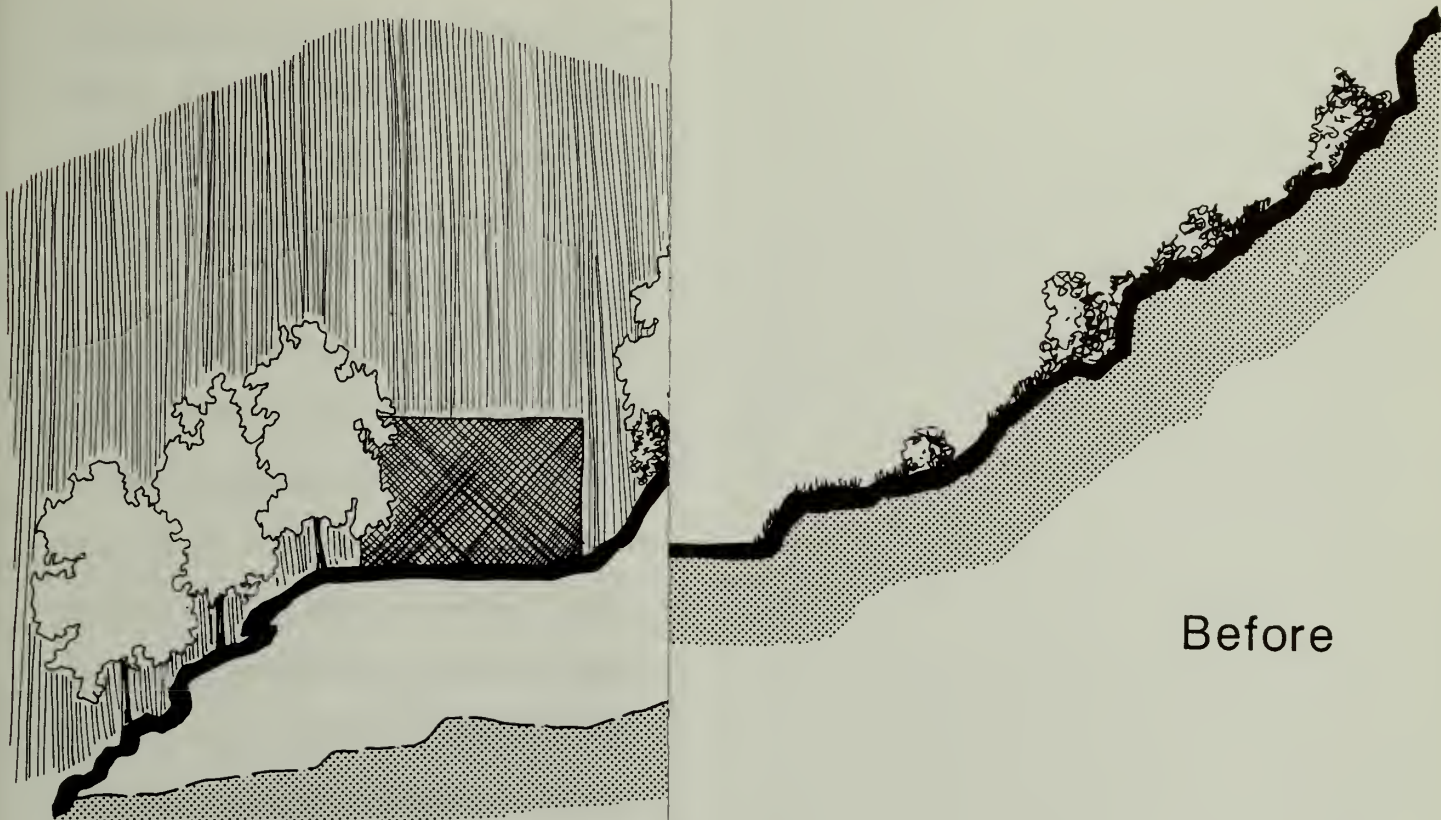
Proposed Development and Visitor Use Plan

Cumberland Gap National Historical Park

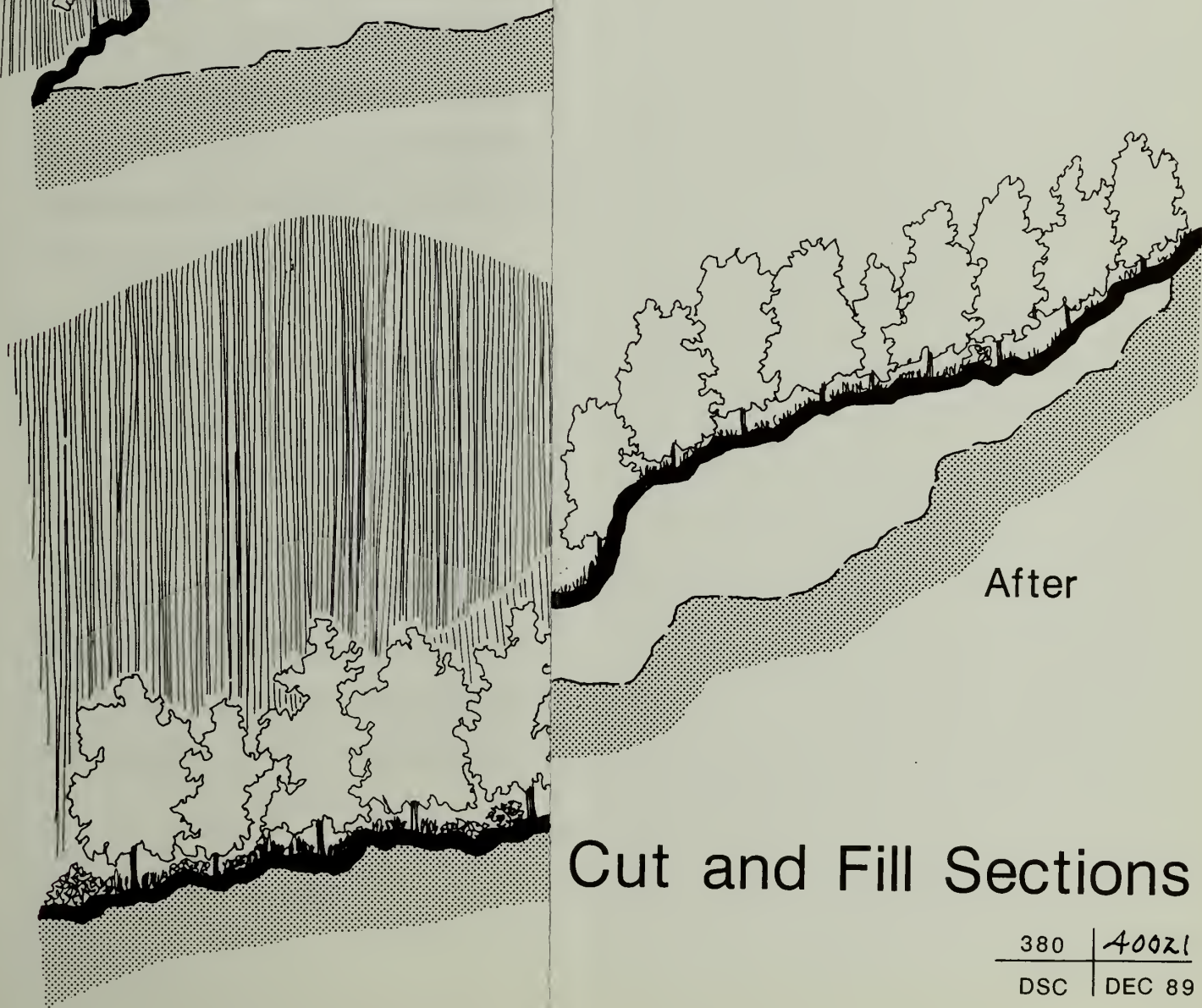
U.S. Department of the Interior / National Park Service

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Section Near Car Gap



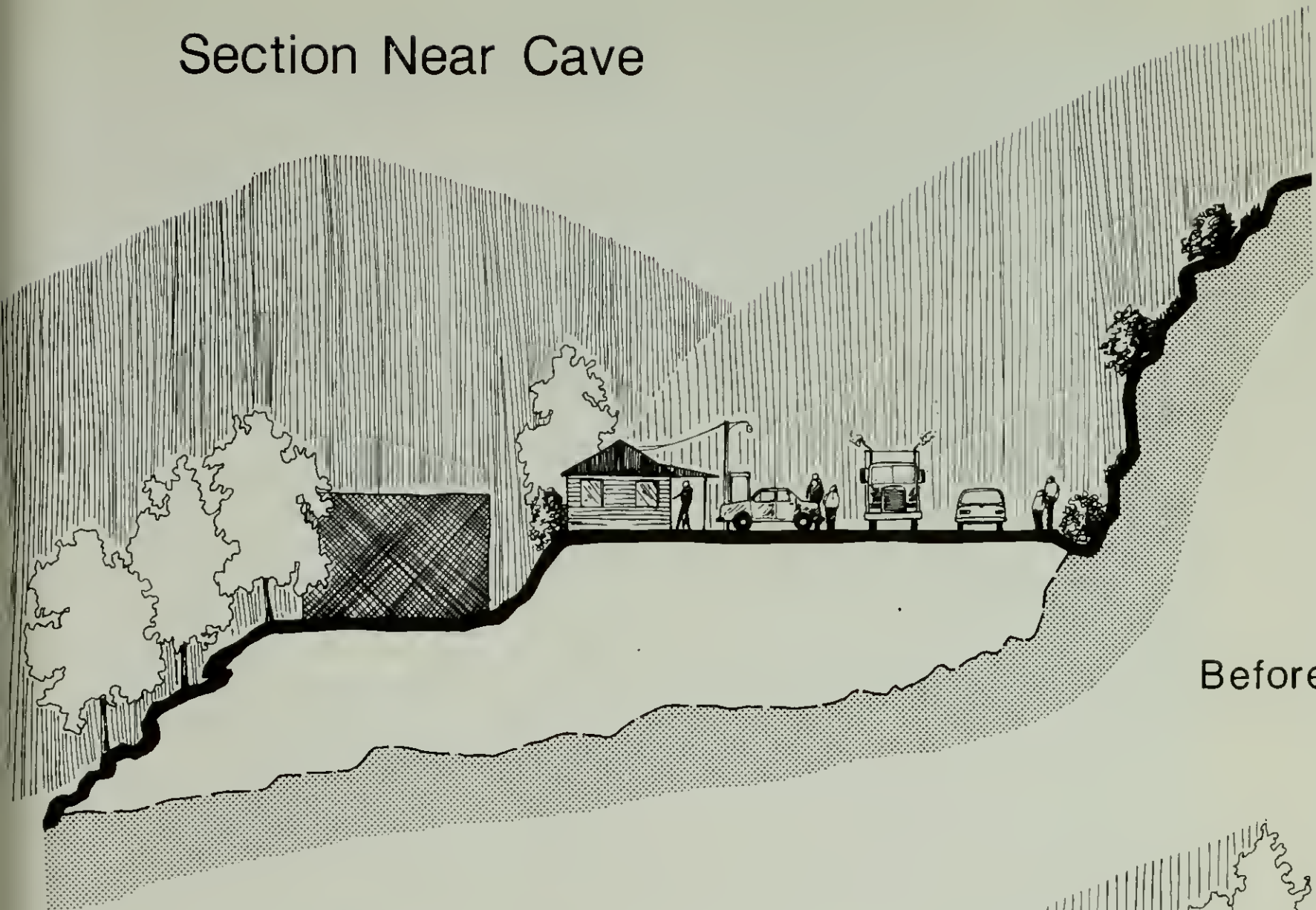
Before



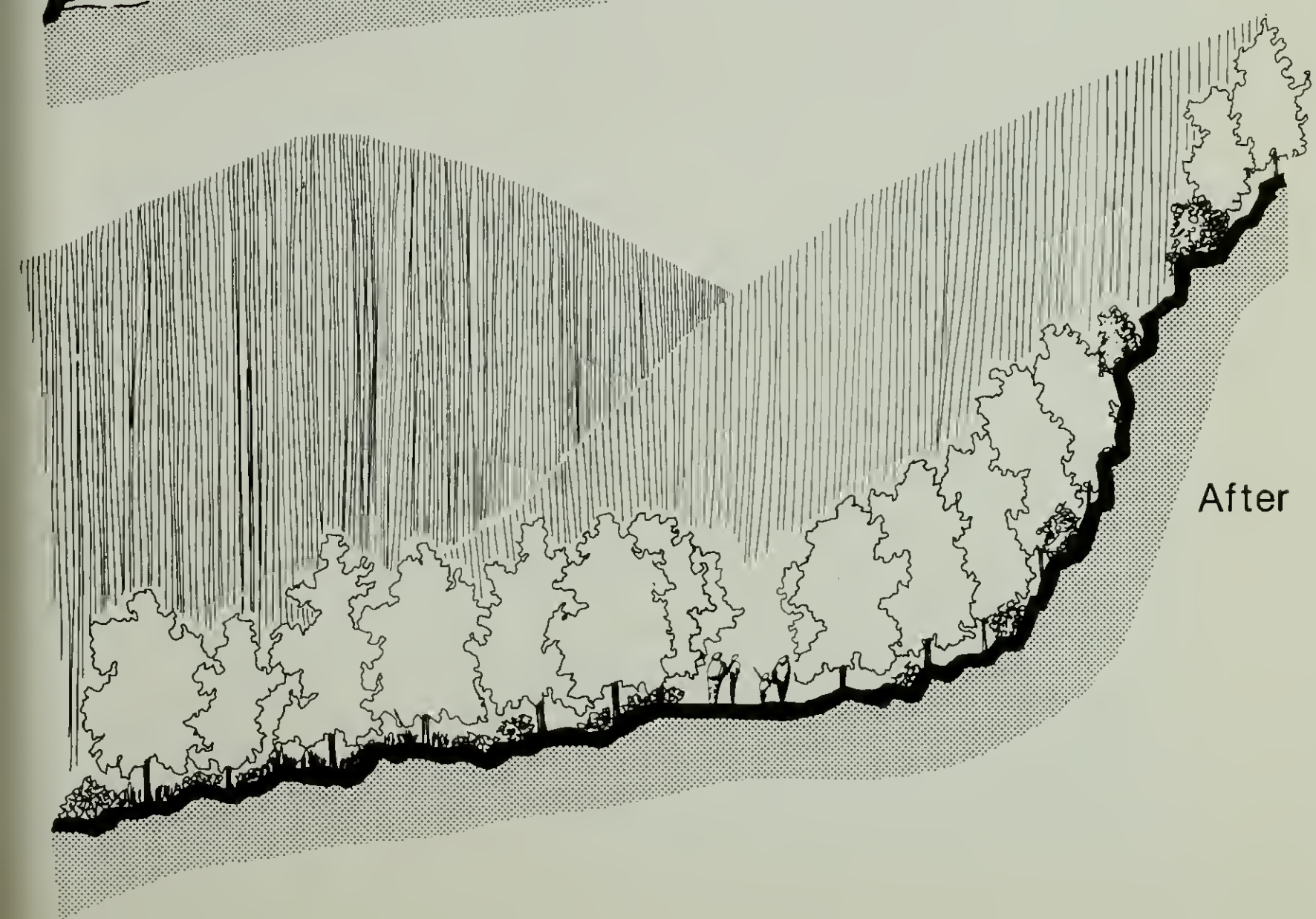
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Cut and Fill Sections

Section Near Cave

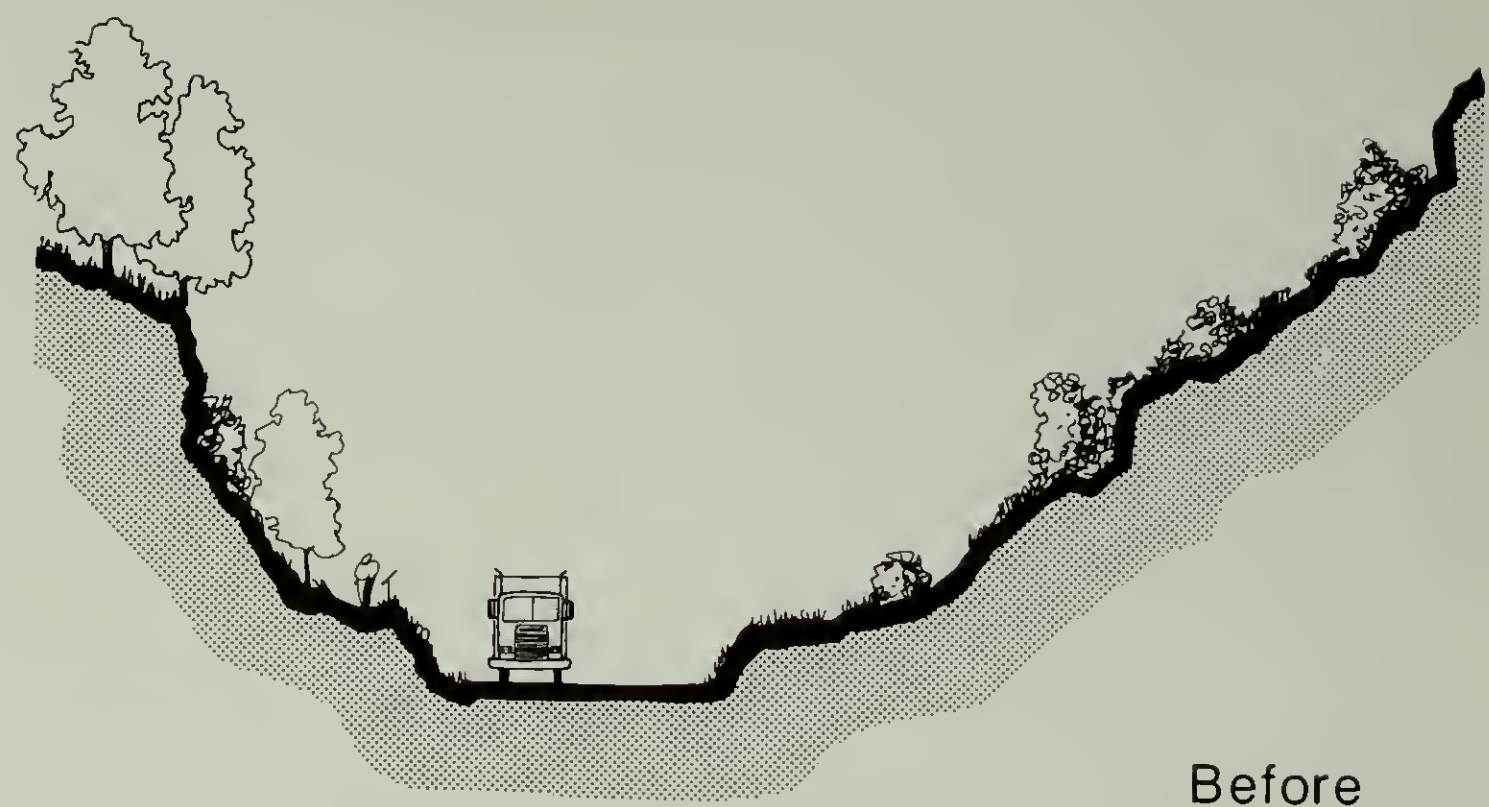


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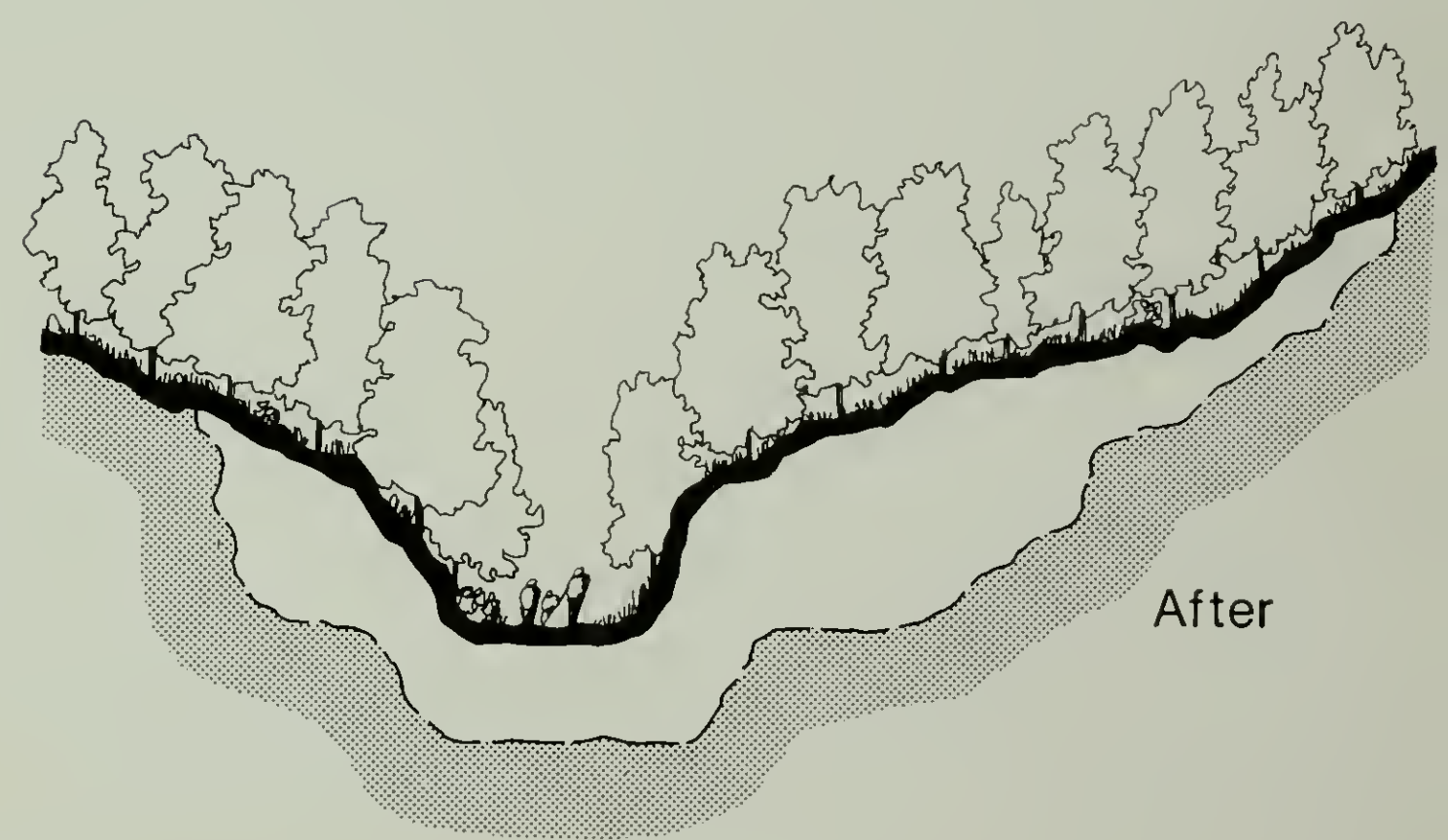


After

Section Near Gap



Before



After

Typical Cut and Fill Sections

Occasional maintenance would be necessary to clear saplings and other vegetative growth. Visitors would be encouraged to walk along the entire 15-foot width to help keep the road clear, rather than confine themselves to a narrow footpath. Essentially, the Wilderness Road would be preserved through visitor use.

US 25E and the Object Lesson Road would be obliterated from a point approximately one-half mile from the Gap on the Kentucky side, near the Skyland Road bridge over US 25E, to the intersection of US 25E and US 58 on the Virginia side of the Gap, for a total distance of 1-1/4 miles. Obliteration would include removal of pavement, guardrails, culverts, road fill, and any other evidence of road construction, and restoration of the landscape to its historic contours and appearance that existed prior to road construction. Disposal sites must be approved by the National Park Service. At the time of restoration the National Park Service would contact area highway departments to determine if the pavement could be used for recycling. Where US 25E and/or the Object Lesson Road coincide with the Wilderness Road, especially on the Virginia side of the Gap, the profile and elevation of the latter would prevail.

On the Kentucky side of the Gap, US 25E and the Object Lesson Road diverge from the Wilderness Road a few hundred yards below the Gap. Following obliteration, the land would be returned to the contours that existed prior to road construction. On the Virginia side of the Gap, US 25E, the Object Lesson Road, and the Wilderness Road coincide for most of the distance in question. Preliminary investigations suggest that the historic surface of the Wilderness Road was approximately 15 feet wide and lays beneath the existing surface of US 25E by as much as 30 feet. The resultant fill over the entire length of the Wilderness Road would be removed and the restored area revegetated.

To more accurately determine the historical appearance of the Gap and the Wilderness Road, two special studies for complete restoration are needed to supplement the existing data base. The first is an archeological study to determine the width and the horizontal and vertical alignment of the historic roadbed of the Wilderness Road. Data would be obtained by collecting cores of earth or by trenching across the width of the present US 25E roadbed in locations from the Gap partially down the Kentucky side and nearly all the way down the Virginia side (key trenching locations include the Gap and in front of the entrance to Cudjo Caverns). This should be accomplished after the road is closed to traffic and the tunnel route is opened.

A second study would guide design of the restoration of the saddle area of the Gap. Over the last 200 years, many changes have occurred there, especially in reducing the grades approaching the summit and widening it to accommodate commercial enterprises, including an earlier entrance to Skyland Road. A multidisciplinary effort is required to guide the design, including expertise in biology, engineering, geology, history, landscape architecture, and computer science. Interaction among representatives of these disciplines would generate the preliminary design for restoring that historic landscape, which is an integral part of the overall restoration of the Wilderness Road corridor in the park.

The breakdown for estimated quantities of cut and fill for alternative 1 is shown in table 1 (also see Alternative 1 – Surface Restoration Plan).



ALTERNATIVE ONE

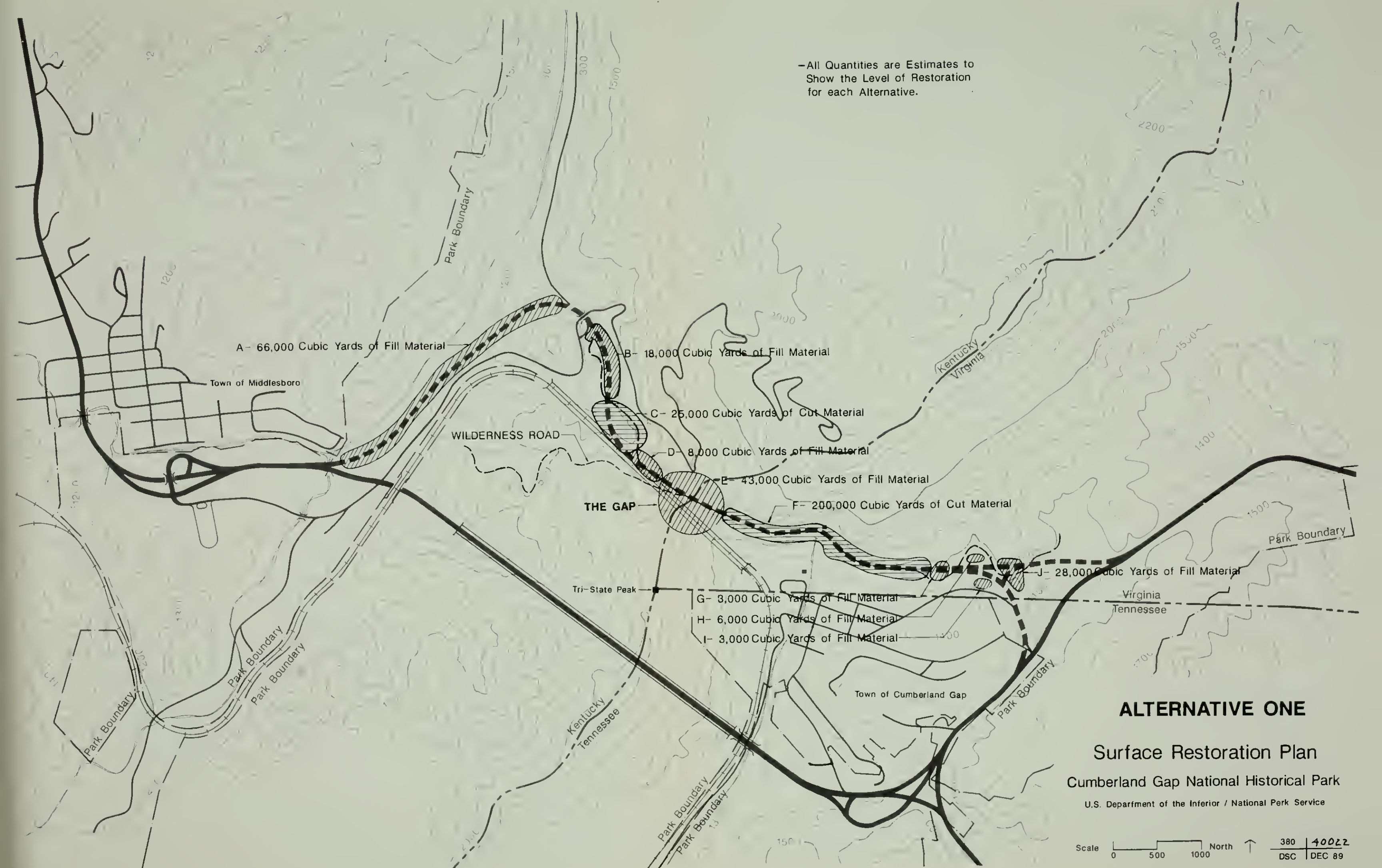
Surface Restoration Plan

Cumberland Gap National Historical Park

U.S. Department of the Interior / National Park Service

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-All Quantities are Estimates to Show the Level of Restoration for each Alternative.



ALTERNATIVE ONE

Surface Restoration Plan
Cumberland Gap National Historical Park
U.S. Department of the Interior / National Park Service

Table 1: Estimated Cut and Fill – Alternative 1

Map Key	Location	Cut (cu.yd.)	Fill (cu.yd.)
A	US 25E, West of Gap		66,000
B	US 25E, West of Gap		18,000
C	US 25E & Object Lesson Road, Remove Culvert	25,000	
D	US 25E, Reclaim Indian Rock West of Gap		8,000
E	Gap		43,000
F	US 25E, East of Gap, Reclaim Wilderness Road	200,000	
G	US 25E, East of Gap		3,000
H	Virginia Side Parking		6,000
I	Virginia Side Parking		3,000
J	Reclaim US 58 Cut		<u>28,000</u>
		<u>225,000</u>	175,000

Net cut and fill for alternative 1 – 50,000 cubic yards of cut

REVEGETATION

The goal of revegetation for alternative 1 is to have the restored Gap and Wilderness Road visually fit into the surrounding landscape, while being as representative as possible of the historical appearance ca. 1780-1810. For alternatives 1 and 2, revegetation would consist of species of grasses, shrubs, and trees that match in composition the surrounding vegetation that is expected to exist 20 years after planting, i.e., the year 2015. Although the revegetated species would probably vary somewhat from the historic species, the overall scene and experience of traveling along a backwoods road cut through the forest would be similar to that of the 1780-1810 time frame.

Revegetation of the project area would make use of the Plant Materials Program administered by the National Park Service. This program formalized in early 1989 what has been for years an informal working arrangement with the Soil Conservation Service. The

purpose of the program is to aid parks in developing revegetation materials to produce specified floristic and historic landscapes. It employs the Plant Materials Program in the Soil Conservation Service to develop seed and transplants of grasses, shrubs and forbs, and tree stock from U.S. Forest Service Forest Experiment Stations for use in park revegetation projects.

Participation in the program is initiated by a request from the park superintendent through the regional director, to the technical advisor, NPS Plant Materials Program, located at the Denver Service Center. The technical advisor, working with a representative of the Soil Conservation Service, prepares a comprehensive revegetation plan that

- establishes action objectives for the revegetation effort (including a schedule)
- identifies the most appropriate species to use to achieve the stated goal, based on existing and historic vegetation (see "Description of the Environment" section and Hinkle 1975)
- locates sites to collect seed/plant material
- specifies how, when, and where seed/plant material will be collected
- specifies propagation techniques (including sites and responsible parties)
- defines site preparation requirements (e.g., type and quantities of soils)
- provides specifications for the planting and maintenance of the plant materials (including locations, densities, and tactics for minimizing exotic species and erosion)

Additionally, and perhaps more significantly, the technical advisor would supervise the implementation of the plan. This includes the collection and propagation of plant material and the delivery of the plant materials to the site by the scheduled deadline.

Planting would begin at the time US 25E is scarified and/or obliterated, expected to occur in 1995, or shortly thereafter. Revegetation should be within 1 foot of the 15-foot-wide Wilderness Road. Plant material should be local stock of native species to try to eradicate or at least prevent the spread of exotic species such as Japanese kudzu.

Recommendations for appropriate species to use deal primarily with canopy species (trees) because they have the most significance in terms of visual impact. However, native understory species, such as sassafras, holly, mountain laurel, rhododendron, blackberry, and dogwood, as well as native grasses would also play a vital role in providing ground cover during the initial revegetation. Recommended species are those listed in the discussion on vegetation in the "Description of the Environment" section.

Under alternative 1 the historic Object Lesson Road on the Kentucky side would be obliterated. Further revegetation with species of sycamore, yellow poplar, red oak, and white oak would be needed. If the road was not used in any alternative, or if further obliteration was not carried out, no revegetation would be necessary.

For the revegetation plan to be successful, up to 6 inches of topsoil would be required over a prepared growth medium of well-sorted material. The purpose of the growth medium would be to create a zone for the root systems to establish themselves. Excavated material from construction of the new US 25E, interchange, and tunnels should provide all the necessary fill requirements for the restoration alternatives, and would be suitable for use as the growth medium, on which the 6 inches of topsoil could be directly placed.

Net costs associated with revegetation under alternative 1 are shown below. Gross costs are shown in the cost "Summary of Alternatives and Estimated Costs" section.

Topsoil (6 inches deep, 14,000 cubic yards)	\$168,000
Revegetation plan and production of plant materials (seeds, shrubs, and tree stock)	50,000
Planting and application of seed	<u>24,000</u>
Total	\$242,000

MANAGEMENT OF CUDJO CAVERNS

A number of actions would be taken at Cudjo Caverns regardless of which alternative was chosen, including alternative 4, the no restoration alternative. The National Park Service would acquire all interests in the cave from Lincoln Memorial University (LMU), except for the water rights to Gap Creek, and would manage all future activities in the cave. Water rights to Gap Creek would remain with LMU. The water pipes emanating from the cave and culvert would be buried or covered so as not to be visible. The Park Service would remove trash, graffiti, organic building material, and the asphalt on the footpath. There is currently a black substance on cave features. It would be determined if it is occurring naturally, and if not, it would be removed to the greatest extent feasible. Algae, which has grown as a result of the artificial lighting, would also be removed. In keeping with historical use of the cave, no lighting would be provided, except the minimum necessary for emergencies and official use. A baseline inventory would be conducted to collect information on items such as air flow, geology, radon, the recharge area of the aquifer associated with the cave, and biological and cultural features that might be present, including information on the endangered Indiana bat. A complete map of the cave would be produced. Security gates would be provided at all cave entrances and exits. Cave gates should allow for free airflow

and movement of troglodytes (animal life forms that inhabit caves), but should prevent entrance by unauthorized persons.

Regardless of which alternative was chosen, a cave management plan would be prepared to provide more specific guidelines for managing the resources and visitor use of the cave. The plan would be dependent on which alternative for visitor use was selected, and it would provide management with as much flexibility as possible in managing the cave. The plan would address all issues identified in this section and include a statement of problems and proposed actions to solve those problems. A complete map of the cave would also be included.

For alternatives 1 and 2, Cudjo Caverns would remain open for public use. Existing footpaths and handrails would be improved for greater safety. Natural features that have been damaged by man's activity in the cave would be restored as much as is reasonable. Although the primary visitor experience would be recreational, visitor use for other purposes, such as gathering scientific data, would also be allowed but regulated.

Personal services, such as guided tours, would be provided, and user fees would be charged. NPS management would determine which method to use for guided tours after a visitor use alternative was selected, and might relate to negotiations between the National Park Service and LMU. Options to be considered include a historic lease, a concessions operation, a cooperative venture, or use of NPS employees.

Tour guides would discuss the interpretive theme concerning the historical relation of the cave to the Wilderness Road, including its discovery and the impact that its presence and the water flowing from it might have had on travelers. A carry-along audio device would be available to visitors for a slight fee. The wayside exhibit at the parking area below the cave

would describe the cave and its discovery by Dr. Walker. For those visitors who do not tour the cave, a programmatic audiovisual presentation would be presented in the O'Dell House. For alternative 1, it is anticipated that handicap accessibility would not be provided due to expected extraordinary construction that would be required. For alternative 2, handicap accessibility would be provided for a reasonable distance into the cave. Attempting to provide handicap accessibility throughout the cave would alter the natural fabric of the cave and/or require man-made structures to an unacceptable extent. (See "Interpretive Prospectus" section for additional information regarding interpretation of the cave.)

Caving unaccompanied by guides would be considered on a case-by-case basis. Those conditions under which it would be permitted would be specified in the cave management plan.

Specific to alternative 1, only that part of Cudjo Caverns that was used in the 1780-1810 time frame would be open to the public. Access to and from the cave would be via the historic access at that time, if it could be determined with a high degree of certainty by means such as with the aid of an archeological study (previously discussed in this section), and a speleological investigation. If the historic access cannot be determined, the King Solomon's Cave entrance would be used for both the entrance and the exit.

VISITOR PARKING AND ACCESS TO THE GAP AND CUDJO CAVERNS

Public access to the Gap and Cudjo Caverns would be primarily via the restored Wilderness Road on both the Virginia and Kentucky sides of the Gap (see Alternative 1 - Proposed Development and Visitor Use Plan). In addition, visitors could reach the Gap via the trace of the Lower Virginia Road leading up from the Iron Furnace in the town of Cumberland

Gap. Access would be primarily by foot. However, a conveyance would be available on the Virginia side of the Gap for use by the mobility impaired.

Public parking for access to the Gap would be provided on the Virginia side near the existing intersection of US 58 and US 25E. The conveyance for the mobility impaired would be staged here. Approximately 130 spaces would be provided in two adjacent parking areas for visitors to the Gap and Cudjo Caverns and to the proposed visitor contact station at the O'Dell House (described in the "Interpretive Prospectus" section of this document). Approximately 25 spaces would be double pull-through spaces for trailered and oversized vehicles and buses. This parking area would be in view from the Pinnacle Overlook, as is the existing intersection of US 58 and US 25E, which will be obliterated. Therefore, to soften the visual intrusion, traffic islands with large canopy trees should be incorporated into the design.

Upon leaving the parking area en route to the Gap, the visitor would walk along a trail similar to the backwoods country Wilderness Road that existed at the time the pioneers crossed the Gap by walking through the woods. The experience would be more of a wilderness feeling as one approaches the Gap, and especially if one were to continue down the Wilderness Road on the Kentucky side.

Public parking on the west side of the Gap would be provided just off Skyland Road at the existing staging area for the tunnel construction, a site known locally as the Schneider Packing Plant (Little Yellow Creek parking area). Ample space is available for 110 vehicles.

From this parking area, hikers to the Gap and beyond would follow the existing trail paralleling the Skyland Road, to a point approximately 1,500 feet from the parking area. They would then cross the Skyland Road and railroad tracks to join the Wilderness Road

leading to the Gap. Appropriate signing, crosswalk painting on Skyland Road, and an at-grade pedestrian crossing at the railroad tracks would be provided for safety.

Two other trails besides the Wilderness Road and the Lower Virginia Road would also lead to the Gap, regardless of which alternative was chosen: (1) the trail from Tri-State Peak, which in turn connects to the Cumberland Trail; and (2) the Harlan Road, which connects to Skyland Road leading to the Pinnacle.

Many visitors would probably want to hike in one direction from one point to another, without having to retrace their steps to return to their cars. A scheduled passenger van would allow this to occur. The van would operate among the following pick-up and drop-off points: the Headquarters Visitor Center, the Pinnacle, parking at the former Schneider Packing Plant site on the Kentucky side of the Gap, and the proposed parking area near the O'Dell House on the Virginia side of the Gap. This service would be appropriate for a concession operation. Therefore, a study would be performed to determine the feasibility of such a concession operation.

One round-trip trail to the Gap that does not require a visitor to retrace steps might prove to be very popular. Originating at the proposed East Approach visitor information center (described in the "Interpretive Prospectus" section) near the parking area on the Virginia side of the Gap, the visitor would climb to Cudjo Caverns and the Gap via the Wilderness Road, descend into the town of Cumberland Gap via an existing trail along the trace of the Lower Virginia Road, visit the Iron Furnace site, walk leisurely through town, and return to the parking area via Colwyn Street and Cumberland Drive. For this to occur, the trail segment from the Iron Furnace to the parking area would need to be designated, and some trail or sidewalk construction would be required.

ALTERNATIVE 2: PARTIAL RESTORATION (PREFERRED ALTERNATIVE)

RESTORATION OF THE GAP AND WILDERNESS ROAD (see Alternative 2 – Proposed Development and Visitor Use Plan)

Under the partial restoration alternative, the Gap and its surroundings would be restored to its relative appearance during the 1780-1810 time frame as described in alternative 1. The same study described in alternative 1 would be needed to determine the Gap's historical appearance. On the Kentucky side of the Gap, the Wilderness Road would be restored as in alternative 1; however, on the Virginia side, only the horizontal trace of the Wilderness Road would be restored to the 1780-1810 time frame. No attempt would be made to restore the vertical trace. The surface would be treated as in alternative 1.

On the Kentucky side of the Gap, the Object Lesson Road would be partially restored to the era in which it was constructed, ca. 1908. However, the Object Lesson Road would not have a macadamized surface as it did in 1908. The extent of restoration would be from a point near the bridge where the Skyland Road crosses US 25E to its intersection with the Wilderness Road just below the Gap. Restoration would consist of clearing a path 15 feet wide, using the existing surface and ensuring that it would drain properly, and allowing the existing vegetation along the side of the road to mature naturally. The road would then be maintained for visitor use. US 25E would be obliterated. Thus, two traces would be restored on the Kentucky side of the Gap – the Wilderness Road and the Object Lesson Road – thereby representing two different historic periods. Interpretive signs would clearly differentiate between the two roads and periods for the visitor. In addition, as in alternative 1, interpretive signs would differentiate between the surviving original sections of the Wilderness Road and the restored sections of the road. Restoration and visitor use of the

Object Lesson Road relates to previously stated management objectives 4, 5, and 6 (see "Visitor Experience, Interpretive Themes, and Management Objectives" section).

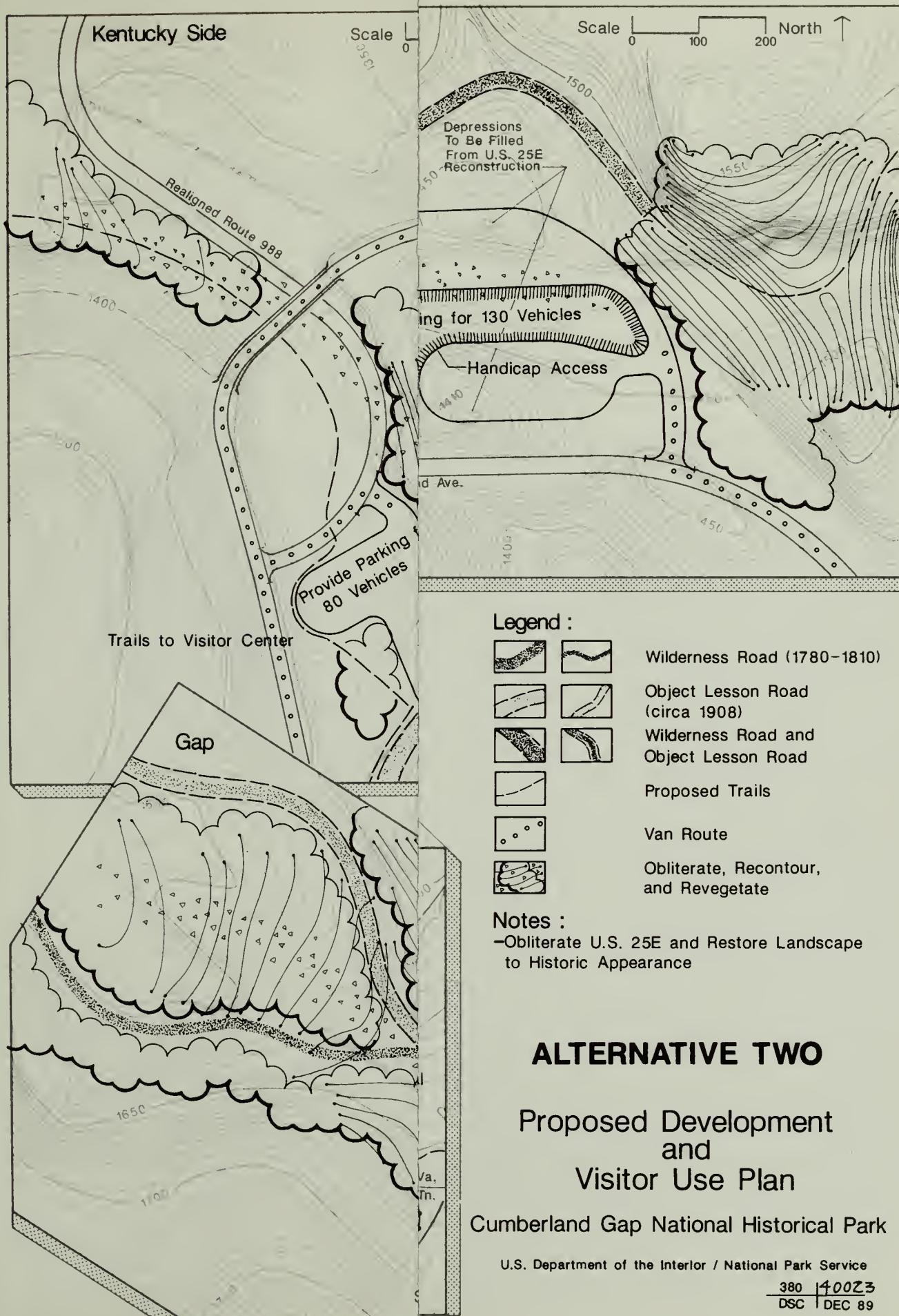
On the Virginia side of the Gap, the surface of US 25E would be altered by removing the asphalt, guardrails, and any other man-made sign of modern road construction, in preparation for restoration of the 15-foot-wide horizontal trace of the Wilderness Road. Where the horizontal trace of US 25E is different from that of the Wilderness Road, US 25E would be obliterated where environmentally safe to do so and the land returned to its original contours with cut or fill and revegetated. Thus, on the Virginia side the trace of only the Wilderness Road would be restored, representing but one historic period.

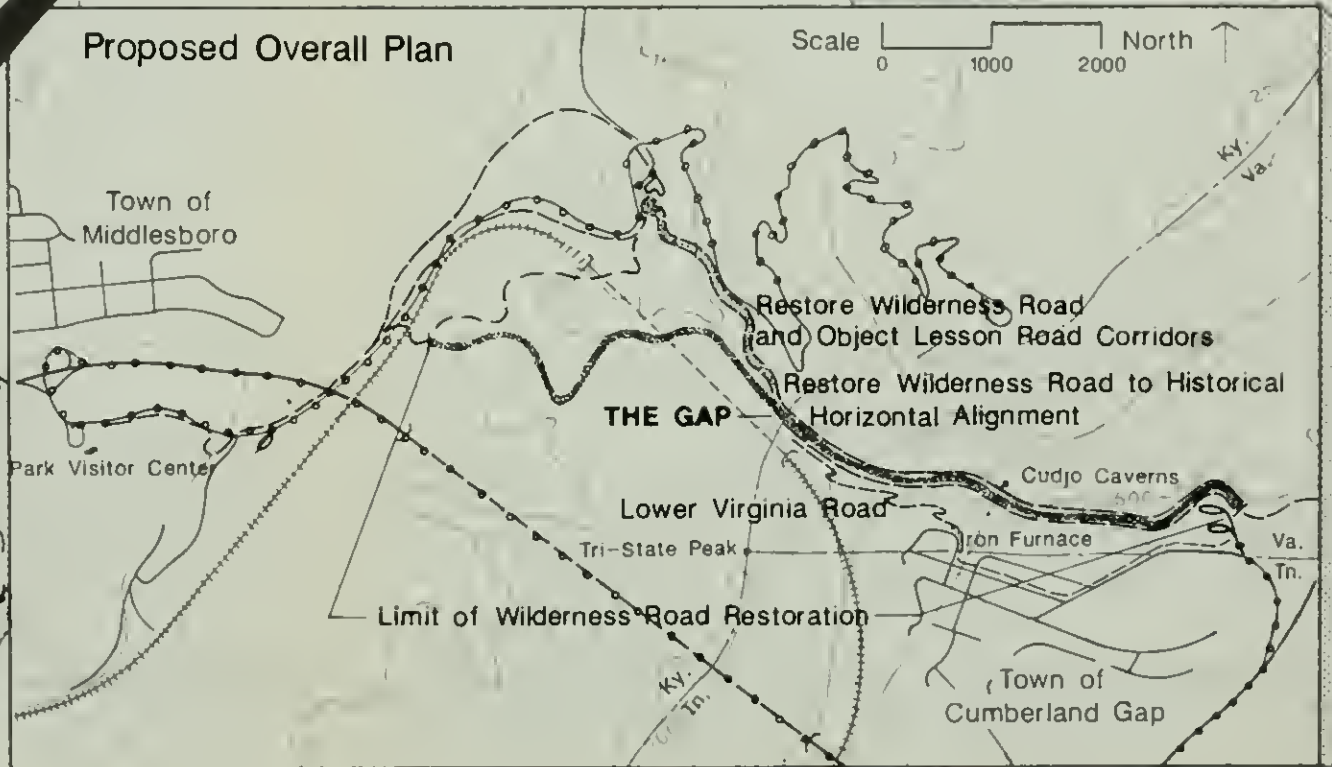
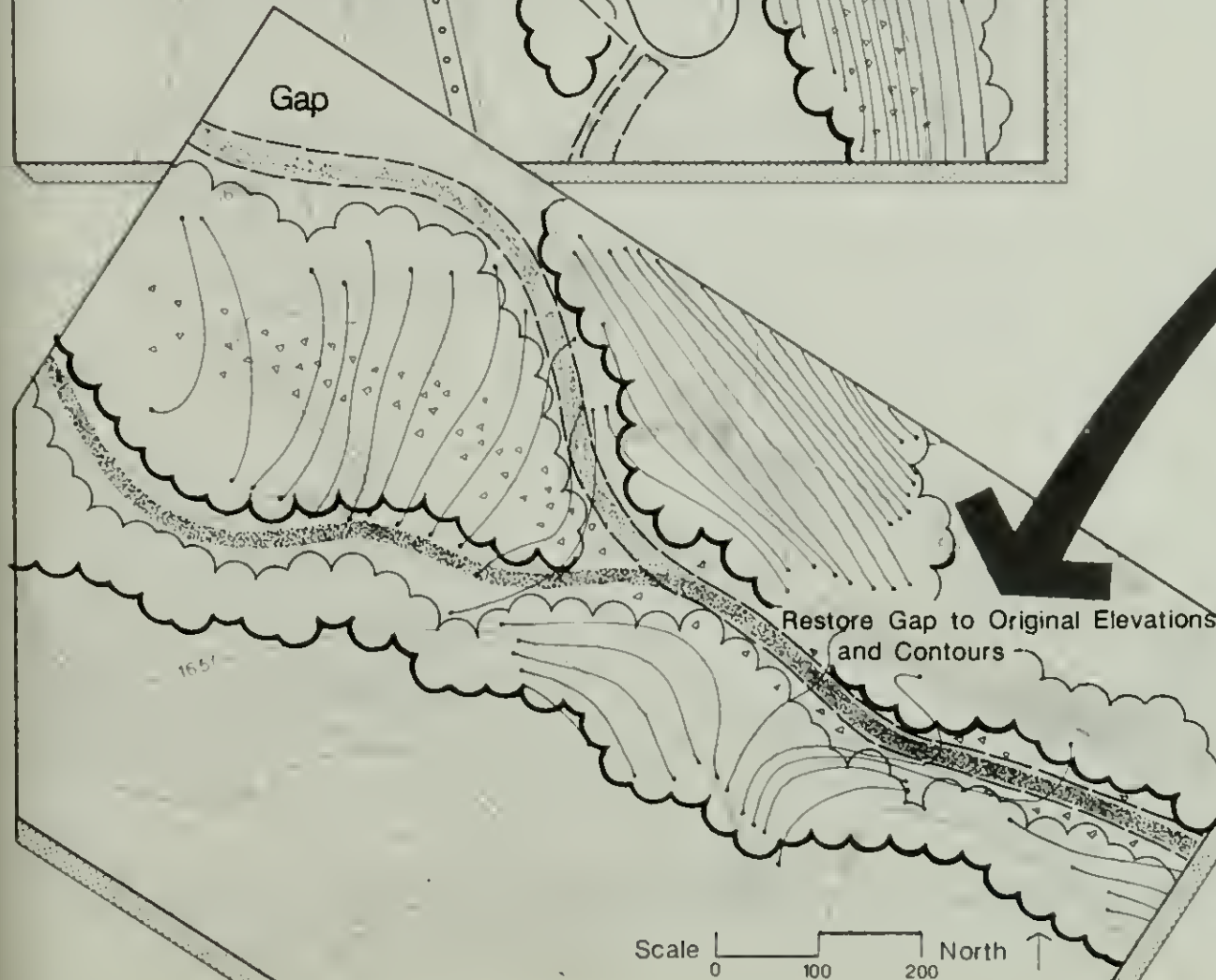
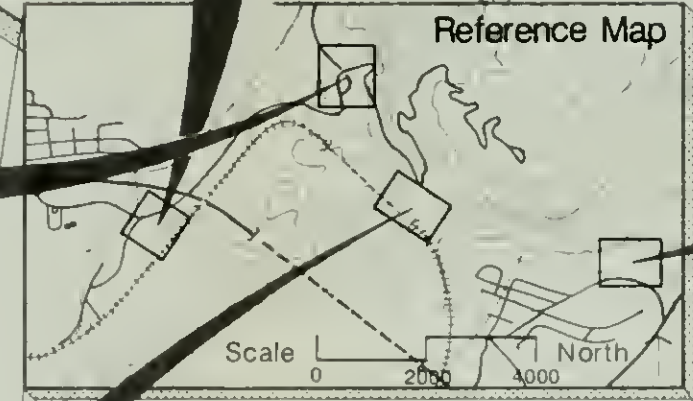
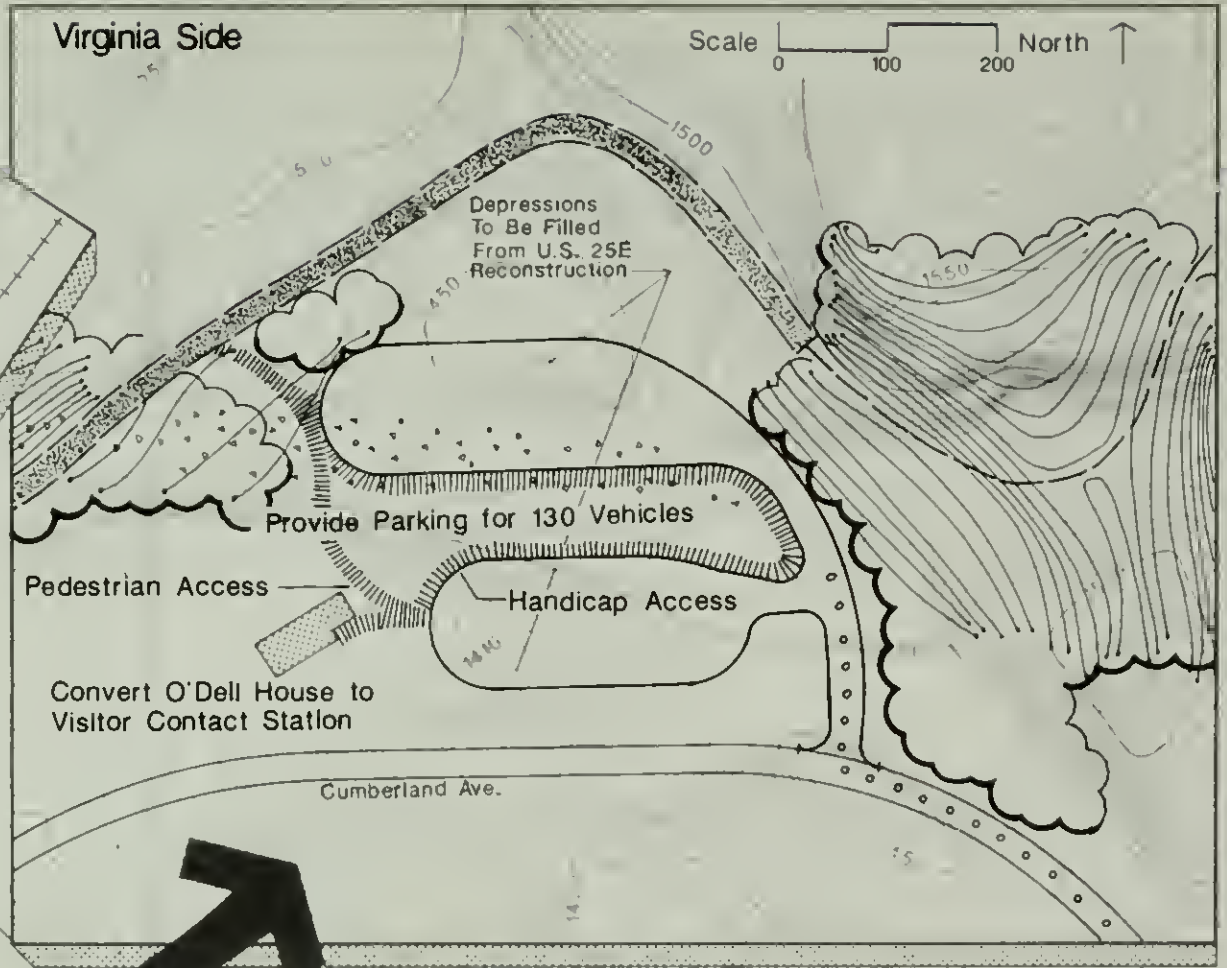
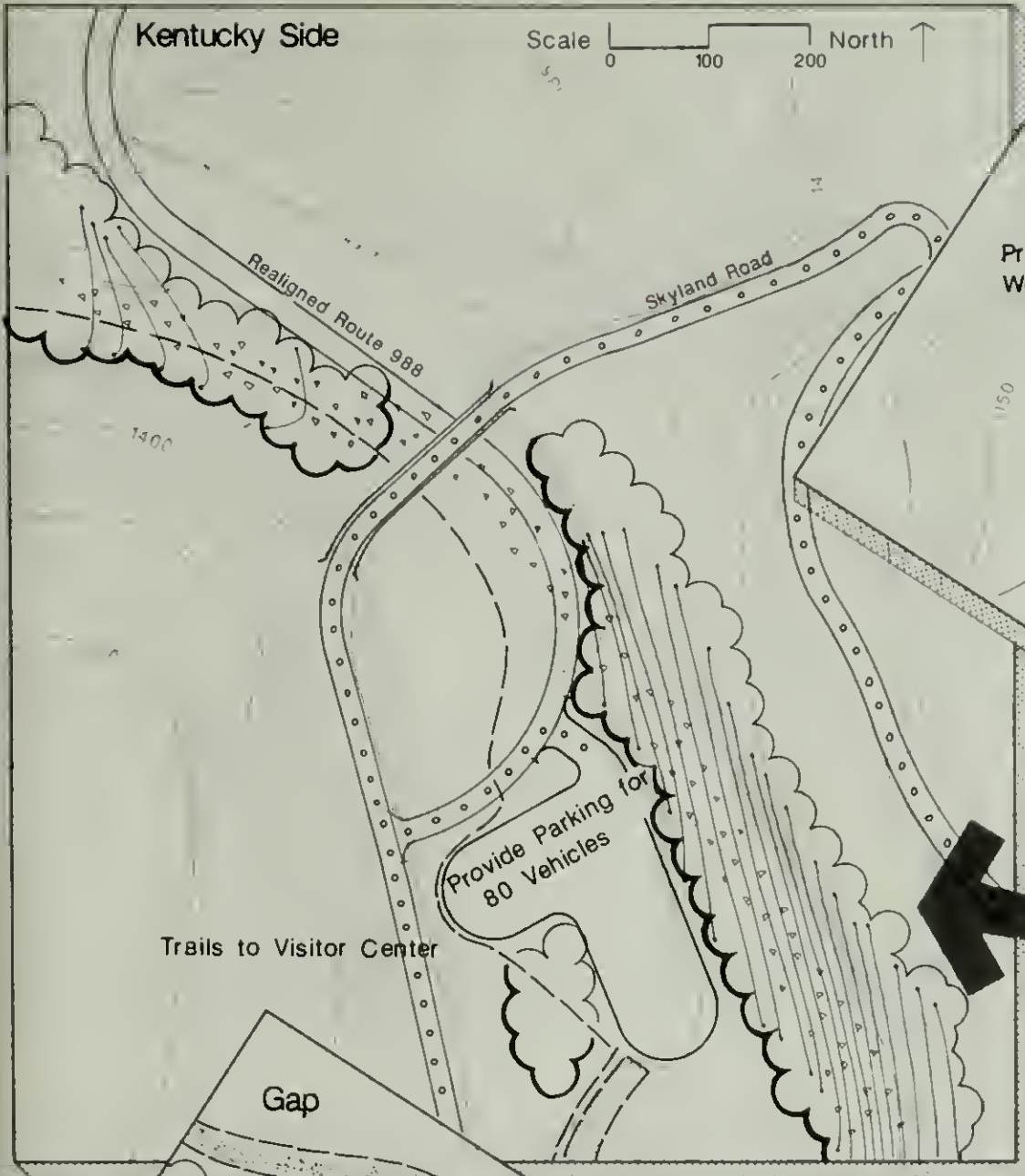
The breakdown for estimated quantities of cut and fill for alternative 2 is shown in table 2 (also see Alternative 2 – Surface Restoration Plan).

Table 2: Estimated Cut and Fill – Alternative 2

Map Key	Location	Cut (cu.yd.)	Fill (cu.yd.)
A	US 25E, West of Gap		66,000
B	US 25E, West of Gap		18,000
C	US 25E, Remove Culvert	20,000	
D	US 25E, Reclaim Indian Rock, West of Gap		8,000
E	Gap		43,000
F	US 25E, East of Gap		15,000
G	US 25E, East of Gap		3,000
H	Virginia Side Parking		6,000
I	Virginia Side Parking		3,000
J	Reclaim US 58 Cut		<u>28,000</u>
		<u>20,000</u>	190,000

Net cut and fill for alternative 2 – 170,000 cubic yards of fill





- Legend :**
- Wilderness Road (1780-1810)
 - Object Lesson Road (circa 1908)
 - Wilderness Road and Object Lesson Road
 - Proposed Trails
 - Van Route
 - Obliterate, Recontour, and Revegetate

Notes :

- Obliterate U.S. 25E and Restore Landscape to Historic Appearance

ALTERNATIVE TWO

Proposed Development and Visitor Use Plan

Cumberland Gap National Historical Park

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ALTERNATIVE TWO

Surface Restoration Plan

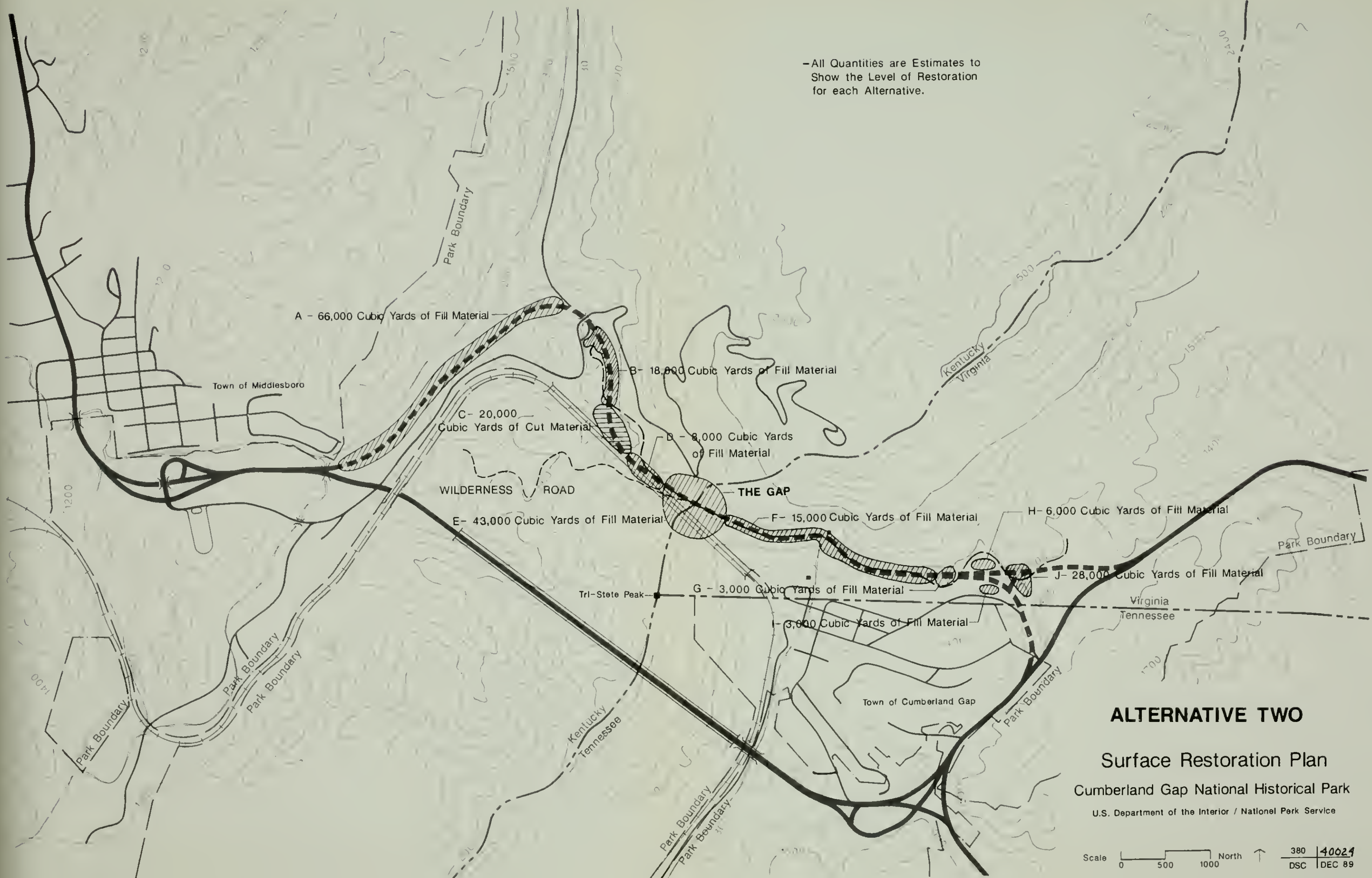
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Scale 0 500 1000 North ↑

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-All Quantities are Estimates to Show the Level of Restoration for each Alternative.



ALTERNATIVE TWO

Surface Restoration Plan

Cumberland Gap National Historical Park

U.S. Department of the Interior / National Park Service

Scale 0 500 1000 North ↑

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REVEGETATION

Revegetation would be similar to that described in alternative 1, but to a slightly less extent due to not revegetating the Object Lesson Road. A revegetation plan would be produced through the technical advisor, NPS Plant Materials Program, in association with the Soil Conservation Service. The net costs associated with revegetation under alternative 2 are shown below. Gross costs are shown in the "Summary of Alternatives and Estimated Costs" section.

Topsoil (6 inches deep, 12,000 cubic yards)	\$144,000
Revegetation plan and production of plant materials (seeds, shrubs, and tree stock)	45,000
Planting and application of seed	<u>22,000</u>
Total	\$211,000

MANAGEMENT OF CUDJO CAVERNS

Alternative 2 proposals for the management of Cudjo Caverns are the same as for alternative 1 with the following exception. Both Solomon's and Soldiers caves would continue to be open to public use. The current entrance to and exit from Cudjo Caverns would continue as the visitor entrance and exit. Handicap accessibility would be provided for a reasonable distance into the cave. Attempting to provide handicap accessibility throughout the cave would alter the natural fabric of the cave and would require man-made structures to an unacceptable extent.

VISITOR PARKING AND ACCESS TO THE GAP AND CUDJO CAVERNS

Under alternative 2, visitor parking and access to the Gap and to Cudjo Caverns on the Virginia side of the Gap would be the same as for alternative 1. The 130-space parking area would provide access to the Gap via the partially restored Wilderness Road. Traffic islands with large canopy trees would be incorporated into the design to soften visual intrusion on the scene, as viewed from the Pinnacle Overlook above.

Access to the Gap on the Kentucky side would be via the restored Object Lesson Road as well as the Wilderness Road. A new 80-space primary parking area would be constructed at the base of the restored Object Lesson Road near the existing Skyland Road bridge over US 25E. Overflow parking would be available at the site of the former Schneider Packing Plant. As in alternative 1, access to the Wilderness Road from this latter parking area would be via the existing Skyland Road trail.

Upon leaving the two primary parking areas en route to the Gap, the visitor would walk along a corridor similar to the backwoods country Wilderness Road that existed at the time the pioneers crossed the Gap – walking through the woods. The feeling would be more of a wilderness feeling as one approaches the Gap, especially if one were to continue down the Wilderness Road on the Kentucky side.

On the Kentucky side of the Gap, alternative 2 would provide for one of the most appealing round-trip hikes to the Gap, without retracing one's steps. Beginning at the trailhead at the new parking area near the Skyland Road bridge over 25E, the visitor would hike to the Gap via the Object Lesson Road, descend via the Wilderness Road, and return to the parking area via a new .8-mile trail through the woods over the railroad tunnel. An alternative return route would be to cross the railroad tracks and Skyland Road and connect to the existing

trail that parallels Skyland Road, or descend a steep embankment to the former US 25E, and follow the trace of US 25E (which would be obliterated when the tunnel opens) back to the parking area.

As in alternative 1, a conveyance would be available to carry the mobility impaired to the Gap from the parking area on the Virginia. Alternative 2 would also provide for a concession-operated passenger van, if it proved economically feasible. The van would stop at five sites: the Headquarters Visitor Center, the Pinnacle, the parking area at the former Schneider Packing Plant site, the new parking area at the base of the Object Lesson Road, and the parking area near the O'Dell House.

ALTERNATIVE 3: MINIMAL RESTORATION

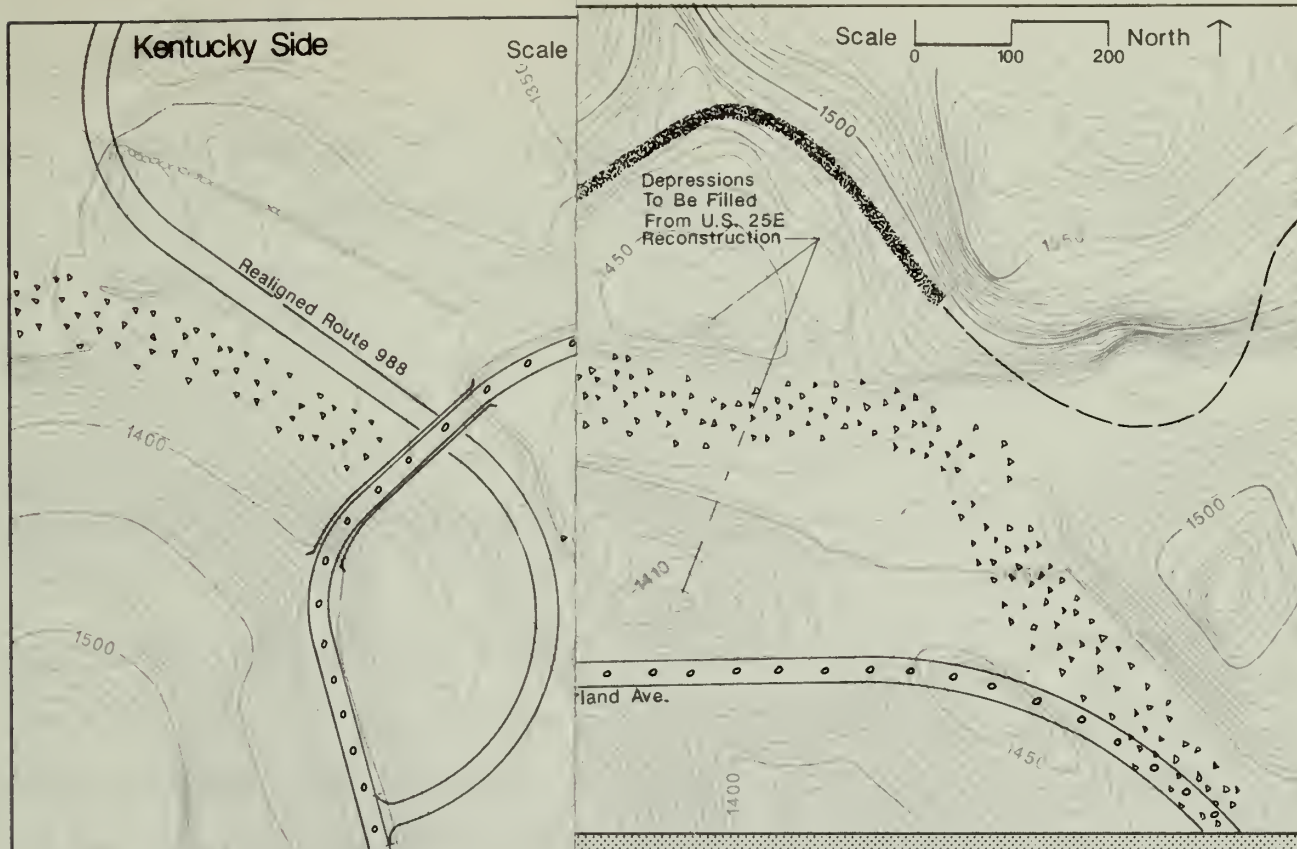
RESTORATION OF THE GAP AND WILDERNESS ROAD (see Alternative 3 – Proposed Development and Visitor Use Plan)

This alternative constitutes the minimum requirements alternative. Under this alternative, the Gap would be restored to the 1780-1810 time frame as in alternatives 1 and 2, and a multidisciplinary study would be performed for this purpose. The asphalt pavement on US 25E on both sides of the Gap would be removed and the bedding scarified. Guardrails and other visible man-made objects associated with road construction would be removed. Otherwise, there would be no further restoration of the Wilderness Road on either side of the Gap, nor of the Object Lesson Road on the Kentucky side. A total of 43,000 cubic yards of fill would be required for this alternative, all to be deposited at the Gap. No cuts would be taken for this alternative.

REVEGETATION

The road surface would be covered with topsoil and revegetated with native seed stock. The goal of revegetation under alternative 3 would be to cover the ground to prevent erosion and to allow natural revegetation to occur. Efforts would be made to control exotic species such as kudzu until native plants could become established.

The net costs associated with revegetation under alternative 3 are shown below. Gross costs are shown in the "Summary of Alternatives and Estimated Costs" section.



Legend :



Wilderness Road (1780-1810)



Proposed Trails



Scarify Pavement and Revegetate

Notes :

-Scarify U.S. 25E and Revegetate



Van Route

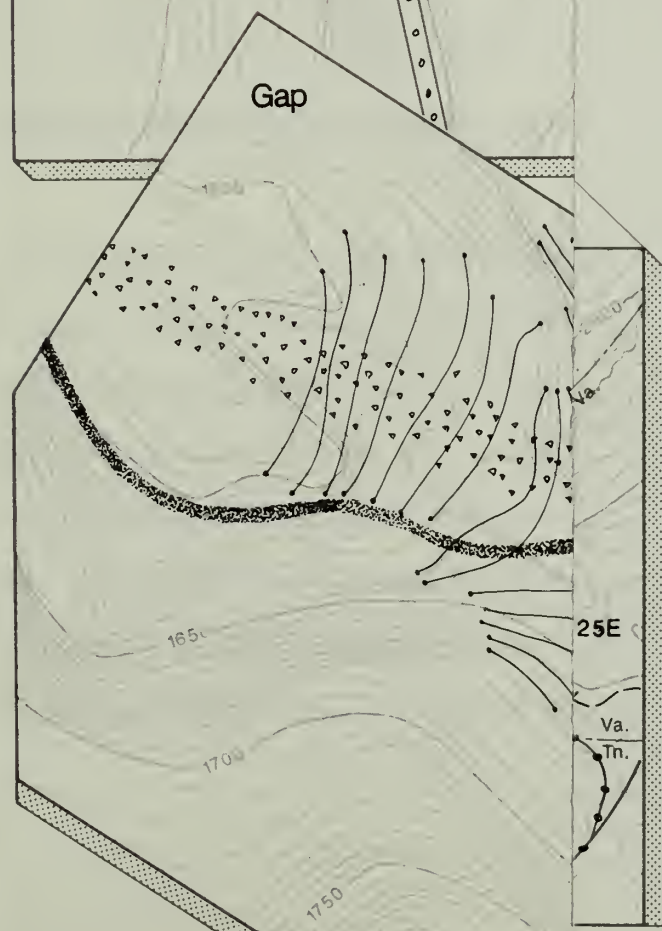
ALTERNATIVE THREE

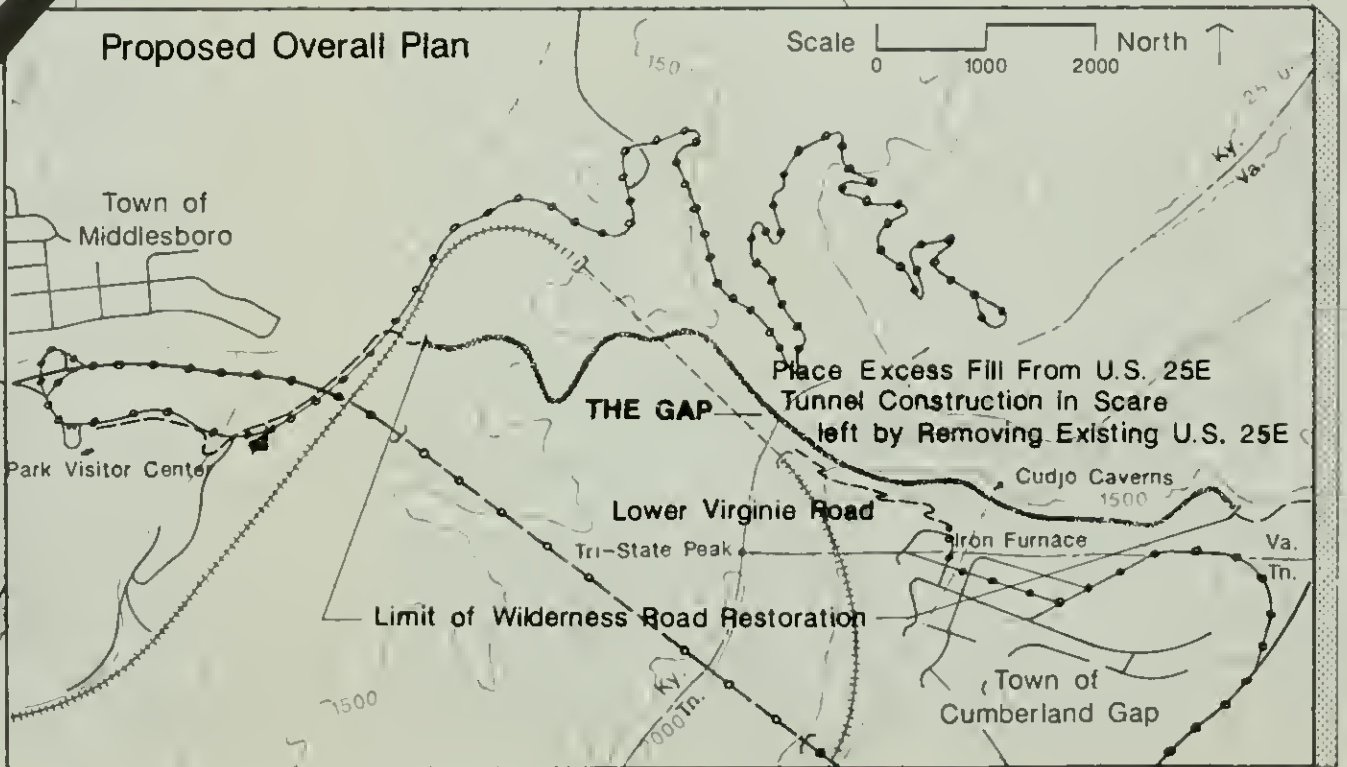
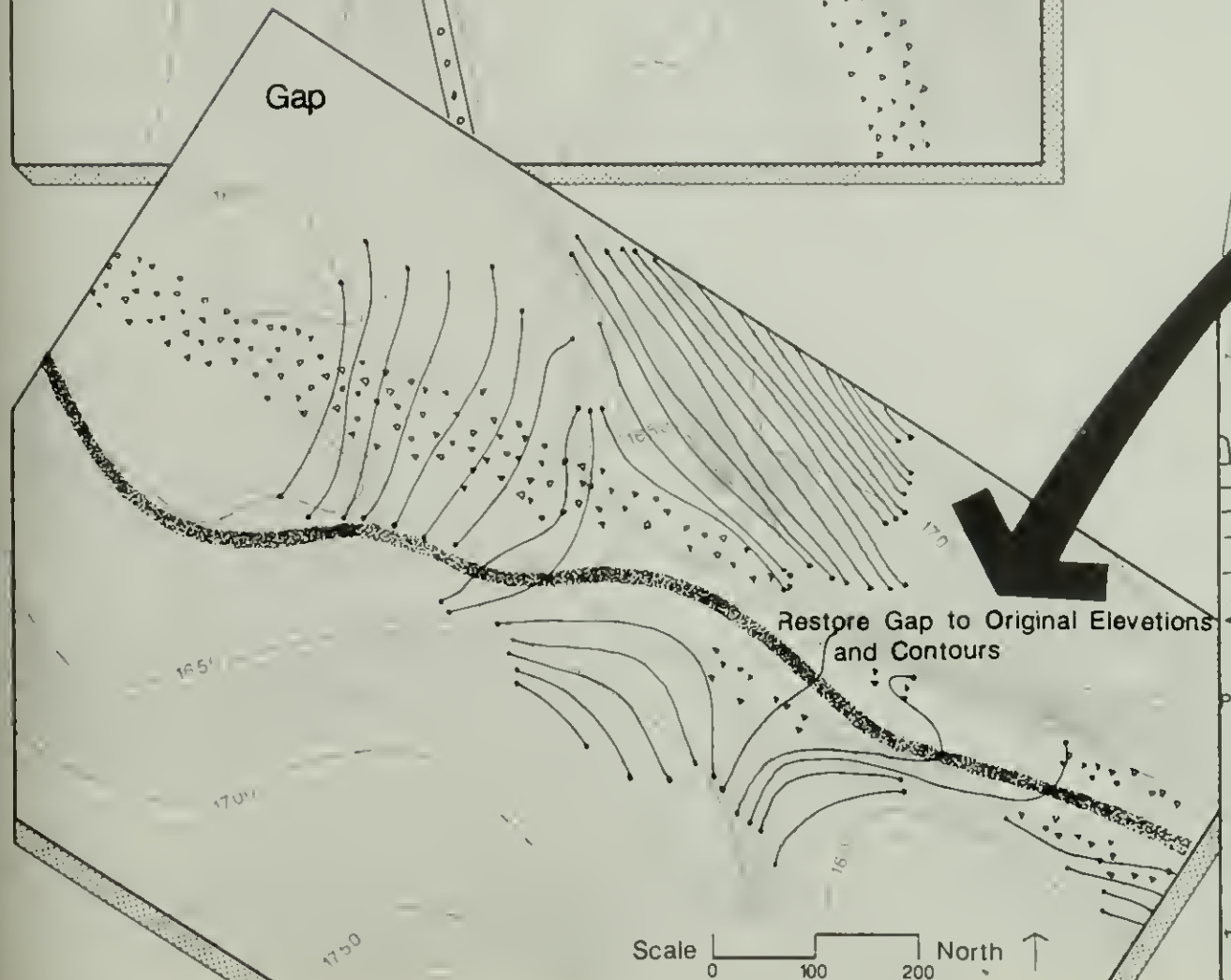
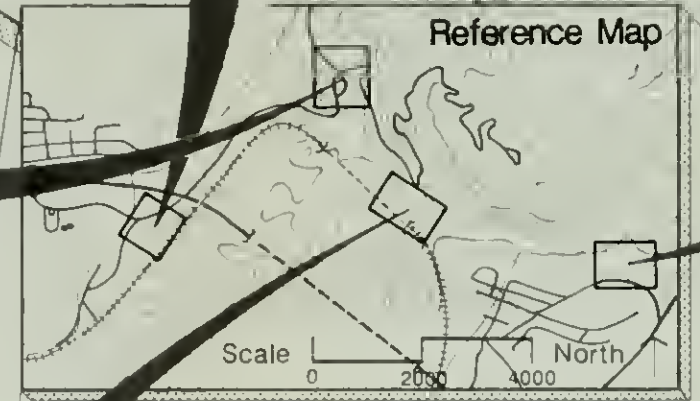
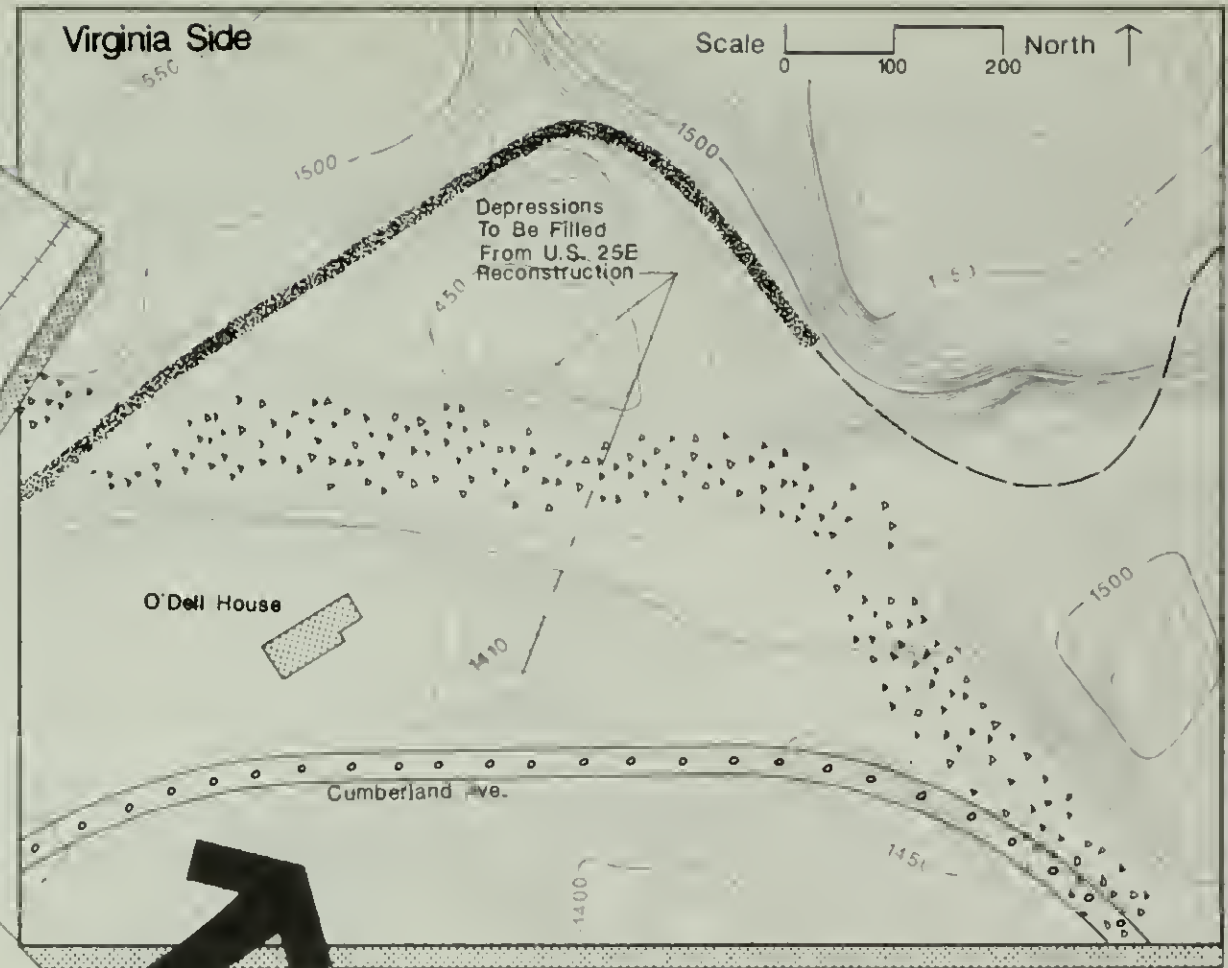
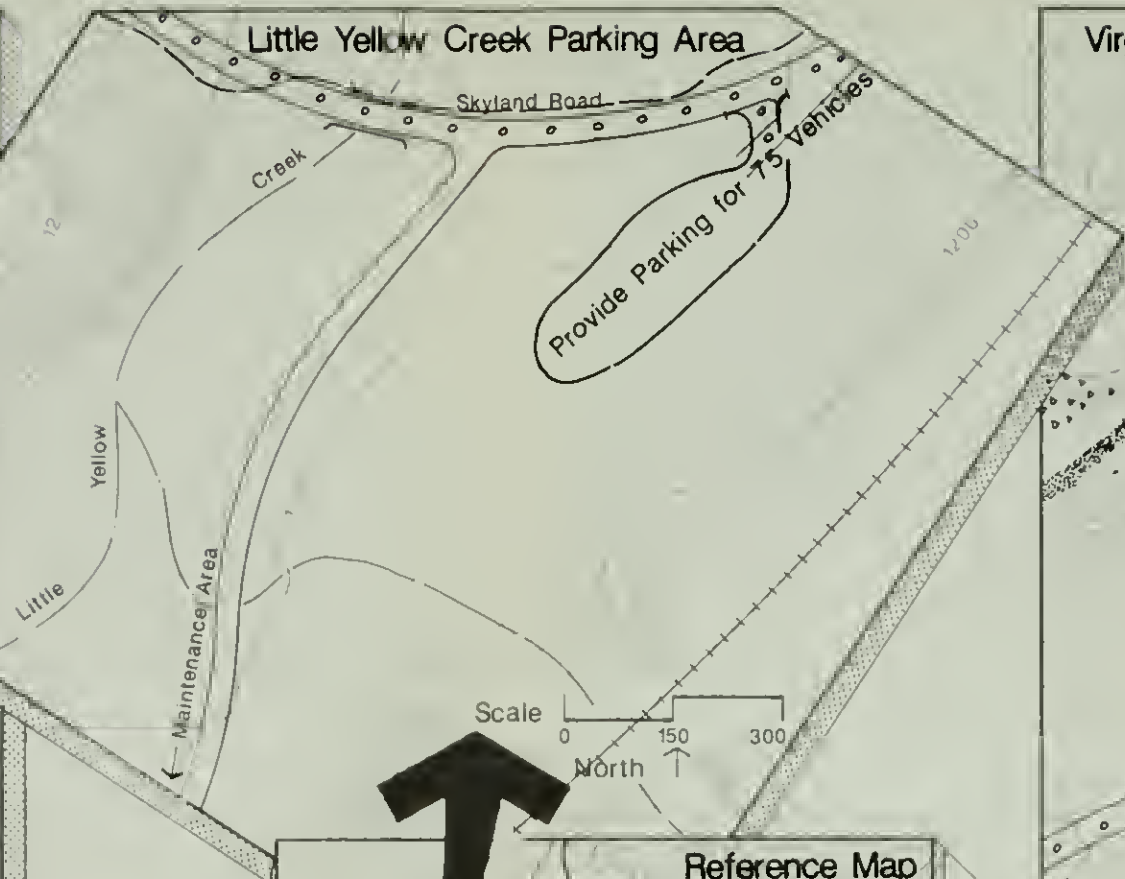
Proposed Development and Visitor Use Plan

Cumberland Gap National Historical Park

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- Legend :**
- Wilderness Road (1780-1810)
 - Proposed Trails
 - Scarify Pavement and Revegetate
- Notes :**
- Scarify U.S. 25E and Revegetate
 - Van Route

ALTERNATIVE THREE

Proposed Development and Visitor Use Plan

Cumberland Gap National Historical Park

U.S. Department of the Interior / National Park Service

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Topsoil (6 inches deep, 8,000 cubic yards)	\$ 96,000
Revegetation plan and production of seed	10,000
Application of seed	<u>\$ 5,000</u>
Total	\$111,000

MANAGEMENT OF CUDJO CAVERNS

Under alternative 3, Cudjo Caverns would be closed to the public, and all entrances would be blocked or gated shut. Access would be available for official use only. As in the previous alternatives, actions such as removing trash, organic building material, and asphalt pavement, conducting a baseline inventory to collect data on natural and cultural resources, and completing a cave management plan would be undertaken.

VISITOR PARKING AND ACCESS TO THE GAP AND CUDJO CAVERNS

The Wilderness Road on both sides of the Gap would be maintained for hiking and access to the Gap. On the Kentucky side, parking would be provided at the site of the former Schneider Packing Plant, but not at the bridge where Skyland Road crosses US 25E. Visitors would hike from the parking area along the existing trail and then cross Skyland Road and the railroad tracks to connect with the Wilderness Road and hike to the Gap. No new visitor parking would be constructed on the Virginia side of the Gap. However, the limited parking at the Iron Furnace would continue to be available. No conveyance to the Gap for the mobility impaired would be provided.

Under this alternative the visitor would feel the wilderness experience of walking through the woods much like the pioneers did, but only on the Wilderness Road on the Kentucky side of the Gap. On the Virginia side the experience would be walking along an ill-defined roadbed through a grassy, treeless pathway.

If it proved to be economically feasible, a concession-operated passenger van would be provided, and would stop at four sites: the Headquarters Visitor Center, the Pinnacle, the parking area at the former Schneider Packing Plant site, and the Iron Furnace.

ALTERNATIVE 4: NO RESTORATION

This alternative constitutes the no-action alternative. Under this alternative, there would be no Gap or Wilderness Road restoration, no removal of US 25E from the Gap, no revegetation, and no new provisions for visitor parking and access to the Gap. Cudjo Caverns would be closed to the public, and actions would be taken as described in alternative 3, including preparing a cave management plan.

The planning team considered the alternative of no restoration, but rejected it primarily because it does not meet the intent of Public Law 93-87 dated August 13, 1973, which provides funds "to finance the cost of reconstruction and relocation of Route 25E through the Cumberland Gap National Historical Park, including construction of a tunnel and the approaches thereto, so as to permit restoration of the Gap." In addition, it does not meet management objectives for restoration of the Gap and Wilderness Road.

INTERPRETIVE PROSPECTUS

EXISTING INTERPRETIVE MEDIA

Existing interpretive media in the park is largely confined to the Headquarters Visitor Center area and the Pinnacle summit with its access corridor. There is limited media development at the Tri-State Peak summit, the Wilderness Road Campground, and the historic Iron Furnace.

The Headquarters Visitor Center currently offers most of the information/orientation and interpretive facilities and services available for park visitors. Yet only about 15 percent of all park visitors stop at this visitor center.

The lower, or entrance, level of the visitor center contains the lobby with its information desk, cooperating association (Eastern National Park and Monument Association) sales facility, and video monitoring unit providing programmatic access to the park's interpretive movie. Restroom facilities are provided off an adjacent patio.

Quality, site-specific interpretive literature available for sale to the visiting public is limited. It is often difficult to keep the reprint of William M. Lockett's monograph *Cumberland Gap National Historical Park* in print, and Robert Kincaid's *The Wilderness Road* is now out of print.

The upper level, currently inaccessible to mobility impaired visitors, includes an exhibit room, an auditorium, and a lobby area, often used for traveling exhibits. The park interpretive staff presents two audiovisual programs on a regularly scheduled basis in the auditorium:

a 16 mm movie interpreting Cumberland Gap as both the key passageway through the Appalachian Mountain barrier – the first "way west" – and a continuing avenue of transportation, i.e., a place of passing.

a 35 mm slide/sound program interpreting the remote Hensley Settlement

The outdated, inadequate exhibit room contains nearly two dozen 30-year-old cases and flat panels and suffers from "book-on-the wall" syndrome and a dearth of original site-specific artifacts. The highlight of these exhibits is a finely crafted diorama of Daniel Boone and company marking and clearing the Wilderness Road, which is accompanied by an appropriate audio message.

The overlook at the Pinnacle summit, reached via an access road beginning at the visitor center, offers park visitors their best panoramic view of the Cumberland Gap and its road system. Interpretive waysides are located along this road at

the Civil War earthworks known as Fort McCook (about two-thirds of the way up), with a cannon tube on a replica carriage

the Pinnacle summit overlook

the Powell Valley overlook

the Civil War earthworks known as Fort Lyon, with a cannon tube on replica carriage at the summit

Additionally, a bronze-sculptured mural with a most appropriate quote from historian Frederick Jackson Turner is attached to the exterior wall of the summit shelter.

Three other locations within the Wilderness Road/Cumberland Gap corridor contain limited developed interpretive facilities as follows:

- a wayside exhibit interpreting the historic Iron Furnace at the edge of the town of Cumberland Gap

- a shelter with four information/interpretation waysides at the summit of Tri-State Peak

- two wooden routed interpretive signs along spur trails from the Tri-State Peak Trail, at the sites of the Civil War Powder Magazine and Fort Foote

- the amphitheater at the Wilderness Road Campground used to present evening interpretive campfire programs during the summer season

All areas of the park lying northeast of the Cumberland Pass/Wilderness Road corridor area are beyond the scope of this document. Therefore, no media will be prescribed either for the Hensley Settlement or for the Sugar Run, Chadwell Gap, and Ewing trailheads.

PROPOSED INTERIM INTERPRETIVE MEDIA

From the present time until construction of the US 25E tunnels is completed – about the year 1995 – some interim interpretive media developments will be necessary to help visitors understand and appreciate the need for such a seemingly drastic alteration of the park environment.

In addition to personal presentations by park staff, three specific interim interpretive media developments are proposed – wayside exhibits, a site bulletin, and a videotape.

A single wayside panel should be designed and produced for installation at up to three different high profile locations within the "Cumberland Gap corridor" – one at Tri-State Peak parking area and one at each end of Wilderness Road. If possible, each sign should be of standard NPS wayside design and materials to match recently installed waysides at the park. The text of the wayside should contrast the historic scene of the Cumberland Gap ca. 1780-1810 with that which the visitor sees today and relate the primary importance of the Gap to the first trans-Appalachian pioneers. The text should then tell how ongoing construction will allow restoration of this nationally important historic scene, while acknowledging that this construction may cause inconvenience and distractions for park visitors. Finally, it should invite them to come back and experience this special walk in history. Consideration should be given to using an existing graphic of the historic scene, such as Illustration #4.9 of Jere L. Krakow's *Location of the Wilderness Road* study. The following text is suggested for this wayside:

Two hundred years ago, the road in front of you was the only practical route to and from the land west of the Appalachian Mountains. Here the Wilderness Road, generally only a minimally improved one-lane trace, threaded its way through a narrow, V-shaped notch called the Cumberland Gap.

Over the decades since, foot and horseback travel have given way to carts, then wagons, military artillery, buggies, and finally automobiles. With the improvement of transportation came major changes to the road – cuts, fills, widenings, straightenings, paving, utility lines, and buildings. Today a noisy, congested U.S. Highway 25E has replaced the more tranquil Wilderness Road of two centuries ago.

Any further construction in the Gap to improve safety would completely destroy this priceless historic place. Even current highway use continues to slowly destroy its historical integrity.

In the midst of the inconvenience of traffic delay, construction dust, and noise, your Federal Highway Trust Fund dollars are at work here building a pair of nearby tunnels for the safe rerouting of US 25E. After completion and opening of these tunnels in about 1995, we will remove these more recent improvements and restore Cumberland Gap to its more tranquil, historic scene. At that time, we invite you to return and step back into frontier history – to trek the old Wilderness Road much as did our earliest pioneers.

The park interpretive staff should develop and publish a free folder, using the site bulletin format, providing an expanded version of the same story as that used for these interpretive waysides.

The third media development – a videotape – has already been produced. It describes the ongoing auto tunnel/gap restoration project. It can be used by park management as an off-site communications "tool" while meeting with nearby park constituencies. It can also be placed downstairs in the Headquarters Visitor Center to be viewed by visitors.

The use of tunnel construction/highway relocation moneys to fund each of those three media projects should be explored because each directly addresses the work being done by the Federal Highway Administration to carry out this construction project.

PROPOSED PERMANENT INTERPRETIVE MEDIA

This section describes the specific recommendations of the interpretive prospectus, or "prescription for media," for the historic Wilderness Road corridor of Cumberland Gap National Historical Park, for the Headquarters Visitor Center, and for the proposed visitor contact station on the east side of the Gap.

RESTORATION ALTERNATIVES 1 AND 2

Wayside Exhibits

A total of 13 or 14 wayside exhibits are proposed for the Wilderness Road corridor. Five of these waysides are upright trailhead orientation exhibits, six are standard easel interpretive exhibits, and the remaining two or three are upright interpretive exhibits to be located in a shelter in the actual saddle of Cumberland Gap.

All wayside exhibits should be standard fiberglass embedment panels installed in NPS mounting frames and placed in locations and at heights suitable for mobility impaired visitors. Wayside exhibit planners need to know that the park has experienced an unusually high number of incidents of vandalism and graffiti on all existing waysides. Any mitigating actions that might be employed to help reverse this unacceptable behavior are encouraged.

The five proposed trailhead orientation waysides generally fall into the following two groups:

Three exhibits providing orientation to the historic Wilderness Road trace would be located at the

Headquarters Visitor Center trailhead

East Approach Visitor Information Center (O'Dell House) trailhead and parking area (includes orientation to Cudjo Caverns)

Little Yellow Creek parking area if alternative 1 or 3 was selected, or the trailhead at the proposed new Kentucky side parking area, if alternative 2 was selected

Two exhibits providing orientation to the backcountry trail system, including visitor use and safety information, would be located at the

intersection of Pinnacle summit Loop Trail and Ridge Trail

Skylight Caverns trailhead at Wilderness Road picnic area

All three of the historic Wilderness Road trace trailhead orientation waysides would use a common map graphic, as would both of the backcountry trailhead orientation waysides.

The orientation waysides at the parking areas would need to alert visitors to the differences between the original surviving segments and the newly restored segments of the historic Wilderness Road. Other media, perhaps either a publication or identification signs, would likely be needed to identify actual original sections of the Wilderness Road in the Gap. Should alternative 2 be selected, the two orientation waysides at the approaches to the Gap would need to clearly differentiate between the historic 1780-1810 Wilderness Road and the 1908 Object Lesson Road for visitors.

The six proposed standard interpretive easel waysides, listed by location and subject, are as follows:

Location	Subject
Adjacent to Iron Furnace, near intersection of Iron Furnace entrance road and Pennlinn Avenue	The Coming of Settlement and the development of the Town of Cumberland Gap
Along Gap Creek, north of Iron Furnace	Dr. Thomas Walker, and Discovery of the Gap and Cudjo Caverns
Powell Valley Overlook	Viewshed of Valley with Last of Historic Outposts and Story of Dangers of Traveling through the Gap
Pinnacle Overlook	Identification of Landmarks and Features in Viewshed
Pinnacle Overlook	Cumberland Gap and Its Key Location along the entire Wilderness Road
Upper Viewing Terrace, Headquarters Visitor Center	Geology of the Mountains Flanking Cumberland Gap

For the Cumberland Gap and the Wilderness Road wayside at Pinnacle Overlook, a map of the entire Wilderness Road from Watkins Ferry through the Great Valley and across Cumberland Gap into Boonesborough and central Kentucky should be displayed. The site-

specific 1893 Frederick Jackson Turner quote found on the exterior wall of the Pinnacle summit parking lot shelter is more appropriate from this viewpoint, and that is:

Stand at Cumberland Gap and watch the procession of civilization marching in single file – the buffalo following the trail to the salt springs, the Indian, the fur-trader and hunter, the cattle raiser, the pioneer farmer – and the frontier has passed by.

The group of two or three upright panels clustered within a shelter in the saddle of Cumberland Gap would interpret a continuum of historic travel through this landmark pass. It is suggested that wayside panels incorporate a series of line illustrations to depict the various key stages of the continuum of travel through the gap, specifically as follows:

the Buffalo migration trail

the Warriors Path

the "Long Hunters"

Pioneer families migrating on the Wilderness Road

Two-way trail use to drive livestock to eastern and southern markets

Civil War (probably artillery being hauled along the road)

Horse-and-buggy traffic on the Object Lesson Road

Early automobile traffic on the Object Lesson Road

This line art would also be used to interpret Cumberland Gap as a place of passing – a continuum of historic travel – in the East Approach visitor information center (O'Dell House).

Like the wayside at Pinnacle Overlook, the panels should feature the previously stated 1893 Frederick Jackson Turner quote about Cumberland Gap. This shelter needs to be sensitively designed to blend into the cultural landscape.

Interpretive Handbook

An official NPS interpretive handbook for Cumberland Gap National Historical Park should be produced. It would feature the two interpretive themes set forth earlier in this document: (1) the Gap is a continuum of westward travel and transportation, and (2) its geology and landscape is integrally interrelated with its prehistory and history. The "in-depth" section of the handbook might well be based on Jere L. Krakow's *Location of the Wilderness Road* study.

Publication of this official NPS handbook will fill the major interpretive need for a quality, site-specific publication about Cumberland Gap.

Headquarters Visitor Center

The proposal calls for a complete replacement of the exhibits in the main exhibit room and a new orientation exhibit in the main lobby. Both actions are part of an approved "Major Media Rehabilitation Proposal" (June 1981). However, costs have been updated. In addition, some new exhibits for the upper lobby, which now displays flags and sometimes traveling exhibits, are proposed.

Museum exhibitry in the main exhibit room should complement the film. While the relatively new interpretive film deals with major events and larger issues (i.e., *Westward Expansion*), the exhibits should focus on people involved – both the many who passed through and the lesser numbers who stayed – by presenting

- how the physical setting influenced them

- their tools and belongings

- the problems they faced

- how they lived

- why they traveled through or why they stayed.

The exhibitry should focus on three specific groups of people:

- the first people – emphasis on native American culture

the many who passed through – emphasis on pioneering and Civil War soldiers

those who remained – emphasis on early settlers in the tri-state area.

The park has a limited collection of artifacts to draw upon in planning and developing museum exhibitry because much of the park's collection is related only to the remote, pioneer Hensley Settlement. Therefore, object acquisitions would be necessary.

The new orientation exhibit would be designed to complement the other functions fulfilled by the spacious main visitor center lobby – information/orientation, cooperating association sales, issuing backcountry permits, and a video monitoring system providing programmatic access to the park movie for the mobility impaired. Its purpose would be to provide quick visual reference on what resources, activities, and development exist for visitor use in the park. Visitors using this exhibit should learn the following:

The Gap represents a continuum of westward travel, transportation, and expansion.

The park has developed historic and nature hiking trails.

The park is rich in scenic values.

Camping and picnicking are available.

Places related to the Civil War exist in the park.

A pioneer settlement (Hensley) exists on a remote mountaintop.

The park has abundant wildlife.

Ranger (interpreter) conducted activities are available.

New exhibits planned and installed in the upper lobby would complement those in the main lobby. One exhibit would use a location map and color photographs to orient park visitors to other early westward expansion historic places, including George Rogers Clark National Historical Park, Indiana; Abingdon, Virginia; Warriors Path State Park, Tennessee; and Thomas Walker, Boonesborough, and Wilderness Road state parks in Kentucky. A second exhibit would require that one of the three pairs of double doors leading to the upper viewing terrace be converted to a viewing window. The window combined with an exhibit label would focus the visitor's attention on at least part of the actual Cumberland Gap and invite them to experience the park's key historic feature – the Gap and the Wilderness Road – either by hiking the historic trace or viewing the scene from Pinnacle Overlook.

An outdoor exhibit of large geologic specimens would be planned for and installed on the upper viewing terrace or patio of the visitor center. Specimens for this exhibit would be retrieved from the test bore or actual tunnel excavation for the rerouting of US 25E. The exhibit would include one large specimen from each of the different rock strata of the tunnel cut. A wayside exhibit would also be installed on the terrace to interpret the geology of the mountains flanking the Gap. Identification labels for each of the individual specimens, made of the same fiberglass embedment as the wayside exhibit, would be needed. Arrangement of the specimens in the order of their occurrence in the tunnel cut might well prove to be logical and useful.

East Approach Visitor Information Center (O'Dell House)

To remedy a major deficiency, a new visitor information center is proposed to serve visitors approaching the park along US 58 from the east through Virginia and along US 25E from the southeast through Tennessee. The facility would provide visitor information, orientation, and basic theme-setting interpretation for all westbound visitors to Cumberland Gap National Historical Park, and for those people traveling along the east side of Cumberland Mountain who might not otherwise visit the Headquarters Visitor Center in Kentucky.

The current park residence known as the O'Dell House, located just west of the intersection of US 58 and US 25E, should be adaptively used to serve these visitor needs. (See "Compliance Status" section of this document for information regarding the historical significance of the O'Dell House.) To facilitate access for the mobility impaired, only first-floor rooms would be used by visitors. The second floor would be used for offices and storage. The appropriate use of the space would be left to the exhibit planner and the exhibit designer. However, it seems most likely that the front four rooms (the living room, dining room, front bedroom, and middle bedroom) would be used. Opening a doorway or archway between the two bedrooms might well facilitate the best traffic flow pattern for adaptive use of this house as a visitor information center.

The newly developed visitor center should contain the following:

- a small lobby with an information desk

- a cooperating association (Eastern National Park and Monument Association)
- publications display and sales area

an interpretive exhibit area, primarily interpreting the significance of the Gap as the first national gateway west, and secondarily introducing Cudjo Caverns

a video viewing area (with an informal, perhaps movable, seating area) to help interpret the national significance of the Gap

some type of a nook for programmatic interpretive access to Cudjo Caverns and the saddle of Cumberland Gap for the mobility impaired

restroom facilities in or adjacent to the center

The lobby/information desk area should contain some type of a map or graphic of the entire park area for use as an orientation tool by interpretive staff. These orientation materials should especially encourage visitors to experience the Cumberland Gap, Cudjo Caverns, and the historic Wilderness Road trace firsthand.

The programmatic access nook providing an alternative interpretive experience for the mobility impaired would probably best be located in or near the lobby. The nook should be equipped with an audioviewer.

The interpretive focus of the exhibit area should specifically be the significance of the Cumberland Gap and the Wilderness Road as the initial "gateway to the West" and an avenue of travel and transportation from prehistoric times to the present. These exhibits should include presentation of a videodisc conversion of the current visitor center interpretive movie. The video monitoring unit, with its informal seating area for 8 to 12 visitors, should be integrated into the exhibit design. Copies of the art sketches used in the wayside exhibit panels at the saddle of the Gap should also be incorporated in these

exhibits as a graphic statement of the important cavalcade of centuries of travel through the Cumberland Gap. The Daniel Boone/Wilderness Road diorama, currently in the existing visitor center exhibit room (easily its best feature), should be included as an integral part of these exhibits.

This facility should also include an exhibit on Cudjo Caverns that (1) calls visitors' attention to its existence in the park, (2) briefly interprets the formation and human use history of the cave, and (3) invites visitors to tour the cave. All aspects of the cave exhibit, including size, location, and design, should combine to present it as a secondary interpretive subject. The use of a brief audiovisual, such as a videodisc program, to present this topic was considered. However, doing so might tend to convey a sense of equal importance of the cave to the park's primary interpretive theme – the first gateway to westward settlement. Therefore, the idea was discarded.

The facility should provide some means of presenting information about regional attractions and points of interest, emphasizing other historic places sharing the common theme of early westward expansion and other nonprofit visitor attractions, including George Rogers Clark National Historical Park, Indiana; Abingdon, Virginia; Warriors Path State Park, Tennessee; and Thomas Walker, Boonesborough, and Wilderness Road state parks in Kentucky. It should also emphasize the primary nonprofit visitor attraction in this vicinity – Lincoln Memorial University, with its Lincoln Museum and its common roots, ties, and association with the history of travel through Cumberland Gap. These prime regional attractions might best be interpreted using a locator map and perhaps some appropriate individual site graphics. Regional commercial attractions and points of interest would probably best be handled by providing a folder distribution rack of compatible design with the other exhibits.

Cudjo Caverns

The interpretive themes to be conveyed to park visitors touring Cudjo Caverns are twofold: (1) geographic determinism, i.e., physical landforms influence where and sometimes when events of history take place, and (2) the dynamics of a natural cave system. In developing the first of these two themes, interpretive treatment should particularly focus on the historical event of Dr. Thomas Walker's observation of the caverns and the role that water from the cave has played in developing and sustaining the town of Cumberland Gap and Lincoln Memorial University – i.e., heating and cooling one of the LMU dorms and providing the major water supply for both the university and the town. Interpretive treatment addressing the second theme should concentrate on the dynamics of the living cave, particularly its demonstrated ability to recover from previous damage and destruction of individual cave features. The reestablishment of the cave feature known as "soda straws" in places where they were once vandalized is a fine example of this natural recovery.

Alternatives 1 and 2 specify interpretation by conducted tours. Since the interpretation of Cudjo Caverns is a secondary theme for the park, and a regular schedule of conducted tours for the caverns would be personal services intensive, great care must be exercised to avoid a situation where the secondary interpretive subject draws the "lion's share" of the park's available interpretive staff. For this reason, management will consider alternatives to using park staff as tour guides, such as a historic lease, a concessions operation, or a cooperative venture.

RESTORATION ALTERNATIVES 3 AND 4

Under alternative 3 (the minimal restoration alternative), no new interpretive media would be planned and produced, except for two simple trailhead signs and two approved projects scheduled for the Headquarters Visitor Center. Both are part of an approved *Major Media Rehabilitation Proposal* (June 1981). The two signs, one located at the beginning of the Wilderness Road near the O'Dell House on the Virginia side and the other at the Schneider Packing Plant site on the Kentucky side, would simply identify the trailhead access to the Gap via the historic Wilderness Road trail. The first of the two approved major rehab projects involves installing a park orientation exhibit in the main visitor center lobby; the other involves the complete replacement of exhibits in the main exhibit room. Public law also requires physical alterations be made to provide direct public access to the upper level of the visitor center for the mobility impaired.

Under alternative 4 (the no restoration alternative), no new interpretive media would be planned and produced.

Alternatives 3 and 4 would fail to take advantage of a timely opportunity for initial on-site interpretation of the park's primary cultural resource – the actual historic Cumberland Gap and the old trace of the Wilderness Road that threads its way through it. Additionally, they would fail to provide for a much-needed visitor information/orientation facility on the Virginia/Tennessee side of the Gap. They would also deny continuing public access to and interpretation of Cudjo Caverns.

Table 3: Gross Cost Estimates for Media Proposals

Media Proposal	Plan	Produce	Equipment	Total
Plan/produce/install three interim wayside exhibits, each of identical layout, to interpret the tunnel construction/gap restoration activity	\$ 2,000	\$ 8,000	None	\$ 10,000
Plan/produce/install system of 13-14 wayside exhibits throughout the Wilderness Road corridor (5 trailhead orientation panels; 8-9 interpretive panels)	22,000	83,000	None	105,000
Write/design/publish official NPS interpretive handbook for Cumberland Gap National Historical Park	50,000	30,000	None	80,000
Plan/produce/install new exhibits in main exhibit room of Headquarters Visitor Center	112,000	338,000	35,000	485,000
Plan/produce/install new exhibits in lower and upper lobbies of Headquarters Visitor Center	5,000	45,000	None	50,000
Plan/produce/install integrated plan for exhibits, cabinetry for video-disc, information desk, and association sales facility in East Approach visitor information center (O'Dell House)	38,000	178,000	None	216,000
Convert current 15 min. headquarters visitor center interpretive movie to videodisc, caption for the hearing impaired and install in East Approach visitor information center (O'Dell House)	None	6,000	12,000	18,000
Plan/produce/install 8-10 min. slide/sound program for audioviewer unit, to provide programmatic access to Cudjo Caverns in East Approach visitor information center	6,000	12,000	1,000	19,000
Total	\$235,000	\$700,000	\$ 48,000	\$983,000

RECOMMENDATIONS FOR RELATED ISSUES

RELOCATION OF UTILITY LINES AT OR NEAR THE GAP

Currently, four utility lines cross Cumberland Mountain on poles or towers in the vicinity of Cumberland Gap. Regardless of which action alternative (1, 2, or 3) was chosen for the Gap and Wilderness Road, these lines will be removed, relocated, or placed underground so that they will not be visible to Gap visitors, and will not intrude on the restored (historic) scene. The National Park Service will negotiate with the utility owners to determine the necessary course of action. Costs, to be borne by the Park Service, will be determined at that time. An archeological study will examine the proposed routes prior to ground breaking, and appropriate mitigating measures, including recording and avoidance, will be taken for all significant sites.

1. A 69,000-volt high power line operated by the Kentucky Utilities Company crosses Cumberland Mountain at the point where the boundaries of Kentucky, Tennessee, and Virginia intersect, known as Tri-State Peak. This power line will be relocated out of sight of the Gap. The National Park Service is funding an environmental impact statement that will address the various alternatives being considered for this relocation. Among the alternatives being considered are to relocate the line to the south, outside the park boundary, or to thread the line through one of the tunnels being constructed for US 25E.
2. A 7,200-volt power line owned by the Kentucky Utilities Company crosses the Gap into Virginia, providing power for Cudjo Caverns, the store, the LMU water systems at the reservoir, the O'Dell House, and the caution light at the intersection of US 58 and US 25E. This line could be relocated underground along the trace of US 25E when it is scarified or obliterated. A branch line from the 7,200-volt line crosses US

25E on poles near the Gap and leads to the comfort station at the Pinnacle, providing power for the well pump, radio repeater, and comfort station – all owned by the Park Service. This relatively low-voltage line would be placed underground.

3. A telephone line owned by South Central currently crosses the Gap on some of the poles owned by Kentucky Utilities Company. The line could be placed underground with the 7,200-volt power line along the trace of US 25E.
4. A low-voltage communication line (60 milliamps, 160 volt D.C.) owned by CSX Railroad crosses the Gap on poles from one end of the railroad tunnel to the other. The line is connected to the railroad's radio repeater, which is located on a tower in the Gap. An electric power line also connects to the radio repeater from the Kentucky Utilities Company 7,200-volt line. The radio repeater could be relocated and the lines placed underground so that neither would be visible to Gap visitors or Wilderness Road hikers.

DISPOSITION OF CUDJO CAVERNS STORE AND CONCRETE RESERVOIR

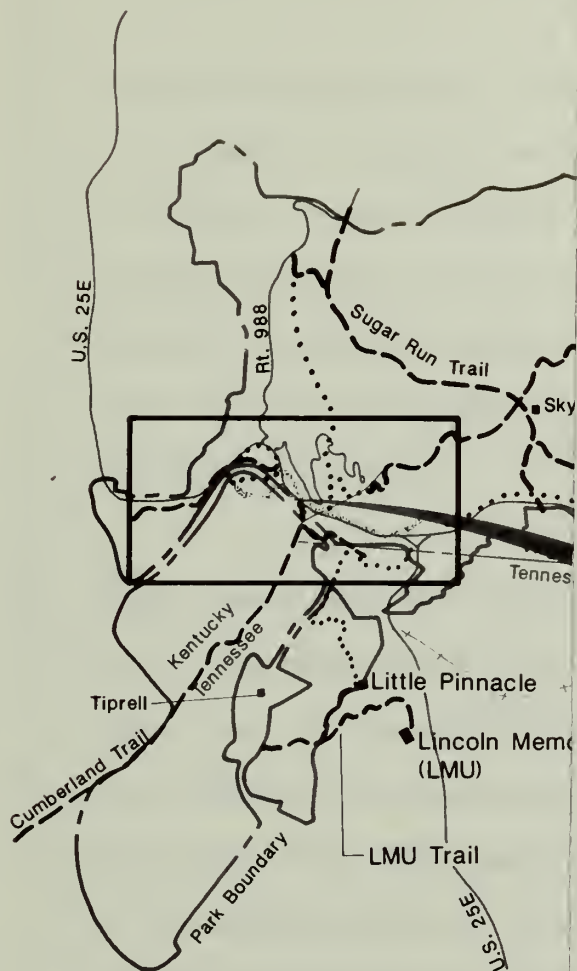
For the three action alternatives, the Cudjo Caverns Store and the concrete reservoir will be removed from the setting alongside the Wilderness Road on the Virginia side of the summit. Both structures are owned by Lincoln Memorial University, and the National Park Service is currently negotiating with LMU to determine compensation for removal of the two structures. The agreement is expected to allow LMU to retain water rights to Gap Creek as it exits Cudjo Caverns. The agreement will also specify the logistical and engineering requirements needed and allowed for LMU to continue using Gap Creek as its primary source for potable water. Pipelines and other utilities will be covered so as to be out of the view of visitors. It is expected that the agreement will not allow the store to be relocated within the park boundary. The above actions are expected to be completed before work is begun on the scarification or obliteration of US 25E over the Gap, expected to occur in 1995 or shortly thereafter. The details of the negotiations and agreement are beyond the scope of this *Development Concept Plan*.

TRAIL PLAN FOR THE GAP AND VICINITY


The trail plan described below is valid for all three restoration alternatives unless otherwise noted (see Trail Plan map).

The following six trails will emanate from, or lead to, the Gap:

1. **Wilderness Road or Upper Virginia Road.** From the Gap to the new parking area near O'Dell House on the Virginia side (no parking in alternative 3), .8 mile, proposed restoration; continuing on to Wilderness Road picnic area and campground, 1.5 miles, proposed new construction of trail, subject to reconstruction of US 58, which should follow the trace of the Old Virginia Road as much as possible.
2. **Wilderness Road or Kentucky State Road.** From the Gap to the railroad tracks on the Kentucky side just north of railroad bridge over newly constructed US 25E, .7 mile, proposed minor restoration; continuing onto connector trail, .1 mile, proposed new construction that would cross the railroad tracks and Skyland Road at grade; connecting to the existing Skyland Road trail, which leads down to the proposed parking area at the former site of the Schneider Packing Plant, .3 mile; which, in turn, is connected to a trail leading to the Headquarters Visitor Center, .5 mile, proposed new construction. For alternative 2, a new .8-mile connector trail would be constructed through the woods from the base of the Wilderness Road to the proposed parking area where the Skyland Road crosses US 25E.
3. **Lower Virginia Road.** From the Gap to the Iron Furnace in the town of Cumberland Gap, .5 mile, existing; continuing on through the town of Cumberland Gap to the



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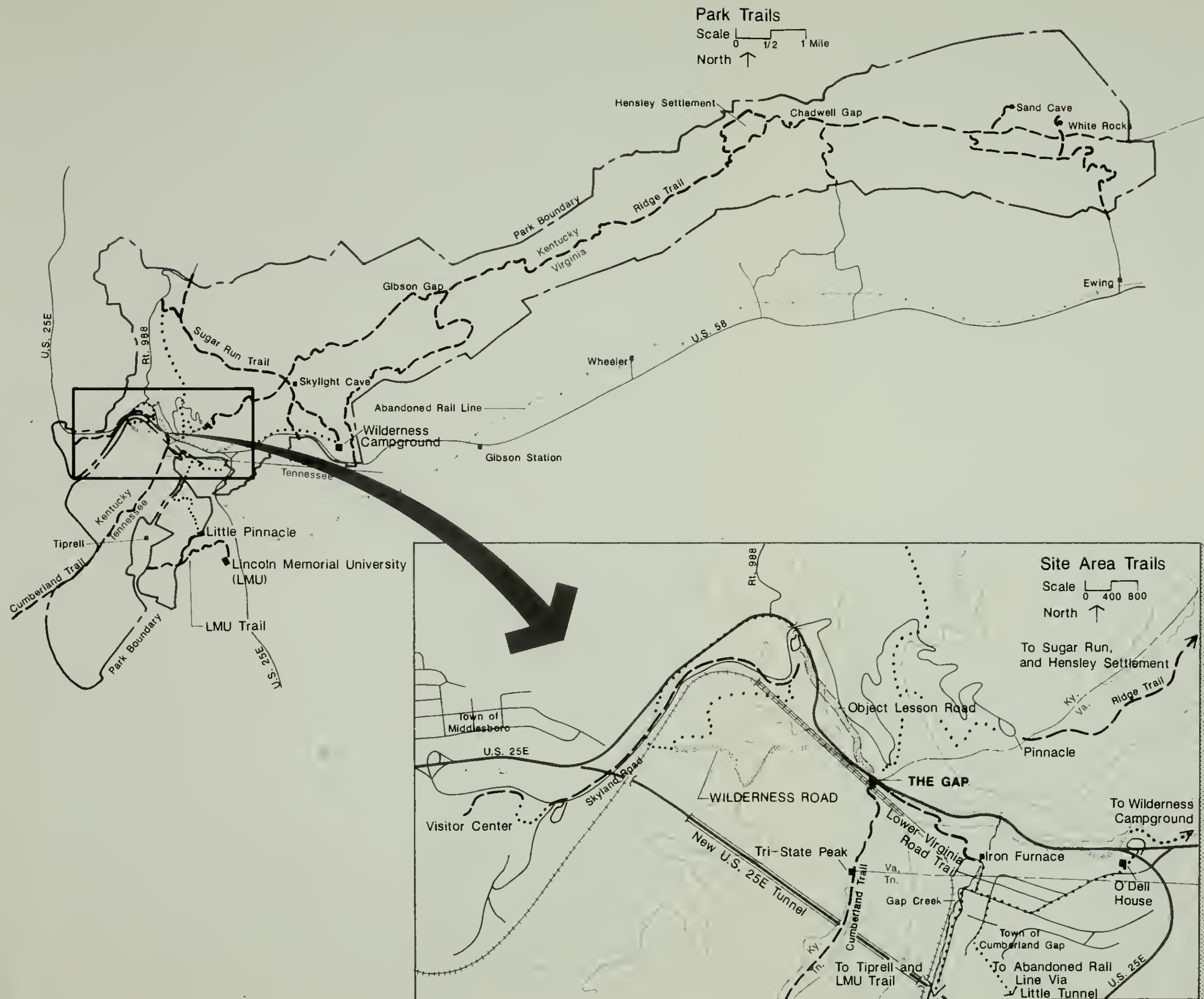
-  Existing Trails
-  Proposed Trails
-  Wilderness Road
-  Object Lesson Road
-  Proposed Parking Areas

Trail Plan






Cumberland Gap National Historical Park

U.S. Department of the Interior / National Park Service

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Legend :

-  Existing Trails
-  Proposed Trails
-  Wilderness Road
-  Object Lesson Road
-  Proposed Parking Areas

Trail Plan

Cumberland Gap National Historical Park

U.S. Department of the Interior / National Park Service

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O'Dell House via Colwyn Street and Cumberland Drive, .8 mile, routing to be determined in association with town residents, signing and other design elements to be consistent with that used within the park, some new construction to be required.

In addition, the parking area at the Iron Furnace should be redesigned, enlarged from 6 spaces to 12 spaces, and relocated on the same site, but farther from the Iron Furnace. This would improve the visitor experience at the Iron Furnace by removing the intrusive vehicles from the immediate scene, would allow greater flexibility in connecting the hiking trail from the Gap to the proposed trail through town, and would increase the availability of parking expected to be needed for future increased visitation.

4. **Object Lesson Road.** From the Gap to the proposed parking area on Kentucky side, .6 mile, proposed minor restoration, alternative 2 only; connecting with a proposed new trail running through the woods to the base of the Wilderness Road, .8 mile; connecting with existing Skyland Road trail, which leads to the alternative connector trail for the Wilderness Road, .6 mile, minor upgrade; and also connecting with the proposed US 25E trail, which would be an alternate route to the alternative Wilderness Road connector, .6 mile, proposed new construction.
5. **Tri-State Peak Trail.** From the Gap to Tri-State Peak, .3 mile, existing; continuing on and connecting with the existing Cumberland Trail, which ultimately extends through Tennessee to Chattanooga.
6. **Harlan Road.** From the Gap along a short section of Harlan Road and up to the Pinnacle, ultimately connecting with the Ridge Trail, .7 mile; proposed new construction; also, from Gap along as much of the trace of the historic Harlan Road

(ca. 1850) as possible, leading to the Sugar Run picnic area via the overlook on Sugar Run Road, and also connecting with the Union College Trail near the overlook, 2.5 miles; proposed new construction.

The above trails would connect the Gap and other heavy visitor use areas in the west end of the park to the existing parkwide system, which is held together by the Ridge Trail along the backbone of the park. The proposed interconnecting system greatly enhances the number of visitor hiking experiences, especially for day hikes of varying length, difficulty, and attractions.

Two loop trails connecting the Gap to proposed new parking areas on each side of the Gap would provide the visitor with a variety of experiences, without requiring retracing of steps. The loop on the Virginia side of the Gap would expose hikers to the visitor contact station at the O'Dell House, Cudjo Caverns, the Gap, the historic Iron Furnace, and man-made attractions in the town of Cumberland Gap. In alternative 2, the loop trail on the Kentucky side would expose the visitor to much more of a historic wilderness experience, where the impact of modern development would not be seen if the visitor were to take the proposed connecting trail through the woods from the base of the Wilderness Trail back to the proposed parking area.

Two additional trails should be kept in mind for future connection to the park's trail system. The first is the LMU trail, which runs from Little Pinnacle south through the park, and via Tiprell Road connecting to the Bauner Field Trail and the Hootowl Hollow Trail, both of which run through the southernmost section of the park and beyond. The LMU trail would connect to the park's primary trail system via a proposed 1.5-mile connector that would lead from Little Pinnacle down to Gap Creek and Tiprell Road, under the twin bridges of new

US 25E, into the town of Cumberland Gap, and connecting to the proposed loop trail. LMU has expressed an interest in working with the park to make this connector a reality.

The second trail would connect the loop trail in the town of Cumberland Gap with the abandoned Louisville and Nashville Railroad, via the Little Tunnel, which is owned by the park. Once the railroad bed leaves the tunnel heading east, it is entirely outside the park boundary but provides an excellent view of the Cumberland Mountain and the White Rocks, which are within the park boundary. The railroad bed is especially attractive as a bicycle trail, and could lead the cyclist to the eastern end of the park and ultimately connect with the existing Chadwell Gap and Ewing hiking trails. Herein lies an excellent opportunity to develop a major trail of 14 miles from Little Tunnel to Ewing, through cooperative efforts with groups such as the Rails to Trails Conservancy.

Table 4 shows the new or upgraded trails and associated costs as called for in the trail plan.

Table 4: New or Upgraded Trails

Trail Segment	Alternative Affected	Length (miles)	Gross Construction Cost	Advance and Project Planning Cost	Total Project Cost
Wilderness Road from Gap to O'Dell House	1,2,3	.8			
Trail from O'Dell House to picnic area and campground	1,2	1.5	\$ 39,300	\$ 7,500	\$ 46,800
Wilderness Road from Gap to end near railroad tracks on Kentucky side	1,2,3	.7			
First connector trail at end of Wilderness Road on Kentucky side	2	.8	20,960	4,000	24,960
Second connector trail at end of Wilderness Road on Kentucky side	1,2,3	.1	2,620	500	3,120
Skyland Road trail from connector to Schneider Packing Plant site (upgrade)	1,2,3	.3	790	150	940
Trail from packing plant site to Headquarters Visitor Center	1,2,3	.5	13,100	2,500	15,600
Lower Virginia Road from Gap to Iron Furnace (upgrade)	1,2,3	.5	1,310	250	1,560
Loop road from Iron Furnace to O'Dell House	1,2,3	.8	20,960	4,000	24,960
Object Lesson Road	2	.4			
				Costs included in restoration costs	

Trail Segment	Alternative Affected	Length (miles)	Gross Construction Cost	Advance and Project Planning Cost	Total Project Cost
Skyland Road trail from new parking area to Wilderness Road connector (upgrade)	2	.6	1,570	300	1,870
US 25E trail from new parking area to Wilderness Road connector	2	.6	15,720	3,000	18,720
Tri-State Peak trail (upgrade)	1,2,3	.3	790	150	940
Harlan Road trail to Pinnacle	1,2	.7	18,340	3,500	21,840
Harlan Road trail to Sugar Run picnic area	1,2	2.5	65,500	12,500	78,000
Connection from LMU trail to loop trail in town of Cumberland Gap	1,2	1.5	39,300	7,500	46,800
Abandoned Louisville and Nashville Railroad		14.0	Costs are beyond the scope of this DCP		
TOTALS		26.6	\$240,260	\$45,850	\$286,110

DESIGN CONSIDERATIONS FOR THE FOUR-LANING OF US 58

Present plans call for the four-laning of US 58 from the town of Cumberland Gap to where it leaves the park approximately 2 miles to the east. The site, design, and reconstruction of the road must be done sensitively so that it minimizes the effect on the trace of the historic Virginia Road, and so that any visual intrusion as may be seen from the Pinnacle or from the Gap and the Wilderness Road is softened and minimized. This may be accomplished by designing the two lanes at different levels to reduce cuts and fills, or allowing varying widths of the median strip so that the lanes more closely follow natural contours, and by planting trees within the median strip and as close as safety and regulations permit to the edges of the lanes.

ADMINISTRATIVE FUNCTIONS AT HEADQUARTERS COMPLEX

It is recommended that an in-depth study of the administrative functions and facilities at the headquarters complex, including the administrative, maintenance, interpretation, and ranger divisions, be undertaken to determine the most efficient and cost-effective arrangement of offices, shops, storage, and personnel. This should be accomplished after the organization chart has been revised to reflect the future operational needs once the Gap has been restored. There are a number of factors leading to this recommendation. When all road construction is complete and the Federal Highway Administration vacates the building they currently occupy near the ranger and maintenance shops, that building will become available for park use, such as offices and storage. Some of the other structures in that area are currently underused.

It must be determined what, if any, logistical requirements would be required of the National Park Service for future operation of the US 25E tunnels, or if other operational agencies would require administrative space and facilities in the headquarters area. Currently, it is understood that Kentucky and Tennessee will share the responsibility and costs of operating the tunnels.

The park library and museum collection are currently located in the floodplain, and in an area near the ranger facilities that is not easily accessible to the public. It has been suggested that the library and museum collection be moved to the Headquarters Visitor Center building in place of the park administrative offices, which would be moved to the maintenance/ranger area. This will provide easier access for the public to the park's library and records, adjacent to the existing visitor center, and will place all park administrative/operational functions closer to each other for enhanced efficiency.

ACCESSIBILITY AT HEADQUARTERS VISITOR CENTER

Currently, access for the mobility impaired to the upper level of the Headquarters Visitor Center is nonexistent. This situation eliminates the opportunity to witness the park's major indoor interpretive exhibits and audiovisual presentations for many park visitors.

Appropriate access for the mobility impaired from the first floor to the upper level should be provided. Two alternatives for access to the upper level appear to be feasible. One alternative would be a handicap accessible trail, leading outside from the patio on the first level to the patio on the upper level. During inclement weather, this alternative would cause additional discomfort to those forced to gain access to the second level by going outside the building. A second alternative would be to construct an elevator or other type of lifting device inside the building. This would require architectural modification. However, it would provide access to the upper level under more comfortable conditions that require less physical exertion than for the first alternative, and might provide for a more positive visitor experience.

SUMMARY OF ALTERNATIVES AND ESTIMATED COSTS

SUMMARY OF ALTERNATIVES

<u>ISSUE</u>	<u>ALTERNATIVE 1: COMPLETE RESTORATION</u>	<u>ALTERNATIVE 2: PARTIAL RESTORATION</u>	<u>ALTERNATIVE 3: MINIMAL RESTORATION</u>	<u>ALTERNATIVE 4: NO RESTORATION</u>
Restoration of the Gap and Wilderness Road	Restore Gap and visual surroundings (radius = 500 ft) to 1780-1810 time frame with cut and fill and full revegetation	Same as alternative 1	Same as alternative 1	
	Restore Wilderness Road to 1780-1810 time frame, horizontal and vertical trace	Same as alternative 1 on Kentucky side; restore horizontal trace on Virginia side	No restoration of Wilderness Road	
	Totally obliterate US 25E	Same as alternative 1, except over trace of Wilderness Road on Virginia side	Remove asphalt and guardrails and scarify bedding	
	Totally obliterate Object Lesson Road	Partially restore Object Lesson Road to 1908 period	No action on Object Lesson Road	
	Remove utilities in Gap and vicinity from view	Same as alternative 1	Same as alternative 1	
	Remove store and reservoir	Same as alternative 1	Same as alternative 1	
	Perform multidisciplinary study to determine historically accurate landscape restoration at Gap	Same as alternative 1	Same as alternative 1	
	Perform archeological study to determine historically accurate horizontal and vertical trace of Wilderness Road on Virginia side	Archeological study not necessary	Archeological study not necessary	
	Perform revegetation study with Soil Conservation Service and implement with seeds, shrubs, and trees	Same as alternative 1	Similar to as alternative 1 but with seed stock only	

ISSUE	ALTERNATIVE 1: COMPLETE RESTORATION	ALTERNATIVE 2: PARTIAL RESTORATION	ALTERNATIVE 3: MINIMAL RESTORATION	ALTERNATIVE 4: NO RESTORATION
Manage- ment of Cudjo Caverns				
Acquire all rights to cave from Lincoln Memorial University, except water rights, which they will retain	Same as alternative 1	Same as alternative 1	Same as alternative 1	Same as alternative 1
Remove trash, graffiti, organic building material, and asphalt on footpath	Same as alternative 1	Same as alternative 1	Same as alternative 1	Same as alternative 1
Remove unnatural black substance and algae	Same as alternative 1	Same as alternative 1	Same as alternative 1	Same as alternative 1
Remove existing lighting and replace with lighting that meets safety standards, to be used only for official purposes and in case of emergency	Same as alternative 1	Same as alternative 1	Same as alternative 1	Same as alternative 1
Conduct baseline inventory on natural and cultural resources	Same as alternative 1	Same as alternative 1	Same as alternative 1	Same as alternative 1
Provide security gates at all cave entrances and exits	Same as alternative 1	Same as alternative 1	Same as alternative 1	Same as alternative 1
Produce a cave management plan	Same as alternative 1	Same as alternative 1	Same as alternative 1	Same as alternative 1
Open only historic portion of Cudjo Caverns used during 1780-1810 period to public; use historic entrance; provide handicap access where feasible; conduct archeological study	Open both Soldiers and Solomon's caves to public, as now exists; use existing entrance and exit; provide handicap access where feasible; no archeological study needed	Same as alternative 1	Close cave to public use; open cave to official use only	Same as alternative 3
Improve footpaths and handrails for greater safety	Same as alternative 1	Same as alternative 1		
Restore natural features damaged by human activity	Same as alternative 1	Same as alternative 1		
Provide guided tours and charge a fee	Same as alternative 1	Same as alternative 1		
Provide carry-along audio device for interpretation for visually impaired	Same as alternative 1	Same as alternative 1		

<u>ISSUE</u>	<u>ALTERNATIVE 1: COMPLETE RESTORATION</u>	<u>ALTERNATIVE 2: PARTIAL RESTORATION</u>	<u>ALTERNATIVE 3: MINIMAL RESTORATION</u>	<u>ALTERNATIVE 4: NO RESTORATION</u>
Visitor Parking and Access to the Gap and Cudjo Caverns	Access to Gap via restored Wilderness Road on both sides of Gap	Same as alternative 1, plus access to Gap via Object Lesson Road on Kentucky side of Gap	Same as alternative 1	Inadequate access to Gap via unrestored Wilderness Road
	Provide conveyance for mobility impaired visitors on the Virginia side of the Gap	Same as alternative 1	No conveyance for mobility impaired	Same as alternative 3
	Provide access to Gap via trace of Lower Virginia Road leading up from Iron Furnace	Same as alternative 1	Same as alternative 1	Same as alternative 1
	Construct new public parking area (130 spaces) on Virginia side of Gap near intersection of US 25E and US 58; provide parking at site of former Schneider Packing Plant on Kentucky side of Gap	Same as alternative 1, plus an additional new parking area (80 spaces) on Kentucky side of Gap	Parking provided at site of former Schneider Packing Plant on Kentucky side of Gap; no new visitor parking on Virginia side of Gap	No new parking area on Virginia side or Kentucky side
	Other trails will lead to Gap, including Harlan Road and Cumberland Trail/Tri-State Peak Trail	Same as alternative 1	Same as alternative 1	Same as alternative 1
	If feasible, provide concession-operated van connecting Gap trailheads with the Headquarters Visitor Center and the Pinnacle	Same as alternative 1	Same as alternative 1	
Interpretive Media	13-14 new wayside exhibits for Wilderness Road corridor; new interpretive handbook; replacement of exhibits in main exhibit room and new exhibit in main lobby of Headquarters Visitor Center; new East Approach visitor information center (O'Dell House)--see "Interpretive Prospectus" section for detailed information	Same as alternative 1	2 new trailhead signs and 2 projects at Headquarters Visitor Center--park orientation exhibit in main visitor center lobby and replacement of exhibits in main exhibit room	

<u>ISSUE</u>	<u>ALTERNATIVE 1: COMPLETE RESTORATION</u>	<u>ALTERNATIVE 2: PARTIAL RESTORATION</u>	<u>ALTERNATIVE 3: MINIMAL RESTORATION</u>	<u>ALTERNATIVE 4: NO RESTORATION</u>
Proposed New Trails	7.6 miles	9.0 miles	1.4 miles	
Proposed Upgraded Trails	1.1 miles	1.7 miles	1.1 miles	
Accessibility to Head-quarters Visitor Center	Provide handicap access to upper level of Headquarters Visitor Center	Same as alternative 1	Same as alternative 1	
Total Project Costs	\$12,153,900	\$8,598,000	\$2,346,000	
Additional Annual O&M Costs	\$166,000/yr.	\$166,000/yr.	\$22,000/yr.	\$0/yr.

ESTIMATED COSTS

Cost Item	Units	Gross Construction Costs	Advance and Project Planning Costs	Total Project Costs
ALTERNATIVE 1				
Gap and Road Restoration Clearing and grubbing	10 acres	\$ 91,700	\$ 17,500	\$ 109,200
Obliteration				
Removal of asphalt and road base	2 miles	524,000	100,000	624,000
Object Lesson Road	.4 mile	65,500	12,500	78,000
Removal of trash	2 miles	1,300	300	1,600
Removal of signs	40 ea.	1,300	300	1,600
Removal of guardrails	1.5 miles	103,800	19,800	123,600
Site excavation and grading				
Removal of cut material	225,000 c.y.	3,537,000	675,000	4,212,000
Placement of fill material	132,000 c.y.	2,420,900	462,000	2,882,900
Restoration of Gap				
Placement of fill material	43,000 c.y.	788,600	150,500	939,100
Wilderness Road restoration in Virginia	.7 mile	238,400	45,500	283,900
Wilderness Road restoration in Kentucky	.8 mile	272,500	52,000	324,500
Archeological study for Wilderness Road	Lump sum	52,400	10,000	62,400
Multidisciplinary study for Gap restoration	Lump sum	7,900	1,500	9,400
Revegetation	Lump sum	317,000	60,500	377,500

Cost Item	Units	Gross Construction Costs	Advance and Project Planning Costs	Total Project Costs
ALTERNATIVE 1 (Cont.)				
Cudjo Cave Restoration				
Cave cleanup				
Removal of asphalt path	Lump sum	26,200	5,000	31,200
Removal of trash	Lump sum	1,300	300	1,600
Removal of lighting	Lump sum	2,600	500	3,100
Removal of algae	Lump sum	9,200	1,800	11,000
Archeological/speleological study for cave entrance	Lump sum	7,900	1,500	9,400
Visitor Parking				
Paved parking in Kentucky, Schneider Packing Plant	110 spaces	187,300	35,800	223,100
Paved entrance road	.01 mile	10,500	2,000	12,500
Paved parking in Virginia, O'Dell House	130 spaces	221,400	42,300	263,700
Paved entrance road	.07 mile	52,400	10,000	62,400
Paved walk at O'Dell parking	2,700 s.f.	19,700	3,800	23,500
Picnic tables at O'Dell parking area	3 ea.	2,000	400	2,400
Trash receptacles at parking areas	3 ea. area	2,400	500	2,900
Conveyance for mobility impaired	1 ea.	6,600	1,300	7,900

Cost Item	Units	Gross Construction Costs	Advance and Project Planning Costs	Total Project Costs
ALTERNATIVE 1 (Cont.)				
Trails				
New construction	7.6 miles	199,100	38,000	237,100
Upgrade existing	1.1 miles	2,900	600	3,500
Elevated boardwalk	1,800 s.f.	75,500	14,400	89,900
Utilities relocation		*	*	*
Store and Reservoir Removal		*	*	*
Headquarters Visitor Center handicap accessibility		*	*	*
O'Dell House Rehabilitation	2,000 s.f.	<u>131,000</u>	<u>25,000</u>	<u>156,000</u>
Subtotal		\$9,380,300	\$1,790,600	\$11,170,900
Interpretive Media				<u>983,000</u>
Total Project Cost				\$12,153,900

* To be determined

Cost Item	Units	Gross Construction Costs	Advance and Project Planning Costs	Total Project Costs
ALTERNATIVE 2				
Gap and Road Restoration Clearing and grubbing	10 acres	\$ 91,700	\$ 17,500	\$ 109,200
Obliteration				
Removal of asphalt and road base	2 miles	524,000	100,000	624,000
Removal of trash	2 miles	1,300	300	1,600
Removal of signs	40 ea.	1,300	300	1,600
Removal of guardrails	1.5 miles	103,800	19,800	123,600
Site excavation and grading				
Removal of cut material	20,000 c.y.	314,400	60,000	374,400
Placement of fill material	147,000 c.y.	2,696,000	514,500	3,210,500
Restoration of Gap				
Placement of fill material	43,000 c.y.	788,600	150,500	939,100
Wilderness Road restoration in Virginia	.7 mile	238,400	45,500	283,900
Wilderness Road restoration in Kentucky	.8 mile	272,500	52,000	324,500
Object Lesson Road restoration	.4 mile	2,400	500	2,900
Multidisciplinary study for Gap restoration	Lump sum	7,900	1,500	9,400
Revegetation	Lump sum	276,400	52,800	329,200

Cbst Item	Units	Gross Construction Costs	Advance and Project Planning Costs	Total Project Costs
ALTERNATIVE 2 (Cont.)				
Cudjo Cave Restoration Cave cleanup				
Removal of asphalt path	Lump sum	26,200	5,000	31,200
Removal of trash	Lump sum	1,300	300	1,600
Removal of lighting	Lump sum	2,600	500	3,100
Removal of algae	Lump sum	9,200	1,800	11,000
Visitor Parking				
Paved parking in Kentucky, Schneider Packing Plant				
Paved entrance road	75 spaces .01 mile	127,700 10,500	24,400 2,000	152,100 12,500
Paved parking in Kentucky, Skyland Road				
Paved entrance road	80 spaces .01 mile	136,200 10,500	26,000 2,000	162,200 12,500
Paved parking in Virginia, O'Dell House				
Paved entrance road	130 spaces .07 mile	221,400 52,400	42,300 10,000	263,700 62,400
Paved walk at O'Dell parking	2,700 s.f.	19,700	3,800	23,500
Picnic tables at O'Dell parking area	3 ea.	2,000	400	2,400
Trash receptacles at parking areas	3 ea. area	2,400	500	2,900
Conveyance for mobility impaired	1 ea.	6,600	1,300	7,900

Cost Item	Units	Gross Construction Costs	Advance and Project Planning Costs	Total Project Costs
ALTERNATIVE 2 (Cont.)				
Trails				
New construction	9.0 miles	235,800	45,000	280,800
Upgrade existing	1.7 miles	4,500	900	5,400
Elevated boardwalk	1,800 s.f.	75,500	14,400	89,900
Utilities relocation		*	*	*
Store and Reservoir Removal		*	*	*
Headquarters Visitor Center handicap accessibility		*	*	*
O'Dell House Rehabilitation	2,000 s.f.	131,000	25,000	156,000
Subtotal		\$6,394,200	\$1,220,800	\$ 7,615,000
Interpretive Media				983,000
Total Project Cost				\$ 8,598,000

* To be determined

Cost Item	Units	Gross Construction Costs	Advance and Project Planning Costs	Total Project Costs
ALTERNATIVE 3				
Gap and Road Restoration Clearing and grubbing	10 acres	\$ 91,700	\$ 17,500	\$ 109,200
Obliteration				
Scarify asphalt and road base	2 miles	184,400	35,200	219,600
Removal of trash	2 miles	1,300	300	1,600
Removal of signs	40 ea.	1,300	300	1,600
Removal of guardrails	1.5 miles	103,800	19,800	123,600
Restoration of Gap				
Placement of fill material	43,000 c.y.	788,6020	150,500	939,100
Multidisciplinary study for Gap restoration	Lump sum	7,900	1,500	9,400
Revegetation	Lump sum	145,400	27,800	173,200
Cudjo Cave Restoration				
Cave cleanup	Lump sum	26,200	5,000	31,200
Removal of asphalt path	Lump sum	1,300	300	1,600
Removal of trash	Lump sum	2,600	500	3,100
Removal of lighting	Lump sum	9,200	1,800	11,000
Removal of algae	Lump sum			
Visitor Parking				
Paved parking in Kentucky, Schneider Packing Plant	75 spaces	127,700	24,400	152,100
Paved entrance road	.01 mile	10,500	2,000	12,500

Cost Item	Units	Gross Construction Costs	Advance and Project Planning Costs	Total Project Costs
ALTERNATIVE 3				
Trails				
New construction	1.4 miles	36,700	7,000	43,700
Upgrade existing	1.1 miles	<u>2,900</u>	<u>600</u>	<u>3,500</u>
Utilities relocation		*	*	*
Store and Reservoir Removal Headquarters Visitor Center handicap accessibility		*	*	*
Subtotal		\$1,541,500	\$294,500	\$1,836,000
Interpretive Media				<u>510,000</u>
Total Project Cost				\$2,346,000
ALTERNATIVE 4				
No restoration, new parking, trails, or interpretive media		\$0	\$0	\$0
Total Project Cost				\$0

* To be determined

ADDITIONAL ANNUAL COSTS

Associated with the initial development and increased visitor use for the various alternatives are the following increases in annual staffing and operational costs. There is no significant difference between those for alternatives 1 and 2. Those for alternative 3 are significantly less, and there are no additional annual costs for alternative 4. All personnel costs include 30 percent benefits for full-time employees and 8 percent benefits for seasonal employees.

ALTERNATIVES 1 AND 2

Interpretation

O'Dell House

1 full-time interpretive specialist	
1 FTE (GS-7)	\$ 29,000
2 seasonal interpreters	
1 FTE (GS-4)	17,000

Cudjo Caverns Guided Tours*

1 full-time interpretive specialist	
1 FTE (GS-4)	21,000
4 seasonal interpreters	
3 FTE (GS-4)	52,000

Maintenance

1 full-time maintenance worker	
1 FTE (WG-5)	23,000

Ranger

1 seasonal park ranger	
.5 FTE (GS-5)	<u>10,000</u>

Subtotal Personnel \$152,000

Materials, supplies, equipment, utilities	10,000
One vehicle @ \$333/month	<u>4,000</u>

Total Operational Cost \$166,000/yr.

* If tours were to be concession operated, 5 interpreters would be replaced by 1 full-time concession specialist, 1 FTE (GS-7 = \$29,000, instead of \$73,000; a difference of \$44,000/year.)

ALTERNATIVE 3

Maintenance

1 seasonal maintenance worker
.5 FTE (WG-5)

\$10,000

Ranger

1 seasonal park ranger
.5 FTE (GS-5)

10,000

Materials, supplies, equipment

2,000

Total Operational Costs \$22,000/yr.

ALTERNATIVE 4

Total Operational Costs \$0/yr.

SUMMARY OF RECOMMENDED STUDIES, PLANS, AND ACTIONS

STUDY/ACTION**APPLICABLE ALTERNATIVE**

Archeological study to determine historic vertical and horizontal trace of Wilderness Road	1
Archeological study to determine historic entrance(s) to Cudjo Caverns	1
Wayside exhibit plan, interpretive handbook, exhibit plans for the Headquarters Visitor Center and the O'Dell House Visitor Information Center, and an audiovisual treatment plan for the programmatic access to Cudjo Caverns – to prepare interpretive developments	1, 2
Revegetation plan	1, 2, 3
Multidisciplinary study to determine historical appearance of the Gap	1, 2, 3
Negotiation with utility owners to remove utility lines from Gap and vicinity	1, 2, 3
Negotiation with Lincoln Memorial University to remove store and reservoir from US 25E leading to Gap	1, 2, 3
Layout of walking trail through town of Cumberland Gap connecting Iron Furnace with O'Dell House	1, 2, 3
Design and construction of access for the mobility impaired to upper level of the Headquarters Visitor Center	1, 2, 3
Feasibility study for a concession-operated passenger van	1, 2, 3
Compliance actions (see "Compliance Status" section)	1, 2, 3
Cave management plan	1, 2, 3, 4
Determination of historical significance of the O'Dell House, and possible requirement for a historic structure report and nomination to the National Register of Historic Places	1, 2, 3, 4
Reorganization of administrative and operational function and facilities at headquarters complex	1, 2, 3, 4
Design for the reconstruction of US 58 to minimize adverse visual impact	1, 2, 3, 4

ENVIRONMENTAL CONSEQUENCES

IMPACTS COMMON TO EACH ALTERNATIVE

TOPOGRAPHY/GEOLOGY/SOILS

The three proposed parking areas would be constructed on previously cleared land. The site at the intersection of US 25E and US 58 in Virginia is to be used for storage of fill material excavated from the new US 25E alignment, and will require the removal of approximately 4 acres of second-growth hardwoods. The site near the Skyland Road bridge in Kentucky is also to be used for storage of fill material, and will require the removal of approximately 3 acres of second-growth hardwoods. The site at the former Schneider Packing Plant off Skyland Road is already cleared, and is currently serving as a construction staging area.

A minimal amount of clearing would be needed to reestablish the historic Wilderness Road on the Kentucky side of the Gap. There would be no impact by using the Lower Virginia Road for access to the Gap since this trail currently exists. With the removal of vehicular traffic, more visitors would be inclined to walk in the area around the Gap. This might result in an increase of social trails and trampled vegetation.

In each alternative, all reasonable attempts would be provided to prevent the intrusion of exotic plant species. During the initial revegetation phase, there would be a temporary increase in surface erosion. Also, although aesthetically improved with the removal of the road surface, the newly recontoured/revegetated area would be clearly visible for a number of years.

HYDROLOGY

During the restoration/obliteration phase for alternatives 1, 2, and 3, sediment loads for Gap Creek and Davis Branch might increase. Stream sediment loading was discussed in a supplemental biological assessment, prepared by the National Park Service in December 1988. Mitigation would be implemented so that only minor increases would occur (see "Mitigating Measures" section).

CUDJO CAVERNS

Under all four alternatives, there would be a positive impact on Cudjo Caverns. A cave management plan would help ensure wise management and better resource protection in the future. The removal of trash, graffiti, and algae, and the restoration of damaged natural features would increase the aesthetic quality of the cave. Removal of contaminants, i.e. trash, algae and asphalt path, would benefit the natural processes of the cave. Guided tours under the strict NPS supervision for alternatives 1 and 2 are expected to provide more protection for the cave and to reduce current negative impacts of visitation (trash and damage to cave features).

IMPACTS SPECIFIC TO EACH ALTERNATIVE

ALTERNATIVE 1: COMPLETE RESTORATION

Implementation of this alternative would restore to a more historically accurate and natural condition approximately 11.5 acres, consisting primarily of 9.7 acres of the current US 25E alignment, and the saddle of the Gap. The remaining 1.8 acres is the trace of the historic Object Lesson Road, which would be obliterated, recontoured, and revegetated. Approximately 225,000 cubic yards of excavated material would be removed, and other areas would be covered by 175,000 cubic yards of material. This results in an excess of 50,000 yards to be disposed of off-site (see Alternative 1 – Surface Restoration Plan). It has been suggested that the Gap and Wilderness Road restoration project area would be an ideal location to deposit excess excavated material from the tunnel and reconstruction of US 25E. If alternative 1 were selected, this excess material would not be needed, and would have to be disposed of outside the park boundaries at an added expense to the government.

The recontoured area would be covered by topsoil to an average depth of 6 inches and revegetated. This revegetation of the road alignment would consist of native grasses, shrubs, and trees, and would be designed so that it blends with the adjacent vegetation 20 years after planting.

The desired visitor experience of witnessing a scene similar to that ca. 1780-1810, while hiking through the Gap, can be realized with this alternative.

The historic entrance to Cudjo Caverns, if it is found, would be reestablished and the existing entrance closed. This would probably result in visitation through a short segment

of the cave (less than 100 feet) that has not been extensively used. With only the portion of cave open to the public that was used ca. 1800 (the lower, or Solomon's Cave), impacts associated with visitation to the remainder of the cave system would be further reduced.

ALTERNATIVE 2: PARTIAL RESTORATION (PREFERRED ALTERNATIVE)

Implementation of this alternative would restore to a more historically accurate and natural condition the saddle of the Gap, the Wilderness Road on the Kentucky side, and the horizontal trace of the Wilderness Road on the Virginia side. The US 25E alignment, where it veers away from the historic Wilderness Road, would be completely obliterated. The entire alignment of US 25E, about 5.8 acres, would be restored to a more natural condition. Approximately 20,000 cubic yards of excavated material would be removed, and other areas would be covered by 190,000 cubic yards of material. This would result in a net requirement of 170,000 cubic yards of fill to be brought in from off-site (see Alternative 2 – Surface Restoration Plan). It is expected that much, if not all, of this fill can be provided by excess excavated material from the tunnel and reconstruction of US 25E, representing an estimated cost savings to the government of \$2 million.

The recontoured area would be covered by topsoil to an average depth of 6 inches and revegetated. This revegetation of the road alignment would consist of native grasses, shrubs, and trees, and would be designed so that it blends with the adjacent vegetation 20 years after planting. The historic Object Lesson Road, consisting of about 1.8 acres, would be cleared of shrub and tree vegetation (primarily Virginia Pine saplings less than 8 feet in height), and existing remaining grasses would remain.

As in alternative 1, the desired visitor experience of witnessing a scene similar to that ca. 1780-1810, while hiking through the Gap, can be realized. In addition, of all alternatives,

with the clearing of the Object Lesson Road and construction of a new parking area on the Kentucky side near the Object Lesson Road, this alternative offers the most variety for hikers who wish to experience the historical wilderness setting.

ALTERNATIVE 3: MINIMAL RESTORATION

Implementation of this alternative would remove the asphalt and guardrails from the US 25E alignment, scarify the road bed, cover the road surface with approximately 6 inches of topsoil, and seed with native grasses. A total of 43,000 cubic yards of fill would be required for the Gap for this alternative. It is expected that all of this fill could be provided by excess excavated material from the tunnel and reconstruction of US 25E. Although some effort would be made to control exotic plant species such as kudzu, without an active exotic plant eradication program, invasion by exotic species could replace all habitat that would normally be available to native species.

The aesthetic quality of the area, while perhaps increased from current conditions, would be less than that of alternatives 1 and 2. The desired visitor experience of witnessing a scene at the Gap similar to that ca. 1780-1810 can be accomplished with this alternative, but only after a much longer period of time, because trees and shrubs would not be planted. Similarly, the desired experience of witnessing the historic scene along the Virginia approach to the Gap would be met to a lesser extent than in alternative 1 or 2.

Cudjo Caverns would not be open to public use. This would eliminate a very popular tourist attraction, but would afford the greatest protection to the resources of the cave. Cave processes would function with relatively little disturbance.

ALTERNATIVE 4: NO RESTORATION

Implementation of this alternative would be contrary to the intent of legislation authorizing the relocation of US 25E so that the Gap could be restored. The pavement of US 25E would remain an intrusion on the prime historic resource for which the national historical park was named – the Gap itself. The pavement would also be an intrusion on the historical appearance of the Wilderness Road. The aesthetic appearance of the area, the historical accuracy of the setting, and the visitor experience of hiking to the Gap on a paved highway would be the least desirable of the four alternatives. As in alternative 3, the eventual invasion by exotic plants such as kudzu would be expected. Also as in alternative 3, the closing of Cudjo Caverns would eliminate a very popular tourist attraction, but would afford the greatest protection to the cave resources and would allow cave processes to function with relatively little disturbance.

Approximately 43,000 more cubic yards of fill from the current US 25E relocation project would have to be disposed of outside the park in this alternative, compared to alternatives 1, 2, and 3. This represents an additional estimated cost to the government of \$470,000.

MITIGATING MEASURES

The following mitigating measures are stipulated in the supplement to the biological assessment, dated January 1989, for the federally threatened blackside dace in Davis Branch.

- A riparian/vegetation/canopy buffer of at least 100 feet would be maintained along the streambank.
- A silt fence would be installed before rehabilitation work begins.
- No material of acidic nature would be used in any fill area.
- The rehabilitated road, with topsoil added, would be revegetated immediately upon completion of each section.
- Revegetation would use species native to the Cumberland Mountain area.
- Seeding would also entail hydro-mulching as a means of keeping topsoil and seeds in place (seeding may take the form of commercial matting, hydro-seeding, or hand/mechanical seeding).
- No nonbiodegradable vegetation matting would be used.
- Consideration should be given to no construction during the dace spawning season: April through June (this is also the rainy season and could add high amounts of silt to the stream).

Also, security gates placed on the entrance and exit to Cudjo Caverns should allow bats and other cave-dwelling creatures to pass through.

COMPLIANCE STATUS

CULTURAL RESOURCES

The National Park Service's Southeast Regional Office is consulting with the state historic preservation officers of Kentucky, Tennessee, and Virginia, and with the Advisory Council on Historic Preservation under the Programmatic Memorandum of Agreement among the National Conference of State Historic Preservation Officers, the Advisory Council on Historic Preservation, and the National Park Service. These consultations should result in a memorandum of agreement on the *Development Concept Plan/Interpretive Prospectus*. Actions outlined in that plan may then proceed upon completion of an "Assessment of Effect" (XXX) form documenting project effects and outlining any mitigation measures required.

The National Park Service will undertake archeological survey and evaluation measures wherever ground-disturbing activities are necessitated by the plan. Based on the results of the surveys, changes in proposed actions may be required to avoid damaging cultural resources.

Alternatives 1 and 2 call for the adaptation of the O'Dell House for use as a visitor information center. The O'Dell House was constructed in 1925; however, its historical significance has not yet been determined. Prior to altering the structure for adaptive use as a visitor information center, its historical significance will be assessed. If found not to be historically or architecturally significant, no further compliance with section 106 of the National Historic Preservation Act, as amended, will be required. If found to be historically significant, a historic structures report will be prepared, and the house will be nominated

for inclusion on the National Register of Historic Places. Proposed modifications to the building would then be addressed in a section 106 case report.

NATIONAL ENVIRONMENTAL POLICY ACT OF 1969

The draft *Restoration of Cumberland Gap and Wilderness Road Development Concept Plan/Interpretive Prospectus/Environmental Assessment* provides disclosure of the planning and decision-making process and potential environmental consequences of alternatives, as required by the National Environmental Policy Act. The draft document will be available for public review. Agency and public comments will then be considered. The draft plan and environmental analysis will be reviewed in light of the comments, and a final development concept plan will be published.

ENDANGERED SPECIES ACT OF 1973

Section 7 of the Endangered Species Act directs all federal agencies to use their authorities in furtherance of the purposes of the act by carrying out programs for the conservation of endangered or threatened species. Federal agencies are required to consult with the U.S. Fish and Wildlife Service to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of listed species or critical habitat.

Informal consultation under section 7 of the Endangered Species Act was initiated with the U.S. Fish and Wildlife Service for the *Final Environmental Impact Statement* for the park's *Master Plan* in November 1977. In March 1980 the National Park Service, in continuing section 7 consultation, completed a biological assessment for the relocation of US 25E and restoration of the historic Wilderness Road at Cumberland Gap National Historical Park. On

May 13, 1980, the U.S. Fish and Wildlife Service responded with a concurrence of the NPS "no effect" on the red-cockaded woodpecker, Indiana bat, and gray bat. In December 1988 the National Park Service continued section 7 consultation with a supplemental biological assessment because of the need to address three critical changes concerning the project. In January 1989 the U.S. Fish and Wildlife Service again responded with a concurrence of the NPS "no effect" on the Indiana bat, gray bat, and blackside dace. The 1988 biological assessment and this draft *Development Concept Plan/Environmental Assessment* contain mitigating measures for the project that will be used for protection of the listed species.

EXECUTIVE ORDER 11988 ("FLOODPLAIN MANAGEMENT") AND EXECUTIVE ORDER 11990 ("PROTECTION OF WETLANDS")

Executive orders 11988 ("Floodplain Management") and 11990 ("Protection of Wetlands") direct federal agencies to enhance floodplain and wetland values, to avoid development in floodplains and wetlands whenever there is a practicable alternative, and to avoid to the extent possible adverse impacts associated with the occupancy or modification of floodplains and wetlands.

Alternatives 1, 2, and 3 call for some type of restoration of US 25E that does pass through the floodplain of Davis Branch. Floodplain and wetland compliance as required by the above-mentioned executive orders has been completed in conjunction with the 1980 *Environmental Impact Statement* on the realignment of US 25E. Nothing in this plan changes the accomplished compliance procedures in the 1980 EIS.

None of the actions in any of the alternatives are expected to result in significant long-term or short-term adverse effects on wetlands. Rather, wetland values will be interpreted to further the public's appreciation of wetland communities.

FEDERAL WATER POLLUTION CONTROL ACT

New facility (parking area) construction and park operations will have little effect on water quality. NPS fill operations will comply with the requirements of section 404 of the Federal Water Pollution Control Act and other applicable federal and state regulations. Parking areas and other developed sites will be designed to allow storm water to percolate into the soil rather than run off directly into adjacent wetlands, thus helping to protect water quality of streams. Existing or future sewage treatment or solid waste disposal systems will continue to comply with federal and state regulations to avoid pollution of adjacent surface or groundwater resources.

COUNCIL ON ENVIRONMENTAL QUALITY MEMORANDUM ON PRIME OR UNIQUE FARMLAND SOILS

A memorandum dated August 11, 1980, from the Council on Environmental Quality requires federal agencies to assess the effects of their actions on soils classified by the Soil Conservation Service as prime or unique farmlands. The Soil Conservation Service's state soil scientist reports that no such soils occur within the project area; consequently, there will be no impact.

OTHER CONSIDERATIONS

The project area lies within the boundaries of three states – Virginia, Tennessee, and Kentucky. It will be imperative that the National Park Service review all applicable state regulations in order to pursue permit requirements for each state.

In May 1989 the National Park Service contacted all three states and requested information concerning state-listed threatened or endangered species or species of special concern. The responses are as follows:

Virginia – stated that Cudjo Caverns is a unique natural community and that several rare species exist (those species are listed in the "Description of the Environment" section under the natural resources); requested that special care be taken to protect the hydrology of the cave.

Tennessee – no response.

Kentucky – stated that the species listed below have been identified in the area (T = Threatened, E = Endangered, S = Species of Special Concern, N = Not Listed, and LT = Listed Threatened).

<u>Scientific Name</u>	<u>Common Name</u>	<u>State</u>	<u>Federal</u>
<i>Amianthium muscaetoxicum</i>	Fly poison	T	N
<i>Calamagrostis proteri</i>	Porter's reed grass	E	N
<i>Castanea pumlia</i>	Chinquapin	E	N
<i>Convallaria montana</i>	American lily of the valley	E	N
<i>Helianthus atrorubens</i>	Sunflower	E	N
<i>Lathyrus venosus</i>	Bushy vetch	S	N
<i>Philadelphus hirsutus</i>	Mock orange	E	N
<i>Phoxinus cumberlandensis</i>	Blacksided dace	E	LT
<i>Sorex cinereus</i>	Common shrew	S	N

APPENDIX/BIBLIOGRAPHY/PLANNING TEAM/RESPONSE FORM

APPENDIX: PUBLIC INVOLVEMENT

On Tuesday evening, March 14, 1989, the planning team conducted a public meeting in the visitor center at Cumberland Gap National Historical Park. Approximately 20 people from the nearby communities attended. After a short introduction by the superintendent, team captain, and historians, the issues to be addressed were posted to guide and direct comments. Several in the audience commented on not excluding historical events at the Gap that fall outside the period of restoration, 1780-1810. In particular, they noted the Civil War and transportation history before and after 1800.

Other attenders commented on the need for keeping Cudjo Caverns open and access provided to it, especially as related to the local economy. Particular comments underscored proper lighting of the cave and safety of cave visitors.

Residents of Cumberland Gap, Tennessee, expressed concern about safeguarding the water system from Cudjo Caverns, replacement of the concrete reservoir, water treatment, and possible increased cost of water to the community.

Many noted the important role tourism plays in the economic base of the area. Access to the Gap, the Pinnacle, Cudjo Caverns, and camping facilities was brought up in conjunction with eliminating present US 25E through the Gap. Suggestions expressed were access by wagons, access by a chair lift, trail signs, improved parking, a visitor information center in Tennessee, and access for the elderly.

Other comments included the expansion of the present fitness trail, the connection of existing trails, possible trails to the picnic and camping areas of Sugar Run and Wilderness Road, and the use of the abandoned railroad bed through Little Tunnel as a hiking trail in Tennessee and Virginia. A desire for water and electrical hookups at the Wilderness Road Campground was also stated.

Several expressed concern about the new highway alignment girdling Cumberland Gap, Tennessee, thus constricting expansion.

All comments and concerns brought up at the meeting were considered by the planning team during the creation of this *Development Concept Plan*.

A public response form is provided in the back of this document to make it convenient for people to comment on the alternatives for restoring Cumberland Gap and the Wilderness Road, and on associated proposals for interpretation, visitor use, and development. Comments should be sent to the park superintendent within 30 days of receipt of this document.

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PUBLIC COMMENTS RESPONSE FORM

This tear-out public response form is provided to make it convenient for you to comment on the alternatives for restoring Cumberland Gap and the Wilderness Road, and on associated proposals for interpretation, visitor use, and development. The form is self-addressed and postpaid. Please return your comments within 30 days of receipt of this document. We welcome your thoughts and encourage your continued interest in the future of Cumberland Gap National Historical Park.

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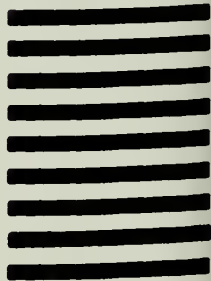


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