



BRYCE CANYON NATIONAL PARK, UTAH

ASSESSMENT OF ALTERNATIVES FOR THE GENERAL MANAGEMENT PLAN

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Department of the Interior

National Park Service

Assessment of Alternatives

General Management Plan

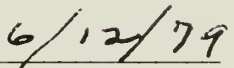
Bryce Canyon National Park

Utah

Prepared by

Rocky Mountain Regional Office


Regional Director, Rocky Mountain Region


Date

ASSESSMENT OF ALTERNATIVES
GENERAL MANAGEMENT PLAN
BRYCE CANYON NATIONAL PARK

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I. INTRODUCTION

A. Purpose of Study

Due to changes which take place and affect the management of a National Park Service area, there is always the need to periodically reevaluate the guidelines by which a park is achieving its objectives. The existing master plan for Bryce Canyon National Park, now referred to as a general management plan, was approved in 1966. Considering the evolution that has occurred since the master plan was approved, approximately 13 years ago, a number of issues have surfaced necessitating a reevaluation and update of the old master plan.

B. Study Objectives

1. Identify the various issues now facing the management of Bryce Canyon National Park.

2. Identify for consideration all of the reasonable alternatives for resolving those issues identified herein.

3. Identify the beneficial and adverse impacts of implementing each alternative.

4. Identify the needs and consideration which have an influence on the management of the park as well as the formulation of alternatives for resolving various issues.

II. BACKGROUND INFORMATION

A. Legislative History

Bryce Canyon National Park was originally established as a national monument by Proclamation No. 1664, dated June 9, 1923, (43 Stat. 1914). The monument was administered by the Forest Service under the Department of Agriculture. On June 7, 1924, Congress passed a bill for the establishment of Utah National Park. On February 25, 1928, Congress passed a revised bill that practically doubled the size of the park and changed the name to Bryce Canyon National Park.

B. Park Purpose

Bryce Canyon National Park was originally established as a national monument to conserve one of the world's most outstanding examples of geologic erosion.

The above purpose is based on the following relevant portion of Proclamation No. 1664 of June 8, 1923, (43 Stat. 1914) establishing the area as a monument:

"Whereas, certain lands within the Powell National Forest in the State of Utah, known as Bryce Canyon National Park, are of unusual scenic beauty, scientific interest and importance, and it appears that the public interest will be promoted by reserving these areas with as much land as may be necessary for the proper protection thereof as a national monument."

C. Location and Access

Bryce Canyon National Park is located in south-central Utah, about 24 miles south of Panquitch, Utah, and 70 miles northeast of Zion National Park (See Figure 1). The northern part of the park is located in Garfield County and the southern portion is situated in Kane County. Most of the land surrounding Bryce Canyon National Park is in Federal ownership. The park is bordered on the western, southern and most of the eastern boundary by Dixie National Forest. The Bureau of Land Management owns and manages land along the northern and northeastern boundaries. The remaining bordering land is owned by the State of Utah and private landowners.

Main access to Bryce Canyon National Park is obtained via U.S. Highway 89 to State Highway 12. Some visitors also use State Highway 22 to State Highway 12 and Grover/Boulder Road from Capitol Reef National Park.

Public transportation in the immediate vicinity of the park is virtually nonexistent except for the north-south bus transportation through Panquitch, Utah. Cedar City, Utah, is served by Sky West Airlines, as well as by bus service. Rental cars are available in Cedar City, 80 miles from the park. Bryce Canyon Airfield located adjacent to the north boundary of the park has no scheduled air service.

D. Existing Land Management and Use (See Figure 2)

1. Development Zone - This zone includes the portion of the park which contains the major structural improvements within Bryce Canyon National Park. These include the concession buildings; park headquarters; visitor center building; maintenance shops; campgrounds; residential area; and related parking areas. The zone is managed so as to prevent excessive expansion, but not to discourage internal zonal improvements. Presently, the policy is to encourage development outside the park boundaries and continue to limit development internally.

2. Natural Zone

a. Wilderness Subzone - This subzone consists of lands below the rim, but does not include the Bryce Canyon National Park amphitheater and the major trail system there. The management of the subzone strictly conforms to the wilderness management policies of the National Park Service.

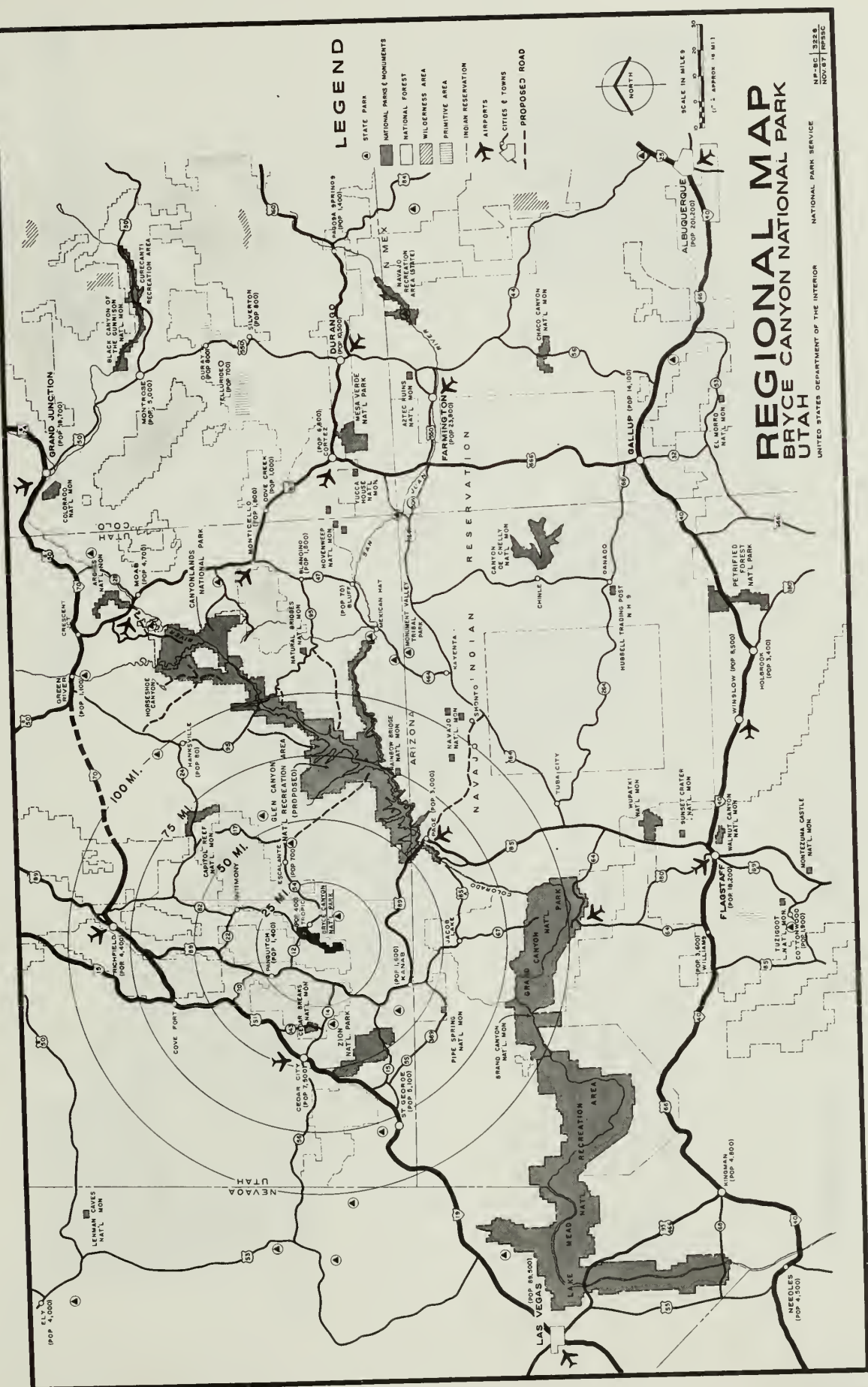


figure 1

EXISTING LAND MANAGEMENT AND USE BRYCE CANYON NATIONAL PARK UTAH

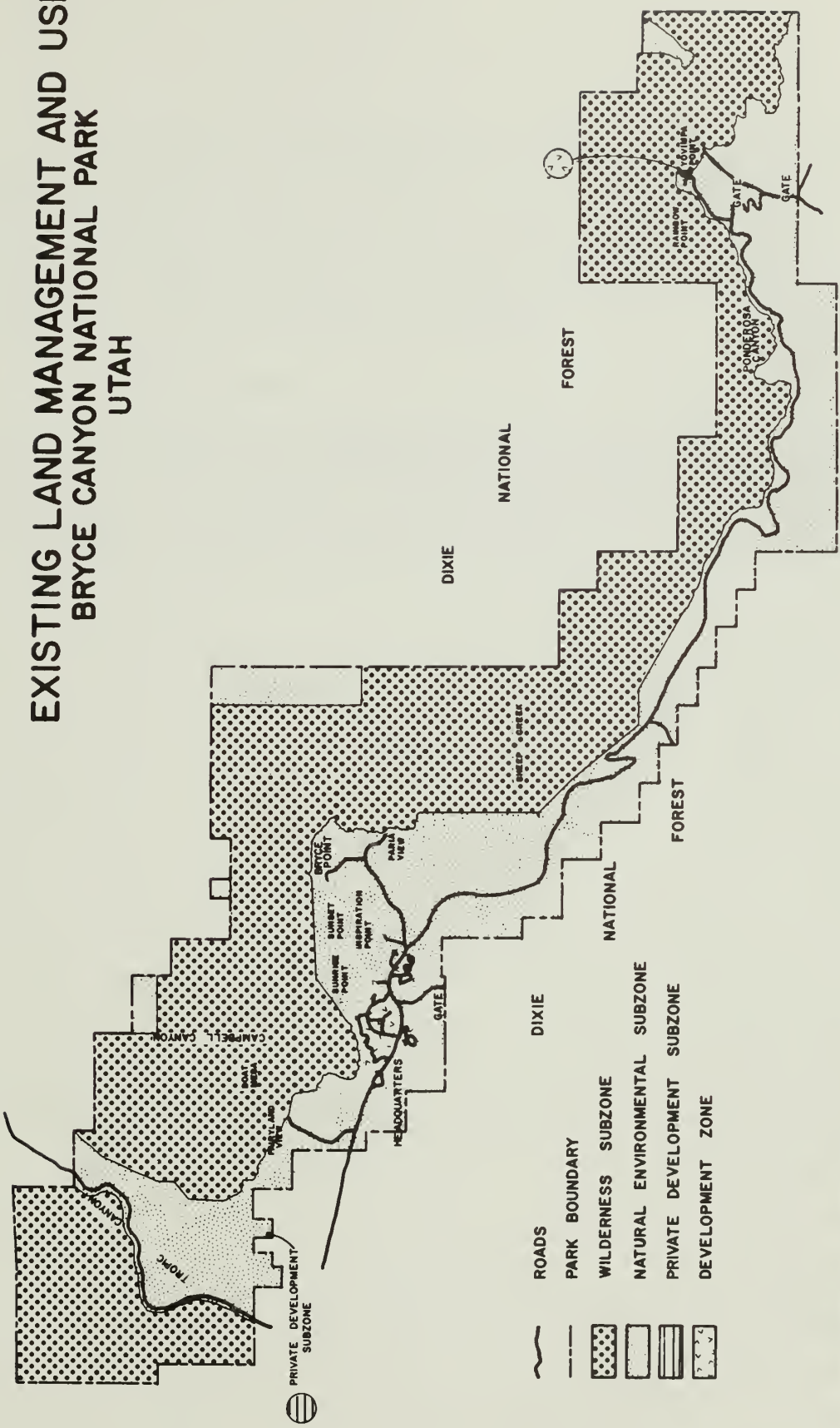


figure 2

b. Natural Environment Subzone - This zone consists of those lands not included in the wilderness zone, yet are not developed. For the most part these areas are above the rim. The management of these lands is based on preservation; that is these lands are used, but protected against development. Viewpoints and trail heads may be improved, and trails may be improved and surfaced should visitor safety dictate such is necessary. Lands upon which local interest hold water rights to surface springs are included in this subzone.

3. Special Use Zone

a. Private Development Subzone - This zone includes the private lands which are located within the boundary of the park. The management policy is to obtain ownership of these lands whenever the land owner desires to sell or whenever there is a threat of the land being put to a use incompatible with the purpose of the park.

E. Constraints

1. Legislative and Administrative Constraints (See Figure 3)

a. Legislative

(1) An Act dated March 7, 1942, (56 Stat. 141), to correct the description of land and establish the present boundary of Bryce Canyon National Park pursuant to the Act of February 17, 1931, (46 Stat. 1166).

(2) "Provided that nothing herein shall affect any valid existing claims upon the lands herein authorized to be added to the park or the rights of stockmen to continue to drive stock over the lands now under an existing stock driveway withdrawal (U.S.C., 6th Supplement, Title 16, Sec. 402-F)." Act of February 17, 1931, (46 Stat. 1166), "but if any of the privately-owned lands shall be conveyed to the United States or any existing claim, location or entry is cancelled, the land so affected shall become a part of the said Bryce Canyon National Park." (Proclamation No. 1952, May 4, 1931 - 47 Stat. 2455).

There are three stock driveways involved, namely: Tropic Canyon, Campbell Canyon, and Sheep Creek.

(3) The Tropic irrigation ditch crosses the park through Water Canyon. The ditch has been in existence since 1894, prior to establishment of the park and legislatively recognized. (Act, February 17, 1931 - 46 Stat. 1166.)

b. Concession

(1) There is a concession contract, No. 14-10-9-900-224, with Jack H. Church for saddle horse/mule trip services and tours within the park dated February 12, 1970, which expires December 31, 1979. On November 30, 1975, this contract was assigned and sent over to Bryce-Zion Trail Rides, Inc. and consummated on August 19, 1976.

(2) There is a concession contract, No. 900C20039, with TWA Services, Inc., for overnight lodging, camper store, laundromat, showers, gas station, gift shop, and dining facilities, dated March 30, 1973, covering the period from January 1, 1973, through December 31, 1982.

c. Special Use Permits

(1) Special Use Permit No. 1330-4-7001, expiration date May 31, 1984, for a 44,000 KVA powerline serving southern Garfield County residents by Garkane Power Association, Inc., Richfield, Utah.

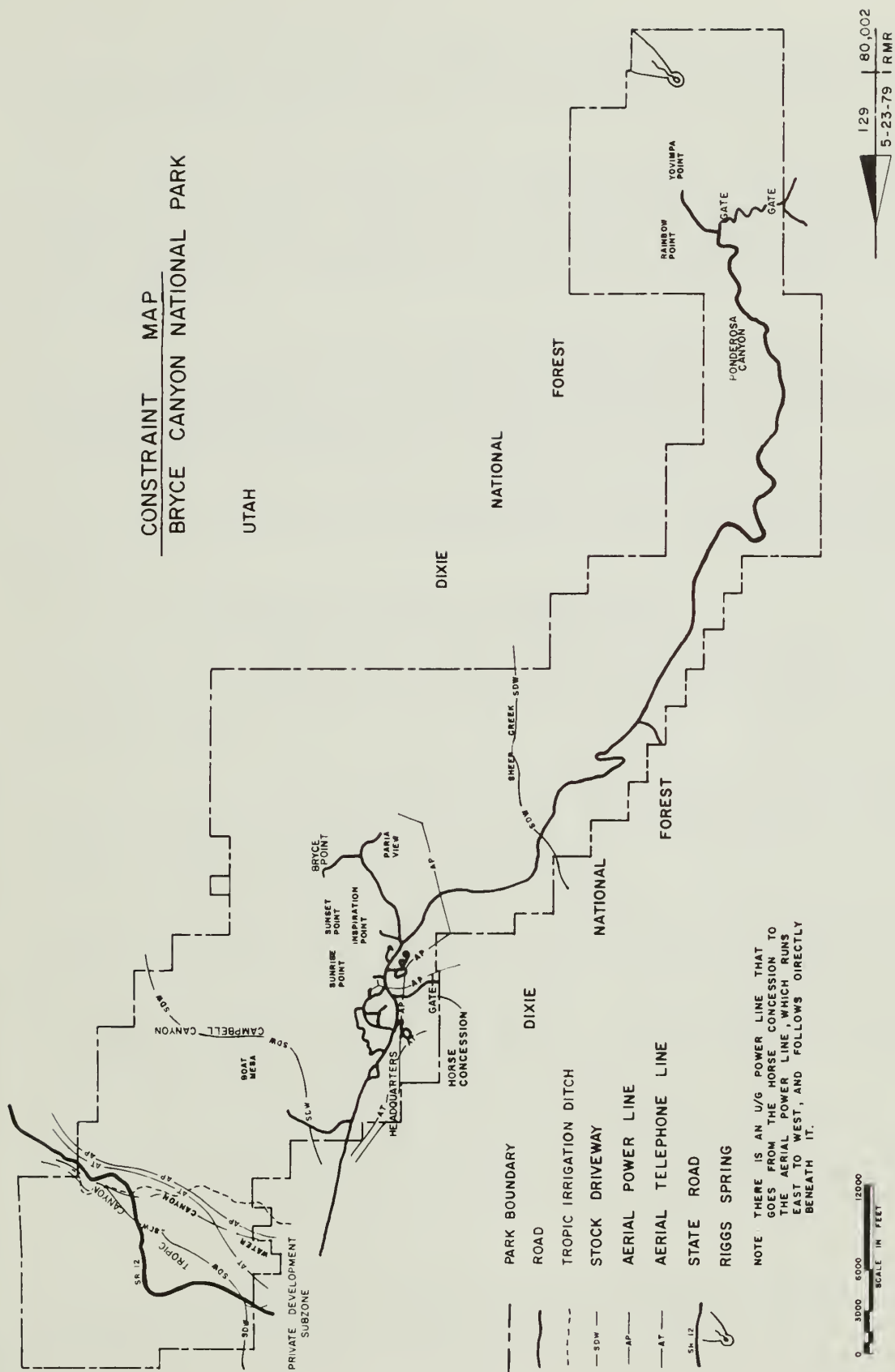


figure 3

(2) Special Use Permit No. 1330-2-7001 to Mountain Bell, Richfield, Utah, dated May 8, 1972, expiration date May 8, 1992, for underground telephone lines to the horse concession facilities.

(3) The Garkane Power and Mountain Bell Telephone Company have contracts for electrical and telephone service to government and concession facilities. Contract No. 14-10-333-274, dated January 2, 1957, which has expired as of January 1977. However, they are extended unless requests for termination are made two years in advance by the government.

(4) Special Use Permit No. 1330-5-7001, to expire December 31, 1986, to the Town Board of Tropic, Utah, for developing, conveying, maintaining, and repairing the collection and conveying, maintaining, and repairing the collection and conveying facilities of a culinary water supply system for the town of Tropic, Utah.

(5) There is a contract with Garfield County for solid waste disposal services, dated February 27, 1974, for a period of five years.

d. Memoranda of Understanding/Agreement

(1) Memoranda of Agreement/Understanding between the National Park Service and the U.S. Forest Service for various easements for park powerlines, waterline, and sewage lagoon through and upon Dixie National Forest.

(2) Master Memorandum of Understanding between Utah State University and the National Park Service "to conduct a program of education, research, and public service designed to benefit all people of the State." (Prairie Dog Study now in progress.)

(3) There is a Letter of Agreement between the National Park Service and the U.S. Forest Service for a waterline from Riggs Spring to outside the park boundary, dated December 4, 1930.

(4) There is a Memorandum of Agreement executed in 1972 between the National Park Service, Bureau of Land Management and U.S. Forest Service for mutual fire control assistance.

(5) There is a Memorandum of Agreement executed September 27, 1976, between the National Park Service and U.S. Forest Service to develop, use, and maintain a waste-receiving station, holding tank, metering pump, and use of waste water lagoons in Bryce Canyon National Park.

(6) There is a Memorandum of Agreement executed May 24, 1978, between the National Park Service and Garfield County Sheriff's Department deputizing Park Ranger/Technician personnel as Garfield County Deputies.

e. Jurisdictional - The National Park Service has proprietary jurisdiction. There is a written agreement with the Garfield County Sheriff's Department deputizing National Park Rangers/Technicians. There are no written agreements with the Utah Highway Patrol or Kane County Sheriff's Office.

f. Maintenance Agreements - A portion, 3.98 miles, of State Highway 12 passes through the northern portion of the park. This road is owned by the National Park Service and is under a maintenance agreement as contained in a Memorandum of Understanding dated September 4, 1959, with the State. This route provides access to five small communities in southern Garfield County.

g. Inholdings - There is one small tract located within the northern part of the park consisting of 2.5 acres of private land.

h. Historic Resources - The park and Regional Office are in the process of nominating those resources identified in Section III, B. 6, of this document to the National Register of Historic Places.

2. Within Park Influences

Utah State law provides for the appropriation of rights to surface and ground water. The United States has perfected ownership rights only to Yovimpa Spring, the Headquarters Well, Shaker Spring, Trough Spring, and the East Creek Wells.

All concession buildings are Service-owned with the exception of a few structures which are owned by the horse concessioner. Most are considered to be substandard and deteriorating, posing safety, health, and fire hazards which are becoming more acute each year.

There is adequate staff housing for Service employees with the exception of quarters for seasonal personnel. These seasonal quarters are over 40 years old and badly deteriorating.

Much of the water system within the park is over 40 years old and is substandard, requiring reconstruction or rehabilitation. Deterioration is accelerating annually.

The Tropic and East Fork Irrigation Company maintains the Tropic ditch through a portion of the park. There have been relatively few problems associated with maintenance of that section of the ditch passing through the park. It also claims diligent rights to all of the water rising in Tropic Canyon. Pressures have been, and will continue to be, exerted for the development of the Tropic Canyon water.

The peak visitor season of the park is May through October. During this period all park facilities are open, with the exception of the concessions, which operate from mid-May through September for visitor use. In the off-season the park is open with four overlooks available to the public. The remaining facilities are closed except for the visitor center which is open from 8:00 a.m. to 5:00 p.m. The visitor center is open from

8:00 a.m. to 9:00 p.m. during the peak season. Visitation, May through October, averaged 2,725 visitors per day during 1975. Visitation, November through April, averages 652 visitors per day. Visitation for calendar years 1977 and 1978 was 612,769 and 680,328 respectively.

The park is a fee area with an entrance fee charged mid-April through October. User fees for camping are assessed on an honor-type self-registration system with compliance checks as long as the campgrounds are open for visitor use. One campground is proposed to be included in the Servicewide Reservation System. The average length of stay for campers and lodge guests is approximately 36 hours, while day-use visitors average about 4½ to 5 hours a day in a park.

During the past few years the most popular activities of the park visitor are scenic driving, hiking, camping, picnicking, and attendance at and participation in interpretive programs.

Most vegetated zones within the major visitor use areas are impacted and worn due to heavy visitor use. This visitor use impact has also accelerated the erosional process and in some instances increased canyon rim recession.

The prairie dog was reintroduced in 1975 to Bryce Canyon National Park. Constant monitoring of this program is necessary for its success.

F. Management Objectives

To secure, through research or other means, adequate information to optimize management efficiency and to ensure long-term conservation of park resources.

"To cooperate with outside agencies, organizations, and members of the public in (a) assuring, to the greatest extent possible, that nearby lands are developed and managed in ways that are compatible with preserving the park's air and water quality, geological resources, ecological communities, and the scenery for which the park is famous, (b) minimizing the adverse effects of public use on the park's resources through the provision of recreational lodging, and other visitor service facilities in the park's vicinity, (c) promoting use of the park for environmental educational purposes, and (d) disseminating information about the park to the general public, with particular emphasis on the regional community."

"To protect and enhance the natural and scenic values of the park by eliminating incompatible park uses and by providing an adequate land base to permit achievement of the park's purpose."

"To protect park resources and the safety of park visitors through efficient enforcement of State and Federal laws in the park."

"To optimize the efficiency of park management through consideration of ways to save funds, manpower, and energy in the development of park operations programs."

"To identify, inventory, evaluate, preserve, and interpret the park's cultural resources in a manner consistent with the requirements of historic preservation law and National Park Service policies, as well as with conservation of the natural values for which the park was established."

"To provide opportunities for safe, year-round public enjoyment of the park by providing information and appropriate opportunities for interpretive and resource-oriented recreational activities that have minimal adverse effects on vegetation, water quality, and other aspects of the park's environment."

"To foster public understanding and appreciation of the park through interpretation that focuses primarily on the evolution of the park's unique geological resources and provides secondary emphasis on its ecological communities and history."

III. THE ENVIRONMENT

A. Region

1. General

The four corners area of Utah, Colorado, Arizona, and New Mexico encompasses a region of about 130,000 square miles. This section is called the Colorado Plateau physiographic province. Bryce Canyon National Park is located on the Paunsaugunt Plateau. Elevations range from 2,800 feet to over 11,400 feet above sea level. The terrain is unique in its display of a wide variety of scenery. Horizontal strata, canyons, mesas, plateaus, and precipitous mountains make up the physical relief of the area. Isolated buttes, mesas, pinnacles, natural bridges, and other erosional forms are well displayed here.

Southwestern Utah contains three national parks, a national recreation area, a national monument, two national forests, three state parks, and numerous areas which could possibly be included in the State Park System, along with hundreds of square miles of public domain. All these areas provide a potential for public recreation use.

2. Regional Development

Energy-related development is slowly moving into the region. Within recent years, several large coal-fired generating plants have been proposed. In conjunction with these plants, roads, power transmission lines, railroads, coal slurry lines, and coal mines, both open pit and underground, will become a reality.

There will also be a rapid increase in population as a result of the many jobs which energy-related industry creates. In instances where there has been tremendous population increases related to such developments, many of the existing communities have experienced sudden, uncontrolled growth of totally new trailer-type communities. These "boom towns" have mushroomed overnight in the neighboring countryside.

The impacts associated with these energy developments range from socioeconomic to environmental. The socioeconomic impacts include inflation and rapid population growth. Environmental impacts are more obvious. Loss of vegetation and wildlife occurs. Degrading of aesthetic values by transmission lines, air and noise pollution, and unsightly scars on the land will happen as a consequence of mining operations. Energy-related industry drains the natural resources in the area. Both surface and subsurface water is needed for the mining operations and transmission of the coal.

Many of these impacts will directly affect Bryce Canyon National Park. The Navajo Power Plant, approximately 60 miles away, is visible from several major overlooks. The proposed open pit Alton mines, approximately 4 miles south of Yovimpa Overlook will be highly visable and could create a significant negative impact to the aesthetic values of the panoramic vista. An unknown factor at this time is the effects chemical emissions will have on the natural environment. The present ongoing air quality investigation at Bryce Canyon National Park is designed to monitor emissions from power generation stations and their affects on visibility.

There are a number of developments within the region which offer recreational opportunities. Reservoirs, such as Tropic, Otter Creek, and Panguitch Lake, all used for irrigation, have been developed for recreation by the State or U.S. Forest Service. Glen Canyon National Recreation Area and Lake Mead National Recreation Area are major tourist attractions in the region. Activities include boating, fishing, swimming, water skiing, camping, and picnicking.

The National Forests and other Federal lands offer opportunities for hunting, backpacking, stream fishing, camping, rockhounding, snowmobiling, etc.

There are some developments in a 50-mile radius of Bryce Canyon National Park and located near U.S. Highway 89 that offer overnight accommodations. These are illustrated below:

<u>Location</u>	<u>Motels</u>	<u>Approximate Rooms</u>	<u>Distance from Bryce Canyon</u>
Bryce Canyon Entrance	3	215	7 miles
Panguitch	8	175	25 miles
Hatch	2	30	26 miles

At two of the three motels located just outside the park, there are two developed campgrounds. These campgrounds provide electrical hookups, restrooms, and laundromat facilities. (See Photographs A and B.) In addition there is a Forest Service campground about 7 miles away.

There has been a substantial increase in numbers of overnight accommodations outside the park during the past 5 years.



Photograph A
Typical campground development outside the park



Photograph B
Typical laundromat facilities at campground and motel developments.

3. Population and Growth

This particular area of Utah is characterized by its rural nature and sparse population. In 1970 Garfield and Kane Counties had a population of 5,578 within a land area of 9,201 square miles. The 1970 average population density for the region was 1.65 people per square mile as compared to 12.9 for the State of Utah and 57.5 for the nation. Within a 150-mile radius of Bryce Canyon National Park there is a population of approximately 130,000 people.

From 1930 to 1970, Utah's population increased 109%. The National increase for that same period was 65%. The State increase occurred in the main population centers of Utah such as Salt Lake City, Ogden, Orem, and Provo. However, the population in Garfield County had a 16.5% decrease in the last ten years. Population in this area, except for Cedar City, has remained very much the same or has decreased slightly in the past ten years. In 1970, Cedar City (80 miles west) had a population of 8,946. The nearest towns to the east, Panguitch and Tropic, had populations of 1,318 and 329 respectively. Other neighboring towns such as Hatch (139), and Orderville (399), have declined in population by as much as 30% in the same period. It is projected that for the period of 1970 to 1990, this region will have a significant population growth as a result of increased tourism and recreation, mineral exploration and extraction, and energy-related developments. Populations are expected to grow as much as 10,000 persons in some areas due to extensive coal mining and development in this area.

4. Socioeconomic Environment

The general economy of the two counties where Bryce Canyon is located are considered economically depressed. The 1974 per capita personal income for Garfield County was \$3,435 and for Kane County was \$3,189. The 1974 per capita personal income in both these counties is below the average for the State of Utah (\$4,468), the Rocky Mountain States (\$5,452), and the United States (\$5,834). On January 1, 1972, Garfield County had 18.5% of its employable individuals on unemployment and Kane County had 15% in the same situation.

The main industries of the region are lumbering, stock raising, mining, and tourist industries. Government employment and recreation/tourism have increased in economic importance. The problem that the tourist industry presents to the counties is that it is highly seasonal and, therefore, does not present an adequate year round economic base and employment opportunity to the local residents.

The main industries surrounding Bryce Canyon National Park are timber production, grazing, and resort operations.

B. Park

1. General

Bryce Canyon National Park is located in the high plateaus section of the Colorado plateaus province. The park lies on the Paunsaugunt Plateau. It was set aside primarily for its display of geological features that

were created by the dynamic natural forces of erosion. These erosional forces have sculptured a wide variety of colored limestones, clays, and silts. The outstanding feature of Bryce Canyon National Park is the multi-colored amphitheaters of eroded rock beds. There are more than ten amphitheaters (the count varies with individuals making it) which have been cut into the Paunsaugunt Plateau. Each of the amphitheaters has a wide variety of carved rock forms resembling miniature cities, cathedrals, spires, and bridges in an almost endless number of architectural themes. Iron, manganese, and other minerals create the assorted colors ranging from white to dark red.

Elevations of 8,000 to 9,000 feet are common along the rim of the Paunsaugunt Plateau. However, the plateau breaks off abruptly to the east and south in a series of steep walls and slopes. There is great contrast between the colorful lowlands along the eastern flank of the park and the timbered hillsides and tablelands to the west. The lowest point in the park is where Yellow Creek crosses the park boundary at an elevation of 6,580 feet. Other than along short sections of Yellow Creek and Podunk Creek, there are no other perennial streams in the park.

Neither the Geological Survey nor the Bureau of Mines have made a mineral survey of the area, but based on the geological information of the area, mineral resource potential is minimal in Bryce Canyon National Park. Coal, oil, and gas reserves are found in the general area outside the park, however.

2. Climate

The park temperature extremes vary between a record high of 90 degrees fahrenheit and low of -26 degrees fahrenheit. Frequent thunderstorms occur during the summer months. Snow depths in the winter occasionally reach a depth of eight to ten feet. Annual precipitation is about 16.5 inches.

Bryce Canyon's climate assists the erosion of its scenic amphitheaters. The nature of its precipitation (frequent torrential rainstorms and heavy snowfall) along with the wide temperature range are the main factors that cause erosion.

3. Flora

The park ecosystem consists of plant and animal communities which range from the Upper Sonoran at 6,600 feet elevation into the Canadian life zone at 9,100 feet. Three major forest types are represented.

At low elevations pinyon pine and sagebrush predominate, on the plateau are open stands of ponderosa pine, and at the higher regions are the spruce-fir aspen forests. Considerable overlapping exists. Due to sheep grazing damage in past years, the National Park Service has conducted a soil and moisture control program involving earth and log checkdams, reseeding projects, and fencing south of Yellow Creek. All grazing within the park has been terminated since 1962. However, some livestock trespass on parklands near Yellow Creek.

The lowest forest type, the pinyon-juniper forest, is most readily seen adjacent to State Highway 12 on the drive into Bryce Canyon National Park. Since trees are usually not as tall those found on the higher and wetter plateaus, the name "pygmy forest" is sometimes applied to those wooded areas. They are characterized by low rainfall and an elevation range between 5,000 and 7,000 feet. Common species include the Utah juniper, pinyon pine, and sagebrush. Gambel oak is abundant on the lower slopes of the hills.

Between 7,000 and 8,500 feet, just below and above the rim in the Bryce Amphitheater area, the ponderosa pine is abundant in open stands. Limber pine, bristlecone pine, Douglas-fir, and Rocky Mountain juniper are also present. Manzanita and antelope bitterbrush cover the forest floor. The open valleys between the forested slopes are covered with black sagebrush, rabbitbrush, and grasses.

In the southern part of the park, above 8,500 feet, are dense forests of white fir, blue spruce, and aspen. Toward Rainbow Point, however, the common tree is Douglas fir. Scattered individuals of bristlecone pines are on the windswept slopes of these high elevations.

Between the shrubs and trees are the fragile wildflowers. Some of the species found on the slopes below the red-rock formations are blue columbine, twinpod, and goldenweed. The yellow evening-primrose, blue flax, painted cup, skyrocket gilia, western yarrow, blue penstemon, and segolily mariposa are more abundant on the plateau.

4. Fauna

Many varieties of wildlife exist within the park. Principal species include mule deer, gray fox, bobcat, squirrels, chipmunks, and other small rodents. Seen occasionally is the cougar and black bear. Due to the long, narrow boundaries of the park, resident populations of large mammals are not found inside. The Rocky Mountain mule deer is the largest animal found at Bryce Canyon National Park. They are often seen in early morning or dusk as they browse the meadows.

The endangered whitetail prairie dog was reintroduced to Bryce Canyon National Park in 1975.

Among the common birds found in the park are the Steller's jay, Clark's nutcracker, pigmy nuthatch, white-breasted nuthatch, mountain chickadee, gray-headed junco, hairy woodpecker, and the red crossbill. In summertime, the western tanager is among the more colorful visitors. At the cliff face are the white-throated swifts and violet-green swallows. Golden eagles actively nest in Bryce Canyon National Park. The bald eagle is known to inhabit Bryce Canyon National Park during transient periods. The bald eagle and whitetail prairie dog are the only known endangered species associated with Bryce Canyon National Park.

5. Geology and Soils

Bryce Canyon National Park is one of numerous spectacular amphitheaters cut into the Pink Cliffs on the eastern edge of the Paunsaugunt Plateau. Along this 20-mile (32 kilometer) escarpment, water erosion has carved a multitude of delicate ridges, pinnacles, spires, and monuments from the soft limestones of the Wasatch Formation.

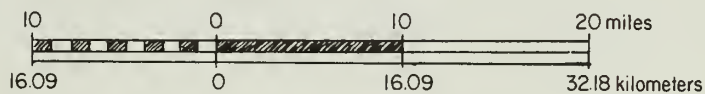
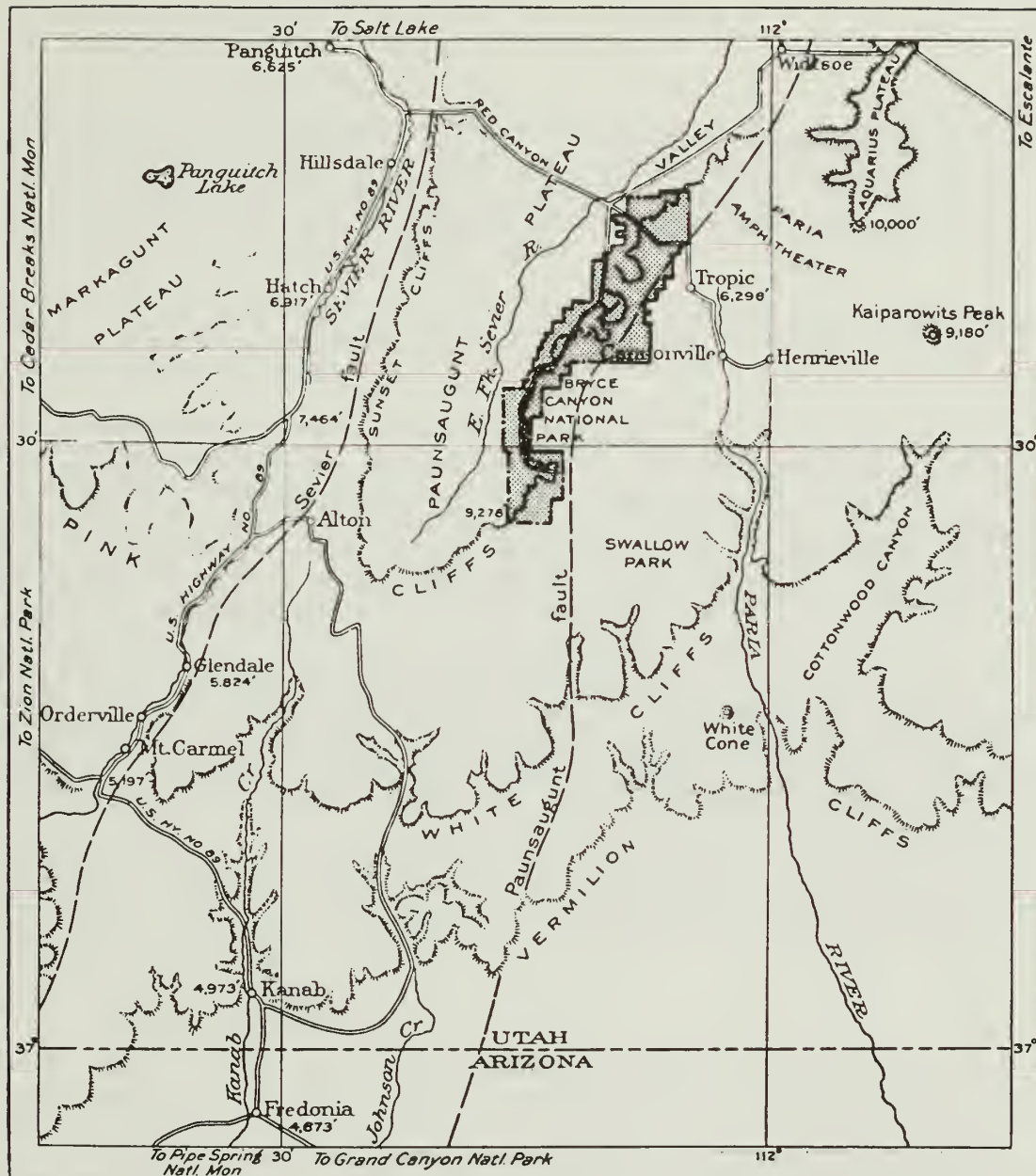
The Wasatch Formation is bounded by unconformities, gaps in the geologic sedimentary record that separate these limestones from the older Cretaceous system (Tropic Shale, Straight Cliffs-Wahweap Sandstone, and Kaiparowits Formation) below, and the younger Brain Head Formation above.

Bryce Canyon National Park and the other high plateaus in this section of the Colorado Plateau are the highest step on a vast stair-like series of tablelands in southern Utah and northern Arizona. Pink Wasatch limestones, deposited during the most recent Era of geologic time--the Cenozoic (Age of Mammals)--cap the Paunsaugunt Plateau, as well as the Markagunt and Aquarius Plateaus to the west and east (See Figure 4). South of the park, the land falls away in a grand succession of cliffs, exposing rock strata representing nearly the entire spectrum of geologic time. At nearby Zion Canyon, massive sandstones from the Mesozoic Era (the Age of Reptiles) mark the earth's middle history. Further south, the rock walls of the upper Grand Canyon record Paleozoic time. Proterozoic and Archeozoic rocks in the depths of the canyon date to the very beginning of life.

Sixty million years ago, during Paleocene and Eocene times, what is now central Utah was occupied by a vast fresh water lake--Lake Flagstaff. Rivers draining from surrounding highlands washed great quantities of lime-rich silt and clay into this lake basin. This accumulated lake sediment, compacted and cemented during later geologic periods, forms the pink limestones from which the Bryce Canyon National Park badlands are carved.

After Lake Flagstaff filled in, the Bryce Canyon region was covered with great thicknesses of volcanic rock that have since been stripped away by erosion. Large-scale uplift, beginning 19 million years ago, elevated the Colorado Plateau region nearly 5,000 feet (1,525 meters). Stress accompanying uplift broke and displaced large blocks of the earth's crust, forming the present High Plateaus of Utah. The steep tributaries of the Colorado-Paria River system have vigorously attacked the rising plateaus, carving broad amphitheaters from their retreating cliffs.

The intricate badland forms of Bryce Canyon National Park are mainly the work of running water, cutting down through hard and soft strata, along an extensive system of vertical cracks called joints. Water from summer storms and frost wedging in winter widens and deepens joints into canyons.



geologic features

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Figure 4

Differences in rock hardness account for the minor topographic features of the badlands. Rock layers rich in calcium carbonate form erosion-resistant cliffs, cap rocks, pinnacles and ledges along canyon walls. Beds containing less calcium carbonate are softer and produce slopes, alcoves and grooves in the canyon walls.

Colors due to mineral oxides in the rock are a distinctive characteristic of these badlands. Reds and yellows are produced by iron compounds, blue and purple by manganese.

Soil development at Bryce Canyon National Park is a function of slope, moisture, vegetation, and parent material. On the plateau surface soils are developed from the limestones of the underlying Wasatch Formation. These soils are shallow, except where alluvium builds up in swales and major drainages. Because precipitation is low these soils are unleached and contain a variety of minerals including calcium, iron, potash, phosphate and magnesium.

On steep badland slopes vegetation is sparse or nonexistent. As a result, debris from eroded and weathered bedrock is swept away by run-off rather than accumulated to form soil. Considerable areas are bare rock, talus, and slope wash. Along valley floors at the base of the cliffs, slope angles are low and soil material is moderately thick.

Generally, the park's soils are poorly developed, contain very little topsoil, and are not well bound by vegetation. For most of the park the erosion hazard is high and should be considered in planning future construction and development.

6. Cultural Resources

The earliest evidence of human presence in the Bryce Canyon region represents the Basket Maker culture. Some archeological remains of this society include fragmentary textiles woven in fiber, fur, and feathers. The Pueblo Indians (Cliff Dwellers) were the next civilization to follow the basket makers. Evidence of their presence is marked by stone walls, traces of cultivated fields, and fragments of crude pottery, implements, and textiles. However, there is no evidence of long time occupation. The Piutes followed the Pueblo Indians and occupied some areas from time to time for hunting and seed gathering. Archeologists have looked at two sites and determined that most of the area was used for temporary purposes. More extensive surveys are suggested for Bryce Canyon National Park.

From 1800 to 1850, it is believed that some trappers explored the Paunsaugunt Plateau. Mormon scouts were sent out to search for agriculture and grazing land in southern Utah around 1851-1860.

The first written account of white men in the area of Bryce Canyon National Park is recorded in the unpublished diary of Captain James Andrus. In 1866 he lead a military expedition of 60 men in search of marauding Navajos. Major J. W. Powell initiated a survey of maps and reports that covered most of southern Utah. Alvin H. Thompson worked for Major Powell and wrote the first description of the unusual beauty of Bryce Canyon National Park.

The first Mormon settlers to farm in the Paria Valley arrived in 1874. More attention was paid to the problems that the canyons and geologic formations caused to ranching and farming. Ebenezer Bryce (for whom the park was named) arrived in 1875 to raise cattle and settled near the end of the amphitheater in Bryce Canyon National Park. He became discouraged with the problems associated with losing cattle in the area and moved to Arizona in 1880.

In June of 1923, Bryce Canyon was proclaimed a national monument. Soon afterwards, the Utah Parks Company (a subsidiary of the Union Pacific Railroad) built the Bryce Canyon Lodge and cabins. Development of the park proceeded in three stages: initial development (1925-1930), rapid growth (1931-1943), and recent development (1944-present).

The early structures of the park along with the significant archeological sites will be nominated to the National Register of Historic Places as a multiple resource. Historic nominations include several individual structures and two historic districts. These are significant examples of rustic architecture, native stone and logs, employed by the National Park Service and concessionaires prior to and during the Works Progress Administration---Civilian Conservation Corps era.

The old administration building, Rainbow Point Overlook, and several log comfort stations are included in the nomination. The Bryce Canyon Historic District includes the lodge, 15 deluxe cabins, 40 economy cabins, 6 service buildings, a first aid station, a switch house, 2 linen storage houses, a comfort station, a pumphouse, a mens dormitory, and a recreation hall. The Old Residential Historic District includes the rangers' dormintory, 2 residences, and 5 seasonal employees cabins.

7. Visitor Use

Visitation records since 1975 indicate that the park visitation period extends from June to September with 77 percent of the average yearly visitation occuring during these months. The average total yearly visitation for the 1975-1977 period is 606,104 visits (See Figure 5).

Visitation to Bryce Canyon National Park has increased on the average of 9.5 percent per year since 1970 (See Figure 6). Recent daily use figures indicate that the average daily visitation during the peak visitor months is approximately 4,600 visitors per day.

AVERAGE OF YEARLY VISITATION 1975-1977

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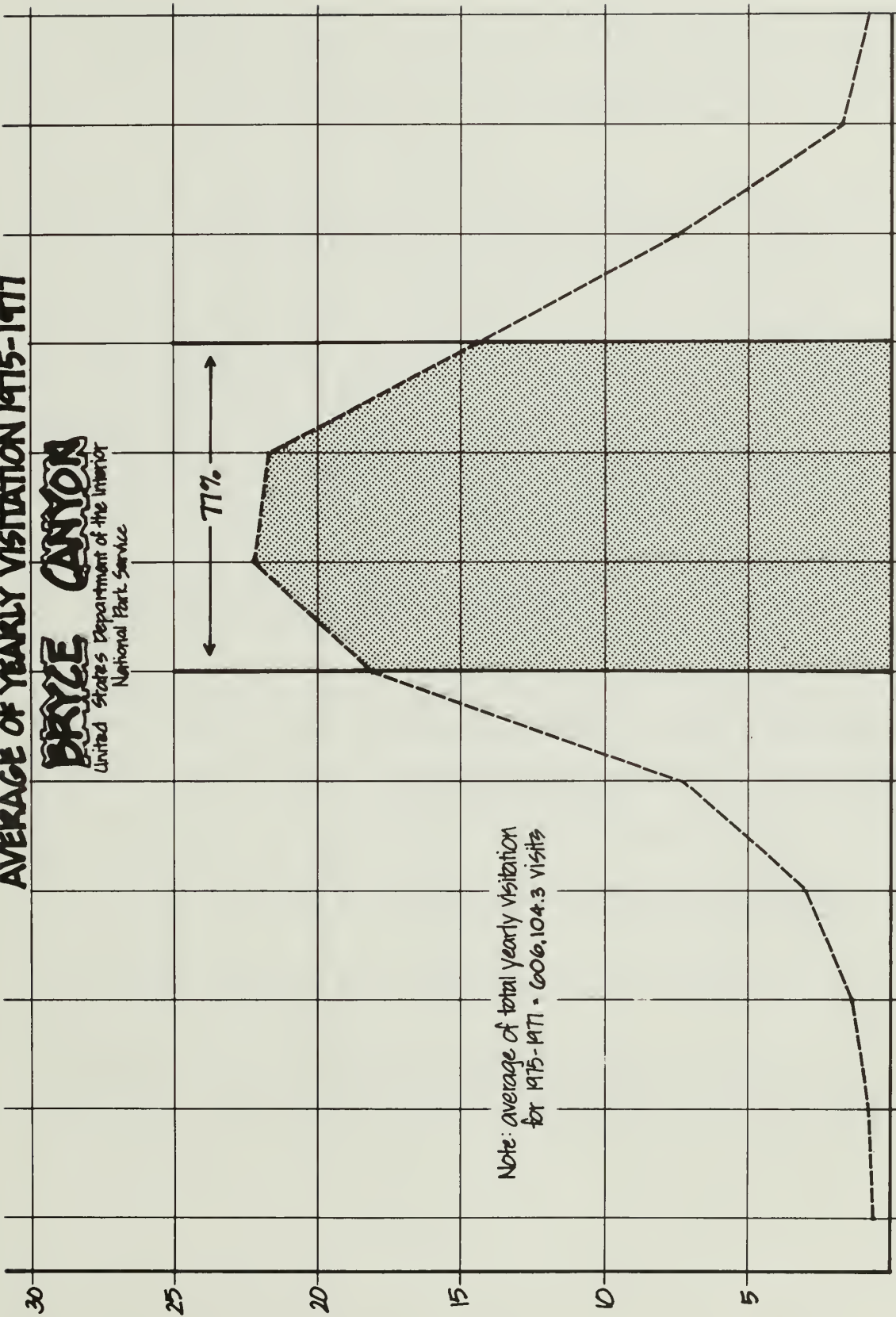
average of visits (percent)

Note: average of total yearly visitation
 for 1975-1977 = 606,104.3 visits

77%

JAN. FEB. MAR. APRIL MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.

figure 5



As a result of this increased visitation and the substandard facilities which no longer meet the needs of the present forms of recreation use, many of Bryce Canyon's recreational facilities are congested, and deteriorating. Traffic congestion and overcrowding occurs at scenic overlooks throughout the area. The park's road system is also deteriorating and is not capable of supporting the increased usage.

Overnight use at Bryce Canyon National Park has been increasing on the average of two percent per year since 1970 (See Figure 7). Backcountry use has been increasing somewhat. The largest increase in overnight usage is accounted for by the average increase of six percent per year in campground use. This increase does not show up in the peak use periods of June, July, August, or September, but happens because more visitors are using the campgrounds in off-season periods. The increase from one peak season to the next is usually only one percent. During this main visitor season (June, July, August, and September) campgrounds are filled to capacity and frequently campers are turned away. Campgrounds reflect heavy visitor use and are in need of immediate attention. Trampled vegetation and compacted soils are a result of the heavy use. Camping visitation figures show that the trend of camping use is 62 percent recreation vehicles and 38 percent tents.

Present capabilities of campgrounds in Bryce Canyon National Park show the North Campground containing 115 single family units and 2 group sites. The Sunset Campground contains 110 single family units and 2 group sites.

The 4 group sites have a combined maximum capacity of 130 visitors. A multiplicative factor of 3.4 visitors per vehicle or family unit gives:

115 North Campground Units + 110 Sunset Campground Units = 225 Total Units

225 Total Units x 3.4 people per unit = 765 Overnight Visitors
accommodated on one night.

4 Group Sites accommodating 130 people = 130 Visitors accommodated
on one night.

Total camping capacity: 765 + 130 = 895 Visitors (maximum) in
the campgrounds on one night.

895 Visitors per night x (average month of 30 nights) = 26,850
maximum number of people accommodated by completely filling every
space in both campgrounds to maximum capacity every night throughout
the month.

8. Existing Development

The following is a description of the existing recreation development and supporting facilities within Bryce Canyon National Park. (See Figure 8.)

a. North Campground - This campground contains 4 comfort stations, 1 amphitheater, 1 dump station, and 115 single family units. Figuring 3.4 people per single family camping unit the capacity for the 115 units would be 391 visitors at one time. There are two group sites with a capacity of 50.

b. Sunset Campground - This campground contains 5 flush toilets, 1 amphitheater, a group use area, and 110 single family camping units. The group use area is divided into 2 sites which have a combined capacity of 80 visitors. For the 110 single family units, based on an average of 3.4 visitors per unit, the capacity would be 374 visitors at one time. The single family units plus the group use area would give a total capacity of 474 people at one time for the Sunset Campground area.

c. Picnic Area - There are three sites where picnicking is permitted. At Rainbow Point there are five picnic tables and at Sunset Point four. The third area is located at Bryce Inn and contains seven picnic tables. This area was established after the recent removal of the 12 old cabins adjacent to the Inn. There are only two wayside picnic areas along the road to Rainbow Point.

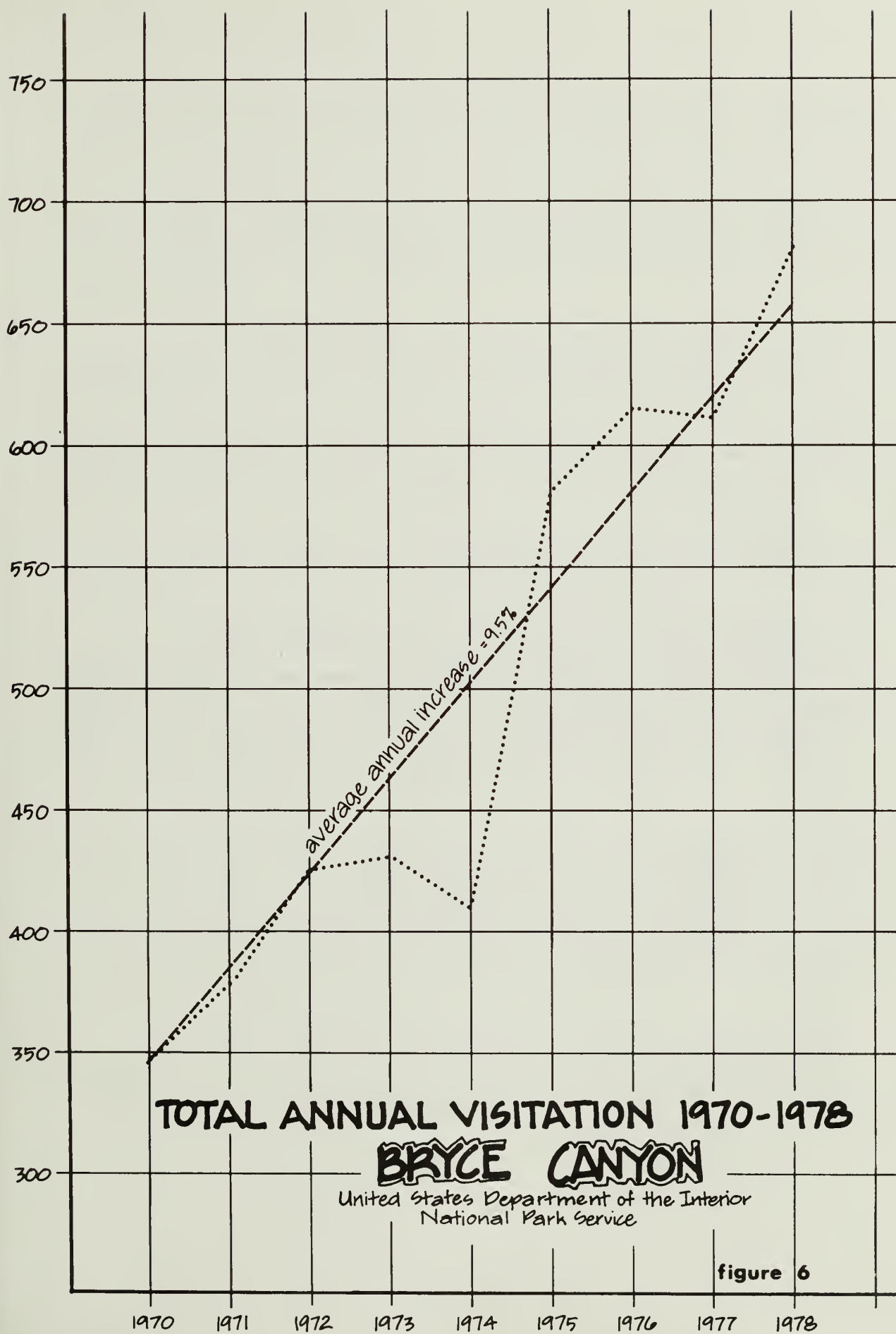
d. Bryce Inn - This structure is presently being operated under contract by the TWA Services Inc., the concessioner. It contains a camp store, laundromat for both campers and concessioner, and showers for campers. Also located in the general area of the Inn is the old visitor contact headquarters cabin which is presently being used as an environmental school.

e. Lodge Area - This area is comprised of a lodge, service station, boys dormitory, recreation hall, 6 small storage structures, 40 deluxe units, 80 economy units and 24 family units all of which are employee housing. The facilities are being managed under a concession contract with TWA Services, Inc., which expires in 1982.

The lodge contains a lobby, dining room, kitchen curio shop, recreation hall and dormitory facilities for men and women.

At maximum capacity the overnight accommodations in the lodge area will accommodate 400 visitors at one time. These accommodations include the

visits (thousands)



40 duplex units at 4 persons per unit and 80 economy units at 3 persons per unit. The average occupancy of rental units is 2.7 persons per unit.

f. Old Residential Area - This area has become the seasonal quarters area. Located within this area are 6 single family cabins, a ranger dormitory, a 4-stall garage, washhouse, the original Superintendent's quarters and Chief Ranger quarters which are also being utilized as seasonal quarters.

g. New Residential Area - This area includes 12 three-bedroom residences, 1 two-bedroom residence and 1 four-unit apartment. Also located in this general area is a telephone company exchange building.

h. Maintenance Area - This area includes garage, indoor workshop and general storage facilities. The area also contains a fuel pumping station. The area has been fenced and serves as a storage area for various forms of motorized equipment.

i. Park Headquarters - The headquarters area consists of an entrance station, visitor center (museum/audio program and information/interpretation services), and administrative office.

j. Horse Concession and Utility Area - The horse concession facilities consist of a sheltered horse feeding area, bunk house and a small tack shop. The remaining facilities include a National Park Service corral and barn, general storage shed, house trailer, fenced-in supply area and an area designated for mixing materials for road repair work. The horse concession contract is with Bryce-Zion Trail Rides, Inc. The concession contract expires December 31, 1979.

k. Road System - Route #1 is the primary road extending the full length of the park. Branching from Route #1 are a number of other lateral roads which lead to the various facilities previously mentioned as well as a number of developed overlooks. Some of the overlooks contain restroom facilities, interpretive facilities and some serve as trail heads for those visitors who wish to park and explore many of the developed trails. For more detail concerning condition of present road system refer to Section IV.

l. Trails - There are approximately 58 miles of trails under the rim or within the canyon area and approximately 6 miles above the rim. About 5 3/4 miles of the trail system are designated for horse and the remaining 58 1/4 miles for pedestrians.

IV. Statement of Issues

In the course of updating the Master Plan, the issues listed in this section were identified as problem areas confronting the management of Bryce Canyon National Park. In Section V of this document, alternatives for resolving many of the issues have been developed and an assessment of associated impacts prepared. A number of the issues will require further research and documentation prior to developing alternatives as addressed in Section V.

A. Concession Overnight Lodging

The contract under which the concessioner is presently operating the Bryce Canyon lodging complex will expire in 1982. Both immediate and long range major investments are required on the part of the National Park Service and the concessioner to upgrade the substandard condition of the cabin complex, and supporting utility systems and to rehabilitate the deteriorating condition of the site. Therefore, alternatives must be developed and assessed in order to determine the future role of overnight lodging in Bryce Canyon National Park.

B. Transportation and Circulation

The majority of the roadway and parking systems were designed during the 1930's with little or no upgrading since their construction. The narrow, paved roadways with dirt shoulders have seriously deteriorated under the impact of the present day forms of recreation vehicles which are heavier and wider than the road systems were designed for. The pavement edge of most of the roads have worn away (as indicated in Photographs C & D) because of having to use the soft road shoulders when passing oncoming traffic.

To minimize the congestion at overlooks and reduce the safety problems associated with the narrow roads, visitors driving vehicles with a trailer in tow are required to unhook their trailers at the visitor center parking lot before driving through the park. Since the visitor center parking lot was not designed to accommodate this type of use or capacity, serious congestion and safety problems are encountered as indicated in Photograph "E".

The circulation patterns, especially within the overlook parking areas, are substandard in terms of permitting or even encouraging a logical flow between pedestrians and vehicles. The heavier volume of present day traffic coupled with poor circulation has created a situation which is jeopardizing the safety of all concerned as well as creating impacts on the site. Unless alternatives are explored and steps taken to correct the present situation, the problem will be further compounded if as visitor use continues to increase at an average annual rate of 9.5 percent per year.

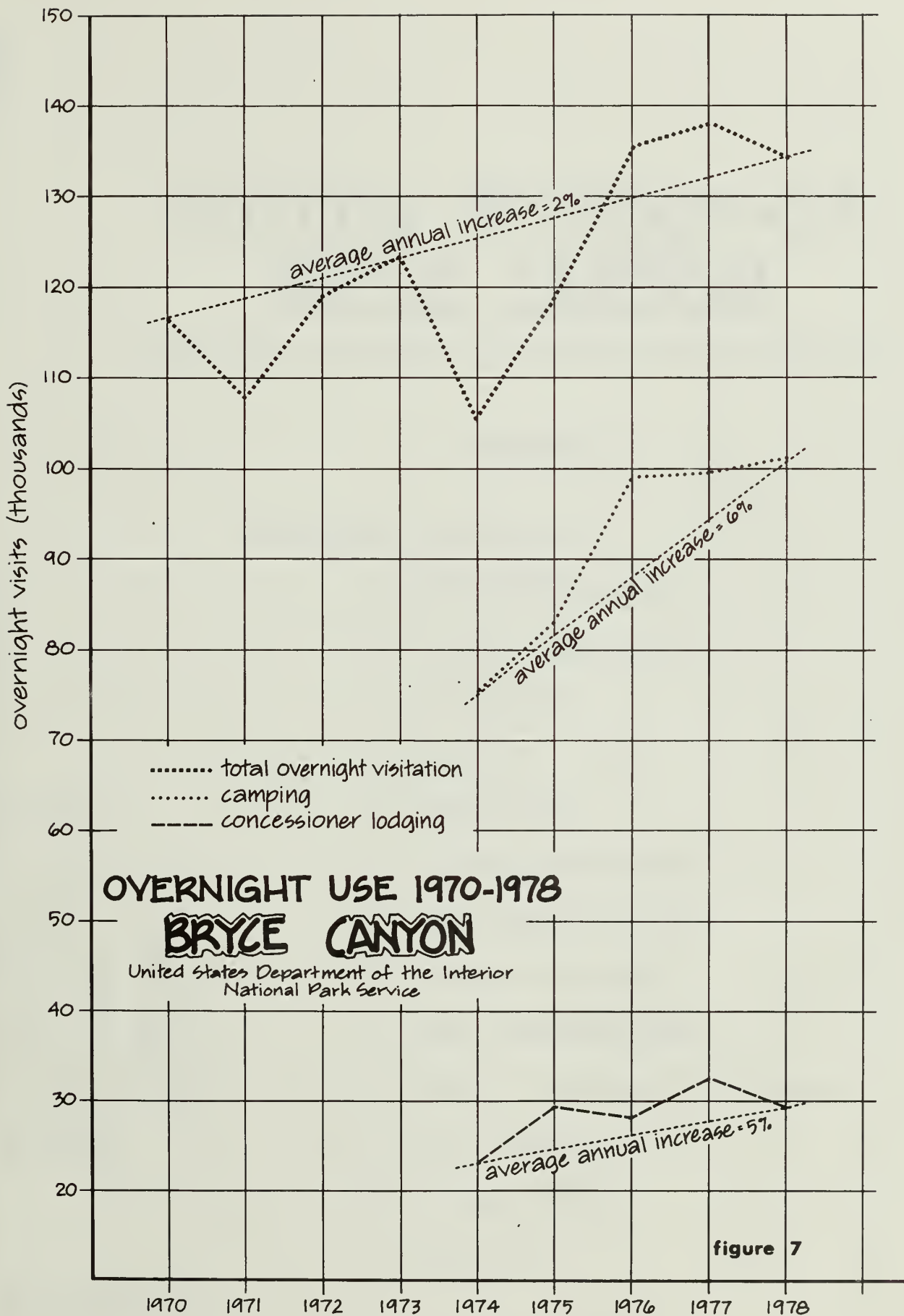


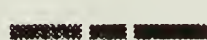
figure 7

existing development

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Legend

 park boundary

A. north campground

B. Sunset campground

C. picnic area

D. Bryce Inn

E. lodge area

F. old residential area

G. new residential area

H. maintenance area

I. park headquarters

J. horse concession & utility area

K. water tanks

L. sewage ponds

* overlook

existing development BRYCE CANYON

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Legend

- park boundary
- A. north campground
- B. Sunset campground
- C. picnic area
- D. Bryce Inn
- E. lodge area
- F. old residential area
- G. new residential area
- H. maintenance area
- I. park headquarters
- J. horse concession & utility area
- K. water tanks
- L. sewage ponds
- * overlook

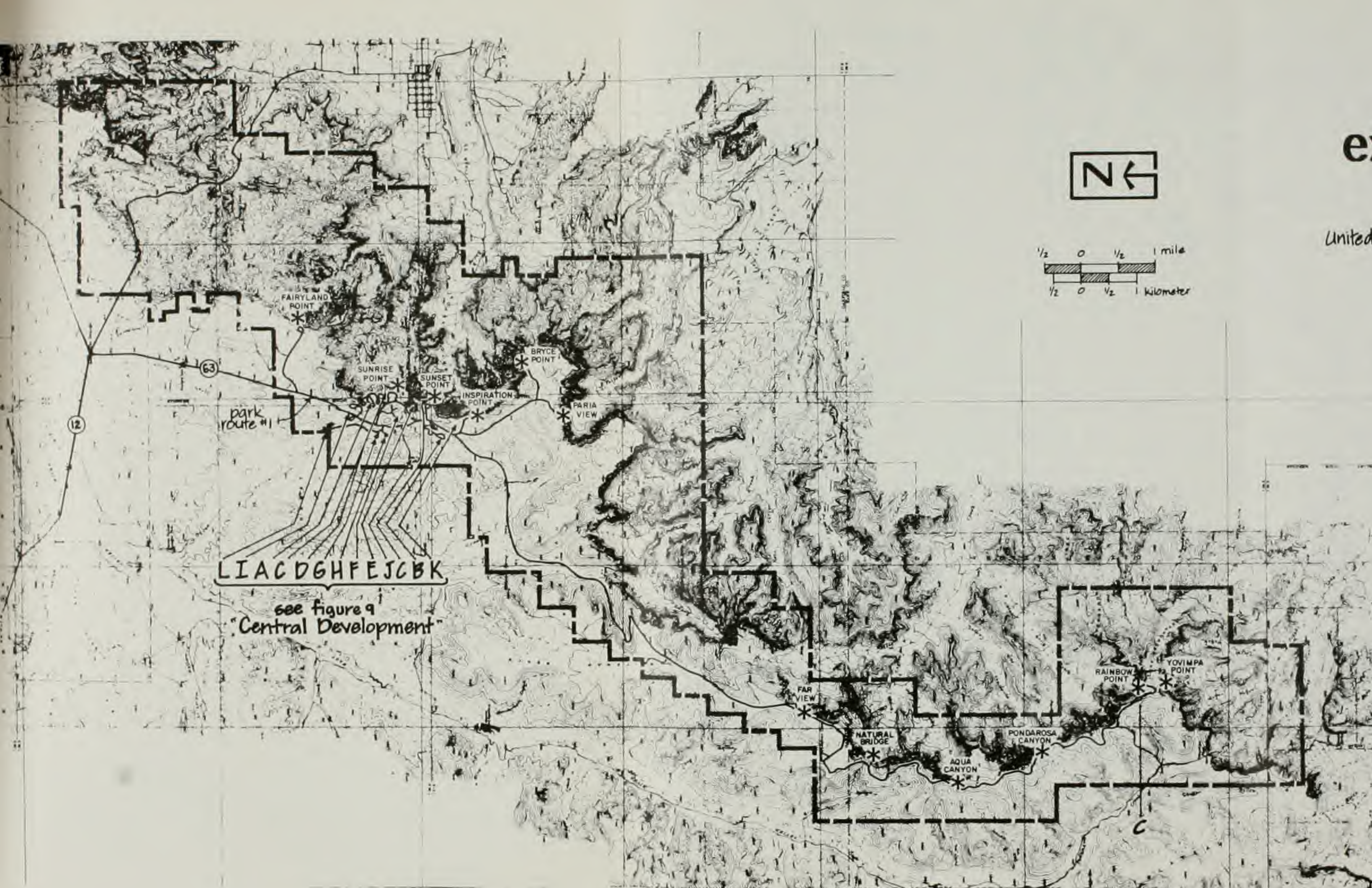


Figure 8

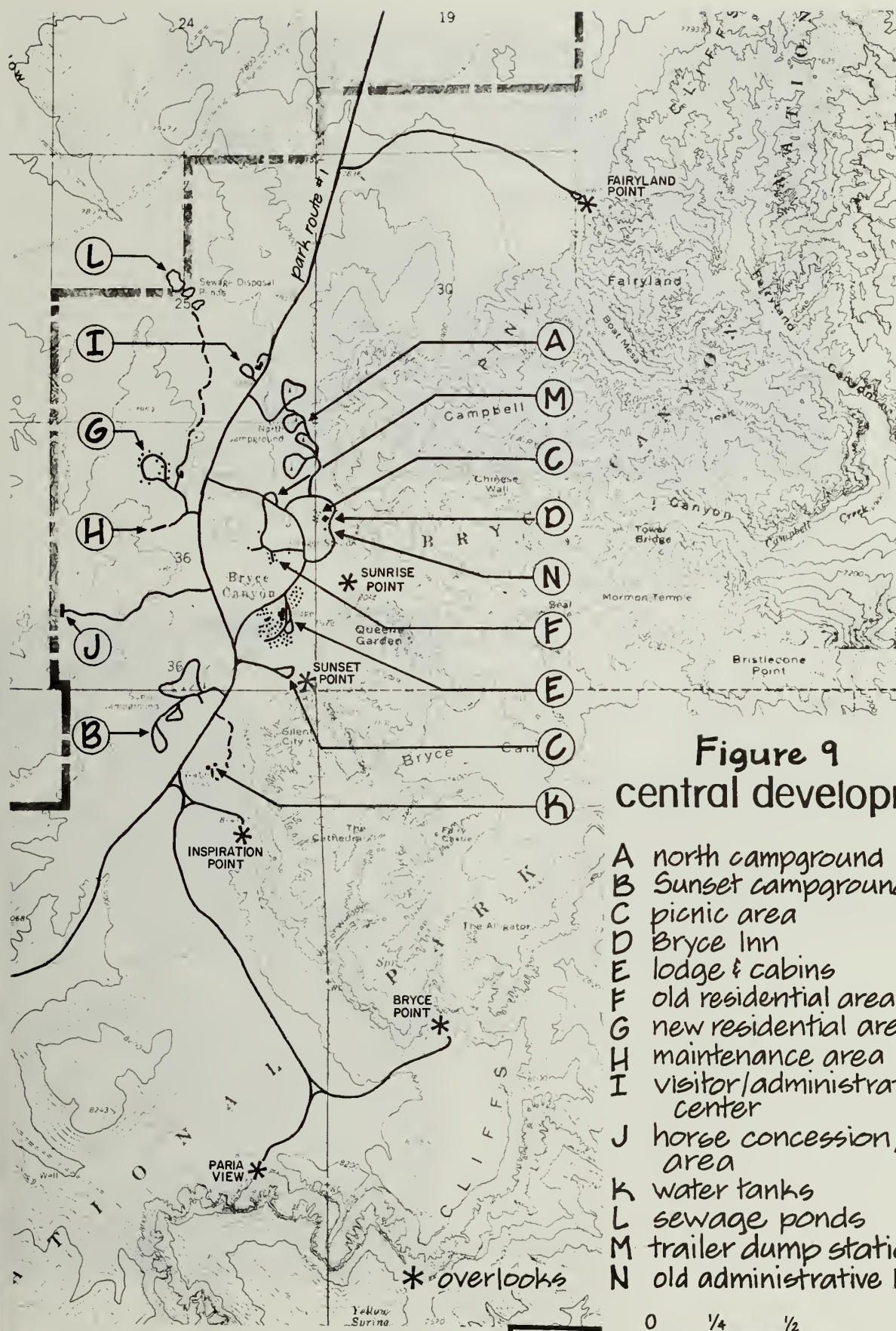
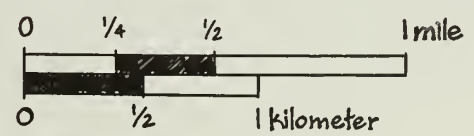


Figure 9
central development

- A north campground
- B Sunset campground
- C picnic area
- D Bryce Inn
- E lodge & cabins
- F old residential area
- G new residential area
- H maintenance area
- I visitor/administration center
- J horse concession/utility area
- K water tanks
- L sewage ponds
- M trailer dump station
- N old administrative building



Photograph C



Photograph D

Photograph C indicates how the wider forms of recreation vehicles hug the center line of the paved roads. When oncoming traffic approaches, vehicles pass dangerously close crowding to the outside of the road causing severe damage to the pavement edges as indicated in Photograph D.



Photograph E

Visitors towing trailers are required to leave them in the visitor center parking lot. This creates problems when towing vehicles block driving lanes in order to unhook or hook up.

C. Trail System Use and Circulation

The Peek-a-Boo trail receives use by both hikers and horseback riders. Some of the conflicts created by the simultaneous use are: dust, inconvenience stemming from pedestrians having to wait for long, concession-sponsored horseback parties to pass on the narrow trails, defecation from horses on trails and the potential safety problems for all concerned. Many of the visitors who have complained about the conflict have indicated that they were not properly advised prior to hiking that there was potential conflicts with horseback riders.

The horse concessioner has expressed an interest in expanding opportunities for horseback riders to see some other part of the canyon. Alternatives need to be explored to resolve the conflict between horses and pedestrians and determine other routes for the expansion of horseback riding trails.

D. Water Utility System

The existing water system is plagued with a number of problems. These problems are as follows:

1. A determination was made that the existing water system didn't meet public health standards because of the leaking pipes and their location in relation to the existing sewer lines.

2. Many of the lines are not buried deep enough to prevent freezing and, therefore, must be drained.

3. The existing system has an inadequate water storage. There are periods during peak visitation when water has to be rationed.

4. The present source of water (developed wells and springs) is extremely limited and at times inactive if there is not sufficient snowfall to replenish ground waters. This situation affects the storage problem identified in item 3 above.

5. The history of attempts to harvest other sources of ground water within the park has proven to be unsuccessful because of expense. Groundwater is usually of poor quality and available only at considerable depths, thus drilling and maintenance costs are high.

The overall issue is one of grave importance since further use and development is totally contingent upon upgrading of the existing system and successful attempts to obtain additional sources of water.

E. Jurisdictional

The present level of jurisdiction in the park is identified as "proprietary" which limits park law enforcement officers only to violations covered by Title 36 of the Code of Federal Regulations. Since there is presently no Federal magistrate system to process such violations within the State of Utah, park law enforcement officials have accepted Deputy Sheriff commissions under a cooperative agreement with the Garfield Sheriff. This is a satisfactory method of handling most offenses but is heavily dependent on the Sheriff department's desire to continue the deputization program.

F. North Campground

The North Campground consisting of 115 units was initially constructed in the late 30's. It has been expanded a number of times with little regard for existing facilities, topographic features and present day campground use. Therefore, the campground is plagued with a number of problems which are as follows:

1. The campground design will no longer accommodate the present day forms of recreation use without continuing to create severe impacts on the site.

2. Severe impacts have resulted in the erosion of soils and deterioration of vegetation creating a negative visual impact on the site.

3. The initial design of the campground reflects little regard for topography and the overall circulation system; therefore, highly erosive slopes were exposed and extensive fills and high retaining walls were required. This is not only extremely costly and difficult to maintain but it also presents a number of safety hazards.

At this point, alternatives must be explored to resolve the aforementioned problems.

G. The Utah Department of Transportation (U.D.O.T.) has expressed an interest in developing climbing lanes on that portion of State Route #12 which passes through the northern portion of the park. This involves approximately 3.8 miles of park road.

Based on the average daily traffic (A.D.T.) and the U.D.O.T. criteria for constructing climbing lanes, such construction cannot be justified at this time. However, based on projected future A.D.T. counts, the need for climbing lanes should occur in 1985 wherever there is over one mile of no passing sight distance and in 1992 in sections over 5% grade, Station H6+00 to 210+00, and in the year 2000 in those sections ranging from 4-5% Station 25+00 to 116+00. In essence, by the year 2000, all but 1,500 feet of the 3.8 miles of park road would require the construction of passing lanes according to U.D.O.T. criteria.

An assessment will be required to form a basis for deciding whether climbing lanes will be constructed.

V. Alternatives

This section presents an assessment of alternatives for a number of the issues identified in Section IV Statement of Issues.

A number of the issues identified in Section IV, however, will require additional research and special studies before alternatives can be developed and effectively assessed. Issues which fall into this category or issues which do not lend themselves to be presented in the form of alternatives are covered in Section VI Other Considerations and Needs.

A. Overnight Lodging

The following is a summary of the assessment of alternatives addressing the issue of overnight lodging services within the park and further use of the cabins presently being utilized as such. (See Figure 10 and Photographs F and G.) The alternatives do not pertain to the status of the lodge.

Alternative A - Status Quo or retain and upgrade all of the economy and deluxe cabins and continue using them for overnight lodging.

Alternative B - Retain only the 40 Deluxe cabins for overnight lodging use and those structures essential for administration/management operations. The 104 Economy cabins will be disposed of and replaced by constructing 70-80 new units.

Alternative C - Retain only the 40 Deluxe cabins for overnight lodging. The 104 Economy cabins and minor supporting structures will be eliminated at the discretion of the National Park Service with no intention of replacement when the concession contracts are terminated.

Alternative D - Discontinue providing visitor overnight lodging service and retain only the forty deluxe cabins for their historic value and potential for future National Park Service use. The economy cabins will be eliminated along with those structures which were supporting elements for the administration and management of the concession operation if deemed unnecessary for National Park Service purposes.

Photograph F



Photograph F shows the typical economy cabin and photograph G is an example of the typical deluxe cabin.



Photograph G



existing lodge complex

BRUCE CANYON

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National Park Service

Figure 10

ISSUE: Overnight Lodging - Identify the alternatives concerning overnight lodging services and further use of the cabins.

ALTERNATIVE A - Status Quo - Retain and upgrade all of the economy and deluxe cabins and continue using them for overnight lodging.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
The "economy" cabins, constructed over 40 yrs. ago, are substandard and will require a major expenditure of funds on the part of the National Park Service and the concessioner.	The concessioner must treat all capital investments as a direct expense or a high cost depreciation factor to his sales.	After rehabilitation, the cabins will still be small, cramped, and noisy. After considerable capital requirements, there will be little opportunity for a return on investments, sales, or a favorable cash flow.	Assuming that past trends & conditions will remain fairly stable & considering the extensive investments necessary to rehabilitate, it does not appear as though the Bryce Canyon concession operation individually represents a financially advantageous entry.	Funds in the amount of \$3,000-\$5,000 per unit for rehabilitation. Plus materials & manpower. The contract does not allow possessary interest on the part of the concessioner.
Continued impact on an area where pedestrian circulation has already resulted in serious impacts on the site.	Pedestrian circulation systems designed & constructed in a way to encourage movement on reinforced surfaces. Planting plans designed & installed to control erosion & pedestrian circulation.	Temporary increase in air & noise pollution due to mitigating measures. Continued loss of soils & vegetation unless mitigation measures are implemented. There would be an increase in visual impact on the site.	The continued intensive use of the lands adjacent to the canyon rim will have little foreseeable effect on the long-term productivity providing all mitigating measures under this alternative are addressed.	Total deterioration of the site from pedestrian impact vs. funds & materials to mitigate pedestrian impacts.
Economy cabins are inaccessible to elderly and handicapped due to the design of facilities and topographic restrictions.		Inconvenience and potential safety problems for elderly and handicapped visitors.		

SECTION V - ALTERNATIVES

Page 2 of 3

ISSUE: Overnight Lodging - Identify the alternatives concerning overnight lodging services and further use of the cabins.

ALTERNATIVE A - Status Quo - Retain and upgrade all of the economy and deluxe cabins and continue using them for overnight lodging.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
The lodge, deluxe cabins, dormitory & other structures used for the administration & management of the concession area will require extensive investments to rehabilitate on the part of the NPS & concessioner.	As with the "economy" cabins, the concessioner must treat all capital investments as a direct expense or a high cost depreciation factor to his sales.	Will place a greater burden on NPS & concession personnel & funding. After considerable capital requirements, there will be little opportunity for a return on investments, sales, or a favorable cash flow.	Assuming that past trends & conditions will remain fairly stable, & considering the extensive investments necessary to rehabilitate, it does not appear as though the Bryce Canyon concession operation individually represents a financially advantageous entry.	Funds, materials, & manpower. The contract does not allow for possessory interests on the part of the concessioner.
Will require intensive maintenance on the part of the National Park Service as well as the concessioner.	Regular, routine, preventive maintenance will be conducted to insure that greater maintenance investments are not incurred.	Will place a greater burden on NPS & concession personnel & funding. It will also increase operational cost making it more difficult to obtain a reasonable return for investments.	None.	Funds, materials, & manpower.
Will require intensive demands on administrative elements of National Park Service.	Develop a sound contract to identify requirements & obligations in an effort to minimize conflicts & thereby minimizing demands on administrative personnel.	Will place a greater burden on NPS personnel & funding.	None.	Funds, materials, & manpower.

SECTION V - ALTERNATIVES

ISSUE: Overnight Lodging - Identify the alternatives concerning overnight lodging services and further use of the cabins.

ALTERNATIVE A - Status Quo - Retain and upgrade all of the economy and deluxe cabins and continue using them for overnight lodging.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
This course of action is not consistent with the policy to encourage development outside the park.	None.	The overnight accommodations within the park would continue to compete with development outside the park. This alternative could limit the potential to expand overnight services outside the park considering the present marginal condition for such services within the region.	The continued use of the cabins could be the margin of profit needed to sustain outside interests in the long run. Should this prove true, it could lead to a discontinuation of services on the part of some of the present outside park interests.	Funds, materials & manpower.
Continued use of economy structures which are poorly constructed with no insulation would continue to create a tremendous drain and waste of energy resources.	Insulate ceilings & walls of structures.	Improvements would be extremely costly and there would be little opportunity for a return on those investments.		Funds, materials, & manpower to improve facilities. Energy consumed to operate structures.
Possible impact to presently unknown archeological resources from continued visitor impact to site.	Archeological surveys should be completed to identify sites. In the event an archeological site may be impacted, salvage or avoidance measures should be implemented.	Some presently unknown archeological sites may be adversely impacted by visitor use.		

SECTION V - ALTERNATIVES

ISSUE: Overnight Lodging - Identify the alternatives concerning overnight lodging services and further use of the cabins.

ALTERNATIVE B - Retain only the 40 "Deluxe" cabins for overnight lodging use and those structures essential for administrative/management operations. The 104 "Economy" cabins will be disposed of and replaced by constructing 70-80 new units.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE, ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
The "Deluxe" cabins, dormitory, lodge, and other structures used for the administration and management of the concession area will require extensive investments to rehabilitate on the part of the NPS & concessioner.	The concessioner must treat all capital investments as a direct expense or a high cost depreciation factor to his sales.	Will place a greater burden on NPS & concession personnel & funding. After considerable capital requirements there will be little opportunity for a return on investments, sales, or a favorable cash flow.	Indications are that the economic investments (short term use) in the long run could prove to be non-productive in terms of a profitable return. This could lead to a discontinuation of concession services (long term productivity of investments).	Funds, materials, & manpower.
Archeological survey will be required prior to construction of 70-80 new units.	None.	Will temporarily increase demand on NPS funds & manpower to conduct survey.	Short term loss of money and manpower in return for long term protection, preservation, and recognition of possible cultural resources.	Funds, materials, & manpower to conduct archeological survey.

ISSUE: Overnight Lodging - Identify the alternatives concerning overnight lodging services and further use of the cabins.

ALTERNATIVE B - Retain only the 40 "Deluxe" cabins for overnight lodging use and those structures essential for administrative/management operations. The approximately 104 "Economy" cabins will be disposed of and replaced by constructing 70-80 new units.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Considering the overall financial structure within the Bryce Canyon area, past trends in visitor use, operating days (135), and the economic aspects of replacement, it appears as though the loan amortization alone would represent approximately 1/3 of the annual sales.	None.	The excessive financial demand upon sales is not financially feasible.	Economic investments (short term) in the long run would not be of profitable returns. This could lead to discontinuation of concession services (long term productivity of investment).	Funds, materials, & Manpower.
Alternative will result in continued impact on an area where pedestrian & vehicular circulation has already caused serious impacts to the site.	Design & construct pedestrian and vehicular circulation systems to minimize impacts. Utilize plant materials & signs to control & regulate circulation.	Loss of vegetation in immediate area of construction & a temporary, minimal, erosion of soil. There will also be a temporary increase in air and noise pollution as a result of construction.	The construction of reinforced areas to reduce impacts (short term use) will ensure the long term productivity of the site.	Funds, materials, & manpower.

ISSUE: Overnight Lodging - Identify the alternatives concerning overnight lodging services and further use of the cabins.

ALTERNATIVE B - Retain only the 40 "Deluxe" cabins for overnight lodging use and those structures essential for administrative/management operations. The approximately 104 "Economy" cabins will be disposed of and replaced by constructing 70-80 new units.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
New construction will result in some temporary negative impacts on the environment (dust, noise, loss of vegetation & erosion of soils).	Identify construction limits on the ground and confine all equipment & work to immediate area. Seed and mulch all areas disturbed during construction to reduce erosion of soils.	Temporary, minimal erosion of soils & permanent loss of vegetation in area of immediate construction. Increase in air and noise pollution, temporarily.	None.	Funds, materials & manpower.
This course of action is not consistent with the policy to encourage development outside the park.	None.	The overnight accommodations within the park would continue to compete with development outside the park. This alternative could limit the potential to expand overnight services outside the park considering the marginal condition for such services.	The continued use of the "Deluxe" cabins plus the 80 new units could be the margin of profit needed to sustain outside interests in the long run. Should this prove true, it could lead to a total discontinuation of services on the part of some of the present outside park interests.	Funds, materials & manpower.
Will require compliance with the National Historic Preservation Act of 1966, Sec. 106 (P.L. 89-66, Sec. 15, 1966)	None.	Will temporarily increase demand on NPS & State personnel & funding to comply with P.L. 89-66, Sec. 15, 1966.	None.	None.

SECTION V - ALTERNATIVES

ISSUE: Overnight Lodging - Identify the alternatives concerning overnight lodging services and further use of the cabins.

ALTERNATIVE B - Retain only the 40 "Deluxe" cabins for overnight lodging and use and those structures essential for administrative/management operations. The approximately 104 "Economy" cabins will be disposed of and replaced by construction 70-80 new units.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Removal of the "economy" cabins could cause considerable visitor inconvenience since they represent a significant number of available lodging units in the region.	Phase & schedule construction in an effort not to significantly reduce present overnight lodging capacity nor interfere with period of peak use.	If old structure or structures must be removed in order to make room for new ones, there will be a period when overnight capacities would be temporarily reduced.	None.	None.
Elimination of the sub-standard "economy" cabins will reduce the degree of maintenance presently required even considering the construction of the new units.	Maintenance requirements could be further considered during design of the new units by selecting construction materials that will minimize maintenance.	None	The new units in the long run will require less manpower & funds to maintain than required for economy cabins.	Funds, materials & manpower to remove economy cabins and build new units.
Elimination of the "Economy" cabins will cause some temporary, slight impact on the environment (dust, noise, loss of vegetation and erosion of soils).	Identify work limits on the ground & confine all work & equipment to that area. Seed and mulch areas disturbed during removal operations.	There will be temporary increase in air & noise pollution and a slight negative visual impact.	None.	Existing vegetation and soils lost during construction.

SECTION V - ALTERNATIVES

ISSUE: Overnight Lodging - Identify the alternatives concerning overnight lodging services and further use of the cabins.

ALTERNATIVE C - Retain only the 40 "Deluxe" cabins for overnight lodging use and those structures essential for administrative and management operations. This would entail the elimination of approximately 104 "economy" cabins with no intention of replacement.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
The financial base & opportunity for profit & investment would diminish for a large corporate entry.	Revise concession contract and provide allowances to rate schedules or investments. A smaller "family" operation, unlike the large corporate entity, could provide satisfactory levels of visitor services, as well as generate a sufficient acceptable profit should present concessioner elect to discontinue visitor services.	Based on past trends, current projections indicate the concessioner would experience over 30% reduction in total sales. There would be considerable reduction in the concessioner's profit and his ability to invest in improvements. This would produce a severe economic restraint upon the concessioner & possibly lead to a desire to discontinue services.	Use of 104 units for overnight lodging would discontinue; thereby, decreasing the long term productivity of the present concessioner & improving the potential for long term productivity of similar services outside of the park.	Funds, materials & manpower invested in the economy cabins and the elimination of same.

SECTION V - ALTERNATIVES

ISSUE: Overnight Lodging - Identify the alternatives concerning overnight lodging services and further use of the cabins.

ALTERNATIVE C - Retain only the 40 "Deluxe" cabins for overnight lodging use and those structures essential for administrative and management operations. This would entail the elimination of 104 "economy" cabins with no intention of replacement.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
The elimination of the 104 economy cabins will reduce the overnight lodging capacity of the park.	Encourage interest outside the park to meet demand created by elimination of "economy" cabins. Develop a phase-out program to avoid interruption of visitor services.	Since the 104 economy cabins represent a significant portion of the overnight lodging within the park as well as the region, there would be a considerable reduction in the park's ability to meet demand and visitor inconvenience would result.	The area which the "economy" cabins presently occupy would be no longer committed to use. This would increase the options for future use.	None.
Will require compliance with the National Historic Preservation Act of 1966, Sec. 106 (P.L. 89-66, Sec. 15, 1966).	None.	Will temporarily increase demand on NPS & State personnel & funding to comply with P.L. 89-66, Sec. 15, 1966.	None.	Funds, materials & manpower & historic value of cabins.
Removal will cause some temporary impacts on soils & vegetation.	Identify work limits on the ground & confine all construction & equipment within area. Seed and mulch all areas disturbed during removal.	There will be a temporary minimal erosion of soils & permanent minimal loss of existing vegetation destroyed during removal of cabins. There will be a temporary minimal increase in air & noise pollution.	Flexibility for optional long-term productivity will increase with the elimination of existing use.	Vegetation and soils lost during construction.

SECTION V - ALTERNATIVES

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ISSUE: Overnight Lodging - Identify the alternatives concerning overnight lodging services and further use of the cabins.

ALTERNATIVE C - Retain only the 40 "Deluxe" cabins for overnight lodging use and those structures essential for administrative and management operations. This would entail the elimination of 104 "economy" cabins with no intention of replacement.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Removal of the 40 year-old, substandard cabins will mean a significant reduction in maintenance and administrative demands.	None	None	The removal of cabins will relieve the burden on NPS personnel & funding in the long run.	Funds, materials & manpower to remove structures.
A reduction of the labor force (approximately 14-16 persons) in the lower job classifications such as college students would result.		The cost of payroll, as a percentage of sales, would rise by 3.0%, to as much as 8.0%. Other associated costs such as utilities maintenance & repairs would also rise disproportionately to income on a percentage of sales basis.	None	Job opportunities associated with cabins to be eliminated. Economic gains obtained for those normally employed to fill the 14-16 jobs which will be eliminated.
There would be a reduction in vehicular & pedestrian impact as a result of reducing 72% of the available overnight lodging units.	None	None	None	None

ISSUE: Overnight Lodging - Identify the alternatives concerning overnight lodging services and further use of the cabins.

ALTERNATIVE C - Retain only the 40 "Deluxe" cabins for overnight lodging use and those structures essential for administrative and management operations. This would entail the elimination of 104 "economy" cabins with no intention of replacement.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Since the deluxe cabins intensity of use exceeds 95% through the major portion of the season & the economy cabins average 70% occupancy, little opportunity would remain for growth in overnight concession visitation with elimination of economy cabins. The "Deluxe" cabins, dormitory, lodge, and other structures used for the administration and management of the concession area will require extensive investments to rehabilitate on the part of the NPS & concessioner. There would be a reduction in unsightly visual impacts.	None The concessioner must treat all capital improvements as a direct expense or a high cost depreciation factor to his sales.	There would be a considerable reduction in the park's ability to accommodate visitors thereby creating an inconvenience. Demand for overnight facilities outside the park would increase along with a potential increase for profits. Will place a greater burden on NPS & concession personnel & funding. After considerable capital requirements there will be little opportunity for a return on investments, sales or a favorable cash flow.	Elimination would reduce long term productivity of existing development within the park. Indications are that the economic investments (short term use) in the long run could prove to be non-productive in terms of a profitable return. This could lead to a discontinuation of concession services (long term productivity of investments). Restoration of impacted area to a naturalistic setting.	None Funds, materials & manpower.

ISSUE: Overnight Lodging - Identify the alternatives concerning overnight lodging services and further use of the cabins.

ALTERNATIVE D - Discontinue providing overnight lodging services and retain only the 40 "Deluxe" cabins for their historic value and potential for future National Park Service use. The "Economy" cabins will be eliminated along with those structures which were supporting elements for the administration and management of the concession operations when deemed necessary by the National Park Service.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
The park will no longer be able to accommodate those visitors seeking overnight lodging within Bryce Canyon National Park.	Develop a phase-out program and encourage interest outside the park to accommodate need generated by discontinuation of overnight services within the park.	Those who find traditional value in staying in the overnight lodging facilities within the park will no longer have that opportunity. Since the cabins represent a significant portion of the available lodging within the region, there will be considerable visitor inconvenience unless private interest outside of the park is willing to expand to meet the demand. Over the past five years, there has been a trend of rapid expansion in motel lodging outside the park.	The area which the "economy" cabins presently occupy would no longer be committed to use. This would increase the options for future use.	None.

SECTION V - ALTERNATIVES

ISSUE: Overnight Lodging - Identify the alternatives concerning overnight lodging services and further use of the cabins.

ALTERNATIVE D - Discontinue providing overnight lodging services and retain only the 40 "Deluxe" cabins for their historic value and potential for future National Park Service use. The "Economy" cabins will be eliminated along with those structures which were supporting elements for the administration and management of the concession operation when deemed necessary by the National Park Service.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE COMMITMENTS
More than any other alternative, this one creates the greatest impact on the financial base and opportunity for investment within the park, especially for a large corporate entry.	It appears as though a small family operation unlike the large corporate entry, could continue to provide satisfactory levels of visitor services in the remaining concession activities, such as existing grocery store & lodge dining service, should the present concessioner elect to discontinue providing visitor services.	Based on past trends & current projections, the concessioner will most likely experience over a 51% reduction in total sales. This would produce a severe economic restraint upon the concessioner to maintain even the existing inadequate profit structure.	Use of the cabins would discontinue thereby, decreasing the long term productivity of the present concessioner & improving the potential for long term productivity of similar services outside the park.	Funds, materials and manpower invested in the economy cabins and elimination of the same.
Removal of the 104 "economy" units will result in temporary negative impacts on the immediate area.	Identify removal limits on the ground and confine all work and equipment to that area. Seed and mulch all areas disturbed during removal activities to minimize erosion of soils.	Temporary, minimal erosion of soils and permanent loss of vegetation in area of removal. There will be a temporary minimal increase in air & noise pollution.	The impact of removal will be insignificant compared to the pedestrian and vehicular impact which will be eliminated by removing 72% of the overnight lodging facilities.	None

ISSUE: Overnight Lodging - Identify the alternatives concerning overnight lodging services and further use of the cabins.

ALTERNATIVE D - Discontinue providing overnight lodging services and retain only the 40 "Deluxe" cabins for their historic value and potential for future National Park Service use. The "Economy" cabins will be eliminated along with those structures which were supporting elements for the administration and management of the concession operation when deemed necessary by the National Park Service.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Removal of the 40 year-old substandard cabins will mean a significant reduction in maintenance & administrative demands.	None	None	Removal of the cabins will relieve the burden on NPS personnel and funding in the long term.	Funds, materials & manpower utilized to remove structures.
A reduction of approximately 24-26 persons in the labor force would result.	A major realignment would be required to consolidate sales functions in order to improve employee productivity and several presently inefficient, marginal, low profit functions. If this is not possible consider a discontinuation of the service altogether.	A reduction in job opportunities would result in primarily the lower job classifications.	None	Economic gains obtained for those normally employed to fill the 24-26 jobs to be eliminated.
There will be a reduction in vehicular & pedestrian impact as a result of reducing 72% of the available overnight lodging units & utilizing the remaining ones only for seasonal use.	None	None	None	None

ISSUE: Overnight Lodging - What are the alternatives concerning overnight lodging services and further use of the cabins.

ALTERNATIVE D - Discontinue providing overnight lodging services and retain only the 40 "Deluxe" cabins for their historic value and potential for future National Park Service use. The "Economy" cabins will be eliminated along with those structures which were supporting elements for the administration and management of the concession operation when deemed necessary by the National Park Service.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Will require compliance with the National Historic Preservation Act of 1966, Sec. 106 (P.L. 89-66, Sec. 15, 1966).	None	Will temporarily increase demand on NPS & State personnel & funding to comply with P.L. 89-66, Sec. 15, 1966.	None	Funds, materials, manpower and historic value of cabins.
The "Deluxe" cabins will require upgrading if utilized for seasonal quarters by the National Park Service.	None	Will place a greater burden on NPS funding, materials & manpower to upgrade.	The short term use of NPS funds to upgrade will increase the long term productive use of the cabins as seasonal quarters, thereby eliminating the need for major investments to construct new seasonal quarters.	Funds, materials & manpower to initiate upgrading of cabins.

B. Transportation and Fee Collection

The following is a summary of the alternatives dealing with the issue transportation and fee collection.

Alternative A - Retain the same roads and parking facilities in their present location with normal maintenance procedures. Existing system for fee collection would be retained. (Status Quo/No Action)

Alternative A1 - Would be the same as Alternative A except that alternatives for fee collection are modified.

Alternative B - Major upgrading and expansion of existing roads and parking areas to accommodate present forms and volumes of traffic. Entrance fees would be collected at present location and user fees for camping use would be collected within each campground at 2 manned structures containing minimal quarters. To reduce the degree of parking lot expansion near the overlooks, all vehicles towing trailers will be required to leave them in an improved parking area near the visitor center.

Alternative B1 - Would be the same as Alternative B except that alternatives for fee collection are modified.

Alternative C - Employ a form of mass transportation with central and intermediate staging facilities to accommodate the visitor. Minor upgrading of existing transportation facilities and relocation of fee collection station. This would involve constructing a mass transit terminal at Fairyland Canyon Overlook and locating a fee collection station near the entrance to the park.

Alternative C1 - This would be the same as Alternative C except that alternatives for fee collection would be modified.

Alternative D - Employ a form of mass transportation with central and intermediate staging facilities to accommodate the visitor. This alternative will also involve a minor upgrading of existing transportation facilities and the relocation of the fee collection station. A mass transportation terminal would be constructed near the visitor center and the fee collection station would be located near the entrance to the park.

Alternative D1 - This would be the same as Alternative D except that alternatives for fee collection would be modified.

Alternative E - Employ a form of mass transportation with central and intermediate staging facilities to accommodate the visitor. This alternative will involve a minor upgrading of existing transportation facilities. The mass transit terminal will be located near the visitor center and both user and entrance fees will be collected at a new structure located approximately 100 yards north of the existing fee collection area. The road to Fairyland Overlook will be improved along with the expansion of the parking lot.

SECTION V - ALTERNATIVES

ISSUE: Transportation and Fee Collection - Identify the alternatives for resolving the congested, substandard, and deteriorating condition of the transportation system and alternatives for fee collection within Bryce Canyon National Park.

ALTERNATIVE A: Retain the same road and parking facilities in their present location with normal maintenance procedures. Existing system for fee collection would be retained. (Status Quo/No Action)
See Figure 11.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Increased vehicle-pedestrian conflicts thereby jeopardizing visitor safety.	Traffic control devices or personnel to reduce these conflicts could be used.	Extensive overuse of roads and parking areas will still cause unsafe pedestrian-vehicle confrontations.	Use would continue at present increase of 7% per year. Eventually due to adverse conditions of roads and overlooks, restrictions on visitor use would be required thereby limiting the long term productivity of the system.	
Deteriorating roadbeds would continue to cause safety problems from increased vehicle use.	Minor resurfacing and upgrading of existing roadbeds. Preservation system could be implemented to limit use of road system.	Substandard road pavements can cause or increase traffic accidents.		
Road widths would continue to be too narrow to accommodate recreational vehicles passing each other.	None	Deterioration of pavement edges would continue from oversized vehicles using soft shoulders to pass oncoming traffic.		

ISSUE: Transportation and Fee Collection - Identify the alternatives for resolving the congested, substandard, and deteriorating condition of the transportation system and alternatives for fee collection within Bryce Canyon National Park.

ALTERNATIVE A: Retain the same roads and parking facilities in their present location with normal maintenance procedures. Existing system for fee collection would be retained. (Status Quo/No Action)
See Figure 11.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
There will be an increasing negative impact on the visitor's experience as congestion and conflicts between pedestrian and vehicles increase.	Reservation systems could be implemented to reduce congestion and conflicts in circulation.	Without restrictions visitor experiences will continue to be impacted.	Increased use and enjoyment of resource versus long term degradation of individual visitor experience.	
Compaction of soil and vegetation by vehicles parking off of designated areas because of overcrowding at parking areas and overlooks would most likely increase or continue at its present level.	Restraining barriers could be constructed and park personnel employed to prevent vehicles from traveling off of designated areas.	Continued loss of vegetation and soils as a result of erosion from vehicular and pedestrian impact.	None	Money, material and labor for control measures in keeping vehicles on designated areas.
No additional cutting, filling, or clearing of land will be needed for transportation facility construction.				
Continued impacts to parking and overlook areas could affect presently unknown archeological resources.	Archeological surveys should be completed to identify sites. In the event an archeological site may be impacted, salvage or avoidance measures should be implemented.	Some presently unknown archeological sites may be impacted by visitor use.		

ISSUE:

Transportation and Fee Collection - Identify the alternatives for resolving the congested, substandard, and deteriorating condition of the transportation system and alternatives for fee collection within Bryce Canyon National Park.

ALTERNATIVE A: Retain the same roads and parking facilities in their present location with normal maintenance procedures. Existing system for fee collection would be retained. (Status Quo/No Action)
See Figure 11.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Air quality would be diminished by increased exhaust fumes as a result of traffic congestion and increases in use.	Regular routine preventive maintenance will be required to insure that greater maintenance investments are not incurred.	Pollution levels would still increase from more vehicles in the park at one time.		
Will require intensive administration and maintenance on the part of the National Park Service.		Will place increasing burden on National Park Service personnel and funding.	The long term productivity of investments will continue to decrease as visitation continues to increase.	Funds, materials and manpower invested to maintain system.

Transportation and Fee Collection

ALTERNATIVE A-1 - is the same alternative as A, except that alternatives for fee collection would be accomplished by one of three options:

1. Entrance fees would be collected at present location and user fees for campground use would be collected within each campground at a manned structure containing minimal quarters (as in Alternative B, Figure 12).
2. Both user and entrance fees would be collected at a new collection station near the park entrance (as in Alternative C, Figure 13).
3. Both user and entrance fees would be collected at the present collection station near the visitor center (as in Alternative E, Figure 15).

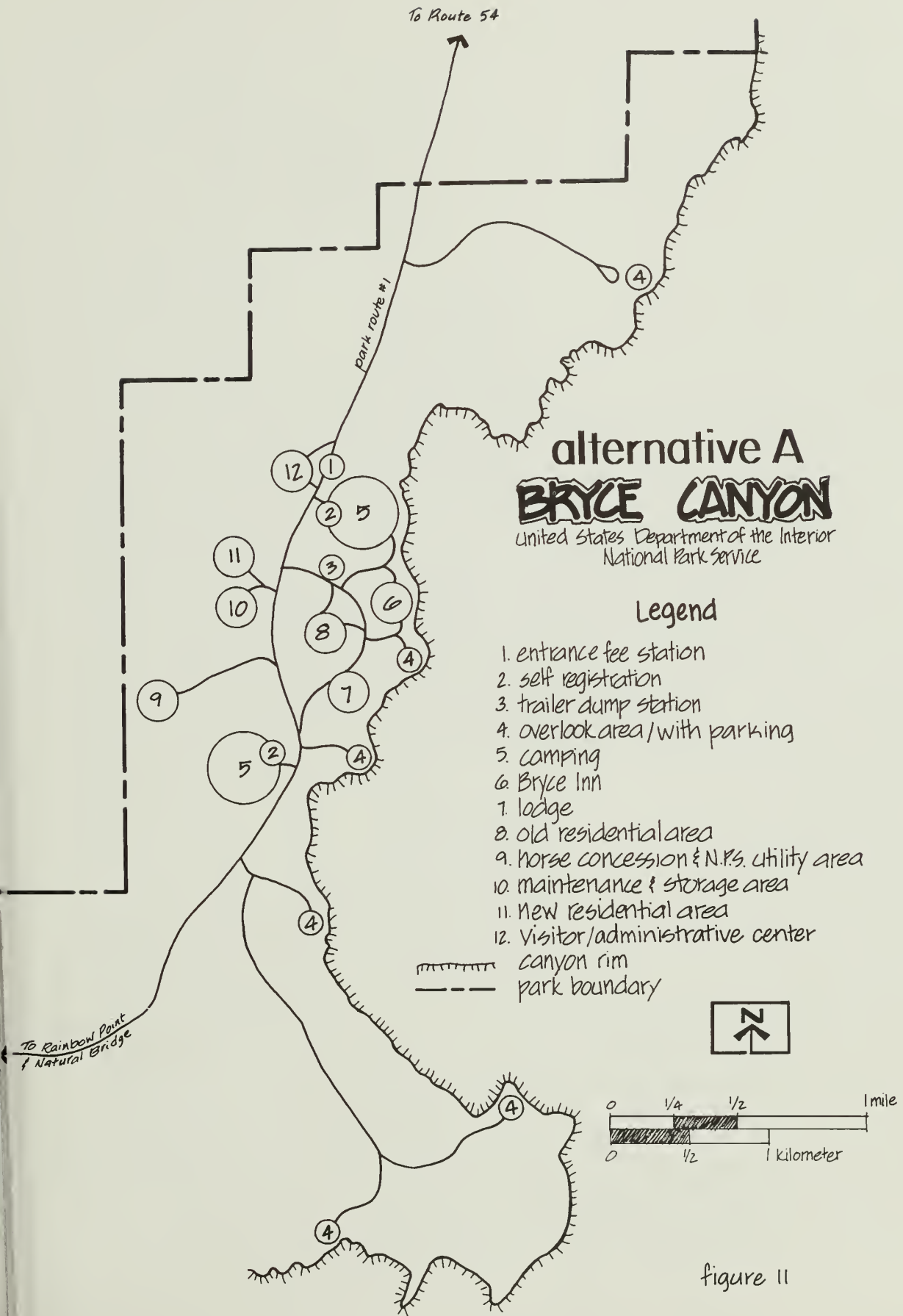


figure 11

ISSUE: Transportation and Fee Collection - Identify the alternatives for resolving the congested, substandard and deteriorating condition of the transportation system and alternatives for fee collection within Bryce Canyon National Park.

ALTERNATIVE B: Major upgrading and expansion of existing roads and parking areas to accommodate present forms and volumes of traffic. To reduce the degree of parking lot expansion near the overlooks, all vehicles towing trailers will be required to leave trailers in an improved parking area near the existing visitor center. Entrance fees would be collected at present location and user fees for campground use would be collected within each campground at a manned structure containing minimal quarters. *To reduce the degree of parking lot expansion near the overlooks, all vehicles towing trailers will be required to leave them in an improved parking lot near the visitor center or in sites at the campgrounds. See Figure 12.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY		IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Considerable land area will be cleared to widen roadways and the parking areas at the overlooks and the one in front of the visitor center. Approximately 1.4 acres will be disturbed at the visitor center for trailer parking and approximately 1.3 acres total for the expansion of the nine overlooks to accommodate approximately 15 additional vehicles each. There will also be considerable acreage involved to upgrade roads.	Identify construction limits on the ground and confine all construction and equipment to that area. Seed and mulch all areas disturbed during construction.	There will be a temporary, minimal erosion of soils and permanent loss of vegetation due to construction activities to expand facilities. Extensive earthwork, retaining walls and road realignment will be required at several vistas.	Visitation will sharply increase as soon as road system is improved with eventual values of resource increasing because more people would be able to enjoy the scenic values.		

SECTION V - ALTERNATIVES

ISSUE: Transportation and Fee Collection - Identify the alternatives for resolving the congested, substandard and deteriorating condition of the transportation system and alternatives for fee collection within Bryce Canyon National Park.

ALTERNATIVE B: Major upgrading and expansion of existing roads and parking areas to accommodate present forms and volumes of traffic. To reduce the degree of parking lot expansion near the overlooks, all vehicles towing trailers will be required to leave trailers in an improved parking area near the existing visitor center. Entrance fees would be collected at present location and user fees for campground use would be collected within each campground at a manned structure containing minimal quarters. See Figure 12.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Increased traffic flow as a result of new, modern roadways, and implementation of this alternative versus a mass transit system.		Increased traffic flows throughout the park would continue because of upgraded road system and projected increase in visitation. This alternative would also encourage consumption of fossil fuels by promoting individual travel versus mass transit.	In the short term, should the trend in visitation continue to increase, the long-term productivity of the new facilities will again become limited and congestion would occur.	The funds, materials and manpower used to implement alternative.
Air and noise pollution levels and congested atmosphere would increase due to extensive vehicular use of park.	None	Pollution and congestion cannot be mitigated unless traffic is limited.	None	None
Major financial obligation is involved. FHWA estimates indicate approximately 7.2 million dollars would be required to upgrade transportation system.	None	Will place a greater burden on National Park Service personnel and funding for construction and maintenance if implemented.	Expenditure of public funds and obligation of resource versus long term safe enjoyment of the resource by more people with the possibility of the subject issue reoccurring as a result of increasing visitor use.	Loss of materials, funds and manpower to upgrade system.

SECTION V - ALTERNATIVES

ISSUE: Transportation and Fee Collection - Identify the alternatives for resolving the congested, substandard and deteriorating condition of the transportation system and alternatives for fee collection within Bryce Canyon National Park.

ALTERNATIVE B: Major upgrading and expansion of existing roads and parking areas to accommodate present forms and towing trailers will be required to leave trailers in an improved parking area near the existing visitor center. Entrance fees would be collected at present location and user fees for campground use would be collected within each campground at a manned structure containing minimal quarters. See Figure 12.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
By leaving trailers which are being towed in a parking area near the visitor center this will reduce the need to expand parking at the overlooks to a large degree.	None	This will create a need to develop a larger parking lot near the visitor center and increase the visual impact there.	In the short term the expansion near the visitor center will reduce long term impacts near the canyon rim where erosion and impact potential has the greatest effect.	Materials, manpower and funds to expand visitor center parking.
National Park Service commitment to maintain considerable investment should expansion and upgrading take place.	None	This course of action further obligates National Park Service to the present transportation system thereby affecting future rationale and options for transportation planning by increasing funds, materials, manpower and resources to expand present facilities.	The extensive, short term investment of funds, manpower, materials and resources would be highly questionable in the long term should future alternatives dictate a total change in transportation management.	Funds, materials and manpower.

SECTION V - ALTERNATIVES

ISSUE: Transportation and Fee Collection - Identify the alternatives for resolving the congested, substandard and deteriorating condition of the transportation system and alternatives for fee collection within Bryce Canyon National Park.

ALTERNATIVE B: Major upgrading and expansion of existing roads and parking areas to accommodate present forms and towing trailers will be required to leave trailers in an improved parking area near the existing visitor center. Entrance fees would be collected at present location and user fees for campground use would be collected within each campground at a manned structure containing minimal quarters. See Figure 12.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Visitor touring trailers will be inconvenienced by having to unhook and hook them back up if they adventure to over-looks.	None	None	Minor visitor inconvenience versus protection of the resource.	
Expansion of existing facilities and the increase in vehicular traffic will increase the negative visual impacts on the aesthetic values of the natural environment.	Utilize special design techniques to make facilities lie very gently on the natural landscape.	Increases in development leads to a more humanistic environment which is a contrast and intrusion to the concept of a national park environment.	None	None
Construction of manned fee collection stations at entrance to campgrounds with minimal overnight quarters will require minor disruption of land, soil and vegetation for structure, access areas and utility lines.	Identify construction limits on-the-ground. Confine all equipment to construction area. Seed and mulch disturbed areas.	Soils and vegetation lost during erosion by construction activities. Major expense also involved.	Short term disturbance of land for construction of manned fee collection station versus long term 24-hour protection and surveillance of campgrounds.	Money, manpower and materials. Soils and vegetation lost through construction.

SECTION V - ALTERNATIVES

ISSUE: Transportation and Fee Collection - Identify the alternatives for resolving the congested, substandard and deteriorating condition of the transportation system and alternatives for fee collection within Bryce Canyon National Park.

ALTERNATIVE B: Major upgrading and expansion of existing roads and parking areas to accommodate present forms and towing trailers will be required to leave trailers in an improved parking area near the existing visitor center. Entrance fees would be collected at present location and user fees for campground use would be collected within each campground at a manned structure containing minimal quarters. See Figure 12.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Possible further demand on personnel, funding and resources to conduct archeological studies.	None	Funding and personnel needed to ensure archeological investigation before construction.	Short term investment of funds and manpower for archeological surveys in exchange for long term protection, preservation, and recognition of cultural and archeological resources.	Money, manpower and materials.

Transportation and Fee Collection

ALTERNATIVE B-1 - is the same alternative as B, except that alternatives for fee collection would be accomplished by one of three options:

1. The existing system of fee collection would be retained (as in Alternative A, Figure 11).
2. Both user and entrance fees would be collected at a new collection station near the park entrance (as in Alternative C, Figure 13).
3. Both user and entrance fees would be collected at the present collection station near the visitor center (as in Alternative E, Figure 15).

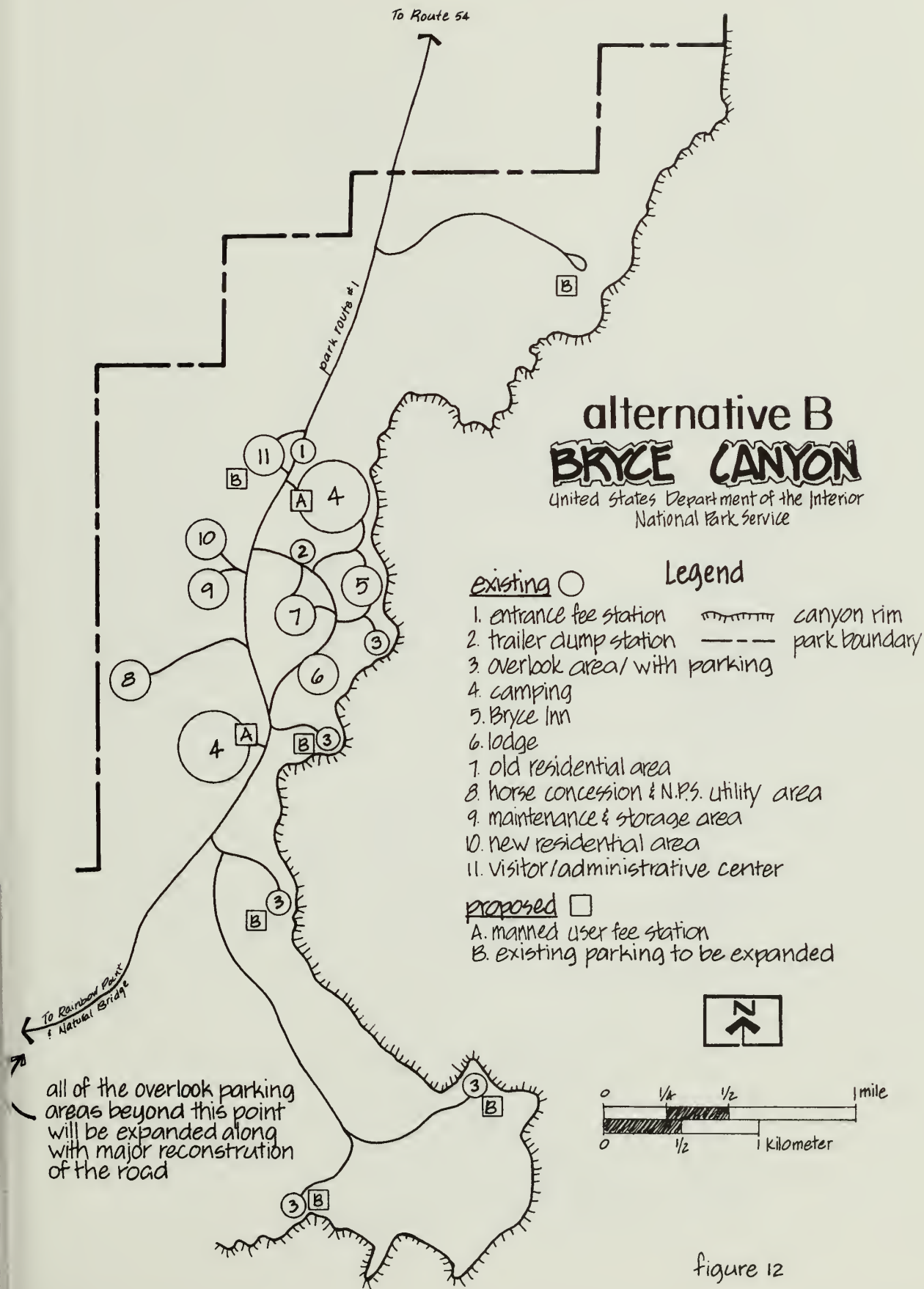


figure 12

SECTION V - ALTERNATIVES

ISSUE: Transportation and Fee Collection - Identify the alternatives for resolving the congested, sub-standard and deteriorating condition of the transportation system and alternatives for fee collection within Bryce Canyon National Park.

ALTERNATIVE C: Employ a form of mass transportation with central and intermediate staging facilities to accommodate the visitor. Minor expanding of existing transportation facilities and relocation of fee collection station. This would involve constructing a mass transit terminal at Fairland Canyon overlook and locating a fee collection station near the entrance. All vehicles entering the campground or lodging area will be required to remain there unless leaving the park. See Figure 13.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Approximate disturbance of 4.8 acres to accommodate large parking area (350 vehicles). Upgrade and expand existing 16' wide, 1.5 miles of access route to the vicinity of the proposed mass transit lot. The road improvements would involve approximately an additional 5 acres. This would be a total disturbance of approximately 9.8 acres.	Design and planning would be done to encourage harmonious development with the surrounding landscape. Also seed and mulch areas disturbed during construction.	There will be a temporary minimal erosion of soils and a permanent loss of vegetation due to construction activities.	The short term loss of 9.8 acres of previously undisturbed land versus long term benefits of improving visitor safety and convenience, consolidation of parking to one area (thereby reducing the impacts and need for parking space throughout the park), and preservation of park resources.	Vegetation and soils lost during construction will be irretrievably committed along with funds, materials and manpower.
Disturbance of additional acreage for construction of sewer treatment facilities.	Revegetation of areas disturbed during construction.	There will be a temporary minimal erosion of soils and a permanent loss of vegetation due to construction activities.	Same as above.	Vegetation and soils lost during construction will be irretrievably committed along with funds, materials and manpower.

ISSUE: Transportation and Fee Collection - Identify the alternatives for resolving the congested, sub-standard and deteriorating condition of the transportation system and alternatives for fee collection within Bryce Canyon National Park.

ALTERNATIVE C: Employ a form of mass transportation with central and intermediate staging facilities to accommodate the visitor. Minor expanding of existing transportation facilities and relocation of fee collection station. This would involve constructing a mass transit terminal at Fairyland Canyon overlook and locating a fee collection station near the entrance. All vehicles entering the campground or lodging area will be required to remain there unless leaving the park. See Figure 13.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Disturbance of additional land to relocate entrance and user fee collection station near entrance of park. All other fee collection facilities will be removed, creating minor disturbance.	Employ special design techniques to minimize loss of vegetation and loss of soils through erosion during construction. Control construction work and equipment impacts by establishing on-the-ground work limits.	Temporary, minimal loss of soils due to erosion and permanent loss of vegetation due to construction. Expenditures of funds and man-hours.	Short term inconvenience of relocating entrance station to another location versus long term benefits of better control of visitation and more efficient system of collecting user and entrance fees.	Loss of existing vegetation and soils, manpower, funds and materials.
The economic ramifications of a mass transit system are questionable at this stage.	A detailed transportation study should be done to study possible economic effects of implementing such a system.	To be determined by transportation study.	To be determined by transportation study.	Funds, materials and manpower to conduct an economic feasibility study on transportation.
Potential adverse visitor reaction to mandatory mass transit.	A detailed transportation study would analyze socioeconomic effects of implementing a mass transportation system at Bryce Canyon National Park. Develop an information system to reassure visitor of transportation scheduling reliability.	The visitors who find a strong sense of security and freedom by traveling in their own personal vehicle may experience a feeling of insecurity and loss of individual freedom.	None	None

SECTION V - ALTERNATIVES

ISSUE: Transportation and Fee Collection - Identify the alternatives for resolving the congested, sub-standard and deteriorating condition of the transportation system and alternatives for fee collection within Bryce Canyon National Park.

ALTERNATIVE C: Employ a form of mass transportation with central and intermediate staging facilities to accommodate the visitor. Minor expanding of existing transportation facilities and relocation of fee collection station. This would involve constructing a mass transit terminal at Fairyland Canyon overlook and locating a fee collection station near the entrance. All vehicles entering the campground or lodging area will be required to remain there unless leaving the park. See Figure 13.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Reduction of number of vehicles circulating through the park.			Short term reduction in vehicles entering park will result in a decrease in air pollution by reducing volume of traffic circulating throughout the park. This will also decrease visual intrusion of vehicles in a natural or park environment. There will be a decrease in deterioration of transportation systems as the volume of traffic is reduced thereby reducing maintenance and administrative cost. The reduction in vehicles will also significantly reduce the consumption of fossil fuels.	

CHAPTER V - ENVIRONMENT

ISSUE: Transportation and Fee Collection - Identify the alternatives for resolving the congested, sub-standard and deteriorating condition of the transportation system and alternatives for fee collection within Bryce Canyon National Park.

ALTERNATIVE C: Employ a form of mass transportation with central and intermediate staging facilities to accommodate the visitor. Minor expanding of existing transportation facilities and relocation of fee collection station. This would involve constructing a mass transit terminal at Fairyland Canyon overlook and locating a fee collection station near the entrance. All vehicles entering the campground or lodging area will be required to remain there unless leaving the park. See Figure 13.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
The development of mass transit facilities and this rising volume of traffic will increase the negative, visual impacts on the natural environment of the immediate area of the proposed mass transit parking lot.	Utilize special planning and design techniques to minimize impacts.	An increase in development leads to a more humanistic environment which is a contrast and intrusion to the concept of a National Park environment.	None	None
Additional minor clearing and redesign at overlooks and trailheads to accommodate visitors and mass transit system circulation.	Design and planning would be done to encourage harmonious development with the surrounding landscape. Seed and mulch areas disturbed during construction. Establish on-the-ground work limits to minimize impacts from construction equipment and work activities.	Minor loss of vegetation and temporary erosion of soils due to construction activities.	Short term loss of land for expansion of overlooks versus long term enhancement of visitor experience and increased value of resource due to uncrowded viewing conditions at overlooks.	None

ISSUE: Transportation and Fee Collection - Identify the alternatives for resolving the congested, sub-standard and deteriorating condition of the transportation system and alternatives for fee collection within Bryce Canyon National Park.

ALTERNATIVE C: Employ a form of mass transportation with central and intermediate staging facilities to accommodate the visitor. Minor expanding of existing transportation facilities and relocation of fee collection station. This would involve constructing a mass transit terminal at Fairyland Canyon overlook and locating a fee collection station near the entrance. All vehicles entering the campground or lodging area will be required to remain there unless leaving the park. See Figure 13.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Control problems due to private automobiles permitted beyond the mass transit lot for the purpose of access to lodge and campgrounds.	Establish an access control point south of campground to control private vehicles from driving at liberty throughout park. See point (C) in Figure 13.	Unless mitigating measures are employed, those visitors permitted to drive private vehicles beyond the mass transit lots could drive on through to overlook areas, thus defeating the purpose and intent of the mass transit system.	None	None
Even though there will be a significant overall reduction in air and noise pollution within the park, there will be an increase in the immediate area proposed for the construction of the mass transit parking area.	None	There will be a reduction in air quality within the area to be dedicated for mass transit parking and an increase in noise pollution.	None	None

ISSUE: Transportation and Fee Collection - Identify the alternatives for resolving the congested, sub-standard and deteriorating condition of the transportation system and alternatives for fee collection within Bryce Canyon National Park.

ALTERNATIVE C: Employ a form of mass transportation with central and intermediate staging facilities to accommodate the visitor. Minor expanding of existing transportation facilities and relocation of fee collection station. This would involve constructing a mass transit terminal at Fairyland Canyon overlook and locating a fee collection station near the entrance. All vehicles entering the campground or lodging area will be required to remain there unless leaving the park. See Figure 13.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Major financial obligation is involved.	None	Will place a greater burden on National Park Service personnel and funding for construction and maintenance if implemented.	Expenditure of public funds and minor obligation of resources versus long term safe enjoyment by more people and greater protection of the overall resources.	Funds, materials and manpower.
Possible further demand on personnel, funding and resources to conduct archeological studies.	None	Funding and personnel needed to ensure archeological investigation before construction.	Short term investment of funds and manpower for archeological surveys in exchange for long term protection, preservation and recognition of cultural and archeological resources.	Money, manpower and materials.
All utilities including: water, electrical and sewage will be required.	Utilize special design and construction techniques to minimize impacts.	Obligation and increased demand on National Park Service funds, personnel and manpower. There will be an increase in air and noise pollution and temporary erosion (cont'd)		

ISSUE: Transportation and Fee Collection - Identify the alternatives for resolving the congested, sub-standard and deteriorating condition of the transportation system and alternatives for fee collection within Bryce Canyon National Park.

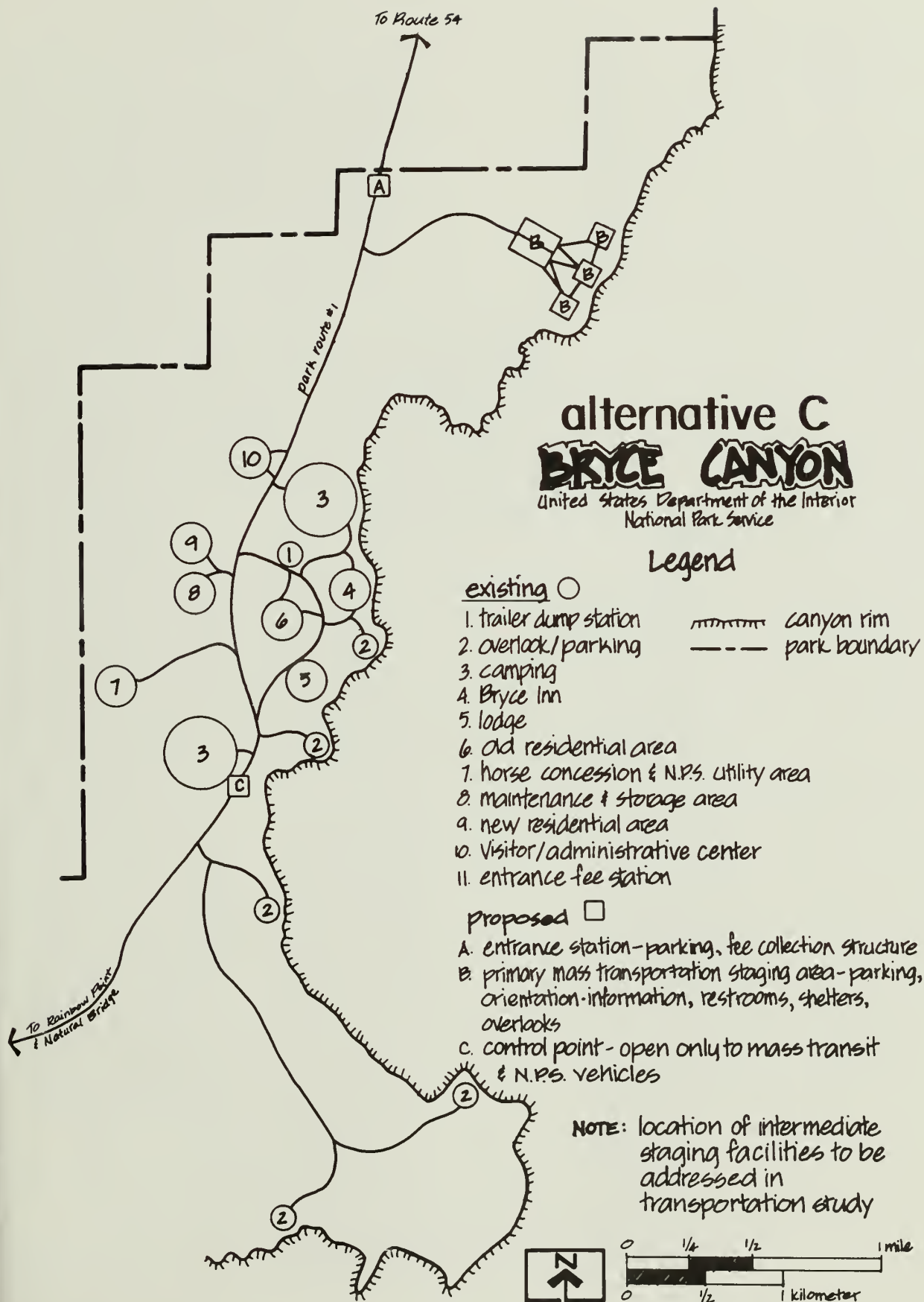
ALTERNATIVE C: Employ a form of mass transportation with central and intermediate staging facilities to accommodate the visitor. Minor expanding of existing transportation facilities and relocation of fee collection station. This would involve constructing a mass transit terminal at Fairyland Canyon overlook and locating a fee collection station near the entrance. All vehicles entering the campground or lodging area will be required to remain there unless leaving the park. See Figure 13.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
There is a potential that certain forms of mass transportation would result in heavier loads on the existing roads.	Utilize a form of mass transportation that would disperse loads (train type vehicles). Improve existing road surfaces to accommodate heavier vehicles.	of soils and permanent loss of existing vegetation. Road surfaces could deteriorate faster if heavier forms of vehicles are used on roads causing an increase in maintenance.	None	Funds, manpower and materials to maintain road.

Transportation and Fee Collection

ALTERNATIVE C-1 - is the same alternative as C, except that alternatives for fee collection would be accomplished by one of three options:

1. Entrance fees would be located at Point "A" as indicated in Alternative C and user fees would be collected at existing fee collection point as indicated in Alternative A.
2. Entrance fees would be collected at Point "A" as indicated in Alternative C and user fees would be collected within each campground at a manned structure containing minimal quarters (as in Alternative B, Figure 12).



ISSUE: Transportation and Fee Collection - Identify the alternatives for resolving the congested, substandard and deteriorating condition of the transportation system and alternatives for fee collection within Bryce Canyon Park.

ALTERNATIVE D: Employ a form of mass transportation with central and intermediate staging facilities to accommodate the visitor. This alternative will also involve a minor expansion of existing transportation facilities and the relocation of the fee collection station. A mass transit terminal would be constructed near the visitor center and the fee collection station would be located near the entrance to the park. All vehicles entering the campground or lodging area will be required to remain there unless leaving the park. See Figure 14.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Disturbance of approximately 5.5 acres of previously undisturbed land for construction of a 350 recreation vehicle parking area and access roads.	Design and planning will encourage harmonious development with the surrounding landscape. Also seed and mulch areas disturbed during construction.	There will be a temporary minimal erosion of soils and a permanent loss of vegetation due to construction activities.	The short term loss of 5.5 acres of previously undisturbed land versus long term benefits of improving visitor safety and convenience, consolidation of parking to one area (thereby reducing the impacts and need for parking space throughout the park) and preservation of park resources.	Vegetation and soils lost during construction will be irretrievably committed along with funds, materials and manpower.
There is a potential that certain forms of mass transportation would result in heavier vehicle loads on the existing roads.	Utilize a form of mass transportation that would disperse loads (train type vehicles). Improve existing road surfaces to accommodate heavier forms of vehicles.	Road surface could deteriorate faster if heavier forms of vehicles are used on roads. Increase in maintenance time and cost.	None	Funds, manpower and materials to maintain road.

ISSUE: Transportation and Fee Collection - Identify the alternatives for resolving the congested, substandard and deteriorating condition of the transportation system and alternatives for fee collection within Bryce Canyon Park.

ALTERNATIVE D: Employ a form of mass transportation with central and intermediate staging facilities to accommodate the visitor. This alternative will also involve a minor expansion of existing transportation facilities and the relocation of the fee collection station. A mass transit terminal would be constructed near the visitor center and the fee collection station would be located near the entrance to the park. All vehicles entering the campground or lodging area will be required to remain there unless leaving the park. See Figure 14.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Disturbance of approximately $\frac{1}{2}$ acre to relocate entrance and user fee collection station near entrance of park. All other fee collection facilities will be removed, creating minor impacts.	Employ special design techniques to minimize loss of vegetation and loss of soils through erosion during construction. Control construction work and equipment impacts by establishing on-the-ground work limits.	Temporary minimal loss of soils due to erosion and permanent loss of existing vegetation due to construction. Increased amounts of noise, dust and smoke during construction. Expenditure of funds and manhours.	Short term inconvenience of relocating entrance station to another location versus long term benefits of better control of visitation and more efficient system of collecting user and entrance fees.	Loss of existing vegetation and soils, manpower, funds and materials.
Increase in volume of pedestrian and vehicular circulation within the general vicinity of the visitor center.	Scheduling of transportation services to control size and movement of groups.	Increased volumes of traffic and circulation could create a congestion problem if transportation services are not properly scheduled.	None	Manpower
Minimal construction of water and sewer lines (sewage lagoons and water lines are available within general area).	Revegetation of areas disturbed for sewer and water lines.	Temporary erosion of soils and permanent loss of existing vegetation disturbed during construction.	Short term loss of soils and vegetation versus long term benefits of improving visitor safety and convenience, consolidation of parking to one area (thereby reducing the impacts need for parking space throughout the park) and preservation of park resources.	Vegetation and soils lost during construction of water and sewer lines.

ISSUE: Transportation and Fee Collection - Identify the alternatives for resolving the congested, substandard and deteriorating condition of the transportation system and alternatives for fee collection within Bryce Canyon Park.

ALTERNATIVE D: Employ a form of mass transportation with central and intermediate staging facilities to accommodate the visitor. This alternative will also involve a minor expansion of existing transportation facilities and the relocation of the fee collection station. A mass transit terminal would be constructed near the visitor center and the fee collection station would be located near the entrance to the park. All vehicles entering the campground or lodging area will be required to remain there unless leaving the park. See figure 14.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Visual intrusion of sewage lagoon within sight of mass transit lot. Lagoons are located to the northwest of the mass transit lot; therefore, prevailing winds could create a problem.	Screening by vegetation or land forms would minimize the visual intrusion.	Sewage lagoons would still be visible from some spots in the parking/terminal area. Prevailing winds could also drift odors from the lagoon into the area of the parking lot.	Short term visual intrusion versus long term benefits mentioned above.	
The development of mass transit facilities and the rising volume of traffic will increase the negative, visual impacts on the natural environment of the immediate area of the proposed mass transit parking lot.	Utilize special planning and design techniques to minimize impacts.	An increase in development leads to a more humanistic environment which is a contract and intrusion to the concept of a national park environment.	None	None
Reduction of number of vehicles circulating through the park.	None	None	Short term reduction in vehicles entering park will result in a decrease in air pollution by reducing volume of traffic circulation throughout the park. This will also decrease visual (cont'd.)	

ISSUE: Transportation and Fee Collection - Identify the alternatives for resolving the congested, substandard and deteriorating condition of the transportation system and alternatives for fee collection within Bryce Canyon Park.

ALTERNATIVE D: Employ a form of mass transportation with central and intermediate staging facilities to accommodate the visitor. This alternative will also involve a minor expansion of existing transportation facilities and the relocation of the fee collection station. A mass transit terminal would be constructed near the visitor center and the fee collection station would be located near the entrance to the park. All vehicles entering the campground or lodging area will be required to remain there unless leaving the park. See Figure 14.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
The economic ramifications of a mass transit system are questionable at this stage.	A detailed transportation study should be done to study possible economic effects of implementing such a system.	To be determined by transportation study.	intrusion of vehicles in a natural or park environment. There will be a decrease in deterioration of transportation systems as the volume of traffic is reduced thereby reducing maintenance and administrative cost. The reduction in vehicles will also significantly reduce the consumption of fossil fuels.	To be determined by transportation study.
Potential adverse visitor reaction to mandatory mass transit.	A detailed transportation study would analyze socioeconomic effects of implementing a mass transit system at Bryce Canyon National Park. Develop an information system (cont'd.)	The visitors who find a strong sense of security and freedom by traveling in their own personal vehicle may have a feeling of insecurity and loss of individual freedom.	None	None

ISSUE: Transportation and Fee Collection - Identify the alternatives for resolving the congested, substandard and deteriorating condition of the transportation system and alternatives for fee collection within Bryce Canyon Park.

ALTERNATIVE D: Employ a form of mass transportation with central and intermediate staging facilities to accommodate the visitor. This alternative will also involve a minor expansion of existing transportation facilities and the relocation of the fee collection station. A mass transit terminal would be constructed near the visitor center and the fee collection station would be located near the entrance to the park. All vehicles entering the campground or lodging area will be required to remain there unless leaving the park. See Figure 14.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Additional minor clearing and redesign at overlooks and trailheads to accommodate visitors and mass transit system circulation.	to reassure visitor of transportation scheduling and reliability. Design and planning would be done to encourage harmonious development with the surrounding landscape. Seed and mulch areas disturbed during construction, establish on-the-ground work limits to minimize impacts from construction equipment and work activities.	Minor loss of vegetation and temporary erosion of soils due to construction activities.	Short term loss of land for expansion versus long term enhancement of a visitor experience and increased value of resource due to uncrowded viewing conditions at overlooks.	None
Control problems due to private automobiles permitted beyond the mass transit lot for the purpose of access to the lodge and campgrounds.	Install special equipment and utilize park service employees to control private vehicles from driving at liberty throughout the park.	Unless mitigating measures are employed, those visitors permitted to drive private vehicles beyond the mass transit lots could drive on through to overlook areas, thus defeating the purpose and intent of the mass transit system.	None	None

ISSUE: Transportation and Fee Collection - Identify the alternatives for resolving the congested, substandard and deteriorating condition of the transportation system and alternatives for fee collection within Bryce Canyon Park.

ALTERNATIVE D: Employ a form of mass transportation with central and intermediate staging facilities to accommodate the visitor. This alternative will also involve a minor expansion of existing transportation facilities and the relocation of the fee collection station. A mass transit terminal would be constructed near the visitor center and the fee collection station would be located near the entrance to the park. All vehicles entering the campground or lodging area will be required to remain there unless leaving the park. See Figure 14.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Even though there will be a significant overall reduction in air and noise pollution within the park, there will be an increase in the immediate area proposed for the construction of the mass transit parking area.	None	There will be a reduction of air quality within the area to be dedicated for mass transit parking. An increase in noise pollution.	None	None
Access to Fairyland overlook would be by mass transit system only.	None		The investments to implement such a transportation system in the long term will provide better protection and preservation of the site by reducing potential impacts.	None
Major financial obligation is involved.	None	Will place a greater burden on National Park Service personnel and funding for construction and maintenance if implemented.	Expenditures of public funds and minor obligation of resources versus long term safe enjoyment of the park environment by more people and greater protection of the overall resources.	Funds, materials and manpower.

ISSUE: Transportation and Fee Collection - Identify the alternatives for resolving the congested, substandard and deteriorating condition of the transportation system and alternatives for fee collection within Bryce Canyon Park.

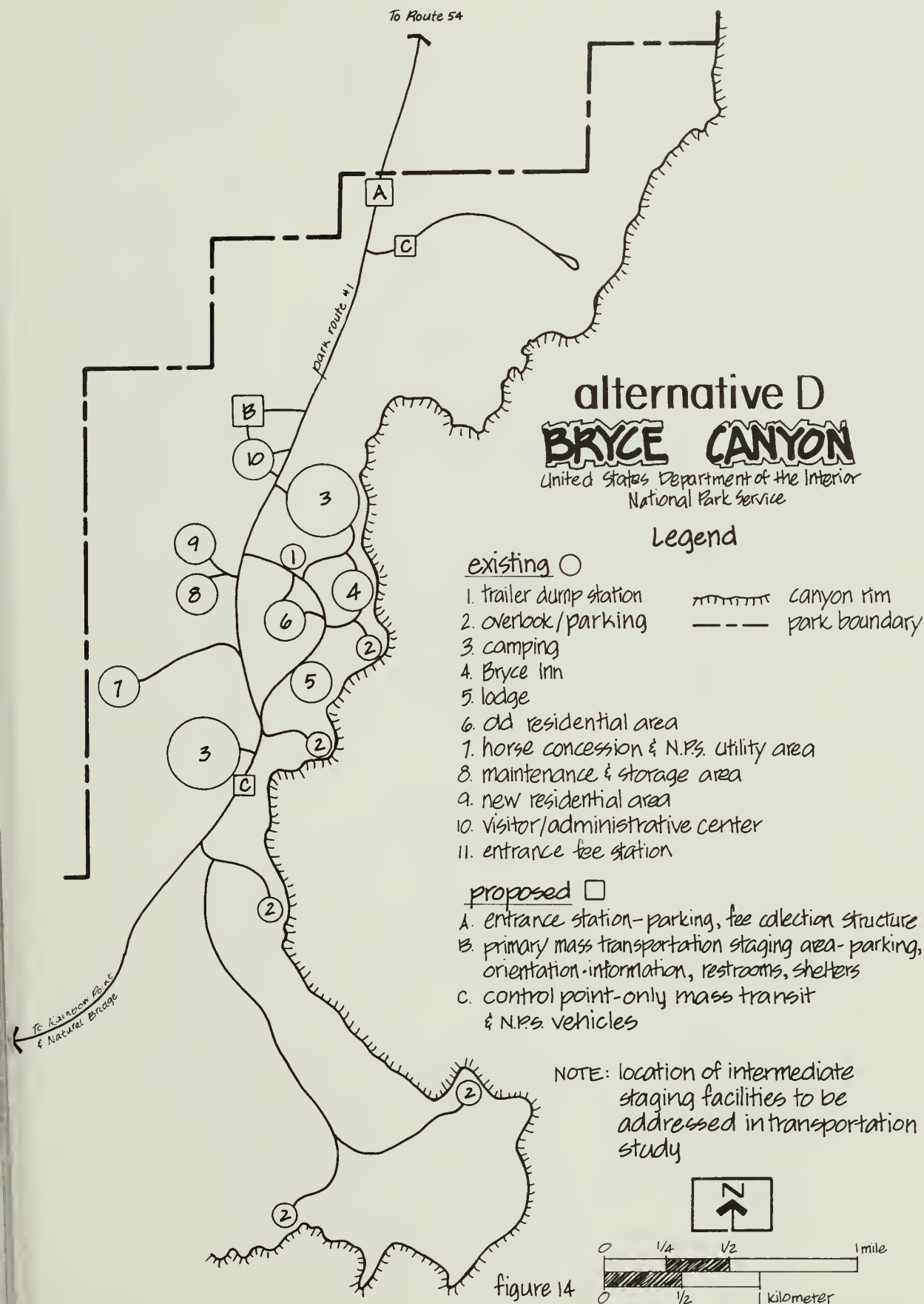
ALTERNATIVE D: Employ a form of mass transportation with central and intermediate staging facilities to accommodate the visitor. This alternative will also involve a minor expansion of existing transportation facilities and the relocation of the fee collection station. A mass transit terminal would be constructed near the visitor center and the fee collection station would be located near the entrance to the park. All vehicles entering the campground or lodging area will be required to remain there unless leaving the park. See Figure 14.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Possible disturbance of prairie dog habitat.	Relocation of prairie dog colony to an area farther away from proposed development. Development done to minimize impact to prairie dog habitat. A biological assessment will be required.	Erosion resulting from construction could decrease food supply for prairie dogs and affect burrows. Construction activities will adversely affect population of prairie dogs. Relocation of population will reduce or possibly eliminate prairie dog numbers.	Short term loss of parts of prairie dog populations versus long term enhancement of air and scenic quality of natural resources by confining majority of use to one area.	None
Possible further demand on personnel, funding and resources to conduct archeological studies.	None	Funding and personnel needed to ensure archeological investigation before construction.	Short term investment of funds and manpower for archeological surveys in exchange for long term protection, preservation and recognition of cultural and archeological resources.	Money, manpower and materials.

Transportation and Fee Collection

ALTERNATIVE D-1 - is the same alternative as D, except that alternatives for fee collection would be accomplished by one of two options:

1. The existing system of fee collection would be retained (as in Alternative A, Figure 11).
2. Entrance fees would be collected at present location and user fees would be collected within each campground at a manned structure containing minimal quarters (as in Alternative B, Figure 12).



ISSUE: Transportation and Fee Collection - Identify the alternatives for resolving the congested, sub-standard and deteriorating condition of the transportation system. Also identify alternatives for fee collection.

ALTERNATIVE E: Employ a form of mass transportation with central and intermediate staging facilities to accommodate the visitor. This alternative will involve a minor expansion of the existing transportation facilities. The mass transit terminal will be located near the visitor center and both user and entrance fees will be collected at a new structure located approximately 100 yards north of the existing fee collection area. The road to Fairyland Overlook will be improved along with the expansion of the parking area at the overlook. All vehicles entering the campground and lodging area will be required to remain there unless leaving the park. See Figure 15.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Disturbance of approximately 5.5 acres of previously undisturbed land for construction of mass transit parking area to accommodate 350 recreation vehicles, access road and fee collection area.	Design and planning will encourage harmonious development with the surrounding landscape. Also seed and mulch areas disturbed during construction control construction work and equipment impacts by establishing on-the-ground work limits.	There will be a temporary minimal erosion of soils and a permanent loss of vegetation due to construction activities.	The short term loss of 5.5 acres of previously undisturbed land versus long term benefits of improving visitor safety and convenience, consolidation of parking to one area thereby reducing the impacts and need for parking space throughout the park and preservation of park resources.	Vegetation and soils lost during construction will be irretrievably committed along with funds, materials and manpower.
There is potential that certain forms of mass transportation would result in heavier vehicle loads on the existing roads.	Utilize a form of mass transportation that would disperse loads (train type vehicles). Improve existing surface to accommodate heavier forms of vehicles.	Road surface could deteriorate faster if heavier forms of vehicles are used on roads. Increase in maintenance time and cost.	None	Funds, manpower and materials to maintain road.

SECTION V - ALTERNATIVES

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ISSUE: Transportation and Fee Collection - Identify the alternatives for resolving the congested, substandard and deteriorating condition of the transportation system. Also identify alternatives for fee collection.

ALTERNATIVE E: Employ a form of mass transportation with central and intermediate staging facilities to accommodate the visitor. This alternative will involve a minor expansion of the existing transportation facilities. The mass transit terminal will be located near the visitor center and both user and entrance fees will be collected at a new structure located approximately 100 yards north of the existing fee collection area. The road to Fairyland Overlook will be improved along with the expansion of the parking area at the overlook. All vehicles entering the campground and lodging area will be required to remain there unless leaving the park. See Figure 15.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Increases in volume of pedestrian and vehicular circulation within the general area of the visitor center.	Scheduling of transportation services to control size and movement of groups.	Increased volumes of traffic and circulation could create a congestion problem if transportation services are not properly scheduled.	None	Manpower
Minimal construction of water and sewer lines (sewage lagoons and water lines are available within general area).	Revegetation of areas disturbed for sewer and water lines.	Temporary erosion of soils and permanent loss of existing vegetation during construction.	Short term loss of soils and vegetation versus long term benefits of improving visitor safety and convenience. Consolidation of parking to one area; thereby, reducing the impacts needed for parking space through the park and preservation of park resources.	Vegetation and soils lost during construction of water lines plus materials, funds and manpower.

ISSUE: Transportation and Fee Collection - Identify the alternatives for resolving the congested, substandard and deteriorating condition of the transportation system. Also identify alternatives for fee collection.

ALTERNATIVE E: Employ a form of mass transportation with central and intermediate staging facilities to accommodate the visitor. This alternative will involve a minor expansion of the existing transportation facilities. The mass transit terminal will be located near the visitor center and both user and entrance fees will be collected at a new structure located approximately 100 yards north of the existing fee collection area. The road to Fairyland Overlook will be improved along with the expansion of the parking area at the overlook. All vehicles entering the campground and lodging area will be required to remain there unless leaving the park. See Figure 15.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Visual intrusion of sewage lagoon within sight of mass transit lot. Lagoons are located to the northwest of the mass transit lot; therefore, prevailing winds could create a problem.	Screening by vegetation or land forms would minimize the visual intrusion.	Sewage lagoons would still be visible from some spots in the parking/terminal area. Prevailing winds could also drift odors from the lagoon into the area of the parking lot.	Short term visual intrusion versus long term benefits mentioned above.	
The development of mass transit facilities and the rising volume of traffic will increase the negative, visual impacts on the natural environment of the immediate area of the proposed mass transit parking lot.	Utilize special planning and design techniques to minimize impacts.	An increase in development leads to a more humanistic environment which is a contrast and intrusion to the concept of a national park environment.	None	None

ISSUE: Transportation and Fee Collection - Identify the alternatives for resolving the congested, substandard and deteriorating condition of the transportation system. Also identify alternatives for fee collection.

ALTERNATIVE E: Employ a form of mass transportation with central and intermediate staging facilities to accommodate the visitor. This alternative will involve a minor expansion of the existing transportation facilities. The mass transit terminal will be located near the visitor center and both user and entrance fees will be collected at a new structure located approximately 100 yards north of the existing fee collection area. The road to Fairyland Overlook will be improved along with the expansion of the parking area at the overlook. All vehicles entering the campground and lodging area will be required to remain there unless leaving the park. See Figure 15.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE CONSEQUENTS
Vast reduction of numbers of vehicles circulating through the park. Campers will be required to utilize mass transit system once they reach their campsite by private vehicle. All visitors will be required to use mass transportation system rather than private vehicles.	None	There will be slight inconvenience of having to wait between transportation shuttles. Waiting time will be contingent upon effectiveness of transportation schedules.	Short term reduction in vehicles entering park will result in a decrease in air pollution by reducing volume of traffic circulating throughout the park. This will also decrease visual intrusion of vehicles in a natural or park environment. There will be a decrease in deterioration of transportation systems as the volume of traffic is reduced thereby reducing maintenance and administrative cost. (cont'd.)	

ISSUE: Transportation and Fee Collection - Identify the alternatives for resolving the congested, substandard and deteriorating condition of the transportation system. Also identify alternatives for fee collection.

ALTERNATIVE E: Employ a form of mass transportation with central and intermediate staging facilities to accommodate the visitor. This alternative will involve a minor expansion of the existing transportation facilities. The mass transit terminal will be located near the visitor center and both user and entrance fees will be collected at a new structure located approximately 100 yards north of the existing fee collection area. The road to Fairyland Overlook will be improved along with the expansion of the parking area at the overlook. All vehicles entering the campground and lodging area will be required to remain there unless leaving the park. See Figure 15.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
The economic ramifications of a mass transit system are questionable at this stage.	A detailed transportation study should be done to study possible economic effects of implementing such a system.	To be determined by transportation study.	The reduction in vehicles will also significantly reduce the consumption of fossil fuels.	To be determined by transportation study.
Potential adverse visitor reaction to mandatory mass transit.	A detailed transportation study would analyze socioeconomic effects of implementing a mass transit system at Bryce Canyon National Park. Develop an information system to reassure visitor of transportation scheduling and reliability.	The visitors who find a strong sense of security and freedom by traveling in their own personal vehicle may have a feeling of insecurity and loss of individual freedom.	None	None

ISSUE: Transportation and Fee Collection - Identify the alternatives for resolving the congested, substandard and deteriorating condition of the transportation system. Also identify alternatives for fee collection.

ALTERNATIVE E: Employ a form of mass transportation with central and intermediate staging facilities to accommodate the visitor. This alternative will involve a minor expansion of the existing transportation facilities. The mass transit terminal will be located near the visitor center and both user and entrance fees will be collected at a new structure located approximately 100 yards north of the existing fee collection area. The road to Fairyland Overlook will be improved along with the expansion of the parking area at the overlook. All vehicles entering the campground and lodging area will be required to remain there unless leaving the park. See Figure 15.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMENTS
Additional minor clearing and redesign at overlooks and trailheads to accommodate visitors and mass transit system circulation.	Design and planning would be done to encourage harmonious development with the surrounding landscape. Seed and mulch areas disturbed during construction establish on-the-ground work limits to minimize impacts from construction equipment and work activities.	Minor loss of vegetation and temporary erosion of soils due to construction activities.	Short term loss of land for expansion versus long term enhancement of a visitor experience and increased value of resource due to uncrowded viewing conditions at overlooks.	None
Potential control problems due to private automobiles permitted beyond the mass transit lot for the purpose of access to the lodge and campgrounds.	Install special equipment and utilize park service employees to control private vehicles from driving at liberty throughout the park.	Unless mitigating measures are employed, those visitors permitted to drive private vehicles beyond the mass transit lots could drive on through to overlook areas, thus defeating the purpose and intent of the mass transit system.	None	None

ISSUE: Transportation and Fee Collection - Identify the alternatives for resolving the congested, substandard and deteriorating condition of the transportation system. Also identify alternatives for fee collection.

ALTERNATIVE E: Employ a form of mass transportation with central and intermediate staging facilities to accommodate the visitor. This alternative will involve a minor expansion of the existing transportation facilities. The mass transit terminal will be located near the visitor center and both user and entrance fees will be collected at a new structure located approximately 100 yards north of the existing fee collection area. The road to Fairyland Overlook will be improved along with the expansion of the parking area at the overlook. All vehicles entering the campground and lodging area will be required to remain there unless leaving the park. See Figure 15.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Even though there will be a significant overall reduction in air and noise pollution within the park, there will be an increase in the immediate area proposed for the construction of the mass transit parking area.	None	There will be a reduction of air quality within the area to be dedicated for mass transit parking. An increase in noise pollution.	None	None
Major financial obligation is involved.	None	Will place a greater burden on National Park Service personnel and funding for construction and maintenance if implemented.	Expenditures of public funds and minor obligation of resources versus long term safe enjoyment of the park environment by more people and greater protection of the overall resources.	Funds, materials and manpower.

ISSUE: Transportation and Fee Collection - Identify the alternatives for resolving the congested, substandard and deteriorating condition of the transportation system. Also identify alternatives for fee collection.

ALTERNATIVE E: Employ a form of mass transportation with central and intermediate staging facilities to accommodate the visitor. This alternative will involve a minor expansion of the existing transportation facilities. The mass transit terminal will be located near the visitor center and both user and entrance fees will be collected at a new structure located approximately 100 yards north of the existing fee collection area. The road to Fairyland Overlook will be improved along with the expansion of the parking area at the overlook. All vehicles entering the campground and lodging area will be required to remain there unless leaving the park. See Figure 15.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Possible disturbance of prairie dog habitat.	Relocation of prairie dog colony to an area farther away from proposed development. Development done to minimize impact to prairie dog habitat. A biological assessment will be required.	Erosion resulting from construction could decrease food supply for prairie dogs and affect burrows. Construction activities will adversely affect population of prairie dogs. Relocation of population will reduce or possibly eliminate prairie dog numbers.	Short term loss of parts of prairie dog populations versus long term enhancement on air and scenic quality of natural resources by confining majority of use to one area.	None
Further demand on personnel, funding and resources to conduct archeological studies.	None	Funding and personnel needed to ensure archeological investigation before construction.	Short term investment of funds and manpower for archeological surveys in exchange for long term protection, preservation and recognition of cultural and archeological resources.	Money, manpower and materials.

ISSUE: Transportation and Fee Collection - Identify the alternatives for resolving the congested, substandard and deteriorating condition of the transportation system. Also identify alternatives for fee collection.

ALTERNATIVE E: Employ a form of mass transportation with central and intermediate staging facilities to accommodate the visitor. This alternative will involve a minor expansion of the existing transportation facilities. The mass transit terminal will be located near the visitor center and both user and entrance fees will be collected at a new structure located approximately 100 yards north of the existing fee collection area. The road to Fairyland Overlook will be improved along with the expansion of the parking area at the overlook. All vehicles entering the campground and lodging area will be required to remain there unless leaving the park. See Figure 15.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Temporary disturbance of approximately 1.5 acres. This would be the road leading from Route 12 to Fairyland Overlook.	Construction work will be confined to construction limits to reduce impact to adjacent area. All area disturbed will be seeded and mulched to reduce erosion of soils.	There will be a temporary increase in dust and noise from construction equipment along with minor erosion of soils.	The temporary disturbance to construct the road versus elimination of visitor impact, deterioration of site, which will provide better administrative control, to insure protection of the resources.	Money, manpower and materials to reconstruct and rehabilitate the site.

C. Trail System Use and Circulation

The following is a summary of the alternatives dealing with the issue of Trail System Use and Circulation:

Alternative A - Retain Peek-a-Boo Trail for horse use and properly sign, warning hikers of potential conflicts. No additional horse trails would be constructed. As illustrated in Figure 16.

Alternative B - Retain Peek-a-Boo Trail for horse use and properly sign, warning hikers of potential conflicts. Construct 2 1/3 miles of additional horse trail as illustrated in Figure 17.

Alternative B1 - Eliminate horse use on Peek-a-Boo Trail and restrict trail use to pedestrian traffic only. New horse trail will be constructed as indicated in Figure 17.

Alternative C - Retain Peek-a-Boo Trail for horse use and properly sign, warning hikers of potential conflicts. Construct 2 2/3 miles of additional horse trail as illustrated in Figure 18.

Alternative C1 - Eliminate horse use on Peek-a-Booh Trail and restrict trail use to pedestrian traffic only. A new horse trail will be constructed as indicated in Figure 18.

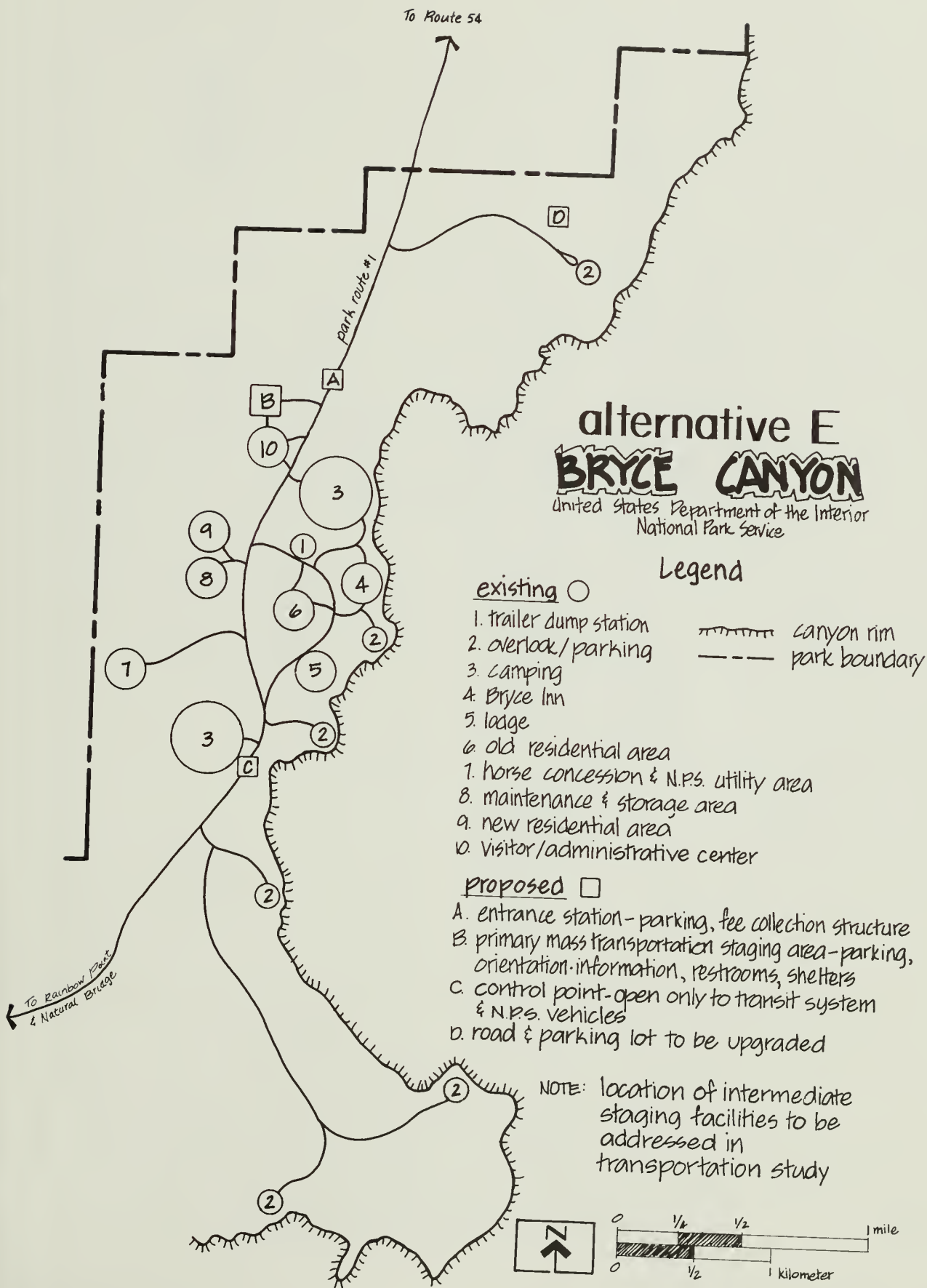


figure 15

SECTION V - ALTERNATIVES

ISSUE: Trail System Use and Circulation - Identify the alternatives which address the conflicts between pedestrians and horses on the Peek-a-Boo trail. Also identify alternatives concerning the expansion of horse trails within the canyon.

ALTERNATIVE A: Retain Peek-a-Boo trail for horse use and properly sign, warning hikers of potential conflicts. No additional horse trails would be constructed as illustrated in Figure 16.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Visitors would be more aware of problems encountered on horse trail and possibly not as many hikers would use the Peek-a-Boo trail. The number of potential conflicts between horses and pedestrians would also be reduced.		Hikers may be discouraged from seeking the opportunity to hike along the Peek-a-Boo trail.	Short term reduction of pedestrian use on the Peek-a-Boo trail with long term reduction of conflicts between horses and hikers.	
Peek-a-Boo trail would continue to receive extensive horse use. Results would be increased dust, erosion and adverse impacts to vegetation.	Horseback trips could be reduced on a daily basis to relieve pressure on Peek-a-Boo trail.	Horse use on the Peek-a-Boo trail would cause deterioration to the site by increasing dust, erosion and impacts to vegetation.	Continued horse use on Peek-a-Boo trail in the short term with eventual long term degradation of the trail bed and site.	Existing soils and vegetation.
Minor funds would be involved to finance the cost of signing. This would also increase significantly the workload for sign maintenance.	None	Insignificant increases on NPS funds and manpower.	The short term cost and manpower would in the long term reduce the potential for congestion and serious hazards between pedestrians and horses.	Funds, materials and manpower.

SECTION - ALTERNATIVES

Page 2 of 2

ISSUE: Trail System Use and Circulation - Identify the alternatives which address the conflicts between pedestrians and horses on the Peek-a-Boo trail. Also identify alternatives concerning the expansion of horse trails within the canyon.

ALTERNATIVE A: Retain Peek-a-Boo trail for horse use and properly sign, warning hikers of potential conflicts. No additional horse trails would be constructed as illustrated in Figure 16.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Continued impact to Peek-a-Boo trail may affect presently unknown archeological resources.	Archeological surveys should identify sites. In the event, that a site may be impacted, salvage or avoidance measures should be implemented.	Some presently unknown archeological resources may be impacted by continued use.		
Signing would improve the visitor's experience by keeping him from potential conflicts he may not be aware of.	None	None	The short term use and insignificant expense of providing signs will in the long term help the park accomplish its objective of eliminating incompatible use and provide for the visitor's safety and appreciation of the park.	Funds, manpower and material to implement signing.

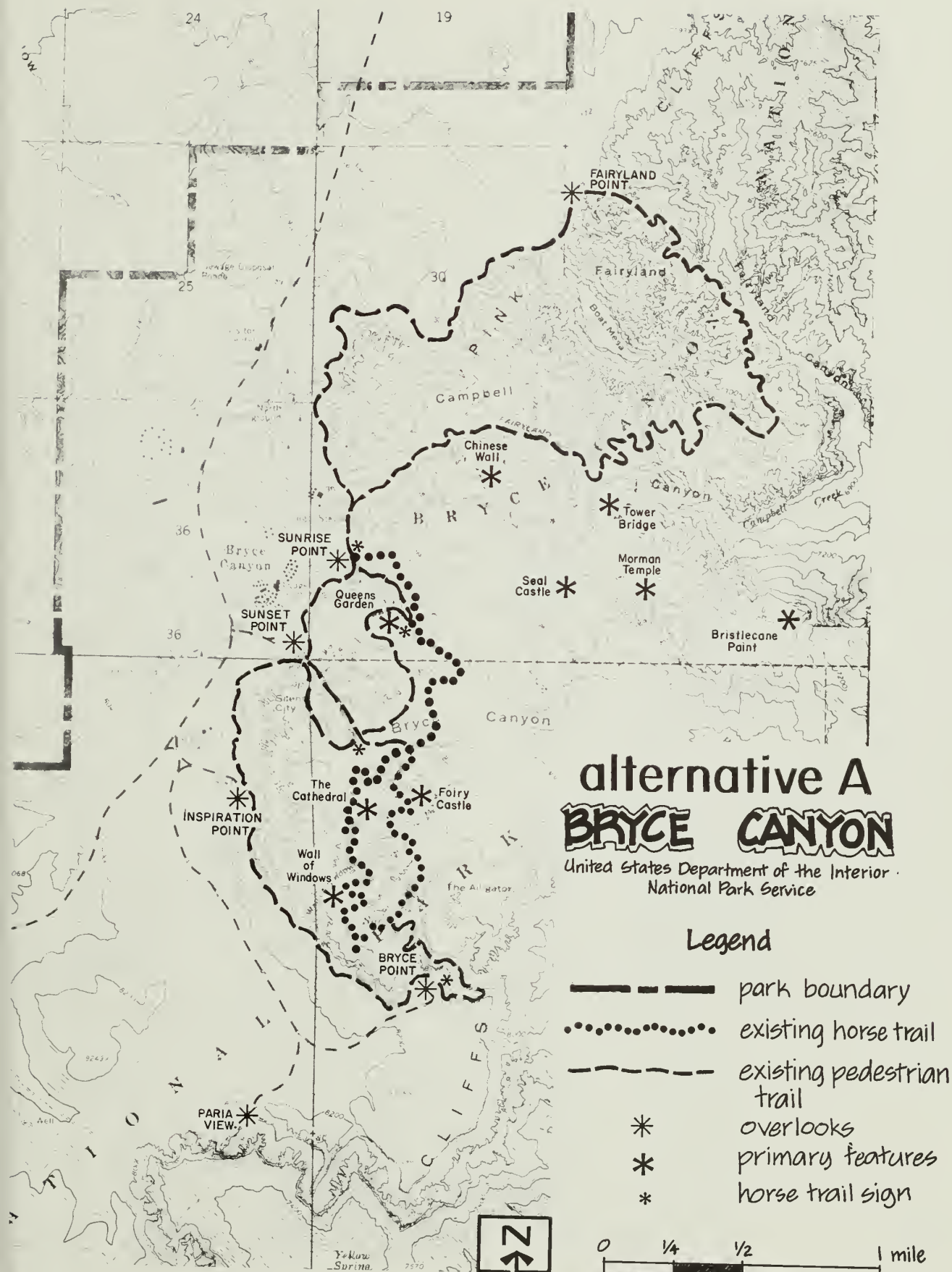


figure 16

ISSUE: Trail System Use and Circulation - Identify the alternatives which address the conflicts between pedestrians and horses on the Peek-a-Boo trail. Also identify alternatives to expand horse trails within the canyon.

ALTERNATIVE B: Retain Peek-a-Boo trail for horse use and properly sign warning hikers of potential conflicts. Construct 2 1/3 miles of additional horse trails as illustrated in Figure 17.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
To construct a trail 4' wide with a 10' high clearance will require a certain amount of cut and fill. Topsoil would be lost and erosion would be accelerated due to the nature of the soils in this area and impacts generated by horses and hikers.	Sloping and cutting should follow natural contours. Trail design utilizing proper drainages, retaining walls and water breaks would reduce topsoil loss by erosion.	Some topsoil will still be lost due to cutting and filling for new trail bed. Newly exposed slopes will accelerate erosion and increase soil loss.	Short term erosion with long term loss of soils due to visitor and horse impacts.	Topsoil lost during construction and by erosion. Funds, manpower and materials.
About 1.1 acres of natural vegetation and land will have to be cleared to construct new horsetrail.	Existing vegetation should be saved wherever possible.	1.1 acres of vegetation would still be cleared to construct new trail bed.	Short term clearing of natural vegetation in the long term could accelerate erosion and soil.	Existing vegetation would be lost.
Horses would be introduced onto extremely fragile soils of sandstones and shales. Erosion and dust would be increased from horse use.	Horseback trips could be limited on a daily basis to reduce pressures exerted on site by horse use or use could be alternated with the Peek-a-Boo loop.	The new horse trail could create a slight negative visual impact to sightseers at Sunrise and Sunset Points.	None	None

ISSUE: Trail System Use and Circulation - Identify the alternatives which address the conflicts between pedestrians and horses on the Peek-a-Boo trail. Also identify alternatives to expand horse trails within the canyon.

ALTERNATIVE B: Retain Peek-a-Boo trail for horse use and properly sign warning hikers of potential conflicts. Construct 2 1/3 miles of additional horse trails as illustrated in Figure 17.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
To construct the additional 1 1/3 miles of pedestrian trail to Bristlecone Point will require cut and fill. Topsoil would be lost and erosion accelerated. Approximately .3 acres of native vegetation and topography would be cleared. There will be an opportunity for visitors to see a greater variety of scenery and more formations on horseback with construction of the new horse trail. The additional 2 1/3 miles of horse trail would require additional funds, materials and manpower to construct and maintain trail.	Sloping and cutting should follow natural contours. Existing vegetation will be saved wherever possible and proper drainage, retaining walls, and water breaks should reduce topsoil loss by erosion. None	Some topsoil will still be lost due to cutting and filling. Newly exposed slopes will accelerate erosion and increase soil loss. .3 acres of vegetation may have to be cleared. None	Short term clearing in the long term could accelerate erosion and soil loss, thereby limiting possibilities of revegetation. None	Existing vegetation, soils, funds, manpower, and materials would all be irretrievably committed to trail construction. None
	Design trail and supporting facilities to minimize maintenance.	Maintenance time would increase as well as need for funding for maintenance purposes. There may also be a need to increase size of trail maintenance crews.		Funds and material to maintain additional trail.

ISSUE: Trail System Use and Circulation - Identify the alternatives which address the conflicts between pedestrians and horses on the Peek-a-Boo trail. Also identify alternatives to expand horse trails within the canyon.

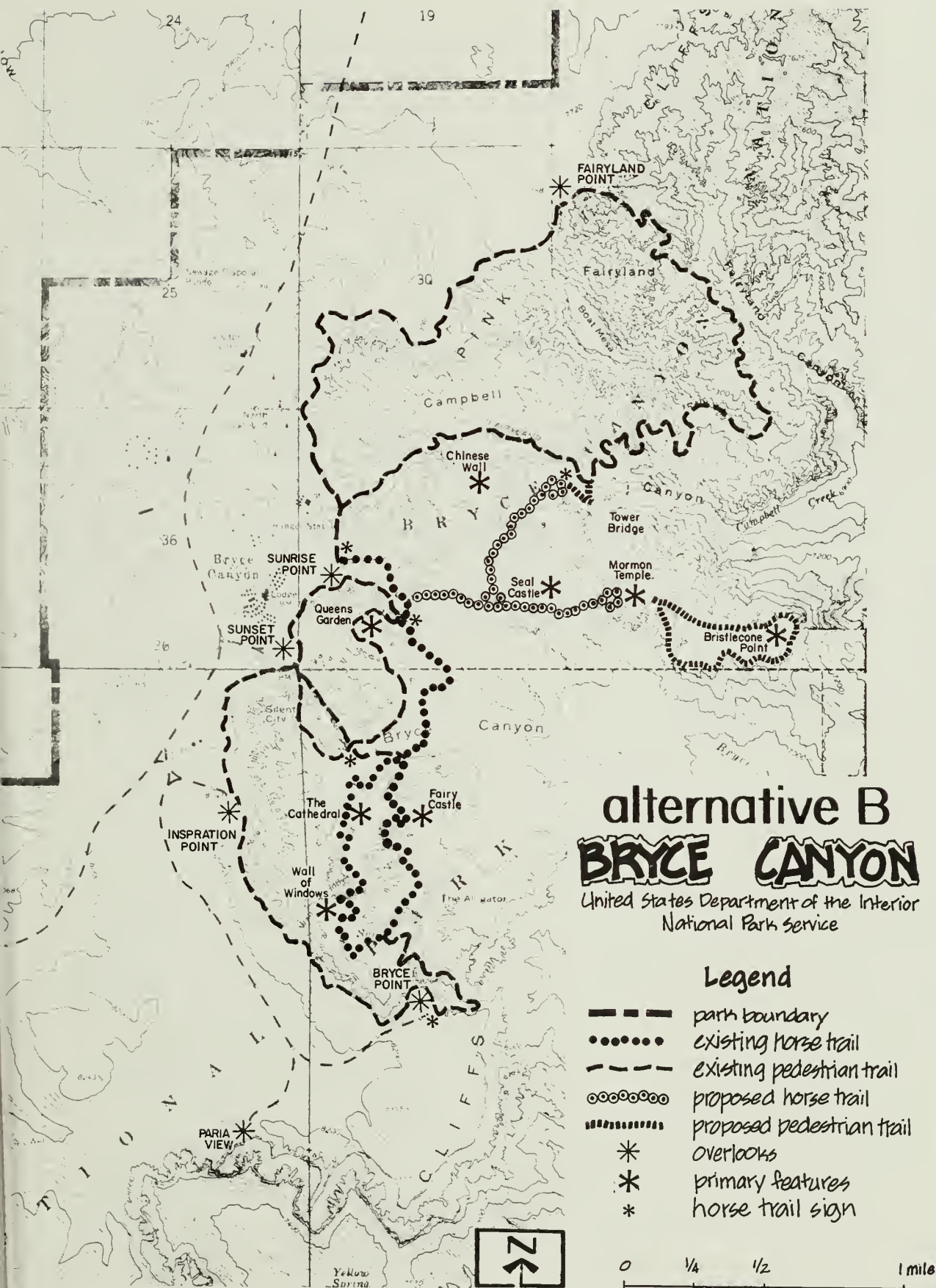
ALTERNATIVE B: Retain Peek-a-Boo trail for horse use and properly sign warning hikers of potential conflicts. Construct 2 1/3 miles of additional horse trails as illustrated in Figure 17.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Portions of the new horsetrail will follow a natural drainage. Defecation from horses would occur in the watershed creating a potential for pollution.		Some water pollution may occur as a result of defecation by horses entering into natural drainages.	The degree and extent of horses being used in the watershed will not likely affect water quality in the long term. Cattle grazing in the same watershed is a common practice throughout the region.	
Minor funds would be involved to finance the cost of signing. This would also increase insignificantly the work load for sign maintenance.	None	Insignificant increase on NPS funds and manpower.	The short term cost and manpower would in the long term reduce the potential for congestion and serious hazards between pedestrians and horses.	Funds, materials and manpower.

ISSUE: Trail System Use and Circulation - Identify the alternatives which address the conflicts between pedestrians and horses on the Peek-a-Boo trail. Also identify alternatives to expand horse trails within the canyon.

ALTERNATIVE B: Retain Peek-a-Boo trail for horse use and properly sign warning hikers of potential conflicts. Construct 2 1/3 miles of additional horse trails as illustrated in Figure 17.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Signing would improve the visitor's experience by keeping him from potential conflicts he may not be aware of.	None	None	The short term use and insignificant expense of providing signs will in the long term help the park accomplish its objective of eliminating incompatible use and provide for the visitor's safety and appreciation of the park.	Funds, manpower and material to implement signing.
There has never been a parkwide archeological survey conducted therefore there is a potential that trail construction could impact such resources.	Conduct an archeological survey in the area to be impacted by the trail and supporting facilities.	Potential destruction of archeological resources.	The short term investments to conduct subject surveys versus long term protection of archeological resources.	Manpower and funds to conduct survey.



Alternative B-1

Eliminate horse use on Peek-a-Boo Trail and restrict trail use to pedestrian traffic only. A new horse trail will be constructed as indicated in Figure 17.

Impacts from closing Peek-a-Boo Trail

Dust, erosion and focal pollution will be reduced significantly from the Peek-a-Boo Trail.

Hikers will no longer experience conflicts and inconveniences from horses use on Peek-a-Boo Trail.

Visitors using horseback trips will be denied access to Peek-a-Boo Trail. This may include handicapped visitors who have no other way of seeing these formations.

Concessioner may lose some income from loss of one packtrip trail, however, the newly-constructed trail will replace those funds lost from closure of Peek-a-Boo Trail.

(Reference to Alternative B for assessment of impacts as a result of trail construction).

SECTION - ALTERNATIVES

ISSUE: Trail System Use and Circulation Identify the alternatives which address the conflicts between pedestrians and horses on the Peek-a-Boo trail. Also identify alternatives to expand horse trails within the canyon.

ALTERNATIVE C: Retain Peek-a-Boo trail for horse use and properly sign warning hikers of potential conflicts. Construct 2 2/3 miles of additional horse trails as illustrated in Figure 18.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
To construct a trail 4' wide with a 10' high clearance will require a certain amount of cut and fill. Topsoil would be lost and erosion would be accelerated due to the nature of the soils in this area and impacts generated by horses and hikers.	Sloping and cutting should follow natural contours. Trail design utilizing proper drainages, retaining walls and water breaks would reduce topsoil loss by erosion.	Some topsoil will still be lost due to cutting and filling for new trail bed. Newly exposed slopes will accelerate erosion and increase soil loss.	Short term erosion with long term loss of soils due to visitor and horse impacts.	Topsoil lost during construction and by erosion. Funds, manpower and materials.
About 1.3 acres of natural vegetation and land will have to be cleared to construct new horse trail.	Existing vegetation should be saved wherever possible.	1.3 acres of vegetation would be cleared to construct new trail bed.	Short term clearing of natural vegetation in the long term could accelerate erosion and soil loss, thereby limiting possibilities of revegetation.	Existing vegetation would be lost.
To construct the additional 1 1/3 miles of pedestrian trail to Bristlecone Point will require cut and fill. Topsoil would be lost and erosion accelerated. Approximately .3 acres of native vegetation and topography would be cleared.	Sloping and cutting should follow natural contours. Existing vegetation will be saved wherever possible and proper drainage, retaining walls and water breaks should reduce topsoil loss by erosion.	Some topsoil will still be lost due to cutting and filling. Newly exposed slopes will accelerate erosion and increase soil loss. .3 acres of vegetation may have to be cleared.	Short term clearing in the long term could accelerate erosion and soil loss, thereby limiting possibilities of revegetation.	Existing vegetation, soils, funds, manpower materials would all be irretrievably committed to trail construction.

SECTION V - ALTERNATIVES

ISSUE: Trail System Use and Circulation - Identify the alternatives which address the conflicts between pedestrians and horses on the Peek-a-Boo trail. Also identify alternatives to expand horse trails within the canyon.

ALTERNATIVE C: Retain Peek-a-Boo trail for horse use and properly sign warning hikers of potential conflicts. Construct 2 2/3 miles of additional horse trails as illustrated in Figure 18.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Portions of the new horse trail could be visible from Sunrise and Sunset scenic viewpoints. The horse trail would be a slight visual intrusion within a virtually natural area to visitors sightseeing at these viewpoints.	Trail should be constructed on the contour utilizing existing vegetation and natural features to break up the horizontal line element created by trail construction.	The new horse trail could create a slight adverse visual impact to sightseers at Sunrise and Sunset points.	None	None
Mixed horse and hiker use would occur on the upper end of the Fairyland trail. Hikers would experience difficulties due to dust and inconveniences created by horseback trips.	Fairyland trail is one of the longest trails in the park and receives a minimum use by park visitors.	Hikers would still experience dust and inconveniences from horseback trips on upper end of Fairyland trail.	None	None
Horses would be introduced onto extremely fragile soils of sandstone and shale. Erosion and dust would be increased from horse use.	Horseback trips could be limited on a daily basis to reduce pressures exerted on site by horse use or alternated with the Peek-a-Boo trail.	Erosion and dust would be created by horses introduced into primitive area.	Short term introduction of horse use causing long term accelerated erosion and dust production.	Soil loss due to erosion.

SECTION V - ALTERNATIVES

ISSUE: Trail System Use and Circulation - Identify the alternatives which address the conflicts between pedestrians and horses on the Peek-a-Boo trail. Also identify alternatives to expand horse trails within the canyon.

ALTERNATIVE C: Retain Peek-a-Boo trail for horse use and properly sign warning hikers of potential conflicts. Construct 2 2/3 miles of additional horse trails as illustrated in Figure 18.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Portions of the new horse trail will follow a natural drainage. Defecation from horses would occur in the drainage basin creating a potential for pollution.		Some water pollution may occur as a result of defecation by horses entering into natural drainage.	The degree and extent of horse use in the watershed will not likely affect water quality in the long term. Cattle grazing in the same watershed is a common practice throughout the region.	
There will be an opportunity for visitors to see a greater variety of scenery and more formations on horseback with construction of new trail.	None	None	None	None
The additional 2 2/3 miles of horse trail would require additional funds, materials and manpower to construct and maintain trail.	Design trail and supporting facilities to minimize maintenance.	Maintenance time would increase as well as need for funding for maintenance purposes. There may also be a need to increase site of trail maintenance crews.	None	Funds and materials to maintain additional trail.

SECTION V - ALTERNATIVES

Page 4 of 4

ISSUE: Trail System Use and Circulation - Identify the alternatives which address the conflicts between pedestrians and horses on the Peek-a-Boo trail. Also identify alternatives to expand horse trails within the canyon.

ALTERNATIVE C: Retain Peek-a-Boo trail for horse use and properly sign warning hikers of potential conflicts. Construct 2 2/3 miles of additional horse trails as illustrated in Figure 18.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Minor funds would be involved to finance the cost of signing. This would also increase insignificantly the workload for sign maintenance.	None	Insignificant increase on NPS funds and manpower.	The short term cost and manpower would in the long term reduce the potential for congestion and serious hazards between pedestrians and horses.	Funds, materials and manpower.
Signing would improve the visitor's experience by keeping him from potential conflicts he may not be aware of.	None	None	The short term use and insignificant expense of providing signs will in the long term help the park accomplish its objective of eliminating incompatible use and provides for the visitors' safety and appreciation of the park.	Funds, manpower and material to implement signing.
There has never been a park-wide archeological survey conducted, therefore there is a potential that trail construction could impact such resources.	Conduct an archeological survey in the area to be impacted by the trail and supporting facilities.	Potential destruction of archeological resources.	The short term investments to conduct subject surveys versus long term protection of archeological resources.	Funds and manpower to conduct survey.

Alternative C-1

Eliminate horse use on Peek-a-Boo Trail and restrict trail to pedestrian traffic only. A new horse trail will be constructed as indicated in Figure 18.

Impacts from Closing Peek-a-Boo Trail

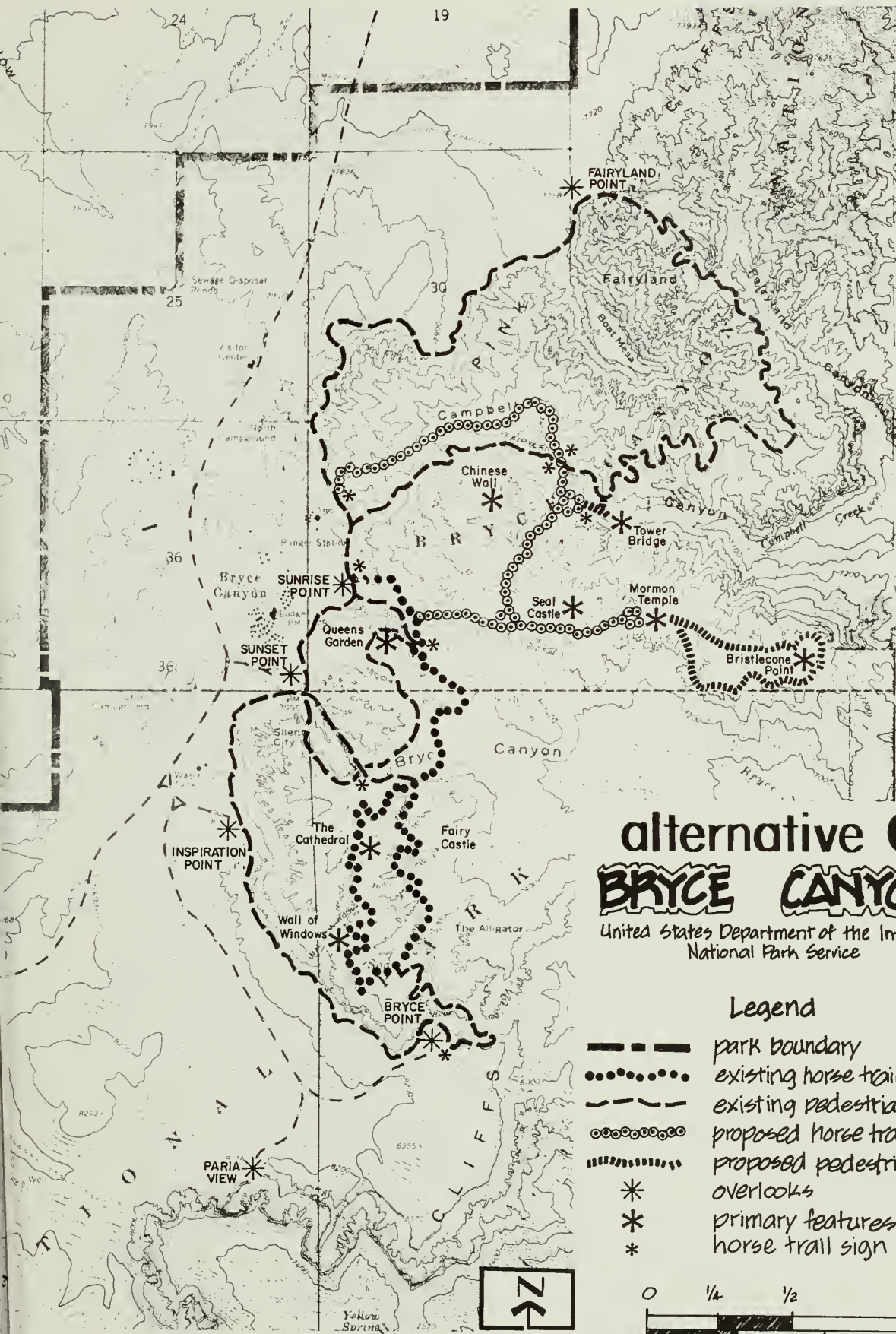
Dust, erosion, and focal pollution will be reduced or eliminated from the Peek-a-Boo Trail.

Hikers will no longer experience conflicts and inconveniences from horse use on Peek-a-Boo Trail.

Visitors using horeseback trips will be denied access to Peek-a-Boo Trail. This may include handicapped visitors who have no other way of seeing these formations.

Concessioner may lose some income from loss of one packtrip trail, however, the newly constructed trail will replace those funds lost from closure of Peek-a-Boo Trail.

(Reference to Alternative C for assessment of impacts as a result of trail construction.)



alternative C BRYCE CANYON

United States Department of the Interior
National Park Service

Legend

- park boundary
- ... existing horse trail
- existing pedestrian trail
- proposed horse trail
- ~~~~~ proposed pedestrian trail
- * overlooks
- * primary features
- * horse trail sign

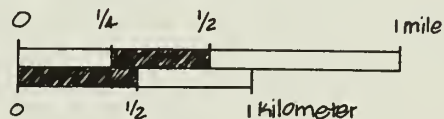


figure 18

D. North Campground Development

The following is a summary of the alternatives dealing with the issue North Campground Development:

Alternative A - Totally modify and rehabilitate campground to provide for flexibility in accommodating present forms of camping equipment and provide for rehabilitation of impacted areas.

Alternative B - Totally eliminate the North Campground with no intentions of replacement and rehabilitate the area to as near a natural condition as possible.

SECTION V - ALTERNATIVES

ISSUE: North Campground - Identify the alternatives for addressing the site deterioration, substandard condition and safety problems of the North Campground development.

ALTERNATIVE A: Totally modify and rehabilitate campground to provide for flexibility in accommodating present forms of camping equipment and provide for rehabilitation of impacted areas.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Should efforts to re-habilitate overlap into the visitor use season; considerable visitor inconvenience could result since this campground represents approximately 52% of the existing campground facilities within the park.	Phase or schedule re-habilitation so that a portion of the facilities will be available for use at all times. Also, inform private interests outside the park in time that they might develop temporary accommodations for park overflow.	Temporary reduction in campground capacity and visitor inconvenience.	The short term inconvenience versus long term improvement in visitor experience and protection of site.	Loss of fees collected for campground use.
Temporary increase in dust, noise and erosion of soils and a minor loss of vegetation as a result of rehabilitation efforts.	Confine all equipment, storage of supplies, and work to construction limits identified on the ground. Seed and mulch areas disturbed during rehabilitation of site.	Increase in dust and noise pollution. Slight negative, visual impact and loss of soil due to erosion and loss of vegetation.	The short term impacts will be temporary and far less than what will result if corrective steps are not taken. In the long term the productivity of re-habilitation will be measured in terms of less impact and improved visitor experience.	Existing vegetation and soils lost during construction.
Rehabilitation will require major investment of NPS funds, manpower and materials.	Daily camping fee could be raised to cover cost of rehabilitation.	Will place a greater burden on NPS employees and available agency funds.	The investment of funds and personnel to re-habitate will in the long term reduce funds and personnel required to maintain the highly substandard existing development.	Materials, manpower and federal funds.

SECTION V - ALTERNATIVES

ISSUE: North Campground - Identify the alternatives for addressing the site deterioration, substandard condition, and safety problems of the North Campground development.

ALTERNATIVE A: Totally modify and rehabilitate campground to provide for flexibility in accommodating present forms of camping equipment and provide for rehabilitation of impacted areas.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Potential pedestrian and vehicular impacts on the site will continue, but to a lesser degree.	Employ special design techniques to more effectively control pedestrians and vehicular circulation and reinforce sites subject to high impact.	Depending on the design for rehabilitation and the willingness to invest adequate funds for site protection there will be some loss of vegetation and soils and a continuation to some degree in noise and dust pollution.	None	Soils and vegetation loss due to impact.
Will reduce the degree of maintenance and funds required to maintain existing substandard development.	None	None	Rehabilitated area will require less manpower and funds to maintain present campground facilities.	None
Due to the competitive nature of the NPS campgrounds (desire to camp in the park) the rehabilitation would only discourage the private sector from expanding their present campground facilities when they have expressed a desire to do so contingent upon phase-out of NPS similar facilities.	None	Will continue to reduce the potential profit of the private sector.	The rehabilitation and use of the NPS campground (short term) could be the margin of profit needed by private development to be a productive and viable business venture.	Potential profit that would be made by the private sector.

SECTION - ALTERNATIVES

ISSUE: North Campground - Identify the alternatives for addressing the site deterioration, substandard condition and safety problems of the North Campground development.

ALTERNATIVE A: Totally modify and rehabilitate campground to provide for flexibility in accommodating present forms of camping equipment and provide for rehabilitation of impacted areas.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Through the collection of user fees the rehabilitated campground will continue to provide federal funds to be invested for future recreation opportunities for the general public. Rehabilitation will also continue to support the existing concession facilities providing the concession contract in 1982 is renewed.	None	None		Manpower, materials and federal funds required to maintain the area once rehabilitated and opened for use.
Continued visitor use and rehabilitation work may impact presently. Unknown archeological resources.	Archeological surveys will identify sites. In the event a site may be impacted, salvage or avoidance measures should be implemented.	Some presently unknown archeological sites may be affected by rehabilitation efforts and continued use.		

SECTION V - ALTERNATIVES

ISSUE: North Campground - Identify the alternatives for addressing the site deterioration, substandard condition and safety problems of the North Campground development.

ALTERNATIVE B: Totally eliminate the North Campground with no intentions of replacement and rehabilitate the area to as near a natural condition as possible.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
The North Campground represents 52% of the existing campground facilities within the park; therefore, their elimination could cause considerable inconvenience of the private sector, considering that similar facilities within the vicinity of the park are quite limited.	Phase or schedule the permanent closure of the North Campground to coincide with development of similar facilities on the part of the private sector.	Reduction in the parks ability to accommodate those visitors requiring campground facilities.	None	None
Reduction in user fees collected for campground use.	None	Reduction in federal funds available to be invested for future recreation opportunities.	None	Loss of fees collected for campground use.
Temporary increase in dust, noise, and erosion of soil and a minor loss of existing vegetation as a result of rehabilitation work.	Confine all equipment storage of supplies, and rehabilitation work to construction limits identified on the ground. Seed and mulch all areas disturbed during the natural rehabilitation of the area.	Increase in dust and noise pollution. A slight negative visual impact, loss of soil due to erosion and loss of existing vegetation.	The short term impacts to restore the site to a natural condition will be insignificant and considered minor in light of the fact that the end results will be total elimination of use along with all of the existing impacts.	Existing vegetation and soils lost during restoration of the site to a natural condition.

SECTION - ALTERNATIVES

ISSUE: North Campground - Identify the alternatives for addressing the site deterioration, substandard condition and safety problems of the North Campground development.

ALTERNATIVE B: Totally eliminate the North Campground with no intention of replacement and rehabilitate the area to as near a natural condition as possible.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Due to the competitive nature of the NPS campgrounds (desire to camp in the park) the elimination of the North Campground facilities will improve the potential for private interest outside the park to increase their profit.	None	If private interest has not prepared to absorb the increase as a result of the North Campground elimination, there will be an increase in inconvenience to the visitor.	None	None
Potential pedestrian and vehicular impacts on the site will almost be totally eliminated with the removal of camping and the restoration of the area to a natural condition.	None	None	None	None
Depending on when closure of campground occurred and whether concession contract is renewed will determine impacts on the concessioner within the park.	If concessioner is to be phased out after 1982 wait until that date to eliminate campground.	Loss in potential business and reduction in profit.	This alternative could eliminate the margin of profit needed by the park concessioner to represent a productive and viable business venture.	Potential profit that could be obtained by the park concessioner.

SECTION - ALTERNATIVES

ISSUE: North Campground - Identify the alternatives for addressing the site deterioration, substandard condition and safety problems of the North Campground development.

ALTERNATIVE B: Totally eliminate the North Campground with no intention of replacement and rehabilitate the area to as near a natural condition as possible.

IMPACTS	MITIGATING MEASURES	UNAVOIDABLE ADVERSE EFFECTS	SHORT TERM USE VS LONG TERM PRODUCTIVITY	IRREVERSIBLE IRRETRIEVABLE COMMITMENTS
Restoration of the area to a natural condition upon the elimination of all facilities will require a major investment of federal funds.	None	Will place a greater burden on NPS employees and available agency funds.	The investments to eliminate use and restore the area to its natural condition will in the long term mean a considerable savings in funds and manpower required to manage the area.	Materials, manpower and federal funds.
Restoration efforts may affect presently. Unknown archeological resources.	Archeological surveys should identify sites. In the event that site may be impacted, salvage or avoidance measures should be implemented.	Some presently unknown archeological sites may be impacted by restoration efforts.		

E. State Highway #12 Improvements

The following is a summary of the alternatives dealing with the construction of climbing lanes on that portion of State Route #12 which crosses the park as identified in Figure 19.

Alternative A - No action. No climbing lane will be constructed on State Route #12 through the park.

Alternative B - Construct a 3000' long climbing lane on State Route #12 through Bryce Canyon NP to meet projected average daily traffic demands of the year 1985.

Alternative C - Construct a 6,600' long climbing lane on State Route #12 through Bryce Canyon NP to meet projected average daily traffic demands of the year 1992.

Alternative D - Construct an 18,600' (3.5 mile) long climbing lane on State Route #12 through Bryce Canyon NP to meet projected average daily traffic demands of the year 2000.

SECTION V - ALTERNATIVES

ISSUE: State Highway #12 Improvements - Identify the alternatives concerning the construction of climbing lanes on State Route Number 12.

IMPACTS, MITIGATING MEASURES, UN-AVOIDABLE ADVERSE IMPACTS, SHORT TERM VERSUS LONG TERM PRODUCTIVITY AND IRRETRIEVABLE/IRREVERSIBLE LOSSES	ALTERNATIVES (checked if impacted)			
	Alt. A - No action. No climbing lanes will be built on St. Rt. 12 through Bryce Canyon NP.	Alt. B - Build a 3000' long climbing land on St. Rt. 12 through Bryce Canyon NP to meet projected Average Daily Traffic demands of the year 1985.	Alt. C - Build a 6600' long climbing land on St. Rt. 12 through Bryce Canyon NP to meet projected Average Daily Traffic demands of the year 1992.	Alt. D - Build a 18600' (3.5 mi) long climbing lane on St. Rt. 12 through Bryce Canyon NP to meet projected Average Daily Traffic demands of the year 2000.
Contingent upon the design and alignment of the highway, there is a potential for severe cutting and filling (in some places over 100 feet vertical cuts) to construct the climbing lane. The soil complexes in the right-of-way are fragile shales and sandstones. Erosion and run-off would be greatly accelerated and sediment production would be increased as a direct result of the cutting and filling. These conditions have the potential for creating a considerable increase in maintenance costs. Extensive scars from the cuts and fills would be a visual and aesthetic intrusion. Rockslides from the newly exposed, unstable slopes could create hazardous conditions for drivers. Mulching and reseeding would not, in most cases, be practical due to steep slopes and unstable soils. However, the severe cuts and fills could be mitigated by alterations in the alignment through designs for lower speeds on the existing route.		X	X	X

SECTION V - ALTERNATIVES

ISSUE: State Highway #12 Improvements - Identify the alternatives concerning the construction of climbing lanes
on State Route Number 12.

	ALTERNATIVES (checked if impacted)			
	Alt. A - No action. No climbing lanes will be built on St. Rt. 12 through Bryce Canyon NP.	Alt. B - Build a 3000' long climbing land on St. Rt. 12 through Bryce Canyon NP to meet projected Average Daily Traffic demands of the year 1985.	Alt. C - Build a 6600' long climbing land on St. Rt. 12 through Bryce Canyon NP to meet projected Average Daily Traffic demands of the year 1992.	Alt. D - Build a 18600' (3.5 mi) long climbing lane on St. Rt. 12 through Bryce Canyon NP to meet projected Average Daily Traffic demands of the year 2000.
IMPACTS, MITIGATING MEASURES, UN-AVOIDABLE ADVERSE IMPACTS, SHORT TERM VERSUS LONG TERM PRODUCTIVITY AND IRRETRIEVABLE/IRREVERSIBLE LOSSES				
Topsoil would be irretrievably lost due to increased erosion and run-off from construction activities and bare slopes. Retaining walls and artificial drains could minimize but not eliminate the loss.		X	X	X
Sediment produced by erosion and construction activities could collect in the Tropic Irrigation Ditch and the headwaters of the Paria River. Depending upon the amount and nature of the sediment in these waters, downstream aquatic life and agricultural activities could be adversely impacted.		X	X	X
An appreciable amount of noise and dust will result from construction of the passing lane. This will cause adverse visual and aesthetic impacts to the immediate zone of construction. The impacts will only occur during construction phases. Construction could be scheduled to take place during off-peak visitor seasons. The use of sprinklers could reduce dust during construction and construction equipment could be restricted to road right-of-way to mitigate visual and aesthetic impacts.		X	X	X

SECTION V - ALTERNATIVES

ISSUE: State Highway #12 Improvements - Identify the alternatives concerning the construction of climbing lanes on State Route Number 12.

ALTERNATIVES (checked if impacted)				
	Alt. A - No action. No climbing lanes will be built on St. Rt. 12 through Bryce Canyon NP.	Alt. B - Build a 3000' long climbing land on St. Rt. 12 through Bryce Canyon NP to meet projected Average Daily Traffic demands of the year 1985.	Alt. C - Build a 6600' long climbing land on St. Rt. 12 through Bryce Canyon NP to meet projected Average Daily Traffic demands of the year 1992.	Alt. D - Build a 18600' (3.5 mi) long climbing lane on St. Rt. 12 through Bryce Canyon NP to meet projected Average Daily Traffic demands of the year 2000.
IMPACTS, MITIGATING MEASURES, UN-AVOIDABLE ADVERSE IMPACTS, SHORT TERM VERSUS LONG TERM PRODUCTIVITY AND IRRETRIEVABLE/IRREVERSIBLE LOSSES				
Native vegetation would have to be cleared to construct new lane right-of-way. Natural vegetation should be saved wherever possible and attempts to reseed should be done on newly exposed soils where conditions (slope and soils) are suitable. This would result, to a moderate degree, in an irretrievable, irreversible loss of existing vegetation and soils.		X Slight	X Moderate	X Severe
Average Daily Traffic on St. Rt. 12 through Bryce Canyon NP could become congested and delayed without passing lanes according to projections.	X			
If no other form of transportation is created for future energy development in the region, large-scale trucking of coal, oil and gas resources may occur on St. Rt. 12. If passing lanes were not constructed to meet the demands of 1985, 1992 or 2000, traffic could exceed capacities of the present highway.	X			

SECTION V - ALTERNATIVES

ISSUE: State Highway #12 Improvements - Identify the alternatives concerning the construction of climbing lanes on State Route Number 12.

	ALTERNATIVES (checked if impacted)			
	Alt. A - No action. No climbing lanes will be built on St. Rt. 12 through Bryce Canyon NP.	Alt. B - Build a 3000' long climbing land on St. Rt. 12 through Bryce Canyon NP to meet projected Average Daily Traffic demands of the year 1985.	Alt. C - Build a 6600' long climbing land on St. Rt. 12 through Bryce Canyon NP to meet projected Average Daily Traffic demands of the year 1992.	Alt. D - Build a 18600' (3.5 mi) long climbing lane on St. Rt. 12 through Bryce Canyon NP to meet projected Average Daily Traffic demands of the year 2000.
IMPACTS, MITIGATING MEASURES, UN-AVOIDABLE ADVERSE IMPACTS, SHORT TERM VERSUS LONG TERM PRODUCTIVITY AND IRRETRIEVABLE/IRREVERSIBLE LOSSES				
Growing industry in the area will create many traffic generators along with increased populations. State Route 12 could receive increased traffic flows before projected years.	X			
No new clearing of vegetation or extensive cutting and filling will be required if a passing lane is not constructed.	X			
If a passing lane is constructed, traffic on that portion of State Route 12 would flow more efficiently. Congestion and accidents would be less likely to occur on this particular section.		X	X	X
The improvements of State Route 12 will make it a more logical route for all forms of trucking. Considering the possibility for coal, oil and gas development east of the park, there would be even a greater potential for significant increases in trucking operations. Such an increase would produce congestion and serious conflicts between trucks and the high volume of recreation traffic utilizing a number of the state routes leading to the park from the west.		X	X	X

SECTION V - ALTERNATIVES

ISSUE: State Highway #12 Improvements - Identify the alternatives concerning the construction of climbing lanes on State Route Number 12.

IMPACTS, MITIGATING MEASURES, UN-AVOIDABLE ADVERSE IMPACTS, SHORT TERM VERSUS LONG TERM PRODUCTIVITY AND IRRETRIEVABLE/IRREVERSIBLE LOSSES	ALTERNATIVES (checked if impacted)			
	Alt. A - No action. No climbing lanes will be built on St. Rt. 12 through Bryce Canyon NP.	Alt. B - Build a 3000' long climbing land on St. Rt. 12 through Bryce Canyon NP to meet projected Average Daily Traffic demands of the year 1985.	Alt. C - Build a 6600' long climbing land on St. Rt. 12 through Bryce Canyon NP to meet projected Average Daily Traffic demands of the year 1992.	Alt. D - Build a 18600' (3.5 mi) long climbing lane on St. Rt. 12 through Bryce Canyon NP to meet projected Average Daily Traffic demands of the year 2000.
There would be a considerable investment of funds, manpower and materials which would be considered as an irretrievable and irreversible loss once invested.		X	X	X

IV. Other Considerations and Needs

This section identifies other considerations and needs for formulating the General Management Plan and more specialized management documents for Bryce Canyon National Park. The actual development and implementation of the various, more specialized management documents will require further study and research as identified herein.

The resource management portion of this section only described general concepts formulated under those guidelines identified in the 1978 National Park Service Management Policies handbook which establishes the objectives and policies for management. A resource management plan is also being prepared.

A. Resource Management

1. Natural Resource Management - With the exception of those lands used for development, Bryce Canyon National Park will be managed primarily for the preservation and protection of the natural environment.

a. Utilization - The consumptive use of renewable and non-renewable park resources will not be allowed. Non-renewable use of park resources outside development zones will be controlled or limited where there appears to be a potential for unacceptable levels of impact.

The park will continue to require permits for overnight backcountry use. The information obtained from the permit system along with the systems for monitoring impacts on backcountry campsites will assist in the formulation and implementation of a backcountry management plan when such a need arises.

STATE HIGHWAY 12 IMPROVEMENTS

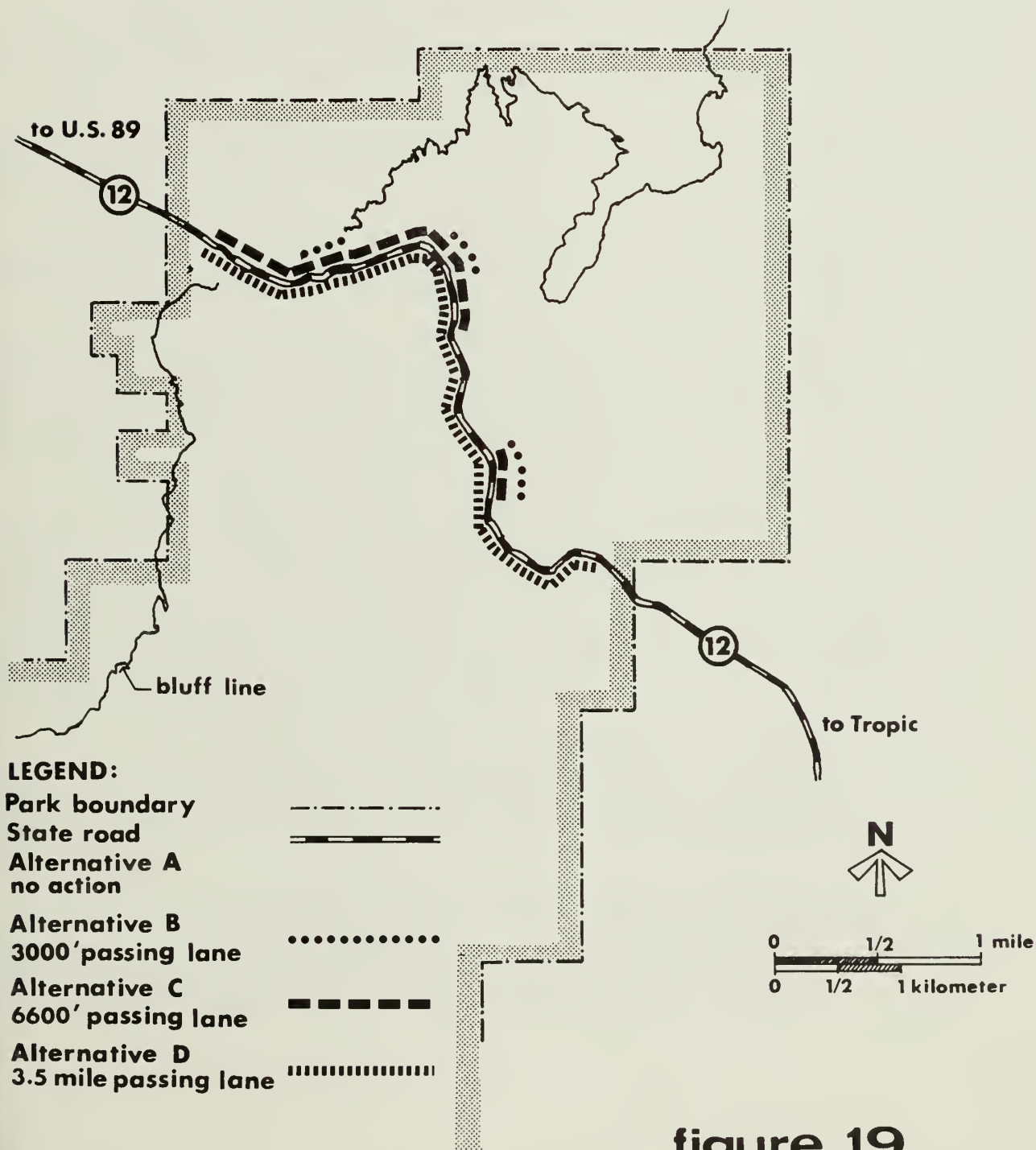


figure 19

Foraging for firewood will continue to be prohibited within the park. The concessioner will also continue to sell wood for campfires as long as such wood is obtained from outside the park area.

The salvage and disposal of trees and other natural resources will be at the discretion of the superintendent and in accordance with Service instructions and applicable laws or procedures.

Primary emphasis will continue to be placed on environmental education programs. These programs will be designed to create an awareness and concern for the environment on the part of the visitor as he comes in contact with the various resources within the park.

b. Flora and Fauna Management - Native plants and animal life will be perpetuated for their essential role in maintaining the natural ecosystems. In compliance with P.L. 93-205, a biological assessment is recommended.

Natural processes will be relied upon to regulate park populations of native species. Native plant and animal life in the park will be given protection against removal, destruction, harvest and harassment.

In 1975 the Whitetail Prairie Dog was reintroduced to the park. Since the reintroduction of such animals is encouraged, it is essential that a monitoring program be conducted to insure the species does not pose a serious threat or conflict with park visitors or park resources, or to persons or property outside the park boundary.

c. Fire Management - On the south end of the park within the spruce/fir forest (approximately 2,000 acres) there appears to be an increasing problem relating to fuel buildup from dead and dying vegetation. Because of the past and present policy of fire suppression, a considerable amount of fuel has accumulated on the ground creating conditions for a more destructive fire. Therefore, in an effort to protect the resource as well as the visitor within the park, steps should be taken to assess the situation and develop a fire management plan. Until such a plan is developed, fires will continue to be suppressed.

d. Water Resources - One of the more questionable issues to be resolved and one that might become a significant factor in the long range development and management of the park is the availability of water resources and the ultimate capability of the associated utility system.

At present a complete utility survey is being conducted because of past experiences with water rationing, unsuccessful attempts to develop new water sources and the poor condition of the overall utility systems. The results of the study will be utilized to formulate an assessment of alternatives for upgrading the existing water system.

When completed, careful consideration must be given to the availability and capability of the water resources within the park in all further planning for the general development of the park.

c. Wilderness - A preliminary wilderness proposal for Bryce Canyon National Park was considered that recommended 17,900 acres be designated as wilderness. Public hearings were held on December 11, 1967. Comments were received and the additional alternatives as listed below were considered:

1. To designate 20,800 acres as wilderness in Bryce Canyon National Park. This alternative is supported by the Wilderness Society, the Sierra Club, Utah Nature Study Society, Wasatch Mountain Club, Utah Audubon Society and Western River Guides Association.

2. To designate two units of wilderness in Bryce Canyon National Park. One unit contains all parklands north of Utah Route #12 and the second unit contains all parklands south of Utah Route #12 except for areas where development and constraints exist that are not compatible with requirements for wilderness. This alternative is supported by the National Parks Association.

3. To designate no area as wilderness in Bryce Canyon National Park. Various individuals and interested groups supported a proposal opposing establishment of any wilderness within Bryce Canyon National Park. These groups felt that the present status of parklands is adequate and that the areas proposed for wilderness do not meet the requirements of the Wilderness Act.

All comments and proposals were considered and a final recommendation of 16,303 acres designated wilderness in Bryce Canyon National Park was submitted to the Department of the Interior for submission to Congress on February 8, 1972. Upon review by the Department of the Interior and prior to submission to Congress, the proposal was revised. The final revisions resulted in an increase in the acreage of wilderness to be recommended to Congress. The recommendation presently before Congress is to designate 20,810 acres of Bryce Canyon National Park as wilderness.

2. Cultural Resource Management - The cultural resources will be managed in accordance with Executive Order 11593 and the cultural resource management plan which is presently being prepared.

a. Protection - Protection of cultural resources will be achieved through a variety of measures which should in no way jeopardize the integrity of the resource. These measures will come in the form of increased law enforcement, interpretation, preventive maintenance and further surveys.

b. Inventory and Classification - There have only been two archeological surveys conducted in Bryce Canyon National Park and these were site-specific or project-related. In order to comply with Executive Order 11593, a parkwide archeological survey of Bryce Canyon National Park is scheduled for 1979. As of May 1979, the List of Classified Structures has been completed and a historic resources study is being completed along with the cultural resource management plan.

B. Visitor Use and Development

1. Statement for Interpretation

a. Primary theme - Geology - The primary interpretive theme of Bryce Canyon National Park is the geological evolution of the eastern escarpment of the Paunsaugunt Plateau. The main elements of this story focus on the pre-fault, uplift and post-faulting periods that were generally associated with the development of the Colorado Plateau.

The results of this crustal upheaval, both regionally and locally, permeate almost all aspects of the Bryce Canyon environment. As the Paunsaugunt uplift reached elevations of 7,000 feet, stream gradients increased, hastening the erosion of the cliff faces. This process, reinforced by 50 million years, eventually produced the colorful and fanciful formations for which Bryce Canyon is noted.

b. Secondary theme - Natural History - The natural history of Bryce Canyon may be divided into two general categories: (1) wildlife and (2) vegetation. The variety of wildlife includes mule deer, coyote, cougar, eagle, porcupine and prairie dog (which was recently reintroduced). These, as well as numerous other species, find the means of survival as either temporary or permanent residents partly because of the plateau's vegetative resources.

Some of the more prominent species in the regime include ponderosa pine, spruce-fir, Juniper, wild iris, Indian paintbrush and goldenrod. Regardless of the genus, all of these life forms share a common trait: each is able to exist at altitudes above 7,000 feet. This condition, in itself, conveys certain environmental accommodations, including the ability to withstand extreme variations in temperatures and usable moisture.

c. Cultural History - The pattern of human activity on the Plateau mirrors essentially the same conditions that influenced the development of the natural environment. Early man frequented those places where food was available. As a "gatherer" he searched the areas below the plateau where he would be reasonably certain of success. Hunters probably fared somewhat better on the plateau's surface, although game animals were never abundant. Other than occasional forages for food, there were no serious attempts by prehistoric or more-recent Indian cultures to permanently occupy the Bryce Canyon area.

Mormon colonizers found that the short growing season and lack of water made the plateau unsuitable for any serious agricultural ventures. Instead they used the high meadows for summer grazing which is a practice still followed today.

The more diverse uses of the plateau emerged with the recreationist who found both excitement and serenity in Bryce Canyon's colorful overlooks, winding trails and solemn stands of ponderosa pine.

d. Personal Services - This activity mainly includes an informative and often provocative treatment of the geology and natural and cultural history of the area. The direction and intensity of these efforts should continue, with perhaps a slightly greater emphasis on the ecological interdependency of the plateau environment.

e. Exhibitory - The majority of the park's exhibit media is found in the museum where almost half of the presentations deal with the geology of Bryce Canyon. The remaining panels are concerned with highlights from the plateau's natural and cultural history.

This format is being redesigned to display a more realistic view of the forces which helped shape the physical environment of the plateau. A greater emphasis will be placed on the erosional processes responsible for creating the numerous cliff formations, as well as the accommodations found in a natural environment existing above 7,000 feet.

The cultural story will be presented in a more relevant framework to reflect the modest role that historic man actually played at Bryce Canyon.

The audiovisual program will be in motion picture form and will provide visitors with a colorful overview of certain processes and the features they produced. It will, in a sense, encapsulate a portion of a Bryce Canyon experience that might otherwise be unobtainable to a large number of visitors.

f. Wayside Exhibits - Wayside interpretation should continue to examine the significance of geologic processes, vegetative varieties and cultural inroads on the surrounding landscape.

New waysides are scheduled for the majority of scenic overlooks in addition to several interest points on the Navajo Loop Trail.

2. Jurisdiction - With regard to the jurisdictional problems identified in Section IV, the following alternatives are presented for consideration:

a. Status Quo - Under the present "proprietary" jurisdiction, park law enforcement officers are authorized to enforce violations covered by Title 36 of the Code of Federal Regulations. Processing of these Federal citations is dependent on an adequate Federal magistrate system. The present system is functional on a limited basis. Magistrates have not yet been appointed for southern Utah. The nearest magistrate at this time is located in Salt Lake City.

As a result, court appearances are difficult and very time consuming. A Central Violations Bureau has been established which permits mailing in fines in uncontested cases involving CFR violations. Park law enforcement officers have accepted Deputy Sheriff commissions under a Cooperative Agreement with the Garfield County Sheriff. This agreement permits park employees to enforce State laws which can then be processed through the local court system. The deputization agreement has been a satisfactory method of handling most offenses, not covered by Title 36 CFR.

b. Concurrent Jurisdiction with an Improved Federal Magistrate System - Public Law 94-458 (The General Authorities Bill) mandated the Secretary of the Interior to "diligently pursue the consummation of arrangements with each State, commonwealth, territory or possession within which a unit of the National Park System is located to the end that insofar as practical, the United States shall exercise concurrent legislative jurisdiction within the unit of the National Park System." An act by the State legislature is required for concurrent jurisdiction to be coded to the Federal government.

Concurrent jurisdiction would provide Federal law enforcement officers legal authority to enforce Federal law and, where no applicable Federal law exists, to enforce the State law by assimilation. It would also allow State and local law enforcement officers to enforce State law. Concurrent jurisdiction would provide a more expedient method of enforcing the law, thereby, improving visitor safety and protection within the park. It should be made clear, however, that even with concurrent jurisdiction, the inability to bring misdemeanor offenders before the U.S. Magistrate must be resolved in order to effectively apply the law.

3. Transportation and Fee Collection - Section V of this assessment concerning the alternatives of mass transportation and fee collection only deals with what might be considered as preliminary, general concepts in an effort to measure public interest and assess general impact. The alternatives dealing with the concepts of mass transportation are incomplete and cannot be finalized until a transportation and economic feasibility study is conducted. A study of this nature should address the needs and demands and such concerns as:

a. Number and size of mass transit vehicles to be utilized.

b. Office, maintenance, and storage facilities required to facilitate mass transportation system.

c. Number and size of intermediate staging facilities at various locations.

d. Number of additional employees required to operate and administer mass transportation system.

e. Efficiency of system or cost of operation.

f. Signing requirements, etc.

A task directive for the transportation and economic feasibility study will be required to insure that every alternative and concern is addressed.

In no way should the mass transportation alternatives presented herein preclude other alternatives that might surface as a result of the transportation and economic feasibility study including the alternative of such development outside the park.

VII. Consultation and Coordination

A. Consultation

Preliminary planning to formulate this document began in January 1978 with the development of a task directive which establishes the overall guidelines for preparing the general management plan. The task directive was prepared in consultation with the park staff and the planning team members. Upon completion, the task directive was placed on review for comments and was approved by the Regional Director on February 1, 1978.

The formulation of the draft assessment of alternatives for the general management plan also involved close consultation between the various disciplines represented within the National Park Service. Consultation with other Federal, State, local and private interests will continue through the various reviews and public involvement sessions to be conducted.

B. Coordination

Copies of the assessment of alternatives and the environmental review/general management plan will be sent to the following for their review and comment:

1. Federal Government:

a. Department of Agriculture
*U.S. Forest Service

b. Department of the Interior
*Bureau of Land Management

*Heritage Conservation and Recreation Service
*Fish and Wildlife Service

- c. Department of Transportation
*Federal Highway Administration
- d. Environmental Protection Agency
- e. Department of Energy

2. State Government:

- a. Utah State Clearinghouse
- b. Utah State Historic Preservation Officer

3. Local Governments:

- a. Garfield County Commissioners
- b. Kane County Commissioners
- c. Cities of Panquitch, Cedar City, Springdale, St. George,
Hurricane, Tropic, Cannonville, and Henrieville

4. Other:

Copies of the assessment of alternatives and the environmental review and general management plan will be made available to all interested organizations and individuals upon request by mail.

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IX. COST ANALYSIS FOR GENERAL MANAGEMENT PLAN ASSESSMENT OF ALTERNATIVES

In an effort to establish some frame of reference to the cost of the various alternatives of this assessment the following Class "C" estimates are presented. The cost figures herein are to be used for future years---not to exceed October 1982.

A. Issue: Overnight Lodging

1. Alternative A - Status quo or retain and upgrade all of the economy and deluxe cabins and continue using them for overnight lodging.

<u>Task</u>	<u>Quantities</u>	<u>Cost</u>
Upgrade 40 deluxe units	\$4,000/unit	\$160,000
Upgrade 104 economy units	\$4,000/unit	\$416,000
Upgrade water lines to all cabins from main service line (includes distribution pipes, meters, valves, drains, utility connections into structures, and removal of existing water line)		\$318,400
	Total (Net)	\$894,400
	Total (Gross) (Net x \$1.56)	\$1,395,264

2. Alternative B - Retain only 40 deluxe cabins for overnight lodging use and those structures essential for administration management operations. The 104 economy cabins will be disposed of and replaced by constructing 70 to 80 new units.

<u>Task</u>	<u>Quantities</u>	<u>Cost</u>
Rehabilitation and upgrading of 40 deluxe cabins	\$4,000/cabin	\$160,000
Replace H ₂ O lines between main line and deluxe cabins (includes distribution pipes, meters, valves, drains, utility connections into structures, and removal of existing lines).		\$138,926
Demolition and disposal of 104 cabins and site rehabilitation		\$89,365

*Construct 80 new motel units	\$10,000/unit	\$800,000
Utilities to serve motel units (sewer, water, and power)		\$56,000
Total (Net)		\$444,291
Total (Gross) (Net x \$1.56)		\$693,094

*Since it has not been determined whether construction of these facilities will be paid for by a concessioner or the National Park Service, costs have not been included in the estimate of development cost.

3. Alternative C - Retain the 40 deluxe cabins for overnight lodging. The 104 economy cabins and minor supporting structures will be eliminated at the discretion of the National Park Service with no intention of replacement.

<u>Task</u>	<u>Quantities</u>	<u>Cost</u>
Rehabilitation and upgrading of 40 deluxe cabins	\$4,000/unit	\$160,000
Replace H ₂ O lines between main line and deluxe cabins (includes distribution pipes, meters, valves, drains, utility connections into structures, and removal of existing lines).		\$138,926
Demolition and disposal of 104 cabins and site rehabilitation		\$89,365
Total (Net)		\$388,291
Total (Gross) (Net x \$1.56)		\$605,734

4. Alternative D - Discontinue providing overnight lodging services and retain only the 40 deluxe cabins for their historic value and potential for future National Park Service use. The economy cabins will be eliminated along with those structures which were supporting elements for the administration and management of the concession operation if deemed necessary for National Park Service purposes.

<u>Task</u>	<u>Quantities</u>	<u>Cost</u>
Demolition and disposal of 104 cabins and site rehabilitation		\$89,365

Demolition and disposal of
miscellaneous structures
(two dormitories and five
storage structures) and
rehabilitation of sites

*\$26,640

Total (Net) \$89,365

Total (Gross)
(Net x \$1.56) \$139,409

*The cost to demolish and haul miscellaneous structures and rehabilitation of sites occupied by the structures have not been included in the estimate of development cost. This cost will be added if the park should determine the structures are of no further use and should be removed. This would increase total gross development cost to \$180,968.

B. Issue: Transportation and Fee Collection

With regard to this issue it should be established that Alternatives C through E dealing with the concepts of mass transportation are incomplete and cannot be finalized until a transportation study is conducted. Rather than totally dismiss mass transportation concepts until after the transportation study, the aforementioned alternatives were formulated in an effort to begin establishing and assessing, to some degree, preliminary concepts for resolving the issue transportation and fee collection.

In no way should the mass transportation alternatives presented herein preclude other alternatives that might surface as a result of the transportation study.

1. Alternative A - Retain the same roads and parking facilities in their present location with normal maintenance procedures. The existing system of fee collection will be retained. (Status Quo/No Action).

Relative to this alternative and as a comparison, the following represents normal maintenance cost over the past 3 years. These figures exclude any trail work from roads and trails funds and includes all related maintenance cost such as amortization of equipment and personal services.

1977 - \$122,000
1978 - \$130,000
*1979 - \$143,800

*This figure excludes \$19,000 cyclic maintenance cost to chip-seal and restrip one section of the road.

An analysis of the above figures reveals that between 1977 and 1978, there was an increase of 7 percent in funds received for road maintenance and an increase of 11 percent between 1978 and 1979. In reality, these cost and percentages only represent what the park spent and not what was required to adequately maintain the existing road system. In essence the park does not receive enough funds to adequately keep abreast of its actual maintenance needs. Furthermore, with the rapid deterioration of the antiquated road system which no longer adequately accommodates the various types and volumes of traffic, the park will most likely experience rapid and increasing need for road maintenance funds each year.

2. Alternative B - Major upgrading and expansion of existing roads and parking areas to accommodate present forms and volumes of traffic. Entrance fees would be collected at present location and user fees for camping use would be collected within each campground at two manned structures containing minimal quarters. To reduce the degree of parking lot expansion near the overlooks, all vehicles towing trailers will be required to leave trailers in an improved parking area near the visitor center.

<u>Task</u>	<u>Quantities</u>	<u>Cost</u>
Road reconstruction (including routes 1, 2, 2b, 3, 4, 5, 6, 55, and 59	28.6 miles	\$6,804,487
Campground fee collection stations with residence facilities and household accessories	two structures	\$152,000
Parking lot expansion near overlooks and at visitor center for trailer storage		*
	Total (Net)	\$6,956,487
	Total (Gross) (Net x \$1.56)	\$10,852,119

*The data for determining the number and degree of overlook parking areas to be expanded as well as requirements for the central trailer storage area near the visitor center will be collected as part of the transportation study identified in Section VI. Other Consideration and Needs. This study will help establish the basis for decision making in that it will take into account characteristics, attitudes, and habits of those people visiting the various overlook areas as well as the problems and conditions associated with the existing parking facilities.

The cost to expand the parking accommodations near the overlooks and the visitor center must be added to the total net and total gross development cost.

3. Alternative C - Employ a form of mass transportation with central and intermediate staging facilities to accommodate the visitor. Minor upgrading of existing transportation facilities and relocation of fee collection station. This would involve constructing a mass transit terminal at Fairyland Canyon Overlook and locating a fee collection station near the entrance to the park.

<u>Task</u>	<u>Quantities</u>	<u>Cost</u>
Mass transportation central staging area facilities:		
-mass transit parking lot	(250 spaces for cars with trailers and 100 spaces for cars)	\$860,000
-reconstruct entrance road to mass transit parking area from main entrance road	1.0 miles	\$350,000
-central staging structure (restrooms, waiting area, manned information orientation area, and minor exhibits)	1,500 sf	\$97,500
-septic tank leach fields		\$10,000
-landscaping, walks, and overlook improvements		\$150,000
Utilities for mass transit lot facilities:		
-main power line installation underground with transformer	5,280 feet	\$52,800
-lighting for parking area (poles), and central staging structure		\$36,000
-water lines (2")	12,000 feet	\$108,000

Entrance station:

-entrance station structure (vault toilet and lavatory)	175 sf	\$11,375
-underground electrical	600 feet	\$6,000
-main water line	1,000 feet	\$10,000
-vehicular circulation system at entrance station (traffic lanes and 14 parking spaces)	1,686 sq. yds.	\$33,720

Resurfacing of roads:

*-routes 1, 2, 2b, 3, 4, 5, 6, 55, and 59 (site preparation, tack coat, 2" mat, seal, and chip)	27.6 miles	\$4,080,384
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-upgrade parking areas to accommodate through circulation of mass transit vehicles at Bryce Point, Inspiration Point, and Paria View	1,700 sq. yds. road and 500 feet trail	\$37,000
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-removal of existing fee station and rehabilitation of site		\$514
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Other cost **

Total (Net) \$5,943,293

Total (Gross)
(Net x \$1.56) \$9,115,537

*The actual feasibility of operating mass transportation vehicles on the existing park roads with no more upgrading than site preparation, tack coat, 2" mat, and seal and chip is contingent upon coordinating the degree and extent of improvements with the type of mass transportation vehicle to be used. Further research and study must be conducted to confirm such alternative approaches.

**In order to determine the total cost effectiveness of Alternative C, there are several other factors which must be analyzed. These factors include:

- a. Number and size of mass transit vehicles to be utilized.
- b. Office, maintenance, and storage facilities required to facilitate mass transportation system.
- c. Number and size of intermediate staging facilities at various locations.
- d. Number of additional employees required to operate and administer mass transportation system.
- e. Efficiency of system or cost of operation.
- f. Signing requirements, etc.

The basic data for such an analysis is not available at this time. The data should be collected and assessed as part of the transportation study identified in Section VI.

4. Alternative D - Employ a form of mass transportation with central and intermediate staging facilities to accommodate the visitor. This alternative will also involve a minor upgrade of existing transportation facilities and the relocation of the fee collection station. A mass transportation terminal would be constructed near the visitor center and the collection station would be located near the entrance to the park.

<u>Task</u>	<u>Quantities</u>	<u>Cost</u>
Mass transportation central staging area facilities:		
-mass transit parking lot	(250 spaces for cars with trailers and 100 spaces for cars)	\$860,000
-construct road from proposed mass transit lot to existing entrance road	$\frac{1}{2}$ mile	\$175,000
-central staging structure (restrooms, waiting area, manned information orientation area, and minor exhibits)	1,500 sf	\$97,500
-sewage line to lagoon system		\$12,000
-landscaping, walks, and miscellaneous site reinforcement		\$84,615

Utilities for mass transit lot facilities:

-main power line installation with transformers (power on site)		\$2,000
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-lighting for parking area (poles) and central staging structure		\$13,500
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-water line (2")	900'	\$8,000
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Entrance station:

-entrance station structure (vault toilet and lavatory)	175 sf	\$11,375
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-underground electrical	600'	\$6,000
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-main water line	6,720'	\$60,480
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-vehicular circulation system at entrance station (traffic lanes and 14 parking spaces)	1,686 sq. yds.	\$33,720
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Resurfacing of Roads:

*-routes 1, 2, 2b, 3, 4, 5, 6, 55, and 59 (site preparation, tack coat, 2" mat, seal and chip)	28.6 miles	\$4,229,224
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-upgrade parking areas to accommodate through circulation of mass transit vehicles at Bryce Point, Inspiration Point, and Paria View	1,700 sq. yds. road and 500 feet trail	\$37,000
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-removal of existing fee station and rehabilitation of site		\$514
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Other cost		**
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Total (Net)	\$4,401,813
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Total (Gross) (Net x \$1.56)	\$6,866,828
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*Same as 3. Alternative C

**Same as 3. Alternative C

5. Alternative E - Emplly a form of mass transportation with central and intermediate staging facilities to accommodate the visitor. This alternative will involve a minor upgrading of existing transportation facilities. The mass transit terminal will be located near the visitor center and both user and entrance fees will be collected at a new structure located approximately 100 yards north of the existing fee collection area. The road to Fairyland Overlook will be improved along with the expansion of the parking area at the overlook. All vehicles entering the campground and lodge area will be required to remain there unless leaving the park.

<u>Task</u>	<u>Quantities</u>	<u>Cost</u>
Mass transportation central staging area facilities:		
-mass transit parking lot	(250 spaces for cars with trailers and 100 spaces for cars)	\$860,000
-construct road from proposed mass transit lot to entrance road	½ mile	\$175,000
-central staging structure (restrooms, waiting area, manned information orientation area, and minor exhibits)	1,500 sf	\$97,500
-sewage line to lagoon system		\$12,000
-landscaping, walks, and miscellaneous site reinforcement		\$84,615
Utilities for mass transit lot facilities:		
-main power line installation with transformers (power on site)		\$2,000
-lighting for parking area (poles) and central staging structure		\$13,500
-water line (2")	900'	\$8,000

Entrance station:

-entrance station with flush toilet and lavatory	175 sf	\$11,375
-6" sewer line	500 feet	\$6,000
-2" water line	300 feet	\$2,700
-electrical	300 feet	\$3,000
-vehicular circulation system at entrance station (traffic lanes and 14 parking spaces)	1,686 sq. yds.	\$33,720
-removal of existing fee station and site rehabilitation		\$514

Resurfacing of roads:

*-routes 1, 2, 2b, 3, 4, 5, 6, 55, and 59 (site preparation, tack coat, 2" mat, seal and chip)	27.6 miles	\$4,080,384
-upgrade parking areas to accommodate through circulation of mass transportation vehicles at Bryce Point, Inspiration Point, and Paria View	1,700 sq. yds. road and 500 feet trail	\$37,000
-reconstruct Fairyland road and provide parking for 25 cars and 2 buses	1.6 miles	\$480,000
Other cost		**

Total (Net) \$5,907,308

Total (Gross)
(Net x \$1.56) \$9,215,400

*Same as 3. Alternative C

**Same as 3. Alternative C

C. Issue: Trail System Use and Circulation

1. Alternative A - Retain Peek-a-Boo Trail for horse use and properly sign, warning hikers of potential conflicts. No additional horse trails would be constructed.

<u>Task</u>	<u>Quantities</u>	<u>Cost</u>
Signing of horse trails and identification of associated problems	4 signs	\$1,000
	Total (Net)	\$1,000
	Total (Gross) (Net x \$1.56)	\$1,560

2. Alternative B - Retain Peek-a-Boo Trail for horse use and properly sign, warning hikers of potential conflicts. Construct 2 1/3 miles of additional horse trail.

<u>Task</u>	<u>Quantities</u>	<u>Cost</u>
Signing of horse trails and identification of associated problems	5 signs	\$1,250
Horse trail construction	2 1/3 miles	\$37,328
Pedestrian trail construction at end of horse trail	1.3 miles	\$15,996
Hitching rails	16 each	\$1,600
	Total (Net)	\$56,174
	Total (Gross) (Net x \$1.56)	\$87,631

3. Alternative C - Retain Peek-a-Boo Trail for horse use and properly sign, warning hikers of potential conflicts, construct 2 2/3 miles of additional horse trail.

<u>Task</u>	<u>Quantities</u>	<u>Cost</u>
Signing of horse trails and identification of associated problems	8 signs	\$2,000
Horse trail construction	2 2/3 miles	\$42,656

Pedestrian trail construction at end of horse trail	1.3 miles	\$15,996
Hitching rails	16 each	\$1,600
	Total (Net)	\$62,252
	Total (Gross) (Net x \$1.56)	\$97,113

D. Issue: North Campground Development

1. Alternative A - Totally modify and rehabilitate campground to provide for flexibility in accommodating present forms of camping equipment and provide for rehabilitation of impacted areas.

<u>Task</u>	<u>Quantities</u>	<u>Cost</u>
Rehabilitation and reconstruction of camp sites	110 sites	\$220,000
Replace two substandard comfort stations (demolish and remove old restrooms and rehabilitate site)		\$95,488
Resurface North Campground road system	3.0 miles	\$285,120
	Total (Net)	\$600,608
	Total (Gross) (Net x \$1.56)	\$936,948

2. Alternative B - Totally eliminate the North Campground with no intentions of replacement and rehabilitate the area to as near a natural condition as possible.

<u>Task</u>	<u>Quantities</u>	<u>Cost</u>
Removal of camping units and rehabilitation of site including roadway mulch and reseeding included	20,966 sq. yds.	\$146,766
Demolition and haul of four restroom structures		\$8,390
	Total (Net)	\$155,156
	Total (Gross) (Net x \$1.56)	\$242,043

E. Issue: State Highway 54 Improvements

Rather than estimate project cost based on projected average daily traffic demands to various years as presented in the assessment of alternatives B through D, the following costs are based on total construction of 3.5 miles of passing lane at one time.

<u>Task</u>	<u>Quantities</u>	<u>Cost</u>
Construct 8' wide (maximum) passing lane	3.5 miles	\$549,500
	Total (Net)	\$549,500
	Total (Gross) (Net x \$1.56)	\$857,220

All costs identified herein are based on the Class "C" estimates guide prepared in 1979 by the Denver Service Center and in consultation with professional cost estimators within the Denver Service Center and the Rocky Mountain Regional Office.

As the Nation's principal conservation agency, the Department of the Interior has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, parks and recreation areas, and to ensure the wise use of all these resources. The Department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

