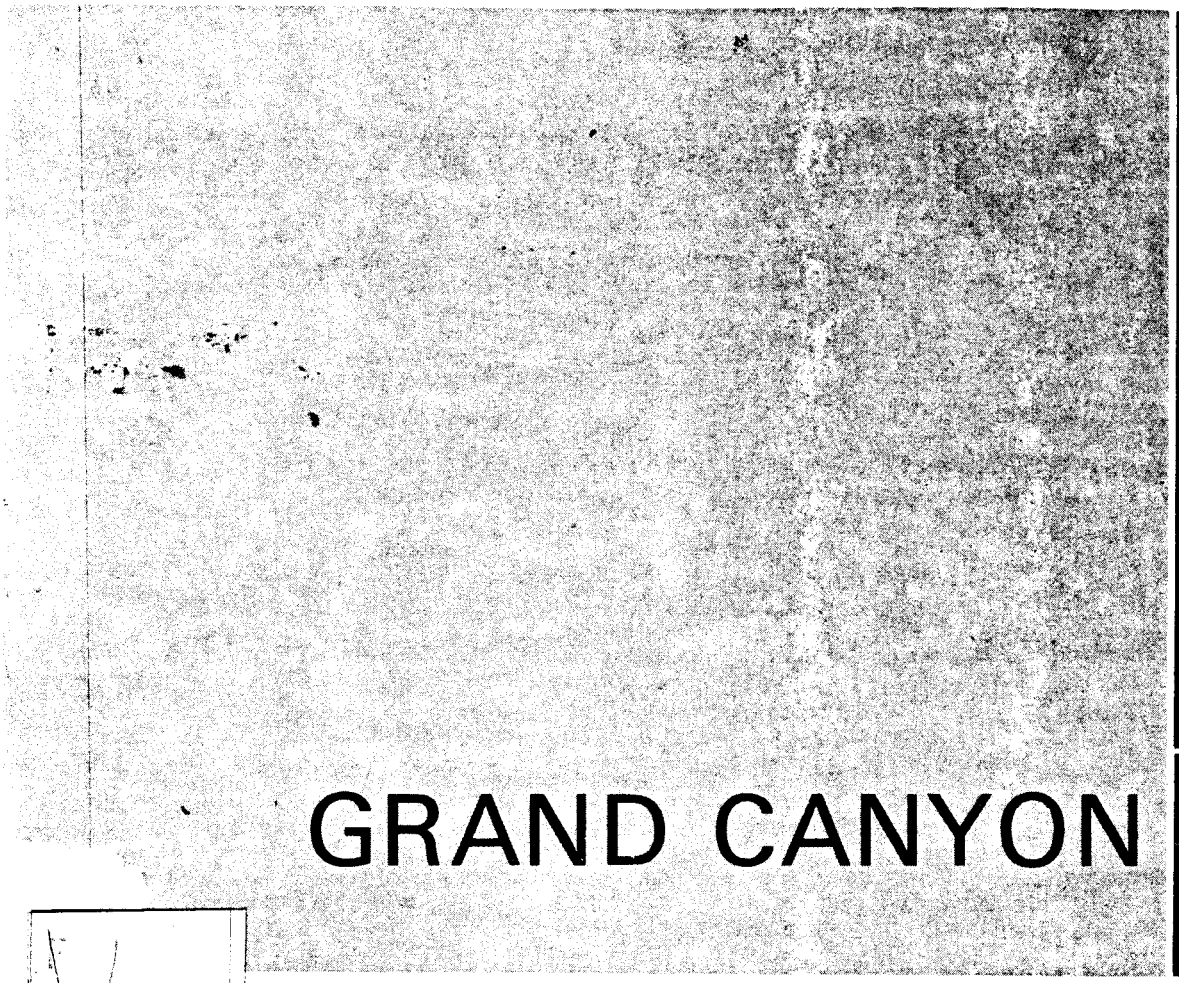
final master plan
august 1976



GRAND CANYON

NATIONAL PARK / ARIZONA

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INTRODUCTION AND SUMMARY

During a visit to the Grand Canyon, President Theodore Roosevelt said:

> In the Grand Canyon, Arizona has a natural wonder which, as far as I know, is in kind absolutely unparalleled throughout the rest of the world. I want to ask you to do one thing in connection with it in your own interest and in the interest of the rest of the country – to keep this great wonder of nature as it now is . . . . Leave it as it is. You can not improve on it. The ages have been at work on it, and man can only mar it. What you can do is keep it for your children, your children's children, and for all who come after you, as the great sight which every American . . . should see.

Today the Grand Canyon faces many of the same human and environmental problems as the Nation – not as severe, but sufficient to cause undesirable alterations of the human experience and environmental degradations in the park, unless they are checked now.

Periods of high visitation on the South Rim sometimes create an atmosphere of congestion. Demand for lodging and camping space exceeds capacity during the summer. Increasing aircraft activity in and around the canyon results in high levels of noise that disturb overlook viewers, as well as hikers and river-runners deep within the inner canyon. Polluted water occurs in canyon streams. Thousands of visitors seek "white water" and desert backpacking experiences. It is becoming more and more difficult to find solitude in even the most remote parts of the inner canyon.

The major challenge facing National Park Service planners and managers today is to preserve the integrity of the Grand Canyon's exceptional natural spectacle, while providing for the millions of people who are drawn to it each year. It is to further these ends that this master plan was conceived and developed. Its principal features include:

Managing the park to retain the primitive qualities of the canyon, and utilizing the South Rim developed area as the primary canyon-viewing zone.

Using environmental controls based on research to protect the park environment and to maintain the quality of the human experiences within the park.

THE REGION AND THE PARK

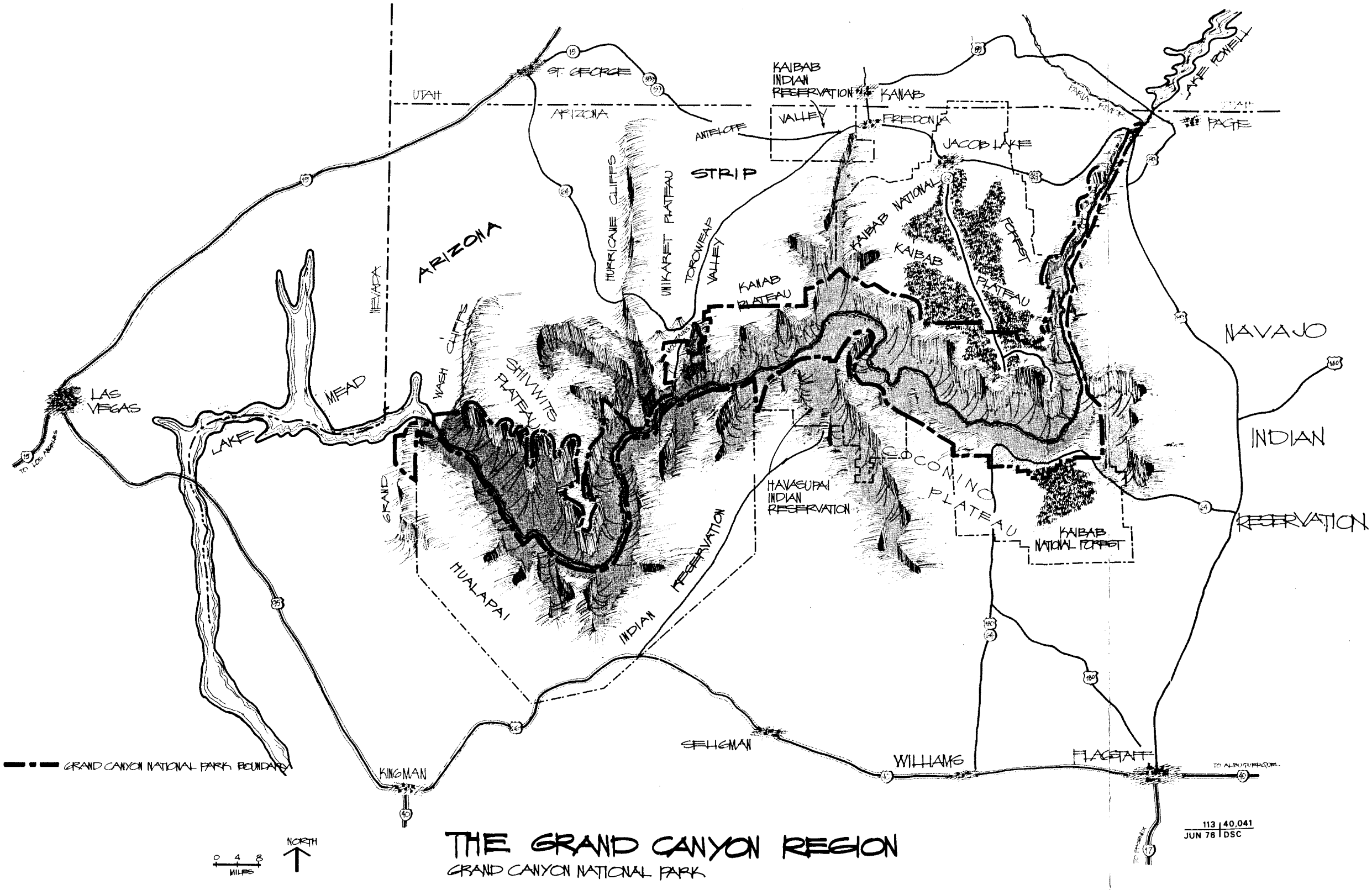
The Colorado Plateau, with Flagstaff at its southwestern edge, is the regional setting for the Grand Canyon. The plateau is a vast, semiarid land of raised plains and basins, typical of the Southwestern United States – except for the dramatic slash of the Grand Canyon across northwestern Arizona. To the south lies the Phoenix/Tucson metropolitan area. The higher elevations of the plateau are forested; the lower elevations are a series of desert basins. Six of the seven climatic zones described by C. Hart Merriam are found within the region – four of them within the Grand Canyon park. This is Indian country – home of the Havasupai, Hopi, Hualapai, Navajo, and Paiute. Its vast open spaces are only occasionally dotted with tiny settlements. This land is rich in scenic and recreational appeal.

On the Colorado Plateau approximately half of the land is federally owned, and is administered by the Bureau of Land Management, Forest Service, and National Park Service. The other lands are primarily Indian-owned.

Primary among regional resources is the Grand Canyon National Park encompassing 1,218,375 acres. The park is bounded on the north by Kaibab National Forest and the Arizona Strip, on the east by the Navajo Reservation, on the south by Kaibab National Forest and the Hualapai Reservation, and on the west by the upper reaches of Lake Mead National Recreation Area.

Permeating the Grand Canyon's legislative history is an acute awareness of the need for its protection as one of the natural wonders of the world. Public interest in designating the Grand Canyon as a national park began in the late 1870s. It was successively a forest reserve, a national forest, and a national monument within the national forest, before it was brought under the provisions of the National Park Service Act of 1916.

Most people travel to and through this region by automobile on Interstates 40 and 17; U.S. 89, 89a, 160, and 180; and Arizona State Highways 64, 389,



THE GRAND CANYON REGION

GRAND CANYON NATIONAL PARK

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and 67. Increasing numbers of visitors arrive by aircraft at the Grand Canyon Airport. Major transcontinental buslines serve Flagstaff and Williams, with local service to Grand Canyon. Passenger rail service across northern Arizona has steadily declined, but could again become important.

The Grand Canyon dominates the natural and economic picture of northern Arizona. It forms a major physical barrier to the movement of people and commerce north and south, but at the same time attracts millions of visitors to the Southwest each year.

The number of visitors in the region doubled during the 1960s and may double again during the 1970s. Grand Canyon park draws nearly 3 million visitors each year. The park is a major stop for summer travelers who are touring the Southwest and West. A large number of foreign visitors also make the Grand Canyon one of the principal stops on their tours of the United States.

Most visitors stay a few hours – just long enough to view the canyon from overlooks on the South Rim. During peak periods, day use predominates – partly by preference, and partly because of the limited overnight facilities available on the South Rim and adjacent to it.

Existing tourist facilities of all kinds in the region do not meet peak demands. The scarcity of investment capital, coupled with projected low annual returns on investments and the lack of inexpensive potable water have been deterrents to development of accommodations. New facilities, however, are beginning to appear.

Within the park, hotels, motels, campgrounds, and other facilities are available on both rims of the canyon. The facilities at Grand Canyon Village make this the most popular destination point in the park; occasionally, there is traffic congestion during peak-use periods. Demand for overnight parking sites is increasing, primarily because of the growing numbers of self-contained recreational vehicles; tent camping is decreasing but only proportionately. Hundreds of visitors simply park overnight along the roads leading to Grand Canyon when campgrounds are full. Opportunities are available for increasing tourist facilities outside the park.

The delivery of potable water is expensive in most places in the region. Increased use of reclaimed water will be necessary to meet future demands.

The canyon is a geologic timepiece studied by scientists and laymen, and a world-renowned scenic spectacle. Its rocks reveal all of the eras and nearly all

of the periods of geological time, and contain a fossil record of the evolution of life. The 277-mile-long canyon is 1 to 20 miles wide, up to 1 mile deep, and encompasses elevations ranging from 1,400 feet in the lower end of the canyon to over 9,000 feet on the Kaibab Plateau. This produces climatic variations ranging from those of the arid lower Sonoran deserts of southern Arizona to those typical of forested regions in Canada. Snow rarely falls in the inner canyon, and summers there are hot.

The North Rim is usually heavily mantled with snow from late November to mid-May; summers are cool. The South Rim frequently has snow from late October or early November to late April, but it is rarely heavy, and summers are mild to warm.

The forest of the Kaibab Plateau is composed of pine, fir, spruce, and quaking aspen, and comprises a major natural and recreational resource. Seventy years of fire suppression have caused an unnatural buildup of dead and downed trees and an increased understory.

The entire rim is a platform from which to view the canyon. Many scenic overlooks are accessible by good park roads; several are reached by primitive roads; and the remainder of the rim is accessible by foot or horseback.

Over 1,200 Indian ruins in the park represent several prehistoric occupations of the canyon and rims; the Cohonina, Virgin, and Kayenta cultural groups came together here and left evidence of their boundaries and relationships. The Havasupai Indians have occupied the bottomlands of Havasu near the southcentral portion of the park since just prior to historic times.

The water of the Colorado River and its tributaries has been carving the Grand Canyon for millions of years. This water is a vital factor in the future of Grand Canyon as a natural feature, as well as an essential commodity for the well-being of over 10 million people in the Phoenix/Tucson and Southern California areas. It is used and re-used to generate power and irrigate agricultural land, for domestic use, and for water-oriented recreation. There remains an intense and continuing interest by some developers to dam the Colorado River within the Grand Canyon. The Bureau of Reclamation controls the waterflow through Glen Canyon Dam. This has drastically altered the hydrologic regime of the river and the riparian environment along the river's edge. The end results cannot readily be foreseen.

Park visitors can still run the river without motors, as the earlier explorers did, while others travel through the canyon on a wide variety of motorized watercraft.

OBJECTIVES

To preserve this superlative natural park, and to provide for the growing numbers of visitors, the objectives for management are:

GENERAL

Manage Grand Canyon as a natural area of the National Park System.

Retain park headquarters at Grand Canyon Village.

Retain Grand Canyon Village as the major visitor service complex and park support community; determine the maximum capacity and not expand beyond it; coordinate improvement, replacement, or elimination of facilities, with regional development of visitor-use facilities outside park boundaries and in full view of the needs of historic preservation within the village itself.

Gather ecological, historical, archeological, and sociological data on which to base management decisions.

Encourage and support independent research.

Include eligible lands in the National Wilderness Preservation System.

PUBLIC-USE MANAGEMENT

Provide facilities and services for increasing numbers of day-use visitors on the South Rim between Hermits Rest and Desert View.

Provide services and facilities year-round at Grand Canyon Village.

Retain visitor facilities at Phantom Ranch.

Establish optimum recreational-use capacities for all sites and zones in the park.

Interpret the natural and historic significance of Grand Canyon.

Interpret the relevance of man's place on earth and his ability to cause changes in the landscape and environment.

Retain primitive access and uncrowded canyon-viewing opportunities at Toroweap and other selected points.

Remove from the rim of the canyon all non-historic and non-interpretive facilities.

Maintain the Bright Angel/Kaibab Trail corridor for heavy visitor use consistent with safety and environment considerations.

Provide a wilderness trail system.

Provide hiking, horseback-riding, bicycle, and primitive motor trails on the rims.

Encourage a slower pace, and more intimate involvement with the environment of the North Rim.

Continue and improve the public transportation system on the South Rim.

Limit mechanized access below the rims to emergency and management use.

Permit access to all portions of Grand Canyon National Park, within recreational-use limits established by environmental criteria.

Provide a reservation and/or registration system for all campsites in Grand Canyon during periods of peak visitation.

NATURAL AND HISTORICAL RESOURCES MANAGEMENT

Manage natural ecosystems in accordance with ecological principles.

Utilize reclaimed water to supplement fresh-water supplies.

Determine the significance and use of historical and archeological sites and structures.

Mitigate the ecological changes along the Colorado River caused by control of waterflow.

Protect the river and its environs from human overuse.

Avoid additional developments on the canyon rims that would detract from the primitive character of the river and canyon experience.

REGIONAL PLANNING AND COOPERATION

Cooperate with adjacent Federal, State, and local agencies to provide more effective service to the public.

Assist the local Indian tribes in the planning, development, and management of the recreational use of tribal lands.

Jointly provide public information services at major highway junctions or key towns.

Encourage the tasteful and orderly development of visitor-use facilities outside park boundaries.

Carry the National Park Service concern for the environment beyond the boundaries of Grand Canyon.

Meet a portion of the demand in the region for lodge, cabin, recreational-vehicle, and campground facilities.

AN ENLARGED GRAND CANYON NATIONAL PARK

Bringing national park status to all of Grand Canyon has long been a goal of many people. Over the years, various sections have been designated as units of the National Park System. First, the eastern portion was established as Grand Canyon National Park. Then additional sections were designated as Grand Canyon and Marble Canyon National Monuments, and the western portion included in Lake Mead National Recreation Area. One section is part of Kaibab National Forest. Several portions of the canyon lie within the boundaries of the Navajo, Hualapai, and Havasupai Indian Reservations.

The Grand Canyon National Park Enlargement Act of 1975 (P.L. 93-620) consolidated much of the Grand Canyon into a single park and directed that certain areas receive study to determine their suitability for retention within, or addition to, the enlarged park. The boundaries established by the Enlargement Act are shown on page 11.

The northeast boundary of the park begins at the Paria River at Lees Ferry and from this point, extends along the banks of the Colorado River to Navajo Bridge. From this point, the boundary follows the rims of Marble Canyon to their junction with the prior boundaries of Grand Canyon National Park.

The east rim of Marble Canyon is included only with the concurrence of the Navajo Nation. Land back from the rims will remain under existing jurisdictions – the Navajo Nation on the east and the Bureau of Land Management or the Forest Service on the west. State lands are to be acquired under appropriate exchange agreements. A buffer, scenic easement, or similar safeguard will be provided to ensure that there will be no developments that would be visible from the Colorado River.

LEGEND

NATIONAL PARK BOUNDARY

EXISTING MANAGEMENT AREA (N.R.A.)

MAJOR ROAD

BOUNDARY MAP
GRAND CANYON NATIONAL PARK
Mohave And Coconino Counties
ARIZONA

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8045 KILOMETERS = 5 MILES
GILA & SALT RIVER MERIDIAN

The 640-acre Coconino Plateau addition added lands managed by the Forest Service providing a buffer against outside influences. The park road came as close as ¼ mile to the prior boundary here.

The Lower Kanab Canyon addition, which lies north of the Colorado River between the prior boundaries of Grand Canyon National Park and Grand Canyon National Monument, corrects a serious omission of a significant sector of the Grand Canyon. This area, once within Kaibab National Forest, includes a significant portion of the North Rim and a portion of Jumpup Canyon, a principal side-canyon. This addition will promote more complete interpretation and protection of the resource.

The Colorado Riverbed addition includes the Colorado Riverbed to the south-shore high-water level between the western boundary of South Rim Unit of Grand Canyon National Park and the eastern boundary of Lake Mead National Recreation Area. This addition will facilitate management of river-running in this portion of the canyon.

The Lower Grand Canyon addition includes lands formerly within the authorized boundaries of Lake Mead National Recreation Area containing outstanding scenic and geologic features, including the Lower Granite Gorge. This addition establishes the western boundary of the park at Grand Wash Cliffs near River Mile 277. The northern boundary follows the inner canyon rim and includes portions of Andrus Canyon; from the west side of Andrus Canyon the boundary follows the upper rim of the canyon to Snap Point; and then it follows the center line of Pierce Canyon to a northerly projection of River Mile 277. South of the river, a western boundary, approximately 4 miles west of the Hualapai Indian Reservation boundary includes a portion of the southern extension of the Grand Wash Cliffs. National park status for these lands lying north of the Colorado River helps ensure preservation of the canyon's and river's character, as well as facilitating control of river-running boat parties under one jurisdiction from Lees Ferry to Lake Mead. The National Park Service will cooperate with the Hualapai Tribe on the south side of the river to preclude undesirable development.

The Enlargement Act removed 83,809 acres of land from the park in the Manakacha-Topocoba and Tenderfoot Plateau areas and placed it under Bureau of Indian Affairs Trust as part of the Havasupai Reservation.

The National Park Service recognizes traditional religious use within the park and will honor their continuation. Protection will be given to all shrines and sacred areas on existing park lands and on lands which may be added to the

park in the future. Public Law 93-620 specifically permits traditional uses by the Havasupai Tribe to continue on approximately 95,300 acres of park land providing they do not affect park values.

As a result of Public Law 93-620 the Secretary of the Interior has been directed to have evaluative studies made of 68,000 acres in upper Kanab Creek, 97,000 acres covering significant portions of Parashont and Andrus Canyons and Whitmore Wash, and 57,000 acres on the bordering Shivwits Plateau to determine if they should be added to the enlarged park. Similar studies are to be made of 23,700 acres at Tuckup Point, 5,380 acres at Slide Mountain, and 9,000 acres at Jensen Tank to determine if these lands warrant retention in the park.

THE CANYON, THE RIMS, AND THE RIVER

The canyon, the rims, and the river will be managed to preserve their significant resource values and to enable visitors to see and experience the Grand Canyon wilderness. Uses and developments are outlined within the framework of broad zones, as depicted on the resource and use map.

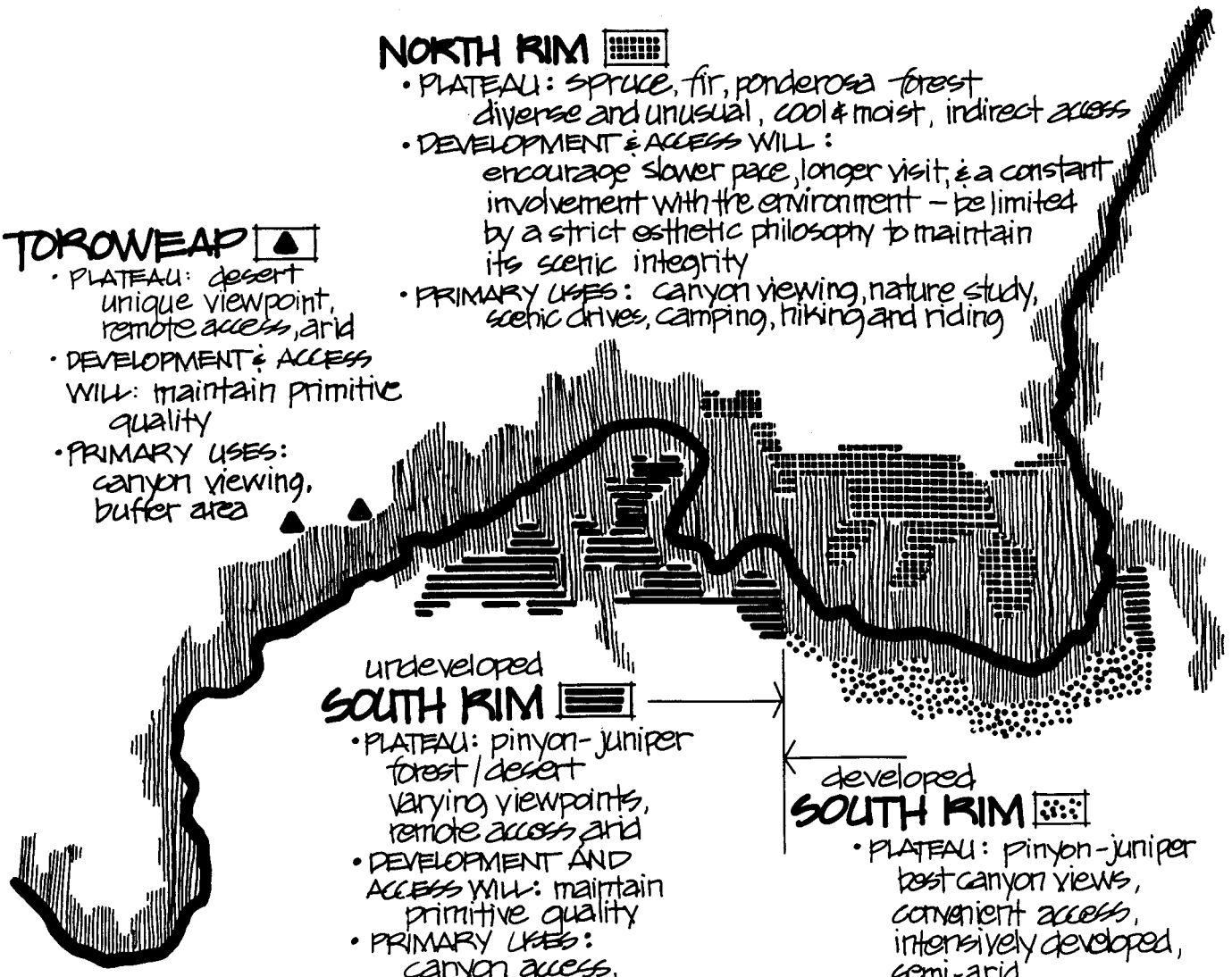
The Canyon

The canyon is the feature that attracts millions of visitors each year. To protect its integrity, the canyon will continue to be managed as primitive backcountry with visitor access confined to foot, muleback, and boat. Facility developments will adhere to strict ecological and esthetic standards.

A descent into the Grand Canyon is one of the greatest outdoor experiences in the National Park System. The Kaibab and Bright Angel Trails are maintained for hikers and mule-riders. A wilderness trail system (the present "abandoned" trails) is maintained to provide minimum standards of safety for hikers.

Subject to the will of Congress, roadless areas will be included in the National Wilderness Preservation System. A wilderness recommendation was submitted to Congress for the park prior to the Grand Canyon National Park Enlargement Act of 1975. Lands added to the park as a result of this act will be studied for wilderness designation and recommendations will be submitted to Congress by January 1977.

Cross-Canyon Corridor This corridor between Grand Canyon Village and Bright Angel Point provides a wilderness threshold experience for thousands of visitors yearly. It contains the Bright Angel and Kaibab Trails,



NORTH RIM

- PLATEAU: spruce, fir, ponderosa forest diverse and unusual, cool & moist, indirect access
- DEVELOPMENT & ACCESS WILL: encourage slower pace, longer visit, & a constant involvement with the environment – be limited by a strict esthetic philosophy to maintain its scenic integrity
- PRIMARY USES: canyon viewing, nature study, scenic drives, camping, hiking and riding

TOROWEAP

- PLATEAU: desert unique viewpoint, remote access, arid
- DEVELOPMENT & ACCESS WILL: maintain primitive quality
- PRIMARY USES: canyon viewing, buffer area

undeveloped

SOUTH RIM

- PLATEAU: pinyon-juniper forest / desert varying viewpoints, remote access, arid
- DEVELOPMENT AND ACCESS WILL: maintain primitive quality
- PRIMARY USES: canyon access, canyon viewing, buffer area

developed

SOUTH RIM

- PLATEAU: pinyon-juniper best canyon views, convenient access, intensively developed, semi-arid, uniform vegetation
- DEVELOPMENT AND ACCESS WILL: accommodate a high volume of visitation, be highly efficient, be limited by ecological and operational standards
- PRIMARY USES: canyon viewing, canyon access, visitor service

GRAND CANYON

- CANYON: desert unique, diverse, difficult access
- DEVELOPMENT & ACCESS WILL: be limited by strict ecological and esthetic standards to maintain a wilderness quality
- PRIMARY USES: hiking and riding, scientific study, boating

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the resource and its use

GRAND CANYON NATIONAL PARK / ARIZONA
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national park service

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campgrounds, Phantom Ranch, ranger stations, and the transcanyon waterline.

Phantom Ranch accommodates visitors who seek an overnight trip in the canyon that is slightly less demanding than a wilderness trip. This facility will be retained.

Overnight use at campgrounds in the corridor will continue within established recreational-use capacities. The number of mules is limited; that of day-hikers is not.

The Rims

The most memorable experience for a visitor to the Grand Canyon is the impact of the first view from the rims. Most people know something about the canyon before they arrive, but few are prepared to cope with its immensity and scale. Every effort will be made to support and sustain this experience

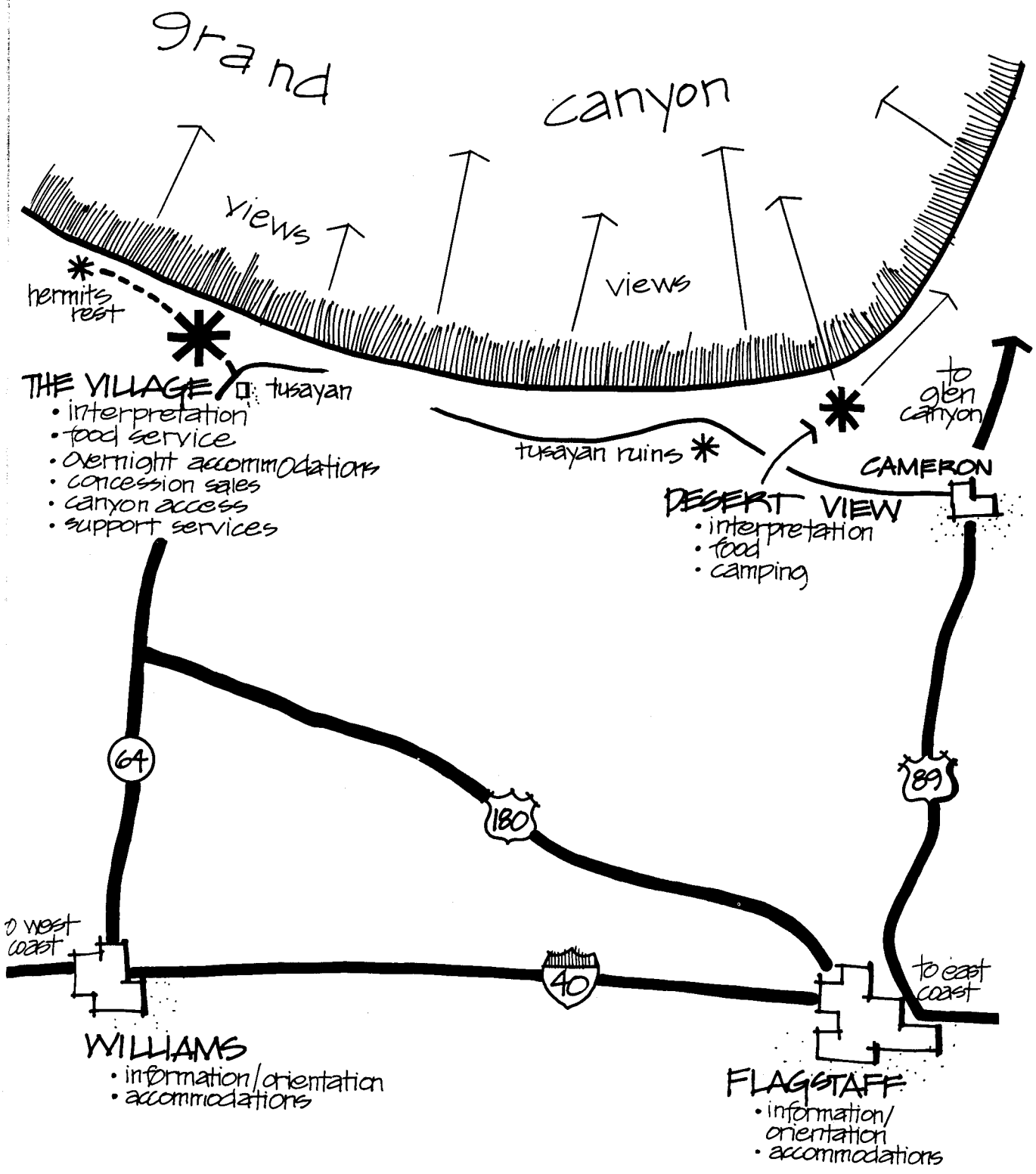
> Beauty, of and for itself, needs no interpretation. Later questions will come. "What great natural forces lie behind all this?" Then the interpreter's moment has arrived . . . and surely to stand at the rim of Grand Canyon is to experience a spiritual elevation that could come from no human experience of the colossal chasm . . . .
>
> (From "Interpreting Our Heritage," by Freeman Tilden)

The resource stimulates and motivates a desire for understanding without external help. The moment for interpretation arrives only after the visitor has had an opportunity to experience his first look into the canyon.

The total experience of most visitors takes place on the rims, which receive the major impact of human use of the park.

The South Rim, Developed The South Rim is the canyon-viewing platform for 90 percent of the park's visitors. Here are excellent points from which to see and attempt to comprehend the vastness of the canyon.

Most visitors enter Grand Canyon National Park at the South Entrance on Arizona Highway 64. Although Grand Canyon Village is the almost-unavoidable focus of travel to the South Rim, it does not totally satisfy the needs of all visitors trying to view the canyon. Therefore, the South Rim from Hermits Rest to Desert View will be considered a broad viewing-platform. This concept is reflected in existing circulation patterns.



south rim

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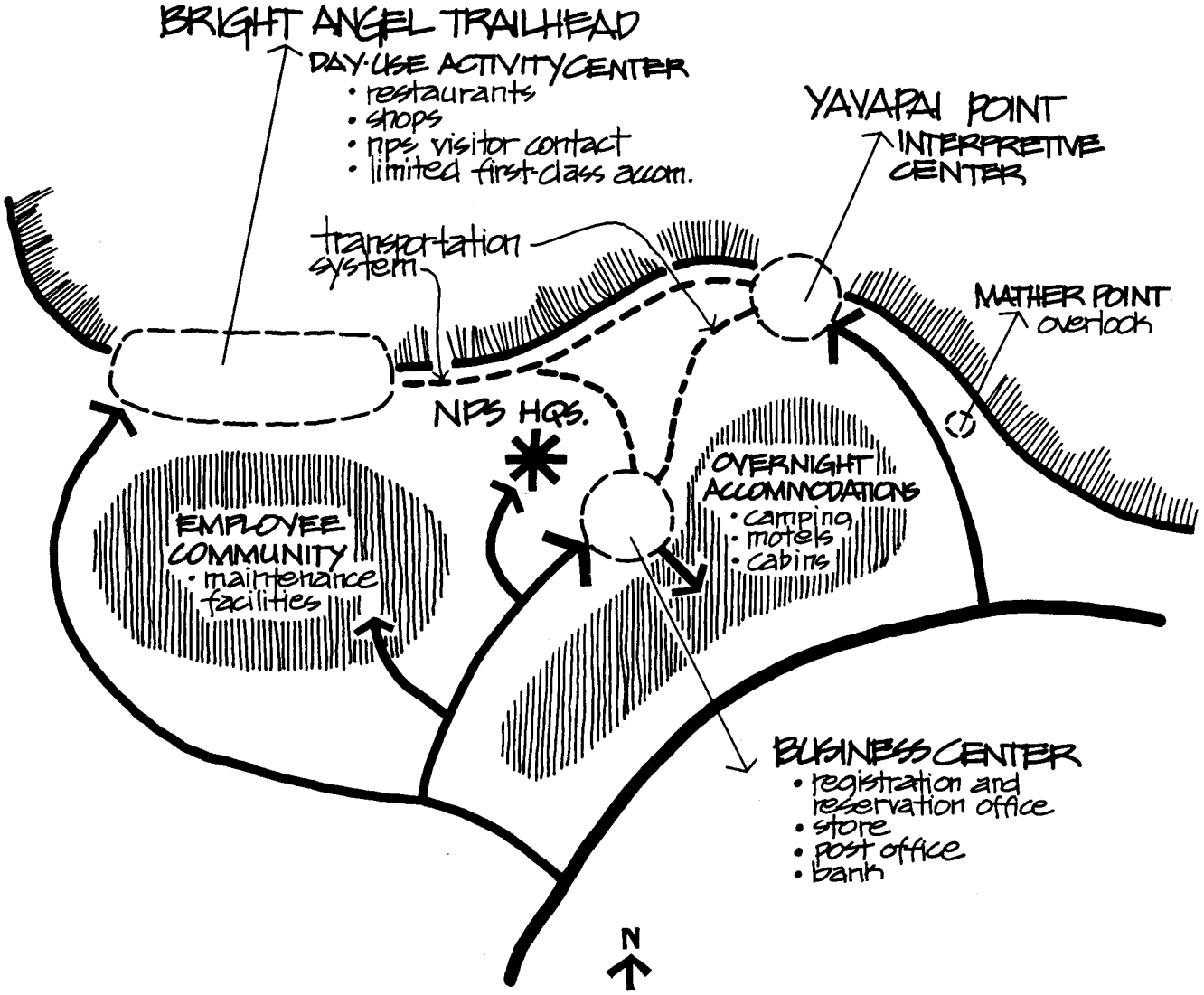
Grand Canyon Village The destination point of nearly every visitor to the South Rim has long been Grand Canyon Village. Early visitors, arriving by train, were accommodated in first-rate hostelries, some of which still operate. Through the years, the Village was a nucleus from which most of man's efforts to "improve" the canyon have emanated – roads, trails, motels, cabins, campgrounds, restaurants, stores, and a resident community. It evolved into a "town," with 1,200 permanent residents, peaking to over 7,000 during the travel season. Imposition of the automobile age upon facilities structured to accommodate trainborne visitors has resulted in confusion and congestion and has destroyed the historic flavor of the Village.

The Village will continue to serve as a bedroom, dining table, and marketplace for the visitor. It will also be a major overlook and interpretive focus, as well as the base of park operations. To serve these purposes most effectively, however, all of its facilities must relate smoothly to each other. Essential to this is the need to recognize that each visitor who enters the Village has individual interests and needs. His options must be easily identified. Visitors seeking an explanation for the Grand Canyon's existence should not become entangled with others who are in search of a meal; nor should those simply wishing to briefly view the canyon be thrust into an interpretive facility. Ideally, related facilities should be organized into clearly defined, tightly knit zones accessible by routes serving those facilities alone, and connected by common feeders. The Grand Canyon Village diagram illustrates one possible approach.

A multimedia interpretive center to tell the story of Grand Canyon will be constructed at Yavapai Point. This center will have sufficient capacity to accommodate numbers of visitors too great for the existing Yavapai museum.

For the foreseeable future, all Village facility developments will be within the general area bounded by Rowe Well Road, the rim, South Entrance Road, and the south park boundary-line. line. However, the total acreage will not vary significantly from that presently utilized.

The disposal of solid waste in sanitary landfills at previously disturbed sites will continue until all such sites have been utilized, covered with topsoil, returned to a natural contour, and revegetated. Alternate means of solid waste disposal will be sought to avoid ultimately having to consume undisturbed park land for this purpose. Reclaimed water from liquid waste disposal will play an increasing role in supplementing and conserving the limited supply of fresh water resources within the park.



grand canyon village an approach to its restructuring

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The West Rim Drive The drive, originating at the Village, is a short, low-speed spur that follows the edge of the rim and terminates at Hermits Rest, which offers modest concession facilities. The West Rim Drive's continuous relationship to the canyon and isolation from through-traffic offer an intimate viewing experience for the visitor. A free public transportation system is provided on this road and all private vehicles, except for bicycles, are excluded during the heavy visitor-use season. This improves viewing experiences and facilitates interpretation.

Desert View The campground, store, and curio shop of this small complex at the east end of the East Rim Drive, mirror the Village facilities at the other end of the drive. Desert View plays an important role in the functioning of the South Rim viewing-platform. As a two-way system serving both east-bound and west-bound visitors, East Rim Drive logically requires a visitor contact point at both ends to provide services. The campground and support facilities will be expanded.

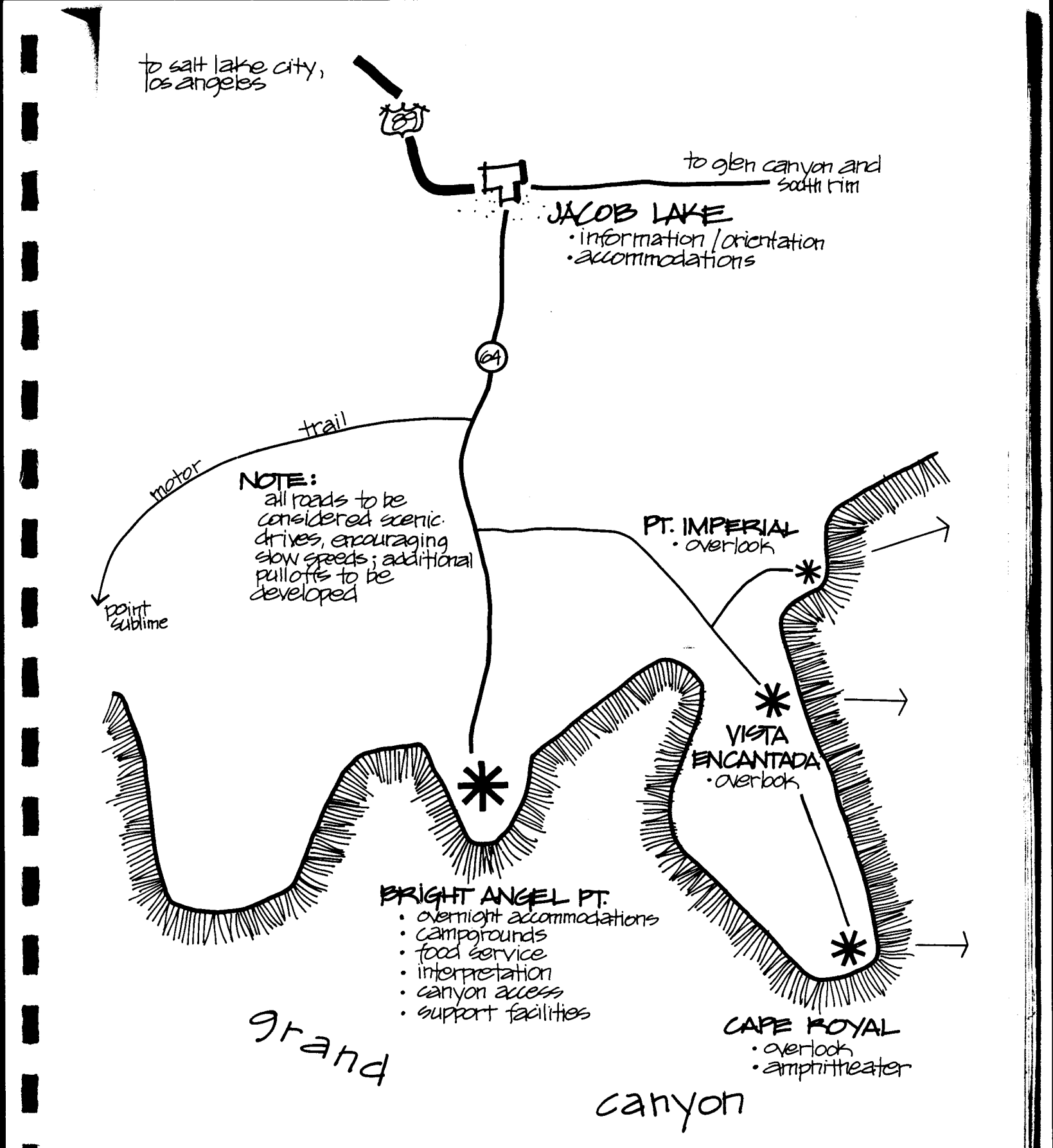
Tusayan Ruins Tusayan Ruins and museum, 3 miles west of Desert View, are the site of one of man's prehistoric settlements on the canyon rim. It gives human dimension to the Grand Canyon panorama, and provides an enriching variation to the canyon-viewing experiences. Only minor facility improvements are needed.

The South Rim, Undeveloped The primitive South Rim backcountry west of Hermits Rest extends some 45 miles to National Canyon. The pinyon/juniper forest and desert plateau lands above the canyon rim will be managed as a primitive environment. The existing road routes will be retained to Pasture Wash. This will provide for jeep-touring trips to canyon viewpoints and trailheads.

Overnight camps will be designated at selected sites. These camps will have minimal facilities, such as at the present Bass Camp, which has tables and a pit toilet.

The North Rim Here, vegetation in a variety of forms and distributions creates an environment of outstanding scenic appeal. Its rich mosaic of life-forms invites the visitor to slow down and absorb its beauty.

A relaxed pace is essential to a continuing awareness of these natural surroundings. Facility developments will not only be subservient to the natural surroundings – they will constantly involve the visitor with his environment. To help maintain this goal, recreational-use capacities will be placed on visitation.



north rim

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Bright Angel Point Except for an entrance station, roads, and overlooks, development on the North Rim is confined to Bright Angel Point – a narrow peninsula 1½ miles long and ¼ mile wide. The wood-and-stone lodge crowning the point and the rustic cabins set among the pines offer a "traditional" national park lodging and dining experience.

Less than a mile to the north, a cafeteria, cabins, and a campground complete the available accommodations. Bright Angel campground will be expanded by not more than 100 sites.

Development will only be to improve the efficiency of existing facilities. Any expansion of the number of lodging units will be done through a more efficient utilization of land already affected by developments, with no significant loss of natural or traditional values.

Orientation Services The proposed public information center at the North Entrance, Jacob Lake, plus improved signing, will assist the visitor in reaching his primary goal – either viewing the canyon or finding accommodations and visitor services. Orientation facilities will be provided near points where the canyon is first visible.

The North Rim Primitive Areas All lands outside the 200-foot right-of-way along the paved roads will be managed as primitive backcountry. The network of fire roads on the North Rim will be phased out, following restoration of the natural ecological process in the forest. The Point Sublime Road will be retained as a motor trail. Other existing roads will be studied for use as motor trails.

Tuweep The western Grand Canyon from Kanab Creek to the Grand Wash Cliffs is remote and has three primary access points into the park. Tapeats Creek will continue as an entry point for hikers into the primitive backcountry of the park. Whitmore Wash will continue as a minor access point for the exit of some boating parties. Development in Toroweap Valley will be limited to maintaining the remote quality of the drive through Toroweap Valley and the isolated nature of the viewing experience at Toroweap.

The majority of primitive roads in the Tuweep District developed apace with long-existing grazing privileges which will continue for several more years. As these privileges expire, livestock grazing will be eliminated and the primitive roads returned to a natural state. A few key roads will be retained as motor trails to allow for access and interpretation of some of the more remote areas of this prior national monument.

THE RIVER

The goals for management of the Colorado River in Grand Canyon will be to perpetuate the wilderness river-running experience, and to attempt to mitigate the influences of man's manipulation of the river.

The accelerating interest in river-running and the controlled flow through Glen Canyon Dam have impacted the natural and human environments on the river. The extent of this impact is not fully recorded or understood. Enough is known, however, to begin more intensive management of recreational use and the natural ecosystems.

Based on the best available data, the National Park Service will continue to manage public use of the river under the guidelines of a river-management plan. This operations plan will specify recreational-use capacities, boat-launching schedules, party size, safety, boatman training, sanitation, camping, food handling, rate of travel, and other subjects as necessary. The plan will be assessed yearly and be available for public review.

An ecological research program, including sociological studies, is being conducted to furnish more data on which to base management decisions.

ECOSYSTEM MANAGEMENT

The preservation of the Grand Canyon natural environment is the fundamental requirement for its continued use and enjoyment as an unimpaired natural area. Park management therefore looks first to the preservation and management of the natural resources of the park. The management concept is the preservation of total environments, as contrasted with the protection of only a single feature or species.

However, all areas within the park will not be managed as natural ecosystems; some must be managed for intensive visitor use. Management will decide how unnatural a particular tract will be allowed to become, in the interest of providing for the visitor services outlined in the preceding portions of the plan. Based on research, predictions can be made as to what a given area will become, with varying degrees of departure from the natural condition. Each case is decided upon its individual merits. The following discussion covers only the broad aspects of ecosystem management in Grand Canyon.

Forests

The forests of Grand Canyon National Park are fragile, easily damaged, and difficult to repair. Development within them will be limited to that which is necessary for visitor use, protection, understanding, and enjoyment. It will be confined to those present sites of alteration that are unlikely to heal in the foreseeable future without intensive restorative measures. The pinyon/juniper forest offers better sites for construction and development than does the ponderosa forest. The pinyon/juniper forest is also easier to restore to a natural condition.

High priority will be given to the restoration of the forests to the conditions that probably would have evolved had man not interfered with their normal processes by controlling predators and excluding fire, and by use of traditional forestry practices. Such management programs will be stopped and replaced by programs of ecological maintenance.

The effects of more than half a century of fire exclusion will be reversed by carefully planned research and resource-management programs. Research will take into account the preservation of rare, endangered, and/or endemic species. Eventually, fire will be suppressed only in areas designated for intensive visitor use, to prevent the spread of wildfire to adjacent non-park lands, or wherever traditional scenic values are to be preserved. Such areas will be considered as special management units rather than natural ecosystems.

Existing management roads, dumps, borrow-pits and other disturbed areas not necessary for future use will be returned to a natural state.

Brushlands

Brushlands are dry, especially near canyon rims. The lack of water causes slow and sparse growth. Development will be carefully planned in brushlands, because trails, roads, and buildings leave long-enduring scars.

Control of the long-established feral burro population in the brushlands will be continued. Because traditional methods of control are uncertain and costly, research looking toward biological and chemical control will be undertaken to supplement hunting and trapping.

Brushlands animal species are the principal food source for the now-rare peregrine falcon and golden eagle. Stringent controls will be exercised in the use of pesticides, because birds of prey are particularly subject to "biological pesticide magnification."

As soon as fire behavior in Grand Canyon brushlands has been determined and suitable management practices initiated, wildfire will be allowed to run its course. Fires will be suppressed when they threaten human life, property, and lands exterior to Grand Canyon National Park.

Aquatic and Streamside Resources

Water is a focal point for biota in the Grand Canyon environment. The biota near permanent water sources is much richer in species than elsewhere, and there is a high degree of endemism in the aquatic organisms. Impairment in water quality or availability will have far-reaching effects on the entire spectrum of Grand Canyon ecosystems.

Every effort will be made to keep the water resources in the park free of pollution, contamination, and impoundment. Naturally occurring water resources will be maintained in a wild and unaltered condition. Special management consideration will be given to all rare and endangered forms of aquatic life. These include the Colorado River squawfish and the humpback chub.

Grasslands

Grasslands within the park are irregular and sparse, and are locally important. Some grassland areas have been damaged. Special management care will be exercised for esthetic as well as ecological reasons.

Wet grasslands — that is, meadows — on the North Rim are fragile, and their soils are easily eroded and trampled. Significant development in wet, grassy areas accelerates the draining and drying of the soil. Many of the meadows on the North Rim have fire-control roads. The goal is to obliterate these roads and restore the meadows.

RESEARCH

Natural-resources research is a prerequisite to all phases of planning and resource management. Four kinds of knowledge are needed: the current condition of the park's natural resources; the primeval condition of these resources; the most feasible methods of restoring the resources and associated environmental influences to the natural ecological state required for their continuing natural evolution; and the future ecological fate of the park. Early trends in resource-deterioration must be identified to prevent serious ecological alteration.

The major thrust of National Park Service research at Grand Canyon will be management-oriented; the greater portion of research funds allotted to the

park will be directed to such studies. The scientific community, which is primarily interested in basic research, will be assisted in its research efforts and allotted a portion of Service funds on management-oriented research projects.

Research already underway in the park covers a variety of investigations into the ecology and life-histories of mammals, fishes, and plant communities. These studies include river ecology, visitor-use impact on the park biota, meadow ecology, limnological study of the Colorado River, feral-burro control, and various pollution studies.

To aid management-oriented and basic research, research facilities at park headquarters have been expanded. A cooperative approach to research will be undertaken through an arrangement with various universities, the Museum of Northern Arizona, the Arizona Academy of Science, and other institutions. The Grand Canyon Natural History Association assists in research activities.

SPECIAL ENVIRONMENTAL AREAS

Research natural areas and environmental study areas (ESA's) have been designated for the primary purposes of research and education, in areas where natural processes are allowed to predominate.

Research Natural Areas

These areas include typical or unusual biotic phenomena and characteristics, or outstanding geologic, pedologic, or aquatic features and processes. They exhibit examples of significant natural ecosystems, for comparison with those influenced by man. They provide research areas where scientists can study the ecology of the natural environment, and they serve as gene pools and preserves for rare and endangered plant and animal species. They are surrounded by park lands. Research conducted within them is non-destructive and reasonably consistent with the purpose and character of the surrounding park lands.

Six areas totaling 8,845 acres have been designated by the Federal Committee on Research Natural Areas to preserve fine, representative examples of aspen, ponderosa, and pinyon juniper forest types. These have been designated at Neal Springs, Mount Emma, Powell Plateau, Swamp Point, Great Thumb, and Wayside. Several of these are utilized in continuing research projects. As a result of Public Law 93-620, the Great Thumb Research Natural Area now lies within the Havasupai Reservation.

Potential for additional natural areas exists in the inner canyon, the river environment, and the brushlands – all important to the preservation of rare and endangered animals. Their designation will be sought.

Environmental Study Areas

As part of the National Park Service's environmental-awareness program, two environmental study areas have been designated on the South Rim. The Hermit Basin ESA along the Hermit Trail is centered around a geological theme, to show man's relationship to biological evolution, time, and space. The Grandview ESA on the rim in the Grandview area illustrates the theme of man's relationship to the biological world. The areas require special management and are not to be altered by development or management.

The resources of these study areas have been carefully cataloged. They are available to school groups and give teachers the necessary physical tools to help their pupils relate to man's place in his modern environment.

Additional environmental-study-area potential exists on the North Rim and Colorado River.

HISTORICAL AND ARCHEOLOGICAL PRESERVATION

The historic resources of Grand Canyon primarily relate to the establishment and development of the national park. In compliance with Executive Order 11593, an archeological and historic survey has been made to locate, inventory, and nominate sites and structures to the National Register of Historic Places. Eight nominations received National Register status, six others are eligible for such protection, and a portion of Grand Canyon Village has received historic district status. Other sites will be nominated as they are discovered to have potential historic or archeological significance. The preservation and use of all historic sites and structures will be governed by the National Historic Preservation Act of 1966.

There are a number of prehistoric Indian ruins within the park. Many of them are not easily accessible to the public, and do not require any special treatment other than normal protection. Significant ruins near points of heavy public use will be excavated, stabilized, and interpreted. Excavations should be carried out as funds are available. Such projects are not of high priority unless the sites are threatened by destruction. The interpretation of these ruins will focus upon the Indian within the context of his relationships to the natural environment and other cultural groups.

ENVIRONMENTAL CONTROLS

Aircraft Control

The National Park Service has negotiated with the United States Air Force, Federal Aviation Administration, and aircraft operators to zone flights away from the main viewing-areas and portions of the inner canyon where noise pollution presents the greatest problem.

If this zoning approach proves inadequate, the National Park Service will seek legislation to limit aircraft activity below the rims.

REGIONAL COOPERATION

Regional cooperation among Federal and State land-management agencies, Indian groups, and northern Arizona communities is essential.

Regional Information Centers

Information centers are proposed for key points in the region such as Flagstaff, Williams, Cameron, Page, and Jacob Lake, to assist tourists in park and regional trip planning. The centers will be set up and operated jointly with other Federal agencies, Indian tribal councils, and community chambers of commerce. The centers will serve as regional reservation desks for campgrounds and lodging, for booking recreational activities, and for dispensing a uniform level of interpretation and information regarding the park, recreation areas, and Indian activities.

Assistance to Indian Tribes

The National Park Service will offer planning and technical assistance to the Havasupai, Hopi, Hualapai, Navajo, and Paiute Tribes on the recreational use of Indian lands, and in joint planning efforts involving national park and Indian canyon-rim lands and river input and takeout points.

Coordination actions have been initiated with the Bureau of Indian Affairs by the National Park Service to develop a Havasupai Land Use Plan for acreage added to the reservation for the park by Public Law 93-620. The Bureau of Indian Affairs has been designated as the lead agency for this planning effort.

Regional Planning

The National Park Service will participate in and encourage cooperative planning efforts with all groups and agencies concerned with outdoor recreation activities within the Grand Canyon region.

LEGEND

- MAJOR
- MINOR
- TRAILS
- RIVER USE
- AIRPORT
- LANDING STRIP
- * BOAT INPUT/TAKEOUT

R 15 W R 14 W R 13 W R 12 W R 11 W R 10 W R 9 W R 8 W R 7 E R 6 E R 5 E R 4 E R 3 E R 2 E R 1 E R 1 W R 2 W R 3 W R 4 W

T 39 N T 35 N T 34 N T 33 N T 32 N T 31 N T 30 N T 29 N T 28 N T 27 N

MOHAVE COUNTY COCONINO COUNTY

LEE'S FERRY (PASSENGERS ONLY)

GLEN CANYON N.R.A.

NAVAJO BRIDGE

VERMILION CLIFFS

MARBLE CANYON

89 89 89 ALT 67 64 180

Kanab Creek

KAIBAB KAIBAB NATIONAL FOREST

KAIBAB PLATEAU

KANAB POINT

Tapeats Cr.

FIRE POINT TRAILHEAD

SWAMP RIDGE TRAILHEAD

KANABOWNITS STATION

POINT IMPERIAL

NAVAJO INDIAN RESERVATION

NORTH RIM

BRIGHT ANGEL POINT

CAPE SOLITUDE

WHITMORE CANYON

UINKARET MOUNTAINS

TOROWEAP VALLEY

TUWEEP RANGER STATION

TUCUP POINT

S.8 POINT

ESPLANADE

HAVASU (PASSENGERS ONLY)

GREAT THUMB MESA

POWELL PLATEAU

TOROWEAP CAMPGROUND

VULCANS THRONE

TOROWEAP (PASSENGERS ONLY)

LAKE MEAD N.R.A.

AIRSTRIP

WHITMORE CANYON (PASSENGERS ONLY)

HAVASUPAI INDIAN RESERVATION

BASS CAMP

POINT SUBLIME

HAVASUPAI POINT

TONTO PLATEAU

COLORADO RIVER

PHANTOM RANCH

PHANTOM RANCH (PASSENGERS ONLY)

CAPE ROYAL

DESERT VIEW POINT

HERMITS REST

TRANSPORTATION SYSTEM ROUTE

GRAND CANYON VILLAGE

GRAND CANYON VILLAGE

TUSAYAN

Little Colorado River

Coconino Creek

GILA & SALT RIVER MERIDIAN

GRAND WASH CLIFFS

DRY CANYON

MOCCIES NIPPLE

SHINUMO PLATEAU

SANUP PLATEAU

SEPARATION CANYON

COLORADO RIVER

Diamond Creek

DIAMOND CREEK (PASSENGERS ONLY)

MOHAVE COUNTY

COCONINO COUNTY

HUALAPAI INDIAN RESERVATION

N

5 0 5 10 MILES

5 0 5 10 15 KILOMETERS

5 MILES = 8.045 KILOMETERS

GILA & SALT RIVER MERIDIAN

CIRCULATION SYSTEM
GRAND CANYON NATIONAL PARK

Mohave And Coconino Counties
ARIZONA

113 | 40,046
JUN 76 | DSC

LEGEND

- NATIONAL PARK BOUNDARY
- WILDERNESS
- HAVASUPAI USE LANDS (POTENTIAL WILDERNESS ADDITION)
- NON - FEDERAL LAND (POTENTIAL WILDERNESS ADDITION)
- MINERAL LEASES OR OUTSTANDING MINERAL RIGHTS (POTENTIAL WILDERNESS ADDITION)
- NON - WILDERNESS
- LAKE MEAD N.R.A.
- MAJOR ROAD - 600' CORRIDOR
- MINOR ROAD - 300' CORRIDOR
- TANK
- TANK (DRY)
- ROADLESS LINE

ACREAGE

TOTAL PARK 1,211,104

NON - FEDERAL (WITHIN ROADLESS STUDY AREA) 3,158

FEDERAL 1,207,946

UNIT ROADLESS		UNIT WILDERNESS	POTENTIAL WILD. ADD.
A	1,131,508	1 13,575	
		2 706,631	7,917
		3 150,725	704
		4 61,235	
		5 59,880	
HAVASUPAI USE LANDS			95,335
RIVER CORRIDOR			17,009
TOTAL	1,131,508	992,046	120,965

WILDERNESS PLAN
Preliminary - Subject to Change
GRAND CANYON NATIONAL PARK
Mohave And Coconino Counties
ARIZONA

N

5 0 5 10 MILES

5 0 5 10 15 KILOMETERS

5 MILES = 8045 KILOMETERS

GILA & SALT RIVER MERIDIAN

113 | 40,045
JUN 76 | DSC

LEGEND

- NATIONAL PARK BOUNDARY
- EXISTING MANAGEMENT AREA (N.R.A.)
- MAJOR ROAD
- DEVELOPMENT
- SPECIAL USE
- NATURAL
- HISTORIC

R 15 W R 14 W R 13 W R 12 W R 11 W R 10 W R 4 W R 3 W R 2 W R 1 W R 1 E R 2 E R 3 E R 4 E R 5 E R 6 E R 7 E

T 39 N T 35 N T 34 N T 33 N T 32 N T 31 N T 30 N T 29 N T 28 N T 27 N

MOHAVE COUNTY
COCONINO COUNTY
Kanab Creek
VERMILION CLIFFS
GLEN CANYON N.R.A.
NAVAJO BRIDGE
89 ALT
89
KAIBAB PLATEAU
KAIBAB NATIONAL FOREST
67
TOROWEAP VALLEY
WHITMORE CANYON
KANAB POINT
GREAT THUMB MESA
LAKE MEAD N.R.A.
GRAND WASH CLIFFS
N. R. A.
HAVASUPAI INDIAN RESERVATION
Cataract Creek
POINT IMPERIAL
NAVAJO INDIAN RESERVATION
CAPE SOLITUDE
BRIGHT ANGEL POINT
COLORADO RIVER
PHANTOM RANCH
HERMITS REST
CAPE ROYAL
GRAND CANYON VILLAGE
DESERT VIEW POINT
180
64
Little Colorado River
GILA & SALT RIVER MERIDIAN
SANUP PLATEAU
SEPARATION CANYON
COLORADO RIVER
COCONINO COUNTY
Diamond Creek
MOHAVE COUNTY
HUALAPAI INDIAN RESERVATION

N

5 0 5 10 MILES
5 0 5 10 15 KILOMETERS
5 MILES = 8.045 KILOMETERS
GILA & SALT RIVER MERIDIAN

LAND CLASSIFICATION
GRAND CANYON NATIONAL PARK
Mohave And Coconino Counties
ARIZONA

113 | 40,043
JUN 76 | DSC

LEGEND

- NATIONAL PARK BOUNDARY
- EXISTING MANAGEMENT AREA (N.R.A.)
- MAJOR ROAD
- DEVELOPMENT
- SPECIAL USE
- NATURAL
- HISTORIC

R 15 W R 14 W R 13 W R 12 W R 11 W R 10 W R 4 W R 3 W R 2 W R 1 W R 1 E R 2 E R 3 E R 4 E R 5 E R 6 E R 7 E

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KAIBAB NATIONAL FOREST
PLATEAU
WHITMORE CANYON
TOROWEAP
YAKLEE
KANAB POINT
GREAT THUMB MESA
LAKE MEAD N.R.A.
VERMILION CLIFFS N.R.A.
GRAND WASH CLIFFS
HAVASUPAI INDIAN RESERVATION
Cataract Creek
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COCONINO COUNTY
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HUALAPAI

N

5 0 5 10 MILES
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5 MILES = 8.045 KILOMETERS
GILA & SALT RIVER MERIDIAN

LAND CLASSIFICATION
GRAND CANYON NATIONAL PARK
Mohave And Coconino Counties
ARIZONA

113 | 40,043
JUN 76 | DSC

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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.

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