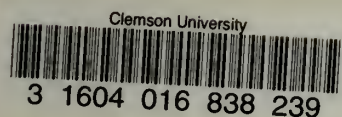


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Final
General Management Plan
and
Development Concept Plan

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NATIONAL MONUMENT / COLORADO

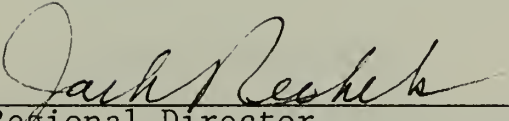


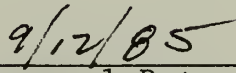
GENERAL MANAGEMENT PLAN
AND
DEVELOPMENT CONCEPT PLAN

Florissant Fossil Beds National Monument
Teller County, Colorado

National Park Service
United States Department of the Interior

Prepared by
Rocky Mountain Regional Office
and
Florissant Fossil Beds National Monument

Acting 
Regional Director
Rocky Mountain Regional Office


Approval Date

SUMMARY

SIGNIFICANCE AND ESTABLISHMENT

Lying within the Rocky Mountains of central Colorado, Florissant Fossil Beds National Monument contains paleontological, geological, and educational resources of national significance (see Rocky Mountain Region map). Better known for the incredibly detailed fossils of insects and vegetation, which exist in such profusion, Florissant Fossil Beds is considered to be one of the best fossil resource areas in the world. Equally significant is the geologic processes that took place during the late Eocene and early Oligocene period, that gave birth to the fossil resources of Florissant Fossil Beds National Monument. These paleontological and geological resources offer excellent educational opportunities for tourist, school groups, and scholars from around the world.

Based on National Park Service studies that began in 1959 and concluded in 1967 with the publication of a legislative support document titled Master Plan, Florissant Fossil Beds National Monument, Congress enacted legislation to establish the monument on August 20, 1969 (Public Law 91-60, 91st Congress, S. 912). (See Appendix A.)

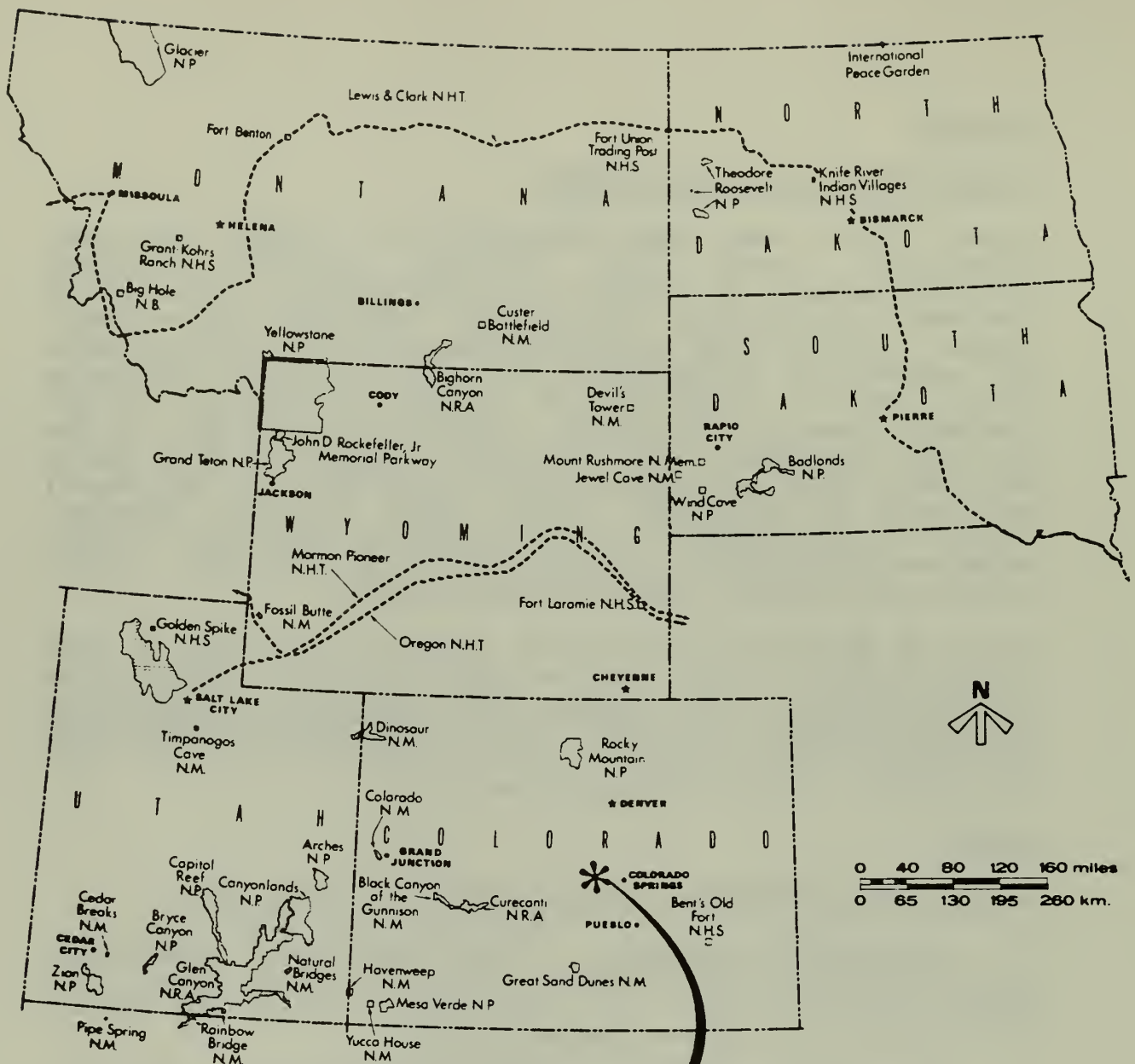
ISSUES

LEGAL, ADMINISTRATIVE, AND ENVIRONMENTAL CONSTRAINTS

- Legislative Ceilings - The authorizing legislation which established the monument imposed a development cost ceiling which may need to be increased to cover the cost of the proposed development concept plan.
- Determinations of Use - The National Park Service will have to make a determination as to the need and future use of those structures associated with the Nelson property which are under a Reservation of Use and Occupancy until 1995.
- Legislative Compliance - Insure that all planning is in compliance with the National Park Service and departmental policy and all legally established acts and executive orders.

RESOURCE MANAGEMENT

- Deterioration of Paleontological Resources - A number of petrified tree stumps which were unearthed for interpretative purposes are showing signs of rapid deterioration.



FLORISSANT FOSSIL BEDS NATIONAL MONUMENT

Legend

- Locations of Major Cities
- ★ Locations of State Capitals
- State Boundary Lines
- National Park Service Areas
- National Park Service Historical Trails

ROCKY MOUNTAIN REGION

National Park Service

United States Department
of the Interior

- Vegetation and Soil - There are a number of areas where extensive erosion of soils is taking place and there is a concern for what impacts the natural succession of plants may have on the visual and certain interpretive values of the monument.

- Wildlife - There is a concern for the monuments' carrying capacity to accommodate elk and deer herds, and there is a concern for a potential bubonic plague outbreak related to the Richardson's ground squirrels.

- Surface and Subsurface Water Quality - Increasing development adjacent to the park could seriously impact surface and subsurface water quality and air quality within the monument.

VISITOR USE

- Visitor Contact Facility - The old farm house which is being used as an interim visitor contact facility continues to restrict the monument staff in satisfactorily accomplishing many of its visitor use and interpretive related management objectives. Also, the structure presents many structural problems that could affect the safety, health, and well being of the visitor.

- Picnic Facilities - There are many times when visitors picnic on their vehicles in the parking lot because the existing picnic facilities are occupied. This creates a safety problem due to the congestion between vehicles and pedestrians.

- Parking Facilities - The existing parking lot is not adequate for accommodating bus traffic.

PARK OPERATIONS

- Administrative Facility - The space available for administrative use is extremely insufficient, and there are many serious conflicts with the visitor-use activities which take place in the same structure.

- Maintenance Facilities - The two barns which are being used as interim maintenance structures are inadequate, inconvenient, and present a number of visual impacts and safety problems.

- Employee Housing - There appears to be a serious lack of available and affordable housing for employees within a reasonable commuting distance of the monument.

- Protection and Law Enforcement

The visitor contact/administrative facilities and the maintenance properties are unprotected against vandalism, fire, and theft during those hours when the monument is closed for visitation, and the staff is off duty.

GENERAL DEVELOPMENT

General development concepts need to be explored to assure that the interrelationship of various developments and activities are complementary, that such developments are compatible with environmental values, and that they reflect a concern for the management objectives of the monument.

THE PLAN

This plan presents the National Park Services' proposal for the Florissant Fossil Beds National Monument General Management Plan/Development Concept Plan. The decisions and rational as presented herein are based on the Environmental Assessment for the General Management Plan/Development Concepts and related public involvement sessions. A determination was made that the preferred alternative (The Proposal) would not significantly affect the quality of the human environment and a Finding of No Significant Impact was prepared and approved on April 3, 1984.

This plan clearly identifies the actions, impacts, and mitigating measures necessary to resolve the issues facing the monument. Also, the plan identifies the carrying capacity of proposed facilities based on various environmental factors as well as visitor use needs and trends.

The proposed development concept plan for the monument will resolve a majority of the issues identified above because many of the issues are development related. The proposed development concept plan provides for a new visitor/administrative facility, residential area, maintenance facility, expansion of the existing picnic area, support roads, and utilities. Also, the plan identifies, in the Summary of Planning Needs section, where additional studies, plans, and possible legislative action is needed in order to resolve certain issues.

ENVIRONMENTAL CONSEQUENCES

Overall, the proposal will have long-term beneficial effects on the visitor experience, the living and working condition of employees, and the visual and resource values of the monument. These beneficial effects will be achieved at the

expense of some adverse effects on soil and vegetation. A total of 4.6 additional acres of land will be moderately to severely impacted by the construction and use of new facilities. These acreages represent less than 0.001 percent of the total monument acreage. There will be no adverse effect on significant wildlife habitat, water resources (surface or subsurface), flood plains, wetlands, or air quality. Impacts on soils and vegetation will be minor. The rehabilitation of areas presently occupied by development will add approximately 1.3 acres to the existing wildlife habitat.

The Maytag Ranch Barn is the only structure with any historic significance that will be razed and the subject site restored to a natural condition. The barn was surveyed in 1977 and included on the List of Classified Structures. In July 1984, the National Park Service and State Historic Preservation Officer concurred that the structure was not eligible for listing on the National Register of Historic Places. No known archeological sites will be affected by the proposal.

Socioeconomic effects on adjacent communities will be minor. Visitation to the monument will be encouraged as facilities and services are improved to better accommodate visitor use. The total gross development cost for the proposed plan to the National Park Service will be \$3,047,000.

The proposal which was basically represented as Alternative B in the environmental assessment for the general management plan/development concept plan received major support from the public during the public presentations and document review period. None of the alternatives considered appeared to be controversial as indicated in the Finding of No Significant Impact.

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PURPOSE AND NEED



PURPOSE AND NEED

PURPOSE OF GENERAL MANAGEMENT PLAN

The primary purpose of the general management plan is to provide managers with parkwide direction for accomplishing the management objectives and resolving those issues presented below. This plan contains both short- and long-range strategies for resource management, visitor use, interpretation, and development of the monument. The plan was initiated to fulfill the legal requirement as mandated by Section 604 of Public Law 95-625 and is in compliance with National Park Service management policies, applicable legislation, and executive requirements.

MONUMENT PURPOSE

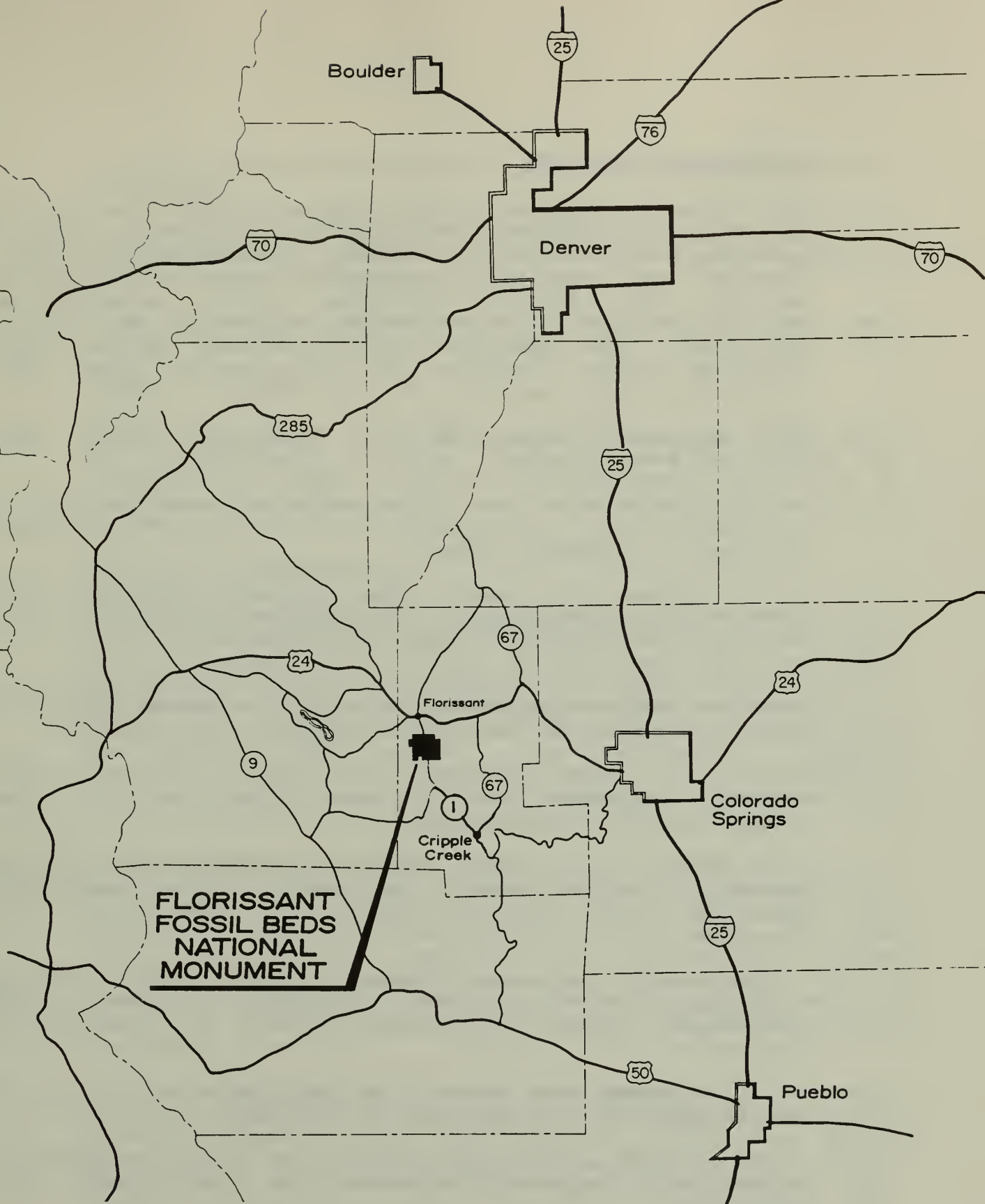
The purpose of the monument as stated in Public Law 91-60, 91st Congress, S. 912 is ". . .to preserve and interpret for the benefit and enjoyment of present and future generations the excellently preserved insect and leaf fossils and related geologic sites and objects at the Florissant lakebeds. . . ."

MONUMENT DESCRIPTION

Florissant Fossil Beds National Monument is 5,992 acres in size and located in Teller County, Colorado. The monument is approximately 40 miles west of Colorado Springs, Colorado, and south of State Highway 24 on Teller County Highway Number 1. The monument is also located approximately 14 miles north of Cripple Creek, Colorado (see Vicinity Map). The monument is on the eastern slope of the Rocky Mountains at an elevation ranging between 8,200 feet and 8,800 feet above sea level.

The ancient lakebeds of Florissant preserve an outstanding variety of terrestrial fossils. The insect fossils are of primary significance. They represent the evolution and modernization of insects better than any other known site in America. In addition, the fossil plants, emphasized dramatically by the petrified tree stumps and the variety of leaf fossils, add greatly to the primary values. Fossils of spiders, other invertebrates, fish, birds, and small mammals have been found at Florissant also.

There have been no significant boundary changes since the establishment of the monument in August 1969. All of the lands within the monument are owned by the Federal Government and administered by the National Park Service with the exception of the County Road Number 1 and Upper and Lower Twin Rocks Roads.



VICINITY MAP
FLORISSANT FOSSIL BEDS NATIONAL MONUMENT
TELLER COUNTY, COLORADO
UNITED STATES DEPARTMENT OF THE INTERIOR · NATIONAL PARK SERVICE

MANAGEMENT OBJECTIVES

The following management objectives were approved as part of the monuments statement for management. The purpose of the management objectives is to clearly and succinctly identify certain conditions which management hopes to ultimately achieve. The objectives are stated in such a manner so as not to preclude alternatives for achieving the desired conditions. The management objectives were the key which provided general direction to the planning effort that resulted in the preparation of this document.

The management objectives for Florissant Fossil Beds National Monument are:

- To provide the best interpretation possible of the paleontological and geological resources and adequate coverage of secondary themes.
- To protect and manage the monument facilities and resources with emphasis on preservation and interpretation of the paleontological and geological resources.
- To identify and evaluate cultural and natural values in the park and manage them in a manner consistent with both the requirements of the law and administrative policies.
- To encourage the scientific community to research those natural resources which were significant in the establishment of the monument.
- To identify and monitor vegetation communities within the monument, and to identify and describe those communities that have been severely disturbed by past agricultural practices.
- To retain the general characteristics of the existing landscape and to improve the quality of the visual environment along the pipelines, roads, and elsewhere as desirable.
- To encourage and promote the existence and return of native wildlife species within the monument.
- To provide an improved access and vehicle circulation system to facilitate administrative and visitor use activities.
- To insure that appropriate consideration for the handicapped and special groups has been addressed in the planning, development, and management of the monument.

- To encourage picnicking, but refrain from establishing any campgrounds.
- To work with Teller County and other regional interests (Forest Service, Colorado Outdoor Education Center, and so on) in land use planning activities.
- To promote an understanding and appreciation for park values.

ISSUES

In the first phase of planning leading up to the preparation of this document, a number of issues were identified for resolution in order to achieve the management objectives of the monument. These issues are categorized and listed as follows.

LEGAL AND ADMINISTRATIVE

- Legislative Ceilings - Original legislation authorized the expenditure of not more than \$3,727,000 for land acquisition and development. The original estimate for land acquisition was \$1,165,000 and a ceiling of \$2,562,000 was set up for development. The land acquisition ceiling was increased to \$2,000,000 to complete the land acquisition program within the authorized park boundary. There remains \$1,787,000 of the legislative ceiling for development. The development cost for the proposed plan could exceed the fund remaining in the legislative development ceiling.

- Determinations of Use - Within tract 01-108 there is a reservation for use and occupancy (Nelson) for noncommercial and residential purposes for a term of 25 years from September 26, 1970, to September 17, 1995, or for the life of the last survivor. There are two residences and a number of out buildings associated with the reservation. A determination should be made as to what the service will do with the structures once the reservation for use and occupancy terminates.

- Legislative Compliance - The management and development decisions and actions resulting from the general management plan/development concept plan planning effort must be in accordance with the provisions of the Historic Preservation Act of 1966; the National Environmental Policy Act of 1968; Executive Order 11593, dated May 13, 1971; Executive Order 11988, Flood Plain Management; and Executive Order 11990, Protection of Wetland Habitats.

NATURAL RESOURCES

Fossils - A number of petrified tree stumps which were unearthed by private enterprise prior to the establishment of the monument are presently being used for interpretive purposes. The unearthing of the stumps has exposed them to the harsh environment of the region which is accelerating their deterioration. The legislation which established the monument mandates that the monument resources are to be protected and interpreted; therefore, a real issue evolves as to how both missions are to be accomplished without jeopardizing one or the other.

The visitor center does not have the constant temperature and humidity controls necessary to keep many of the irreplaceable fossils and other collections from disintegrating.

Vegetation and Soil - Little is known about what impacts historic land use, primarily agriculture and ranching, has had on the vegetation and soils within the monument. There are a number of areas where extensive erosion of the soils are taking place, and there is a concern for what impacts the natural succession of plants may ultimately have as the monument staff strives to retain the general characteristics of the existing landscape and improve the visual quality of the environment.

Also, there is evidence that certain forms of vegetation, primarily trees, are beginning to encroach upon the old potato field terraces which are to be interpreted. Such an encroachment could eventually obstruct ones view of the terraces and complicate interpretative efforts. This type of encroachment could also weaken the terrace structures and eventually create additional erosion problems.

- Wildlife - Elk and deer herds use the monument for winter forage. This use has been encouraged by the removal of interior fences which were originally established by the original landowners prior to the area becoming a monument. There is a risk that the elk and deer population could exceed the carrying capacity of the monument.

It appears as though there is a marked increase in Richardson's ground squirrels which can carry certain plagues. Since the chance for a plague increases when overpopulation occurs, there is a concern for the safety, health, and well being of those who may come in contact with the animals.

- Surface and Subsurface Water Quality - With the potential for increased development adjacent to the monument, there is

also a potential for such development to affect surface and subsurface water quality within the monument.

- Air Quality - The potential for increased development adjacent to the monument could also affect air quality of the monument which has been designated as a Class II Air Shed. The primary threat here would be the smoke from wood-burning fireplaces which could easily fill the monument valley creating undesirable conditions. As visitation and traffic through the monument increase, pollution from automobiles will also increase and further jeopardize air quality.

CULTURAL RESOURCES

- Hornbek Homestead - The buildings which constitute the Hornbek Homestead are of log construction and highly subject to deterioration due to the adverse climatic conditions of the Rocky Mountain Region. Frequent maintenance is required and there are currently no specific guidelines to direct the monument staff in the maintenance of the structures to best preserve their historic values.

VISITOR USE/INTERPRETATION

- Visitor Contact Facility - The existing visitor contact facility was originally a private residence that was renovated to serve only on an interim basis. The structure presents a number of problems relative to overcrowding and increasing conflicts. Following is a summary of deficiencies and needs associated with the visitor use aspect of the structure.

The interpretive plan identifies a need for an updated audiovisual program; however, the space presently available is not conducive to this form of interpretation. This space (approximately 870 square feet) is too small to provide for the volume of visitors experienced during the peak visitor season (June 1 - September 30). Also, this space is improperly designed. Those viewing audiovisual presentations are currently required to either sit on the floor or stand. This arrangement impedes the flow of visitors through the center creating a noisy, distracting environment; and it impedes other activities such as the information counter, Natural History Association sales area, and the park administrative staff activities.

Also, this structure has conflicting lighting requirements. The structure has large windows that drastically reduce the quality of projector and television presentations. Currently, there is not an appropriate method of diffusing

or blocking this light without affecting the other areas and activities.

When the floor and walls of the structure began to sag, a structural inspection was conducted. The inspection revealed that a major deterioration of the concrete foundation and wood floor joists and sills had occurred. It was also discovered that the foundation wall did not have a footing. This problem presents a life, health, and safety issue considering the weight of visitor groups as well as files, furniture, and large exhibit displays. It has been determined that major reconstruction of the interim structure would be required to correct the problem.

Facilities for the physically handicapped are less than desirable. Visitors requiring access to the visitor contact facility are required to travel to the rear of the building (a minimum of 100 feet). Rest room facilities in the visitor contact facility are not accessible for wheelchair persons due to the narrowness of doorways and inadequate space inside the rest room areas. As a result of this situation, a portable chemical toilet equipped to accommodate the handicapped has been provided adjacent to the visitor contact structure. During inclement weather, access to the outside toilets presents a problem.

- Picnic Facilities - The existing picnic area is adjacent to the south side of the parking area of the visitor contact/administrative center. The area contains six tables and is not large enough to accommodate visitor demand. There are many times when visitors have to picnic on their cars in the parking lot because all the picnic tables are occupied. This type of use in the parking area presents circulation problems that involve the safety, health, and well being of the visitor. This problem becomes even more chronic when large school groups arrive and occupy the entire picnic area and overflow into the parking lot. Visitors picnicking in the gravel parking lot have to contend with the dust generated by vehicles circulating through the area.

- Parking Facilities - The existing parking lot is not adequate for accommodating bus traffic. There are many times when two to three busses are parked on the shoulder of the entrance road. This creates circulation problems and impacts the site.

PARK OPERATIONS

- Administrative Facility - The administrative offices are housed in the same structure as the visitor contact facility as previously discussed. The administrative area (approximately 700 square feet) is characterized by

extremely small cramped office space; lack of adequate storage space and interpretive work area. Four small rooms, two closets, and two small alcoves currently house the entire administrative services. This situation presents a poor work environment where frequent disruptions and delays are experienced as a result of the congested working conditions. As previously mentioned, the noise from the visitor contact area compounds the distractions and impacts on the administrative staff.

- Maintenance Facilities - The Maytag Barn and the Cusack Potato Barn, located several miles apart, were modified to serve as interim maintenance facilities. These structures are not adequately heated or ventilated, they have extremely cramped work spaces which presents certain hazards, they have no rest rooms or running water, their arrangement in relation to one another and the visitor contact/administrative center is inconvenient and disruptive to the small work force, access to one of the barns during the winter is a major problem due to drifting snow, and their location and use for maintenance operations presents a dominant visual impact adjacent to two major county roads.

- Employee Housing - Locating housing within a reasonable commuting distance of the monument has been a critical problem over the years in a majority of past cases. The area within a 35-mile radius of the monument is surrounded by premium mountain property as reflected by the extremely high cost of real estate. Recent surveys of local real estate offices revealed that park employees, particularly lower grades, cannot depend on locating rental property. Locating sale property which is in an affordable range is also practically impossible. Many employees in the past have settled in the Colorado Springs area which is well over 40 miles from the monument. Due to the heavy snow storms which frequently hit the area during the early fall, winter, and spring, driving conditions become extremely treacherous, and the travel time often involves two to three hours or more one way. Also, there are times when weather conditions make access totally impossible.

- Protection and Law Enforcement - The visitor contact/administrative facility, and maintenance properties are unprotected against vandalism, fire, and other destructive forces during those hours when the monument visitor facilities are closed, and the staff is off duty. The area adjacent to the monument has been totally subdivided with the exception of the area along the west boundary which belongs to a school of environmental education. As the surrounding area has developed, there has been a marked increase in vandalism and theft within the

monument. As more people move into the area and become aware that the park is left unprotected, the potential for such problems will naturally increase.

Currently, only one employee resides on the monument in an old log cabin that is extremely limited in size (633 square feet) and plagued with a number of structural problems. Since this structure is in a remote location within the monument, employees living there offer no real value in terms of policing the resources of the monument.

Considering that one of the monuments management objectives is "to protect and manage the monument facilities and resources with emphasis upon preservation and interpretation of paleontological and geological resources," there is a urgent need to address this issue through the planning process.

GENERAL DEVELOPMENT

Since the monument was established in August of 1969, the only development to occur was in the form of making temporary improvements to old residential and farming structures. The temporary improvement approach was adopted until a general management plan could be prepared for the monument. At best, the temporary improvements were only cosmetic and did little to eliminate substandard conditions.

Once the necessary decisions are made to address the above issues concerning resource management, visitor use, and park operations, a development concept plan will be needed to define the ultimate location, capacity, and function of monument developments.

**PROPOSED GENERAL MANAGEMENT PLAN/
DEVELOPMENT CONCEPT PLAN
AND ALTERNATIVES**



THE PROPOSED GENERAL MANAGEMENT PLAN/DEVELOPMENT CONCEPT PLAN AND ALTERNATIVES

INTRODUCTION

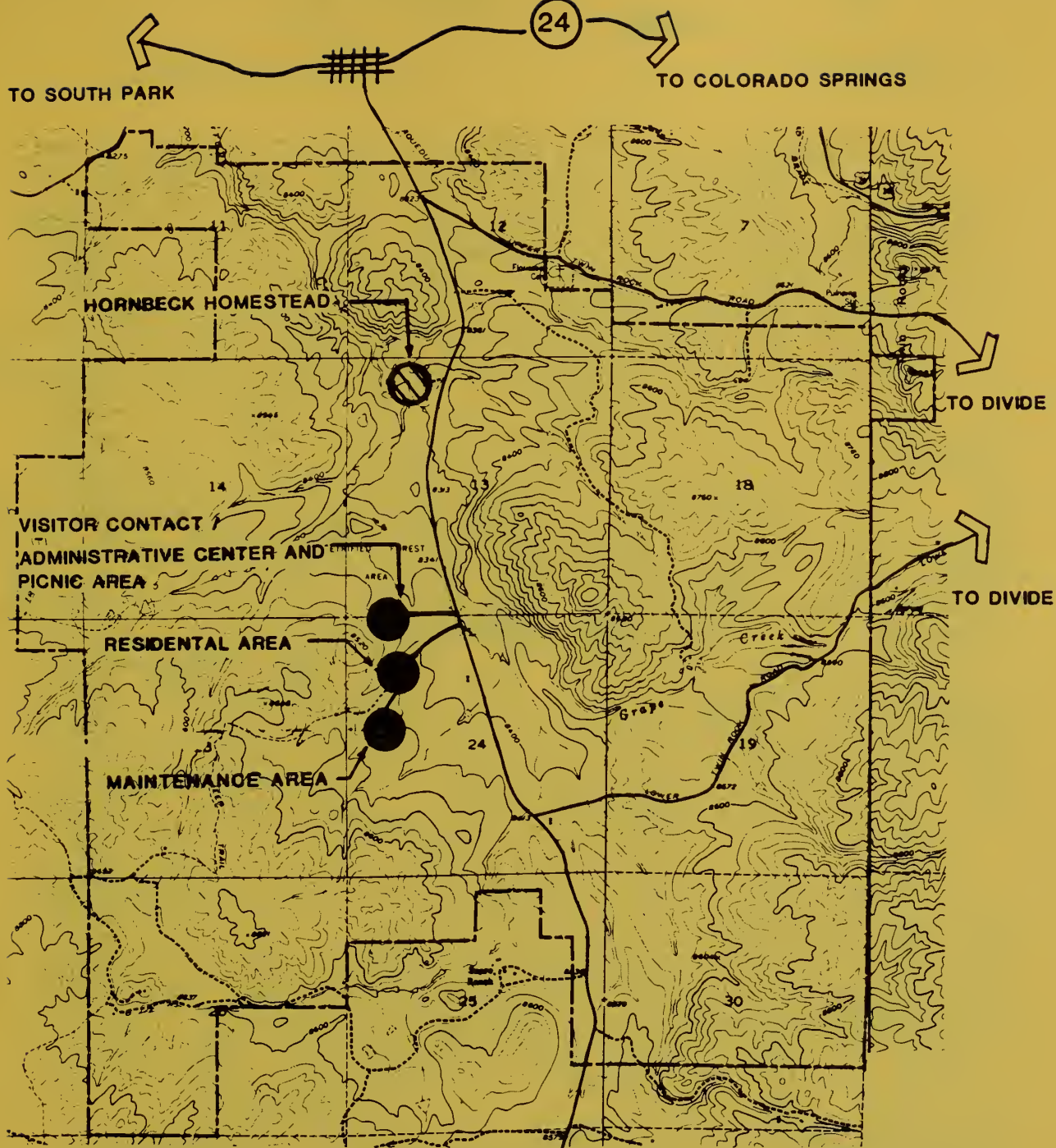
The following constitutes the National Park Service's General Management Plan/Development Concept Plan for Florissant Fossil Beds National Monument. The general management plan reflects the National Park Service's philosophy that units of the system should be managed as an integrated unit by providing the broad framework for integrating resource management, visitor use, park operations, and development strategies in a complementary and environmentally sound manner. Also, the general management plan describes the management zoning for the monument and provides the rationale for the proposed actions. In some cases, additional monitoring, inventories, studies, and research are needed to establish baseline data from which to base management decisions and thereby resolve certain issues. Such needs are identified herein. This section of the document also contains a description of the alternative considered during the planning process other than the one selected and presented in the proposal.





The following strategies were selected as the best course of action for enabling the National Park Service to accomplish the legislative intent and management objectives of the monument, resolve those issues earlier identified in this document, and address those comments received during the public involvement periods. All of the visitor use and development proposals described later in this section have been designed to eliminate or reduce existing and future impacts on monument resources.

LAND USE AND MANAGEMENT

Management zoning, an expression of management strategy, is the method by which the National Park Service categorizes lands and waters within those areas it is responsible for managing. The management zoning proposal represents the proposed management of monument resources upon full implementation of this plan (see Management Zoning Proposal map). The Management Zoning Proposal map depicts the generalized spatial extent of each zone and in no way changes the existing management zoning (see Existing Management Zoning map).

The proposal is to subdivide the monument lands into three zones. These zones are as follows.



-  NATURAL ZONE (97%)
-  DEVELOPMENT ZONE (2.9%)
-  HISTORIC ZONE (0.1%)
-  NATIONAL MONUMENT BOUNDARY



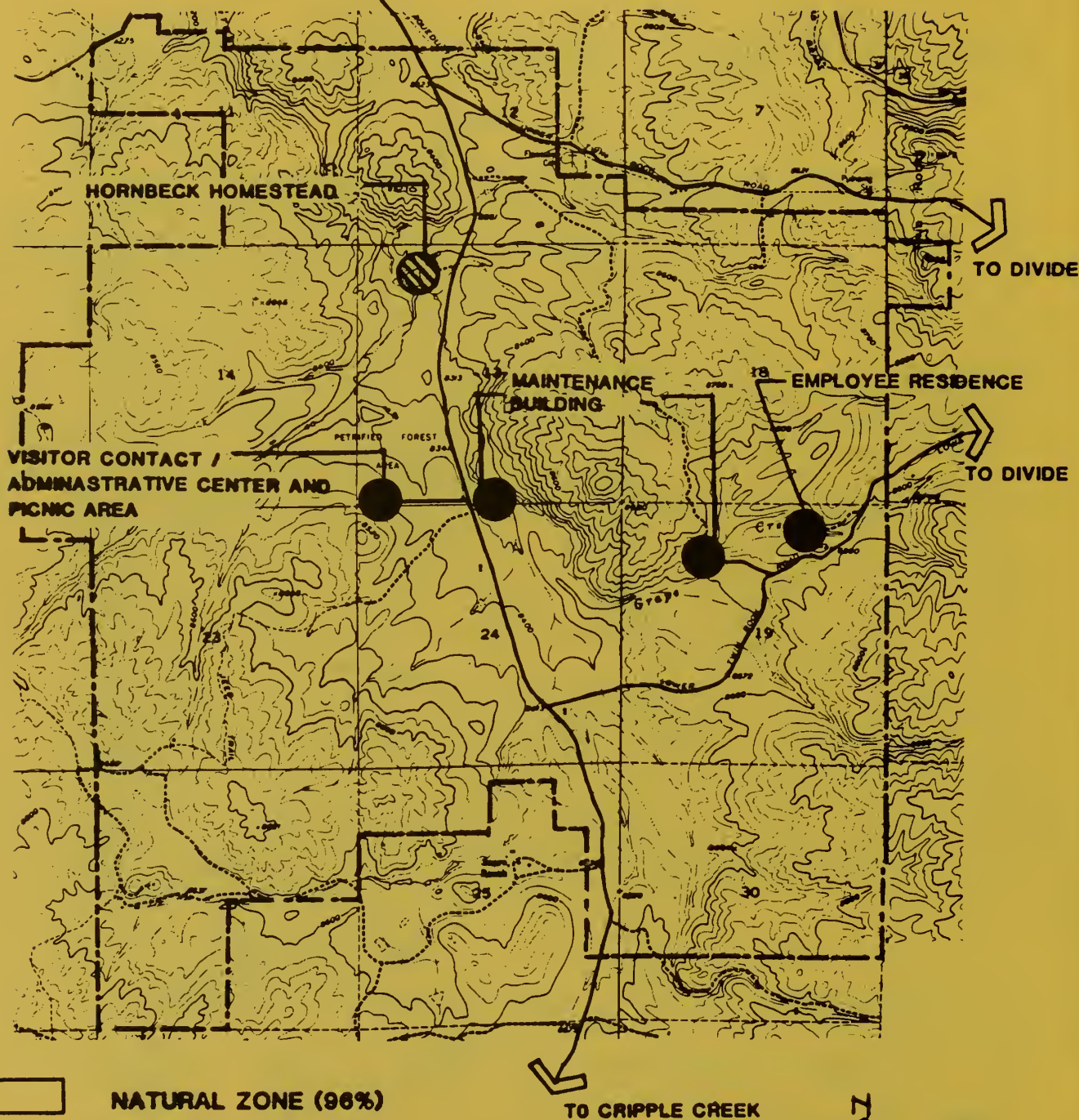
MANAGEMENT ZONING PROPOSAL FOSSIL BEDS NATIONAL MONUMENT, COLORADO

UNITED STATES DEPTMENT OF THE INTERIOR - NATIONAL PARK SERVICE

171	80,038
MAY 85	RMRO

TO SOUTH PARK

TO COLORADO SPRINGS



NATURAL ZONE (96%)



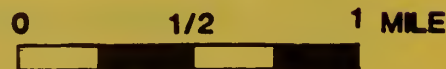
DEVELOPMENT ZONE (3.9%)



HISTORIC ZONE (0.1%)



NATIONAL MONUMENT BOUNDARY



171 | 80,034-A
MAY 85 | RMR

EXISTING MANAGEMENT ZONING

FLORISSANT FOSSIL BEDS NATIONAL MONUMENT, COLORADO

UNITED STATES DEPARTMENT OF THE INTERIOR - NATIONAL PARK SERVICE

- Natural Zone

This zone constitutes approximately 97 percent of the 5,992 acres within the monument. This zone is managed to preserve and interpret the natural resources of the monument. The resources and processes will remain largely unaltered by human activity.

- Development Zone

The development zone occupies approximately 2.9 percent of the total acreage within the monument. This zone contains developments such as the picnic area, visitor/administrative facility, maintenance facility, residences, roads, and parking areas. This zone is managed to support nonhistoric park development and intensive public use which substantially alters the natural environment.

- Historic Zone

This zone constitutes approximately 0.1 percent of the total acreage within the monument. The zone features the Hornbek Homestead complex which is typical of the agricultural and ranching settlements that began to develop in the late 1800s. This zone is managed to preserve, protect, and interpret these cultural resources.

LAND PROTECTION

All lands within the monument are federally owned and administered by the National Park Service with the exception of Teller County Road Number 1 and Upper and Lower Twin Rock Roads. Transfer of the roads to the National Park Service should only be considered if there is a demonstrated need other than a need to properly maintain the roads.

Any action to increase the size of the existing boundary will require a comprehensive evaluation of the resources involved and supporting justification for the need to include such resources within the monument. Boundary expansion would also require legislative action by Congress to establish new boundaries and increase the monetary and acreage ceilings for land acquisition. The present legislative acreage ceiling is 6,000 acres and the actual acreage attained is 5,992.32. Presently, there is no documented evidence or evaluations to support the need to expand or reduce the present acreage of the monument. The present acreage appears to complement the legislative intent for establishing the monument (see Boundary Map).



Legend

- National Monument boundary
- ▲ visitor center
- ⊗ maintenance area
- * Hornbeck Homestead



0 1/2 1 mile

Boundary Map

Florissant Fossil Beds National Monument
Teller County, Colorado

NATURAL RESOURCES

The administration and management of the natural resources of Florissant Fossil Beds National Monument will be in compliance with the policies, rules, and regulations established by the National Park Service and the current natural resource management plan. The primary objective in management of the monument is to protect and preserve the natural values while continuing to provide for visitor use and enjoyment. The following strategies will be implemented with regard to management of natural resources values.

Paleontology *

- Potential Impacts Will Be Mitigated - All proposals and activities affecting or relating to paleontological resources will be developed and executed with the active participation of professional specialists in paleontology. Those activities which may result in the alteration or loss of a paleontological resource will be mitigated. Mitigation will include professional salvage of resources and an accompanying report, proper curatorial care of the subject resource and field records, and deposit and presentation of data and resources in the monument or other designated repository.

- Expand Resource Data Base - Paleontological resources inventoried should be expanded to determine the extent of subsurface petrified stumps which will help determine how critical it is to protect the existing exposed stumps. This data would also be helpful in minimizing the impact of future developments.

- Develop a Comprehensive Museum Collection of Area Fossils - This would help determine the significance of the various fossil resources and aid in interpreting the significance of the paleontological and geological resources for the monument visitors.

* Technically, paleontological resources remaining in the ground are considered to be natural resources and those collected are cultural resources. The Natural Resource Management Plan included recommendations on management of both underground fossils and those collected for museum interpretation; therefore, for the purpose of simplification, all paleontological resources are discussed under this section (Natural Resources).

- Provide Staffing to Adequately Protect the Fossil Beds - This action would discourage vandalism and unauthorized removal of paleontological resources.

- Research Means of Protecting the Exposed Petrified Stumps from Weathering - This action would determine the alternative methods and cost of each for preserving the exposed stumps. In the meantime, current management will be continued. This will result in continued deterioration of petrified stumps. Illegal fossil collection will also continue to some degree because staffing does not provide for continuous protection.

- Apply protection Techniques to Preserve Stumps - Efforts to protect the stumps will be initiated if the research in the above item indicates that the stumps should be protected.

- Provide a Climatically Controlled Environment to Preserve and Protect Fossils and Other Collections on Display - The new visitor contact facility which is proposed herein should include a climatically controlled area for the storage and display of those resources that are subject to deterioration.

Vegetation and Soils

- Maintain Existing Characteristic Landscape - The predominant vegetative compositions, which characterize the wide-open valley grasslands surrounded primarily by tree covered hillsides, will be managed to maintain these characteristics as part of the existing landscape. A visual resource management plan will be developed for the monument.

- Conduct a Comprehensive Survey of Vegetation and Soils Including a Map of Vegetation/Soil and Threatened and Endangered Plant Species - This action will help protect occurring threatened and endangered species, identify exotics, and provide information for improving the management of park resources.

- Develop a Plan to Restore Natural Land Forms and Vegetation - This plan would identify those areas of impact where rehabilitation work is needed and how such work should be accomplished. This will also apply to those manmade land forms (terraces) which will be retained for interpretive purposes.

- Investigate Means of Accelerating Decomposition of Stumps Remaining from Past Logging - If inoculation of stumps with rapid decomposers is feasible, such measures should be taken

to eliminate the stumps from the natural scene because they are visually obtrusive.

Wildlife

- Survey the Relationship of Plant Communities Essential to Elk, Monitor Elk Population Dynamics, and Vegetation Utilization, Determine Food Habits, Seasonal Distribution, and Migration Patterns - This data should provide the basis for developing management strategies to effectively manage the elk herds in relation to other resources.

- Continue Dusting the Burrows of the Richardson's Ground Squirrel as well as the Cooperative Tenting Programs for Bubonic Plague - This will help prevent the plague from becoming a health risk.

- Survey the Monument for Golden Eagle Nesting - This data will serve as the basis for future management action on this species.

- Conduct Research on Porcupine/Vegetation Dynamics and Monitor Porcupine Utilization of Ponderosa Pine - This would enable management to determine if corrective action is necessary to bring the ecosystem into a more natural balance.

- Conduct a Comprehensive Survey of Fauna Including a Threatened and Endangered Species Inventory - Such data would aid in protecting threatened and endangered species that may occur, identify nonnative species which should be removed or controlled, and provide information for improving management of wildlife.

Water Quality

- As Funds Become Available Expand the Monuments Research and Monitoring of Surface and Subsurface Waters - This will include the monitoring of wells for bacteriological contamination and treating the water to insure that the health and safety of the park visitor and staff are maintained. Old livestock ponds will be left to deteriorate through natural processes and serve as check-dams for gully erosion. Surface waters will be inventoried to obtain baseline data on quality and quantity. Locate and map all abandoned wells and develop a water resource management plan. Impacts on water resources should be detected early on so that efforts can be taken to mitigate impacts.

Air Quality

The first action to be taken to address this issue will be to determine what actions, if any, are being taken by other agencies to monitor air quality. Once this has been determined, efforts will be made to coordinate future monitoring actions with neighboring agencies. Should coordination with others prove not to be feasible and there is a need for such data, the monument should develop and implement an air quality monitoring program.

Efforts will also be made to determine if fossil materials would be affected by acid rain. Such data would enable managers to take protective measures in advance should such conditions become a threat.

Wildland Fires

The current program calls for the suppression of all fires in the monument. This program will continue until research can be completed on the history of natural fire and fuel loads. Depending on the results of further research, the monument will develop and implement a fire management plan.

Weather Monitoring

The monument staff will continue to maintain its present weather data collecting system and coordinate related efforts with other agencies.

Wilderness

In compliance with the National Park staff, directive 76-14 and National Park Service wilderness management policies, those areas identified as natural zones within the monument were evaluated for their wilderness suitability during each phase of the planning process leading up to the formulation of this document which included public involvement sessions. In conclusion, the need for a wilderness study could not be justified; therefore, it was recommended that no further consideration be given to the subject of wilderness at Florissant Fossil Beds National Monument. This decision is based on the following rationale.

The Wilderness Act of 1964 defines wilderness as an area of Federal land retaining its primeval character protected and managed to preserve its natural condition. It is an area of undisturbed natural processes which offers solitude. Based on preliminary surveys within the total acreage of the park (5,992 acres), it was determined that there are no roadless areas of sufficient size

which could feasibly and rationally warrant wilderness designation. It would be difficult, if not impossible, to locate a consolidated block of monument property larger than 400 acres which has not been severely altered physically by man's past use of the area for agricultural and ranching purposes or which is not affected by existing developments and/or utility and private access easements. An existing and ever increasing use adjacent to the monument which would be in direct conflict with wilderness values is the rapid expansion of subdivision development which continues to surround the monument area. There are also no other Federal lands adjacent to the monument which might offer opportunities for consolidation.

CULTURAL RESOURCES

The National Park Service will provide for the preservation, protection, restoration, interpretation, and study of all significant cultural resources through appropriate programming research and management. All actions taken will be in compliance with applicable legislation, executive orders, National Park Service policy, and procedures identified in NPS-28 "Cultural Resource Management Guidelines."

All proposals and activities affecting or relating to cultural resources will be developed and executed with the active participation of professional specialists in history, archeology, and historic architecture. Those activities which may result in the alteration or loss of a cultural resource will be mitigated. Mitigation will include professional salvage of resources and an accompanying report; proper curatorial care of the subject resource and field records; and deposit and presentation of data and artifacts in the monument or other designated repository (see Appendix B). Cultural resources will be maintained and protected to prevent deterioration or loss during the interim period prior to the development of a cultural resource management plan. The following strategies will be implemented with regard to management of cultural resources.

Historical

The National Park Service, in consultation with the State Historic Preservation Officer, evaluated the following structures using National Register criteria and determined that with the exception of the Hornbek House they were not eligible for inclusion to the National Register of Historic Places (see Appendix C).

- Nelson Log Cabin, White House, and Outbuildings

The Nelson property, which consists of two residences and a number of outbuildings, was considered for adaptive use during the general management plan alternatives selection process. Considering the remoteness of the structures and the cost to improve the extremely poor access situation, use of the structures in their present location was determined to be impractical. Removal and adaptive use of the structures elsewhere was also considered and determined to be impractical in view of access, potential environmental impacts, and cost for removal, resiting, and renovation for adaptive use. Therefore, when the reservation for use and occupancy lease expires on September 17, 1995, the structures will be razed and the sites restored to a natural condition (see Above Ground Structures map).

- Well's Cabin and Stone Garage

These structures will continue to be maintained and used for residential purposes until the National Park Service completes an Employees Quarters Management Plan which will address the need for employee housing in the monument. As soon as new residences are constructed or employees are required to relocate outside the monument, all structures on the site including the access road will be razed and the site restored to a natural condition.

- Maytag Ranch Barn and Cusack Potato Barn

The Maytag Ranch Barn, adjacent to Teller County Road Number 1, and the Cusack Potato Barn, adjacent to the Lower Twin Rocks Road, will continue to be maintained and adaptively used as temporary maintenance/storage structures. As soon as the new maintenance/storage facilities are constructed, the barns will be razed and the sites including access drives will be restored to a natural condition.

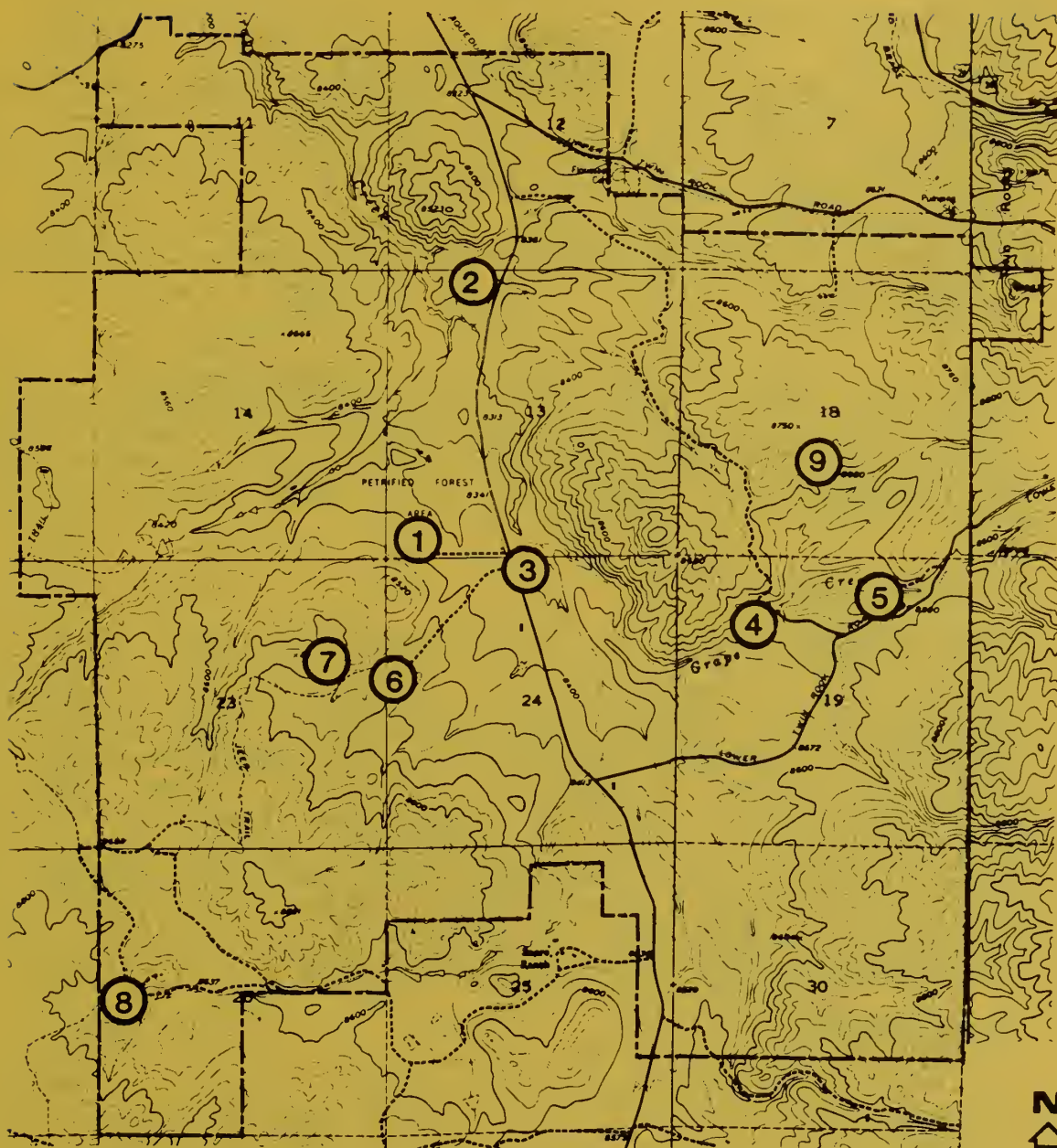
- Baker Structure

This structure is currently being used as the visitor contact/administrative center. The structure will be razed and the site restored to a natural condition as soon as the new visitor contact/administrative center is constructed.

- Hunting Shack

This frame structure is in poor condition due to extensive deterioration. The structure is of no historic value. The structure will be razed and the site restored to a natural condition.

ABOVE GROUND STRUCTURES FLORISSANT FOSSIL BEDS N.M



1. BAKER STRUCTURE
(VISITOR/ADMIN. CENTER)

2. HORNBEK HOMESTEAD

3. MAYTAG BARN
(MAINTENANCE/STORAGE)

4. CUSSACK POTATOE BARN
(MAINTENANCE/STORAGE)

5. WELLS CABIN & GARAGE
(EMPLOYEE QUARTERS)

6. GUIST HOUSE

7. A FRAME CABIN

8. NELSON LOG CABIN ,
WHITE HOUSE & OUT BUILDINGS

9. HUNTING SHACK

- Hornbek House

The Hornbek House was entered on the National Register of Historic Places on December 8, 1981 (see Appendix D). The Hornbek House is physically grouped with four other structures which includes the Well's Carriage Shed, Johnson Barn, Maytag Bunkhouse, and privy. This complex of five structures is enclosed by a rustic pole fence and referred to as the Hornbek Homestead. About 300 yards north of this complex is the site of the original root cellar for the Hornbek House.

The root cellar which was totally restored and all of the structures which constitute the Hornbek Homestead will be interpreted and maintained to preserve their historic value. A historic structures maintenance guide will be prepared to guide in the maintenance of the Hornbek complex and root cellar.

- Other Structures

Two other structures in the monument referred to as the "A" Frame Cabin and the Guist House are scheduled to be razed and the sites restored to a natural condition. The rationale for this course of action is based on the fact that the "A" Frame is very seldom used, it is located where extensive road maintenance would be required to maintain access, utilities are substandard, the cabin is not winterized, and the cost to maintain the structure based on the use it receives cannot be justified. The Guist House has been abandoned for many years and deteriorated beyond salvage. These structures do not meet any of the criteria for listing on the National Register of Historic Places.

Archeological

In compliance with Executive Order 11593, a complete archeological survey of the monument was conducted (Olson, Rowland, and Bridge 1974); consequently, no further general archeological survey work is required pending acquisition of new lands. Approximately 15 archeological sites have been identified within the monument (see Archeological Map). None of the sites have been surveyed for National Register significance.

To insure preservation of archeological resources until a cultural resource management plan is completed, the following interim guidelines will be implemented.

- Determine significance

Pursuant to Section 110.a.2 of the National Historic Preservation Act of 1966, amended 1980, the National Park



Legend

- — — National Monument boundary
- * visitor center
- ◐ maintenance area
- archeological site
- * Hornbeck Homestead



0 1/2 1 mile

ARCHEOLOGICAL MAP

Florissant Fossil Beds National Monument

Teller County, Colorado

Service will evaluate all historic resources and decide in consultation with the Colorado State Historic Preservation Officer which are eligible for inclusion on the National Register of Historic Places (NRHP). Once a determination of eligibility is made, the National Park Service will take appropriate action to nominate such resources to the NRHP.

- Proposals and Activities Affecting or Relating to Archeological Resources

None of the proposals or activities identified in this plan affect known archeological resources; however, should an unknown archeological resource be discovered later or should future modifications of this proposal affect archeological resources, the guidelines identified above will apply.

VISITOR USE AND INTERPRETATION

Interpretive Objectives

Following are the general objectives for interpretation at Florissant Fossil Beds National Monument.

- Promote an appreciation and understanding of the Paleo-environments and the vast changes which have taken place in the earth's recent history.
- Provide public understanding and appreciation for the natural and cultural features of Florissant Fossil Beds National Monument.
- Provide information regarding recreation opportunities at Florissant Fossil Beds National Monument and within the Region.
- Promote public understanding of man's impact as a result of past land use.
- Develop energy conservation and awareness through interpretive programs and publication of various forms of literature.
- Promote public understanding and support of monument policies and practices designed to insure the safety of the visitor as well as preserve and protect monument resources.

Interpretive Themes

The primary interpretive themes of the monument are:

- The significance of the oligocene fossil deposits found within the boundaries of ancient Lake Florissant and

- The geological processes which created these novel resources.

The secondary interpretive themes for the monument are:

- The cultural history of the immediate area including past land use and associated impacts and,
- The natural and recreational resources that are available on a day-use basis.

Interpretive Needs

A museum exhibit plan will be required to address the plans in detail for interpretation to determine space requirements of the new visitor center. The interpretive needs should be determined prior to comprehensive design of the visitor center to insure that appropriate space is available and that such space has the proper relationship with other functions within the structure.

A wayside exhibit plan will be required to detail methods for interpreting those values identified in the interpretive prospectus. Preparation of the plan will also include a reevaluation of interpretive developments along the existing trails within the monument.

Visitor Experience

Visitors should come away from the monument with an understanding and appreciation of the dynamic changes between the environment of the monument area today as opposed to that which existed 35 million years ago (Oligocene period) and the natural processes which were significant in bringing about the changes. The visitors understanding and enjoyment of the cultural and natural values of the area should also be stimulated.

Primary Visitor Use

The primary uses which will be emphasized includes interpretive walks, hiking, picnicking, and cross-country skiing. The capacity and scale of facilities to accommodate such use are discussed in the General Development section of this plan. The visitor contact/administrative facilities, picnic area, and primary interpretive trails will be designed to accommodate the physically handicapped.

Due to the extremely fragile environment of the monument and considering the potential impacts associated with horseback riding, a dispersed form of use will be emphasized rather than encourage concentrations of such use by developing facilities such as horse trails and loading/unloading

structures. Presently, such use is very minimal and presents no serious threat to the monument.

All forms of back-country use will be carefully monitored and adjustments governing use and development will be made, if necessary, to minimize impacts and conflicts.

Off-road vehicle use within the monument will be restricted to administrative purposes only.

PARK OPERATIONS

Maintenance Facilities

The plan is to construct a new maintenance facility which will replace the two barns currently being utilized as interim maintenance facilities. It is essential that the park be capable of resolving its own maintenance needs in-house in view of the remoteness of the area and considering the long winter months when frequent plowing operations are required to keep roads and parking areas open. The remoteness factor also dictates that the monument be capable of resolving its own daily maintenance needs and emergency problems.

Consideration was given to contracting maintenance services; however, due to the relatively small scale of maintenance services needed and considering the remoteness of the area, it was determined that it would be far more economical for the monument to continue assuming maintenance responsibilities.

Employee Housing

It appears that the most practical solution to resolving those issues earlier described as Employee Housing and Protection and Law Enforcement would be to provide minimal employee housing. The General Development section of the proposal reflects the location and number of employee housing units considered to be the minimum required to resolve the housing and protection issues. The location and level of housing to be provided is based on staffing needs necessary to implement visitor services, protection and law enforcement, maintenance, and administrative actions associated with this proposal.

In compliance with NPS-36 before structures for use as housing can be constructed, acquired, or converted to government furnished quarters, justification must be submitted to the Director for review and approval. The parks approved Quarters Management Program (QMP) will be an influencing factor in approving such housing request.

The approach to reflecting the location of housing facilities at this time rather than waiting after the completion of the QMP will assure that the interrelationship and potential impacts of the various facilities and activities have been carefully considered in the overall planning for the monument. Should the final results of the QMP indicate that there is another more practical alternative for resolving the housing and protection issues other than constructing employee housing, the General Development section and development concept plan as presented herein will be revised as needed.

GENERAL DEVELOPMENT

The proposed development for the monument includes construction of a new visitor contact/administrative facility, residential area, maintenance facility, supporting roads and utilities, retention of existing parking at the Hornbek Homestead, and expansion of the picnic area and parking lots for the visitor contact facility.

After the public review and comment period on the environmental assessment for the general management plan, the National Park Service selected Alternative B to represent the proposed development concept plan for the monument. The only variation from the original alternative as presented in the environmental assessment involved reducing the number of employee residences to two and retaining the existing parking area at the Hornbek Homestead as opposed to constructing a new paved parking lot.

Other than Alternative A (Status Quo), the proposed development concept plan makes maximum use of the existing areas of impact and those paleontological resources presently unearthed for interpretive purposes. Compared to the other alternatives, the general arrangement of facilities as indicated in the proposed development concept plan provides a greater consolidation of facilities. This more closely grouped development concept will improve circulation, provide the greatest opportunities for multiple use of facilities, minimize travel time between facilities, and thereby improve flexibility during minimal staff situations, improve efforts to protect resources and facilities, and reduce maintenance operations. These factors will collectively reduce cost to the government and improve the efficiency of monument operations.

Considering that the primary resources are subsurface, a stratigraphic survey of the entire monument was conducted and a report prepared to confirm the general location of fossil bearing strata.* As a part of the survey, test holes

were drilled to determine the depth and general condition of those soils in the areas which were being considered for development. This data was utilized to identify the potential impacts and mitigation required for the various alternatives considered in the environmental assessment for the general management plan.

Following is a detailed description of the function, size, capacity, and location of the facilities to be developed (see Development Concept Plan, Pages 34-35).

Visitor Contact/Administrative Facility

The space requirements for the visitor contact/administrative facility as presented in Table 1 are based on the following concepts:

The visitor oriented portion of the center will be designed to accommodate 70 people at one time which is only 60 percent of the average peak hour visitation (115). (See Table 1.) The 60 percent factor is used to account for the turnover rate within the visitor center during the 35 minute average length of stay. The 60-percent factor also represents consideration for a minor increase in future visitation.

To accommodate 60 percent of the average peak hour visitation, a factor of 24 square feet per person is used to estimate space requirements for the visitor portion of the center. The visitor oriented space would include lobby, information and sales, exhibit, auditorium, and rest room area.

The space requirements for the administrative facilities are based on Federal Property Management Regulations 101-17304-1. The space devoted for administrative use also takes into consideration the ultimate staffing needs.

The function and space requirements for each activity will be refined in more detail at such time as funds become available to begin comprehensive design. To conserve

* A copy of the report is available at Florissant Fossil Beds National Monument, Colorado, and the Rocky Mountain Regional Office (library), Denver, Colorado. The report is titled "Stratigraphic Survey for Site Selection of Visitor and Administrative Facilities" June 1983, by Ralph R. Root.

TABLE 1

VISITOR CONTACT/ADMINISTRATIVE FACILITYSPACE REQUIREMENTSADMINISTRATIVE FACILITY

	Square Feet
Offices	490
<u>Permanent staff:</u> (1) Superintendent, 100 sf; (1) administrative clerk, typing, 60 sf; (1) park ranger, 75 sf; (1) intake ranger, 60 sf; (1) park ranger, paleontologist, 75 sf.	
<u>Seasonal staff:</u> (3) park technicians, interpretation, 120 sf	
Multipurpose room.	500
Fossil repository, 200 sf; Library, 100 sf; workroom/miscellaneous storage with lavatory, 200 sf.	
Storage Room	300
Vault, 85 sf; janitorial supplies and sink area, 55 sf; employee closet, 35 sf; secretarial supplies, administrative forms and documents, 125 sf.	
Miscellaneous storage and hallway space.	360
Mechanical room.	155
Subtotal	<u>1,805</u>
<u>Visitor Contact Facility:</u>	
Rest rooms	331
Three water closets and two lavatories for women and two water closets, one urinal, and two lavatories for men	
Information.	100
Lobby.	335
Sales and Storage.	200
Exhibit Area	595
Audiovisual Room.	470
Subtotal	<u>2,031</u>
Grand Total for Visitor Contact/Administrative Facility =	3,836

energy during those periods of the year (October through May) when visitation is minimal, the comprehensive design should reflect consideration for zoning or closing certain areas of the structure to avoid heating the entire facility. This will aid in reducing energy cost, fuel consumption, and maintenance cost.

Design concepts should also explore the possibilities of utilizing a covered structure with open sides for those portions of the building which would be closed off. This concept would further reduce construction cost since less materials and labor would be involved.

As indicated in the previously referenced stratigraphic survey, the soils in the vicinity of the proposed visitor contact/administrative facility contain a high percentage of clay. Bedrock is located approximately 8.5 feet below ground surface. This condition will have a major influence on the design of the proposed visitor/administrative facility.

The sewage filter field which is serving the existing visitor/administrative facility was designed to take into consideration the heavy clay soils. The field has functioned without any problems over the last 8 years; therefore, the same field will be used to serve the proposed new visitor/administrative facility. Preliminary engineering estimates indicate the field may need to be slightly enlarged. Use of the existing sewage filter field will reduce construction cost and minimize further site impacts.

Based on the Visitor Trends and Projected Visitation sections of this document, by 1990 visitation should range between 76,700 and 102,300. Considering the issues with the current visitor contact/administrative facility and the projected increases in visitation, the monument will not be able to satisfactorily accomplish those management objectives related to interpretation, visitor protection, resource protection, and certain aspects of administration unless adequate facilities are provided.

Visitor Contact/Administrative Facility Parking

The existing access road and parking area serving the visitor contact/administration facility will be upgraded and paved to accommodate the following use.

It is assumed that there is an average of 3.4 visitors per vehicle entering the monument. Therefore, it is estimated that the parking area would need to have a total capacity of 37 parking spaces; 21 spaces would accommodate the 70

visitors earlier identified as 60 percent of the average peak hour visitation; 6 spaces would be reserved for staff; and the remaining 10 spaces would accommodate those who would be using the picnic area adjacent to the visitor center. Three of the twenty-one parking spaces would be designated to accommodate bus traffic, two would accommodate the handicapped visitors, and four would accommodate vehicles pulling trailer units.

Picnic Facilities

Based on the monument staff's visual evaluation of past trends relative to use of the existing 6-unit picnic area, it was estimated that a total of 10 picnic units would satisfy the needs generated during the period of average peak hour visitation.

Maintenance Facilities

The new maintenance facility which will replace the two barns presently being used for interim maintenance facilities will accommodate the following functions in the space specified.

<u>Function</u>	<u>Room Size</u>	<u>Square Footage</u>
Office (2-desk)	10 x 12	120
Mechanical Room	9 x 7	63
Rest Room	6 x 6	36
Flammable Storage	9 x 14	126
Shop and Maintenance (plus) Lumber Storage	36 x 28	1,008
Equipment Storage (one dump truck with snowplow, one firetruck, one tractor, and one standard truck)	32 x 28	896
Washing Stall	16 x 28	448
Total Square Feet		2,697

The site selected for the maintenance structure is on a gently sloping area which is a 2 to 3 percent grade. The facilities will be out of the visitors view due to the topographic relief and the tree cover.

The new maintenance facility is approximately 1,000 feet due south of the visitor contact/administrative area. A considerable portion of the access road to this facility is

within the alignment of an old residential road to minimize impacts. The maintenance area will also be paved and fenced and a gas pump facility will be included as part of the development.

The soil in the vicinity of the proposed maintenance area and the residential area which is discussed below is primarily a deep loam with fragments of decomposed granite. This soil should present no major construction problems and is highly suitable for construction for sewage filter fields.

Residential Facilities

As previously stated and qualified, a possible solution to resolving the employee housing, protection, and law enforcement issues would be to provide minimal employee housing. As a minimum it is felt that one three-bedroom house with a single garage and one duplex with two bedrooms per unit and one double garage would be required to resolve the subject issues with any degree of satisfaction.

The three-bedroom house is considered to be the replacement structure for the Well's Cabin which is currently being used to house a permanent employee. One unit of the duplex will be used to house a second permanent employee and the remaining unit will be used to house seasonal employees.

The residential area is also on a gently sloping site--a 2 to 3 percent grade. The residential structures will be grouped along the same new access road which will lead to the new maintenance area. The residential structures will also be out of the visitors' view due to topographic relief and tree cover. There is sufficient separation between the maintenance area and the residential area to prevent potential noise and visual impacts.

Hornbek Homestead

The existing 20-car parking lot will continue to be used to accommodate visitors. The lot was constructed of decomposed granite, and due to the native grasses which have begun to sprout through the gravel the lot blends in well with the site. This option, rather than constructing a new paved lot was selected as a means of minimizing visual impacts on the historic setting. A designated trail between the parking area and the structures will not be provided since trail construction would detract from the historic scene. Interpretation of the homestead site will be provided adjacent to the parking area for those who are not able to gain access to the actual historic complex.

A foot trail between the visitor contact/administrative area and the Hornbek Homestead is proposed. This trail and any others that may be deemed necessary in the future should terminate within a 300-foot radius of the rustic pole fence surrounding the homestead site to eliminate potential visual impacts on the historic area. Should pedestrian traffic begin to generate impacts on the site within the 300-foot radius trails may be constructed. Should such construction become essential, special design techniques and materials will be selected to minimize visual impacts on the historic setting.

Roads and Utilities

As indicated on the development concept plan, the road leading from Teller County Road Number 1 to the visitor contact/administrative facility and the maintenance and residential areas will be paved. This will eliminate the dust problem generated by vehicles circulating within the general vicinity of high public-use areas.

All new utilities will be constructed underground when possible. Existing above ground utilities will be placed underground as funds become available.

PLAN IMPLEMENTATION

Cost Estimating and Programming










The implementation of the development concept plan will require the expenditure of Federal funds for the construction, operation, and maintenance of the monument facilities. This section presents estimated cost for construction of additional facilities, staffing requirements after full implementation of the development concept plan, and operation and maintenance costs. All costs are based on a Class "C" Estimating Guide prepared by the Denver Service Center which is good through 1985.

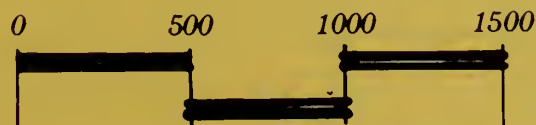
Because of the modest scale of development and related cost, it will be far more economical to go with a single contract to accomplish the project even though it may take a second year to complete construction activities. Therefore, there is no need to phase the following developments and related costs (see Table 2).

DEVELOPMENT CONCEPT PLAN

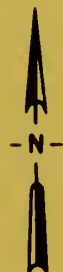
FEORISSANT FOSSIL BEDS NATIONAL MONUMENT

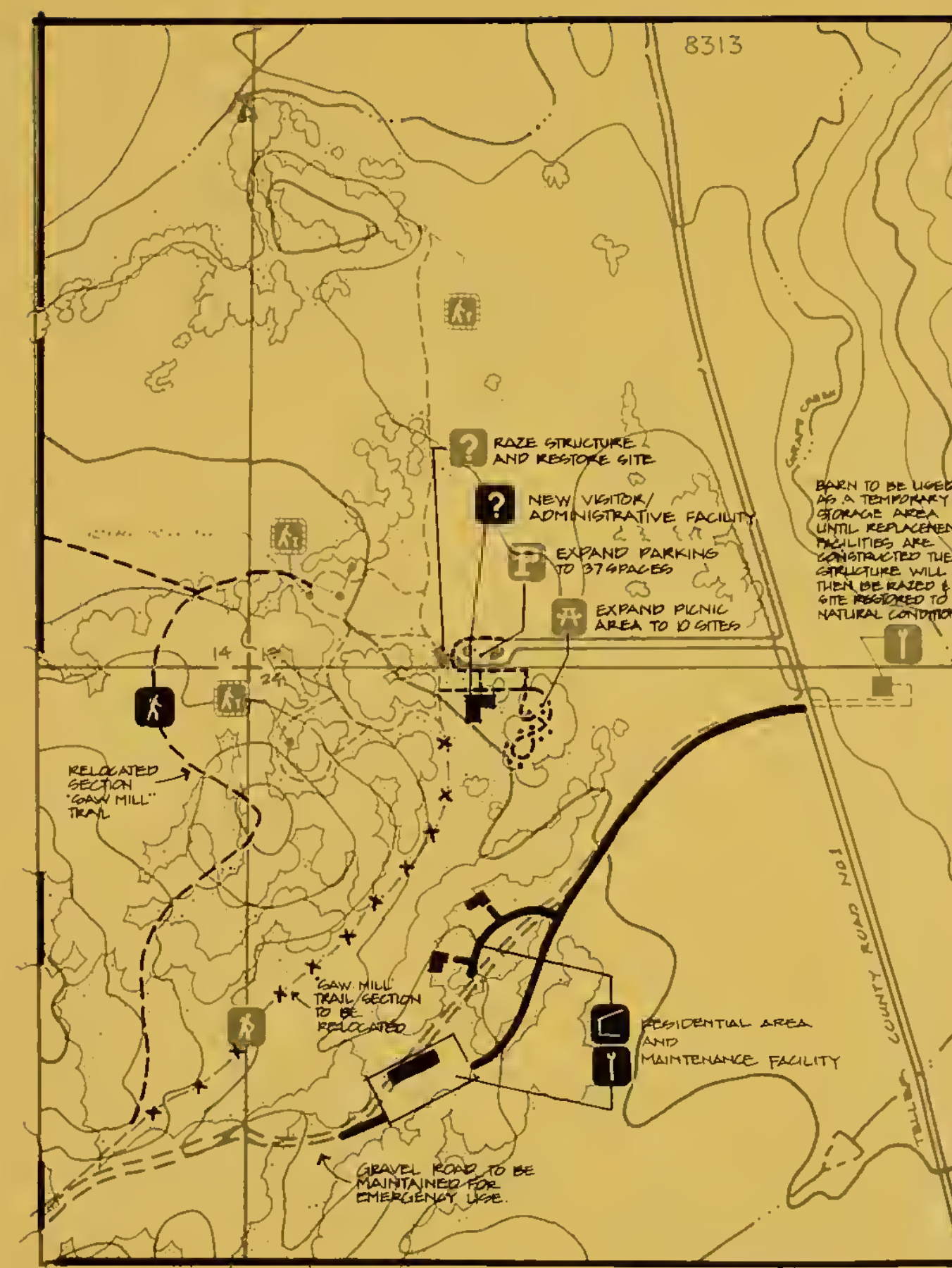
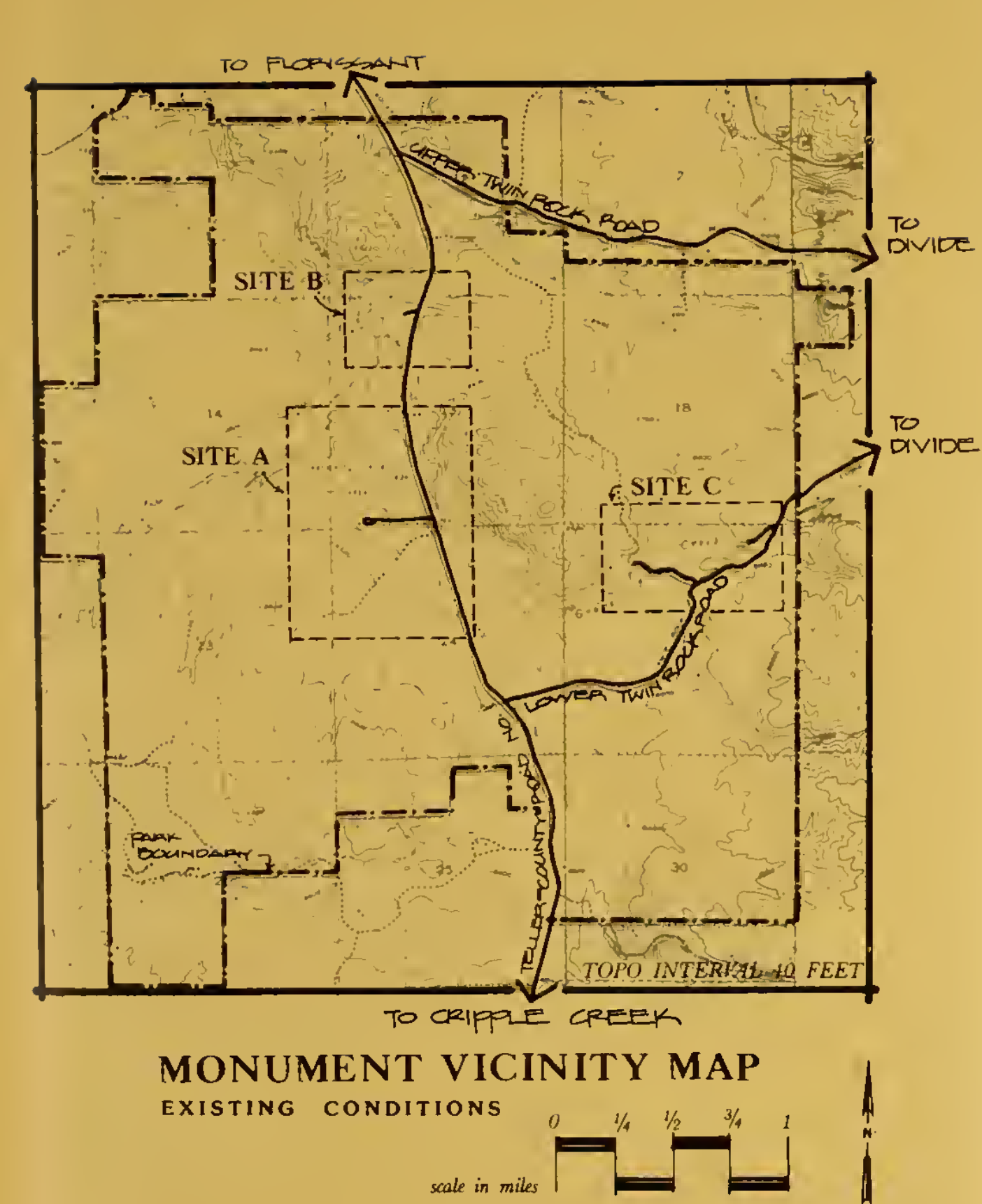
LEGEND

	EXISTING	PROPOSED
ROAD		
TRAIL		
VEGETATION		
VISITOR CONTACT/ ADMINISTRATION CENTER		
MAINTENANCE AREA		
RESIDENTIAL AREA		
PICNIC AREA		
PARKING		
INTERPRETIVE POINT		

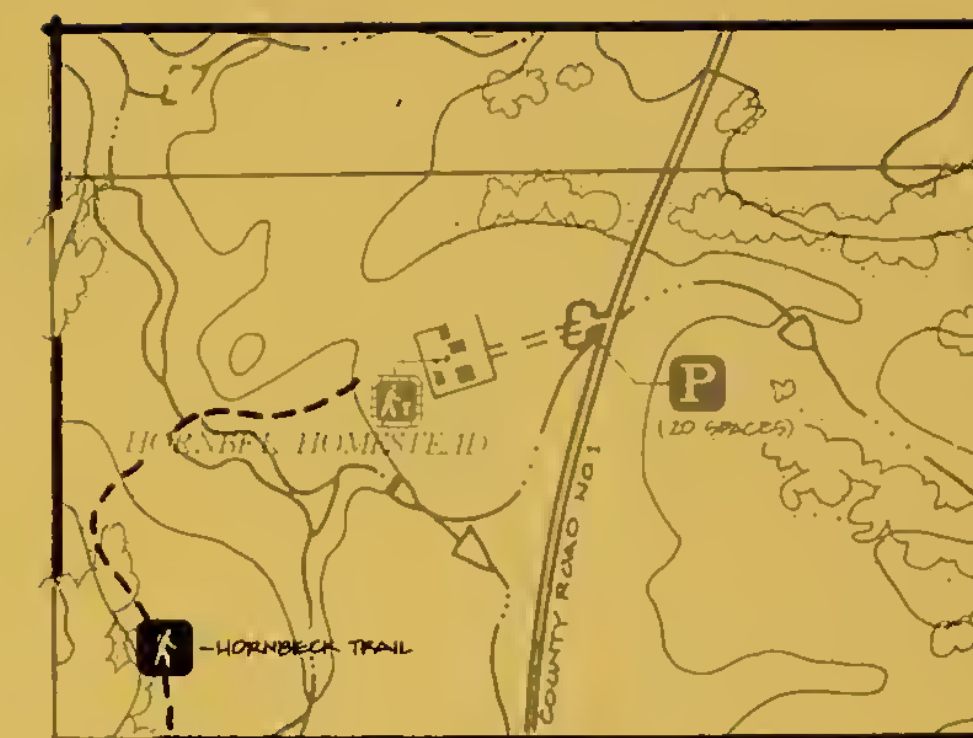


scale in feet

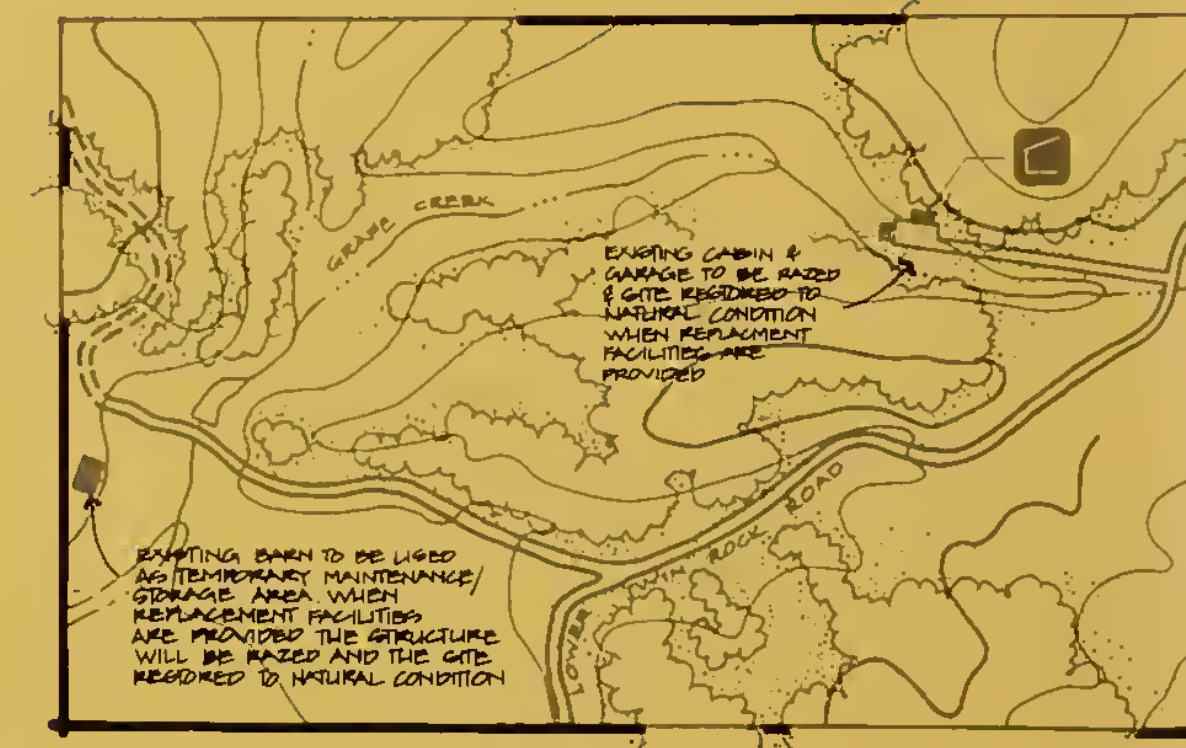




SITE A



SITE B



SITE C

DEVELOPMENT CONCEPT PLAN

FEORISSANT FOSSIL BEDS NATIONAL MONUMENT

LEGEND

	EXISTING	PROPOSED
ROAD		
TRAIL		
VEGETATION		
VISITOR CONTACT/ADMINISTRATION CENTER		
MAINTENANCE AREA		
RESIDENTIAL AREA		
PICNIC AREA		
PARKING		
INTERPRETIVE POINT		



UTILITY LOCATIONS

DEVELOPMENT CONCEPT PLAN

FEORISSANT FOSSIL BEDS NATIONAL MONUMENT

LEGEND

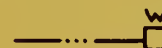
EXISTING

PROPOSED

ROAD



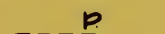
WATER LINE, WELL



SEWER LINE, FILTER FIELD,
SEPTIC TANK, LIFT STATION



POWER LINE



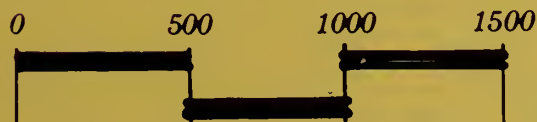
TELEPHONE LINE



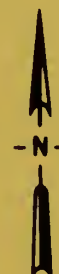
ABOVE GROUND - A

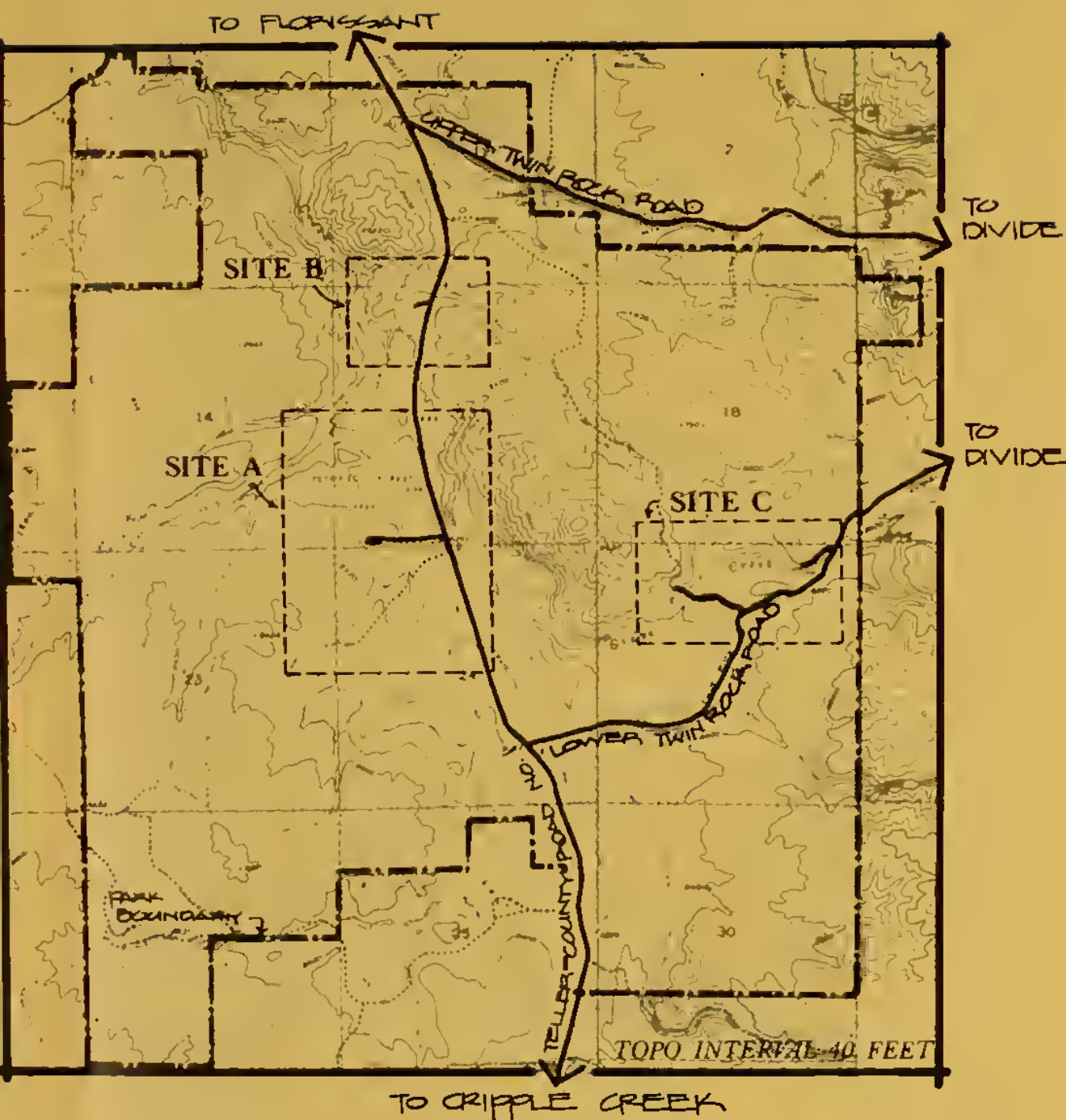
UNDERGROUND - U

NOTE: existing utilities to be abandoned as a part of this
alternative are not identified on this graphic



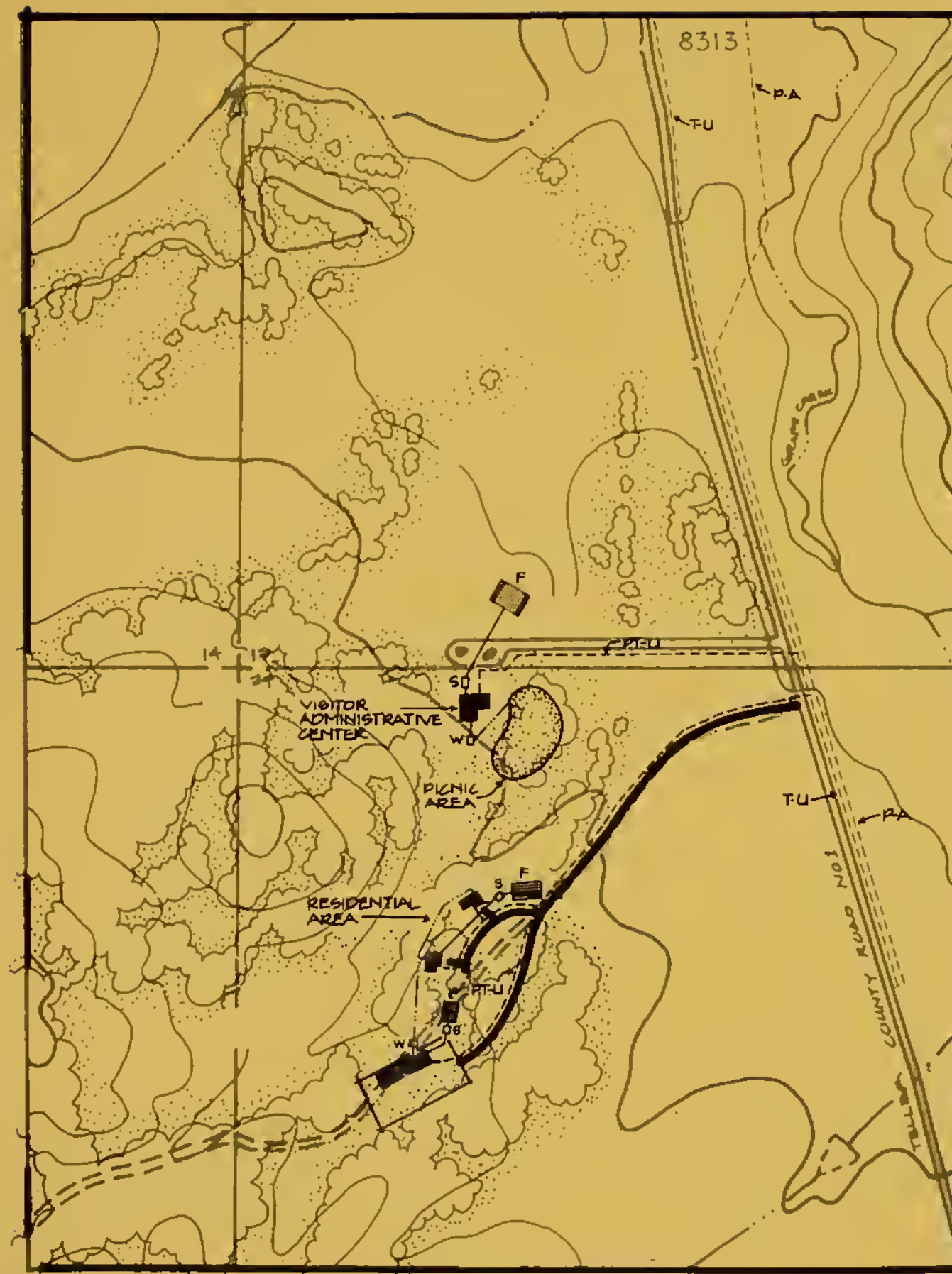
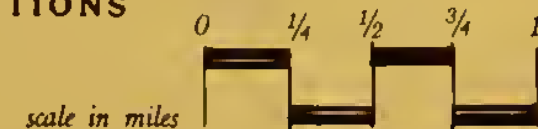
scale in feet



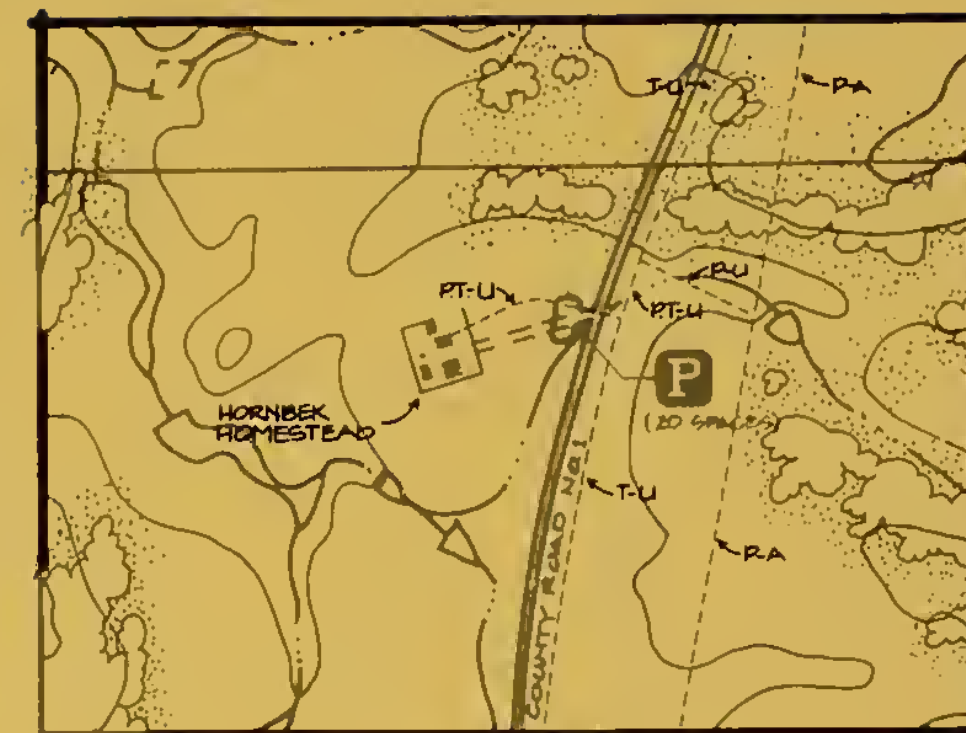


MONUMENT VICINITY MAP

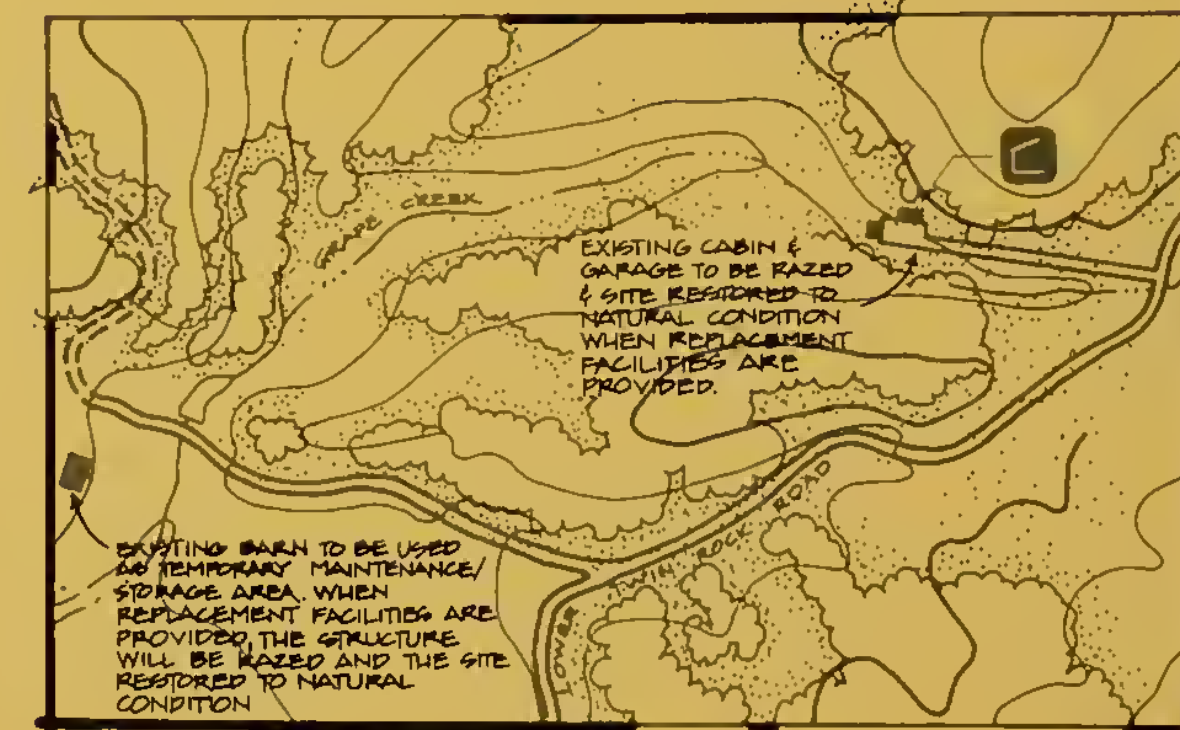
EXISTING CONDITIONS



SITE A



SITE B



SITE C

UTILITY LOCATIONS

DEVELOPMENT CONCEPT PLAN

FEORISSANT FOSSIL BEDS NATIONAL MONUMENT

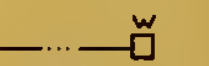
LEGEND

EXISTING PROPOSED

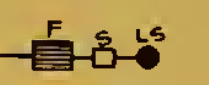
ROAD



WATER LINE, WELL



SEWER LINE, FILTER FIELD, SEPTIC TANK, LIFT STATION



POWER LINE



TELEPHONE LINE



ABOVE GROUND -A

UNDERGROUND -U

NOTE: existing utilities to be abandoned as a part of this alternative are not identified on this graphic



TABLE 2

COST ESTIMATE FOR PROPOSED CAPITAL IMPROVEMENTS PROGRAM

		<u>Square Feet</u> <u>or Yards</u>	<u>Dollars</u>
I.	<u>BUILDINGS/LANDSCAPING</u>		
A.	Visitor Contact/ Administrative Center	3,836 feet	288,000
B.	Landscaping		29,000
C.	Maintenance Structure	2,697 feet	122,000
D.	Landscaping		16,000
E.	Residences		
	1. One three-bedroom house with garage		73,000
	2. One duplex two-bedrooms per unit with garage		126,000
F.	Landscaping		20,000
II.	<u>ROADS/TRAILS</u>		
A.	Visitor Center		
	1. Pave entrance road	2,933 yards	59,000
	2. Expand and pave parking lot		21,000
B.	Residential Maintenance Area		
	1. Construct paved road	6,555 yards	216,000
	2. Construct paved parking lot	889 yards	30,000
C.	Hornbek Site Gravel Trail Between Hornbek Structure and Visitor Center	4,800 feet	26,000
D.	Paved Trail to Picnic Area	500 feet	7,000
E.	Picnic Area Trail-Gravel	700 feet	4,000
F.	Paved Interpretive Trail at Visitor Center	500 feet	7,000
III.	<u>UTILITIES</u>		
A.	Visitor Contact/Administrative Center and Picnic Area		
	1. Telephone and power lines (same trench)	1,500 feet	60,000
	2. Water line	300 feet	8,000
	3. Sewer line	375 feet	6,000
	4. Filter field (upgrade existing field)		6,000
	5. One septic tank		3,000
	6. One new well/pumphouse		16,000

B.	Residential/Maintenance Area		
1.	Telephone and power lines (same trench)	2,875 feet	115,000
2.	Water line	1,200 feet	48,000
3.	Sewer line	500 feet	8,000
4.	Two filter fields		8,000
5.	Two septic tanks		10,000
6.	One new well/pumphouse		16,000
C.	Underground Telephone/Power Lines Adjacent to Teller County Road Number 1 (4 miles)		317,000

IV. SITE RESTORATION

A.	Remove Old Visitor/ Administrative Structure and Restore Site	2,400 feet	4,000
B.	Remove Maytag Barn and Nelson Structures then Restore Sites	2,000 yards	20,000
C.	Remove Existing Residence and Road and Restore Site	500 yards	5,000
D.	Restore to a Natural Condition Primitive Road Area Replaced by New Maintenance/Residential Area Road	4,000 yards	40,000

V. MISCELLANEOUS

A.	Maintenance Area Fence	700 feet	20,000
B.	One Gas Pump, Storage Tank, and Island		12,000
C.	Furnishings for Administrative Center		21,000
D.	Audiovisuals and Exhibits for Visitor Center		90,000
E.	Furnishings for Duplex		13,000
F.	Appliances and Accessories for Residential Area		9,000
G.	Ten Picnic Tables		4,000
H.	One Picnic Shelter		8,000
I.	Ten Improved Picnic Sites		6,000
J.	Ten Trash Receptacles		3,000
K.	One Flag Pole		3,000
L.	Vehicular and Pedestrian Signs		2,000
M.	Wayside Exhibits		10,000
N.	Shop Tools and Equipment		18,000

TOTAL NET DEVELOPMENT COST	1,953,000
TOTAL GROSS DEVELOPMENT COST (Net Cost x 1.56)	\$3,047,000

Staffing Requirements

The monument is currently managed by the Superintendent and a staff of three full-time permanents, two full-time temporaries, and five part-time temporaries. Following are the existing positions, grades, and salary totals based on the man years of service required per year.

POSITION	GRADE	TOTAL MAN YEARS	SALARY COST*
1 Park Manager	GS-11	1.0	\$29,018
1 Park Ranger	GS-09	1.0	\$23,985
1 Park Technician	GS-05	.8	\$12,178
1 Administrative Clerk	GS-05	1.0	\$15,830
1 Maintenance Worker	WG-08	1.0	\$21,736
1 Maintenance Worker	WG-05	.8	\$14,480
3 Park Technicians	GS-04	1.3	\$18,394
1 Park Technician	GS-03	.4	4,848
1 Maintenance Worker	WG-03	.3	4,547
TOTAL ANNUAL SALARY COST			\$145,016

* Salary costs are based on 1985 pay scale for GS and WG Step 4 positions.

The following changes and additions to the above staffing would be required when the proposed plan is implemented.

NEW POSITIONS	GRADE	TOTAL MAN YEARS	COST PER MAN YEAR
1 Park Ranger (paleontologist)	GS-9	1.0	\$23,985
1 Park Ranger (trainee)	GS-5/7	1.0	\$19,606
1 Maintenance Worker*	WG-5	.2	\$ 4,344
ADDITIONAL TOTAL ANNUAL SALARY COST			\$47,935

* This is an existing position which currently represents .8 man years. The position will be converted to a full-time permanent position which will constitute an additional .2 man years as reflected above

The new positions would increase the present four FTEs to a total of six FTEs. This would also increase the current total annual salary of \$145,016 to a total of \$192,951.

Operation and Maintenance Cost

Once the proposed services and developments have been implemented, funds for operation and maintenance must also be obligated. The annual operations and maintenance cost for full implementation of the proposed plan would be approximately \$258,000.

SUMMARY OF PLANNING NEEDS

As a sequel to the general management planning process, more detailed guidelines are often required for the management of a particular area of the monument or for the use of a particular geographic area. In preparing this document and the natural resource management plan, a number of surveys, studies, action plans, and possible legislative actions have been identified. These needs are as follows.

- Paleontological survey
- Paleontological resource management plan
- Fossil deterioration study
- Soil and vegetative survey
- Soil and vegetative management plan
- Golden eagle nesting survey
- Fauna survey
- Elk herd and supporting plant community survey
- Wildlife management plan
- Cultural resource management plan
- Historic structures management plan
- Wayside/museum exhibit plan
- Water resource management plan
- Acid rain study
- National Register of Historic Places survey
(archeological sites)
- Visual resource management plan
- Legislative support plan
(increase development cost ceiling)
- Employees' quarters management plan.

The summary of surveys, studies, and action plans are not listed in priority order. For priority order, refer to the monument's Outline of Planning Requirements which is updated annually. Copies are available at the monument and the Rocky Mountain Regional Office.

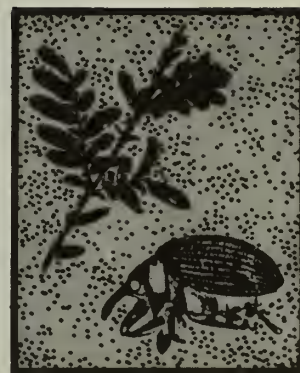
ALTERNATIVES CONSIDERED

The environmental assessment for the general management plan considered four alternatives identified as Alternative A (Status Quo) and Alternatives B, C, and D. The only proposed changes recommended in Alternative A involved those necessary to resolve life, health, and safety issues. Alternatives B, C, and D only varied in terms of the geographic location of proposed facilities within the monument. The facilities recommended for development in Alternatives B, C, and D represented the minimum necessary to accommodate visitor use and management needs.

Refer to the Section titled Environmental Consequences of The Proposed Plan and Alternatives for a description of the alternatives considered. The reference section also contains a Summary Evaluation section which represents the rationale for selecting the proposed plan.

This alternative of contracting a private law enforcement agency to provide security services as opposed to housing employees on the monument for security reasons was evaluated and determined to be impractical (see Appendix E).

AFFECTED ENVIRONMENT



THE AFFECTED ENVIRONMENT

REGIONAL SOCIOECONOMICS

Florissant Fossil Beds National Monument is in the eastern portion of the "Front Range" of Colorado. The Front Range of the Colorado Rockies contains one national park, two national monuments, and five national forests. There are 15 State recreation areas and several historic gold rush towns within this area. These recreational developments along with the general attraction of the Rocky Mountains provide a very broad base for public recreation potential.

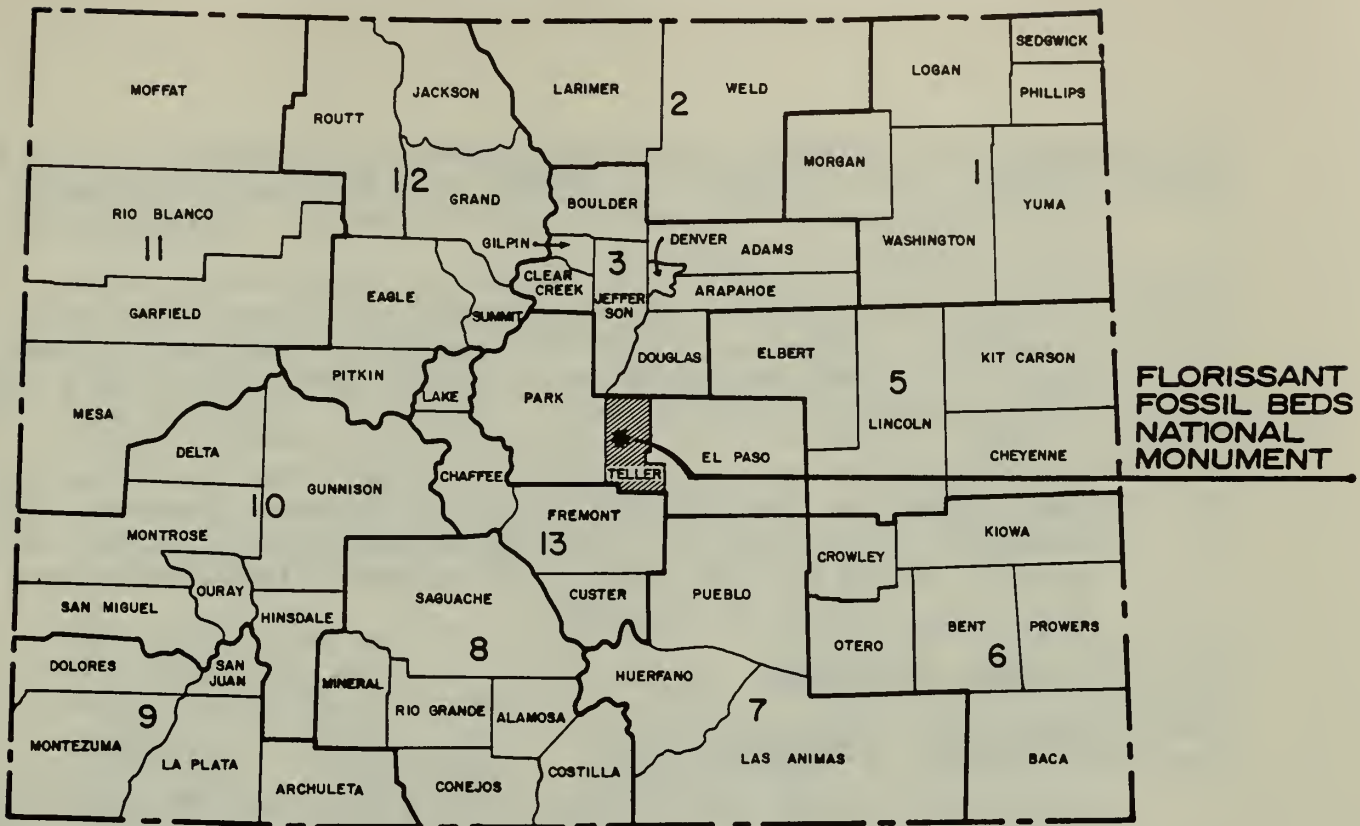
The population in Colorado in 1980 was 2,791,325--a growth rate of 9.8 percent since 1975, and it is projected to increase to a 13.2 percent rate over the next 5 years which will make a total of 3,159,087. According to the 1980 Colorado State Comprehensive Outdoor Recreation Plan, the majority of this population resides in State planning Regions 2, 3, 4, and 7; although, the highest growth rate is projected for regions 10, 11, and 12 due to oil shale development and commercial recreation. (See "Colorado State Planning Regions" graphic and Table 3.)

Florissant Fossil Beds National Monument is in Teller County a portion of the State of Colorado Outdoor Recreation Plan planning Region 4, where the population in 1975 was 292,300 ranking second in the State. The population grew to 308,893 or a growth rate of 5.6 percent and a 1980 population density of 63.1 persons per square mile. The four major recreation regions in the State, in rank order, were Regions 3, 12, 2, and 4 where an estimated 73 percent of all recreation in the State occurred. Regions 2, 3, and 4 were influenced by high population density.

Planning Region 4 has a significant composition of military personnel and their dependents due to the Air Force Academy, North American Air Defense Command, Peterson Air Force Academy, and Fort Carson military installations located near Colorado Springs. The growth rate of Region 4 for the years of 1975 through 1980 was 5.6 percent--292,300 to 308,893--and is projected to increase 8.3 percent by the end of 1985--334,840.

The State's age distribution of population was age 55 or older 26.2 percent, leaving the remainder 73.8 percent under the age of 55. Those between the ages of 25 and 29 represent the largest age group.

COLORADO STATE PLANNING REGIONS



Region Population Projections, Growth Rates, and Population Densities, 1975-1985

Region	1975	1980	1985	Growth Rate Percentage '75-'80	1980 Population Density (per sq. mi.)
1	63,200 (6)	66,744 (6)	66,745 (8)	2.4 (11)	7.2 (8)
2	225,200 (3)	264,956 (3)	320,743 (3)	17.7 (4)	39.7 (3)
3	1,418,300 (1)	1,558,411 (1)	1,751,159 (1)	9.9 (6)	307.1 (1)
4	292,300 (2)	308,983 (2)	334,840 (2)	5.7 (10)	63.1 (2)
5	20,400 (13)	21,647 (13)	29,933 (13)	6.2 (9)	2.6 (13)
6	55,900 (7)	61,354 (7)	66,394 (9)	9.8 (7)	6.4 (10)
7	143,000 (4)	143,979 (4)	145,711 (4)	.7 (12)	16.4 (4)
8	39,400 (12)	39,088 (12)	43,370 (12)	- .1 (13)	4.8 (12)
9	43,600 (10)	50,256 (11)	53,547 (11)	15.3 (5)	7.6 (7)
10	51,300 (8)	61,006 (8)	79,542 (6)	18.9 (3)	6.4 (9)
11	93,800 (5)	112,962 (5)	142,109 (5)	20.4 (2)	7.9 (6)
12	42,500 (11)	55,597 (9)	70,375 (7)	30.9 (1)	6.1 (11)
13	47,400 (9)	50,392 (10)	55,619 (10)	6.4 (8)	13.5 (5)
State- wide	2,541,300	2,791,326	3,159,087	9.8	26.8

NOTE: () Regional Statewide Rank

TABLE #3

On a Statewide basis, picnicking was participated in by more people than any other activity (75 percent). Swimming and day hiking were next with about 50 percent of the population participating in each.

The main industries of the county are livestock, timber, and mineral exploration; but, in reality, the rural scene is fast being overcome with residential developments and summer home-site/cabin structures.

The general economic situation of Teller County is considered to be economically depressed. However, it is difficult, at best, to define the economic situation of the county, as most residents work at jobs in other areas and the true picture is not known.

NATURAL RESOURCES

Landscape Characteristics

Slopes in the monument range from gentle in the open grassy mountain meadows to generally steep on upper slopes. Dense forest stands occur on the hilltops and steeper slopes, while grasses, shrubs, and cactus are found predominately in the open meadows. Meadows occupy most of the area which falls within the limits of the Florissant prehistoric lakebeds. The Florissant Basin is visually dominated by 14,110-foot high Pikes Peak, which is approximately 18 miles east of the monument.

Vegetation

The Florissant Basin lies in the Montane Life Zone, characterized by forested hills and ridges surrounding grassland meadows. The area is characterized by diverse plant communities.

Ponderosa pine (Pinus ponderosa) and aspen (Populus tremuloides) compose 90 percent of the tree cover within the monument. Aspen are restricted to moist drainages usually on north facing slopes. Blue spruce (Picea pungens) may also be found on north facing slopes. Douglas fir (Pseudotsuga menziesii) occurs throughout most of the heavier vegetated areas, and Limber pine (Pinus flexilis) is found on the windswept rocky outcroppings. Under the open ponderosa canopy, kinnikinnick (Arctostaphylos uva-ursi), juniper (Juniperus communis) and several flowering herbaceous dicots such as pasque flower (Pulsatilla patens) are found. Moist slopes support cliff jamesia (Jamesia americana), wax current (Ribes cereum), and juniper. Warm,

dry slopes support mountain mahogany (Cercocarpus montanusi), and rubber rabbitbrush (Chrysothamnus nauseosus).

Along drainages, thin-leaf alder (Alnus tenuifolia), water birch (Betula occidentalis) and several species of willow (Salix sp.) grow in dispersed, dense stands. Shrubby vegetation such as wild rose (Rosa woodsii), bush cinquefoil (Potentilla fruticosa), chokecherry (Prunus virginiana), golden current (Ribes aureum), and raspberry (Rubus idaeus) can be found along streams. Herbaceous dicots such as shooting star (Dodecatheon pulchellum) and monocots such as reeds (Juncus arcticus) and sedge (Carex aquatilis) are found along streams and in damp, marshy areas.

The grassland meadow community is characterized by short bunchgrasses such as blue grama (Bouteloua gracilis) and such herbaceous dicots as Indian paintbrush (Castilleja integra), whorled leaf loco (Oxytropis splendens), tall penstemon (Penstemon secundiflorus), and numerous composites.

None of the plant species found thus far in the monument are classified as rare or endangered. However, some monument species are included in the Denver Botanical Gardens conservation list. These include shooting star, sego lily (Calochortus gunnisonii), and ball cactus (Coryphantha vivipara); also, found here is the Colorado columbine (Aquilegia caerulea) which is protect by State law.

The goldenrod (Solidago ptarmicoides [Nees] Boivin; syn. Aster ptarmicoides [Nees] T. & G.) has also been identified within the monument. This species is listed in the Colorado Natural Heritage Inventory (June 1981 and January 1984) as being "Of Special Concern" in Colorado and is ranked S2 (1/84) which means "Imperiled in Colorado because of rarity; 6-20 known occurrences or few acres; vulnerable to extirpation from Colorado." The Florissant population is currently vigorous and consists of an estimated 200-300 individuals.

Wildlife

Big game species commonly found in the area are deer, antelope, elk, and an occasional black bear. Mountain lions are also typical within the general region. Big game usually migrate to lower elevations for the winter; although, sometimes elk remain in the monument. Small animals include bobcats, gophers, coyotes, beavers, porcupines, badgers, weasels, chipmunks, squirrels, cottontail rabbits, prairie

dogs, bats, and mice. Possibly, over 100 species of birds including golden eagles inhabit the area. Also, there are numerous insect and butterfly species.

Deer, elk, and antelope are found seasonally. During the winter there is a partial movement of elk from the Pikes Peak area toward the monument. Hunting pressure coupled with severe weather is responsible for some of the migration behavior of this species. Rare or endangered species present within the monument are the bald eagle and the American peregrine falcon. These species have been sighted in the park as a summer visitor only. There is no record of confirmed nesting sites for either of these species within the monument.

Geology and Soils

Florissant Fossil Beds National Monument is on the undulating Rocky Mountain Peneplain surface. Thirty miles to the east the Front Range rises abruptly from the high plains (approximately 6,000 feet) to elevations which exceed 14,000 feet (Pikes Peak). A precambrian Pikes Peak batholith covers a broad area west of Colorado Springs completely dominating the overall geologic setting of the Florissant region.

Florissant is located in an arc shaped topographic basin beginning south of the monument, extending through it, and bending northwest toward Lake George. During the late Eocene and extending into the Oligocene, this 10-mile long, 2-mile wide depression was a lower elevation valley containing a forest of giant sequoia trees intermixed with a variety of large hardwood tree species including oaks and maples. Beginning in the late Eocene and extending through the Oligocene, repeated volcanic events from a 39-mile volcanic field, 15 miles southwest of Florissant, produced massive volcanic mudflows which covered the valley, preserving many of the sequoia and hardwood stumps intact and in a standing position. The mudflow also blocked drainage (at the north end of the valley) creating a long narrow lake extending from south of the monument to present-day Lake George. Continued activity from the 39-mile field provided a sediment for the lake, both from fluvial process and from direct ash fall deposition. Lake sediments vary in composition and texture from coarse mudflow breccia and conglomerate to laminated layers of diatomite and sapropel (McLeroy and Anderson 1966). These layers known more commonly as the Florissant lake shales, or "paper" shales, are where delicately preserved leaf and insect fossils associated with Florissant are found. The very fine grained volcanic ash combined with an active sediment regime in the lake provide an ideal environment for

rapid burial and extremely detailed preservation of much of the flora and fauna existing at this location during the Oligocene epoch. Ash fall tuff layers up to 6-inches thick are also found at several locations throughout the lake sequence marking the time of major volcanic eruptions. Above the lake sediment sequence, another massive volcanic mudflow is found and is characterized by coarse grained basic breccia. This relatively resistant rock is responsible, at least in part, for preservation of the easily eroded sequence of lake shales and tuffs.

Since the Miocene, the distribution of the Florissant lakebed has been determined by faulting and erosion. Lateral variations of lake sediments and displacements due to faulting make it extremely difficult to trace particular horizons for more than 50 feet. Further compounding the exposure of the lake sediment, a veneer of coarse granite intermixed with fine clay and loam covers the lakebeds in many locations to a depth of 10 to 12 feet. This granite layer was formed from a high energy fluvial environment created by the melting of Pliocene glacial ice over eroded and fragmented Pikes Peak granite.

Paleontology

To understand and appreciate the fossil resources of the monument, one must also understand and appreciate the dynamic change between the environment of the monument area today as opposed to 35 million years ago and the natural processes which were significant in bringing about the change.

The latter period of time is referred to as the Oligocene period. The environment of the monument area during this period of time can be characterized as subtropical and ranging from 2,500- to 3,000-feet in elevation. The area contained groves of 300-foot tall redwoods, a lush undergrowth of vegetation, mammals such as small horses and pig-like oreodonts, a wide variety of insects, and streams and lakes which contained forms of aquatic life including fish.

As a series of volcanic actions began to occur so did a drastic change in the environment which led to the existence of the vast paleontological resources of the monument. The volcanic action caused mudflows and ash fall to begin burying and preserving various forms of life which perished as a result of the volcanic action.

Today beneath these gently rolling meadow lands, a delicate fossil handwriting--an ancient calligraphy--is imprinted on Oligocene shales. Incredibly detailed fossils of insect and leaves exist in such profusion that the Florissant Fossil Beds form one of the better fossil assemblages in the world.

Fossils of dragon flies, beetles, ants, butterflies, spiders, fish, some mammals and birds, and innumerable insects that lived there during the Oligocene period are almost perfectly preserved. Fossil leaves from birches, willows, maples, beeches, hickories, and needles from fir and the giant sequoia trees are abundant. There are even palm leaves which prove that a warmer subtropical climate once prevailed.

Though the fossils can be seen only in displays at the visitor center, giant petrified tree stumps which were excavated prior to the establishment of the monument can be viewed by visitors touring the area.

The fossil bearing shells of the Florissant lakebed were discovered by Dr. A. C. Peale of the U. S. Geological Survey in 1874. Since then, scientists from around the world have dug into the shales and removed over 80,000 specimens identifying more than 1,100 species of insects including almost all the Oligocene fossil butterflies of the New World, over 140 plant species, and several species of fish, birds, and small mammals.

Water Quality

There are no streams or lakes in the monument which offer a potential supply of potable water. Since the area receives less than 12 inches of precipitation annually, the streams are dry most of the year. The streams are about 1- to 3-feet wide and 1- to 2-feet deep, generally providing a very slow moving source of water. Most have well established beds, but some show signs of past accelerated erosion--possibly due to historic logging and grazing operations. There are several springs and seeps scattered throughout the monument that are virtually useless as a source of potable water.

A field chemical analysis of Grape Creek and its tributaries has been made. Both tributaries contained hard water. The west tributary had a value above acceptable public health service standards and the east fork test showed indications of H_2S which could be related to organic pollutants entering upstream from cattle concentrations or decaying benthic materials. Combined manganese/iron concentrations for the Grape Creek sample was also above PHS standards. Considering the high probability of organic pollution from

livestock outside the monument and the relatively high mineral load, the surface water in the monument should not be used for public consumption. As lands adjacent to the monument are developed the potential for surface and subsurface water contamination will increase especially considering that septic tank/filter-field systems are the primary means of sewage disposal.

The subsurface water quality has a seasonal variation. During periods of low flow and seasons of drought, the quality of the water deteriorates due to an increase in iron oxide/manganese. An oily film also covers the surface of the water once it is collected.

Water from a 100-foot well adjacent to the interim visitor center, and a well drilled at a residential site approximately 2 miles from the visitor center, has high iron oxide and manganese concentrations, unfit for human consumption. The water from these wells are used for nonconsumptive purposes only. Currently, potable water is hauled to the sites from outside the monument. In early 1985, a new 500-foot well was drilled about 400 feet from the existing visitor center. This well extended into the Pikes Peak granite formation and produced a significantly higher quality water than any of the existing wells. As soon as a chlorination system can be installed, the water will be used for consumptive purposes.

Air Quality

The air quality of Florissant Fossil Beds National Monument is considered very good and subject to Class II Air quality increments as well as applicable Colorado State standards. Even though the major populations of Colorado Springs, Pueblo, and Denver are only 40, 55, and 60 miles from the area respectively; there is no visual indication that these metropolitan areas effect the quality of air at the monument. The orientation of the monument in relation to these metropolitan areas, with respect to prevailing winds and elevation differences, contributes to the minimal effect of associated pollutants.

The most serious threat to air quality at this time is the rapidly increasing development of residential areas adjacent to the monument. These developments have a potential of increasing air pollution due to the increase in the number of automobiles used adjacent to the monument. Such development also poses a threat to air quality should the density of residences increase along with the percentage using wood-burning devices. Smoke could drift into the

valley of the monument and reduce air quality and visibility. Air quality monitoring has never been conducted in the monument.

Climate

The area, typically experiences wide, daily and yearly variations in temperatures and humidity. Temperatures range from minus 40 degrees Fahrenheit in the winter to over 90 degrees Fahrenheit in the summer. Winters are harsh and cold with potential rapid temperature fluctuations. Summers are generally pleasant with moderately low humidity and daytime highs infrequently above 80 degrees Fahrenheit.

This region of the high country is quite dry, with average yearly rainfall less than 12 inches. Rain occurs generally in the form of afternoon thunderstorms, which are brief and occur almost daily in July and August. These 2 months contribute nearly one-half the annual precipitation. Similarly, February, March, and April supply nearly one-half of the yearly snowfall. Yearly snowfall seldom exceeds 70 inches per year with accumulations generally less than 1 foot, and often the ground is bare for long periods of time.

Winds are normally from the west and may attain velocities as high as 35 to 40 miles per hour in the warmer seasons and 70 miles per hour in the colder seasons.

During the period from April to October, occasional Gulf of Mexico air masses provide rain showers that are accompanied by gentle breezes. It is this air mass that generally provides the more pleasant weather conditions.

Flood Plains

In compliance with flood plain management, Executive Order Number 11988, 3 C.F.R. 117 (Supp. 1977) and protection of wetlands, Executive Order Number 11990, 3 C.F.R., Page 121 (Supp. 1977), cross sections and slope data was collected and used by the Corps of Engineers to conduct flood plain surveys. The Corps of Engineers made a determination that all development alternatives were well above the 100- and 500-year flood plains. All technical data and correspondence between the National Park Service and Corps of Engineers is on file in the National Park Service, Rocky Mountain Regional Office, Division of Park Planning.

CULTURAL RESOURCES

Archeology

The first professional archeological surveys in the monument area were conducted by Etienne B. Renaud of the University of Denver in 1932. He had little success in locating sites in the Florissant Basin and reported only one within the monument itself (Renaud 1945: 19). The location of this site was too general for later surveys to relocate it (Olson, Rowland, and Bridge 1974: 7).

Further archeological investigations were conducted during August, September, and October of 1974 by A. P. Olson and Robert Rowland of Denver University. The purpose of this intensive investigation was to evaluate the cultural resources, estimate the time of aboriginal utilization, and evaluate settlement patterns or use of the region (Olson 1974: 7). Approximately 80 percent of the monument was intensively surveyed. Especially drainages, ridge tops, and rock outcrops were investigated. During the initial survey, 29 sites were identified, and one site (5TL19) was tested by A. P. Olson and Tom Bridge in September 1975. A rock shelter (5TL112) was also tested by Olson and Bridge at the same time bringing the total of known archeological sites in Florissant Fossil Beds National Monument to 21.

According to Olson and Rowland, the prehistoric remains recovered at the monument are indicative of man's occupation over an extended period of time from several thousand years before Christ to perhaps A.D. 1200 (1974: 11-12). The oldest artifacts recovered were Plano points considered to be indicative of the terminal phase of the Big Game Hunter stage dating from 8000 B.C. to about 5000 B.C. (Jennings 1968: 197). Archaic projectile points were also recovered from the area as well as Woodland projectile points. Broadly speaking, the change from Archaic to Woodland in the region is marked by a shift from the use of the atlatl (spear-thrower) to the bow and arrow with a corresponding reduction in projectile point size. Sites in the monument are mainly on the sides of the main valley on open terraces above drainages. According to Olson and Rowland, no historic material that can be attributed to Native Americans was found, although material from this period was recovered from Middle Park to the west (1974: 12). In compliance with Executive Order 11593 an archeological survey of the monument has been completed (Olson, Rowland, and Bridge 1974); consequently, no further general archeological survey is required pending acquisition of new lands.

History

When the first Europeans, the Spanish, extended their empire into New Mexico in the late 1500s, the Ute Indians occupied Colorado west of the Front Range of the Rockies. The Utes were a nomadic people who lived in small family units because of the scarcity of food in the mountains. Contact with the Spanish brought substantial changes into the economic, social, and political life of the Utes. Through trade with the Spanish, the Utes acquired the horse which enabled their hunters to range over a much greater area. Because of the horse, they were able to gather food over larger areas and they were able to assemble in much larger social groups. The Utes were familiar with the Florissant area with favorite camping sites in the vicinity and the Ute Trail which runs north of the park.

The Spanish failed to expand their empire beyond Santa Fe and Taos. In the 18th century the Florissant area was included in a vast tract west of the Mississippi reacquired by France in 1800. In 1803, the United States Government purchased the Louisiana Territory from France. To evaluate the territory, several military expeditions were set to explore the region beginning with Lewis and Clark in 1804. Lieutenant Zebulon Montgomery Pike led the first expedition into Colorado in 1806. Pike's route from the Front Range to South Park is uncertain, but he may have taken the Oil Creek route a few miles to the south of the park. Other military expeditions passed through the area led by Major Stephen Long in 1820 and Lieutenant John C. Fremont in 1843 and 1844.

The frontier of the fur trader laid the foundations of American expansion in the West between 1820 and the 1840s. Trappers in search of beaver certainly passed through the area en route to South Park, a favorite haunt. Neither the Utes, Spanish, mountain men, nor the explorers had much impact on the Florissant area. The early visitors to the area were transient in nature.

The discovery of gold in 1858 brought the mining frontier to Colorado. Although no rich strikes were made in the immediate vicinity of Florissant, the Ute Trail--north of the monument--became a major wagon route to the gold camps of Tarryall, Fairplay, Hamilton, and Buckskin Joe in South Park. The early settlers in the park area operated commercial and transportation enterprises to serve the mining camps.

One such individual was James Costello of Florissant, Missouri, who built a ranch, trading post, and hotel north

of the monument in 1870. He named his enterprise Florissant, and it became the core of the present town. Florissant prospered as a transportation and supply terminal with the silver strike in Leadville in the 1880s and the gold strike in Cripple Creek in the 1890s. In the 1880s, the Colorado Midland Railroad passed through Florissant in the race to Leadville.

In the 1880s and 1890s, farming left the greatest impact on the Florissant area. Most were small ranchers, who grazed cattle on the open range and cultivated hay, potatoes, oats, and some garden vegetables on small parcels. The buildings of several homesteads still remain in the monument. The Hornbek House was the only structure determined to be eligible for nomination to the National Register of Historic Places and was so entered on December 8, 1981.

The scientific significance of the fossils at Florissant is the reason for the monument's existence. Dr. C. A. Peale of the 1874 Hayden Survey first established the scientific value of the fossils at Florissant. Other scientific surveys soon followed. The significance of the fossils being apparent, a small movement fought to have the area protected as a State or national park. Meanwhile, local entrepreneurs developed tourist facilities to exploit the fossils. One of the more notable ventures was the "Pike Petrified Forest," at the site of the park headquarters. Another such tourist facility was the "Colorado Petrified Forest Ranch."

VISITOR USE

Visitor use at Florissant Fossil Beds National Monument is totally day use with an average length of stay being approximately 2 hours. A visitor-use survey conducted in 1980 indicated that the origin of visitors were as follows.

27 percent	Colorado
25 percent	Texas, Kansas, Missouri, and Oklahoma
45 percent	Other states
3 percent	Foreign

100 percent of the 1980 visitation

From the above data, it is important to note that 73 percent of the visitation is generated from out of State. Also, the survey revealed that 86 percent of the Colorado visitors reside in Zones 3 and 4 previously identified in Table 3, Page 45.

The visitation for 1980 (66,652) marks the highest yearly visitation ever recorded at the monument. Based on a visitor use survey completed in 1980, during the peak visitor season, 14 percent of the visitation was weekend use. The remaining 86 percent of the visitation for the peak visitor season period occurred during the weekday. Using the peak month, July, of the 1980 visitor-use season, it was determined that the peak-use day demand was approximately 690 visitors with the average peak-use hour demand involving approximately 115 visitors. The average visitation during the peak month was 576 visitors per day (see Table 4).

Monthly visitation records from January 1976 through December 1984 indicate that 76 percent (41,694 visits) of the average yearly visitation (54,861 visits) occurred during the 4 month period between June 1 and September 30. This period is referred to as the peak visitor season. More significant is the fact that 48 percent (26,333 visits) of the average yearly visitation occurred during a 2-month period between July 1 and August 31. This period of time is referred to as the peak period of use (see Figure 1).

Figure 1 also reflects that the 8-month period between October 1 and May 31 only accounted for 25 percent (13,472 visits) of the average yearly visitation. This constitutes an average of 1,684 visitors per month or an average of 56 visitors per day during the 8 month period. Furthermore, for the 4 month period between November 1 and February 28, the monument only received a total of 3,219 visits which is an average of 805 visitors per month or an average of 27 visitors per day.

As illustrated in Figure 2, the greatest growth in visitation occurred between 1973 and 1977. The average growth for this period was 33 percent. Over the last 10 years (1974-1984), there has been an 8.8 percent average increase in visitation and a 5.3 percent average increase in the last 5 years (1979-1984). The probable range of visitation for 1990 was projected to be between 90,972 and 74,768.

Should visitation reach 90,972 in 1990 and the peak visitor season and peak period of use represent 76 percent and 48 percent respectively, the following visitor characteristics could be anticipated.

- The average daily visitation would be 285 during the weekend period of the peak visitor season. This is assuming that weekend use would continue to represent 14 percent of the weekly visitation.

TABLE 4
AVERAGE AND PEAK VISITOR USE COMPUTATIONS

Based on 1980 visitor-use records, the following computations identify the methodology and values used in determining (A) average peak day use for peak month, (B) peak day use for peak month, (C) average peak hour use for peak month, (D) peak hour use for peak month, and (E) parking requirements for primary visitor contact area.

(A) Average Peak Day Use for Peak Month

17,844	Peak use month for 1980 (July)
.31	Number of days during July
<hr/>	
576	= Average peak day use for the peak month

(B) Peak Day Use for Peak Month

575.6	Average peak day use for the peak month
1.2	Factor
<hr/>	
691	Peak day use for peak month

(C) Average Peak Hour Use for Peak Month

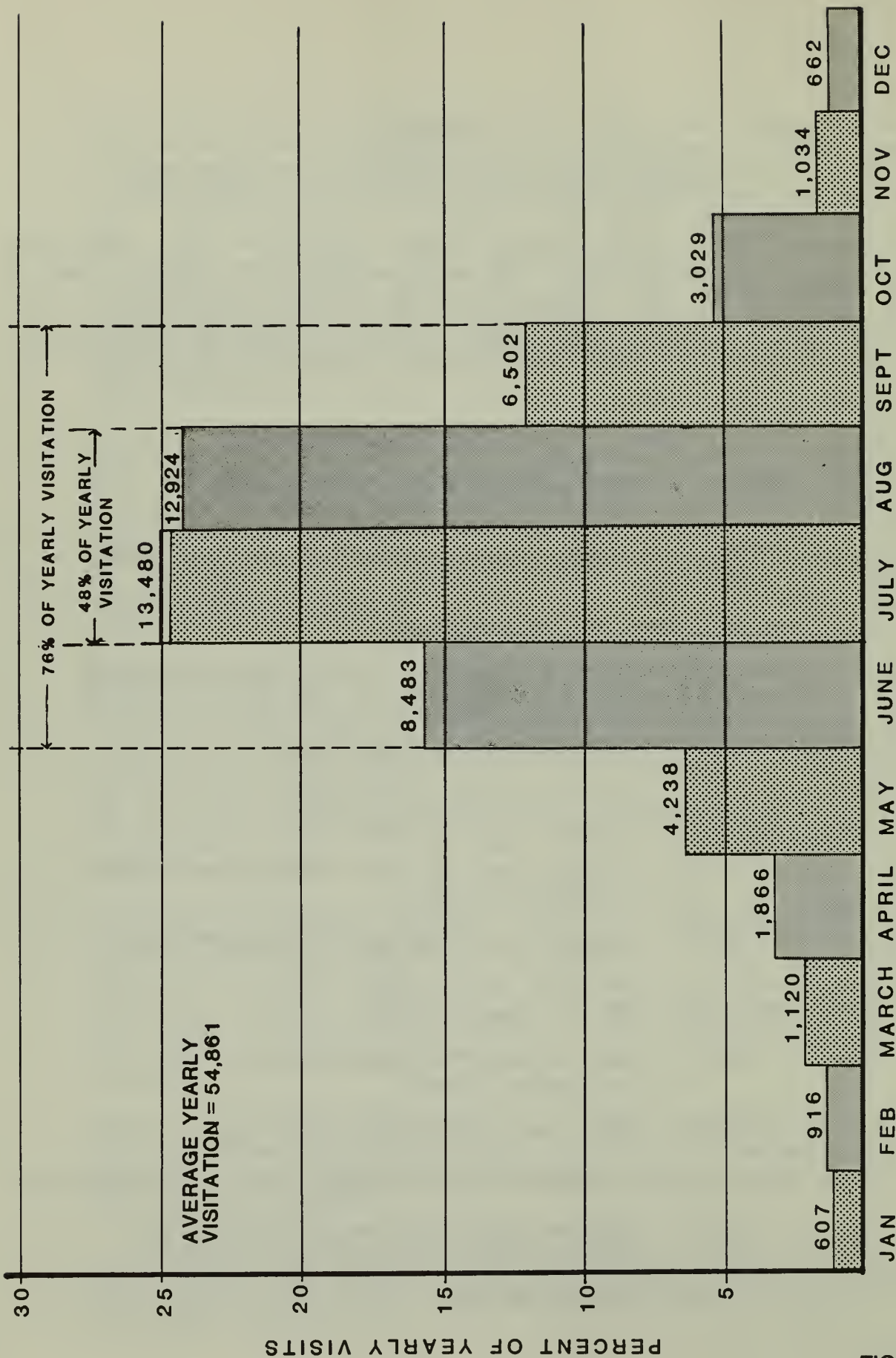
575.6	Average peak day use for the peak month
.20	Percentage factor
<hr/>	
115	Average peak hour use for peak month

(D) Peak Hour Use for the Peak Day

690	Peak day use for peak month
.20	Percentage factor
<hr/>	
138	Peak hour use for the peak day

(E) Parking Requirements for Primary Visitor Contact Area

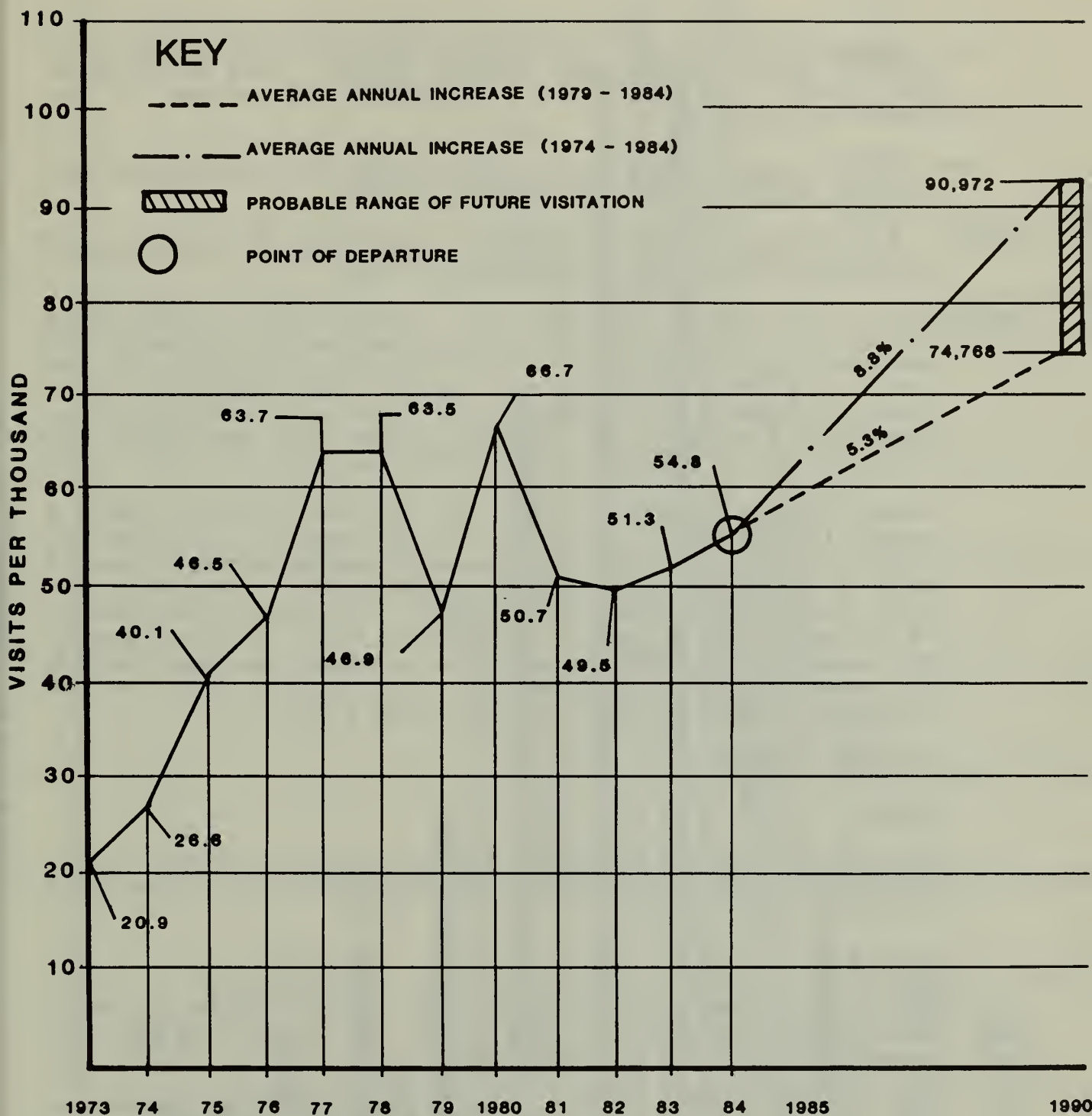
115	Average peak hour use of peak month
3.4	Average number of visitors per car
<hr/>	
34	Parking spaces



AVERAGE MONTHLY USE DISTRIBUTION

(1976 1984)

FIGURE 1



ANNUAL VISITATION (1973 - 1984)
FLORISSANT FOSSIL BEDS NATIONAL MONUMENT

FIGURE 2

- The average daily visitation would be 676 during the weekday period of the peak visitor season. This is based on the weekday use continuing to represent 86 percent of the weekly visitation.

- The average daily visitation would be 340 during the weekend period of the peak period of use.

- The average daily visitation would be 854 during the weekday period of the peak period of use.

Using a factor of 1.2 times 854 (average daily visitations during the weekend period of the peak period of use), the monument could anticipate 1,025 visitors as a peak day use during the months of July and August (peak period of use). Using a factor of .20 times 1,025 (peak day use during the peak period of use) the monument could also anticipate 205 visitors during the peak hour of the peak day.

Comparing the monthly visitation records over the last 3 years (1982-1984), the greatest percentage increases in monthly visitation occurred during November through January with 19.5, 53.5, and 40 percent respectively. The months of June through September continue to represent approximately 76 percent of the yearly visitation with July and August representing the peak period of use during the peak visitor use season. The average monthly increase per year for the 1982-1984 season was 10.7 percent (see Figure 3).

FACILITY ANALYSIS

Roads

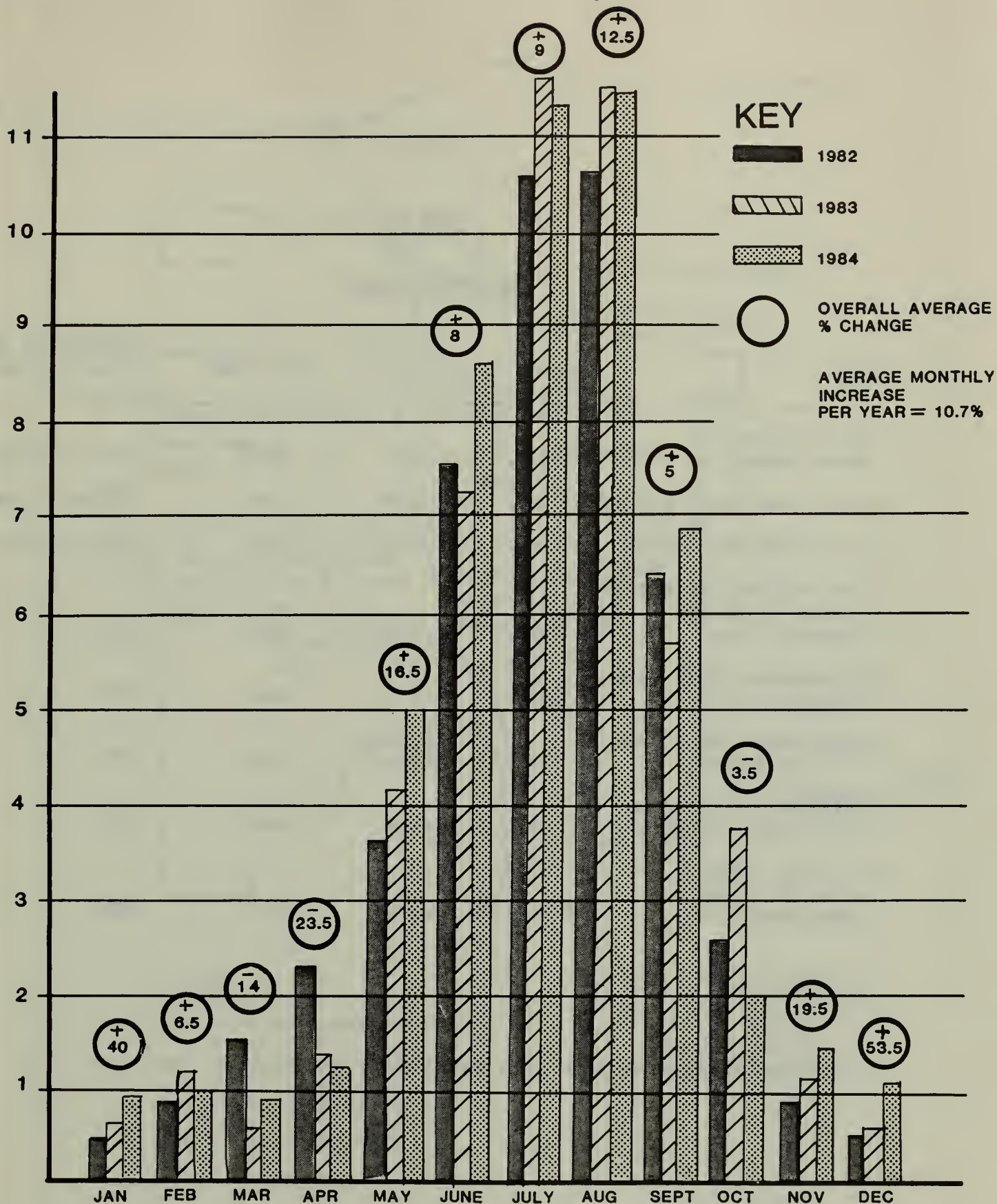
Table 5 identifies the name, length, surface treatment, and condition of roads; and ownership of right-of-way (see Road Location Map).

Trails

There are three maintained hiking trails in the monument which total 3.2 miles. These trails are associated with the developed areas of the monument.

The "Saw Mill Trail" is a 2.7 mile loop trail that begins at the visitor contact/administration center parking area. This trail receives moderate visitor use. The "Then and Now Trail" also begins in the same area and is 0.4 miles long. This trail receives moderate to heavy use since it is shorter and encompasses a majority of the exposed fossil resources. A small amphitheater where interpretive talks are conducted is also associated with this particular trail

VISITATION IN THOUSANDS



MONTHLY VISITATION (1982 - 1984)

FLORISSANT FOSSIL BEDS NATIONAL MONUMENT

U.S. DEPT. OF THE INTERIOR - NATIONAL PARK SERVICE

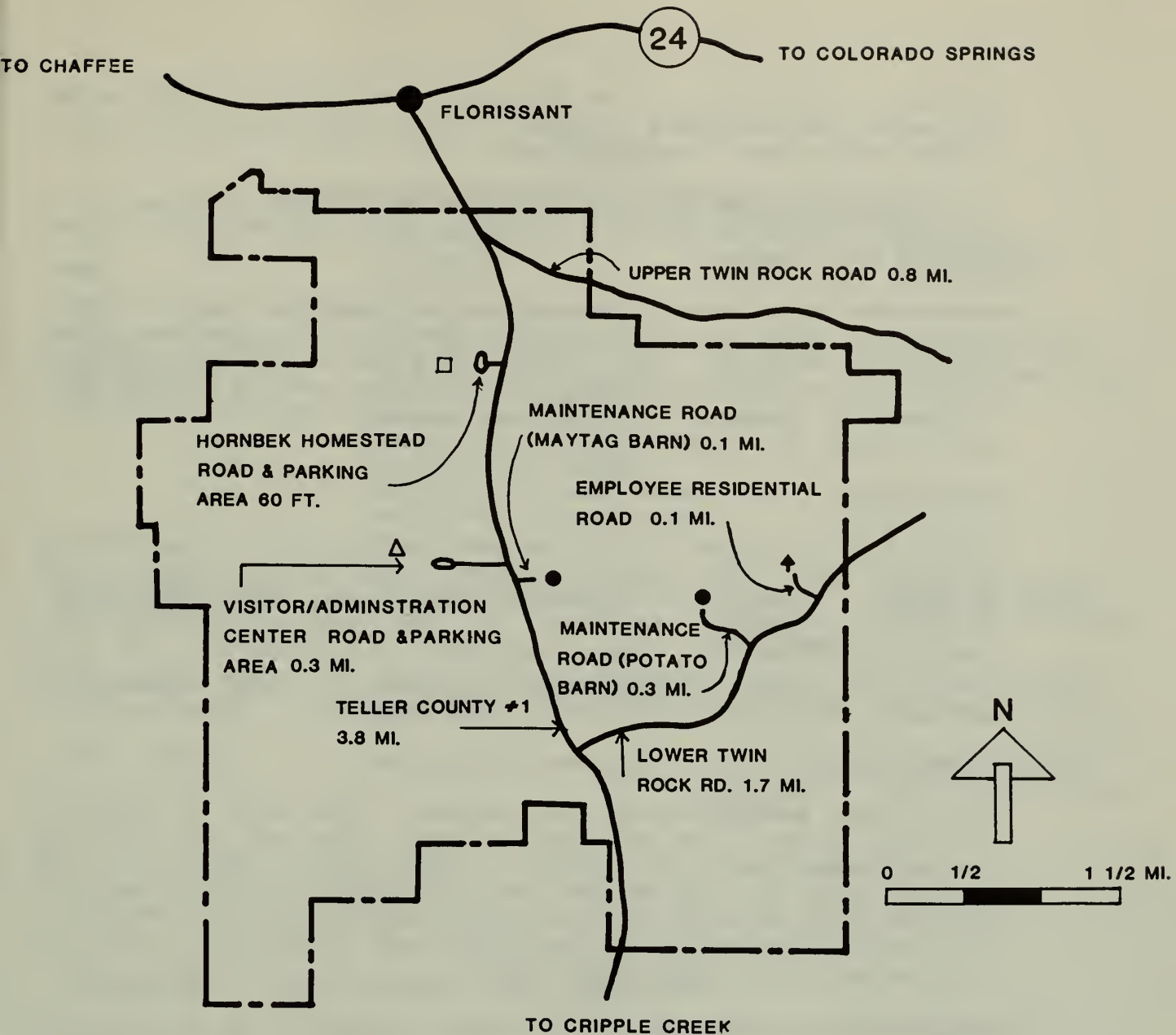
FIGURE 3

TABLE 5

MONUMENT ROADS

NAME	LENGTH	SURFACE	CONDITION*	OWNERSHIP OF RIGHT-OF-WAY
Teller County Road Number 1	3.8 mi.	Gravel	Good	Teller County
Upper Twin Rock Road	0.8 mi.	Gravel	Good	Teller County
Lower Twin Rock Road	1.7 mi.	Gravel	Good	Teller County
Visitor/Administrative Center Road and Parking Area	0.3 mi.	Gravel	Good	NPS
Maintenance Shop Road (Maytag Barn)	0.1 mi.	Gravel	Good	NPS
Maintenance Shop Road (Potato Barn)	0.3 mi.	2-track Gravel	Fair	NPS
Employee residential Road (Well's Cabin)	0.1 mi.	Gravel	Good	NPS
Road and Parking area (Hornbek Homestead)	60 ft.	Gravel	Good	NPS

* Road condition ratings were excellent, good, fair, and poor.



LEGEND

- △ VISITOR / ADMINISTRATIVE CENTER
- HORNBEK HOMESTEAD
- ↑ EMPLOYEE RESIDENCE
- MAINTENANCE SHOP
- - - PARK BOUNDARY
- ROAD

ROAD LOCATION MAP

FLORISSANT FOSSIL BEDS
NATIONAL MONUMENT
TELLER COUNTY, CO

171	80,040
JUNE 85	RMRO

system. A portion of the Then and Now Trail is also paved to permit handicapped access to view one of the petrified stumps which has been unearthed.

A 350-foot pedestrian trail is maintained between the Hornbek Homestead and the parking area adjacent to Teller County Road Number 1.

With the exception of that portion of the Then and Now Trail which has been paved for handicapped access, the remaining trail systems have been surfaced with decomposed granite except where they intersect and become a section of old jeep roads. In general, the trails are in need of extensive maintenance and upgrading.

Buildings

Table 6 is a summary of the structure utilized to facilitate visitor use and administrative activities within the monument. The table identifies the name, function, type, condition, and suitability of the subject structures. Details concerning the condition and location of the structures were previously discussed in the Issues and Cultural Resource sections of this document.

Picnic Area

The picnic area contains six tables. This area is adjacent to the south side of the parking area of the visitor contact/administrative center. The trail system to the picnic area is unpaved and very primitive. Access and use of the area is very difficult for the handicapped visitor. The area is served by two portable rest rooms which are also substandard for handicapped use.

Utilities

All potable water is currently being supplied by wells. All potable water including the supply for the visitor contact/administrative facility and employee residence is bottled and hauled to the area due to the unsatisfactory water quality of the only existing well other than a new well drilled in early 1985. The new well is 500 feet deep and about 400 feet from the visitor contact/administrative facility. As soon as a chlorination system can be set up, the new well will be utilized for a potable water supply for the visitor contact/administrative center and picnic area.

All sewage is disposed of by septic tank leach field systems. These systems are extremely marginal and easily overloaded due to the soil conditions. Special design techniques must be utilized when disposing of sewage through leach fields.

TABLE 6

EXISTING OPERATIONS AND MAINTENANCE STRUCTURES

NAME	FUNCTION	TYPE	CONDITION * SUITABILITY
Visitor Contact/ Administrative Facility	Visitor orientation and interpretation, exhibit displays, audiovisual pre- sentation, association sales area, adminis- tration offices, lunch/ work room, storage, and supplies.	1-story frame	poor condition poor suitability
Maintenance Shop (Potato Barn)	Storage, maintenance	2-story concrete and frame	fair condition poor suitability
Maintenance Shop (Maytag Barn)	Storage, maintenance, wood shop	2-story	poor condition poor suitability
Well's Cabin	Housing for employee	1-story log and frame	poor condition poor suitability

* Condition ratings are good, fair, and poor.

This rating is an overall evaluation of the structural and mechanical aspects of the facilities.

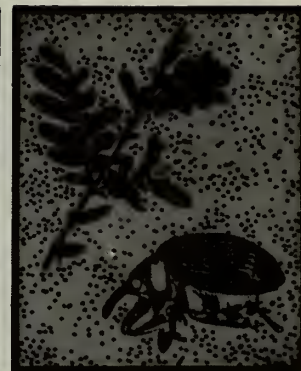
Suitability ratings are good, fair, and poor.

This rating is an overall evaluation of how well the structure accommodates the function it is presently serving taking into consideration available space and adequate supporting facilities and utilities.

All electrical systems are installed above ground on treated poles. Telephone service lines are all buried.

A 66-foot wide right-of-way across Section 23, 24, and 19 has been established for the Homestake Municipal Waterline. This line is 48 inches in diameter. The Blue River Pipeline right-of-way also crosses the monument on the northeast corner.

**THE ENVIRONMENTAL CONSEQUENCES
OF THE PROPOSED ACTION
AND ALTERNATIVES**



THE ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION AND ALTERNATIVES

This section contains a description of the alternatives considered and a detailed description of the environmental impacts and mitigating actions of each alternative and the proposed plan. A Summary Evaluation section and Impact Summary Chart is also provided to justify selection of the proposed plan. The summary chart summarizes the environmental impacts of the proposal and other alternatives considered. The Impact Summary Chart also identifies the total gross development cost for each alternative and the proposal. A detailed breakdown of specific cost of each alternative was included in the Environmental Assessment for the General Management Plan/Development Concept Plan. A copy of the subject document is on file in the monument and at the Rocky Mountain Regional Office, Division of Park Planning.

The staffing needs presented in the Plan Implementation section of this document will be the same for all of the alternatives considered other than Alternative A (Status Quo). The present staffing needs would be maintained under Alternative A. The present staffing level was also identified in the previous Plan Implementation section.

ALTERNATIVE A (Status Quo)

This alternative is based on the concept that no major changes will take place with regard to existing facilities. Normal maintenance operations and work essential to upgrade existing facilities to meet public health and safety standards and protect resources will continue as a part of this alternative. (See Alternative A, Status Quo, Development Concept Plan.)

The monument staff will continue to use the existing converted farm house as a visitor contact/administrative center. Handicapped access and use of the structure will be improved, and a new building foundation is provided.

The existing utilities serving the monument will be retained. However, a new well and pump house for the existing residence will be installed since the existing system is not usable as a potable water supply and has historically presented problems. This alternative as presented in the Environmental Assessment for the General Management Plan also originally provided for a new well and pumphouse at the visitor contact/administrative center. As earlier indicated, the well and pumphouse is presently being installed. To reflect the cost and potential impacts of

ALTERNATIVE A STATUS QUO

DEVELOPMENT CONCEPT PLAN

FLORISSANT FOSSIL BEDS NATIONAL MONUMENT

LEGEND

ROAD

TRAIL

VEGETATION

VISITOR CONTACT/
ADMINISTRATION CENTER

MAINTENANCE AREA

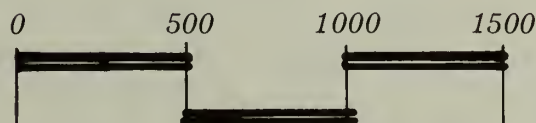
RESIDENTIAL AREA

PICNIC AREA

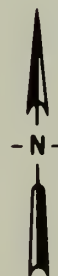
PARKING

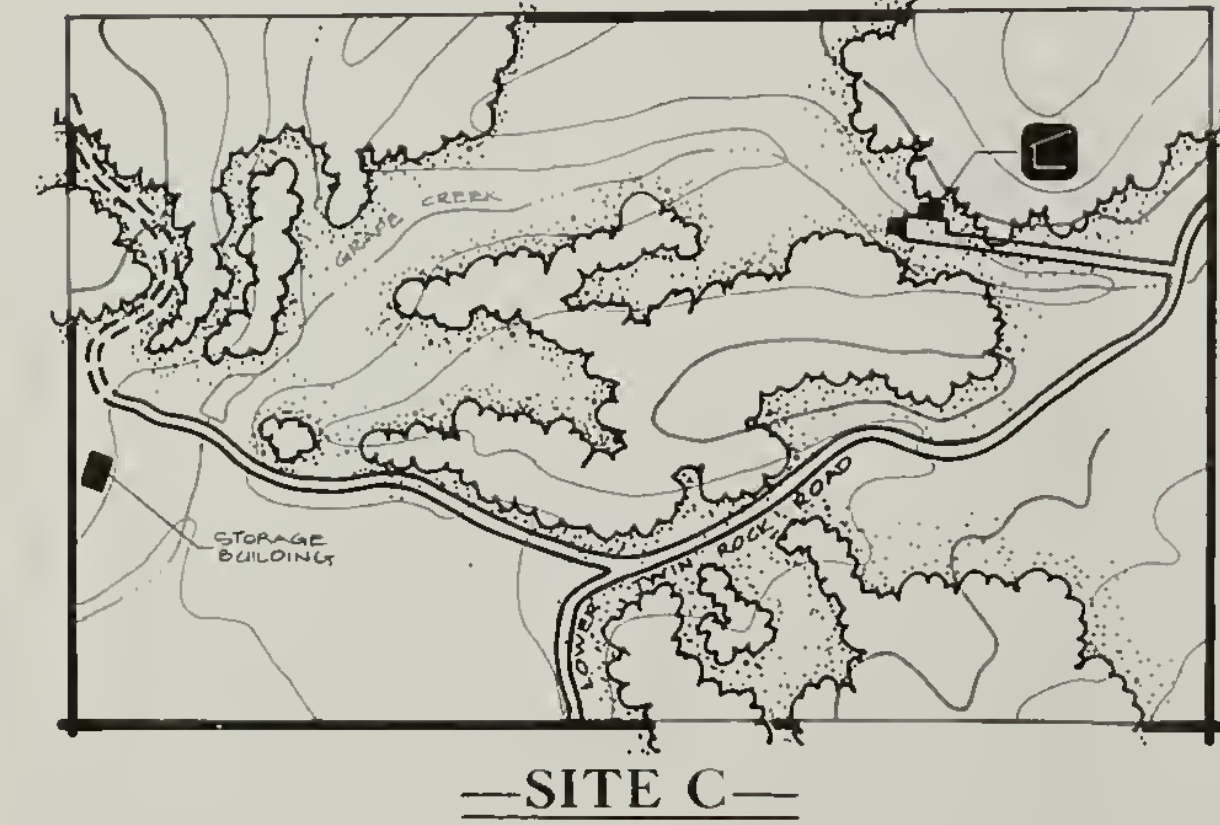
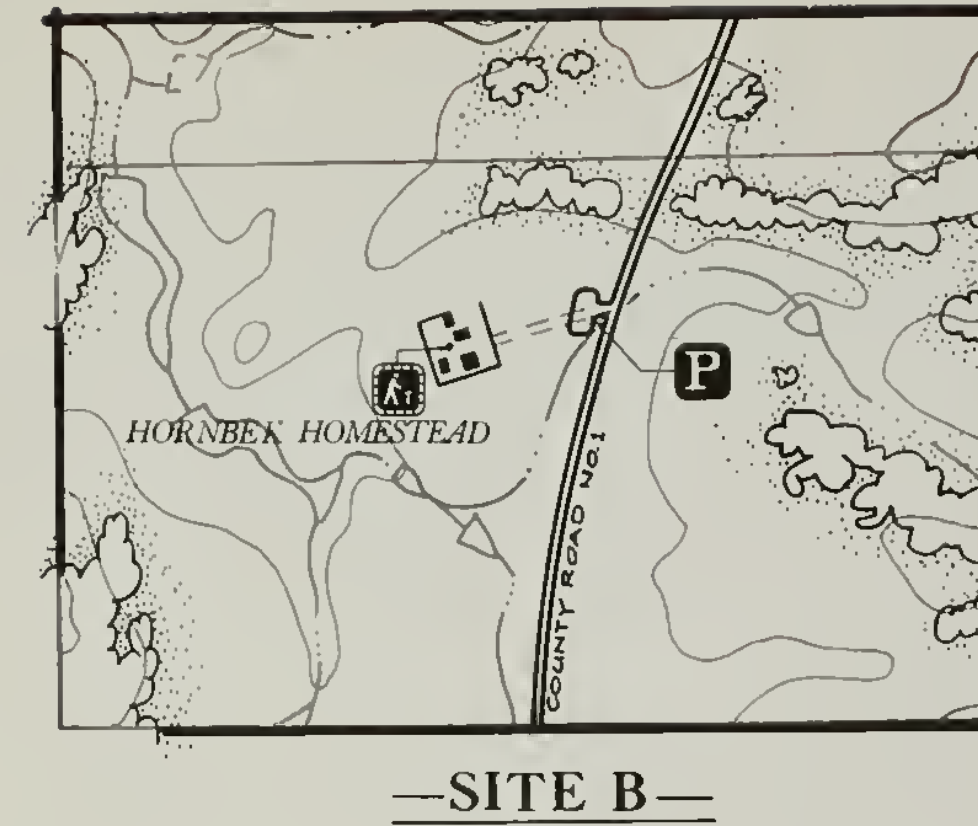
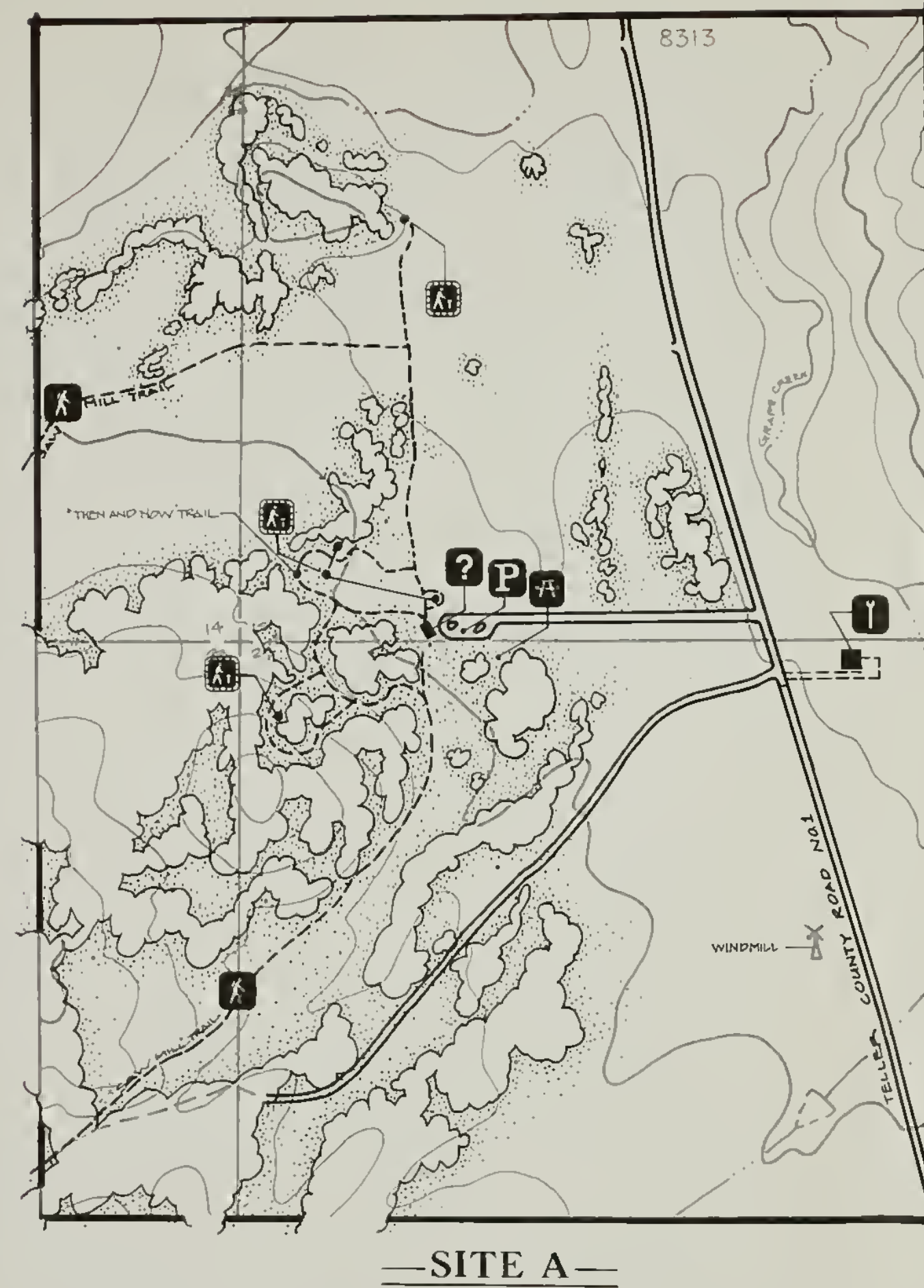
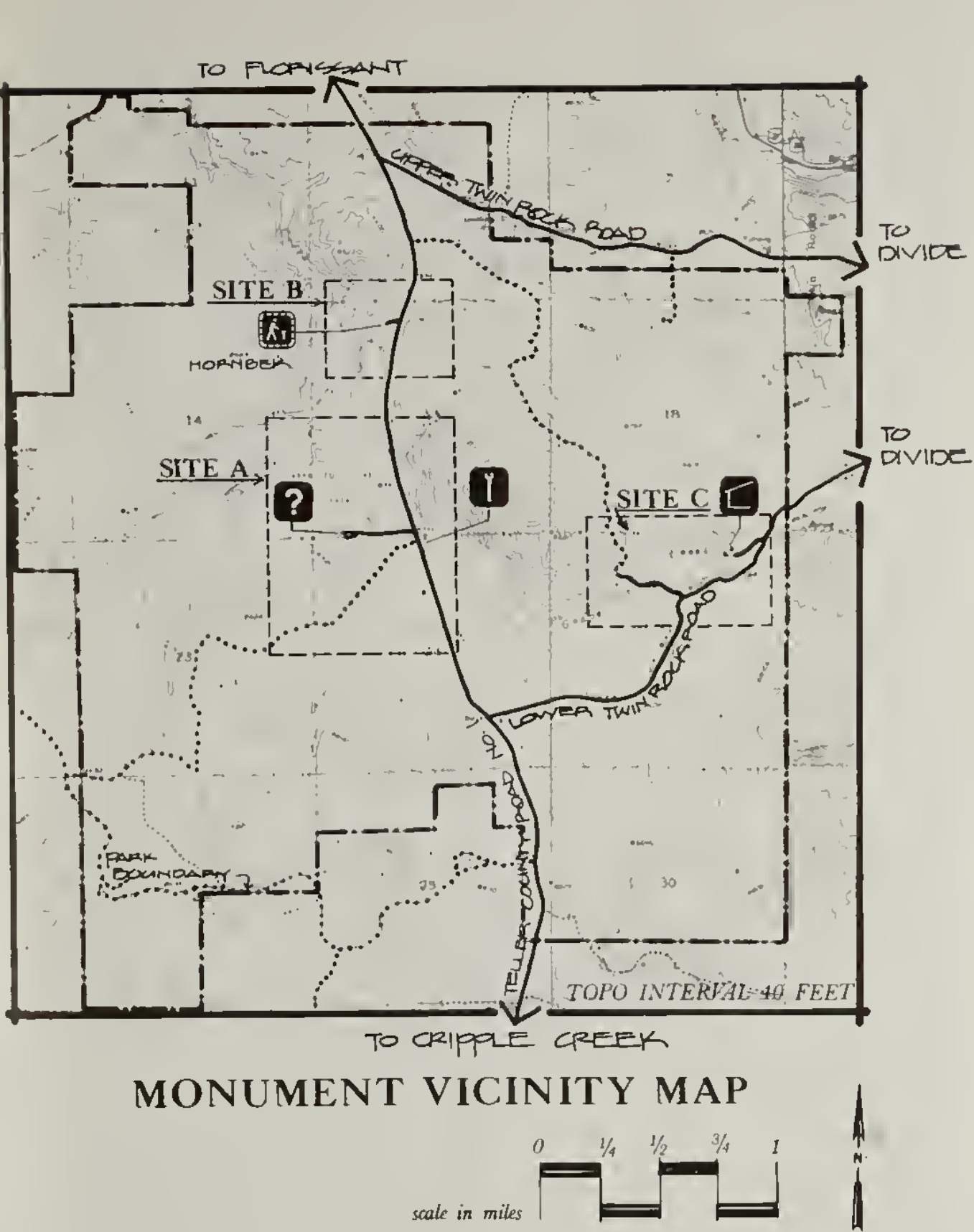
INTERPRETIVE POINT

EXISTING



scale in feet





ALTERNATIVE A STATUS QUO

DEVELOPMENT CONCEPT PLAN

FLORISSANT FOSSIL BEDS NATIONAL MONUMENT

LEGEND

ROAD

TRAIL

VEGETATION

VISITOR CONTACT/
ADMINISTRATION CENTER

MAINTENANCE AREA

RESIDENTIAL AREA

PICNIC AREA

PARKING

INTERPRETIVE POINT

EXISTING

GRAVEL

DIRT

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P

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ENVIRONMENTAL IMPACTS & MITIGATION REFERENCE CHART

Note:

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unfolded to the left in
order to review the Impact
Charts for each alternative.

ENVIRONMENTAL IMPACTS & MITIGATION REFERENCE CHART

Note:

This sheet should remain unfolded to the left in order to review the Impact Charts for each alternative.

- * 1. Paleontological resources are found throughout the lake shales and upper and lower tuff formations. These resources can be easily destroyed as a result of construction activities. Specialized surveys will be conducted to locate paleontologic resources prior to construction and a paleontologist will be on site during all construction excavation activities for the purpose of identifying and collecting the paleontological resources which might be affected.
2. Paleontological salvage conducted during construction activities will reveal greater knowledge and understanding of the prehistoric environment and geologic process of the Florissant Fossil Beds National Monument area.
3. Construction activities will create a temporary disturbance of the soils and vegetation which could result in erosion due to wind and rain action. Disturbed areas will be revegetated immediately upon completion of construction. Construction limits will also be established on the ground to minimize potential impacts of the construction activity.
4. Areas in and around all facilities and features being interpreted will be impacted by pedestrian traffic. The primary impact on the soil will be compaction, which will decrease permeability and alter the moisture content of the soil. This in turn will diminish the storage capacity of soils, reduce the rates of water transmission within soils, increase runoff of surface water, and increase soil erosion. Compaction of the soil will be minimized in many areas due to frost action which expands and loosens the soil particles.
5. A temporary minor reduction in air quality will result due to dust and fumes from construction activities. There is a potential for a slight increase in emissions from automobiles if visitation increases. Increased emission controls may mitigate adverse effects. This emission increase will be the greatest during the peak visitor season (June 1 through September 30).
6. Areas in and around all facilities and features being interpreted will be impacted by pedestrian traffic. This traffic will cause soil compaction and change the amount of moisture available to plants. The lack of moisture coupled with continuous wear on vegetation, erosion of soils, and exposure of fragil root systems will result in the death of plants. Germination of some species of plants may be inhibited by the soil compaction resulting from pedestrian traffic. The impact of trampling by pedestrian traffic may range from complete exclusion of vegetation to slight shifts in species composition. Plants that invade disturbed areas may become more common.
7. Section 7 consultation with the Fish and Wildlife Service will be required as part of this planning process relative to the Peregrine Falcon and Bald Eagle sightings.
8. Refer to Appendix D for complete review of legislative compliance requirements for cultural resources.
9. Construction and maintenance of facilities will require a major investment of federal funds, manpower, and materials. Refer to cost estimate in following section. An entrance fee could be initiated to offset construction and maintenance cost.
10. Special design and construction techniques will be employed to minimize potential impacts of proposed developments.
11. Scarification of soils is essential to prepare seed beds during site rehabilitation efforts. This could result in soil erosion by wind and rain if appropriate rehabilitation process is not completed in a timely manner. Rehabilitation efforts will be conducted to take advantage of maximum growing season and available precipitation to insure success and minimize potential impacts.
12. The increase in employees along with the increase and relocation of employee residences will enable the staff to provide 24-hour visitor and resource protection.

NATURAL		SOCIOECONOMIC		
C	HISTORIC	REGIONAL ECONOMY	VISITATION	ESTHETICS
	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION
N	No Impacts	(*9)	This action will only improve the health, and safety aspects concerning the visitors and employees within the visitor/adminis- tration center area. There will still remain the issues of: inadequate space, conflicts between visitor groups and administrative functions, shortage of storage and workspace and poor conditions for audiovisual presentations.	There will be a temporary minor visual impact due to construction activities. The visitor/adminis- trative center will continue to give the appearance of a converted farm house.
	No Impact (*8)	Rehabilitation of the primitive road will reduce the degree of funds, manpower, and materials required to maintain the road. (*9)	Will improve handicap access. Visitors will continue to use the gravel roads for access and egress.	Rehabilitation of the primitive road in land section 25 will eliminate a dominant visual impact within the central development area.
	No Impact	Will eliminate the need to purchase and have water to the sites for potable use. (*9)	Will better serve visitors.	Construction of facilities could become a visual intrusion upon the natural character of the valley. (*10)

ALTERNATIVE A IMPACT CHART

NATURAL RESOURCES							CULTURAL		SOCIOECONOMIC		
GEOLOGY TOPOGRAPHY		SOILS	AIR QUALITY	WATER	VEGETATION	WILDLIFE	PREHISTORIC	HISTORIC	REGIONAL ECONOMY	VISITATION	ESTHETICS
IMPACTS/ MITIGATION		IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION
BUILDING IMPROVEMENTS Improve handicapped access at visitor/ad- ministration center (pave driveway, walks, and construct new pad around toilet facilities. Construct new foundation under visitor/ administration building.	No Impact	Will have a temporary, minor disturbance on approximately 5,000 square feet of soil surface within the construction zone. (*3 and 4)	Temporary and minor reduction due to construction, and dust and fumes from construction activities. (*5)	Minor, temporary, increases in sedimentation and turbidity of surface drainage will occur due to construction activities.	Grasses will show signs of wear due to con- struction activities. (*3 and 6)	No Impact	No known resources will be affected. (*8)	No Impacts	(*9)	This action will only improve the health, and safety aspects concerning the visitors and employees within the visitor/adminis- tration center area. There will still remain the issues of: inadequate space, conflicts between visitor groups and administrative functions, shortage of storage and workspace and poor conditions for audiovisual presentations.	There will be a temporary minor visual impact due to construction activities. The visitor/adminis- trative center will continue to give the appearance of a converted farm house.
	No Impact	Will have a temporary, minor disturbance on approximately 5,600 square yards of soil surface which could cause erosion. (*3 and 4) Restoration of the primitive road will eliminate the erosion associated with its existence.	Temporary and minor reduction due to construction and rehabilitation activities. The degree of impacts are considered insignificant. (*5) Gravel roads will continue to contribute to the degradation of air quality.	Minor, and temporary increase in sedimentation and turbidity of surface drainage will occur due to construction and restoration activities. In the long term sedimentation and turbidity of surface drainage will be reduced as a result of road restoration.	The paved trails to improve access for the handicapped will eliminate approxi- mately 600 square yards of vegetation. (*3 and 6) Approximately 5,000 square yards will be restored through restoration of primitive roads.	The paved trails will eliminate approxi- mately 600 square yards of wildlife habitat. Removal of the gravel road and rehabilitation of the site will increase wildlife habitat by 5,000 square yards. (*7)	No known resources will be affected. (*8)	No Impact (*8)	Rehabilitation of the primitive road will reduce the degree of funds, manpower, and materials required to maintain the road. (*9)	Will improve handicap access. Visitors will continue to use the gravel roads for access and egress.	Rehabilitation of the primitive road in land section 25 will elimi- nate a dominant visual impact within the central development area.
	Will disturb approxi- mately 300 square feet which involves portions of the lake shales and upper and lower tuffs. (*1 and 2)	Will disturb an estimated 300 square feet of soil surface. (*3)	Temporary, minor reduction due to construction activities.	New well systems will increase loads on subsurface water supplies. Minor or temporary increases in sedimentation and turbidity of surface drainage will occur due to construction.	Will temporarily eliminate approx- imately 300 square feet of vegetation and permanently displace approx- imately 22 square yards.	Approximately 300 square feet of wildlife habitat will be temporarily displaced and 22 square feet permanently displaced by con- struction.	No known resources will be affected. (*8)	No Impact	Will eliminate the need to purchase and have water to the sites for potable use. (*9)	Will better serve visitors.	Construction of facilities could become a visual intrusion upon the natural character of the valley. (*10)

each alternative, as originally considered, the well and pumphouse is still reflected in the cost estimates and impact charts for each alternative.

The Maytag Ranch barn, adjacent to Teller County Road Number 1, will continue to be used as a wood shop, vehicle maintenance area, and miscellaneous storage area. The Potato Barn on the lower Twin Rock Road will also continue to be used as a maintenance and miscellaneous storage area.

The structure now used for a residence north of the Lower Twin Rock Road will be maintained for such purposes. The remaining park staff will be responsible for securing their own personal housing outside the monument.

The Hornbek Homestead complex and Maytag Ranch Barn will be maintained to preserve the historic value.

The total operation and maintenance cost for this alternative is \$192,000 per year.

ALTERNATIVE B (Proposed Plan)

The development details of this proposal are discussed in the General Development section of this document beginning on page 29 and also depicted in the same section as the Development Concept Plan (page 36). The following charts identify the potential impacts and mitigation required under Alternative B.

ALTERNATIVE C

This alternative provides for a new visitor contact administrative facility, residential area, maintenance facility, picnic area, supporting road systems, and utilities. (See Alternative C, Development Concept Plan.)

In general, this alternative is also based on making maximum use of sites which have been previously impacted. The proposed visitor and administrative center site is located to take advantage of the paleontological resources which have already been unearthed. Approximately 80 percent of the proposed roads are located in the alignment of old dirt and gravel roadways to minimize impacts. The parking lot designated to serve the visitor and administrative center will also be utilized to serve visitors using the new picnic area.

URAL	SOCIOECONOMIC		
HISTORIC	REGIONAL ECONOMY	VISITATION	ESTHETICS
IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION
(*12)	<p>Will add to the need for additional staff. Better accommodations will encourage increases in visitation. Increases will also result in an increase in cash flow within the surrounding communities.</p> <p>On site residence will result in a savings of time and fuels used in commuting. (*9)</p>	<p>Facilities will better serve all visitors, improve administrative, maintenance, and protection capabilities. They will also encourage visitation to the monument.</p>	<p>Construction of facilities could become a visual intrusion upon the natural character of the valley. (*10)</p> <p>This alternative offers the greatest overall opportunity to avoid visual impacts due to topographic orientation and existing vegetation.</p>
No known resources will be affected. (*8)	<p>Will add to the need for additional staff. Better accommodations will encourage increases in visitation. Increases will also result in an increase in cash flow within the surrounding communities.</p> <p>On site residence will result in a savings of time and fuels used in commuting. (*9)</p>	<p>Facilities will better serve all visitors, improve administrative maintenance, and protection capabilities. They will also encourage visitation to the monument.</p>	<p>Construction of facilities could become a visual intrusion upon the natural character of the valley. (*10)</p> <p>This alternative offers the greatest overall opportunity to avoid visual impacts due to topographic orientation and existing vegetation.</p> <p>The paving of existing gravel roads will also improve the aesthetic value by reducing dust and giving neater appearance.</p>
No Impact	(*9)	<p>Facilities will better serve all visitors, improve administrative, maintenance and protection capabilities. They will also encourage visitation to the monument.</p>	<p>Undergrounding of utilities will improve the esthetic values of the monument. There will be a minor, short term visual impact due to construction. (*3)</p>

IMPACT CHART

ALTERNATIVE B
(PROPOSED PLAN)

NATURAL RESOURCES							CULTURAL		SOCIOECONOMIC		
							PREHISTORIC	HISTORIC	REGIONAL ECONOMY	VISITATION	ESTHETICS
							IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION
B	BUILDINGS Construct: Visitor/Administration center, maintenance structure, and residences.	Will disturb approximately 1 acre which involves portions of the lake shales and upper and lower geologic tuffs. (*1 and 2)	Will have a minor disturbance on approximately 1.5 acres of soil surface. (*3 and 4)	Temporary, minor, reduction due to construction and increases in visitor use and National Park Service residential developments. (*5)	Increases in visitation and National Park Service developments in the monument will increase loads on subsurface water supplies. Minor and temporary increases in sedimentation and turbidity of surface drainage will occur due to construction.	Will eliminate approximately 1 acre of vegetation. Moderate pedestrian traffic will cause continual wear and tear on additional .5 acres. (*3 and 6)	Approximately 1 acre of wildlife habitat will be displaced by construction of facilities. (*7)	No known resources will be affected; however, a complete archeological survey will be conducted prior to any ground disturbance. *8 and 12	(*12) Will add to the need for additional staff. Better accommodations will encourage increases in visitation. Increases will also result in an increase in cash flow within the surrounding communities. On site residence will result in a savings of time and fuels used in commuting. (*9)	Facilities will better serve all visitors, improve administrative, maintenance, and protection capabilities. They will also encourage visitation to the monument.	Construction of facilities could become a visual intrusion upon the natural character of the valley. (*10) This alternative offers the greatest overall opportunity to avoid visual impacts due to topographic orientation and existing vegetation.
	ROADS/TRAILS Construct: Residential and maintenance area roads and parking and picnic and interpretive trails Upgrade and Pave: Visitor/Administration center road and parking lot.	Will disturb approximately 3.6 acres which involves portions of the lake shales and upper and lower tuffs. (*1 and 2)	Will disturb an estimated 3.6 acres of soil surface. (*3 and 4)	Temporary, minor, reduction due to construction and increases in visitor use and National Park Service residential developments. (*5) The paving of gravel roads will improve air quality.	Minor and temporary increases in sedimentation and turbidity of surface drainage will occur due to construction.	Will eliminate approximately 3.6 acres of vegetation. (*3 and 6)	Approximately 3.6 acres of wildlife habitat will be displaced by construction of new facilities. (*7)	No known resources will be affected; however, a complete archeological survey will be conducted prior to any ground disturbance. (*8)	No known resources will be affected. (*8)	Will add to the need for additional staff. Better accommodations will encourage increases in visitation. Increases will also result in an increase in cash flow within the surrounding communities. On site residence will result in a savings of time and fuels used in commuting. (*9)	Facilities will better serve all visitors, improve administrative, maintenance, and protection capabilities. They will also encourage visitation to the monument. Construction of facilities could become a visual intrusion upon the natural character of the valley. (*10) This alternative offers the greatest overall opportunity to avoid visual impacts due to topographic orientation and existing vegetation. The paving of existing gravel roads will also improve the aesthetic value by reducing dust and giving neater appearance.
	UTILITIES Construct: Telephone lines, power lines, sewer systems, new wells, and pump-houses as identified on sheet titled, "Utility Locations" for the Development Concept Plan.	Will disturb approximately 4 acres which involves portions of the lake shales and upper and lower tuffs. (*1 and 2)	Will disturb an estimated 4 acres of soil surface. (*3)	Temporary, minor, reduction due to construction. The degree of impact is considered insignificant.	New well systems will increase loads on subsurface water supplies. Minor and temporary increases in sedimentation and turbidity of surface drainage will occur due to construction.	Will eliminate approximately 4 acres of vegetation. (*3)	Approximately 4 acres of wildlife habitat will be temporarily displaced by construction of utilities. Undergrounding of utilities will reduce the possibility of bird death due to colliding with electrical lines or becoming electrocuted. (*7)	No known resources will be affected; however, a complete archeological survey will be conducted prior to any ground disturbance. (*8)	No Impact	(*9) Facilities will better serve all visitors, improve administrative, maintenance and protection capabilities. They will also encourage visitation to the monument.	Undergrounding of utilities will improve the esthetic values of the monument. There will be a minor, short term visual impact due to construction. (*3)

NATURAL		SOCIOECONOMIC	
HISTORIC	REGIONAL ECONOMY	VISITATION	ESTHETICS
IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION
No Impact	(*9)	No Impacts	Restoration of disturbed areas will improve the esthetic values of the monument.

ALTERNATIVE B
(PROPOSED PLAN)

IMPACT CHART

ALTERNATIVE B

		NATURAL RESOURCES						CULTURAL		SOCIOECONOMIC		
		GEOLOGY/ TOPOGRAPHY	SOILS	AIR QUALITY	WATER	VEGETATION	WILDLIFE	PREHISTORIC	HISTORIC	REGIONAL ECONOMY	VISITATION	ESTHETICS
		IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION
ALTERNATIVE B	<div><div>SITE RESTORATION</div><div>Remove facilities and restore sites of: old visitor/adminis- tration building, existing residence (cabin) and access road, and that portion of primitive road in land section 24 unaffected by resi- dential development.</div></div>	No Impact	Will require disturbing approximately 1.3 acres of soil surface in order to prepare subject sites for revegetating. (*11)	Temporary, minor, reduc- tion due to construction. The degree of impact is considered insignificant.	Minor and temporary increases in sedimen- tation and turbidity of surface drainage will occur due to restoration activities.	Any vegetation disturbed during the site resto- ration process will be treated as part of the restoration efforts.	Will increase wildlife habitat by 1.3 acres.	No known resources will be affected. (*8)	No Impact	(*9)	No Impacts	Restoration of disturbed areas will improve the esthetic values of the monument.

ALTERNATIVE B
(PROPOSED PLAN)

IMPACT CHART

As soon as the new visitor/administrative center and picnic area are completed, the old visitor and administrative structures and picnic site will be removed. The old building site, parking, and access road will be rehabilitated and restored to as near natural as possible. The option to relocate the old visitor/administrative center and convert it for residential purposes was considered, but ruled out due to its structural condition and the cost to renovate for residential purposes.

The site proposed for location of the new residential area and maintenance facility are well out of view from the primary thoroughfare through the monument due to topographic relief and vegetation. This will provide privacy for employees within the residential area as well as preserve the aesthetic values of the monument. The relationship of the residential area to other facilities will improve and increase monument security by consolidating facilities. Also, Alternative C provides for expansion of a trail system to the Hornbek Homestead. The parking facility at the homestead will also be minimized and expanded.

Alternative C provides that should the final decision be to totally eliminate new housing as part of future monument development, the new maintenance area would be developed at site C as indicated on the following Development Concept Plan for Alternative C.

As indicated on Alternative C utility locations, the new septic tank and filter-field system will be developed to serve the new facilities. These systems are located in areas which were surveyed and determined to be suitable in terms of soil condition and being unlikely to jeopardize underground resources.

The total operation and maintenance cost for this alternative would be approximately \$258,000 per year.

ALTERNATIVE D

This alternative provides for a new visitor contact/administrative facility, residential area, maintenance facility, picnic area, supporting road systems, and utilities. (See Alternative D, Development Concept Plan.)

As with previous alternatives, an attempt was made to take advantage of areas which have already been impacted. The proposed residential and maintenance areas are the only two sites which have not been previously disturbed. The proposed visitor and administrative center is located on an old tourist lodge site which was demolished and the site restored in 1978. The site of the old lodge was heavily

ALTERNATIVE C

DEVELOPMENT CONCEPT PLAN

FLORISSANT FOSSIL BEDS NATIONAL MONUMENT

LEGEND

ROAD

TRAIL

VEGETATION

VISITOR CONTACT/
ADMINISTRATION CENTER

MAINTENANCE AREA

RESIDENTIAL AREA

PICNIC AREA

PARKING

INTERPRETIVE POINT

EXISTING

PROPOSED

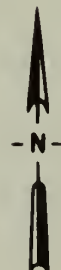
GRAVEL DIRT

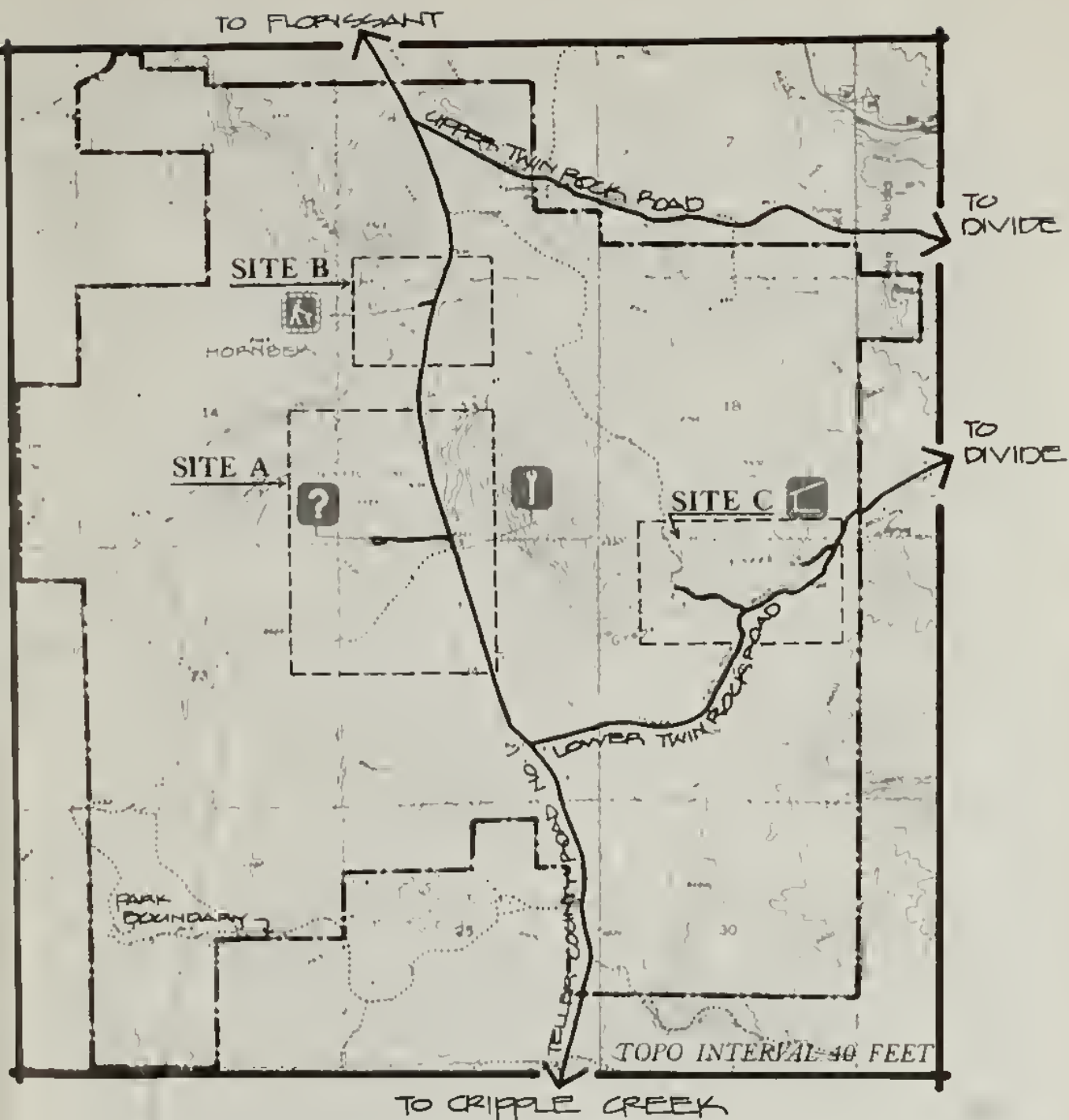


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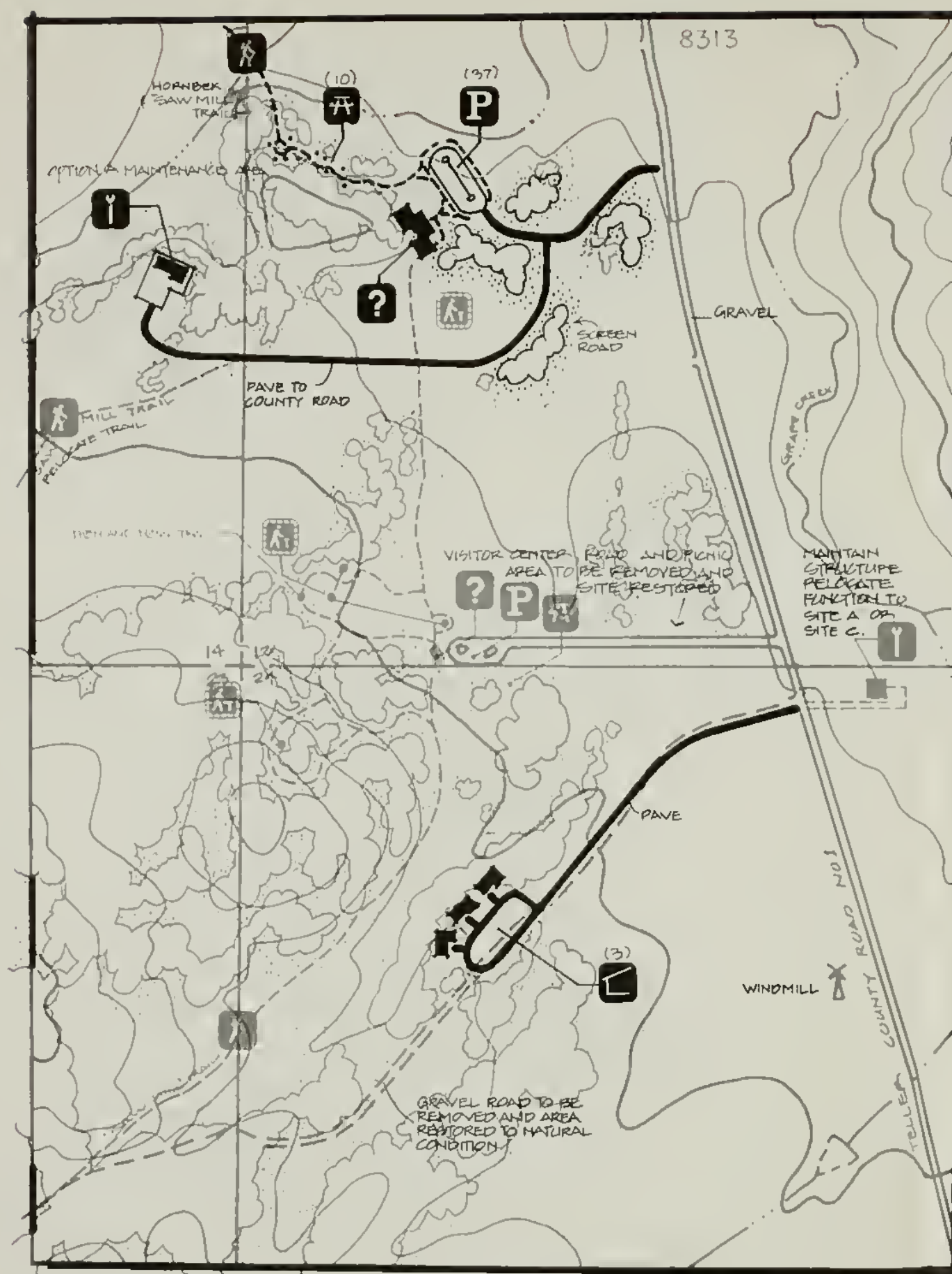
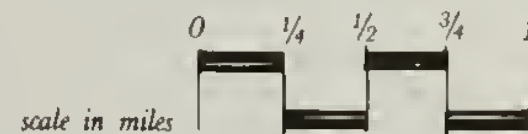


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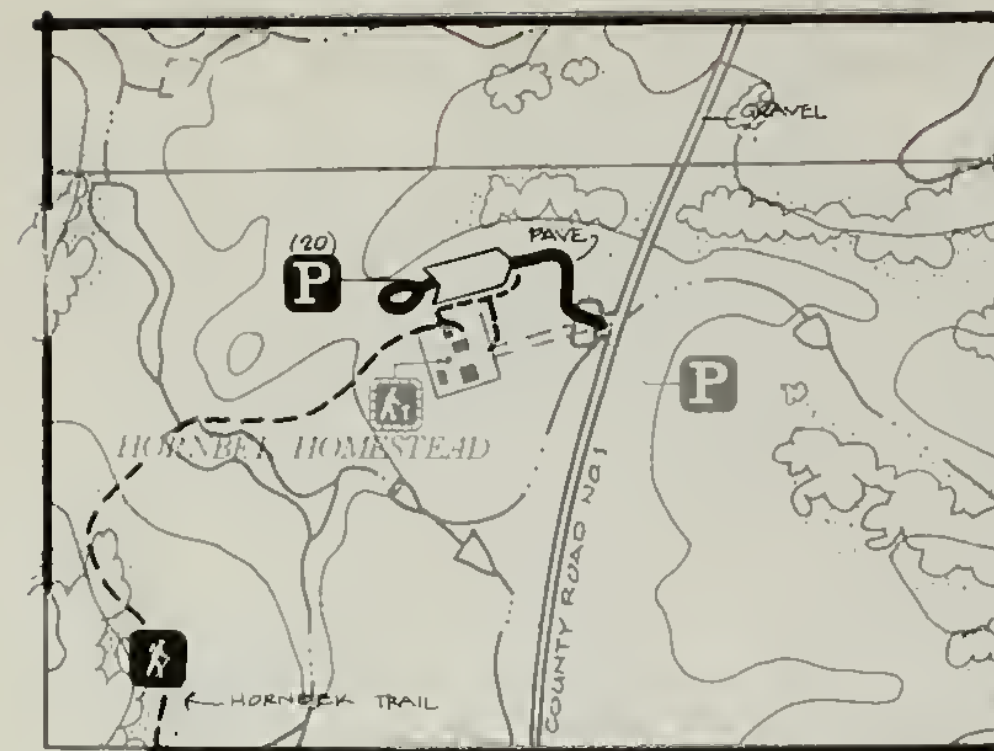




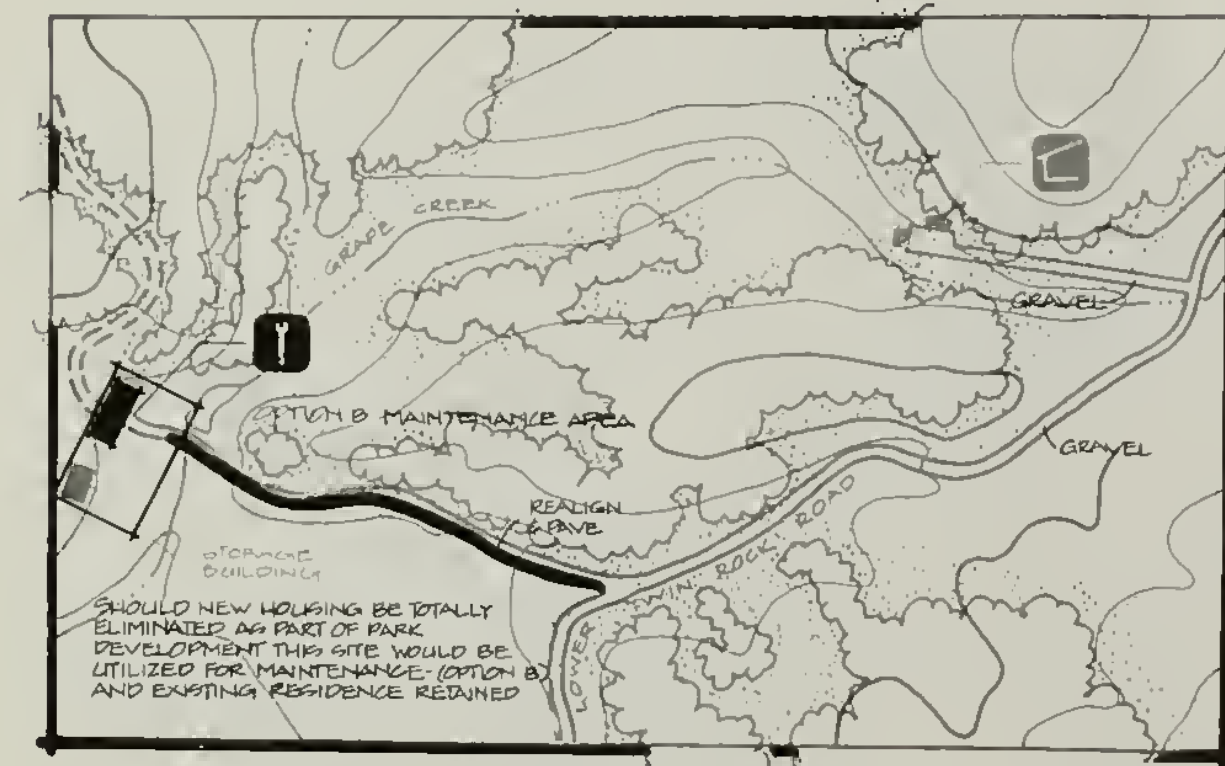
MONUMENT VICINITY MAP



—SITE A—



—SITE B—



—SITE C—

ALTERNATIVE C

DEVELOPMENT CONCEPT PLAN

FLORISSANT FOSSIL BEDS NATIONAL MONUMENT

LEGEND

	EXISTING	PROPOSED
ROAD	GRAVEL DIRT	
TRAIL		
VEGETATION		
VISITOR CONTACT/ ADMINISTRATION CENTER	?	?
MAINTENANCE AREA		
RESIDENTIAL AREA		
PICNIC AREA		
PARKING		
INTERPRETIVE POINT		



TURAL

SOCIOECONOMIC

C	HISTORIC	REGIONAL ECONOMY	VISITATION	ESTHETICS
ON	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION
	(*8 and 12)	Will add to the need for additional staff. Better accommodations will encourage increase in visitation and thereby increase cash flow within the surrounding community. On site residence will result in a savings of time and fuels used in commuting. Will improve working conditions for employees. (*9)	Facilities will better serve all visitors, improve administrative, maintenance and protection capabilities. They will also encourage visitation to the monument.	Facilities could become a visual intrusion upon the natural character of the valley. (*10)
	Same as above.	Same as above.	Same as above.	Same as above.
	Same as above.	Same as above.	Same as above.	Undergrounding of utilities will improve the esthetic values of the monument. There will be a minor, short term visual impact due to construction. (*3)

ALTERNATIVE C IMPACT CHART

		NATURAL RESOURCES						CULTURAL		SOCIOECONOMIC		
		GEOLOGY / TOPOGRAPHY	SOILS	AIR QUALITY	WATER	VEGETATION	WILDLIFE	PREHISTORIC	HISTORIC	REGIONAL ECONOMY	VISITATION	ESTHETICS
		IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION
ALTERNATIVE C	BUILDINGS Construct: Visitor/Administration center, maintenance structure (Option-A), and residences.	Will disturb approxi- mately 1 acre which involves portions of the lake shales and lower geologic tuffs. (*1 and 2)	Will have a minor disturbance on approxi- mately 1.5 acres of soil surface. (*3 and 4).	Temporary, minor, reduction due to construction, increases in visitor use, and increase in National Park Service residential developments. (*5)	Increase in visitation and National Park Service developments will increase loads on subsurface water supplies. Minor and temporary increases in sedimentation and turbidity of surface drainage will occur due to construction.	Will eliminate approxi- mately 1 acre of vege- tation.. Moderate pedestrian traffic will cause continual wear and tear on an additional .5 acre. (* 3 and 6)	Approximately 1 acre of wildlife habitat will be displaced by construction of facilities. (*7)	No known resources will be affected; however, a complete archeological survey will be conducted prior to any ground disturbance. (*8 and 12)	(*8 and 12)	Will add to the need for additional staff. Better accommodations will encourage increase in visitation and thereby increase cash flow within the surrounding community. On site residence will result in a savings of time and fuels used in commuting. Will improve working conditions for employees. (*9)	Facilities will better serve all visitors. improve administrative, maintenance and pro- tection capabilities. They will also encourage visitation to the monument.	Facilities could become a visual intrusion upon the natural character of the valley. (*10) This alternative, relative to the proposed facilities offers very little opportunity to minimize visual impacts due to topographic orientation and lack of vegetation. A greater degree of landscaping will be required.
	ROADS/TRAILS Construct: Visitor center parking and access road; Option-A maintenance area parking lot, and access road; Hornbek Homestead parking area and access road, residential area parking and access road, picnic area, and trails.	Will disturb approxi- mately 5.4 acres which involves portions of the lakebed shales and upper and lower tuffs. (*1 and 2)	Will disturb an estimated 5.4 acres of soil surface. (*3 and 4)	Same as above. The paving of gravel roads will improve air quality.	Minor and temporary increases in sedimen- tation and turbidity of surface drainage will occur due to construction.	Will eliminate approxi- mately 5.4 acres of vegetation. (*3 and 6)	Approximately 5.4 acres of wildlife habitat will be displaced by construction of new facilities. (*7)	Same as above.	Same as above.	Same as above.	Same as above.	Same as above. The paving of existing gravel roads will also improve the esthetic value of the area by eliminating dust and giving a neater appearance.
	UTILITIES Install: Telephone lines, power lines, sewer systems, new wells, and pumphouses as identified on sheet titled "ALTERNATIVE-C UTILITY LOCATIONS."	Will disturb approxi- mately 4.7 acres which involves portions of the lake shales and upper and lower tuffs. (*1 and 2)	Will disturb an estimated 4.7 acres of soil surface. (*3)	Temporary, minor reduction due to construction activities. The degree of impact is considered insig- nificant.	New well systems will increase loads on subsurface water supplies. Minor and temporay increases in sedimentation and turbidity of surface drainage will occur due to construction.	Will eliminate approxi- mately 4.7 acres of vegetation. (*3)	Approximately 4.7 acres of wildlife habitat will be temporarily displaced by con- struction of utilities. Undergrounding of utilities will reduce the possibility of bird death due to colliding with electrical lines or becoming electrocuted. (*7)	Same as above.	Same as above.	Same as above.	Same as above.	Undergrounding of utilities will improve the esthetic values of the monument. There will be a minor, short term visual impact due to construction. (*3)

NATURAL		SOCIOECONOMIC		
	HISTORIC.	REGIONAL ECONOMY	VISITATION	ESTHETICS
	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION
	No Impact	Will require an expenditure of federal funds and a temporary drain on manpower and materials.	No Impact	Restoration of disturbed areas will improve the esthetic values of the monument.
	No known resources will be affected. (*8) Elimination of alternative to provide additional employee housing will continue to severely handicap efforts to protect visitors and resources.	(*9) Elimination of the alternative to provide additional employee housing will reduce the need to invest federal funds, manpower, and materials by approximately \$1,245,000 The new maintenance center will eliminate the hazardous and inconvenient condition associated with the existing maintenance barn.	New maintenance facilities will enable the monument to better maintain monument resources for the visitor. This will encourage an increase in visitation. Elimination of alternative to provide additional employee housing will continue to severely handicap efforts to protect visitors.	Facilities could become a visual intrusion upon the natural character of the monument. (*10) Elimination of the alternative to provide additional employee housing will eliminate potential visual impacts on approximately 2.7 acres.
	No Impacts.	Will require an expenditure of federal funds and a temporary drain on manpower and materials.	No Impacts.	Will improve the esthetic values of the monument.

ALTERNATIVE C IMPACT CHART

		NATURAL RESOURCES						CULTURAL		SOCIOECONOMIC		
		GEOLOGY / TOPOGRAPHY	SOILS	AIR QUALITY	WATER	VEGETATION	WILDLIFE	PREHISTORIC	HISTORIC.	REGIONAL ECONOMY	VISITATION	ESTHETICS
		IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION
ALTERNATIVE C	SITE RESTORATION Remove the following facilities and restore sites: Existing visitor/ad-ministrative building, parking area and access road; existing gravel parking lot at Hornbek Homestead; existing residence (log cabin) and access road, and that portion of primitive road in land section 24 uneffected by residential development.	No Impact	Will require disturbing approximately 2 acres of soil surface in order to prepare subject sites for revegetating. (*11)	Temporary, minor reduction due to restoration activities. The degree of impact is insignificant.	Minor and temporary increase in sedimentation and turbidity of surface drainage will occur due to restoration activities.	Any vegetation disturbed during the site restoration process will be treated as part of the restoration efforts. Restoration will increase vegetation cover by approximately 2 acres.	Will increase wildlife habitat by approximately 2 acres.	No known resources will be affected; however, a complete archeological survey will be conducted prior to any ground disturbance. (*8 and 12)	No Impact	Will require an expenditure of federal funds and a temporary drain on manpower and materials.	No Impact	Restoration of disturbed areas will improve the esthetic values of the monument.
	OPTION B Construct maintenance area access road, parking, and utilities. Also construct utilities for existing residence. (This development will be necessary if the new residential development option is eliminated as a part of (Alternative C).	Will disturb approximately .3 acres which could involve portions of the lake shales and upper and lower tuffs. (*1 and 2). Elimination of new residential development option, and relocation of the maintenance area will reduce the potential impact on approximately 2.7 acres where geologic resources are significant	Will disturb approximately .3 acres of soil surface. (*3) Elimination of new residential development option, and relocation of the maintenance area will reduce disturbance of approximately 2.7 acres of soil surface thereby reducing potential erosion.	Same as above.	The two new wells for the Option-B maintenance area and existing residence will increase the load on subsurface water supplies. The amount of increase is insignificant. Elimination of new residential development option, and relocation of the maintenance area will reduce the potential for sedimentation of streams and turbid condition of surface water during construction.	Will eliminate approximately .3 acres of vegetation (*3). Elimination of the new residential development option will reduce the disturbance of approximately 2.7 acres of vegetation.	Approximately .3 acres of wildlife habitat will be displaced by construction of new facilities. (*7) Elimination of the new residential option will reduce potential impact to approximately 2.7 acres of wildlife habitat.	No known resources will be affected. (*8). Elimination of alternative to provide additional employee housing will continue to severely handicap efforts to protect visitors and resources.	No known resources will be affected. (*8) Elimination of alternative to provide additional employee housing will continue to severely handicap efforts to protect visitors and resources.	(*9) Elimination of the alternative to provide additional employee housing will reduce the need to invest federal funds, manpower, and materials by approximately \$1,245,000 The new maintenance center will eliminate the hazardous and inconvenient condition associated with the existing maintenance barn.	New maintenance facilities will enable the monument to better maintain monument resources for the visitor. This will encourage an increase in visitation. Elimination of alternative to provide additional employee housing will continue to severely handicap efforts to protect visitors.	Facilities could become a visual intrusion upon the natural character of the monument. (*10) Elimination of the alternative to provide additional employee housing will eliminate potential visual impacts on approximately 2.7 acres.
	REHABILITATION With the elimination of new residences under Option-B of this alternative the remaining portion of the primitive road in land section 24 will require rehabilitation.	No Impact.	Will require scarification of soil surface (.5 acres) in order to prepare site for revegetation. *11	Temporary, minor reduction due to restoration activities. The degree of impact is insignificant.	Minor and temporary increase in sedimentation and turbidity of surface drainage will occur.	Any vegetation disturbed during the site restoration process will be treated as part of the restoration efforts.	Revegetation of old road will increase wildlife habitat by approximately .5 acres.	No known resources will be affected. (*8).	No Impacts.	Will require an expenditure of federal funds and a temporary drain on manpower and materials.	No Impacts.	Will improve the esthetic values of the monument.

impacted due to past use. The proposed visitor administrative center site is located to take advantage of the paleontological resources which have already been unearthed. Approximately 90 percent of the proposed roadway systems are to be constructed on old dirt and gravel roadways to minimize impacts.

As soon as the new visitor and administrative center and picnic area are completed, the existing duplicate facilities will be removed. The old visitor/administrative building site, parking, and access road will be rehabilitated and restored to as near natural as possible. The option to relocate the old visitor and administrative center and convert it for residential was considered, but ruled out due to its structural condition and the cost to renovate for residential purposes.

The site proposed for locating the new residential area and maintenance facility are well out of view from the primary thoroughfare through the monument due to topographic relief and vegetation. This will result in preserving the aesthetic values of the monument as well as afford a more private environment for employees living in the monument. This alternative consolidates manpower and facilities for efficiency purposes and improves security within the monument.

Alternative D, unlike previous alternatives, minimizes parking at the Hornbek Homestead by limiting parking to only the handicapped visitors and those special tour groups who the park Superintendent may deem it desirable to grant parking privileges. All other accesses to the homestead will be by a trail leading from the parking lot of the new visitor center. This will require a trail approximately 7/10 of a mile. This concept is based on an effort to minimize the visual impact of constructing a massive parking lot adjacent to the homestead. This will help preserve the historic setting.

Also, Alternative D provides that should the final decision be to totally eliminate new housing as part of future development in the monument, the new maintenance facility would be developed at site C as indicated on the following Development Concept Plan for Alternative D.

New septic tank and filter-field systems will be required to serve the new facilities. The new systems are in areas which were surveyed and determined to be suitable in terms of soil conditions and unlikely to jeopardize underground resources.

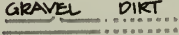


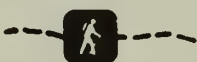














The total operation and maintenance cost for this alternative would be approximately \$258,000 per year.

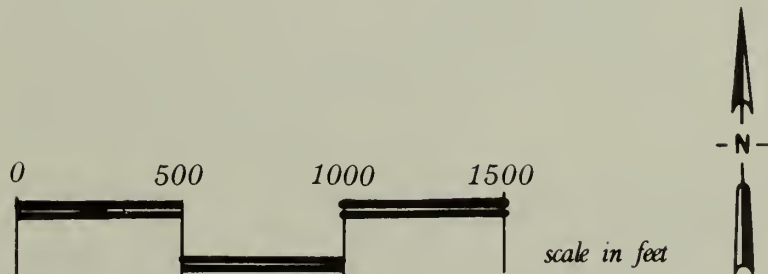
ALTERNATIVE D

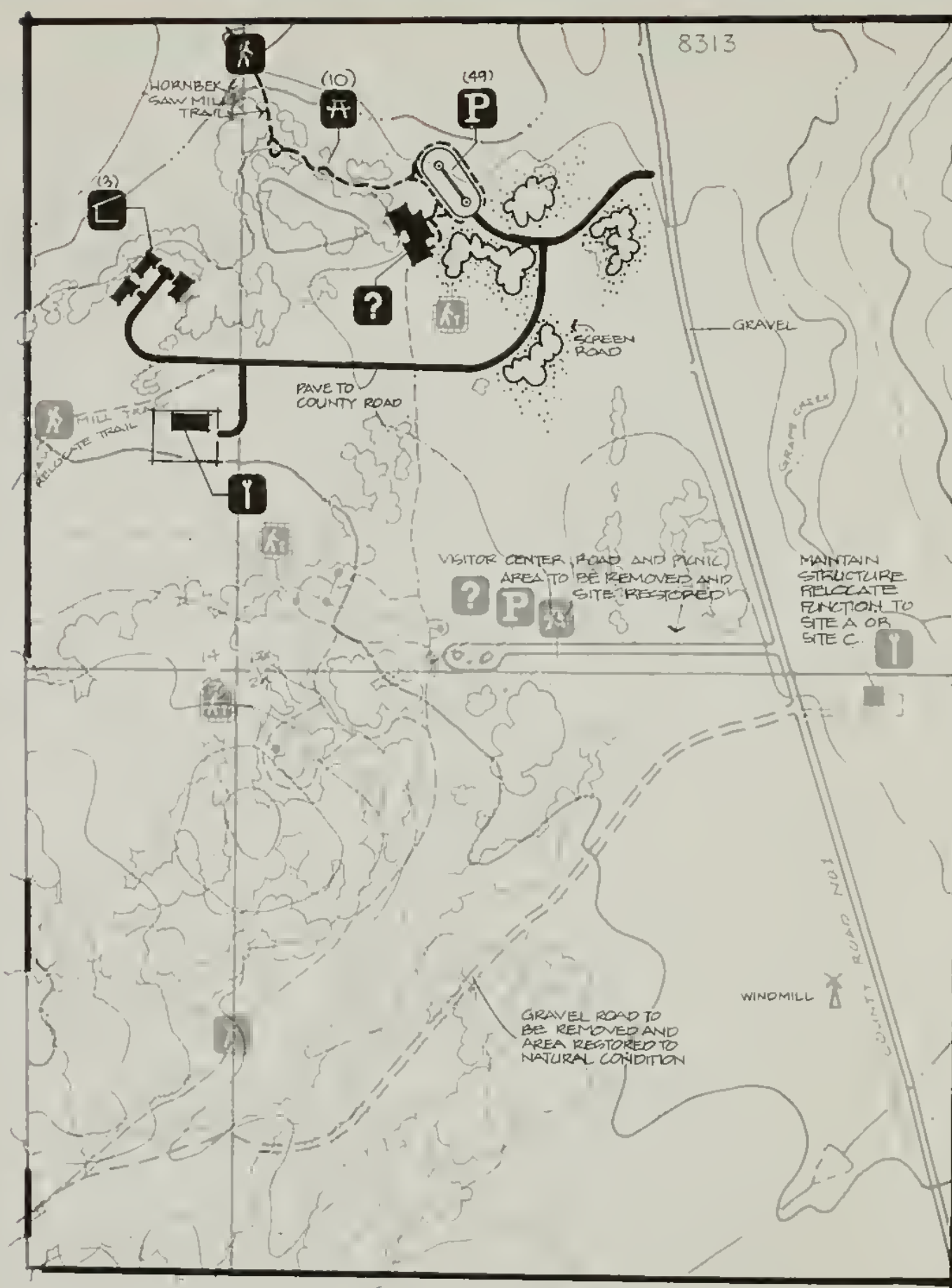
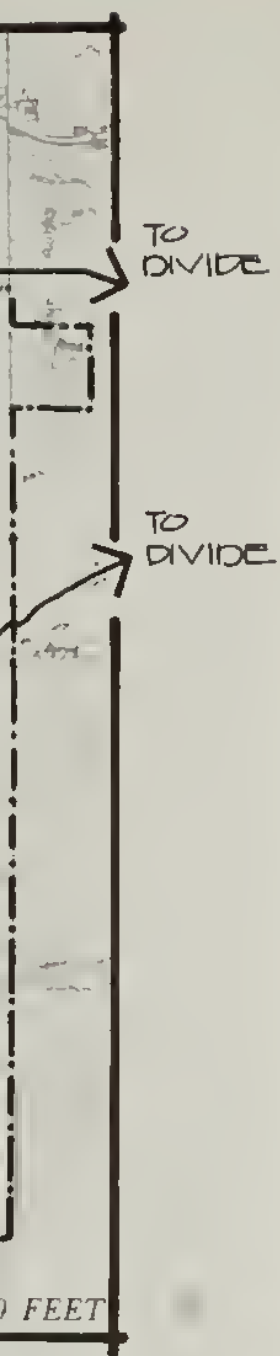
DEVELOPMENT CONCEPT PLAN

FLORISSANT FOSSIL BEDS NATIONAL MONUMENT

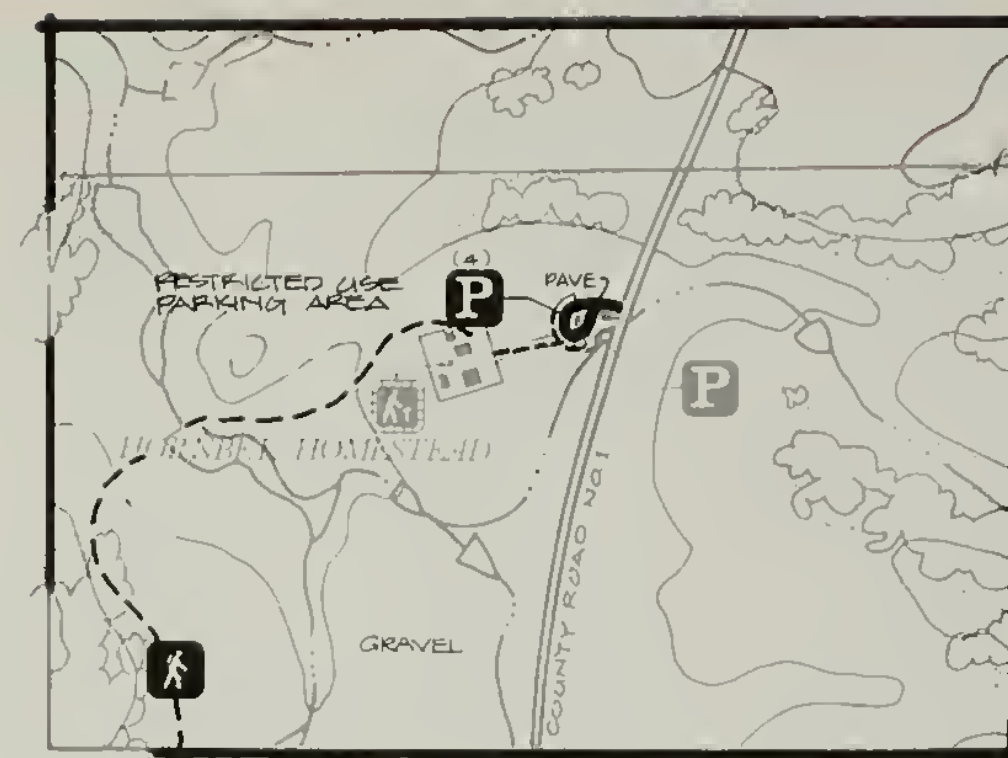
LEGEND

	EXISTING	PROPOSED
ROAD		
TRAIL		
VEGETATION		
VISITOR CONTACT/ ADMINISTRATION CENTER		
MAINTENANCE AREA		
RESIDENTIAL AREA		
PICNIC AREA		
PARKING		
INTERPRETIVE POINT		

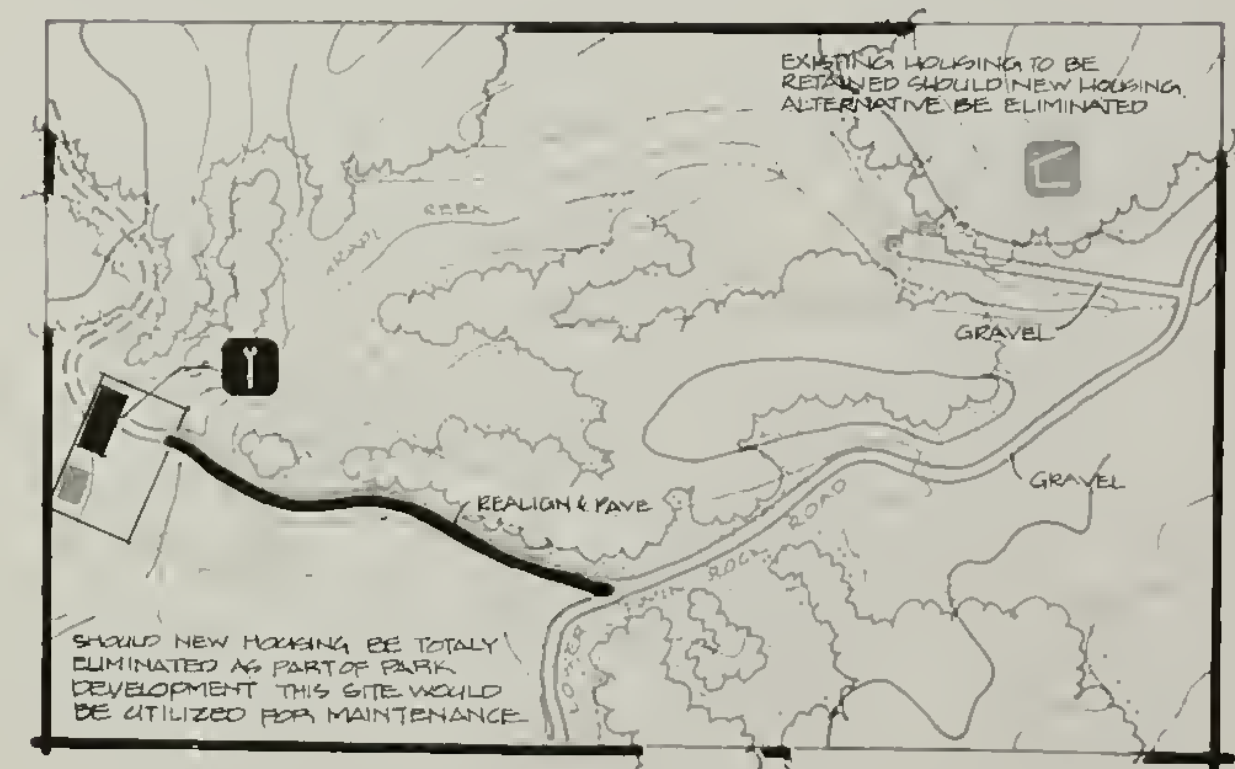




—SITE A—



—SITE B—



—SITE C—

NATURAL		SOCIOECONOMIC		
HISTORIC		REGIONAL ECONOMY	VISITATION	ESTHETICS
IMPACTS/ MITIGATION		IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION
<p>No known resources will be affected. (*8).</p>		<p>Will add to the need for additional staff. Better accommodations will encourage increase in visitation and thereby increase cash flow within the surrounding community. on site residence will result in a savings of time and fuels used commuting. (*9)</p>	<p>Facilities will better serve all visitors, improve administration, maintenance and visitor protection capabilities. Facilities will also encourage visitation to the monument.</p>	<p>Facilities could become a visual intrusion upon the natural character of the valley. (*10)</p> <p>This alternative relative to the proposal facilities offers very little opportunity to minimize visual impacts due to topographic orientation and lack of vegetation. A greater degree of landscaping will be required.</p>
Same as above.		Same as above.	Same as above.	<p>Same as above.</p> <p>The paving of existing gravel roads will also improve the aesthetic value of the area by eliminating dust and giving a neater appearance.</p>
Same as above.		Same as above.	Same as above.	<p>Undergrounding of utilities will improve the esthetic values of the monument. There will be a minor, short term visual impact due to construction. (*3)</p>

ALTERNATIVE D IMPACT CHART

ALTERNATIVE D		NATURAL RESOURCES						CULTURAL		SOCIOECONOMIC		
		GEOLOGY / TOPOGRAPHY	SOILS	AIR QUALITY	WATER	VEGETATION	WILDLIFE	PREHISTORIC	HISTORIC	REGIONAL ECONOMY	VISITATION	ESTHETICS
		IMPACTS / MITIGATION	IMPACTS / MITIGATION	IMPACTS / MITIGATION	IMPACTS / MITIGATION	IMPACTS / MITIGATION	IMPACTS / MITIGATION	IMPACTS / MITIGATION	IMPACTS / MITIGATION	IMPACTS / MITIGATION	IMPACTS / MITIGATION	IMPACTS / MITIGATION
	<u>BUILDINGS</u> Construct: Visitor/administration center, maintenance structure (Option-A), and residences.	Will disturb approximately 1 acre which involves portions of the lake shales and lower geologic tuffs. (*1 and 2)	Will have a minor disturbance on approximately 1.5 acres of soil surface. (*3 and 4)	Temporary and minor reduction due to construction and increases in visitor use and National Park Service residential development. (*5)	Increase in visitation and National Park Service development will increase loads on subsurface water supplies. Minor and temporary increases in sedimentation and turbidity of surface drainage will occur due to construction.	Will eliminate approximately 1 acre of vegetation. (*3 and 6)	Approximately 1 acre of wildlife habitat will be displaced by construction of facilities. (*7)	No known resources will be affected; however, a complete archeological survey will be conducted prior to any ground disturbance.	No known resources will be affected. (*8).	Will add to the need for additional staff. Better accommodations will encourage increase in visitation and thereby increase cash flow within the surrounding community. on site residence will result in a savings of time and fuels used commuting. (*9)	Facilities will better serve all visitors, improve administration, maintenance and visitor protection capabilities. Facilities will also encourage visitation to the monument.	Facilities could become a visual intrusion upon the natural character of the valley. (*10) This alternative relative to the proposal facilities offers very little opportunity to minimize visual impacts due to topographic orientation and lack of vegetation. A greater degree of landscaping will be required.
	<u>ROADS/TRAILS</u> Construct: Visitor center parking and access road; Option-A maintenance area parking lot, and access road; Hornbek Homestead parking area and access road; residential area parking and access road; picnic area and tables.	Will disturb approximately 4.4 acres which involves portions of the lake bed shales and upper and lower geologic tuffs. (*1 and 2)	Will disturb approximately 4.4 acres of soil surface. (*3 and 4)	Same as above. The paving of gravel roads will improve air quality.	Minor and temporary increase in sedimentation and turbidity of surface drainage will occur due to construction.	Will eliminate approximately 4.4 acres of vegetation. (*3 and 6)	Approximately 4.4 acres of wildlife habitat will be displaced by construction of new facilities. (*7)	Same as above.	Same as above.	Same as above.	Same as above.	The paving of existing gravel roads will also improve the aesthetic value of the area by eliminating dust and giving a neater appearance.
	<u>UTILITIES</u> Install telephone lines, power lines, sewer systems, new wells, and pumphouses as identified on sheet titled "ALTERNATIVE-D UTILITY LOCATIONS"	Will disturb approximately 4.3 acres which involves portions of the lake shales and upper and lower tuffs. (*1 and 2)	Will disturb approximately 4.3 acres of the soil surface. (*3)	Temporary, minor reduction due to construction activities. The degree of impact is insignificant.	New well systems will increase loads on subsurface water supplies. Minor and temporary increase in sedimentation and turbidity of surface drainage will occur due to construction activities.	Will eliminate approximately 4.3 acres of vegetation. (*3)	Approximately 4.3 acres of wildlife habitat will be temporarily displaced by construction of utilities. (*7) Undergrounding of utilities will reduce the possibility of bird death due to colliding with electrical lines or becoming electrocuted. (*7)	Same as above.	Same as above.	Same as above.	Same as above.	Undergrounding of utilities will improve the esthetic values of the monument. There will be a minor, short term visual impact due to construction. (*3)

NATURAL		SOCIOECONOMIC	
HISTORIC	REGIONAL ECONOMY	VISITATION	ESTHETICS
IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION
No impact	(*9)	No Impact	Will improve the esthetic values of the monument.
No known resources will be affected. (*8). Elimination of alternative to provide additional employee housing will continue to severely handicap efforts to protect resources.	(*9) Elimination of the new residential development option, and relocation of maintenance area will reduce the need to invest funds, manpower, and materials by approximately \$1,043,000 as compared to providing subject facilities. The new maintenance facilities will improve the working conditions for maintenance staff.	New maintenance facilities will enable the monument to better maintain monument resources for the visitor which will encourage visitation. Elimination of alternative to provide additional employee housing will continue to severely handicap efforts to protect visitors.	Facilities could become a visual intrusion upon the natural character of the monument. (*10). Elimination of new residential development option will eliminate potential visual impacts upon approximately 1.4 acres.

ALTERNATIVE D IMPACT CHART

		NATURAL RESOURCES						CULTURAL		SOCIOECONOMIC		
		GEOLOGY/ TOPOGRAPHY	SOILS	AIR QUALITY	WATER	VEGETATION	WILDLIFE	PREHISTORIC	HISTORIC	REGIONAL ECONOMY	VISITATION	ESTHETICS
		IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION	IMPACTS/ MITIGATION
ALTERNATIVE D	SITE RESTORATION Remove the following facilities and restore sites: Existing visitor/ad- ministration building, parking area, and access road; existing gravel parking lot at Hornbek Homestead; existing residence (log cabin) and access road; and the primitive road in land section 24.	No Impact	Will require disturbing approximately 2.5 acres of soil surface in order to prepare subject sites for revegetating. (*11)	Temporary, minor reduction due to site restoration activities. The degree of impact is insignificant.	Minor and temporary increase in sedimenta- tion and turbidity of surface drainage will occur due to restor- ation activities.	Any vegetation disturbed during the site resto- ration process will be treated as part of the restoration efforts.	Will increase wildlife habitat by approxi- mately 2.5 acres.	No known resources will be affected; however, a complete archeological survey will be conducted prior to any ground disturbance. (*8)	No impact	(*9)	No Impact	Will improve the esthetic values of the monument.
	OPTION B Construct maintenance area access road, parking, and utilities. Also construct utilities for existing residence. (This development will be necessary if the new residential development option is eliminated as a part of Alternative-D)	Will disturb approxi- mately .3 acres which could involve portions of the lake bed shales and upper and lower tuffs. (*1 and 2) Elimination of the new residential development option and relocation of maintenance area will reduce the potential impact on approximately 1.4 acres where geologic re- sources are significant.	Will disturb approx- imately .3 acres of soil surface (*3). Elimination of the new residential development and relocation of maintenance area will reduce disturbance of approximately 1.4 acres of soil surface thereby, reducing potential erosion.	Same as above.	The two new wells for the Option-B mainte- nance area and existing residence will increase the load on subsurface water supplies. The amount of increase is insignificant. Elim- ination of the new residential development option, and relocation of maintenance area will reduce the potential for sedi- mentation of streams and turbid conditions of surface water during construction.	Will eliminate approxi- mately .3 acres of vegetation (*3). Elimination of the new residential development option, and relocation of maintenance area will reduce the dis- turbance of approxi- mately 1.4 acres of vegetation.	Approximately .3 acres of wildlife habitat will be displaced by construction of new facilities. (*7) Elimination of the new residential option will reduce potential impact to approxi- mately 2.7 acres of wildlife habitat.	No known resources will be affected. (*6). Elimination of alternative to provide additional employee housing will continue to severely handicap efforts to protect resources.	No known resources will be affected. (*8). Elimination of alternative to provide additional employee housing will continue to severely handicap efforts to protect resources.	(*9) Elimination of the new residential development option, and relocation of mainte- nance area will reduce the need to invest funds, manpower, and materials by approxi- mately \$1,043,000 as compared to providing subject facilities. The new maintenance facilities will improve the working conditions for maintenance staff.	New maintenance facili- ties will enable the monument to better maintain monument resources for the visitor which will encourage visitation. Elimination of alternative to provide additional employee housing will continue to severely handicap efforts to protect visitors.	Facilities could become a visual intrusion upon the natural character of the monument. (*10). Elimination of new residential development option will eliminate potential visual impacts upon approxi- mately 1.4 acres.

SUMMARY EVALUATION

An evaluation of the Impact Summary Chart can be interpreted as follows: (See Impact Summary Chart, Page 79.)

Legislative Intent

Each of the alternatives except "A" conforms with the legislative intent of the monument.

Management Objectives

The proposed plan best satisfies the management objectives of the monument relative to protecting the resources and facilities while also minimizing environmental impacts and funds needed for the overall development and management of the monument.

Issues

The issues identified in the Issues section of this document are best resolved by the proposed development concept plan. This is especially true considering the cost, environmental effect, and socioeconomic factors as identified on the Impact Summary Chart.

Cost

Alternative A, Status Quo, requires the least investment of Federal funds; however, it offers very little opportunity to satisfactorily accomplish the management objectives of the monument with any great effectiveness. Also, this alternative fails to resolve many of the issues identified in the Issues section.

The proposed development concept plan requires the second least investment of Federal funds and at the same time offers the opportunity to accomplish the management objectives of the monument and resolve those issues facing the monument.

Environmental Effect

Alternative A, Status Quo, has the least short-term impact on the environment than any of the alternatives; however, in the long term (should visitation continue to increase as projected) the long-term impacts of Alternative A could far exceed the short- and long-term impacts generated by implementing any of the other alternatives.

The proposed development concept plan has a greater short-term environmental impact than Alternative A, but considerably less than Alternatives C and D. In the long term, the proposed development concept plan appears to be the most desirable relative to minimizing environmental impacts.

Socioeconomics

Alternative A would contribute least to the socioeconomic of the region from the standpoint that it would do the least to encourage visitors to the area and would require less staff to manage the monument. This would mean less potential for economic benefits within the region. The proposed development concept plan and Alternatives C and D are considered fairly equal to one another and substantially better than Alternative A (Status Quo) in promoting socioeconomic benefits.

Alternative A would require the least investment of Federal funds for operation and maintenance since there would be no new developments and the current staffing level would be maintained. There would be little or no difference in the operation and maintenance cost between Alternatives B, C, and D since they all proposed the same minimum level of development and staffing necessary to accommodate visitor use and management. As previously indicated, Alternatives B, C, and D only varied in terms of the geographic location of the proposed facilities.

NATURAL		SOCIOECONOMIC		
C	HISTORIC	REGIONAL ECONOMY	VISITATION	ESTHETICS
	IMPACTS	IMPACTS	IMPACTS	IMPACTS
	No known impacts, compliance with Section 106 required.	<p>National Park Service total gross development cost \$197,000.</p> <p>Will have the least impact on stimulating regional economy.</p> <p>There would be no increase in job opportunities.</p>	Will improve the health and safety condition of the visitor and employees by improving handicap access and potable water supplies. This alternative will not resolve many of the issues identified in the <u>Issues</u> section.	There is very little opportunity to utilize topographic features and existing vegetation to minimize visual impacts.
	No known impacts, compliance with Section 106 required.	<p>National Park Service total gross development cost will be \$3,047,000.</p> <p>Would increase job opportunities within the region over Alternative A by providing an additional 2.2 man-year of employment.</p>	Will resolve the greatest majority of the issues identified, thereby improving visitor-use facilities and the parks' ability to accommodate the visitor. This will encourage visitation.	Based on the opportunity to utilize topographic features and existing vegetation to minimize visual impacts this alternative will have the least impact on the aesthetics of the monument.
	No known impacts compliance with Section 106 required.	<p>National Park Service total gross development cost \$4,660,000.</p> <p>Would increase job opportunities within the region over Alternative A by providing an additional 2.2 man-year of employment.</p>	Same as above.	Based on the opportunity to utilize topographic features and existing vegetation to minimize visual impacts this alternative has the greatest potential for causing visual impacts on the monument due to the lack of vegetation and topography to screen the development.
	No known impacts, compliance with Section 106 required.	<p>National Park Service total gross development cost \$4,339,000.</p> <p>Would increase job opportunities within the region over Alternative A by providing an additional 2.2 man-year of employment.</p>	Same as above.	Based on the opportunity to utilize topographic features and existing vegetation to minimize visual impacts this alternative would provide excellent opportunities for screening the proposed developments.

IMPACT SUMMARY CHART

ALTERNATIVES

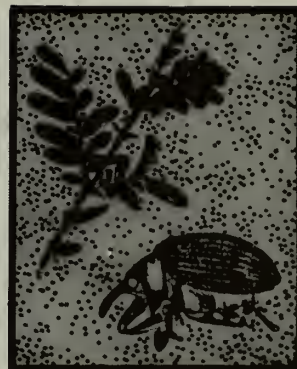
ALTERNATIVES

ALTERNATIVE A (STATUS QUO)	34 square yards affected.	6,189 square yards affected.	Temporary, and minor disturbance due to construction. Gravel roads will continually contribute to the degradation of air quality.	Temporary and minor increases in sedimentation and turbidity of surface drainage due to construction and rehabilitation work. Loads on subsurface water will be increased to supply the potable needs of the monument visitor, office staff, and existing residence.	Trail and utility construction will permanently displace 622 square yards of vegetation. Utility construction will also temporarily displace 300 square feet of vegetation. Rehabilitation will add an additional 5,000 square yards.	Trail and utility construction will permanently displace 622 square yards of wildlife habitat. Utility construction will also temporarily displace 300 square feet of habitat. Rehabilitation will add an additional 5,000 square yards of habitat to monument base.	No known impacts, compliance with Executive Order 11593 required.	No known impacts, compliance with Section 106 required.	National Park Service total gross development cost \$197,000. Will have the least impact on stimulating regional economy. There would be no increase in job opportunities.	Will improve the health and safety condition of the visitor and employees by improving handicap access and potable water supplies. This alternative will not resolve many of the issues identified in the Issues section.	There is very little opportunity to utilize topographic features and existing vegetation to minimize visual impacts.
ALTERNATIVE B PROPOSED PLAN	8.6 acres affected.	10.4 acres affected.	Temporary and minor disturbance due to construction. Paving of gravel roads will decrease dust generated by traffic within the monument thereby improving air quality.	Same as above, with the exception that increases in degree of construction will produce a greater degree of temporary sedimentation and turbidity of surface drainage. Subsurface water loads will also increase to accommodate the potable water needs for the additional people in the new residential area, the visitor, and office staff.	Roads, trails, and structures will permanently displace 4.6 acres of vegetation. Utility construction will temporarily displace 4.0 acres of vegetation. Rehabilitation will add an additional 1.3 acres of vegetation to monument base.	Rehabilitation will add 1.3 acres to existing habitat. Construction will permanently displace 4.6 acres and temporarily displace 4.0 acres of habitat.	No known impacts, compliance with Executive Order 11593 required.	No known impacts, compliance with Section 106 required.	National Park Service total gross development cost will be \$3,047,000. Would increase job opportunities within the region over Alternative A by providing an additional 2.2 man-year of employment.	Will resolve the greatest majority of the issues identified, thereby improving visitor-use facilities and the parks' ability to accommodate the visitor. This will encourage visitation.	Based on the opportunity to utilize topographic features and existing vegetation to minimize visual impacts this alternative will have the least impact on the aesthetics of the monument.
ALTERNATIVE C	11.1 acres affected.	13.6 acres affected.	Same as above.	Same as above.	Roads, trails, and structures will permanently displace approximately 6.4 acres. Utility construction will temporarily displace approximately 4.7 acres. Road rehabilitation will add an additional 2 acres of vegetation to monument base.	Roads, trails, and structures will permanently displace 6.4 acres of habitat. Utility construction will temporarily displace approximately 4.7 acres of habitat. Road rehabilitation will add an additional 2 acres of vegetation.	No known impacts, compliance with Executive Order 11593 required.	No known impacts, compliance with Section 106 required.	National Park Service total gross development cost \$4,660,000. Would increase job opportunities within the region over Alternative A by providing an additional 2.2 man-year of employment.	Same as above.	Based on the opportunity to utilize topographic features and existing vegetation to minimize visual impacts this alternative has the greatest potential for causing visual impacts on the monument due to the lack of vegetation and topography to screen the development.
ALTERNATIVE D	9.7 acres affected.	12.7 acres affected.	Same as above.	Same as above.	Will permanently displace 5.5 acres of vegetation and temporarily displace 4.3 acres. Rehabilitation will add 2.5 acres of vegetation to monument base.	Rehabilitation will add 2.5 acres to existing habitat. Construction will permanently displace 5.5 acres and temporarily displace 4.3 acres of habitat.	No known impacts, compliance with Executive Order 11593 required.	No known impacts, compliance with Section 106 required.	National Park Service total gross development cost \$4,339,000. Would increase job opportunities within the region over Alternative A by providing an additional 2.2 man-year of employment.	Same as above.	Based on the opportunity to utilize topographic features and existing vegetation to minimize visual impacts this alternative would provide excellent opportunities for screening the proposed developments.

IMPACT SUMMARY CHART

IMPACT SUMMARY CHART

**PLANNING TEAM MEMBERS
AND CONSULTANTS/CONSULTATION
AND COORDINATION**



PLANNING TEAM MEMBERS AND CONSULTANTS

Team

W. Wayne Gardner, Team Captain, Rocky Mountain Region
Tom Wylie, Superintendent, Florissant Fossil Beds National Monument
Gary R. Miles, Landscape Architect, Rocky Mountain Region
Cathy A. Eckberg, Environmental Planner, Rocky Mountain Region
John C. Reed, Interpretive Planner, Rocky Mountain Region
Mary C. Culpin, Architectural Historian, Rocky Mountain Region

Consultants

Richard B. Keigley, Biologist, Rocky Mountain Region
Douglas A. DeNio, Engineer, Rocky Mountain Region
John Pattie, Realty Officer, Rocky Mountain Region
Adrienne B. Anderson, Archeologist, Rocky Mountain Region
Ronald E. Hermance, Hydrologist, Rocky Mountain Region
Ralph R. Root, Geologist, Special Projects
Lori J. Kinser, Engineering Draftsman, Rocky Mountain Region
Joyce E. Moe, Editorial Clerk, Rocky Mountain Region

CONSULTATION AND COORDINATION

The following Agencies and organizations were contacted in the preparation and review of this document.

A list of those individuals who received copies of the environmental assessment for the general management plan/development concept plan is on file in the Division of Park Planning in the Rocky Mountain Regional Office, Denver, Colorado.

Federal

Advisory Council on Historic Preservation
Department of Agriculture
 Forest Service
 Soil Conservation Service
Department of the Army
 Corps of Engineers

Department of the Interior
 Bureau of Land Management
 Bureau of Mines
 Bureau of Indian Affairs
 Bureau of Reclamation
 Fish and Wildlife Service
 Geologic Survey
Department of Transportation
 Federal Highway Administration
Environmental Protection Agency
Department of Energy

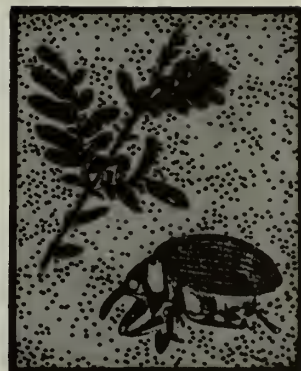
State of Colorado

Department of Local Affairs (State Clearinghouse)
Division of Planning
Division of Wildlife
Division of Highways
Colorado Historical Society
Office of the State Engineer, Division of Water Resources

Other

National Parks and Conservation Association
Woodland Park Chamber of Commerce
Mayor, Woodland Park
Cripple Creek Chamber of Commerce
Mayor, Cripple Creek
Colorado Springs Chamber of Commerce
Teller County Commissioners
Teller County Planning Commission
Mayor, Colorado Springs
The Wilderness Society, Colorado
Friends of the Earth
Town of Florissant
Town of Lake George
Pueblo Chamber of Commerce
Mayor, Pueblo
Colorado Open Space Council
Colorado Outdoor Education Center
City of Colorado Springs, Department of Public Utilities
Colorado Native Plant Society
Colorado Open Space Council
United Sportsmen's Council of Colorado
Denver Audubon Society
Sierra Club
National Recreation and Parks Association
American Wilderness Alliance

APPENDIXES



12. Florissant Fossil Beds

An Act to provide for the establishment of the Florissant Fossil Beds National Monument in the State of Colorado (83 Stat. 101)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That, in order to preserve and interpret for the benefit and enjoyment of present and future generations the excellently preserved insect and leaf fossils and related geologic sites and objects at the Florissant lakebeds, the Secretary of the Interior may acquire by donation, purchase with donated or appropriated funds, or exchange such land and interests in land in Teller County, Colorado, as he may designate from the lands shown on the map entitled "Proposed Florissant Fossil Beds National Monument", numbered NM-FFB-7100, and dated March 1967, and more particularly described by metes and bounds in an attachment to that map, not exceeding, however, six thousand acres thereof, for the purpose of establishing the Florissant Fossil Beds National Monument.

SEC. 2. The Secretary of the Interior shall administer the property acquired pursuant to section 1 of this Act as the Florissant Fossil Beds National Monument in accordance with the Act entitled "An Act to establish a National Park Service, and for other purposes," approved August 25, 1916 (39 Stat. 535; 16 U.S.C. 1 et seq.), as amended and supplemented.

SEC. 3. There are authorized to be appropriated such sums, but not more than \$3,727,000, as may be necessary for the acquisition of lands and interests in land for the Florissant Fossil Beds National Monument and for necessary development expenses in connection therewith.

Approved August 20, 1969.

Legislative History

House Report No. 91-411 (Committee on Interior and Insular Affairs).

Senate Report No. 91-263 (Committee on Interior and Insular Affairs).

Congressional Record, Vol. 115 (1969):

June 20: Considered and passed Senate.

Aug. 4: Considered and passed House, amended.

Aug. 7: Senate concurred in House amendments.

APPENDIX B

LEGISLATIVE COMPLIANCE PROCEDURE FOR CULTURAL RESOURCES

In planning for Florissant Fossil Beds National Monument, the National Park Service must be sensitive to the values embodied in properties that are potentially eligible for nomination to the National Register of Historic Places. Pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. 470f) the National Park Service must take into account the effect of its actions on those historic properties included in or eligible for inclusion in the National Register of Historic Places. For those actions that may cause a change in the characteristics that qualify a property for inclusion in the National Register, the National Park Service is required to afford the Advisory Council on Historic Preservation an opportunity to comment on the action prior to its approval. This is done in accordance with the regulations for the "Protection of Historic and Cultural Properties" (36 CFR Part 800). In accordance with Section 800.8 of the regulations for the "Protection of Historic and Cultural Properties" the National Park Service entered into an agreement with the Advisory Council on Historic Preservation and the National Conference of State Historic Preservation Officers for its nationwide park planning program. In accordance with that agreement, the Council's staff and the Colorado State Historic Preservation Officer have been invited to participate in the development of the Florissant Fossil Beds General Management Plan through informal consultation with the park staff and members of the planning team at each stage of the planning process. This consultation will continue until the Regional Director selects an alternative. At that time, the Council's Executive Director has 30 days to note an objection otherwise the plan will be approved and all subsequent implementing actions that will effect historic properties will be carried out in accordance with Cultural Resource Management Guideline, NPS-28, of the National Park Service. The Council need not be afforded an opportunity to comment on those implementing actions. If the Executive Director notes an objection to these implementing actions of the General Management Plan, the Chairman of the Council will review the plan and the objection and determine if the plan should be scheduled for consideration by the Council. If the Chairman chooses, the Regional Director must delay any decision with regard to the plan until the Council has provided its comments and the National Park Service has taken these comments into consideration.



United States Department of the Interior

NATIONAL PARK SERVICE

ROCKY MOUNTAIN REGIONAL OFFICE

655 Parfet Street

P.O. Box 25287

Denver, Colorado 80225

IN REPLY REFER TO:

H3015 (RMR-PR)

Mrs. Barbara Sudler
State Historic Preservation Officer
Colorado Heritage Center
1300 Broadway
Denver, Colorado 80203

Dear Mrs. Sudler:

In accordance with pertinent Federal legislation and regulations, particularly 36 CFR Part 60, we seek your review and comment regarding the National Register eligibility of the historic properties at Florissant Fossil Beds National Monument, Colorado. As you will recall, the eligibility of these properties was discussed with your staff on July 5, 1984. The properties discussed at this meeting are listed below. Site plans have already been provided.

Hunting Shack: Built in the 1940s (builder unknown), of 2" X 4" frame with a gabled roof, and siding on one wall. It is vacant and in poor condition.

Wells Cabin: Built in 1929 by Toby Wells. Constructed of logs with a gabled roof. It consists of two bedrooms, kitchen, and living area. It has no distinctive interior details and is in good condition. Presently used as park employee housing.

Wells Garage: Built in 1930 by Toby Wells. Constructed of stone, with a gabled roof, two windows and one side door. It is in good condition and is being used by park employees.

Wells Underground Root Cellar: Constructed in the late 1930s by Toby Wells. It is built into the hillside, the rear 2/3 is constructed of stone with a log supported earth roof. The front 1/3 is log construction with a shed roof. It is in fair condition and is used as storage by park maintenance.

Nelson "Log" Cabin and Outbuildings: Built in 1945 (builder unknown), a modified "H" design of log construction, two stories on the east and west ends, with a garage under the east end. It does not have any distinctive interior details. It is in good condition and is currently leased to the Nelson family who use it in the summer.

Nelson "White" House:

Built in 1915 (builder unknown), a single story frame structure with five rooms. It has a gabled roof covered with metal sheeting. It has no distinctive interior details. It is in poor condition and presently is vacant.

Nelson Outbuildings:

Built from 1917-1922. They are all frame or log construction several of them are built into the hillsides. They are in advanced stages of deterioration. They are all vacant.

Maytag Barn:

Built in the 1920s (builder unknown). This one-story barn is constructed of post and beam framing with a full loft under the gable roof. The 2,772 sq. ft. first floor has been remodeled by the National Park Service. There is a large hipped roof ventilator in the center of the roof. It is in very good condition, currently being used as a maintenance facility.

Visitor Center:

Built in 1924 by John and William Baker. The one-story frame structure has a hipped roof with a shed extension, painted green. It does not have any distinctive interior designs. It is in good condition.

Cusack Potato Barn:

Built in the late 1930s (builder unknown), of wood and concrete construction. Two small cupolas are at the north and south ends. It is in good condition, and is used as storage by the park.

The National Park Service has evaluated the above structures using National Register criteria and determined that they are not eligible for inclusion on the National Register of Historic Places. We hope that you will agree with this determination and for your convenience have provided "I Concur" and "Date" blocks below.

If you have further questions, please contact Bruce Westerhoff at 234-2764.

Sincerely,

for Katherine Cole
Richard A. Strait
Associate Regional Director
Planning and Resource Preservation

Enclosures

Color Xeroxes

Black and white prints

I Concur

Date



COLORADO
HISTORICAL
SOCIETY

The Colorado Heritage Center 1300 Broadway Denver, Colorado 80203

January 29, 1982

Mary Shivers Culpin
National Park Service
655 Parfet Street
Denver, Colorado 80225

Dear Ms. Culpin:

It is my pleasure to announce the entry of the Hornbek House into the National Register of Historic Places on December 8, 1981 in recognition of this property's significant contribution to the heritage of the State of Colorado. A copy of the official congressional notification of designation is included.

On behalf of Governor Lamm, the Colorado Consulting Committee for the National Historic Preservation Act of 1966, and the Colorado Historical Society, I extend to you our congratulations and our sincere appreciation for your continuing interest in historic preservation.

Sincerely,

Arthur C. Townsend
State Historic Preservation Officer

ACT/BH:ss

Enclosures

APPENDIX E

COST ESTIMATE

Background

This cost estimate was prepared by the Rocky Mountain Region at the request of the Washington Office. The estimate reflects and compares the cost of providing employee housing in the monument for security purposes as opposed to contracting security services. It should be noted that the primary reason for even considering housing in the monument was to resolve the issue of employees, especially the lower grades, not able to locate housing within a reasonable commuting distance of the monument. The potential for improving the security of the monument by providing employee housing would only be a secondary benefit.

Housing in the monument would enable the Superintendent to arrange for full-time protection by coordinating employee leave in order to have someone in the monument at all times. The proposed visitor contact/administrative facility, new maintenance structure, and residences would be equipped with an alarm system with employees would respond to in emergency situations. Should the need arise for employees to respond to an alarm, they would be compensated for their services.

The employee housing portion of the estimate reflects as a minimum requirement the cost of providing one three-bedroom house with an attached single garage and one duplex (two bedrooms each side) with two single garages. The employee rental rates are based on estimates from Rocky Mountain National Park and Curecanti National Recreation Area which would be considered as comparable to Florissant Fossil Beds National Monument.

ALTERNATIVE I

Construct and maintain residences and pay employee for responding to alarms.

Structure - 1 three-bedroom house	\$ 65,000
Structure - 1 duplex	126,000
Landscaping 5 percent	10,000
Power line 250 feet at \$8/foot	2,000
Phone line 250 feet at \$2/foot	500
Water line 400 feet at \$15/foot	6,000
Septic tanks/filter field	<u>16,000</u>

Total Construction Cost	\$225,500
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Based on the total construction cost, the yearly cost to the National Park Service would be as follows:

Principal and interest (10 percent compounded) per year on a 30-year \$225,500 construction loan	\$ 23,747
Average yearly maintenance cost (4 percent of construction cost)	9,020
Security services by National Park Service employee (10 response/calls/year, 2 hours/call at \$10/hour)	<u>200</u>
Total Cost Per Year to the National Park Service	\$ 32,967

ALTERNATIVE II

Contract a private firm to provide security services. Security service will be required between the hours of 4 p.m. and 8 a.m. (16 hours/day), 7 days a week, or a total of 112 hours per week. This will require three security guards--two working 40 hours each per week and one working 32 hours per week to cover the 112 hours per month. An additional 14 hours per week would need to be included for travel time.

A survey of the Colorado Springs and Denver areas revealed that the average cost for employing trained security officers is \$10 per hour. Based on this cost and the number of hours involved, the overall cost would be as follows:

Two guards at \$10 per hour, 40 hours each per week	\$ 800
One guard at \$10 per hour, 32 hours per week	320
Travel time - 14 hours per week at \$10 per hour	140
Total cost per week	<u>\$1,260</u>
Weeks per year	x 52
Total cost per year	<u>\$65,520</u>

SUMMARY

To compare the cost of Alternatives I and II above, the cost of each alternative was projected over a 10 year period. To simplify the projections, inflation factors were not considered since the relationship of the factors should remain fairly static. The comparison also takes into consideration that the National Park Service will be

receiving rent for the use of employee housing which will defray the National Park Service costs. Rent is based on the three-bedroom house and one-half of the duplex being occupied all year and the remaining duplex being occupied by seasonals 3 months of the year.

ALTERNATIVE I

Alternative I total cost to the National Park Service per year is \$32,967 x 10 (years)	\$329,670
Total rent received per year for housing \$9,488 x 10 (years)	- <u>94,880</u>
Total cost to National Park Service over 10-year period	\$234,790

ALTERNATIVE II

Guard services for the first 10 years at \$65,520 per year would cost	\$655,200
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CONCLUSION

The following is considered as sufficient justification to reflect housing needs in the General Management Plan for Florissant Fossil Beds National Monument.

Over a 10-year period, Alternative I would equate to a savings of approximately \$420,410 as compared to Alternative II. The value of structures will also represent a considerable capitol investment which will continue to increase in value. In 30 years, when the construction loan for the housing facilities is payed off, the government will experience an additional savings of \$23,747 per year (principal and interest). Considering all of the above housing costs, compared to providing guard services on a 10-year basis, this would equate to a total savings of \$444,157 per year.

The area adjacent to the monument has been totally subdivided with the exception of the area along the west boundary of the monument. The area along the west boundary belongs to a school of environmental education. As the surrounding area has developed, there has been a marked increase in vandalism and theft within the monument. As more people move into the area and become aware that the

park is left unprotected, the potential for such problems will naturally increase.

There is also a need to provide a quick response to various emergency maintenance problems and potential structure and brush fires. We have reached a point where it is imperative that the service increase its protection of the park.

In an area which is remote to the protective services of the city and county police department, the housing of employees in the monument, in combination with an alarm system, would provide the most reliable and least expensive form of protection. In accordance with the Director's memorandum of April 1979, and OMB circular A-18, ". . .employee housing may be provided by the government where it is determined that employees must live within the area to render necessary services or protection. . . ."

The area within a 35-mile radius of Florissant Fossil Beds National Monument is surrounded by premium mountain property as reflected by the extremely high cost of real estate. Recent surveys of local real estate offices revealed that park employees cannot depend on locating rental property (refer to attached letter) and that locating sale property which is in the affordable range of a park employee is also practically impossible. Due to the heavy snow storms which frequently hit the area during the early fall, winter, and spring, driving conditions become extremely treacherous and the travel time often involves 2 and 3 hours or more one way. Also, there are many times when conditions make access totally impossible.

With regard to this item, OMB circular A-18 also states that employee housing may be provided by the government where adequate housing is not available. Furthermore, the guidelines state that reasonable commuting distance will generally be considered that distance which requires travel time of not more than 1 hour one way.


REALTY IN THE ROCKIES, INC.

215 E. Midland Avenue
P.O. Box 429
Woodland Park, Colorado 80863
(303) 687-9252

February 2, 1981

Walter H. Saenger,
Chief Park Ranger
Florissant Fossil Beds

Dear Mr. Saenger;

This letter is in regards to Rental Properties in the Florissant area. There are virtually none existent, except some cabins from out of state owners or people that may have been transferred to another state for a time period. Occasionally folks that plan to retire here will rent their home until that time.

Our office has had no rentals in the Florissant area for some time and I personally don't know of any other agencies that have any either.

Sincerely Yours,

Rosa M. Quick

Rosa M. Quick
Sales Associate



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ROSA M. QUICK
Associate

Each Office Is Independently Owned and Operated



As the nation's principal conservation Agency, the Department of the Interior has basic responsibilities to protect and conserve 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. NPS D8

