

REPORT BY THE

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Comptroller General

OF THE UNITED STATES

Facilities In Many National Parks And Forests Do Not Meet Health And Safety Standards

Lodges, employee dormitories, water and sanitation systems, bridges, and tunnels in 21 of the 22 national park and forest areas GAO reviewed did not comply with Federal or State health or safety standards. Once they became aware of facility deficiencies, the National Park and Forest Services took a broad range of actions, including the immediate closure of unsafe and unhealthy facilities. In many parks and some forests, however, facilities remained open even though they did not meet standards established to protect the health and safety of visitors and employees.

GAO estimated that to correct identified health and safety deficiencies would cost well over 1 billion dollars.

GAO makes a number of recommendations to the Congress and the Secretaries of Agriculture and the Interior on what needs to be done to bring facilities in our national parks and forests up to health and safety standards.



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B-197179

The Honorable Mark O. Hatfield
Ranking Minority Member
Committee on Energy and Natural
Resources
United States Senate

Dear Senator Hatfield:

As you requested, this report discusses the degree to which hotels, employee dormitories, water systems, sewage systems, bridges, and tunnels in national park and forest areas comply with national and State health and safety standards. It also discusses two alternative methods of funding the improvements needed to bring facilities up to health and safety standards.

As requested by your office, unless you publicly announce its contents earlier, we plan no further distribution of the report until 30 days from the date of the report. At that time, we will send copies to the Secretaries of Agriculture and the Interior and to interested parties and make copies available to others upon request.

Sincerely yours,

Comptroller General
of the United States

D I G E S T

The Park and Forest Services have not protected the health and safety of their visitors and employees. Substandard water and sewer systems and hazardous lodges, dormitories, bridges, and tunnels need to be repaired, upgraded, or limited in their use.

Health and safety inspectors found some facilities to be so hazardous that they recommended immediate closure until the facilities could be repaired or upgraded. In other cases, the facilities were in better condition and inspectors recommended repairs or upgrading, but not closure.

The cost of bringing facilities up to standard ranged from \$5,000 to repair a toilet that was leaking sewage into a nearby drinking water source in Shasta-Trinity National Forests to \$3.2 million to correct fire and safety hazards at Old Faithful Inn in Yellowstone National Park. (See pp. 74 and 95.)

ACTIONS TAKEN TO IMPROVE FACILITIES

The Park and Forest Services took a broad range of actions once they became aware that a facility did not meet health and safety standards. These ranged from immediate closure of facilities to doing little. For example, the Forest Service immediately closed 25 percent of the drinking water systems at the 10 areas GAO reviewed when tests showed the water did not meet Federal or State drinking water standards. The National Park Service, however, had not requested funds to correct many of the fire and safety deficiencies at the

80-room Crater Lake Lodge in Crater Lake National Park or restricted use of the lodge. A 1979 inspection disclosed that

--exterior and interior walls were not fire resistant,

--guests may become trapped in their rooms during a fire because the lodge does not have enough fire exits and most of the existing fire exits are difficult to use, and

--the automatic sprinkler system does not provide adequate coverage. (See p. 32.)

Park superintendents and forest supervisors told GAO of numerous actions taken to improve deficient facilities, but the improvements were often not sufficient to meet safety and health standards.

During fiscal years 1979 through 1981, 50 percent of the \$218 million of construction funds the Park Service requested and 69 percent of the \$25 million of recreation construction funds the Forest Service requested were for projects other than health and safety. These included rehabilitating historical structures and campgrounds and constructing new visitor centers, parking lots, interpretative displays, campgrounds, and administrative buildings. (See p. 21.)

ALTERNATIVE FUNDING METHODS

GAO estimates that to correct identified health and safety deficiencies, the Park Service will have to spend about \$1.6 billion. (See app. III.) In addition, the Forest Service estimates it needs about \$109 million. To finance these projects over a 5-year period, the Congress would have to appropriate about \$342 million a year, about a five-fold increase over construction funds requested for fiscal year 1981.

Two alternative funding methods are:

Concessioners may be willing to amend present contracts or enter into new contracts to repair or upgrade deficient facilities they manage or desire to manage to meet health and safety standards. This was done by concessioners in Everglades and Yellowstone National Parks in 1979. Recovering the cost of health and safety improvements would have to be negotiated on a case-by-case basis between the National Park Service and the concessioner. (See p. 24.)

Concessioner Improvements

This was because the Congress disagreed with the Park Service's plan to reduce the maintenance fund account by the amount of the increase in fees collected. GAO proposes that all revenue from increased fees be used for health and safety projects that would not otherwise be funded and that the revenue not be used to replace any other Park Service funding. To implement this funding method, the Congress would have to (1) enact legislation permitting the Park Service to increase entrance fees and (2) appropriate funds resulting from increases in entrance and camping fees for health and safety projects in the parks and forests where they are collected. (See p. 22.)

The National Park Service attempted to raise entrance fees at some areas and charge fees at some additional areas to increase fee revenue by \$12 million in 1979. However, congressional legislation (Public Law 96-87) limited entrance fees charged at units of the national park system to those areas and rates which were in effect on January 1, 1979.

Entrance and camping fees

- Charging higher entrance and camping fees at parks and forests.
- Negotiating with concessioners to make health and safety improvements on facilities they own or manage.

RECOMMENDATIONS TO THE SECRETARIES
OF AGRICULTURE AND THE INTERIOR

GAO recommends that the Secretaries:

--Take immediate action to correct health and safety problems with available funds or restrict the use of facilities that do not meet health and safety standards.

--Request a greater share of their construction funds for repairing and upgrading facilities to bring them up to health and safety standards.

--Request a special appropriation from the Congress to correct the most serious health and safety hazards.

--Negotiate with concessioners to make corrections to facilities they own or operate to bring them up to applicable health and safety standards. (See p. 25.)

RECOMMENDATIONS TO THE CONGRESS

GAO recommends that the Congress:

--Give priority to funding projects for repairing and upgrading facilities with the most serious health and safety hazards at our national parks and forests.

--Repeal section 402 of Public Law 96-87 (93 Stat. 666) to permit the Park Service to increase entrance fees and direct that the Park and Forest Services use funds resulting from increased entrance and camping fees for health and safety projects in the parks and forests where they are collected.

--Require the Secretaries of Agriculture and the Interior to periodically report on the condition of the facilities until they are improved to meet all health and safety standards. (See pp. 25 and 26.)

The Departments of Agriculture and the Interior agreed that health and safety deficiencies exist in areas they manage and that more funds are needed to correct them. The Departments sometimes differed with GAO and with each other on how additional funds should be obtained. For example, neither Department agreed to include a greater share of health and safety projects in their annual request from the Congress for construction funds. The Department of Agriculture was opposed to requesting a special appropriation from the Congress to correct the most serious health and safety hazards but the Department of the Interior did not oppose this recommendation. (See pp. 104 to 117.)

As pointed out in this report it will cost the Park Service an estimated \$1.6 billion and the Forest Service \$109 million to correct identified health and safety deficiencies in national parks and forests. These sums greatly exceed annual construction appropriations. Therefore, the agencies must find other means to finance these improvements.

The concessioners (1) informed GAO of many improvements they have made since GAO visited their facilities, or planned to make in the near future, (2) requested that GAO correct minor errors made in describing their facilities, and (3) sometimes stated that even though their buildings had fire and building code deficiencies they were reasonably safe. GAO either modified the report based on the additional information from the concessioners or provided additional support for its position. (See app. VI.)

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EPA	Environmental Protection Agency	
FHWA	Federal Highway Administration	
GAO	General Accounting Office	
PHS	Public Health Service	

ABBREVIATIONS

The National Park Service is the only Federal recreation agency to collect entrance fees. In 1979 the Park Service collected \$7.96 million at 62 of its 327 areas that charge. Both the Park and Forest Services charge user fees,

The Forest Service manages 154 national forests, 19 national grass lands, and 17 land utilization projects that encompass about 292,188 square miles. In 1979, these areas provided camping, fishing, swimming, picnicking, and sight-seeing experiences to 220 million visitors.

Forest Service areas that we reviewed were typically less developed than those managed by the National Park Service. The Forest Service areas contained fewer large lodges and employee dormitories and smaller water and sanitation systems than those found in Park Service areas.

Areas the National Park Service manages are often more developed than those other Federal agencies manage. For example, Yellowstone National Park contains three major lodges, hundreds of cabins, 11 employee dormitories, 26 water systems, 12 campgrounds, and 343 miles of roads.

In 1979, over 500 million visits were made to areas managed by the National Park Service and the Forest Service. The National Park Service manages 327 national parks, sea-shores, battle grounds, monuments, and other areas of national significance. These areas encompass over 112,000 square miles, an area slightly larger than the State of Colorado. In 1979 over 282 million people visited Park Service areas located in 49 States, the District of Columbia, Puerto Rico, and the Virgin Islands.

RECREATION AREAS VISITS TO FEDERAL

Visits to Federal recreation areas have increased dramatically during the last decade. In view of the greatly expanded Federal role in providing recreational opportunities, the Ranking Minority Member, Senate Committee on Energy and Natural Resources, requested that we find out if facilities in areas managed by the National Park Service, Department of the Interior, and the Forest Service, Department of Agriculture, comply with Federal and State health and safety standards.

INTRODUCTION

CHAPTER 1

primarily for campsites. In 1979 the Park Service collected \$9.89 million and the Forest Service collected \$6.10 million in user fees. Both agencies rely on concessioners to operate lodges, restaurants, marinas, and gift shops at over 250 areas. In 1978, these concessioners reported a gross revenue of nearly \$713 million.

HEALTH AND SAFETY REQUIREMENTS AND STANDARDS

Many laws and standards are applicable to Park and Forest Services' facilities. The major ones are summarized below.

The Safe Drinking Water Act (Public Law 93-523). The purpose of this legislation, enacted on December 16, 1974, was to assure that water supply systems serving the public meet minimum national standards. This act authorized the Environmental Protection Agency (EPA) to establish standards for protecting public water supply systems from harmful contaminants. The act requires Federal agencies who own or operate public drinking water systems to comply with these standards. The passage of the Safe Drinking Water Amendments of 1977 (Public Law 95-190) required Federal agencies to comply with state standards in addition to Federal requirements in those states having an EPA-approved program.

The Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500). This act set standards and minimum requirements for the control and abatement of water pollution. This act was amended by the Clean Water Act of 1977 (Public Law 95-217). Both acts require all Federal agencies in the states having an EPA-approved program.

The Solid Waste Disposal Act (Public Law 94-580) of 1976 amended the 1965 Solid Waste Disposal Act (Public Law 89-272) and required Federal agencies to dispose of solid waste, including sewage and sewage sludge, according to EPA and state standards.

The Uniform Building and Fire Codes and the National Fire Protection Association standards. The codes and standards are used to evaluate lodges in national parks and forests. These codes and standards have existed for years with periodic updating. Private inspectors contracted for by the Park and Forest Services normally use the Uniform Building and Fire Codes which emphasize the structural and engineering integrity of buildings and include life safety standards. National Park Service inspectors use the National Fire Protection Association standards which

Blue Ridge Parkway (North Carolina and Virginia)
 Crater Lake National Park (Oregon)
 Everglades National Park (Florida)
 Glacier National Park (Montana)
 Grand Canyon National Park (Arizona)
 Isle Royale National Park (Michigan)
 Mount McKinley National Park (Alaska)
 Mount Rainier National Park (Washington)
 Rocky Mountain National Park (Colorado)
 Voyageurs National Park (Minnesota)
 Yellowstone National Park (Wyoming, Montana, and Idaho)
 Yosemite National Park (California)

National Park Service Areas

The following areas and the corresponding headquarters, regional, and district offices were included in our review.

The 12 National Park Service areas, including several of the most frequently visited areas, had over 25 million visitors in 1979. The 10 Forest Service areas had over 45 million visitors in 1979, about 20.5 percent of the visitors hosted by all national forests that year.

In response to the request of the Ranking Minority Member, Senate Committee on Energy and Natural Resources, our review was directed toward determining the condition of water and sewer systems, lodges, dormitories, bridges, and tunnels at 12 National Park Service and 10 Forest Service areas. These areas were selected to (1) give a broad geographical coverage, (2) include some of the largest and most frequently visited areas, and (3) include areas in which the Congress had previously expressed concern about the use of construction funds.

OBJECTIVE, SCOPE, AND METHODOLOGY

Section 124 of the Surface Transportation Assistance Act of 1978 (Public Law 95-599) requires that all bridges on public roads, including those on Federal lands, be inventoried by December 31, 1980, and inspected for safety defects. The Park Service contracted with the Federal Highway Administration (FHWA), Department of Transportation, to inspect all park bridges and tunnels by that date. Forest Service bridges are inspected either by FHWA or the Forest Service.

place primary emphasis on protecting lives. Forest Service inspectors use the most stringent portions of both codes.

Forest Service Areas

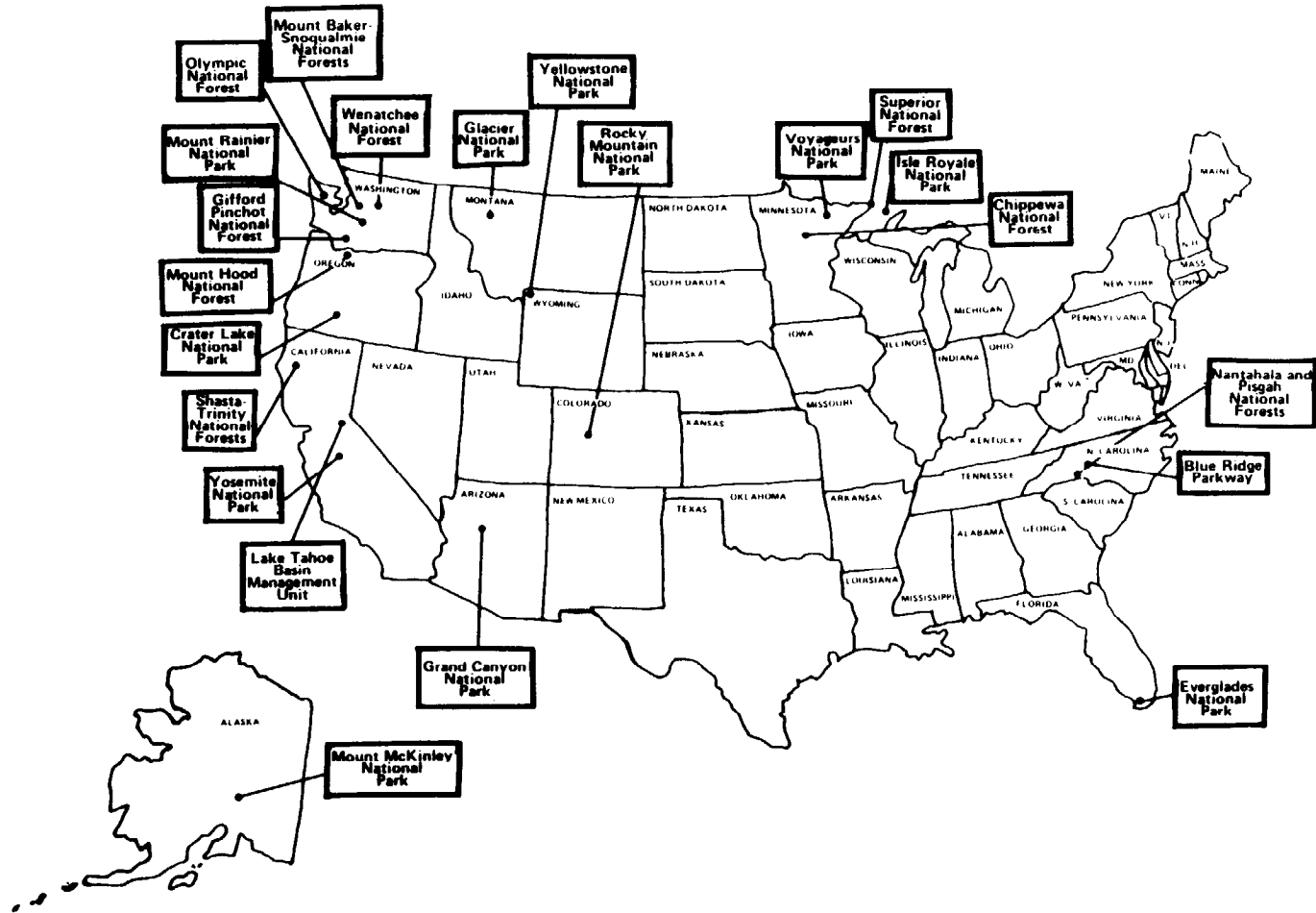
Chippewa National Forest (Minnesota)
Gifford Pinchot National Forest (Washington)
Lake Tahoe Basin Management Unit (Nevada and California)
Mount Baker-Snoqualmie National Forests (Washington)
Mount Hood National Forest (Oregon)
Mount St. Helens National Forest (North Carolina)
Olympic National Forest (Washington)
Shasta-Trinity National Forests (California)
Superior National Forest (Minnesota)
Wenatchee National Forest (Washington)

At each of these areas, we ascertained whether the facilities met nationally accepted health and safety standards. We relied upon qualified health and safety inspectors employed or hired by Federal, State, and local governments and responsible agency officials to identify health and safety deficiencies and recommend actions needed to protect visitors and employees. For each example included in appendixes I and II, we obtained agreement on facility conditions from the park superintendent or forest supervisor.

We interviewed Park and Forest Service officials at parks and forests, regional offices, and agency headquarters; Public Health Service (PHS), FHWA, and EPA officials; and State health and safety officials. We reviewed pertinent laws, policies, regulations, procedures, and records at the areas and agencies reviewed.

The method we used to estimate the cost of National Park Service health and safety projects that were proposed but not funded is described in appendix III.

LOCATION OF PARK SERVICE AND
FOREST SERVICE AREAS REVIEWED



The Park and Forest Services have made an effort to identify health and safety deficiencies. The Forest Service's computerized recreation information management system lists the condition of its recreational facilities and the estimated costs of maintaining, repairing, and rehabilitating them. It also lists improvements and new facilities needed to meet State and Federal health and safety standards.

EFFORTS TO IDENTIFY HEALTH AND SAFETY DEFICIENCIES

--negotiating with concessioners to make health and safety improvements on facilities they own or manage.

--charging higher entrance and camping fees at parks and forests and

which could help fund corrections are

Immediate correction of health and safety deficiencies would require substantial increases in annual congressional appropriations or alternative funding methods. Two methods

than twice as long.

identified health and safety deficiencies could take more for health and safety projects. As a result, correcting the requests and one-third of the Forest Service's requests are only about half of the Park Service's construction funds re- to fund all proposed health and safety projects. However, it would take over 20 years for the Park and Forest Services construction projects. Even if all of these funds were used, Services have requested about \$81 million annually for con- and safety projects. In recent years the Park and Forest available to develop estimated costs for other types of health sanitation projects at existing sites. Information was not lion. The Forest Service figure includes only water and In addition, the Forest Service estimates it needs \$109 mil- \$1.6 billion for the National Park Service. (See app. III.) We estimate that unfunded health and safety projects total

be limited.

tunnels need to be repaired or upgraded or their use should systems and hazardous lodges, dormitories, bridges, and at national parks and forests. Substandard water and sewer health and safety of visitors and employees using facilities The Park and Forest Services have not protected the

MADE HEALTHIER AND SAFER

NATIONAL PARKS AND FORESTS MUST BE

CHAPTER 2

The table on page 8 shows the types of facilities with health and safety deficiencies at Park and Forest Service areas reviewed. At least one example of each type of deficient facility is included in this chapter; more case studies appear in appendixes I and II. We limited ourselves to describing 2 or 3 deficient facilities of each type per case study, even though as many as 25 sometimes existed.

TYPES OF HEALTH AND SAFETY PROBLEMS

We reviewed the reports on some of the parks included in our review. They supported and expanded upon our findings on health and safety deficiencies.

"What we must do is establish a process to identify the safety, sanitation, and deteriorated facility problem, cost that out, and find a means of solving the problem, above and beyond the basic NPS budget. This process has already been completed at Yellowstone and we are substantially through the analysis at Glacier. There are an additional 26 parks where the issue must be addressed in order to evaluate the total impact, country wide, on the cost of correction. This figure discounts the analysis which must be done on marinas, which should follow later. At the present time, particular attention should be given overnight lodging, including dormitories."

* * * * *

"During the past year, fire and safety concerns have forced the closure of visitor lodging accommodations in two parks. An on-going GAO inquiry could have a similar result in several other parks which have older lodging structures, both for visitors and for employees. We have not had enough advance planning to design and fund corrective measures before the crisis arrived, nor do we have a good picture of the countrywide scope of the problem."

The National Park Service recently accelerated its effort to identify health and safety deficiencies. In November 1979, the Director, National Park Service, called for an "Emergency Survey of Concession Facilities" in 26 national parks. His memorandum to all Park Service regional directors stated:

**TYPES OF FACILITIES THAT DID NOT
MEET HEALTH AND SAFETY STANDARDS AT
AREAS REVIEWED**

Agency	Number of areas reviewed	Drinking water systems	Sewer systems	Bridges and tunnels	Hotels & employee housing
National Park Service	12	5	3	3	10
Forest Service	10	9	2	2	2
Total	22	14	5	5	12
National Park Service Areas					
Distribution of Deficiencies a/					
Blue Ridge Parkway				•	•
Crater Lake National Park				•	•
Everglades National Park				•	•
Glacier National Park	•	•	•	•	•
Grand Canyon National Park			•		•
Isle Royale National Park	•				
Mount McKinley National Park			•		•
Mount Rainier National Park				•	
Rocky Mountain National Park		•			
Voyagers National Park			•		•
Yellowstone National Park		•			•
Yosemite National Park		•			•
Forest Service Areas					
Chippewa National Forest		•			•
Gifford Pinchot National Forest		•			•
Lake Tahoe Basin Management Unit		•			•
Mount Baker - Snoqualmie National Forest		•			•
Mount Hood National Forest		•	•		
Narragansett and Pisgah National Forests		•			
Olympic National Forest		•			
Shasta - Trinity National Forests		•			
Superior National Forest		•			
Wenatchee National Forest		•	•		•

a/ A "•" indicates at least one facility did not meet at least one section of the applicable State or Federal health or safety standards. The case studies in appendixes I and II describe some of the facilities that did not meet standards, what standards were not met, and why the facilities did not meet the standards.

Drinking water systems at 14 of the 22 Park and Forest Service areas reviewed did not meet State or Federal standards. At Glacier, Crater Lake, and Rocky Mountain National Parks visitors and employees have contracted giardiasis or gastroenteritis by drinking water from substandard systems.

The Federal Government can be sued for damages by park visitors who become sick from the drinking water. For example, in June 1975 untreated sewage contaminated a drinking water system at Crater Lake National Park. About 1,600 park visitors and employees came down with gastroenteritis after drinking the water. To date, the Government has paid \$400,000 in tort claims. Legal actions for \$8 million are still pending.

Most deficient Forest Service drinking water systems were closed down prior to our review after tests showed the bacteria or turbidity levels exceeded State or Federal standards. Forest supervisors informed us that disinfection and/or filtration systems would have to be repaired or added to closed drinking water systems before they could be reopened and that other water systems should be improved to assure they continued to produce safe drinking water. Closed Forest Service drinking water systems were shown as not meeting health standards in the table on page 8, as were Forest Service systems which were not tested for bacteria or turbidity as standards require.

In the last 5 or 6 years, the Park and Forest Services have made major efforts to upgrade their water systems. However, many water systems still do not sufficiently treat drinking water to comply with PHS, EPA, and applicable State drinking water standards.

Glacier National Park

Sixteen of Glacier National Park's 25 drinking water systems do not meet EPA, PHS, and Montana State drinking water standards. Most park visitors and employees drink water from these systems.

In September 1977, 55 park visitors and concessioner employees became ill with giardiasis after drinking water from the Many Glacier water system. The system supplied drinking water to the 221-room Many Glacier Hotel, the 86-room Switcurrent Creek Motel, and the Many Glacier Camp-ground. During 1979 over 65,000 park visitors used these facilities.

Nineteen of Yosemite National Park's 25 water systems do not meet at least one section of the California State drinking water standards. The Merced River, which is used

Yosemite National Park

Shortly after the outbreak occurred, the park was authorized to spend \$357,000 to reconstruct the Many Glacier drinking water system. The system has not been built because the construction bid was over bid estimates. The Park Service is trying to negotiate with the company that bid on the project to lower its bid. Until the system can be built, the park will continue to use a temporary and inadequate system. (See p. 37.)

--the park continues to draw water from Wilbur Creek during periods of high drinking water use because the well cannot produce enough water.

--the drinking water is not filtered or adequately disinfected and

After the outbreak occurred, the Park Service stopped using Wilbur Creek as a drinking water source. The park used maintenance funds to connect a test well to the Many Glacier drinking water distribution system. The chief of maintenance said that this was only a temporary solution because

The park's chief of maintenance and superintendent were aware that the Many Glacier drinking water system did not meet PHS, EPA, and Montana state drinking water standards before the giardiasis outbreak. In 1972 the park superintendent proposed a project to upgrade the water system. However, the Park Service did not consider it a high enough priority to request that the Congress fund the project until after the giardiasis outbreak in 1977.

Giardiasis is caused by drinking water that has been contaminated by human or animal feces. To prevent giardiasis, the PHS, EPA, and Montana State drinking water standards require that water drawn from surface sources, such as creeks and lakes, be disinfected and filtered. At the time of the outbreak the Many Glacier drinking water system was chlorinated but not filtered. The system drew its water from Wilbur Creek, which drains a popular hiking and backpacking area in the park.

The park's chief of maintenance and superintendent were aware that the Many Glacier drinking water system did not meet PHS, EPA, and Montana state drinking water standards before the giardiasis outbreak. In 1972 the park superintendent proposed a project to upgrade the water system. However, the Park Service did not consider it a high enough priority to request that the Congress fund the project until after the giardiasis outbreak in 1977.

Giardiasis can be a discomforting and lingering disease. Its symptoms include diarrhea, abdominal cramps, fatigue, weight loss, and nausea. The 29 concessioner employees who became ill suffered from diarrhea for an average of 25 days.

The Forest Service summaries in appendix II describe instances in which forest supervisors informed us of improvements needed to assure that facilities do not jeopardize the health or safety of visitors or employees in the future. For example, forest supervisors told us that some pit toilets

Poorly designed, overused, or malfunctioning sewer systems can result in sewage contaminating drinking water, as occurred at Crater Lake National Park in 1975. The Park and Forest Services have made substantial efforts to overcome their sanitation problems in recent years. However, there were still sewer systems in operation that did not comply with EPA and applicable State standards at three of the National Park Service and two of the Forest Service areas reviewed.

Sewer systems

The assistant park superintendent told us the 19 deficient water systems in Yosemite National Park were not closed because this would deprive visitors of drinking water and require the park be closed. He said that frequent testing of water enables the Park Service to quickly shut down any system that endangers visitors' and employees' health. However, no tests are made to detect such organisms as giardia, and filtering the water, as California standards require, is the only reasonable way to keep such parasites out of the drinking water. (See p. 78.)

The park superintendent has proposed projects to bring all 19 of the park's deficient drinking water systems up to the California State standards. However, the Park Service has not requested the Congress to fund these projects.

Although the drinking water is chlorinated it is not pretreated or filtered as California requires for surface water used for drinking. The park sanitarian said that drinking this inadequately treated water could cause diseases such as giardiasis, hepatitis, and salmonellosis.

--the park's most heavily used backcountry area.

--an exposed sewer line that could break, and

--a heavily used horse and hiking trail,

by the Yosemite Valley drinking water system, has a high potential for contamination because upstream from the drinking water intake there is

"There has been a problem with the main drain-field. Sewage has been surfacing approximately 150 feet from the well and at approximately the same elevation. * * * If the breakout reoccurs, efforts must be made to find a new drainfield. All sewage must be channeled away from the well."

The sewer system that serves the Kettle Falls Hotel is inadequate and could contaminate the drinking water. A PHS inspector reported in February 1978 that:

Voyageurs National Park

As of May 1980 the Park Service had not asked the Congress for funds for this project and was still using the water and sewer systems. (See p. 48.)

The deteriorated sewer lines serving Grand Canyon Village leak and could contaminate the village's drinking water system because some of the water and sewer lines are laid in common trenches. In January 1979 the park superintendent proposed a project to place the water lines in separate trenches.

The Santa Fe Railroad established Grand Canyon Village as a recreational retreat after completing a rail link to the south rim of the canyon in 1901. Between 1902 and 1955 the railroad developed the village's water and sewer systems. In 1954 the railroad donated the water and sanitation systems to the Park Service.

The sewer systems which serve the park's overnight visitor accommodations at Phantom Ranch, Indian Gardens, and Grand Canyon Village do not adequately treat human waste and, thus, do not conform with State of Arizona or PHS standards. The park superintendent proposed projects to upgrade all these sewer systems but has received funding to upgrade only one of them. The Park Service has not requested funds from the Congress to correct the other deficient systems.

Grand Canyon National Park

could leak sewage into drinking water sources, streams, and lakes and should be replaced with vault toilets. Pit toilets not known to be leaking sewage did not violate health and safety standards and were not listed as a noncomplying sanitary system on the table on page 8.

The inspector said that these deficiencies must be corrected immediately and that:

"Unless corrections are started in 1978 and no later than mid-May of 1979, it is strongly recommended that the facility not open in 1979."

The Park Service did not correct the sewer system deficiencies and the system operated throughout the 1978 and 1979 tourist seasons. In November 1979 the park facility manager said the sewer system was in poor condition, did not meet either Minnesota Pollution Control Agency standards or EPA standards, and was a potential hazard to the drinking water.

The park received \$55,000 in Lump Sum Construction Funds for fiscal year 1980 to rehabilitate the sewer system. (See p. 66.)

Lodges and dormitories

Old wood frame, combustible lodges and employee dormitories with multiple structural and fire safety deficiencies were commonplace in the national parks we reviewed. None of the structures listed below complied with all the National Fire Protection Association standards and the Uniform Building and Fire Codes. Structures in operation at 10 of the 12 national parks and 2 of the 10 national forests reviewed jeopardize the safety of visitors and employees. Park superintendents and forest supervisors had not closed any of these structures at the time we completed our fieldwork in December 1979.

The following structures had fire safety or structural deficiencies:

- Old Faithful Inn, Lake Hotel, and Mammoth Motor Inn-- Yellowstone National Park.
- Many Glacier Hotel, Lake McDonald Lodge, and their employee dormitories--Glacier National Park.
- El Tovar Hotel and Pioneer, Frontier, and Western cabins and their employee dormitories--Grand Canyon National Park.
- Paradise Inn--Mount Rainier National Park.
- Wawona Hotel, Ahwahnee Hotel, and their employee dormitories--Yosemite National Park.

--Flamingo Inn Motel and Smith Hall (employee housing)--
 Everglades National Park.
 --Old Lodge and Treetop Cottage (both employee housing)--
 Blue Ridge Parkway.
 --Kettle Falls Hotel--Voyageurs National Park.
 --Mount McKinley Hotel--Mount McKinley National Park.
 --Crater Lake Lodge--Crater Lake National Park.
 --Camp Richardson Lodge and cabins, Weeks Bay Resort
 cabins, and Zephyr Cove Lodge and cabins--Lake
 Tahoe Basin Management Unit.
 --Stevens Pass Skiers Day Lodge--Mount Baker-Snoqualmie
 National Forests.
 Many of these lodges and dormitories are over 50 years
 old and are built entirely of wood. While these buildings
 may have been considered safe when they were constructed,
 they fail to meet the National Fire Protection Association
 standards or the Uniform Building and Fire Codes that have
 been in effect for many years. Smoke alarms, fire alarms,
 sprinkler systems, fire retardant material in hallways and
 stairwells, emergency lighting in stairwells, and multiple
 emergency exits now required by national codes were not
 required when many of the lodges and dormitories were built.
 Although some of these improvements had been made in
 most structures we visited, nearly all buildings failed to
 comply with several elements of the present building and fire
 codes. In several cases, these shortcomings were compounded
 by structural deficiencies caused by heavy snow loads or
 rotten support timbers.
 The fire and structural deficiencies at the lodges and
 dormitories we visited had been identified in inspections
 made or contracted for by the Park and Forest Services.
 Some of the inspection reports stated that unless corrective
 action is taken immediately the structures should be closed
 to overnight use. However, many of the deficiencies
 still existed when we completed our fieldwork in December
 1979, and park superintendents and forest supervisors had
 not closed any of the structures to overnight lodging.

Glacier National Park

The four-story Many Glacier Hotel, with its wood-frame, alpine motif, was built about 1914 and enlarged about 1920 by adding a new wing. The hotel has 221 rooms that can accommodate 538 overnight guests.

The Many Glacier Hotel is combustible and some of its structural components are defective. Fire detection and alarm systems are inadequate, and fire escapes are dangerous. Park Service inspectors noted these deficiencies when they inspected the lodge in 1974 and again in 1979.

Park Service inspectors found the following unsafe conditions which increase the chance of a fire occurring and spreading throughout the hotel:

--The walls of the guestrooms and hallways are fiber-board and pressboard which are highly combustible.

--The electrical wiring needs improving.

--The boilerroom is not enclosed by fire retaining walls.

The chief of maintenance said that if a fire occurs the overnight guests will have trouble escaping because of an inadequate fire detection system and poorly designed and maintained fire escapes. Park Service inspectors noted that the hotel had an inadequate number of emergency lights to light the halls and stairways during power failures,

--the overnight guests may not be warned of a fire early enough to escape safely because an automatic fire detection and alarm system is lacking, and

--the use of the flammable materials in hallways and stairwells and unsafe balconies as fire escapes should be discontinued.

Park Service inspectors also reported in 1979 that many of the lodge's balconies were rotten or inadequately supported. (See p. 37.)

Lake Tahoe Basin Management Unit

The Forest Service owns three resorts in the Lake Tahoe Basin--Meeks Bay, Camp Richardson, and Zephyr Cove. During

In 1975 the National Park Service contracted with FHW to inspect all the bridges and tunnels in national parks. The Forest Service bridges are inspected either by FHW or used by the public at the Forest Service. Substandard bridges are presently being

Bridges and tunnels

--Zephyr Cove Lodge had been remodeled. (See p. 86.)

--Most critical deficiencies at Camp Richardson had been corrected with the remainder to be corrected before the resort's reopening.

--Meeks Bay Resort cabins were being improved.

At the time of our field visit, Forest Service officials had not estimated the costs of upgrading these lodges and cabins. The Forest Service administrator said that his staff would be determining what is needed to make the resorts safe. In May 1980 the administrator stated that since our visit the:

Zephyr Cove and Camp Richardson also have two-story, wood frame lodges which do not meet National Fire Protection Association standards or the Uniform Building and Fire Codes. The Camp Richardson lodge needs an automatic smoke detection and alarm system, a sprinkler system, and second-story fire escapes. The Zephyr Cove lodge needs adequate second story fire escapes and an automatic sprinkler system.

All three resorts have small wooden cabins for rent. The Forest Service recreation staff officer said many of the cabins do not meet National Fire Protection Association standards or Uniform Building and Fire Codes. The cabins did not have smoke detectors or alarms and contained numerous fire hazards, such as antiquated electrical wiring, gas leaks, and single-wall chimney flues. In 1979 a fire gutted a duplex cabin at Zephyr Cove. The Forest Service has closed and torn down some cabins because they were too hazardous for public use.

1979, they accommodated 297,000 visitors. All three resorts have had major fires within the last 2 years. These fires destroyed a duplex cabin and a large, wooden lodge containing a store and heavily damaged a restaurant and employee dormitory. The management unit's recreation staff officer said that the buildings which burned lacked sprinkler systems and adequate fire detection and alarm systems.

"All of these [eight] tunnels are exhibiting various degrees of deterioration due primarily to the presence of ground water seepage into the tunnel. The roadway wearing surface and the rock

In August 1978 FHWA inspected 14 of the 27 tunnels on the Blue Ridge Parkway. Inspectors found that the amount of lining in eight of the tunnels inspected ranged from none to one-half of the tunnel length. An FHWA official wrote:

Eight of the 27 tunnels in the parkway are completely or partially unlined and exhibit various degrees of deterioration. Rocks falling from the tunnel ceilings endanger motorists. However, the parkway superintendent said that the tunnels are not dangerous enough to close.

Blue Ridge Parkway

The Park Service has not rehabilitated or replaced any of the deficient bridges. The park superintendent had proposed a project to replace only one bridge before our review. During our review, projects were proposed to replace the other 10 bridges. Park Service officials have not closed any of the bridges, nor have they prevented heavy trucks and shuttle buses from using the bridges until they are replaced. (See p. 57.)

During an inspection made in August 1976, FHWA personnel found that 11 of Mount McKinley's 19 bridges did not meet FHWA bridge standards and were structurally deficient.

Many of the bridges in the park are structurally deficient. The bridges are exposed to the harsh Alaska climate, and the prevalent frost heaving puts stress on the bridges' structural supports, foundations, and beams. Under these adverse conditions, bridges, even with the most persistent maintenance, sometimes deteriorate into an unsafe condition.

Mount McKinley National Park

Also, rocks falling from unlined tunnel ceilings endanger motorists using the Blue Ridge Parkway.

- Gifford Pinchot National Forest,
- Glacier National Park,
- Mount McKinley National Park, and
- Wenatchee National Forest.

The condition of the facilities and the cost of repairing or upgrading them to meet health and safety standards varied. For example, health and safety inspectors found some facilities to be so hazardous that they recommended immediate closure until the facilities could be repaired or upgraded. In other cases, the facilities were in better condition and inspectors recommended repairs or upgrading, but not closure. The cost of bringing facilities up to standard ranged from \$5,000 to repair a toilet that was leaking sewage into a nearby drinking water source in Shasta-Trinity

Many health and safety codes and standards to protect the public apply to national park and forest facilities. However, as indicated, many facilities remain open even though they do not meet these codes and standards, thereby jeopardizing the health and safety of visitors and employees.

WHY DEFICIENT FACILITIES WERE NOT REPAIRED, UPGRADED, OR USE-RESTRICTED

A May 1979 letter from FHWA stated that "the current condition of all eight tunnels is considered a safety hazard." That letter also estimated the total cost of linings and portals for all eight tunnels at \$5.84 million. Park officials had recognized the hazardous condition of the tunnels and proposed in March 1977 that all eight tunnels be lined, the portals be upgraded, and road and tunnel drainage work be done. This was 17 months before the FHWA inspections were made. As of January 1980 the Park Service had not yet requested funds from the Congress for this work. Despite the hazardous condition of these tunnels, the parkway superintendent said in February 1980 that he does not plan to close them as maintenance is programmed to make any immediately needed repairs. (See p. 28.)

or concrete lining of the tunnels are in fair to poor condition depending on the amount of water seepage found within any particular tunnel. This water seepage can be especially hazardous in the winter months since the roadway could become covered with a thick sheet of ice. The freeze-thaw cycles in the winter months tend to loosen rocks from the unlined tunnel sections and consequently subject the motorist to the hazard of falling rocks. This deterioration is verified by the sand and rock build-up along the ditch line within the tunnels."

However, resources were not available to correct or more closely monitor deficiencies in many facilities. As a result, park superintendents and forest supervisors were forced to either close hazardous facilities, thereby diminishing the recreation experience of visitors and inconveniencing employees, or allow the facilities to remain

--requiring night watchmen in some buildings with sub-standard fire detection and suppression systems.

--increasing the frequency of inspections of drinking water provided by substandard water systems, and

--requiring new concessioners to correct some facility deficiencies,

--using operation and maintenance funds to correct less costly deficiencies,

Park and Forest Services have alleviated health and safety problems by

Although many projects were proposed to correct health and safety deficiencies, few were funded because (1) the funding process takes several years to complete, (2) park and Forest Service annual construction appropriations are sufficient to fund only about 5 percent of all health and safety projects proposed, and (3) half or more of each agency's budget request is for projects other than health and safety projects.

The Park and Forest Services took a broad range of actions once they became aware that a facility did not meet health and safety standards, ranging from immediate closure of facilities to doing little. For instance, park superintendents and forest supervisors had proposed projects to correct most of the health and safety deficiencies in facilities the National Park and Forest Services owned and operated. These facilities included all the water and sewer systems, bridges, and tunnels in our review. However, few projects had been proposed to rehabilitate facilities owned by concessioners. These were primarily lodges and employee residences. Park superintendents said that this was the concessioner's responsibility. Concessioner responsibilities are discussed in more detail in our report entitled "Better Management of National Park Concessions Can Improve Services Provided to the Public" (CED-80-102, July 31, 1980).

National Forests to \$3.2 million to correct fire and safety hazards at Old Faithful Inn in Yellowstone National Park.

As shown in tables II and III, for fiscal years 1979 through 1981, 50 percent of the construction funds the Park Service requested and 69 percent of the recreation construction funds the Forest Service requested were for projects other than health and safety projects. These included projects to rehabilitate historical structures and campgrounds

It is the policy of the Park and Forest Services to give the highest funding priority to those projects correcting health and safety deficiencies. However, all too often, both agencies have requested the Congress to fund the construction of new recreation facilities while standard existing facilities needed to be rehabilitated or replaced.

The Park and Forest Services are attempting both to develop new facilities to meet the demands of visitors and employees and to provide safe and sanitary facilities.

OTHER PROJECTS FUNDED INSTEAD OF HEALTH AND SAFETY PROJECTS

Park superintendents and forest supervisors told us of numerous actions taken to improve deficient facilities, but the improvements were often not sufficient to make facilities safe and healthy.

--Closure of the facility was not politically acceptable.

--Closure of the facility would cause a hardship on employees or diminish visitor enjoyment of the park.

--Some of the major deficiencies had been corrected and the remaining deficiencies were not serious enough to warrant closing the facility.

Park superintendents and forest supervisors informed us deficient facilities were allowed to remain open because:

Forest supervisors had at least temporarily closed nearly 25 percent of the water systems in the 10 Forest Service areas we visited because tests showed the drinking water did not meet Federal or State drinking water standards and could be hazardous. However, forest supervisors allowed some deficient and potentially hazardous water systems and other facilities to remain open.

open, thereby risking the health and safety of visitors and employees. Park superintendents did not close any of the hazardous facilities we reviewed.

and to construct new visitor centers, parking lots, interpretive displays, campgrounds, and administrative buildings. While these projects may be beneficial, their funding causes the number of unfunded health and safety projects to be larger than it would otherwise be and perpetuates many dangerous and unhealthy conditions in national parks and forests.

Table II

Park Service Requests for Construction Funds

	FY 1979	FY 1980	FY 1981	3-year average
Health and safety projects	\$46,702	\$30,488	31,833	\$36,341
Percent of total	42.9	59.4	54.9	50.0
Other types of projects	62,121	20,852	26,185	36,386
Amount requested (000 omitted)	57.1	40.6	45.1	50.0
Percent of total				

Table III

Forest Service Requests for Recreation Construction Funds

	FY 1979	FY 1980	FY 1981	3-year average
Health and safety projects	\$3,673,000	\$2,593,700	\$1,468,000	\$2,578,233
Percent of total	47.0	30.6	17.1	31.1
Other types of projects	4,149,000	5,868,300	7,108,000	5,708,433
Amount requested	53.0	69.4	82.9	68.9
Percent of total				

ALTERNATIVE FUNDING METHODS

We estimated that the Park Service needs \$1.6 billion to correct identified health and safety deficiencies. In addition, the Forest Service estimates it needs \$109 million. The Congress would have to appropriate about \$342 million a year to fund these projects over a 5-year period, about a five-fold increase over construction funds requested for fiscal year 1981. The alternatives are to (1) close dangerous facilities, thereby reducing recreation opportunities for Americans, or (2) find alternative funding methods. We considered several funding methods, but explored only two that do not require additional congressional appropriations.

--User charges (entrance and camping fees) could be raised or collected at additional locations and used to correct health and safety deficiencies.

--Concessioners could be required to make health and safety improvements on facilities they own or manage.

User charges

User charges for publicly provided services are desirable because (1) they are equitable as they place the cost burden of public services on the recipients and (2) they are also a source of revenue that can lighten the burden on taxpayers.

The arguments against imposing user charges are that charges may be viewed as inequitable since individuals with lower incomes may be denied equal access to services desirable from society's standpoint and the administrative costs of charging may be prohibitive. The applicability of user charges are discussed in more detail in our report entitled "The Congress Should Consider Exploring Opportunities to Expand and Improve The Application Of User Charges By Federal Agencies" (PAD-80-25, March 28, 1980).

Higher or more widespread entrance fees at national parks and camping fees at national parks and forests could result in:

--Increased revenue that could be used to finance health and safety projects.

--Widespread complaints and protests from people accustomed to enjoying national parks and forests for free or for a small fee.

--Reduced use of Federal campsites that are now free or inexpensive and greater use of private campsites.

The imposition of entrance and camping fees in some areas is impractical because the collection costs would exceed the revenue generated. This is most likely to be the case in areas with low visitor use and at multiple-access sites.

The National Park Service is the only Federal recreation agency that charges entrance fees. Fees range from 50 cents per person to \$3 per car and are collected at 62 Park Service units. In 1979 the Park Service collected \$7.96 million in entrance fees. In 1979 the Park and Forest Services each collected over \$6 million in user fees, primarily from campsite users. The camping fees ranged from \$1 to \$4 per campsite per night.

The National Park Service attempted to raise entrance fees at some units and charge fees at some additional units to increase fee revenue by \$12 million in 1979. However, congressional legislation (Public Law 96-87) limited entrance fees charged at units of the national park system to those areas and rates which were in effect on January 1, 1979.

Legislative history shows that a major reason for limiting fees was that the Congress disagreed with the Park Service's plan to reduce the Park Service maintenance fund account by the amount of the increase in fees collected. We believe that all revenue from increased fees should be used for health and safety projects that would not otherwise be funded and that the revenue should not be used to replace any other Park Service funding.

To implement this funding method the Congress would have to (1) enact legislation permitting the Park Service to increase entrance fees and (2) appropriate funds resulting from increases in entrance and camping fees for health and safety projects in the parks and forests where they are collected.

Requiring concessioners to make improvements

Several park superintendents stated that they did not want to make improvements to correct health and safety deficiencies on concessioner-owned or -operated facilities because they believed this was the concessioners' responsibility. In some recent contracts with concessioners, the Park Service has required concessioners to make specified health and safety improvements to their facilities during each year of the contract.

For example, in 1979 the Park Service negotiated a 15-year contract that requires the concessioner at Everglades National Park to spend \$1.6 million to improve and rehabilitate the facilities. The contract specifies how much money the concessioner must spend each year and the order in which the improvements must be made.

In 1979 the National Park Service signed a 2-year contract with the new concessioner at Yellowstone National Park which requires the concessioner to spend 13 percent of gross receipts for repairs and improvements to the concessioner facilities. Based on the 1979 receipts of \$16 million this would amount to \$2.1 million a year. The concessioner is also required to spend all net profits in excess of \$350,000 a year for facility repairs and improvements.

Concessioners may be willing to amend their present contracts or enter into new contracts and repair or upgrade deficient facilities they manage or desire to manage, as the concessioners in Everglades National Park and Yellowstone National Park did in 1979. However, the cost of health and safety improvements would have to be negotiated on a case-by-case basis between the National Park Service and the concessioner. Changes needed in the National Park Service's concessioner management practices are discussed in detail in our report entitled "Better Management of National Park Concessions Can Improve Services Provided to the Public" (CED-80-102, July 31, 1980).

CONCLUSIONS

Every year millions of people escape the pressures of modern life by visiting Grand Canyon, Yellowstone, Yosemite, Glacier, and Everglades National Parks; national forests in the Lake Tahoe Basin, or one of the many other scenic and historical areas managed by the National Park and Forest Services.

GAO recommends that the Congress:

RECOMMENDATIONS TO THE CONGRESS

- Negotiate with concessioners to have them make corrections to facilities they own or operate to bring them up to applicable health and safety standards.
- Request a special appropriation from the Congress to correct the most serious health and safety hazards.
- Request a greater share of their construction funds for repairing and upgrading facilities to bring them up to health and safety standards.
- Take immediate action to correct health and safety problems with available funds or restrict the use of facilities that do not meet health and safety standards.

GAO recommends the Secretaries of Agriculture and the Interior:

RECOMMENDATIONS TO THE SECRETARIES OF AGRICULTURE AND THE INTERIOR

At 21 of the 22 Park and Forest Service areas reviewed, at least one facility did not comply with Federal or State health or safety standards. Some action has been taken to correct deficiencies but much more is needed. Both agencies have continued to request funds for the construction of new facilities that are needed to rehabilitate hazardous facilities. The cost of each agency's proposed health and safety projects--\$1.6 billion for the National Park Service and \$109 million for the Forest Service--is now so great that alternative methods of funding the projects will be needed.

Visitors recognize that raging rivers, steep mountain peaks, grizzly bears and other natural hazards must be dealt with in many parks and forests. Eliminating these dangers would ruin the outdoor experience that many visitors seek. However, visitors and employees should not also have to protect themselves against the man-made dangers posed by substandard water and sewer systems and hazardous lodges, employee dormitories, bridges, and tunnels.

The concessioners (1) informed us of many improvements they have made, or plan to make, since we visited their facilities, (2) requested that we correct minor errors made in describing their facilities, and (3) sometimes stated

As pointed out in this report it will cost the Park Service an estimated \$1.6 billion and the Forest Service \$109 million to correct health and safety deficiencies in our parks and forests. These sums greatly exceed annual construction appropriations. Therefore, the agencies must find other means to finance these improvements. Implementing our recommendation should assist the agencies in their efforts to correct health and safety deficiencies.

The Departments sometimes differed with GAO and with each other on how additional funds should be obtained. For example, neither Department agreed to include a greater share of health and safety projects in their annual request from the Congress for construction funds. The Department of Agriculture was opposed to requesting a special appropriation from the Congress to correct the most serious health and safety hazards but the Department of the Interior did not oppose this recommendation. (See pp. 104 to 117.)

The Departments of Agriculture and the Interior agreed with our conclusions that many facilities in national parks and forests do not meet all health and safety standards and that present levels of construction funding are not adequate to the correct all health and safety deficiencies.

AGENCY AND CONCESSIONER COMMENTS

--Require that the Secretaries of Agriculture and the Interior periodically report on the condition of the facilities until they are improved to meet all health and safety standards.

--Repeal section 402 of Public Law 96-87 (93 stat. 666) to permit the Park Service to increase entrance fees and direct that the Park and Forest Services use funds resulting from increased entrance and camping fees for health and safety projects in the parks and forests where they are collected.

--Give priority to funding projects for repairing and upgrading facilities with the most serious health and safety hazards at parks and forests.

that even though their buildings had fire and building code deficiencies they were reasonably safe. We either modified our report based on the additional information from the consultants or provided additional support for our position. (See app. VI.)

NATIONAL PARK SUMMARIESBLUE RIDGE PARKWAY

Established in 1936, the Blue Ridge Parkway extends 469 miles over the southern Appalachians in western Virginia and North Carolina between the Shenandoah and Great Smoky Mountains National Parks. The primary role of the parkway is to provide a scenic route for leisure travel and recreational experiences. Views are enlivened by highland farms with split-rail fences, weathered cabins, and gray barns. Rhododendron, azalea, white pine, and other native plants border the roadside. Overlooks, campgrounds, picnic areas, trails, and wayside exhibits provided recreation for the parkway's 15.3 million visitors in 1978.

Employee residences at Mount Pisgah and eight unlined tunnels are not safe

Employee residences, in the Old Lodge and Treetop Cottage, at Mount Pisgah are not safe because the buildings fail to meet fire, structural, and electrical safety standards. The National Park Service's regional safety manager inspected these buildings on September 5, 1979, and recommended that the buildings be closed until the hazardous conditions were corrected. A few of the deficiencies were corrected and both buildings remained in use until November 1979, the end of the tourist season.

Eight of the parkway's 27 tunnels are completely or partially unlined and exhibit various degrees of deterioration. Rocks falling from the tunnel ceilings endanger motorists driving through the tunnels. However, the parkway superintendent said that the tunnels are not dangerous enough to warrant their closure.

Mount Pisgah employee residences are a fire hazard

The 5,721-foot Mount Pisgah lies in the heart of the Pisgah National Forest in North Carolina, about 60 miles from the southern end of the Blue Ridge Parkway. The concessioner-operated Pisgah Inn provides overnight lodging, a restaurant, and a gift shop just off the parkway at Mount Pisgah. The concessioner also operates a service station and camp store on the parkway adjacent to the inn's parking lot.

Concessioner employees live in the Old Lodge and Treetop Cottage at Mount Pisgah. Constructed in 1919, these buildings were first used as guest houses, but were converted to employee quarters when the Pisgah Inn was built in 1966. Although inspections have identified health and safety deficiencies at these buildings for several years, the Park Service did not make a comprehensive inspection until June 28, 1979. In his report, issued September 5, 1979, the safety manager of the Service's southeast region stated that the old, wooden frame structures "shall be closed for overnight occupancy" until the deficiencies can be corrected. The deficiencies included

- inadequate wiring that does not meet the National Electric Code and constitutes a high fire potential, --warped floors and walls caused by structural failures, --highly combustible fiberboard walls and ceilings, --lack of illuminated exit signs, --lack of smoke detectors with an alarm system, and --lack of an automatic sprinkler system.

The State of North Carolina fire marshal confirmed these deficiencies in an inspection report issued the same day. The fire marshal's report recommended vacating the Old Lodge building until the deficiencies could be eliminated.

The Park Service's regional safety manager was particularly concerned with the safety of a deaf employee. This employee lived in a section of the Old Lodge having severe electrical deficiencies, and other employees could not reach him if a fire started in certain places.

The parkway superintendent did not close these hazardous structures after receiving the September 5, 1979, inspection reports because: (1) a night watchman was hired, (2) the buildings were cleaned up, (3) fire extinguishers were put in the buildings, and (4) some of the more hazardous electrical deficiencies were corrected.

The regional safety manager said the buildings were still not safe for overnight occupancy, but that the addition of the night watchman gave the occupants "a chance of surviving" if a fire occurred. Employees moved out of the buildings in October and November 1979, after the tourist season had ended.

The parkway superintendent had recognized the hazardous condition of the tunnels and proposed in March 1977 that all eight tunnels be lined, the portals be upgraded, and road and tunnel drainage work be done. This was 17 months before FHWA inspected the tunnels.

An FHWA official further stated in a May 1979 letter that "the current condition of all eight tunnels is considered a safety hazard." That letter also estimated the total cost of linings and portals for all eight tunnels at \$5.84 million.

"All of these [eight] tunnels are exhibiting various degrees of deterioration due primarily to the presence of ground water seepage into the tunnel. The roadway wearing surface and the rock or concrete lining of the tunnels are in fair to poor condition depending on the amount of water seepage found within any particular tunnel. This water seepage can be especially hazardous in the winter months since the roadway could become covered with a thick sheet of ice. The freeze-thaw cycles in the winter months tend to loosen rocks from the unlined tunnel sections and consequently subject the motorist to the hazard of falling rocks. This deterioration is verified by the sand and rock build-up along the ditch line within the tunnels."

In August 1978 the FHWA inspected 14 of the 27 tunnels on the Blue Ridge Parkway. Inspectors found that the amount of lining in eight of the tunnels inspected ranged from none to one-half of the tunnel length. An FHWA official wrote:

Eight unlined tunnels endanger motorists

On December 14, 1979, the parkway superintendent informed the concessioner that "unless substantial structural and safety improvements are accomplished prior to May 2, 1980, the buildings will not be used as employee housing." In that letter the superintendent also directed that rehabilitating the buildings should "eliminate the deficiencies noted on the safety reports provided by the regional safety manager and state fire marshal's office."

The parkway superintendent said that the concessioner owns the buildings and therefore is responsible for correcting the deficiencies. Accordingly, the Park Service has not requested funds for this purpose.

A revised park proposal covering all eight tunnels, submitted in June 1979, described tunnel conditions as follows:

"Water seepage in the unlined tunnels causes hazards such as slick and wet pavement or icy pavement in winter; freezing and thawing causes rock falls within the tunnels and rocky and jagged walls are potential hazards to out-of-control vehicles.

"Needed rehabilitation should be programmed and accomplished as soon as possible in order that known safety hazards are eliminated."

Despite the hazardous condition of these tunnels, in February 1980 the parkway superintendent said he does not plan to close them as maintenance will be sufficient for any immediately needed repairs.

Although the parkway superintendent proposed rehabilitation and upgrading the eight tunnels in March 1977, as of January 1980 the Park Service had not yet requested funds from the Congress for this work. (See p. 146 for concessioner's comments.)

CRATER LAKE NATIONAL PARK

Crater Lake National Park, located in southwestern Oregon, was created by the Congress on May 22, 1902. The park encompasses 160,290 acres. About 122,000 acres is scantily visited backcountry with crystal-clear streams, high alpine meadows, and stark rocky slopes. The park's predominant feature, and most popular attraction, is the 13,632-acre Crater Lake. Crater Lake is the deepest in the United States and attracts more than a half million visitors annually. About two-thirds of the visitors stay less than 4 hours. The remaining visitors stay at either Crater Lake Lodge or at one of the park's two campgrounds. The lodge is located at the rim of the crater, while the two campgrounds are about 6 to 8 miles below the rim.

Crater Lake Lodge does not meet the Uniform Building Code

The 80-room, 4-story Crater Lake Lodge, built in 1911, is the park's only lodge. The wood and stonemasonry-walled lodge has been Government owned and concessioner operated since 1967. Before 1967, the concessioner owned the lodge. The lodge can accommodate 180 overnight guests and is open from mid-June until mid-September each year.

The lodge does not meet the Uniform Building Code because it has numerous structural and safety deficiencies. The Park Service has known about these deficiencies since at least 1953, but only minor corrections have been made.

In the summer of 1979, the Park Service had an architectural engineering firm make an intensive structural analysis and fire and safety inspection, the first such inspection in 26 years. Also, a Park Service inspector examined the lodge in 1979. The inspections disclosed that --exterior and interior walls were not fire resistant throughout the lodge,

--guests may become trapped in their rooms during a fire because the lodge does not have enough fire exits and most of the existing fire exits are difficult to use, and

--the automatic sprinkler system does not provide adequate coverage.

The major findings are much the same as those identified in the 1953 architectural-engineering study.

Although the Park Service knew about the lodge's major deficiencies since at least 1953, the park superintendent and his predecessors have not closed the lodge or proposed a project to correct the deficiencies. The park superintendent said that the lodge was not closed because

--some of the major deficiencies had been corrected, and the remaining deficiencies were not serious enough to warrant closing the lodge;

--closing the lodge would diminish visitors' enjoyment of the park; and

--closing the lodge was not politically acceptable.

In addition, the park superintendent stated that a project to correct the deficiencies was not proposed because until 1967 the lodge was concessioner owned and operated. Consequently, in his opinion the concessioner was responsible for correcting the lodge's deficiencies. The park superintendent said that after the government bought the lodge in 1967, Park Service officials did not consider the deficiencies serious enough to warrant proposing a project to correct them. The park superintendent stated that he now recognizes the lodge's hazardous condition and plans to propose a project to correct the deficiencies when the 1979 fire and safety inspection report is finalized.

EVERGLADES NATIONAL PARK

The third largest of the national parks, Everglades National Park encompasses over 1.4 million acres and provides the largest expanse of open space in southern Florida. Established in 1947, the park is noted for its immense flat area of grass and sea and the profusion of birds and alligators. Observing the scenery and wildlife is a major activity of most visitors. Boating and fishing dominate in the coastal areas. Camping, picnicking, hiking, and bicycling occur primarily in the limited developed areas of the park. Since 1966 the park has attracted over a million visitors each year.

Visitor and employee lodging facilities do not meet fire protection standards

The Flamingo Inn Motel, used for visitor accommodations, offices, and employee housing, and the Smith Hall employee residential complex do not meet many of the National Fire Protection Association standards. None of the units are equipped with a smoke detector, fire alarm, or sprinkler system. One of the units in the Smith Hall complex was severely damaged by fire on February 12, 1979.

Flamingo Inn

The concession facilities at Everglades National Park are clustered in the half-mile-long Flamingo area, about 38 miles from the park entrance. The Flamingo Inn offers the only overnight tourist accommodations within the park. It consists of a multiple-building motel complex and a cluster of housekeeping cottages. The motel contains 121 rooms in seven separate buildings. Two of these buildings are used for employee housing and part of a third for offices. Twenty-four housekeeping cottages in 12 wood-frame structures also house visitors. These and other facilities at Flamingo were in an extremely poor state of repair when the National Park Service purchased the Flamingo concession in 1975.

The Park Service intended to find a new concessioner and make the necessary repairs a part of a long-term contract. It took approximately 4 years to execute such a contract. The National Park Service spent about \$133,000 and the interim concessioner spent about \$48,000 to correct health and safety deficiencies. However, neither the concessioner nor the National Park Service performed the major rehabilitation required to make the Flamingo Inn and Smith Hall safe for guests and employees.

In 1979 the Park Service entered a 15-year contract with a concessioner to manage the motel and other facilities at Flamingo. The contract required the concessioner to make improvements costing \$1,679,000 during the life of the contract. However, the schedule of improvements specifies that one of the safety improvements, installing smoke alarms, does not have to be completed until December 1984.

The park superintendent said the recommended approval of the 6-year installation schedule, because smoke alarms are not a mandatory code requirement for the type of structure involved and because he places greater emphasis on the rehabilitation of electrical systems, utilities, and structural deficiencies, as these are the major contributors to existing fire and safety hazards.

Smith Hall employee housing

The Smith Hall complex consists of five standard wood-frame buildings, elevated on pilings, which provide 28 living units and a recreation room for concession employees. In November 1978 the Park Service's assistant safety manager for the southeast region stated in his safety inspection report:

"The Smith Hall complex represents a serious threat to the lives of its occupants. This situation has existed for many years under concession and now the U.S. Government ownership. We can no longer rely on 'good luck' to protect the operation."

The assistant safety manager recommended that

--the electrical system be brought up to National Electrical Code standards,

--a fire alarm system be installed,

--an automatic smoke detection system be installed,

--the building maintenance be improved, and

--a strict housekeeping code be enforced.

The assistant safety manager concluded in his November 1978 report that if improvements could not be initiated "the only alternative decision remaining is to close the structures until replaced or remodeled to current building standards." A year later the most critical electrical hazards

The park superintendent informed us that the uninhabitable units and the other hazardous units in the Smith Hall complex would be renovated and all deficiencies corrected in 1980 at an estimated cost of \$263,000. This amount includes \$95,000 in lump sum construction funds to repair the fire-damaged building and \$168,000 in cyclic maintenance funds to rehabilitate the other buildings. If this work is completed as planned, the Smith Hall buildings should become safe residences for concessioner employees.

--Closing the employee housing facilities could result in a closure of the concession operation since employees would have to find housing 50 miles or more from the worksite.

--Serious fire hazards associated with electrical system deficiencies were scheduled to be repaired in early 1979.

The park superintendent considered closing the Smith Hall complex after the February 1979 fire, but decided not to because:

had been corrected. However, basic structural deficiencies remained and, except for the fire-damaged building, the Smith Hall complex still housed concessioner employees.

GLACIER NATIONAL PARK

Glacier National Park, located in northwestern Montana along the crest of the Continental Divide, was established by the Congress on May 11, 1910. The park encompasses over a million acres of active glaciers, alpine meadows, deep river valleys, and rocky mountain peaks. Nestled among the park's higher peaks are approximately 50 small glaciers and 200 lakes.

Each year nearly 1.6 million visitors enjoy the park's scenic beauty. About 19 percent of the visitors remain overnight at the park's 14 campgrounds or 7 hotels, chalets, and lodges.

Water and sewer systems, bridges, and lodging facilities do not meet health and safety standards

Glacier National Park's inadequately treated water and sewage, deficient bridges, and hazardous overnight facilities do not meet health and safety standards and jeopardize the health and safety of visitors and employees. During 1977 park visitors and employees drank inadequately treated water and became seriously ill.

Drinking water systems do not meet State and Federal standards

Sixteen of the park's 25 drinking water systems do not meet PHS, EPA, and Montana State drinking water standards. These systems provide the drinking water used by a majority of park visitors and employees.

Fifty-five park visitors and employees became ill with giardiasis in August and September 1977 after drinking water from the park's Many Glacier drinking water system. Giardiasis can be a discomfoting and lingering disease, which proper water treatment prevents. The symptoms include diarrhea, abdominal cramps, fatigue, weight loss, and nausea. A survey of concessioner employees showed that the 29 who became ill had one symptom, diarrhea, for 5 days or more. The average duration of the diarrhea was 25 days. The remaining 26 who became ill were park visitors.

Giardiasis is caused by drinking water that has been contaminated by human or animal feces. To prevent giardiasis, EPA, PHS, and Montana State drinking water standards require that water drawn from surface sources, such as

Shortly after the outbreak occurred, the park was authorized to spend \$357,000 to reconstruct the Many Glacier drinking water system. The system has not been built because the construction bid was 248 percent of bid estimates. The Park Service is trying to negotiate with the company that bid on the system to lower its bid. Until the system can be built, the park will continue to use the temporary system.

--the park continues to draw water from Wilbur Creek during periods of high drinking water use because the well cannot produce enough water.

--the drinking water is not filtered or adequately disinfected and

After the outbreak occurred, the Park Service stopped using Wilbur Creek as a drinking water source. The Park Service used maintenance funds to connect the test well to the Many Glacier drinking water distribution system. The chief of maintenance said that this was to be only a temporary solution, since

The Park Service recognized the drinking water system did not meet standards--before the outbreak, the Park Service knew that the Many Glacier drinking water system needed to filter the water to comply with drinking water standards, but the Park Service did not have the funds to construct the filtration plant. The chief of maintenance for Glacier National Park said that, because the system did not meet EPA, PHS, and the State of Montana drinking water standards, the park requested funds for remodeling the system in 1972 and gave the project its highest funding priority. The Park Service did not request that the Congress fund the project as it did not consider the project to be a high priority. Subsequently, the park used some of its maintenance funds to drill a test well to show the feasibility of using wells to replace Wilbur Creek as a water source.

At the time of the outbreak, the Many Glacier drinking water system chlorinated the water but did not filter it. The system drew its water from Wilbur Creek, which drains a popular hiking and backpacking area in the park. The system supplied drinking water to the concessioner-operated, 221-room Many Glacier Hotel, the 86-room Swiftcurrent Creek Motel, and the Park Service's Many Glacier Campground. The Park Service reported that over 65,000 park visitors used these facilities during 1979.

Sewer systems do not meet
Federal standards

The sewer systems serving the park's two backcountry chalets and the Rising Sun Campground do not meet EPA standards.

The Granite Park and Sperry Chalets--The chalets, located in Glacier's alpine backcountry away from any roads, are open only in the summer. The only access to the chalets is by foot or on horseback.

The chalets were built in 1913 before modern standards for human waste disposal were established, and their disposal systems have never been updated. The park chief of maintenance said that the chalets' sewer discharging systems need to be rebuilt to stop them from discharging inadequately treated human waste. He estimated reconstruction would cost \$76,000. The park requested funding for the project in 1976, and for each year thereafter.

St. Mary disposal system and Rising Sun and St. Mary Lake Campgrounds--On the east side of the park, along the Going-to-the-Sun Road, sits the small town of St. Mary (located just outside the park), the St. Mary Lake Campground, and the Rising Sun Campground. Since 1967, the Park Service has recognized the need for building a wastewater treatment plant to serve these areas because the septic systems created a health hazard. In 1975 the Park Service requested \$1.68 million to construct the plant and associated sewer lines. In 1979 the Park Service received \$1.6 million and started to build the new system.

This system originally included an 8-mile sewer line from the St. Mary sewage treatment plant to the 82-unit Rising Sun Campground and a concessioner-operated store, restaurant, and overnight accommodations. The chief of maintenance said that this sewer line would eliminate the septic systems that are leaching human waste into St. Mary Lake and causing a health hazard. However, the Park Service had to delete this sewer line from the project because the project's funding was inadequate.

The funds the park received to start the project will be exhausted by the summer of 1980, and an additional \$1.9 million will be needed to complete the project. The Park Service has not requested funds from the Congress to complete this project.

Bridges do not meet
Federal standards

Some bridges within the park are structurally deficient. The bridges in Glacier National Park are exposed to harsh climatic conditions. For example, in the winter the park snowfall totals 17 feet which exposes bridges to heavy snow-loads. In addition, freezing temperatures put stress on the bridges' structural supports, foundations, and beams. In the spring, floodwaters batter bridges' foundations and approaches. Under these conditions, bridges can deteriorate into an unsafe condition, even with the most persistent maintenance. During July 1979 FHW personnel found that of the 20 bridges they inspected, 8 were structurally deficient. These 20 bridges represent about half the bridges in the park. During the summer of 1980, the FHW personnel will inspect the park's remaining bridges.

Roes Creek Bridge--The Roes Creek Bridge crosses Roes Creek, a minor creek in the park. The bridge was constructed in 1964 of reinforced concrete and is 42 feet long. During the summer nearly 5,000 vehicles, ranging from small sedans to 3-ton tourist buses and 10-ton semi-trucks and trailers, use the bridge each day.

FHW inspectors found that the bridge was structurally deficient and had an estimated remaining life of 5 years. The inspectors noted that the creek is eroding the stream-bed around the bridge's footings.

Anaconda Creek Bridge--The Anaconda Creek Bridge, built in 1964, is a 60-foot, single-span, steel-stringer bridge.

In July 1979 FHW personnel inspected the bridge and found that it was structurally deficient and should be replaced within 5 years. The inspectors noted that

--some deck planks were loose;

--the logs protecting the approaches from erosion were rotten; and

--the bridge, which is unposted, should be posted for a maximum load of 4 tons.

Fern Creek Bridge--The Fern Creek Bridge is a 24-foot, four-span, timber-stringer bridge. It was originally a single-span bridge with three temporary supports added to help support the bridge. Built in the early 1930s, during

the summer the bridge accommodates 300 sedans and 4-ton recreational vehicles and Park Service trucks daily.

FHWA personnel inspected the bridge and found it was structurally deficient, with an estimated remaining life of 5 years. The inspectors noted that

--the external 15 percent of the log beams were rotten; --the logs protecting the bridge approaches from erosion were splitting and sometimes were rotten; and

--the decking was in an intolerable condition which required immediate repair.

The inspectors noted that the bridge should be posted to accommodate no more than 7 tons. At the time of our visit, the bridge was not posted.

Roes Creek Bridge at Rising Sun Campground--This second Roes Creek Bridge provides access between the Rising Sun Campground and the areas where the concessioner-operated store and restaurant are located. The steel-deck-and-stringer bridge was built in 1965 and is about 37 feet long. During the summer 5,400 vehicles use the bridge daily. These vehicles range in weight from sedans to 4-ton trucks and recreational vehicles.

FHWA inspectors examined the bridge in July 1979 and found it to be structurally deficient. The inspectors noted that

--the bridge girders sagged 4 to 5 inches and

--the concrete foundation supporting the bridge girders was badly cracked, with chunks of concrete up to 6 inches in size missing.

The inspectors concluded that the bridge was in poor condition and that the Park Service should replace it within 5 years and should limit the maximum load to 4 tons. At the time of our review, the bridge was not posted. The park's chief of maintenance said that if a vehicle weighing more than 4 tons crossed the bridge, the bridge probably would collapse.

Many Glacier Hotel, Lake McDonald Lodge, and their employee dormitories do not meet fire safety codes

Many Glacier Hotel and Lake McDonald Lodge are the park's principal overnight accommodations. Because of these lodges' remote location, most of their nearly 300 employees reside in adjoining dormitories. These accommodations do not meet National Fire Protection Association standards or the Uniform Building and Fire Codes because they do not have adequate fire detection and suppression systems.

The park's chief of maintenance said the Park Service has been aware for at least 5 years that the lodges and dormitories could endanger visitors' and employees' safety. However, only recently has the Park Service begun to determine the exact condition of the facilities and the actions needed to make them safe. At the time of our review, the Park Service had not finished its study, nor had it determined how and when the improvements would be made. The draft study estimates that the Park Service needs \$693,976 to improve those structures to meet current standards.

Many Glacier Hotel and dormitories--The four-story Many Glacier Hotel, with its wood-frame alpine motif, was built about 1914. The hotel was enlarged around 1920 by adding a new wing. The hotel complex has 221 rooms which can accommodate 538 overnight guests. Although the hotel is open only during the summer, it housed over 36,000 park visitors during 1979. Adjoining the hotel are two employee dormitories, one a three-story wood-frame structure built about 1930, and the other a smaller, two-story wood-frame structure built in 1928. Most of the hotel's 168 employees reside in dormitories during the summer season. All of the facilities are concessioner owned and operated.

The hotel and its dormitories do not meet the National Fire Protection Association standards or the Uniform Building and Fire Codes. The Park Service inspected the structures in 1974 and again in 1979. Because of the large number of deficiencies, each structure's hazardous nature is discussed individually.

The hotel--The Many Glacier Hotel is combustible, and some of its structural components are defective. Fire detection and alarm systems are inadequate and fire escapes are dangerous. Park Service inspectors noted that to correct the deficiencies would cost nearly \$468,000. The structural defects include

--room balconies that are missing, rotten, or inadequately supported and

--ground floor walls that tilt unevenly throughout and the fourth-floor walkway that slopes steeply.

In addition, Park Service inspectors found the following unsafe conditions:

--The walls of the guestrooms and hallways are fiber-board and pressboard which are highly combustible.

--The electrical wiring needs improving.

--The boilerroom is not enclosed by fire-retaining walls.

--The hallways and stairwells will not retain fire because the halls are not separated with fire-retardant doors, and many of the doors between the halls and stairwells have automatic closing devices which do not work.

If a fire occurs the overnight guests will have a difficult time escaping because of an inadequate fire detection system and poorly designed and maintained fire escapes. Park Service inspectors noted that

--the hotel has an inadequate number of emergency lights in the halls and stairways,

--the overnight guests may not be warned of a fire early enough to escape safely because no automatic fire detection and alarm system exists, and

--flammable hallways and stairwells and unsafe balconies are used as fire escapes.

The dormitories--Neither of the two employee dormitories meets National Fire Protection Association standards or Uniform Building and Fire Codes. The dormitories contain numerous structural defects, and fires can easily start and spread throughout the structures. Fire detection is poor, and the dormitories do not have safe fire escapes. Park Service inspectors estimate that to correct the deficiencies would cost \$78,700. Park Service inspectors noted that

--various porches and stairs need extensive repairs or should be replaced because of severe deterioration,

--the foundation is washed out on one side of the large dormitory,

--the chimney should be repaired,

--portions of the plumbing and various plumbing fixtures need replacing, and

--some of the electrical wiring should be improved.

The inspector also recommended applying fire-retaining wallboard to the walls and ceilings of the boiler and heater rooms, as well as the hallways and stairwells. This would control the spread of a fire and protect those residing in the dormitories from toxic gases and smoke. In addition, the inspectors noted that the larger dormitory needed a fire detection and alarm system. The park's chief of maintenance said the smaller dormitory already has a fire detection system.

Lake McDonald Lodge and dormitories--The three-story wood-frame structure has 33 rooms and is accompanied by 12 cabins and a nearby 22-room motel, which was built in 1956. The complex, which is open from June to September, can accommodate 214 overnight guests and housed over 20,000 guests in 1979. Associated with the lodge are 10 employee dormitories ranging in size from small, single-story structures to large, two-story structures. Many of the concessioner's nearly 120 employees reside in the dormitories during the summer season. While the Park Service owns the lodge, the 12 cabins, and 5 of the 10 dormitories, they are all operated by a concessioner. This concessioner also owns and operates the remaining structures.

The lodge, cabins, dormitories, and motel do not meet National Fire Protection Association standards or Uniform Building and Fire Codes. The Park Service inspected some of the structures in 1974 and all of them in 1979. Because of the large number of deficiencies, each structure's hazardous condition is discussed individually.

The Lodge and cabins--The Lake McDonald Lodge and cabins do not meet National Fire Protection Association standards or Uniform Building and Fire Codes. The lodge is structurally defective and highly combustible, with substandard fire detection and alarm systems and hazardous fire escapes. Park Service inspectors estimated that to correct the most hazardous deficiencies would cost nearly

The park's safety officer said that because of these hazardous conditions, park visitors need to be alerted quickly of a fire to exit safely from the structures. The lodge and cabins do not have an automatic fire detection and alarm system to alert guests promptly. In addition, the lodge needs emergency lighting to guide guests through the halls and down the stairwells. The lodge's hallway and stairwell walls need to be flame resistant to protect guests from fire.

--the lodge's stairwells need to be enclosed, and hallways and stairwells should be separated with fire-retaining doors.

--the ceilings of the lodge's boiler and fuel room need to be replaced; and

--all of the combustible fiber panels should be replaced;

The lodge and cabin exteriors are made of logs and the interior walls and ceilings are covered with varnished boards or fiber panel. The park's chief of maintenance said all these are highly combustible and increase the chance of a fire spreading quickly through the lodge and cabins. To reduce the chance of a fire spreading, the inspectors noted that

Cabin foundations need strengthening and handrails on the stoops need replacing.

--The 27-foot columns and beams supporting the lobby roof were pulled away from each other or were out of alignment.

--The balcony railings were rotten and loose.

--The stairways and landings were tilted.

The structural defects found at the lodge were:

\$99,700. The cabins are also highly combustible and need smoke detection and alarm systems. Three cabins have structural defects needing correction. Cabin deficiencies could be corrected for \$12,600.

The dormitories--The five dormitories owned by the Park Service do not meet National Fire Protection Association standards or the Uniform Building and Fire Codes. These structures contain various deficiencies which increase the probability that a fire will spread and deny the concessioner's employees a timely awareness of a fire and a safe escape. According to the draft inspection report, to correct these hazardous conditions would cost \$20,325. The hazardous conditions that the Park Service inspectors noted were as follows:

--Interior walls were combustible and needed to be replaced with a fire-retardant material.

--Smoke detectors and alarms were needed.

--Fire escapes from the second story were either missing or needed improvement.

The other five dormitories, small, one- and two-story buildings, were concessioner owned and needed only minor improvements costing \$8,850. One dormitory needed smoke detectors and a fire alarm system installed, steps repaired, and minor portions of the electrical system improved. The other dormitories needed minor portions of their electrical system improved and smoke detection and fire alarm systems installed.

The motel--The 22-room, two-story motel has deficiencies which would cost \$5,200 to correct. The Park Service inspectors noted that the following conditions need improving:

--A second exit off the second-floor balcony was needed to safely evacuate overnight guests.

--A fire alarm system was needed to alert guests of a fire.

--Solid-core doors and automatic door closers were needed on each guestroom to keep a fire contained within the room in which it started.

Substandard facilities still in operation

The Park Service has not repaired, upgraded, or restricted the use of most of the park's substandard water and sewer systems, lodges, dormitories, or bridges. The following table shows the park superintendent's estimate of the cost of bringing park facilities up to health and safety standards.

Estimated cost	
\$1,312,000	Water systems
3,010,000	Sanitation systems
(a)	Bridges
<u>693,775</u>	Hotels
<u>\$5,015,775</u>	Total

a/No Park Service estimate available.

The park superintendent has requested funds to correct the park's water and sewer system deficiencies. The Park Service, however, has asked the Congress for only \$1.6 of the \$4.3 million necessary to correct these deficiencies. The park superintendent has not requested funding to rehabilitate the deficient bridges and lodges. (See p. 127 for concessioner's comment.)

Phantom Ranch--The Phantom Ranch area accommodates about 500 visitors a day during the summer months. A concessioner operates the overnight and food service facilities. The Park Service maintains the campgrounds and the sewer system.

Phantom Ranch and Indian Gardens--The Phantom Ranch and Indian Gardens facilities are in the inner canyon backcountry area of the park, away from other developments. They provide overnight accommodations to the park visitor who ventures into the canyon floor. Access to these facilities is mostly on foot or by mule. The facilities are open year around and accommodate about 260,000 visitors annually.

The sewer systems serving the park's overnight visitor accommodations at Phantom Ranch, Indian Gardens, and Grand Canyon Village do not conform with Arizona State and PHS standards. The Park Service has received funding to upgrade one deficient sewer system and has restricted the use of another system. However, two deficient systems are still in use.

Sewer systems do not meet Federal and State standards

Many of the park's sewer systems and lodging facilities do not meet health and safety standards. The Park Service has known about these conditions for many years but has not repaired or upgraded these facilities to meet health and safety standards. Only recently has the Park Service restricted the use of one of its deficient sewer systems. The other facilities are open for unlimited public use.

Sewer systems and lodging facilities do not meet health and safety standards

Grand Canyon National Park is located in the northwestern corner of Arizona. The park includes the entire Grand Canyon, which stretches 277 miles along the Colorado River. The canyon reaches a depth of one mile and contains majestic plateaus and mesas of multicolored sedimentary rock. About 3 million people visited the park in 1978. About 90 percent of the park visitors concentrate their activities around the south rim of the canyon where the major visitor attractions are located. Additional visitor accommodations are available on the canyon's north rim.

GRAND CANYON NATIONAL PARK

In 1976 the Park Service reported that the 20-year-old sewer system was not adequately treating human waste. The system consists of two septic tanks and their associated leach fields. These septic systems serve all overnight accommodations including employee quarters. Neither septic system is adequate for the number of people it serves. In 1980 the Park Service reported that raw sewage overflowed from manhole covers and sewage water has surfaced in the leach field area which is prohibited by Arizona state health standards. The Park Service has not restricted use of either septic system.

In September 1976 the park superintendent developed a project proposal to construct a sewage treatment system at Phantom Ranch. In 1980 the Congress appropriated \$2,751,000 to fund the project. Work is scheduled to begin in the summer of 1980.

Indian Gardens--As early as 1972, the Park Service knew that wastewater from the septic system serving Indian Gardens was causing a potential health hazard for visitors and park employees. In 1978 the area accommodated about 1,200 visitors a day during the summer.

The sewer system serving the area consists of sewage collection lines, one lift station, two septic tanks, and a leach field.

In June 1978 an Arizona State Health Department inspector found the Indian Gardens' septic system's condition to be insufficient to ensure the health and safety of visitors and park personnel. The health department inspector stated that the septic system's leach field was saturated, and human waste was being discharged above ground. A park sanitation officer said this has been a problem for the last 7 or 8 years. The Arizona State health regulations prohibit the discharge of septic waste onto the ground. After the 1978 inspection, the health department requested the Park Service to advise the state within 14 days of its solution for protecting visitor and employee health.

The park superintendent responded to the health department's concerns by closing the area to camping for 5 months while installing chemical toilets and, upon reopening the area, reduced the number of camping spaces by about half. In 1978 the park superintendent developed a proposal to replace the sewer system. However, as of May 1980 the Park Service had not requested funds from the Congress for this project.

EL Tovar Hotel--The four-story El Tovar Hotel is a wood-frame structure built in 1905. The hotel has 77 rooms and can accommodate 249 guests a night. The hotel is concessioner owned and operated and is open all year. Park Service

The park safety officer said the unsafe conditions of these facilities have existed for at least 10 years. In 1977 the Park Service determined the exact condition of these facilities and the improvements needed to make them safe. In April 1980 the acting superintendent advised us of improvements made to these facilities and of the numerous improvements still needed to make them safe.

The El Tovar Hotel on the south rim and the Pioneer, Frontier, and Western Cabins on the north rim have overnight accommodations for about 650 visitors. There are also multiunit residences for about 650 Park Service and concessioner employees in the north and south rim areas. None of these buildings meet the National Fire Protection Association standards.

El Tovar Hotel and Pioneer, Frontier, and Western Cabins and their employee residences do not meet fire and safety codes

In January 1979 the park superintendent proposed a project to place the water lines in separate trenches because PHS standards require separate trenches to prevent leaking sewage from contaminating the drinking water. As of May 1980 the Park Service had not requested funds from the Congress for this project and was still using the sewer system.

Grand Canyon Village--The deteriorated sewer lines serving Grand Canyon Village leak and pose a danger that sewage will contaminate the village's drinking water system because some of the water and sewer lines are laid in common trenches. The village has a permanent residential population of 1,500 and provided accommodations or services to an estimated 7,700 visitors per day in 1979. The Santa Fe Railroad established Grand Canyon Village as a recreational retreat after completing a rail link to the south rim of the canyon in 1901. Between 1902 and 1955 the railroad developed the village's water and sewer systems. In 1954 the railroad donated the water and sewer systems to the Park Service.

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inspectors examined the hotel in 1977 and found the following unsafe conditions:

--The hotel was very flammable.

--The present interior stairs are not protected and could become flaming or gas-filled chimneys.

--The hotel's water supply is inadequate to properly operate the sprinkler system.

--Guests on the top floor on the south end would not have an assured means of escape if a fire blocked the primary egress routes.

Because these conditions existed, the inspectors noted that the El Tovar Hotel did not meet the National Fire Protection Association standards in 1977.

The concessioner chief of maintenance told us the concessioner has spent about \$52,000 to correct some of the hazardous conditions; however, other hazardous conditions need correcting. The concessioner added fire doors and walls, exit signs, emergency lighting, and smoke detection and alarm systems and repaired the sprinkler system. However, the center stairwell remains unprotected in the center section of building. Also, the Park Service has not provided an adequate water supply to support the hotel's fire sprinkler system.

Pioneer, Frontier, and Western Cabins--The Pioneer, Frontier, and Western Cabins provide overnight accommodations for visitors on the Grand Canyon's north rim. According to the park safety officer, these log cabins were built about 1925-1930 and can accommodate about 400 guests a night. The cabins are Government owned and concessioner operated and are open from mid-May through mid-October each year.

As of November 1979 the Park Service had not performed an intensive fire and safety inspection to determine the condition of these cabins. However, the park safety officer noted that

--fire could spread quickly throughout the closely built cabin complex, because the tinder-dry logs and wood shingle roofs were highly flammable;

--the cabins' fire alarm system were unreliable; and

APPENDIX I

owned and operated and are open all year. accommodate 85 employees. The structures are concessioner safety officer these buildings were built in 1913 and can block and wood-frame construction. According to the park Annex, located on Grand Canyon's south rim, are of concrete Victor Hall and Annex--The two-story Victor Hall and

In 1979 a concessioner spent about \$19,434 to make improvements such as installing exit signs, emergency lighting, and smoke detectors in four dormitories on the south rim, but many fire hazards still exist.

The inspectors noted that employee residences with these deficiencies did not meet the National Fire Protection Association standards.

--Inadequate or non-existent corridor and stairwell emergency lighting and exit signs.

--Hazardous electrical wiring.

--Fire hoses that should be replaced.

--Inadequate or nonexistent fire detection and alarm systems.

--Inadequate and unsafe exits.

--Open stairwells which act like chimneys for spreading fire, smoke, and toxic gases.

The Park Service safety officer said in early 1980 that the 19 employee residences are in hazardous condition. In 1977 Park Service inspectors found the following types of deficiencies.

The employee residences--According to the park safety officer about 660 concessioner and Park Service employees live in the park's 19 residences. Eleven concessioner-owned employee residences are located on the south rim; the remaining eight employee residences, all Park Service-owned, are located on the north rim.

The park safety officer said that these deficiencies cause the cabins not to conform to the National Fire Protection Association standards.

--the cabin area's fire suppression system was inadequate.

The Park Service inspected the structures in 1977 and stated that they were hazardous because they (1) contained open stairwells which allow fire to spread rapidly, (2) did not have fire detection systems, and (3) had fire escapes that needed repairs. According to the safety officer, the structures do not meet National Fire Protection Association standards. Also, the inspectors noted that some of the buildings' fire hoses needed replacing. In April 1980 the acting superintendent advised us that the concessioner had installed fire alarms and emergency lighting and corrected fire suppression systems in all dormitories, but had not enclosed the stairwells or repaired the fire escapes. However, the structures continued to be used to house employees.

Shirley Hall--Shirley Hall, located on Grand Canyon's south rim, is a two-story concrete block and stucco structure. According to the safety officer the hall was built before 1930 and can accommodate 56 employees on a year-round basis. The hall is concessioner owned and operated. In December 1977 the Park Service inspected Shirley Hall and found that the structure presented a serious threat to the lives of occupants, because it did not conform to the National Fire Protection Association standards. The Park Service inspectors reported that

--an attached wood-frame building presents a fire hazard;

--the stairwell to the second floor was not enclosed, thereby allowing a fire to spread from the first to the second story;

--the 40-foot-long, second-floor corridor leads to a dead end; and

--the electrical wiring was hazardous.

The inspectors concluded that if the deficiencies were not corrected the building should be condemned and razed within 3 months and in no circumstances be used as a dormitory. Although the park superintendent and safety officer were aware of these serious deficiencies, they allowed the concessioner to use the dormitory through September 1979.

In the summer of 1979, the park superintendent informed the concessioner that Shirley Hall could be used as a dormitory for only another 60 days, and for that period

The park superintendent told us that even though the hotel, guest cabins, and employee dormitories are deficient, closing the accommodations until they are safe would deny the park visitors and employees overnight accommodations within the park. (See p. 118 for concessioner's comments.)

The Park Service has not requested that the Congress fund two of the projects proposed to correct the deficient sewer systems. In addition, the park superintendent said he has not proposed projects to improve hazardous lodging facilities because he considered the improvements to be the concessioner's responsibility.

The Park Service has not repaired or upgraded hazardous facilities or restricted their use

It only the first floor was used, an additional exit was added, smoke alarms were installed, and a fire watch was established. All these precautions were taken. The building was vacated in September 1979 and has been vacant since then.

Humans can become infected if they ingest the tapeworm eggs while consuming inadequately treated water. The eggs develop into hydatid cysts, which usually attach themselves to the liver or lungs. In February 1980 a Park Service

The water along the shoreline of Lake Superior may be contaminated with the eggs of a tapeworm called echinococcus granulosus. This tapeworm exists as part of the predator-prey (wolf-moose) relationship on Isle Royale. The tapeworm grows to an adult inside the wolf. Thousands of eggs from the worm are passed with the feces into the water and onto the vegetation. Moose ingest the eggs while eating. Eggs reproduce asexually and the larvae form cysts in the lungs or liver. When the moose is killed the wolf eats the lungs and ingests the cysts. The larvae mature inside the wolf and the cycle starts over.

The four public water systems on Isle Royale violate the requirements of Michigan's Safe Drinking Water Act. The State regulations implementing the act require complete treatment for surface waters, including disinfection, coagulation, sedimentation, and filtration. Although all four of Isle Royale's water systems draw surface water from Lake Superior, they only chlorinate this water. A potentially serious health hazard exists for the users of Isle Royale's water systems because the water is not filtered.

Public water systems violate State of Michigan requirements

Isle Royale is accessible only by boat or floatplane. Transportation on the island is by foot, as no vehicles are permitted. Over 160 miles of foot trails provide access to the numerous inland lakes and hundreds of ponds, swamps, and bogs. The Rock Harbor Lodge, 20 nearby housekeeping units, and 31 campgrounds were available for overnight accommodations for the park's 16,400 visitors in 1978.

Isle Royale National Park consists of more than 200 islands and the surrounding water in the northwest part of Lake Superior. Isle Royale, the largest of the islands, is about 45 miles long and about 9 miles across at its widest point. More than 200 kinds of birds have been sighted on the island. Other common mammals include the red squirrel, beaver, red fox, snowshoe hare, and moose. Wolves, rarely observed by people, prey upon the moose, culling the herds and keeping the population down to levels the island can support.

ISLE ROYALE NATIONAL PARK

consultant reported that to date, no effective medical treatment by drugs is available, and surgery remains the best hope for those having Hydatid disease. The disease can be fatal.

The tapeworm eggs are very small and have a hard shell. The methods of preventing possible infection are to boil the water for at least 5 minutes or to filter the water. Hallozone, chlorine, and various other purifying chemicals have proven to be ineffective in destroying the egg. Further, even though the water of Lake Superior is extremely cold, the tapeworm eggs have survived in a laboratory for a period of 2-1/2 years at 2 degrees Celsius. The existence of the tapeworm on Isle Royale was reported as early as 1966. Campers and hikers who use water are cautioned to boil or filter it.

A State public health service official said the bacteriological, chemical, and turbidity tests that are required to meet the safe drinking water requirements cannot detect the presence of the tapeworm eggs in water. Also, the symptoms of Hydatid disease may not show up for many years.

The potential danger associated with the tapeworms would be eliminated if the water supply were filtered as required by Michigan's drinking water requirements. The park superintendent estimated that to upgrade the four Isle Royale public drinking water systems and two systems at ranger stations to meet these requirements will cost \$3 million. The Park Service plans to upgrade one of the public water systems in 1980 but has not scheduled improvements to the other three public water systems until the 1984-87 period. The park superintendent has no plans to close these three water systems until they can be upgraded.

In 1976 FHWA inspectors examined the bridge, found it structurally deficient, and called for immediate foundation repair. The bridge was built in 1950 using treated timbers and boards.

Hogan Creek Bridge--The 79-foot Hogan Creek Bridge was built in 1950 using treated timbers and boards. The Park Service did not heed FHWA's recommendations to replace the bridge. The park superintendent said that annual repairs had been made to maintain safety. However, the superintendent did not propose a project to replace the bridge as recommended by FHWA until our review, 3 years later. In addition, the bridge was not posted to limit the weight of vehicles that cross the structure.

The bridge at mile post 12.7--The bridge at mile post 12.7, built in 1956, is 30 feet long and is made of treated timber, which is overlaid with wood and asphalt. In 1976 FHWA inspectors found that the bridge was structurally deficient and should be repaired or replaced. The bridge's embankments were severely eroded, which could cause the foundations to give way. Inspectors recommended that the bridge be posted to warn people of the maximum safe load limit until replaced.

The park superintendent did not propose a project to correct the deficiencies until after the third FHWA inspection in 1976. The Congress approved \$1,849,000 for a new bridge in the Park Service fiscal year 1979 appropriations. However, the park superintendent does not expect the work to be completed until 1983, 13 years after the FHWA called for the bridge to be replaced.

Savage River Bridge--The Savage River Bridge is 269 feet long and was built in 1951 of reinforced concrete and steel. In 1970 FHWA inspectors found that the bridge was structurally deficient and called for it to be replaced. They noted that the bridge's supports had shifted vertically and away from their foundations. FHWA described the deficiencies again after making similar inspections in 1974 and 1976.

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into the park for hiking, camping, and viewing and photographing the scenery. In addition, park employees travel over the road in managing the park. The park superintendent estimated 70,000 automobiles, buses, and park vehicles and over 1,000 trucks annually cross each of the deficient bridges discussed below.

Savage River Bridge--The Savage River Bridge is 269 feet long and was built in 1951 of reinforced concrete and steel. In 1970 FHWA inspectors found that the bridge was structurally deficient and called for it to be replaced. They noted that the bridge's supports had shifted vertically and away from their foundations. FHWA described the deficiencies again after making similar inspections in 1974 and 1976.

Although the park superintendent was aware of the hotel's deficient condition, he did not restrict the use of the hotel or propose a project to correct the deficiencies. The park superintendent said that the hotel is no more hazardous than any other frame building of the same type.

--the electrical wiring was hazardous.

--the fire escapes were too few, dangerous to use, and not adequately protected from fire and smoke; and

--the stairs and exit halls were not fireproof and lacked fire-retardant doors;

--waterlines to the hotel could not provide enough water to control a major fire;

A 1979 Park Service report showed that the hotel does not meet National Fire Protection Association standards and its condition is hazardous because

The Mount McKinley Hotel is the park's only overnight lodging facility according to the park superintendent. The 140-room hotel is open from June through September. About 30,000 overnight guests stayed there during 1979. The hotel consists of a 50-room wing, four converted railroad cars, and a 48-room, single-story, wood-framed, modular structure that was completed in 1973. The concessioner that operates the hotel owns all these structures, except for the hotel kitchen and lobby which the Federal Government owns.

Mount McKinley Hotel does not meet fire safety codes

The park superintendent did not propose a project to replace the Hogan Creek Bridge until we brought the bridge's condition to his attention. The Park Service has not requested that the Congress fund the project.

They found that the bridge's timber supports had shifted and the wooden deck was severely worn. They also noted that some of the structural timbers had shifted on the piling.

The Park Service knew about the hotel's hazardous condition for at least 10 years before the fire occurred. The park superintendent did not propose a project to correct the hazards or restrict the hotel's use. He stated that he and his predecessors thought the concessioner was responsible for correcting the deficiencies to make the hotel safe, but did not require the concessioner to make the corrections.

On September 3, 1972, the Mount McKinley Hotel caught fire. A professional fire investigator attributed the probable cause of the fire to a short circuit in the hotel's electrical wiring. The investigator's report stated that the fire started early in the afternoon but was not detected until 7 p.m. The concessioner said the hotel was not evacuated until 3 hours after the fire alarm sounded the first time. He said no one took the alarm too seriously because the alarm was always going off for no reason at all. The building was evacuated when the alarm sounded a second time and smoke began rising through the floor. Once the fire began to spread, the hotel burned rapidly, and all but the 32 rooms in the west wing were destroyed in about 3 hours. No park visitors were injured because hotel staff warned the guests about the fire while they were assembled for dinner and quickly evacuated them.

--frost heaving had significantly altered the structure.

--the fire detection system was unreliable, and

--the electrical wiring was hazardous,

--the hotel contained open stairways that contributed to the spread of fire,

--the hotel had surface areas that were of combustible material,

Most of the park's original hotel burned in 1972--The original wood-framed, two-story hotel was built from 1938 to 1939 and had 124 rooms. The hotel was Government owned and concessioner operated. According to the Park Service fire investigation report the original hotel was very hazardous. The report stated that

Why use of facilities
was not restricted

The park superintendent said that closing the bridges and hotel was not a politically acceptable alternative. He further told us that closing the hotel and bridges or limiting the bridges' weight capacity would deny park visitors an opportunity to stay in the park's overnight lodgings and might deny visitors a chance to tour the park. (See p. 133 for concessioner's comments.)

The park superintendent said that the Park Service became concerned about the inn's unsafe condition in 1972, after inspections by Occupational Safety and Health Administration personnel and the concessioner's insurance company. The park superintendent requested funding in 1973 to perform an intensive fire and safety inspection and building rehabilitation analysis. He received the funds in 1976, and a detailed inspection was made during that summer.

The Park Service has known about the inn's fire safety deficiencies since 1972 but has not rehabilitated the inn or closed it to overnight use. The Park Service studied the inn's deteriorated condition while allowing guests to stay overnight.

The 16-room, four-story Paradise Inn was completed in 1917 and the adjacent four-story annex was completed in 1922. The wood-frame structure is Government owned and concessioner operated. It can accommodate 280 overnight guests.

Paradise Inn is the older and larger of the park's two inns as well as its principal overnight lodging accommodation. The inn, with its unique architectural style and picturesque mountain setting, attracted 54,000 visitors during 1979, with over 18,000 staying overnight. During the winter the inn is closed because the area receives from 50 to 100 feet of snow and, according to the park superintendent, there is insufficient public interest to operate year around. Since Paradise Inn is the largest and more popular of the park's two inns, it was the one reviewed.

Paradise Inn is unsafe

Mount Rainier National Park, located about 80 miles southeast of Seattle, Washington, was created by the Congress on March 2, 1899. The park encompasses about 235,239 acres of wilderness backcountry including Mount Rainier, the park's main point of interest. The 14,410-foot mountain rises 9,000-11,000 feet above the surrounding densely forested landscape and mossy, fern-draped valley floors. Spectacular subalpine meadows and colorful wildflower fields contribute to Mount Rainier's worldwide reputation. About 2 million people visit the park annually. Over 100,000 of these visitors spend the night at the park's five campgrounds and two inns.

MOUNT RAINIER NATIONAL PARK

The inspection report disclosed that

--the hotel was highly combustible;

--the hotel needed an automatic fire sprinkler system to protect life in the event of a fire;

--the building did not have approved fire separation walls or fire doors;

--the exit, stairs, and corridors needed improvements to protect the lives of occupants in case of a fire; and

--the condition of the electrical wiring was a direct invitation to a fire.

In addition, the report showed that heavy snows have altered the inn structurally. The inn's exterior walls were tilted out of alignment, and its floors were not level. The Park Service has installed removable bracing to support the building when the winter snow puts stress on the structural supports. Although the building leans significantly, the park superintendent said that he believes it will not collapse during the visitor season, when the heavy winter snows are off the structure.

According to the park superintendent, upon receiving the consultant's report in 1976, he proposed a project to rehabilitate the inn and the Park Service requested \$2 million from the Congress to fund the project. In 1979 the Park Service received \$2.8 million to rehabilitate the lodge consistent with the National Fire Protection Association standards. Construction will begin in 1980, with completion estimated for late 1981. The park superintendent said that the project was not funded before 1979 because 3 years were needed to plan and design the construction project and obtain approval from the Congress for the funds.

Why the Park Service did not close the inn

The park superintendent said that he did not close the inn when deficiencies were first identified because the Park Service improved the existing fire suppression equipment and installed a fire sprinkler system. Therefore, it was safer than it had been, although many deficiencies still existed. Also, he stated that closing the facility was not a politically acceptable alternative and would diminish the visitors' enjoyment of the park.

Rocky Mountain National Park, located about 70 miles northwest of Denver, Colorado, was established by the Congress on January 26, 1915. The park encompasses about 260,000 acres of mountainous terrain, and its rich scenery typifies the massive grandeur of the Rocky Mountains. The mountain peaks tower 14,000 feet above the forests and glacier-carved valleys. During 1979 about 2.6 million people visited the park. The park has five campgrounds to accommodate overnight visitors.

Four water systems do not meet State and Federal standards

According to the park sanitation officer, the Park Service knew in 1966 that five of the surface source drinking water systems did not meet PHS standards because the water was not filtered. In addition, since 1977 Colorado State drinking water standards have also required surface water supplies to be filtered. Only one of five water systems has been brought up to PHS and Colorado State standards. In the summer of 1978, that system was suspected to have caused 16 of the 42 people at a Youth Conservation Corps camp to become ill. Five of the 16 people were treated for giardiasis and a PHS official suspected that the others had the same illness.

Giardiasis is contracted by drinking water that has been contaminated by humans and animals defecating or decomposing in the water. Shortly after the outbreak of the disease, park employees removed a bear carcass from the stream adjacent to the drinking water intake. PHS reported that this carcass could have introduced a massive dose of pathogens (for example, giardia) into the drinking water. From the time of the investigation to the end of the 1978 tourist season, PHS recommended the camp water used for oral consumption be boiled. Before the camp opened for the 1979 season a filtration system was installed.

The park superintendent stated that the Park Service tests the water quality. However, the water testing procedures performed are not sufficient to detect giardia. The superintendent said that when PHS recommended improvements, he proposed projects to upgrade the four unfiltered surface source water systems. According to a regional budget officer, the Park Service has not requested funds from the Congress to correct three of the four deficient water

systems. He stated that in 1978, the Congress appropriated the Park Service \$122,000 to improve one of the four deficient water systems. This work began in 1979 and was scheduled for completion during the summer of 1980.

The Kettle Falls Hotel is a two-story, wood-frame structure built in 1913 with 19 guestrooms on the second floor. In 1977 the Park Service purchased the hotel, which is open from about May 20 to September 30 each year.

In August 1977 the park superintendent requested lump sum funds of \$40,000 for structural repairs and \$20,000 for electrical repairs to the hotel. The request was approved and repairs were made to correct some of the most severe health and safety hazards in fiscal year 1978. However, the

Kettle Falls Hotel

Health and safety inspectors recommended in February 1978 closing the sewer system unless major deficiencies were corrected and in August 1979 closing the second floor of the hotel to overnight lodging. The deficiencies were not corrected, and the park superintendent had not closed either facility when our fieldwork was completed in December 1979. The Park Service plans to correct several hotel deficiencies and rehabilitate the sewer system in 1980.

The Kettle Falls Hotel had multiple substandard conditions and did not meet National Fire Protection Association standards at the time of our review. The sewer system serving the hotel is inadequate. Raw sewage has surfaced within 150 feet of the well that provides the hotel's drinking water.

The Kettle Falls Hotel and sewer system do not meet health and safety standards

The park, officially established on April 8, 1975, received 195,300 visitors in 1979.

The park is named for the French-Canadian voyageurs who plied this maze of lakes and streams in trail bark canoes, transporting vast quantities of furs and goods between Montreal and the far Northwest.

Voyageurs National Park encompasses 219,400 acres, much of it water, in northern Minnesota, adjacent to the Canadian border. The park's 80,000 acres of water consist of four major lakes and numerous smaller lakes. Most of the park land is on the heavily forested and relatively undeveloped Kabetogama Peninsula.

VOYAGEURS NATIONAL PARK

--The interior stairway from the second floor was not enclosed by noncombustible construction having 1/2-hour fire resistance.

--Guest room doors were not adequate for protection from the spread of smoke and fire.

--The duct system grease removal device and hood over the grill-range were not equipped with an approved fire extinguishing system.

The specific substandard conditions at the hotel include the following:

"It is strongly recommended that the use of the second floor for overnight lodging be discontinued until a complete renovation of the facility is made."

"It is the professional opinion of the Midwest Regional Safety Manager that the Kettle Falls Hotel is unsuitable for occupancy as a lodging facility based on the before stated sub-standard conditions resulting largely from poor structural design and deteriorated conditions. Only complete renovation of the building would make it safe for overnight lodging.

After making a safety inspection in August 1979, the Park Service regional safety manager concluded:

"The hotel structure and interior is deteriorating at a rapid pace. Support joists are rotten and the floor is resting directly on the ground. Slippage and settlement of the foundation is causing additional stress and fatigue on all support members. Joists, stringers, and wooden footings are decayed beyond repair. Major portions of the building will be in jeopardy of extreme structural damage which may result in collapse of the building."

According to a December 1979 Park Service proposal to plan for and perform rehabilitation of Kettle Falls Hotel, construct visitor overnight accommodations, and provide all necessary utilities:

hotel still has structural deficiencies and does not meet National Fire Protection Association standards.

--It appears that there are no firestops in the studding of the combustible wooden walls to prevent the unhampered spread of fire between the interior and exterior walls. Rapid vertical spread of fire could greatly endanger second floor occupants by reducing their escape time.

In December 1979 the park superintendent proposed that new overnight lodging facilities for guests and employees be built at Kettle Falls. Subsequently, the second floor of the Kettle Falls Hotel would be converted from overnight lodging to park interpretation and administration functions.

In a February 1980 memorandum to the Park Service regional director, the superintendent listed 12 actions that were planned to alleviate deficiencies in safety standards so the hotel could provide overnight accommodations in 1980. These included

- installing a fire extinguishing system in the kitchen,
- installing portable fire extinguishers to meet all safety standards,
- prohibiting smoking on the upper level of the hotel,
- requiring the concessioner to provide a watchman on duty 24 hours a day to warn and assist visitors during any emergency,
- building an additional exit from the second floor, and
- requiring the concessioner to distribute brochures outlining safety problems at the hotel to acquaint all visitors with hazards.

Implementing these plans should make the hotel a safer overnight lodging facility. However, as the safety manager stated in the report of his inspection of August 1979:

"Only complete renovation of the building would make it safe for overnight lodging. It is strongly recommended that the use of the second floor for overnight lodging be discontinued until complete renovation of the facility is made."

After a subsequent review of the Kettle Falls sewer system in July 1978 the inspector reported that:

"Unless corrections are started in 1978 and no later than mid-May of 1979, it is strongly recommended that the facility not open in 1979."

The inspector said that these deficiencies must be corrected immediately and that:

"There has been a problem with the main drainfield. Sewage has been surfacing approximately 150 feet from the well and at approximately the same elevation. * * * If the breakout reoccurs, efforts must be made to find a new drainfield. All sewage must be channeled away from the well."

At the time of our review, the sewer system at Kettle Falls was inadequate and could contaminate the drinking water. In February 1978 a U.S. PHS inspector reported that:

Kettle Falls sewer system

"Our objective is to establish priorities and consider possible alternative actions to meet essential life/safety requirements to permit operation of the hotel for the coming season; if we can be assured that it can be done at a reasonable risk and cost."

"Perhaps measures can be taken to provide for reasonable life/safety risks from fire and panic by installing certain safety features and/or securing qualified staffing. It should be noted that this risk has been taken unknowingly for quite a number of years without safeguards. In 1978 many improvements were required that should have resulted in appreciably less risk than in the past.

"Our objective is to establish priorities and consider possible alternative actions to meet essential life/safety requirements to permit operation of the hotel for the coming season; if we can be assured that it can be done at a reasonable risk and cost."

A Park Service proposal for an architect-engineer to evaluate the Kettle Falls Hotel in 1980 summarized the situation:

"There is still a severe problem with the sewage disposal. A drainline was discovered in the swampy area and what appeared to be septic tank effluent was running from it. It is imperative that corrections be made as soon as possible."

The Park Service did not correct the sewer system deficiencies, and the system operated throughout the 1978 and 1979 tourist seasons. In November 1979 the park facility manager said the sewer system was in poor condition, did not meet either Minnesota Pollution Control Agency standards or EPA standards, and was a potential hazard to the drinking water. The park received \$55,000 in lump sum construction funds for fiscal year 1980 to rehabilitate the sewer system. (See p. 131 for concessioner's comment.)

YELLOWSTONE NATIONAL PARK

Established on March 1, 1872, Yellowstone National Park is located in the northwestern corner of Wyoming and portions of eastern Idaho and southern Montana. The park encompasses about 2.2 million acres of wilderness backcountry, forest lands, lakes, streams, and active thermal areas.

Nearly 2.5 million people visit the park each year to see such attractions as Old Faithful geyser, Fountain Paint Pots, and Firehole Falls.

Water systems and lodging facilities do not meet health and safety standards

Eight of Yellowstone National Park's 26 drinking water systems do not meet EPA standards. A deficient drinking water system in July 1977 caused an estimated 25,000 park visitors and 402 employees to contract gastroenteritis after drinking inadequately treated water.

Three of the large hotels in the park do not meet Uniform Building and Fire Codes. Park Service and private building inspections found all three hotels to be unsafe during inspections made in the 1975-79 period. The Park Service has requested and received funds to make substantial improvements and has also required the new concessioner to make improvements to these facilities beginning in fiscal year 1980.

Eight drinking water systems do not meet Federal standards

Eight of the park's 26 drinking water systems do not meet EPA standards. The eight systems provide the drinking water that most park visitors and employees use. The Park Service has recently begun upgrading these drinking water systems. Before 1979 the Park Service had not requested construction funds from the Congress to correct five of the eight water system deficiencies.

In July and August 1977 the Canyon Village drinking water system was suspected to have caused 402 employees and an estimated 25,000 park visitors to contract gastroenteritis. The illnesses were suspected to have occurred because the drinking water system did not adequately treat the water taken from Soda and Cascade Creeks. This water system serves various overnight lodgings, employee housing, the grocery store, and the cafeteria. Nearly 380,000 people visit this area each year.

The Canyon Village drinking water system drew its water from Soda Creek and treated it with chlorine. In 1976, because of an abnormally dry winter, Soda Creek could not supply all the water necessary to sustain Canyon Village. Therefore, in June 1977 the Park Service tapped the nearby Cascade Creek to add to the water supplied by Soda Creek.

The drinking water system did not adequately treat the water drawn from Soda and Cascade Creeks. Although the park superintendent and sanitarian knew that the water system did not conform to the EPA standards, they believed that the water was not contaminated. However, they became concerned, as increasing numbers of park visitors and employees became ill and those affected become more ill. About 21 days after the outbreak, the Park Service asked PHS personnel from the Center for Disease Control to determine its cause.

The PHS personnel associated the cause of the gastroenteritis outbreak with park visitors' and employees' drinking inadequately treated water. They found that the water drawn from Cascade Creek contained fecal contaminants. They stated that the creek was an unacceptable drinking water source. The following conditions existed upstream from the drinking water intake:

--A horse trail and a hiking trail crossed the creek at two locations.

--Moose watered and grazed in the area.

--The area contained one of the park's back-country areas that was heavily used by overnight visitors.

In their investigative report, the PHS inspectors recommended that the Park Service provide complete water treatment facilities and repair damaged sewer lines in the area. They stated that the Canyon Village area should not be opened during the next visitor season if the deficiencies were not corrected.

Within several months of the outbreak, the Park Service spent about \$260,000 to install new sedimentation, filtration, and chlorination equipment to adequately treat the drinking water and prevent future illness.

Mammoth Motor Inn, Old Faithful Inn, and Lake Hotel do not meet fire safety codes

The Mammoth Motor Inn, Old Faithful Inn, and Lake Hotel annually provide overnight lodging accommodations for 180,000 visitors. These lodgings do not meet National Fire Protection Association standards or Uniform Building and Fire Codes because the structures do not have adequate fire detection and fire suppression systems and have many fire hazards.

The park superintendent said that for at least 10 years the Park Service has been aware of these deficiencies, but only started to correct the deficiencies within the last year. He said that the concessioner will provide fire exits and fire detection systems and repair the sprinkler systems. Also, he said that a large portion of the park's 1980 and 1981 construction programs will be devoted to correcting the facilities' longstanding deficiencies.

During fiscal year 1980 the Park Service plans to spend about \$1 million for project planning and design and about \$525,000 to replace the roof and siding on Old Faithful Inn. Another \$442,000 is planned to be spent for installing fire suppression and detection systems in the most hazardous of the park's 1,200 concessioner-operated structures which include the three hotels.

Another \$6.5 million is needed to improve the park's hazardous overnight facilities. The park superintendent said that he originally planned to make improvements over the next 6 years to make the overnight facilities conform to the National Fire Protection Association standards. He said that a 6-year time frame was necessary to identify, plan, and design the needed corrective measures. After our field visit, the park superintendent revised his estimated time frame from 6 to 2 years.

Mammoth Motor Inn--The Mammoth Motor Inn is a wood-frame, four-story, 104-room structure that was built in 1913 and extensively remodeled in 1935. It is a Government-owned and concessioner-operated inn which can house about 365 guests a night. In 1979 the inn housed about 22,000 park visitors. The Park Service bought the inn in 1979, partly because its previous owners had allowed the building to become a fire and safety hazard.

The inn lacks adequate fire suppression and detection equipment and safe emergency exits and has many fire hazards.

In 1978 the Park Service made an intensive fire and safety inspection which disclosed that the inn immediately needed

--a fire detection and alarm system,

--repairs to one of its fire escapes and the construction of another fire escape to provide guests with safe exits in case of emergency,

--fire rated interior doors, and

--numerous electrical repairs.

These deficiencies caused the inn not to comply with the National Fire Protection Association standards.

National Park Service inspectors estimate that repairs costing \$600,000 are needed to make the structure safe. The park superintendent stated that the concessioner will spend \$300,000 prior to opening for the 1980 season and additional fire safety items will be corrected by the end of 1981 at an estimated cost of \$300,000 at the Mammoth Motor Inn.

Old Faithful Inn--Old Faithful Inn is the park's most

popular lodging facility. It is a 360-room, wood-frame structure which can house about 1,045 guests a night. In 1979 it housed about 117,000 visitors. The inn was completed in 1904, and other portions were added in 1913 and 1927. It is government owned and concessioner operated. The Park Service bought the inn from the previous operator in 1979, partly because the previous owner allowed the inn to become unsafe.

The Park Service has known about the inn's unsafe condition since 1975. During fiscal year 1974, the Park Service made an intensive inspection of the inn because Park Service personnel were concerned about its deteriorated condition. The inspectors noted that

--transoms and grilles are open over guestroom doors leading to hallways on all floors,

--the inn's water system showed a very serious lack of pressure and supply, and

--fire escapes consist chiefly of exterior metal balconies with interconnecting vertical ladders which were of little value.

Lake Hotel--The Lake Hotel is a large wood-frame structure. Built in 1889, the four-story hotel has 201 guestrooms which can house about 600 guests a night. It housed about 40,000 park visitors in 1979. The hotel is government owned and concessioner operated. The Park Service bought the

The Park Service has allocated about \$500,000 in 1980 for replacing the roof and siding on Old Faithful Inn, but has not decided how much of the \$442,000 parkwide funds will be spent on the inn's fire suppression and detection systems. The Park Service estimates that \$3.2 million is needed to bring the lodge into compliance with nationally recognized fire and safety codes. The Park Service plans to correct these deficiencies within the next 2 years, but will allow guests to stay in this hazardous structure during this period.

Because of these deficiencies, the inspectors noted that the inn is unsafe and that its continued use could result in a tragedy.

--The inn's water supply and pressure was inadequate to operate the sprinkler system.

--The corridors did not provide the minimum 1-hour fire resistance.

--Some corridors lead to dead ends.

--The existing stairways consisting of metal ladders were unacceptable fire escapes.

--The inn did not have an adequate number of fire escapes.

The inspectors noted that:

--The inn's fireplace had not been recently inspected and its use should be discontinued.

--The kitchen ventilation hoods were in a state of delapidation by reason of obsolescence and inadequate maintenance and are definite fire hazards.

Hazardous conditions still existed in September 1979 when GAO hired a certified building inspector and a certified fire marshal to inspect the inn. The inspectors found that the inn did not conform to the Uniform Building and Fire Codes because of the following deficiencies:

building in 1979, partly because the previous owner allowed the hotel to become unsafe.

In 1979 Park Service inspectors reported that their investigation revealed severe safety deficiencies that do not comply with many National Fire Protection Association standards. They reported

--the hotel's plumbing, elevators, roof, foundations, ramps, railings, and wall bracings needed repairs;

--the electrical system needed rewiring;

--the hotel's fire exits and corridors and fire detection and alarm systems needed repairs; and

--the fire sprinkler system needed repairs.

The Park Service inspectors reported that "Some of the conditions were severe enough to recommend the shut down of the Lake Hotel until interim corrective measures are taken."

When the hotel opened in 1979, none of the hazardous conditions identified by the Park Service inspectors were corrected. The park superintendent told us he did not want to spend money on buildings the Park Service had not yet acquired. The Park Service and the new hotel operator planned to spend nearly \$2.6 million over 2 years to make the necessary repairs.

Park Service inspectors are not alone in calling for the hotel to be closed until extensive repairs are made. In September 1979 GAO hired a certified building inspector and certified fire marshal to inspect the hotel. The inspectors not only confirmed that hazardous deficiencies still existed, but also concurred that the hotel is unsafe for continued overnight use, since such use could result in a tragedy.

Why the Park Service has not repaired, upgraded, or restricted the use of hotels and water systems

The Park Service has not upgraded Yellowstone's eight deficient drinking water systems and has only recently begun correcting the hotels' safety hazards. The Park Service estimates that it would take \$16.9 million to upgrade the eight drinking water systems and \$6.5 million to make the hotels safe for overnight guests.

According to the park superintendent, he and previous superintendents have not closed the park's unsafe hotels and substandard drinking water systems because doing so would diminish visitors' enjoyment of the park. Also, he stated that water system and hotel deficiencies were not serious enough to warrant closures.

In 1979 the park superintendent proposed projects to correct the three deficient lodges and five of the eight deficient water systems. The park superintendent stated that he and previous superintendents had not submitted project proposals earlier because they considered the hotel deficiencies to be the concessioner's responsibility. (See p. 126 for concessioner's comments.)

YOSEMITE NATIONAL PARK

Yosemite National Park, located about 200 miles east of San Francisco, was created by the Congress on October 1, 1890. The park encompasses 760,000 acres of wilderness backcountry and deep, glacially carved valleys. Yosemite Valley is the main attraction with its cascading waterfalls and its broad vistas of glacial carved domes and cliffs.

Yosemite receives about 2.5 million visitors a year, most of whom visit Yosemite Valley. About 67 percent of these visitors stay overnight.

Water systems and hotels do not meet health and safety standards

Nineteen of the park's 25 drinking water systems do not comply with the State of California drinking water standards. Also, the Ahwahnee and Wawona Hotels do not meet the National Fire Protection Association standards.

Nineteen drinking water systems do not meet State standards

Yosemite National Park's 4 major drinking water systems and 15 of its 17 minor systems do not meet State of California drinking water standards. The State of California inspected the systems in 1978 and found they did not protect visitors from such diseases as giardiasis, hepatitis, and salmonellosis. The State required that the deficient drinking water systems be brought up to State standards. However, the Park Service has not upgraded the water systems.

Yosemite Valley drinking water system--The principal deficient drinking water system in the park is the Yosemite Valley drinking water system. This system, which serves more than 90 percent of the park's visitors, does not meet State standards for drinking water treatment.

The system draws its water from the Merced River, which flows through Yosemite Valley. A California State Health official said that the Merced River has a high potential for being contaminated because upstream from the drinking water intake are:

--A heavily used horse and hiking trail.

--A sewer line which is exposed and could easily break.

--The park's most heavily used overnight visitor back-country area.

Also, the park sanitarian said that the area immediately above the water intake is used heavily by swimmers and native animals. In the last few years several cases of giardiasis have been reported by people who had visited the areas above the water intake.

California State drinking water standards require that surface waters used for drinking that are exposed to significant sewage hazards or significant recreational use be pretreated, filtered, and disinfected. The Park Service chlorinates the drinking water taken from the Merced River, but does not pretreat or filter it. A California Health Service official stated that chlorinating water does not protect against some parasitic infections, such as giardiasis.

The State of California inspected the system in July and August 1978. As a result, the State wrote a letter requiring the Park Service to bring its Yosemite Valley drinking water system to State standards. In 1979 the park superintendent reported to the State of California that such work would not start until 1982 at the earliest, and that he could not predict the completion date.

Two hotels do not meet
National Fire Protection
Association standards

Yosemite National Park's Ahwahnee and Wawona Hotels and their associated buildings do not meet National Fire Protection Association standards. These hotels are two of the park's principal overnight lodgings. Each year about 90,000 overnight guests stay in these structures.

The Ahwahnee Hotel-- The Ahwahnee Hotel, is a 6-story, 97-room, rock-and concrete structure which was built in 1927. It is a concessioner-owned hotel which can house 400 guests a night, with nearly 75,000 park visitors being housed in 1979.

A 1979 Park Service fire safety inspection report disclosed that the hotel does not meet National Fire Protection Association standards because it lacks adequate fire suppression and detection equipment and safe emergency exits and has many other unsafe conditions. The report stated that:

The hotel complex lacks fire detection and adequate fire suppression equipment and has many hazardous conditions. Because of these conditions, the park safety officer believes that a "tragic loss of life" could occur if the hotel complex caught fire. A fire did occur in an employee dormitory of the hotel complex in 1977. The dormitory, which burned to the ground in 1 hour, was a two-story, wood-frame structure. According to the park superintendent, the fire was caused by arson. The dormitory burned quickly because it was a tinder-dry, wood-frame building, which lacked a sprinkler system, a fire detection system, and fire-retardant walls and doors. According to the park superintendent the National Fire

The Wawona Hotel--The Wawona Hotel complex consists of seven structures, varying in size from a single-family residence to a 34-room hotel and annex. These wooden structures are from 60 to 100 years old. The structures have been painted many times and the wood frames are tinder-dry, thus making the structures extremely flammable. The hotel complex is government owned and concessioner operated. The seven structures can house 100 guests a night, and in 1979 they housed about 12,000 park visitors.

The assistant park superintendent said that the Ahwahnee Hotel's fire safety deficiencies have existed for many years, and that to bring the hotel up to National Fire Protection Association standards would cost nearly \$2.4 million. (See p. 136 for a description of fire and safety improvements made since our visit in September 1979.)

- Transoms above each door permit the spread of toxic gas and smoke as well as increase the rate of fire spread.
- The assistant park superintendent said that the Ahwahnee Hotel's fire safety deficiencies have existed for many years, and that to bring the hotel up to National Fire Protection Association standards would cost nearly \$2.4 million. (See p. 136 for a description of fire and safety improvements made since our visit in September 1979.)
- The hotel's water supply is totally inadequate for fire suppression. (The water system is a Park Service responsibility.)
- The stairwells do not have approved fire doors and are not constructed of fire resistant materials.
- Transoms above each door permit the spread of toxic gas and smoke as well as increase the rate of fire spread.
- The hotel lacks an approved automatic fire detection alarm system to alert persons in the building.
- The large rooms that are designated as baggage storage areas would be sources of rapid fire build-up but are not partitioned or equipped with an automatic sprinkler system.

Protection Association standards require the inclusion of these safety features. The fire occurred when the building was vacant and no one was injured.

After the dormitory fire occurred, a regional Park

Service Inspector made an intensive fire and safety

inspection of the seven remaining structures, the first

such inspection in 5 years. He found that all seven

structures lacked fire detection, alarm, and automatic

sprinkler systems. In addition, the inspection identified

the following hazardous conditions:

--The water system to the hydrants in and around the

structures could not supply enough water at a

sufficient pressure to suppress a large structural

fire. [The water system is a Park Service

responsibility.]

--The boiler, furnace, and laundry rooms and storage

and repair-shop areas, all of which are combustible,

do not have fire-retardant walls, and doors to these

areas are not fireproof.

The park safety officer stated that the deficiencies should

be corrected and the buildings brought up to National Fire

Protection Association standards to insure that overnight

guests and employees are protected. (See p. 136 for a

description of fire and safety improvements made since our

visit in 1979.)

Why the Park Service has not

corrected the deficiencies

or closed the hazardous facilities

The assistant park superintendent said that water

system and hotel deficiencies have existed for many years.

The Park Service estimates that they would need \$2.4 million

to upgrade the Yosemite Valley drinking water system and

about \$3.7 million to make the hotels safe for overnight

guests.

According to the park sanitation officer, the park

superintendent has proposed projects to bring all 19 of the

park's deficient drinking water systems up to State of

California standards. However, the Park Service has not

requested funds from the Congress for these projects.

The assistant park superintendent told us the 19

deficient water systems in Yosemite National Park were not

closed because this would deprive visitors of drinking water and require the park to be closed. He said that frequent testing of water enables the Park Service to quickly shut down any system which tests indicate is providing water that endangers visitors' and employees' health. However, no tests are made to detect such organisms as giardia. Filtering the water as the California State drinking water standards require is the only reasonable way to keep such parasites as giardia out of the drinking water.

The assistant park superintendent said he did not request funds to correct the deficiencies at the concessioner-owned Ahwahnee Hotel because he thought the concessioner was responsible for making the hotel safe. He said that although the superintendent proposed a project to correct the Government-owned Wawona Hotel deficiencies, the Park Service has not requested funds from the Congress to correct them. Although the hotels are hazardous, the assistant park superintendent said he has not closed the facilities because doing so would diminish visitors' enjoyment of the park.

The park safety officer informed us in August 1980 that the concessioner had completed many fire and safety improvements since our visit in September 1979. However, the Park Service had not subsequently made a comprehensive fire and safety inspection to determine what improvements are still needed in the hotels and dormitories to bring them up to National Fire Protection Association standards. (See p. 136 for concessioner's comments.)

 NATIONAL FOREST SUMMARIES

 CHIPPEWA NATIONAL FOREST

The 660,436-acre Chippewa National Forest, located in north-central Minnesota, contains numerous streams and 1,321 lakes. Each year more than 1.5 million people visit the forest to fish, camp, boat, hunt, and picnic. During 1979 more than 560,000 visitors used the forest's 29 campgrounds and 18 picnic areas.

During our review we found no health and safety deficiencies. The forest recreation staff officer said that the Forest Service needs \$4,850 to upgrade its drinking water systems and \$116,618 to improve and maintain sanitary facilities to continue operating safely. Prior to our review, the Forest Service identified six drinking water systems as not meeting State of Minnesota drinking water standards and closed them. The systems remained closed until they were repaired or replaced.

GIFFORD PINCHOT NATIONAL FOREST

During 1979, 618,700 persons visited the Gifford Pinchot National Forest's developed recreation sites. Some of the drinking water systems and bridges do not meet Federal or State standards and some sanitary facilities need to be improved.

Drinking water systems do not meet standards

The forest recreation staff officer said that the Forest Service needs \$273,000 to upgrade 16 of the forest's 35 drinking water systems to meet EPA, PHS, and Washington State drinking water standards. To meet the standards the systems need filtration equipment added to meet the clarity requirements or need disinfecting equipment added to make the water safe to drink. During the last 3 years the Forest Service closed four drinking water systems, serving three campgrounds and one picnic site, because the drinking water contained bacteria which exceeded these drinking water standards. The Forest Service repaired one system and restored it to service, but not the other three. However, the repairs to the first system were only temporary. The forest recreation staff officer said that the 4 systems should be totally upgraded along with 12 other drinking water systems serving 12 additional campgrounds. For example:

La Wis Wis

La Wis Wis Campground has 135 camping and 26 picnic sites which can accommodate 605 visitors a day. The recreation area receives its water from a small creek. The water is disinfected but not filtered. The Packwood Ranger District Resources and Recreation Managers characterized the water system as "falling apart and always breaking down." During each of the last 3 years, these Forest Service personnel closed the system at various times while campers were using the campground because the drinking water was turbid and contained excessive bacteria. These Forest Service officials estimate it would cost about \$150,000 to bring the drinking water system up to EPA, PHS, and Washington State drinking water standards.

Sanitary facilities need to be improved

The forest recreation staff officer said that the Forest Service would have to spend over \$168,000 to convert 115 pit toilets to vault toilets to prevent human waste from becoming a health hazard.

Takhlakh Campground

This 42-unit campground sits on the shore of Takhlakh Lake. The campground and picnic area can accommodate 210 visitors at one time. Takhlakh has five pairs of single-seat pit toilets, two pairs of which are about 100 feet from the lake, with the bottom of the pit only 4 feet above the lake's surface level. The recreation staff officer said that Forest Service officials have been concerned that human waste was leaching from the pit toilets and contaminating the lake. He said that if the lake became contaminated it could become a health hazard because fishermen and swimmers use it.

Adams Fork Campground

Until recently four single-seat pit toilets served this 23 trailer- and tent-site campground. The area can accommodate 115 visitors at a time. During our review human waste seeped from two pit toilets into the water table which supplied water to the campground's well, contaminating the water. Subsequently, the Forest Service converted these pit toilets to vault toilets.

Some forest bridges need to be improved

The Gifford Pinchot National Forest has 80 permanent bridges. The forest uses most of these bridges primarily for managing timber, although the public also uses the bridges. FHWA personnel inspected these bridges within the last 2 years. During our review FHWA personnel found that two of the recently inspected bridges contained serious structural deficiencies. FHWA personnel had identified the bridges' hazardous nature 2 years earlier, but the forest's engineers were unaware of the inspection reports. After the bridges were reinspected during the summer of 1979, Forest Service engineers were given copies of the new bridge inspection reports and became aware of the bridges' hazardous conditions. The bridges were posted for reduced load limit but were not repaired or replaced. Forest officials plan to bring these bridges up to the legal load limit.

The Forest Service owns three resorts in the Lake Tahoe Basin--Meeks Bay, Camp Richardson, and Zephyr Cove. During 1979 they accommodated 297,000 visitors. All three resorts have fire hazards and have had major fires within the last 2 years. These fires have destroyed a duplex cabin and a large, wooden lodge containing a store and have heavily damaged a restaurant and employee dormitory. The management unit's

Forest Service-owned resorts do not meet fire safety standards

The Forest Service and its concessioner operate four drinking water systems. The two principal drinking water systems, Fallen Leaf-Camp Richardson and Meeks Bay, do not meet EPA, PHS, and California State drinking water standards because the Forest Service did not test the water systems daily for turbidity and install filtration equipment to insure the drinking water's clarity. These systems serve two resorts, two campgrounds, and two restaurants. The administrator for the management unit was unaware that the PHS, EPA, and California State drinking water standards required that surface source water be tested daily for turbidity and filtered if found to be not meeting the clarity standards. After our field visit, the Forest Service arranged for the Meeks Bay campground to be disconnected from the Meeks Bay Resort's drinking water system and connected to a public water supply by mid-June 1980, and for the operator of the Meeks Bay Resort to bring the resort's drinking water system into compliance with State and Federal requirements. The Forest Service also plans to begin daily turbidity tests of the Fallen Leaf-Camp Richardson water system. If these tests disclose the drinking water does not meet the clarity standards, then the Forest Service plans to filter the drinking water.

Drinking water systems do not meet standards

The 135,520-acre Lake Tahoe Basin Management Unit is one of the most heavily used recreation areas in the country. During 1979 over 2 million visitors enjoyed the area's scenic beauty and various tourist accommodations, with nearly 169,000 visitors staying at the four Forest Service campgrounds. The water systems serving two Forest Service campgrounds and two Forest Service-owned, concessioner-operated resorts do not meet EPA, PHS, and California State drinking water standards. The buildings at the three Forest Service-owned resorts do not meet National Fire Protection Association standards or Uniform Building and Fire Codes.

LAKE TAHOE BASIN MANAGEMENT UNIT

recreation staff officer said that the buildings which burned lacked sprinkler systems and adequate fire detection and alarm systems. No one was injured in the fires.

All three resorts have small wooden cabins for rent. The recreation staff officer said that many of the cabins have fire hazards and need improving. The Forest Service has closed and torn down some cabins because they were too hazardous for the public to continue to occupy. The cabins did not have smoke detection alarms and contained numerous fire hazards, such as antiquated electrical wiring, gas leaks, and single-wall chimney flues. In 1979 a fire gutted a duplex cabin at Zephyr Cove.

Zephyr Cove and Camp Richardson also have two-story, wood-frame lodges. At the time of our fieldwork, the lodges did not meet National Fire Protection Association standards or Uniform Building and Fire Codes. The Camp Richardson lodge needed an automatic smoke detection and alarm system, a sprinkler system, and second-story fire escapes. The Zephyr Cove lodge needed better second-story fire escapes and an automatic sprinkler system.

At the time of our field visit the Forest Service did not have costs estimated for upgrading these lodges and cabins. The administrator said that his staff would be determining what is needed to make the resorts safe. The administrator said in May 1980 that since our field visit the:

--Meeks Bay Resort cabins are being improved.

--Most critical deficiencies at Camp Richardson have been corrected with the remainder to be corrected before the resort's reopening.

--Zephyr Cove Lodge has been remodeled. (See p. 150 for concessioner's comment.)

The forests' recreation staff officer estimated that \$370,000 was needed to replace 56 pit toilets with vault toilets. These vault toilets would minimize the health hazards caused by human waste leaching from the pit toilets into the forests' drinking water system and small lakes and streams. In addition the Forest Service needs \$75,000 to replace six vault toilets with new facilities because the vaults were leaking and the buildings were hazardous.

The forests' sanitary facilities need to be improved

Because the drinking water did not meet EPA, PHS, and Washington State drinking water standards in May 1979 the Forest Service closed the drinking water system serving this 20-unit campground. The water was drawn from a stream, chlorinated but not filtered, and stored before being distributed. Forest recreation staff tested the drinking water in May 1979, found that it did not meet clarity and bacteriological standards, and closed the system. The recreation staff found that the water intake was clogged with silt, and the water storage and distribution system was falling apart. The forests' recreation staff officer estimated that to return the system to a safe operating condition would cost \$25,000.

Bedal Campground

During the last 3 years, forest recreation staff have closed 5 of the 14 Forest Service-operated drinking water systems because the systems could not produce safe drinking water consistent with the Washington State Drinking Water Standards. To upgrade and reopen these five drinking water systems would require an estimated \$51,000. Another \$165,000 is needed to upgrade the remaining nine systems to insure that they continue to produce safe drinking water.

Drinking water systems do not meet standards

Five drinking water systems in the Mount Baker-Snoqualmie National Forests do not meet EPA, PHS, and Washington State drinking water standards. The Forest Service-owned ski lodge does not meet the National Fire Protection Association standards or the Uniform Building and Fire Codes. Some sanitary facilities should be improved. The forests' recreation staff officer estimates that the Forest Service needs \$661,000 to upgrade the forests' drinking water and sanitary facilities.

MOUNT BAKER-SNOQUALMIE NATIONAL FORESTS

The Forest Service-owned Skiers Day Lodge at Stevens Pass Ski Area does not meet the National Fire Protection Association standards or Uniform Building and Fire Codes. The two-story, wood-frame structure was built during the 1930s. The structure (1) contains such hazards as anti-gated electrical wiring and inadequate second-story fire escapes and (2) lacks automatic fire alarm and sprinkler systems. The Skykomish District Ranger said that the day lodge also needs a better ventilation system, especially in the kitchen. During the 1979 ski season three fires occurred because of the broiler's inadequate ventilation system. In each instance, the broiler's automatic fire suppression devices were activated. The ventilation system was upgraded in October 1979, shortly after our visit. (See p. 148 for concessioner's comments.)

A ski lodge does not meet fire safety standards

MOUNT HOOD NATIONAL FOREST

Many of Mount Hood National Forest's drinking water systems and one sewage treatment plant do not meet Federal health standards. The Forest Service has invested over \$1 million during the last 10 years to upgrade Timberline Lodge's wiring, fire detection, and alarm systems. Timberline Lodge is the Forest Service's principal overnight accommodation.

Twenty-five drinking water systems do not meet Federal standards

Twenty-five of the 66 Forest Service-operated drinking water systems do not meet EPA and PHS drinking water standards. Twelve drinking water systems produced unsafe drinking water and were closed, while 13 other drinking water systems remained opened. Because these 13 systems draw their water from surface sources and they lack the necessary filtration equipment to insure that they provide safe drinking water, they do not meet EPA and PHS drinking water standards. These deficient systems include those supplying water to the Forest's principal campground which is the Lost Lake Campground and Timberline Lodge. Forest recreation staff estimate that the Forest Service needs over \$1.1 million to upgrade the 25 deficient drinking water systems to meet EPA and PHS standards.

Lost Lake Campground

The 120-unit Lost Lake Campground is the forest's most popular campground. During 1979 it accommodated over 40,000 visitors. The drinking water is drawn from Lost Lake, chlorinated, and stored in a large redwood tank. The water is not filtered, which allows encrusted parasites, such as giardia, which are not neutralized by chlorine, to freely enter the drinking water system. A forest recreation staff person said that the system has passed all monthly bacteria tests, but has had unsatisfactory turbidity tests since June 1979. Nevertheless, the campground is still using the system. The Forest Service needs nearly \$615,000 to equip the drinking water system with a filtration system so it meets EPA and PHS drinking water standards.

Timberline Lodge

Timberline Lodge is a four-story, wood and stone lodge located high on Mount Hood. The drinking water system serving the lodge does not meet EPA and PHS drinking water standards.

The drinking water is drawn from an unprotected spring, chlorinated, and then stored before being used by the lodge's visitors. The water is not filtered as EPA and PHS standards require. According to a forest recreation staff official, the Forest Service needs almost \$350,000 to construct the filtration system.

Forest sanitary facilities
need to be improved

The forest's recreation staff said the Forest Service needs \$950,000 to upgrade the forest's sanitary facilities. The improvements range from installing vault toilets where pit toilets exist to modernizing and enlarging Timberline Lodge's sanitary system.

Timberline Lodge

The Forest Service operates Timberline Lodge's sewage treatment plant. When completed in 1962, the system was designed to serve the 500,000 visitors who used the lodge and its two ski lifts. During 1979 over 1 million visitors used the area with visitor use expected to increase when the new \$6.8 million day lodge opens in late 1981. However, the Forest Service has not increased the sewage treatment plant's capacity to accommodate the increased use. The sewage treatment plant is operating at full capacity and will need to be modernized before the new day lodge opens. Nearly \$347,000 is needed to upgrade the plant and expand its capacity.

County health officials are concerned about the plant's inadequate capacity because sewage has previously flowed out of the plant and into nearby streams. This violates EPA standards. The forest does not have any plans to restrict use of the area if the plant's capacity is exceeded.

The drinking water system serving this area does not disinfect the water provided the visitors and therefore does not meet drinking water standards. Forest personnel have requested \$10,500 to add a disinfection system and drill a new well to assure an adequate water supply.

In 1968 the Congress established the Cradle of Forestry in America in the Pisgah National Forest to commemorate the birthplace of forestry and forestry education in America. During 1979 nearly 148,000 visitors toured the area's visitor center and the displays of old buildings and equipment used to practice and teach early forestry.

Cradle of Forestry in America

The four drinking water systems serving three campgrounds, a picnic area, and the Cradle of Forestry in America Visitor Center do not meet EPA and PHS drinking water standards. During 1979 over 300,000 visitors used these areas. During the last 2 years the water produced has not met minimum safe drinking water standards, but the Forest Service has not closed the drinking water systems. The Forest Service needs \$43,000 to make these systems comply with the safe drinking water standards, and another \$227,466 to upgrade the forests' other 60 drinking water systems so that they may continue to produce safe drinking water. In May 1980 after our fieldwork was completed, the Forest Service upgraded two of the four deficient drinking water systems to meet EPA and PHS drinking water standards.

Drinking water systems do not meet Federal standards

During 1979 the four national forests in North Carolina hosted more than 18 million visitors who came to camp, hike, fish, and picnic within the forests' boundaries. The Forest Service administers these four forests as a single unit. Two of the national forests, the Pisgah and Nantahala, compose 900,000 out of the 1.1 million acres the Forest Service administers within the State and house most of the Forest Service-administered campground and picnic areas. The forests' drinking water systems and sanitary facilities do not meet Federal standards.

NANTAHALA AND PISGAH NATIONAL FORESTS

The national forests in North Carolina need \$734,722 to allow their sanitary facilities to continue treating human waste to minimize the health hazards. The sanitary facilities range from 56 pit and 40 vault toilets to 45 flush toilets served by 8 sanitation systems. Seven of these sanitation systems discharge waste into nearby streams. The recreation staff said that they are unaware that the forests' sanitary facilities are causing any health hazards. However, the Forest Service is concerned that this may not be the case in the future because of the deteriorated condition of some of the facilities and noted that improvements are needed at the sanitation systems to assure that the systems' discharges continue to comply with EPA's water pollution control standards.

Sanitary facilities need to be improved

From as early as July 1978 forest recreation staff have recognized that the drinking water system serving this 39-unit picnic area does not meet EPA and PHS drinking water standards. During 1979 68,100 visitors have used these facilities. The water for this camping and picnicking area comes from a river which the forest's civil engineer calls an "unsatisfactory" surface water source. Also, the drinking water is chlorinated by a system that he has labeled "poor." As a result, the drinking water produced has had a history of bacteria contamination. For the 8 months that bacteria tests were taken during 1978 and 1979, the bacteria test disclosed that the drinking water delivered was contaminated. The Forest Service did not close the system because the forest recreation staff felt that the drinking water was not sufficiently hazardous. In May 1980 after our fieldwork was completed, the Forest Service upgraded this drinking water system by drilling a new well and installing a new pump and chlorination system.

North Mills River Campground and picnic area

The forest recreation staff officer estimates that the Forest Service needs \$397,000 to convert the forest's 36 pit toilets to vault or flush toilets. He said that the Forest Service wants to convert these pit toilets because human waste could be leaching from the toilets into nearby streams and lakes and causing a health hazard.

Sanitary facilities need to be improved

The Forest Service had to close 6 of Olympic National Forest's 15 campground drinking water systems during the last 3 years because the drinking water produced did not meet Washington State drinking water standards. These campgrounds make up 82 percent of the forest's campground capacity. In addition, the Forest Service temporarily closed one of its six administrative site drinking water systems because the drinking water produced did not meet Washington State drinking water standards. To upgrade these systems to meet Washington State drinking water standards and improve some of the remaining drinking water systems will cost an estimated \$188,730.

Drinking water systems do not meet State standards

The Forest Service drinking water and sanitary facilities in the Olympic National Forest need improvements. The forest recreation staff officer estimates that to upgrade these facilities to current standards would cost nearly \$586,000.

OLYMPIC NATIONAL FOREST

SHASTA-TRINITY NATIONAL FORESTS

The drinking water systems and sanitary facilities in the Shasta-Trinity National Forests need improving. During the summer of 1979 the Forest Service ceased operating 32 of the forests' 84 drinking water systems because the systems did not produce drinking water which met EPA, PHS, or California State drinking water standards. The forests' recreation staff estimates that the Forest Service needs \$3 million to upgrade all of these systems. The Forest Service also needs \$1 million to upgrade the forests' sanitary facilities.

Drinking water systems do not meet State and Federal standards

During the summer of 1979 forest recreation staff closed 32 of the forests' 84 drinking water systems because the systems failed to meet EPA, PHS, and California State drinking water standards. These systems served 21 campgrounds; they also served 12 administrative sites which in turn served 279 Forest Service employees and their families. Bacteria levels at all the sites were higher than drinking water standards allow. In addition another 17 drinking water systems lack the necessary treatment and filtration equipment to insure that the drinking water produced meets drinking water standards.

The Forest Service has upgraded or plans to upgrade 15 systems by the summer of 1980. Six drinking water systems serving six smaller campgrounds remain closed. The forests reopened the remaining systems after making minor repairs. The Forest Service is monitoring the water systems' operations to ensure that the drinking water provided is safe.

Moreover, an additional 17 drinking water systems which were not closed have the potential for failing California, EPA, and PHS standards. According to the forests' engineer responsible for the drinking water and sanitation systems, these systems need filters integrated into their treatment systems to ensure that the drinking water's turbidity levels do not exceed EPA, PHS, and California State drinking water standards. To upgrade these 17 systems and the other systems will cost an estimated \$3 million.

Preacher Meadow Campground

During July 1979 the Forest Service found that the drinking water system serving the 45-unit Preacher Meadow Campground contained high bacteria levels and, therefore, it closed the system.

In May 1979 the Forest Service found that two hand pumps serving this 16-unit campground were supplying drinking water containing high levels of harmful bacteria which exceeded EPA, PHS, and California State drinking water standards. The Forest Service immediately removed the pump handles to make the pumps inoperative. A detailed evaluation of water found one well's water was contaminated with fecal coliform which had leached from a vault toilet located uphill from it; water from the other well contained high levels of iron bacteria.

Cooper Gulch Campground

All the forests' campgrounds have some type of sanitation facilities, ranging from simple vault toilets to septic systems and primary waste treatment plants. Although these standards, the Forest Service needs \$1 million to keep the water systems operating safely, thus protecting nearby drinking water systems and visitor use areas from being contaminated.

Forests' sanitation systems need to be improved

Although forest personnel cleaned the drinking water system and returned it to service, it still has the potential for failing. Specifically, the system needs a deeper well, a good filter, and a better disinfectant. The forest engineer responsible for drinking water and sanitary systems said that to upgrade the system would cost \$44,650. The forest requested these funds in 1978 but has not received them.

These conditions produced more bacteria than the system could treat.

--the redwood tank was a breeding ground for bacteria.

--the metal filter was covered with white worms, and

--the shallow spring produced water containing high levels of silt,

The drinking water system consisted of a shallow spring which supplied water through a screen filter to a 5,000-gallon redwood tank. As it was needed, the water flowed through an iodinator which disinfected the water. After the Forest Service found that the drinking water contained high bacteria levels it investigated the cause and found that

The forests' engineer responsible for drinking water and sanitary systems estimated that the Forest Service would need more than \$58,000 to provide safe drinking water to this small campground and another \$5,000 to replace the leaking toilet. These funds were not available so the Forest Service does not supply drinking water to this campground.

SUPERIOR NATIONAL FOREST

During 1979 2.3 million people visited the forest, and more than 585,000 stayed at one of the forest's 30 campgrounds. The forest's recreation staff offices estimated that the forest needs \$164,550 to upgrade the forest's water and sanitary facilities.

Drinking water systems do not meet Federal standards

During the last 3 years the Forest Service closed 24 of its 57 drinking water systems because the drinking water produced had fecal coliform counts which exceeded EPA and PHS drinking water standards. After disinfecting and repairing the systems the Forest Service has reopened all the systems. However, the Forest Service has closed nine of these systems more than once per year. The forest recreation staff officer estimates that to upgrade all the drinking water systems would cost \$110,000.

Forest sanitary facilities need to be improved

The forest's recreation staff officer estimates that the Forest Service needs \$54,500 in materials to (1) replace or provide major maintenance to 320 pit toilets within the Boundary Waters Canoe Area Wilderness and (2) add 18 vault toilets. In addition, he said, wilderness-type campgrounds need 200 pit toilets.

WENATCHEE NATIONAL FOREST

During 1979 4,692,000 people visited the Wenatchee National Forest to fish, camp, boat, hunt, and hike. The drinking water systems, sanitary facilities, and bridges serving these visitors need to be improved. The Forest Service needs \$227,000 to upgrade the forest's drinking water systems and sanitary facilities and an unestimated amount to upgrade the forest's bridges to meet Federal and State standards.

Drinking water systems do not meet State standards

Eleven of the forest's 59 drinking water systems were closed during the last 3 years, affecting 11 campgrounds. At the time of our review funds were not available for the Forest Service to drill wells and install disinfecting equipment and reopen 10 of the systems. The Forest Service will not reopen the other drinking water system because it serves a small, infrequently used recreation area. The forest's recreation staff officer estimated that the Forest Service needs \$105,000 to (1) upgrade these 10 drinking water systems to meet Washington State drinking water standards and (2) improve the other 34 drinking water systems to continue to provide safe drinking water. Many of these 34 drinking water systems needed improving since the water sources were not adequately protected as required by State regulations.

Since our fieldwork the Forest Service has or plans to reopen 7 of the 10 drinking water systems. Wells have been drilled which will allow three campgrounds and three administrative sites to again have water. In addition, the Forest Service recreation staff officer said that disinfecting equipment will be installed by July 1980 on four campground drinking water systems allowing them to reopen. The three remaining systems need to be upgraded.

Sanitary facilities need to be improved

The forest needs to convert 198 of 500 pit toilets to vault toilets and to upgrade 3 sanitation systems to ensure that these facilities do not cause any health hazards. The forest recreation staff officer said that the Forest Service needs about \$122,000 to improve these facilities to meet EPA pollution control standards.

The 198 pit toilets need to be replaced. The Forest Service wants to replace the pit toilets with vaults because waste could be leaching from the pit toilets into nearby streams and lakes. The vault toilets contain the human waste in a concrete or fiberglass vault which allows forest personnel to pump the waste out and transport it to a sewage treatment plant for proper disposal. The cost of replacing the toilets was estimated to be about \$52,000 just for materials. The Forest Service has begun to convert pit toilets to vault toilets.

The forest's three sewage treatment systems need improvements costing \$70,000 to allow them to treat human waste consistent with EPA's water pollution control and solid waste disposal standards. The systems were built between 1965 and 1970 using technology adopted from community sewage treatment systems. The systems operated well until recently. However, problems have arisen which need correcting. For example:

--The Salmon La Sac sewage treatment system, which serves a 146-unit campground, needs \$49,000 of work to upgrade the electrical control and supply systems. The underground aluminum conduit sheltering these cables is rotting away, which exposes the cables to the elements. The electrical cables have occasionally shorted out causing power outages. The power outages in turn caused the treatment system's pumps to cease operating and human waste to be improperly treated.

--The Tumwater sewage treatment system, which serves a 104-unit campground, needs a new control system. The control room was flooded which caused extensive damage to the control system. The forest made temporary repairs to allow the system to operate until permanent repairs can be made. Since completing our fieldwork the Forest Service has made these permanent repairs.

Forest bridges need to be improved

The Wenatchee National Forest has 54 major and 98 minor bridges. FHWA personnel have inspected all the major bridges and found that 12 of them should have their load limits reduced because the bridges' structural supports and foundations do not meet bridge safety standards. In addition forest engineers inspected the 98 other bridges and found

After our fieldwork was completed, the forest's recreation staff officer advised that the bridge was improved. The rotten supports were replaced, and the bridge's road surface will be replaced by August 1980.

The forest's engineers have posted warning signs recommending that drivers cross the bridges slowly--no faster than 15 miles an hour--but did not post the bridge for a reduced load limit. The forest engineer said that the bridge should be replaced, but funds have been unavailable for accomplishing this.

The bridge that provides access to the Kachess Campground, the forest's second largest campground and one of its most heavily used recreation areas needs to be improved. FHWA personnel have inspected the bridge and have called for its replacement. The bridge is one lane wide and built out of logs. The bridge has caused four noninjury accidents and twice has caused a trailer to bounce off a car's trailer hitch. The bridge's supports on one side are rotten.

Kachess Campground

that 14 should be replaced because their structural supports and foundations do not meet safety standards. The forest engineer said that 4 of the 14 bridges should be closed until funds are available to replace them. An example of the kind of bridge which needs its load limits reduced is presented below.

METHOD USED TO ESTIMATE THE COST OF UNFUNDED

HEALTH AND SAFETY PROJECTS PROPOSED BY

THE NATIONAL PARK SERVICE

The National Park Service could not tell us the cost of all health and safety construction projects which had been proposed but not funded. The Forest Service has recently developed this figure. The following section describes how we estimated the figure for the National Park Service.

The Park Service's computer-produced list of all proposed projects does not indicate which projects are intended to correct health and safety deficiencies. Also, some project proposals contain several components. Some are health and safety oriented, others are not. Since the cost of each component is often not estimated separately, it is not possible to determine what portion of the project is related to health and safety. Finally, some project elements can be interpreted as either health and safety or for some other purpose. For example, we did not consider the expansion of a parking lot as a health and safety item. However, it could be argued that additional parking reduces time taken to drive around and find a parking spot on busy days. This in turn could reduce vehicle traffic and automobile accidents and injuries. Thus, the expansion of the parking lot could be considered a health and safety project.

Despite the problems discussed above, we sampled the Park Service's \$2.9 billion backlog of unfunded projects as of August 3, 1979, to estimate what portion of the projects were primarily to correct health and safety deficiencies. We defined these projects as those proposed to rehabilitate, replace, or upgrade water systems, sewer systems, roads, bridges, hotels, employee dormitories, or utility systems; as well as those to construct new restrooms to meet an existing need. Projects designed to preserve or restore historic structures and natural resources, construct exhibits, develop park or resource management plans, provide audiovisual entertainment or construct new facilities were not generally considered to be health and safety projects.

We took a random sample of 123 projects with a total estimated cost of \$75 million from the estimated total of 6,078 projects with estimated costs of \$2.9 billion as of August 3, 1979. The table on page 103 shows the number and estimated cost of proposed health and safety projects and other types of projects as a percent of the sample.

Analysis of a Sample of National Park

Service Project Proposals

	Number of projects as a percent of sample	Estimated cost as a percent of sample
Health & safety projects	28	57
Other types of projects	72	43
Total	100	100

Using the results of the above sample we estimated that 57 percent, or \$1.6 billion, of the total of \$2.9 billion for all projects proposed by the National Park Service were for health and safety projects. We realize this estimate has a broad confidence level due to the (1) small sample size used, (2) the variability of the estimated costs of the project proposals in the sample, and (3) the inherent subjectivity necessary in judging whether a project falls within our definition of a health and safety project. However, the purpose of developing an estimate of unfunded health and safety project was not to obtain an exact figure. The purpose was to show that the figure was large, and it will take the Park Service many years at its present funding levels to fund all health and safety projects, even if its entire construction budget is devoted to these projects.

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
P.O. Box 2417
Washington, D.C. 20013

JUL 28 1980



Mr. Henry Eschwege
U.S. General Accounting Office
441 G. St. N.W.
Washington, D.C. 20548

Thank you for allowing us to review the GAO draft report do not entitled "Facilities in Many National Parks and Forest do not meet Health and Safety Standards."

We have a number of comments for your consideration when preparing the final report.

1. The title of the report would indicate that all health and safety items are covered when in fact, this is not the case. It should be made clear to the reader that the report deals only with (a) water and sanitation standards at developed recreation sites, (b) water, sanitation, and fire standards at Forest Service owned resorts and (c) bridge standards. There are many other types of health and safety considerations that managers must deal with. For example, traffic accidents on forest roads, accidents related to boating and swimming, and hazard trees to name a few.

[GAO COMMENT: The types of facilities we reviewed to determine if they were in a healthy and safe condition are described on page 3.]

2. The report focuses on bringing all facilities up to standard regardless of need or derived benefits. It should be pointed out that in many cases the complex treatment processes necessary to achieve standards are not cost efficient. This is especially true in small remote sites. Therefore, we must look at other alternatives such as removing the facility or changing the scope of service. For example, it would be helpful if the report addressed what happens if water systems or sites are closed. Visitors may shift to other sites and other forms of recreation. On the other hand, even more severe health and safety problems could be generated. It would also be helpful to place things in perspective by including data on past

safety records i.e., how many cases of intestinal illnesses have been reported and how many people have suffered damages as a result of an unsafe bridge.

[GAO COMMENT: We did not attempt to evaluate the cost effectiveness of health and safety standards, the effects of enforcing them, or the relationship between each type of health and safety deficiency and illnesses and accidents. Although such information could be very useful, it is not readily available and beyond the scope of this report.]

3. The report states that 69 percent of Forest Service requested construction funds for the past 3 years were for projects other than health and safety. Nearly 100 percent of our projects requested over the past 3 years relate in some manner to health and safety problems. In fact, we estimate that approximately 72 percent of the requested recreation construction funds during the past 3 years are directly related to health and safety problems. We have attached a corrected Table III for your consideration.

[GAO COMMENT: Only projects whose predominant purpose was health and safety were considered to be health and safety projects in our analysis of Forest Service requests for construction funds. We do not doubt that nearly 100 percent of projects requested relate in some manner to health and safety problems.]

4. The report quotes a figure of \$109 million needed for health and safety projects in the Forest Service. It should be made clear that this figure represents only that amount needed for water and sanitation projects at existing sites. The figure represents the District Rangers best estimate of funds needed to bring all water and sanitation facilities to a satisfactory condition. It may include some work in addition to that necessary to meet minimum health and safety standards. We do not have completed sanitation surveys on all systems and the cost estimates may change when the surveys are completed by sanitary engineers.

[GAO COMMENT: We agree with this statement and have added an explanation of the \$109 million figure.]

The majority of Forest Service recreation facilities have already outlasted their expected life span and many new problems surface each year. Therefore, the \$109 million figure is not static but subject to constant revision. Also, the annual operation and maintenance costs are continually escalating, especially for the highly complex facilities necessary to meet current health and safety standards at some sites. This item is not discussed in the report.

[GAO COMMENT: An evaluation of the operation and maintenance of recreation facilities was beyond on the scope of this review.]

The report has not touched on the many health and safety related problems caused by concentrated use areas where facilities are non-existent at the present time. These type of areas are often a higher priority than existing facilities and require additional funding.

[GAO COMMENT: The report covers only existing recreation facilities in concentrated use areas can also cause health and safety problems.]

5. When considering the total job and taking all priorities into account, we feel the present ratio of requested funding is proper. We have made corrections of health and safety deficiencies the first priority for the past several years and will continue to do so in the future. Therefore, we do not agree with the recommendation that a higher ratio of funding should be requested for health and safety projects. It is true, however, that construction funding has not been adequate to meet the deadlines set by the Congress for correcting health and safety deficiencies, including potable water, waste water treatment, and solid waste disposal, and to bring facilities into compliance with health and safety standards.

[GAO COMMENT: We recommend that the Forest Service request a higher ratio of funding for health and safety projects because our analysis of funds requested in the prior 3 years showed that only about 31 percent of the funds requested were for health and safety projects. We agree that construction funding has not been sufficient to bring all facilities into compliance with health and safety standards.]

6. We do not favor requesting special appropriations to correct health and safety hazards. Health and safety is present to some degree in almost every maintenance and rehabilitation job. It would be extremely difficult to separate these out from the total job. In addition, this would tend to lead to more administrative procedures and less flexibility to make decisions at field levels.

[GAO COMMENT: Special appropriations or an alternative funding method is necessary to expedite the correction of health and safety deficiencies.]

7. Public Law 96-87 did not prohibit charging recreation use fees at National Park campgrounds as stated in the report. Therefore the second recommendation on page IV should be changed to say, both the Forest Service and Park Service have authority to increase camping fees.

[GAO COMMENT: Public Law 96-87 restricted entrance fees, but not camping fees, at units of the national park system to those areas and rates that were in effect on January 1, 1979. Both the Forest Service and the Park Service have authority to increase camping fees. The report has been revised to reflect these facts.]

8. The report should utilize the visitor use data reported to the Congress in the 1979 Federal Recreation Fee Report, page 29, (copy enclosed). This page of the report portrays the relative recreation use of the Forest Service and Park Service much more accurately than the data in the present GAO draft.

[GAO COMMENT: The 1979 visitor use data was not available when the report was written and has now been included in the report.]

9. Several times the report infers that all pit toilets are polluters and should be eliminated. It should be made clear in the report that all pit toilets do not necessarily have to be eliminated. This depends on the soil conditions on a site-by-site basis. In some instances, a pit toilet may in fact be the preferred alternative.

[GAO COMMENT: We did not state or mean to infer that all pit toilets are polluters and should be eliminated.]

10. A few of the examples are tentatively stated, as in sewage "could" leach into the lake, or the filter system was "poor," or the water supply source was "generally unsatisfactory." It should be made clear that monitoring is the only method of determining if a facility is polluting or does not meet acceptable standards.

[GAO COMMENT: We agree that monitoring is necessary; but, to adequately protect the health of visitors and employees, facilities should be brought up to standards.]

11. In regards to concessioners, it should be made clear that the report covers only Forest Service owned facilities (Granger-Thye Permits). The vast majority of concessionaire type facilities on National Forest lands are constructed with private capital and owned by the permittee. In these instances, the permittee is responsible for improvements necessary to meet standards. The \$109 million quoted figure does not include funds necessary to bring either Granger-Thye permitted facilities or permittee owned facilities up to standard.

[GAO COMMENT: While these statements are correct, concessioner-owned facilities in national forests were not purposely excluded from the report. They simply did not appear in the small number of concessioner operations we reviewed.]

In the recommendation to the Secretaries of Agriculture and Interior (page 25) referring to negotiating with concessioners, it is suggested that this recommendation be reworded to state, "Require through negotiations with concessioners to make corrections to facilities they own or operate to bring them up to applicable health and safety standards."

[GAO COMMENT: We believe this recommendation is sufficient as is.]

12. The auditors visited many field offices and sites to obtain the information reported in Appendix II. While we do not disagree with the conclusions reached, we question some of the specific data. We have not attempted to verify all field data. However, a quick check reveals some possible misleading statements. For example, on page 92 the report states that the Cradle of Forestry water system does not disinfect the water provided visitors, and therefore, does not meet drinking water standards. The fact is, the present system meets standards. However, there is a problem with sand getting into toilet fixtures and therefore, a new well is needed. Also, additional storage capacity is needed.

[GAO COMMENT: Our statement that the Cradle of Forestry water system does not meet State standards was based on a July 6, 1979, letter from the chief of engineering of the national forests of North Carolina to the forest supervisor of those forests. The letter stated:

"The Cradle's water system is plagued with sand infiltration. The possible permanent solution is to drill a well. In addition, to meet state standards, the system requires installation of a chlorinator."

The sanitary engineer at the forest supervisor's office in North Carolina informed us on August 14, 1980, that a chlorinator had not yet been installed and therefore the water system did not meet state standards.]

Another example is the write-up of the Wenatchee National Forest, on page 151 of the draft, where the remarks in regards to the 198 pit toilets are not clear. It is obvious however that the quoted \$52,000 necessary to replace 198 pit toilets with vault toilets would be woefully inadequate under current day costs.

[GAO COMMENT: The report was clarified to state that the \$52,000 was "just for materials." This cost estimate was provided by the forest recreation staff officer in April 1980.]

13. In respect to bridges, the report needs to be clarified. Load limit capacity is not necessarily a measure of safety. For example, a bridge designed for a 36 ton capacity but inspected, rated, and posted for a 15 ton limit, due to a structural condition, is satisfactory and safe for recreation travel.

[GAO COMMENT: We agree. However, we found that the Kachess campground bridge had not been posted for a reduced load limit. The report was clarified on this point.]

We appreciate the opportunity to review this draft report and offer the above constructive comments and suggestions.

Sincerely,

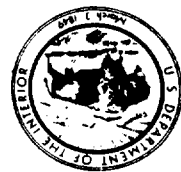
James A. Miller
R. MAX PETERSON
Chief
for

Enclosure

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

AUG 7 1980



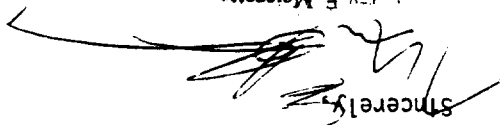
Mr. Henry Eschwege, Director
Community and Economic Development Division
U.S. General Accounting Office
441 G Street, N.W.
Washington, D.C. 20548

Dear Mr. Eschwege:

Enclosed is the National Park Service's response to the proposed Draft
GAO Report titled, "Facilities in Many National Parks and Forests do not
Meet Health and Safety Standards."

In general, the Service agrees with the findings of the report. In
fact, much of the information is available as a result of NPS sponsored
inspection and evaluation programs. In the absence of specific estimates
of the magnitude of the problem, the Service would prefer not to put a
dollar figure on the cost of the corrective actions required. The
Service has taken steps to apply available funds to correct many of the
most critical problems. The Service is continuing its efforts to
develop adequate facility condition inventories, train park staffs in
their use and plan corrective actions.

The Service has concerns about recommendations relating to increases in
user and entrance fees. These and proposed corrective actions are
discussed in detail in the enclosed statement.

Sincerely,


Henry E. Merrow
Assistant Secretary,
Policy, Budget, and Administration

Enclosure

August 6, 1980

Statement Regarding Draft GAO Report
 on
 National Park Service
 and
 Forest Service
 Facilities

INTRODUCTION

This statement is in response to the draft proposed GAO Report received by the National Park Service on July 9 concerning facilities in many National Parks and Forests which do not meet health and safety standards. As can be expected, the Service finds the report to be quite alarming.

Although the review time did not permit an appropriate and specific assessment of all of the conditions addressed in the draft report, the Service has compared this information with their records and find the gist of the report's findings to be accurate and the cost estimate for corrective actions to be within the magnitude expected.

The Service has been aware for some time of the gradual decay in facility conditions and the resultant increases in potential unsafe conditions. The draft report cites problems of which the Service is aware through investigations being conducted by FHWA, Public Health Service, and EPA under special agreements to develop functional inventories to assess the conditions of facilities. In fact, many of the deficiencies reported by GAO were obtained for them by NPS personnel from those reports. Lack of qualified inspectors, personnel ceilings and more recently, curtailment of travel funds has seriously crippled expansion of these concepts, has halted concession surveys and is preventing the timely development of an overall corrective action program.

Prior to receiving the draft GAO report, Assistant Secretary Robert Herbst requested a Management Implementation Plan for maintenance and rehabilitation of the Service's facilities. That plan identified Service responsibilities for bridges, roads, concession and NPS buildings, water and wastewater, quarters and equipment. That plan has not yet been reviewed by the NPS field directorate nor approved by the Director.

SUMMARY

The NPS has developed comprehensive programs using technically qualified engineers and consultants of the FHWA, EPA, and PHS to conduct inspections on facilities which pose threats to public or employee safety and health.

These programs have already resulted in corrective actions of \$10's of millions. However, the Service would prefer not to assign an arbitrary cost figure to the corrective actions which may be required. The GAO figure, \$1.6 billion, is based on a small sampling of park areas and is not supported by detailed cost estimates. At least in the area of bridges, an ongoing inspection program by the Federal Highway Administration would seem to indicate a rehabilitation need of \$100 million over the next 5 to 10 years, but FHWA has indicated that even these estimates will need to be updated. Only when we are able to make a complete survey of the rehabilitation needs of all NPS facilities will we be in a position to estimate the total costs with any precision. New criteria have been recently established for construction programs. The Service is developing new criteria for establishing maintenance and rehabilitation priorities. These give appropriate attention to projects needed to maintain or restore safe and sanitary facilities.

[GAO COMMENT: We acknowledge that the \$1.6 billion figure is only an estimate and that actual health and safety needs may be substantially greater when project cost estimates are updated, and the cost of additional health and safety needs are estimated. However, we have included the estimate to identify the approximate magnitude of the problem.]

In FY 81 the Service will increase efforts by assessing the needs and developing plans and timetables to correct all known deficiencies when funds become available. The Service is also proceeding with plans to provide additional training to park maintenance managers in the use of inspection and evaluation studies for scheduling maintenance priorities.

RECOMMENDATIONS AND RESPONSES

Special Appropriations Needed

The GAO report recommends that the Secretary request a special appropriation from the Congress to correct the most serious health and safety hazards. The Service agrees that additional funding for both construction and maintenance will be required. It must be recognized that the additional funding must be specifically earmarked to avoid further curtailment of operational and preventative maintenance programs which in the long run can prevent the occurrence of conditions such as those already identified. Care must also be taken to avoid continuing the uneconomical practices of deferred maintenance brought about by inadequate funding. The Service agrees that a careful and flexible priority setting process must be developed and utilized to assure maintenance expenditures for the most severe hazards.

The Service has recognized that the safety of the park visitor and employee must be addressed in all programs and has used its own personnel and the capabilities of other professionally staffed agencies to conduct inspections and to make recommendations for improvements. The frequency of these inspections is not always adequate or consistent. The Service has determined that Regional and park staffs should have professional personnel available to conduct inspections, plan the needed work and when warranted, supervise contractor performance to achieve optimum results.

Additional and modified training programs are being planned to assist existing park staffs in performing safety inspections, in planning and carrying out corrective actions, and in instituting preventative maintenance practices.

Need to Take Immediate Corrective Actions

The GAO recommends that the Secretary take immediate action to correct health and safety problems with available funds or restrict the use of facilities that do not meet health and safety standards.

In recent years, when inspection ratings fell below allowable public health or safety standards, facilities have been closed or operations curtailed. Crater Lake National Park and the Yellowstone Canyon area are major examples. The Manzanita Lake area at Lassen Volcanic NP has been closed for a number of years. In the past 5 years, 28 facilities have been closed based on investigations, and many corrective actions have been initiated which have prevented the need for closure.

The difficulty lies in applying the findings and determining the extent of assessment of how to apply present day codes to facilities that were planned and constructed more than half a century ago. Superintendents must make management decisions based on professional assessments of the risks of staying open. An evaluation will be made of existing guidelines to determine how they can be improved to give better guidance to Superintendents on closure of facilities. ***

[GAO COMMENT: Based on our discussions with park superintendents during the review, we think such an evaluation of existing guidelines is urgently needed.]

*** Even when the required corrective action is known, costs are often prohibitive and corrections are complicated by the need for additional planning to assure sensitive handling of historic structures.

Based upon a 1975 Agreement, FHWA has inspected almost all of the Service's 1,300 bridges and tunnels, and over 10,000 miles of roadways. This is an ongoing program which recently has begun to provide the Service with excellent inspection reports which are being used by management to plan and correct deficiencies. A complete analysis of all roads and bridges will be available to the Service by January, 1981. To date, more than \$17 million has been appropriated to reconstruct bridges identified in the FHWA reports. Upon review of available information, we can anticipate the need to expend at least \$100 million for bridge rehabilitation and construction in the next 5 to 10 years.

As a result of investigations conducted by PHS officers and personnel under contract with EPA, the Service has identified many water system deficiencies and wastewater system problems. Through concentrated hands-on training and the repair/rehabilitation program, most deficiencies have been corrected. Of the more than 1,100 water systems, only 107

were identified in a January 1980 report as needing corrections. These were located in only 19 parks in four Regions. Of these, 57 have already been corrected or construction is underway and the remaining is completed for an additional 29%. The remaining 15 systems, (14) have been reevaluated, and found not to require additional treatment.

The Service will continue to develop additional programs designed to inventory all utilities and buildings for the development of comprehensive corrective actions as funds and travel ceiling become available.

Proportion of Construction Funding

The GAO report recommends that the Secretary request a greater share of the recreation construction funds for repairing and upgrading facilities to bring them up to health and safety standards.

The NPS response is that the Service has a broad and important mission to preserve natural and cultural resources, and that a realistic balance must be maintained between that mandate and programs related to visitor use. With enough funds to meet both of these mandates, a realistic balance can be offered. With reduced funding, it is important not to lose sight of the critical resource management and protection responsibilities which, if not met, would erode or destroy the basis for public use and enjoyment of the parks. Adequate public understanding of the resources is an important function in the preservation of those resources. Proper care and preventative maintenance also contribute to safe and sanitary facilities, but such action must take place before serious deficiencies occur. Construction replacement programs are often the most cost effective way of dealing with facilities once major deterioration has occurred. This also applies to the many older nonhistoric facilities which cannot meet life safety codes.

[GAO COMMENT: Our report does not deal with funds used to protect natural and cultural resources or dispute the use of funds for this purpose. It does, however, point out that about half of the construction funds the Park Service requested for fiscal years 1979 through 1981 were for projects other than health and safety projects. This perpetuated many dangerous and unhealthy conditions in national parks. As a result, there is an urgent need for the Park Service to implement the above recommendation to expedite the correction of health and safety deficiencies.]

Concessioners to Make Own Corrections

The GAO report recommends that the Secretary negotiate with concessioners to make corrections to facilities they own or operate to bring them up to applicable health and safety codes.

The Service agrees and has done so in many cases. It must be understood, however, that this approach will not cure all outstanding problems. Some concession operations are incapable of generating the revenues required

to make necessary improvements. The Service must consider the individual economics of each situation, and consider such alternatives as modified use.

Requiring a concessioner to make improvements to a government-owned building may generate a possessory interest situation, which was criticized by GAO in its recent report on concessions in the national parks.

The majority of facilities which fail to meet life safety codes were built before establishment of the codes and the associated obligations and legal or moral issues. Many facilities have also gained significant historical value in the same period. While we must consider the issue of protecting both the public and employee from harm, the costs involved to transform such structures into modern facilities (incorporating the latest food service equipment; installing fire retardant finish to the interior of the structure; installing a fire suppression system, etc.), while maintaining their historic integrity, can be extremely high.

Before consideration is given to the complete rehabilitation of any existing facility, we should analyze all the alternatives available; perhaps even reducing the facility to a day use area and constructing a new facility containing all required life safety materials and equipment.

* * * *

[GAO COMMENT: We agree that these alternatives should be considered and found them appropriate.] used at several of the parks we visited.]

* * * *

Some time ago, the Service began a program of complete investigation of safety conditions in all visitor and employee overnight facilities. This action has been terminated after only eight such inspections because of the limited travel ceiling imposed on the Service this fiscal year. Each of the concessioner facilities inspected by fire and safety engineers requires expenditures ranging as high as several million dollars for a given structure to be made safe. Work has begun in a number of parks which will help, but additional funds will be required to either correct identified deficiencies or to replace the facility if warranted.

The Service plans to establish criteria for allocating maintenance resources that will recognize the life safety requirements and provide for technical and economic solutions to correct major deficiencies. The criteria will address the importance of the facility, its potential use, overall cost, and scope of needed corrections.

Use of Increased Camping Fees

The GAO report recommends that the Congress direct NPS and the Forest Service to use funds resulting from increases in entrance and camping fees for health and safety projects in parks and forests where they are collected.

As noted by GAO, legislation has been enacted which prohibits the Service from imposing new or increased entrance fees. The Service has, and will continue to, increase user fees as situations warrant.

[GAO COMMENT: These alternative methods of funding the correction of health and safety deficiencies were not discussed in the report, but may warrant consideration.]

An additional concern is that either of these fund sources be recognized as providing only a portion of the needed funds.

An alternative which has often been discussed is the use of franchise fee collections for this purpose. Franchise fees now produce about \$3.5 million per year, and may be expected to increase with inflation generated increases in prices, and with the apparent continuing upward trend in many concessioners' revenue. Should the Congress elect to earmark franchise fees, they should go into a Service-wide fund to be used according to greatest need, not necessarily at the park where collected. The use of franchise fees for health and safety purposes should be balanced against such other potential demands as the buy-out of private park concessioners. Consideration should also be given to the possibility of such concession fees, if turned over to a quasi-government corporation, could support a bond issue up to ten times their annual receipts, thus providing much earlier solutions to the problem.



OFFICE OF THE PRESIDENT
July 14, 1980

Mr. Henry Eschwege
Director
Community & Economic Development
Division
UNITED STATES GENERAL ACCOUNTING OFFICE
Washington, D.C. 20548

Dear Mr. Eschwege,

This letter is in reply to your letter of July 1, 1980 to Mr. Toby Allen, General Manager, Grand Canyon National Park Lodges, Grand Canyon, Arizona.

I have always been attracted to newspaper articles which report the results of operational audits conducted by the United States General Accounting Office. Usually these reports deal with exposing waste, inefficiency and mismanagement within the federal bureaucracy. I believe most taxpayers are paying Americans, whether employed by government or by the private sector, half these "unbiased" exposures.

Disappointment is the word which best describes my feeling after reading the attachment to your letter of July 1, 1980, to Mr. Allen. The subject of fire safety is very complex, thus I hire consultants to advise me on acceptable procedures to correct fire hazards which the Superintendent of the National Park Service has directed me to correct.

I would speculate that the writer of the attachment is not experienced in working with National Fire Protection Association standards. I would further presume that the writer was directed (or assume that he/she was directed) to write a biased report slanted toward emphasizing fire hazards, real or imaginary. For example, the following referenced passages confused me and certainly would confuse or mislead the reader/ readers who commissioned your office to prepare this report:

[GAO COMMENT: The El Tovar Hotel, the Victor Hall and Annex, and Shirley Hall and 11 employee residences are all on the South Rim and are all owned and operated by the concessioner, Fred Harvey. Fire safety deficiencies also existed in the Pioneer, Frontier, and Western Cabins and eight employee residences which are located on the North Rim, owned by the National Park Service and operated by a different concessioner.]

The El Tovar Hotel is operated by my company, Grand Canyon National Park Lodges, on the South Rim. The other structures referred to are on the North Rim operated by another concessioner. I strongly object to the generalities of alleged deficiencies which do not apply to my property.

PAGE 50

Mr. Henry Eschwege
 July 14, 1980
 Page 2

[GAO COMMENT: All fire and safety deficiencies discussed were taken from inspection reports prepared by the National Park Service. In no instance were deficiencies mentioned based on any other source of information.]

PAGE 51

The Park Service inspector's report of 1977 was presented to my company in May 1978, and our action plan in response to this report was approved by the National Park Superintendent. All of this work has been completed except for the lightning arrester system which will be completed in conjunction with the exterior restoration of the El Tovar Hotel. My company has never received a report of the referred to 1979 or 1980 inspections. The Hotel's water supply is provided by the Park Service, so I cannot comment on its volume or reliability. It is news to me that it is inadequate after 75 years of use.

[GAO COMMENT: Reference to the Park Service 1980 inspection report has been omitted from this paragraph.]

PAGE 51

The National Fire Protection Association Standard 101, is also known as the Life Safety Code. The 1976 edition was not printed until 1978. It is possible that violation in 1980 would not be detected in 1977.

[GAO COMMENT: All the deficiencies listed were contained in the 1977 Park Service inspection report. The report has been modified to state that the hotel did not meet National Fire Protection Association standards in 1977.]

PAGE 51

Your report fails to mention that the smoke detection and alarm system is redundant to the sprinkler system. That is, either system is adequate protection in itself. The central stairwell is sprinklered and protected by smoke actuated, alarmed door closers. The Hotel's lobby, mezzanine and central stairwell are an integral structure. Our National Fire Protection Association consultant studied this structure in 1978 and recommended the improvements which have been installed with the approval of the National Park Superintendent. I invite your attention to the National Fire Protection Association sub-committee dealing with standards for National Historic Buildings. This group recognizes that rigid adherence to NFPA 101 is not warranted in National Historic Buildings. The El Tovar Hotel is on the Register of National Historic Buildings.

[GAO COMMENT: Our report "Fails to mention that the smoke detection and alarm system is redundant to the sprinkler system" because it is not true. Nor is it true that "Either system is adequate protection in itself," in the El Tovar Lodge, according to the National Park Service Fire Safety Engineer. He stated that:

"Only in a case where all other National Fire Protection Association (NFPA) standards are met and the building is not used for overnight lodging (e.g. a cement warehouse) could a smoke detection and alarm system be considered redundant to a sprinkler system.

"The NFPA does allow exemptions from specific NFPA standards for any existing structure, regardless of whether or not it is a National Historic Building. However, the exemption must be requested, documented, justified and then approved by the authority having jurisdiction. For the El Tovar Lodge that authority would be the National Park Service. The concessioner operating the El Tovar Lodge has not asked for or received an exemption from any NFPA standard."]

PAGE 52

This is a libelous generality. I would suggest you consult with an attorney before you publish this untrue statement. Again, my company has not received a report from the National Park Superintendent about inspections made in 1979 or 1980.

[GAO COMMENT: The opening lines of this paragraph were modified and references to "inspections made in 1979 or 1980" were deleted.]

PAGE 52

I am furious by this unfair slur.

[GAO COMMENT: This sentence was deleted.]

In 1979 the National Park Superintendent allowed the temporary use of Shirley Hall for 60 days provided we used only the first floor, add additional exits, installed smoke alarms and established a fire watch, all of which were done. However, your writer treats this event as "an irresponsible act with no regard for human life". I have proposed to the Park Service that this building be remodeled into offices on the first floor only. The building has been vacant since September 1979.

[GAO COMMENT: Park Service inspectors concluded in December 1977 that if deficiencies in Shirley Hall were not corrected the building should be condemned and razed within 3 months and in no circumstances should be used as a dormitory. The concessioner continued to use Shirley Hall as a dormitory in 1978 and through September 1979. The precautions described by the concessioner were taken during 1979. A Park Service Fire Safety Engineer informed us that even after these precautions were taken Shirley Hall was only marginally safe for occupants and the Park Service would not allow it to be used as a dormitory in the future.]

The above references all refer to Shirley Hall which has not been used since September 1979 and never will be used again as a dormitory or for any other purpose without major remodeling to plans approved by the National Park Superintendent. However, your writer would lead a reader to conclude that we have in present use several dormitories in this condition.

[GAO COMMENT: The sentences referred to have been removed from this paragraph and incorporated in the section describing Shirley Hall along with a description of precautions taken by the concessioner. The discussion of Victor Hall and Annex was included to provide a second example of an employee dormitory that did not meet National Fire Protection Association standards.]

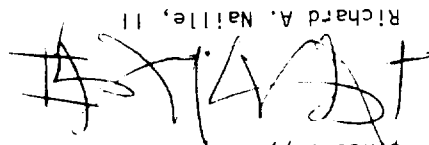
During the past year I estimate that no less than 25 "fire safety inspectors" have gone through our buildings on at least three separate occasions that I know of; yet not one single report of these inspections has been directed to my company via the National Park Superintendent who by law, and by contract, supervises my company as a National Park Concessioner. Unless the reports of these fire safety inspections, which have been alluded to, are brought to the concessioner via the National Park Superintendent on a specific item by item proposal basis,

Mr. Henry Eschwege
 July 14, 1950
 Page 4

the public and taxpayers are the losers.

The attached list is capital investments made over the last 2 1/2 years reference fire and safety areas. This does not include normal repair and maintenance department expenses that are ongoing projects.

Sincerely,



Richard A. Nalley, II

cc: Toby Allen/General Manager
 Dick Marks/Superintendent
 William Fitzgerald/Director of Maintenance
 & Engineering/Fred Harvey
 Ron Barr/Executive Vice President/Amfac

Attachment

CAPITAL INVESTMENTS
1978-1979 COMPLETED

PROJECT	DOLLARS SPENT
EI Tovar/Fire & Safety	\$ 52,000
Bucky/Powell/Fire & Safety	14,900
Dorm/Fire & Safety	4,000
Removed Electric Service from Shirley Hall Annex	3,000
Cotter Hall/Fire & Safety	13,900
Bucky O'Neill Cabin Chimney Replaced/Fire Hazard	2,500
Relocated Uniform Center/Fire Hazard Move	20,000
EI Tovar Fire Sprinkler Re- furnishment	7,800
Fire Engine/Truck Replacement/ Repairs	12,000
Emergency Lighting/All Guest Use Areas	38,000
Trailer Park Electrical Safety Repairs	10,000
Total 1978-1979	\$178,200

CAPITAL INVESTMENTS
1980 COMPLETED

<u>PROJECT</u>	<u>DOLLARS SPENT</u>
Victor Hall/Fire Retardant Curtains	\$ 12,000
Bright Angel/Re-roof/Asbestos Felts	19,600
EI Tovar/Re-roof/Fire Treated	99,900
Bright Angel/Arizona Room/Fire System/Detection/BA Chem	12,400
EI Tovar Lightning Protection/ Start Up Ground System	29,400
Mis. Fire Suppression Equipment	10,700
Yavapai Dock/Safety Hazard	11,200
Thunderbird Walkways/Safety Hazard	<u>4,200</u>
Total 1980	\$199,400

CAPITAL INVESTMENTS
1981

<u>PROJECT</u>	<u>DOLLARS SPENDING</u>
Victor Hall Fire Escapes	15,000
Replace wood exterior of EI Tovar & Completion of Lightning Protection System	2,000,000

(GENERAL HOST CORPORATION)
22 GATE HORSE ROAD
STAMFORD, CONNECTICUT 06907

HARRIS J ASHTON
CHAIRMAN OF THE BOARD

501 372-9900

JULY 11, 1980

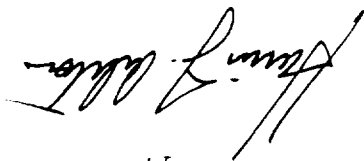
Mr. Henry Eschwege
Director
United States General Accounting Office
Washington, DC 20548
Dear Mr. Eschwege:

This letter responds to your request for comments from General Host Corporation on certain portions of a draft report prepared by the General Accounting Office evaluating whether facilities in areas managed by the National Park Service and the Forest Service meet Federal and State health and safety standards.

We responded previously by letter dated June 5, 1980, to your request for our comments on certain portions of a draft report prepared by you on the management of National Park concession operators. Parts of our response specifically addressed the safety issues raised in the portions of the draft report sent to us, except statements attributed to the Park Service that were never related to us or discussed with us.

Please refer to our comments in our letter dated June 5, 1980, that relate to the safety issues raised in the prior draft report. These same comments are applicable to the portions of the draft report sent us on July 1, 1980.

Sincerely,



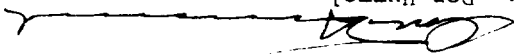
/pw

[GAO COMMENT: The reply referred to in this letter and our comments on it are contained in our report, "Better Management of National Park Concessions Can Improve Services Provided to the Public" (CED-80-102, JULY 31, 1980.)]

GLACIER NATIONAL PARK MONTANA

President & General Manager

By: Don Hummel,



GLACIER PARK, INC.

Respectfully,

Thank you for this opportunity to respond before publication.

I hope your report will include our responses, as they will document that the hazards you refer to have largely been eliminated. They will be eliminated entirely as nearly as is practical when the program is completed in 1981.

Enclosed herewith is our response to the criticism and allegations. You will note that in large measure the deficiencies named in your report are or have been corrected. In addition to the action already taken, there is an established and approved plan under way which should correct all deficiencies.

Reference is made to your letter dated July 1, 1980, enclosing excerpts from your draft report on buildings managed by the National Park Service in Glacier National Park, Montana.

Dear Sir:

Henry Eschwege, Director
United States General Accounting Office
Washington, D. C. 20548

July 10, 1980



GLACIER NATIONAL PARK MONTANA

Appendix I

- Room balconies are missing, rotten or inadequately supported.
- Response: The missing balcony has been eliminated, but it is not required, as there is an adequate one-hour rated fire escape within ten feet of the discontinued balcony.
- Every escape that needed support has been provided with a steel column on a cement base for support.
- Ground floor walls that tilt.
- Response: The building over the years has settled unevenly, but as wood structure is perfectly sound according to a report by a structural engineer engaged to inspect the premises.
- The walls are of fiberboard.
- Response: The report fails to state that three-fourths of the hallway has been wainscoted with 1-1/4 inch solid boards.
- A program to be completed next year calls for treatment with fire-retardant paint.
- Electrical wiring needs improving.
- Response: A thorough inspection of the wiring system made last year pronounced it sound and well distributed.
- The boiler room is not enclosed by fire retaining walls.
- Response: A fire retaining wall was installed in June of this year. The ceiling will be fire rated before opening next year.
- The hallways and stairwells will not retain fire.
- Response: Most of the doors are solid doors and as the building is sprinklered, calls for 20 minute doors and 1/2 hour rating. The doors are to be fully checked this fall.
- The stairwells have been sheet rocked and are one-hour rating.
- If fire occurs guests will have difficult time to escape because of inadequate detection.
- Response: Every room has a fire alarm smoke detector. Each hallway has a fire alarm bell. The building is completely sprinklered by a Grinnel system. In addition, there are several stand pipe and hoses on each floor.
- Inadequate number of emergency lights.
- Response: Sixty additional battery charged emergency lights have been added. Additional ones will be added as received from the suppliers.

-- Overnight guests may not be warned early enough to escape.

Response: See above re. smoke detectors in each room, sprinkler system with automatic alarm, hall alarm bells. Also have a night patrol and a twelve man early response crew lodged in the hotel.

-- Use of hallways and stairwells.

Response: See above. Stairwells sheet rocked to one hour sprinkler system, wainscoting, etc.

Dormitories:

-- Fire detection is poor.

Response: Smoke detectors in every room. Lower dorm sprinklered. Upper dorm has thermal detection alarm.

There are portable fire extinguishers and stand pipe and hose for fire fighting.

-- Porches and stairs need repairs.

Response: Three new fire escapes constructed on lower dorm - one on the upper dorm.

All corridors have been sheet rocked to one hour rating. Additional emergency lights and exits have been installed.

-- Chimney should be repaired.

Response: Chimney has not and will not be used. Electric heat installed several years ago.

Fire detection with central control and alarm scheduled for next season.

Lake McDonald:

-- Lodge - log building - highly combustible.

Response: Combustible fiber panels have been removed and replaced with sheet rock. A central panel connected with smoke detector and magnetic operated doors have been installed. Smoke detectors in each room and hallway. Control is at desk which is manned 24 hours a day.

Lodge stairwells have been enclosed with fire retaining doors magnetically operated.

All cabin rooms have smoke detectors centrally controlled at the front desk. Emergency lighting has been installed.

Dormitories are equipped with smoke detectors and centrally controlled warning system at front desk.

Motel:

-- Second exit from balcony and early warning system required.

Response: All rooms equipped with smoke detector alarms. All doors equipped with self-closing devices. A second fire escape is under construction.

[GAO COMMENT: The concessioner's comments indicate many deficiencies have been corrected and others will be eliminated in 1981. The park chief of maintenance said in August 1980 that a comprehensive fire and safety inspection would be made in late August 1980 to verify whether these recent improvements have been made or were adequate to correct health and safety deficiencies.]

KETTLE FALLS HOTEL, INC.

Winter Address 622 Twelfth Avenue
INTERNATIONAL FALLS MINNESOTA 56649

July 15, 1980

Mr. Henry Eschwege

Director
United States General Accounting Office
Washington, D.C. 20548

Dear Mr. Eschwege:

I am writing in reference to the GAO report dealing with the Kettle Falls hotel in Voyageur's National Park.

The Park Service regional safety manager's report of August 1979 concludes that the hotel "is unsuitable as a lodging facility" and "only complete renovation of the building would make it safe." This I cannot agree with. The Park Service had the hotel rewired in 1978 and installed a sophisticated fire and heat detection system that will not allow the smallest fire to go undetected. I personally sleep in the building and would not allow my family and guests to do so if I believed there was more than a reasonable risk to their safety. No building is 100% fire safe but early detection and accessible exits make the Kettle Falls Hotel reasonably safe for overnight use.

Furthermore, no smoking is allowed anywhere in the building other than the bar area and the front porch. Also, the Park Service is constructing a fire exit on the upstairs north end of the building in August of this year. A fire door will be built in the interior hallway. All guestrooms will have adequate fire-proof doors. The hood over the propane gas appliances in the kitchen will have an approved extinguishing device installed. More and larger fire extinguishers will be placed in the building. With the improvements made and those planned for August I see no reason to close the hotel for overnight accommodations.

The report further states that the building may collapse because of the rotting foundation. Eventually the building should be placed on solid footing but currently it supports a heavy snow load and all walls are solid and straight. Park Service carpenters replaced foundation footings in the front porch and back snowrooms in April 1980. New floors have been built for the lobby and dining rooms. Other than the characteristic wavy floors the building is famous for I believe the hotel offers no more threat to the safety of the visitor than any other structure would.

The sewer system does erupt 150 feet from our well but tests performed weekly on the quality of the well water have shown it safe. A chlorinator on the water supply further insure

--The concessioner has chosen not to comment on two of the substandard conditions and two of the proposed corrective actions.]

August 1980.

--Several improvements are planned for

--Neither the concessioner nor the Park Service has eliminated any of the substandard conditions and have taken only one of the six proposed corrective actions.

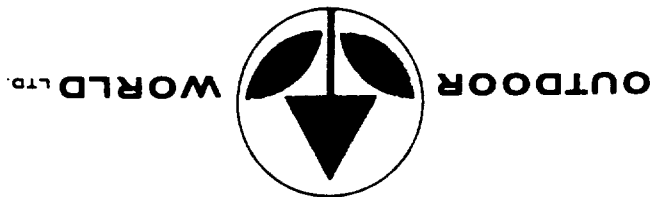
GAO COMMENT: Comparing the substandard conditions and recommended improvements with improvements discussed in this letter indicates that:

Michael W. Williams
President
Kettle Falls Hotel, Inc.

Michael W. Williams
Sincerely,

sure its safety. The park service plans new wells and a new sewer system for late summer 1980. Closing the Kettle Falls hotel for overnight accommodations because of violations of the national fire protection association standards would be wrong. It is an unique structure and its well-loved and well-used because of that uniqueness. Its violations have or will be corrected shortly. Its contribution to the day and night visitor to Voyageur's national park is great and should be continued. In closing I would like to state that the state of Minnesota on a tour of St. Louis County found the Kettle Falls hotel to be safe for overnight accommodations in a June 11, 1980 inspection. I'm sure in writing to the St. Louis County Health Dept., 504 E. 2nd Street, Duluth, Mn. 55805 one could obtain a copy of their inspection. I want to thank you for letting me give my comments on this matter.

WINTER ADDRESS 622 TWELFTH AVENUE
INTERNATIONAL FALLS MINNESOTA 56649
KETTLE FALLS HOTEL, INC.



JULY 15, 1980

HENRY ESCHWEGE, DIRECTOR
 U. S. GENERAL ACCOUNTING OFFICE
 WASHINGTON, D.C. 20548

DEAR MR. ESCHWEGE:

THIS IS THE SECOND OCCASION I HAVE BEEN INVITED TO COMMENT ON YOUR WORK IN MCKINLEY PARK. BOTH TIMES THE MATERIAL HAS BEEN RECEIVED BY ME ON A DATE THAT MADE IT IMPOSSIBLE TO RESPOND BY YOUR DEADLINE. THE LATEST LETTER WAS RECEIVED HERE ON JULY 14. IT WAS DATED JULY 1 AND CONTAINED NO POSTMARK. AS BEFORE, I AM RESPONDING IN HOPES THAT IT WILL BE CONSIDERED.

THE MATERIAL YOU SENT ME CONTAINS MANY INACCURACIES. IT IS MY BELIEF THAT THE SUBJECT MATTER REQUIRES BETTER DOCUMENTATION AND A REVIEW OF CONCLUSIONS.

THE DESCRIPTION OF THE 1972 FIRE IS INTERESTING. SINCE I WAS INVOLVED IN THE ENTIRE PROCEEDING, POSSIBLY SOMEONE SHOULD HAVE DISCUSSED THE MATTER WITH ME. I WANTED TO NOTIFY YOU OF THE ABOVE IN A SPIRIT OF FULL COOPERATION.

CORDIALLY,

George C. Fleaharty
 GEORGE C. FLEAHARTY
 PRESIDENT

MT. MCKINLEY NATIONAL PARK CO. / MCKINLEY PARK, ALASKA 99755 (907) 683 2275
 OCTOBER-APRIL: 307 SOUTH B. STREET, SAN MATEO, CA. 94401 (415) 348 3385



Mr. Dave Rubin
 UNITED STATES GENERAL
 ACCOUNTING OFFICE
 July 16, 1980

Page 4

I hope that this information is adequate to demonstrate the intentions and achievements of the Forest Service and Travel Systems, Ltd. in providing for a safe facility. If any further information or documentation is needed, please feel free to contact me.

Sincerely,

[Handwritten signature]

Craig E. Bishop

General Manager

Zephyr Cove Resort

CEB/nd

Enclosures

cc: Arn Albrecht

[GAO COMMENT: In August 1980 the Forest Service official responsible for recreation facilities at the Zephyr Cove Resort said that all the health and safety deficiencies discussed in our report have been or will be corrected by the improvements discussed in this letter. The report refers to improvements made after our visit. The enclosures were not included because of their length and the fact that the information was summarized in the letter to us.]

(702) 588-5656 — TELEEX: 354-449 P. O. Box 1667 Zephyr Cove, Nevada 89448
 Owners and Operators of the M.S. Dixie Cruise Vessel

(148010)

We do not state or mean to imply that the old and new hotel are structurally similar, with the exception of the west wing which survived the 1972 fire and is part of the existing hotel. We deleted the statement that the two hotels "had much the same deficiencies" because each hotel had several unique fire safety deficiencies not found in the other hotel.

A third inaccuracy, according to Mr. Fleharty, is the number of rooms we state are in the new hotel. We revised the number of rooms in our report based on Mr. Fleharty's information to reflect the current number of rooms in use.

 ADDITIONAL GAO COMMENTS

We called Mr. Fleharty on July 30, 1980, and asked him to elaborate on the "many inaccuracies" he referred to in his letter. Mr. Fleharty informed us:

"The inaccuracies I referred to in my letter included the statement:

'The investigator's report stated that the fire started early in the afternoon but was not detected until 7:00 p.m., because the hotel's alarm system was not working properly.'

"This statement is not correct. The fire alarm did sound at the time the fire started, but it was a 'cry wolf' situation in that the alarm was always going off for no reason at all. I think about thirteen false alarms occurred in the two months before the fire. As a result, no one took the alarm too seriously when it first went off the day the fire occurred. The hotel was not evacuated until 3 hours later when the alarm sounded again and smoke began rising from the floor."

We deleted the phrase "because the alarm system was not working properly" and inserted Mr. Fleharty's description of the situation.

Mr. Fleharty said, "another inaccuracy was your comparison of the old hotel, most of which burned down, to the existing Mount McKinley Hotel. The old hotel was a connected structure while the present hotel consists of separate units. In addition, the old hotel had a basement where the electrical fire started. The present hotel has no basement."

"Although I don't dispute the existence of the deficiencies you described in the old and new hotel, I simply do not believe the new hotel is a fire hazard."

United States General Accounting Office
July 28, 1980
Page 2

are just not technically feasible given the age and construction of the buildings. Others, while theoretically possible, would destroy the historic nature of the hotel, depriving visitors of the experience they desire -- they do not want a modern antiseptic plastic structure, rather they are looking for a building with historic "character".

It would truly be a shame if the public were denied the use and enjoyment of historic structures such as the Ahwahnee and Kawona Hotels merely because they do not, and cannot, meet the standards now being applied to new structures. In fact, the facilities were safe when built 50 and 100 years ago and are even safer today because of the numerous fire-safety improvements that have been installed.

We would like to deal specifically with each of the structures mentioned in the draft report.

THE AHWAHNEE HOTEL

This is a stone, concrete and wood building constructed over 50 years ago and due to the very nature of its structural components and building materials it is properly termed "fire resistive" in life safety parlance. The structure is well preserved, is a certified Historic Landmark, and is generally considered one of the most elegant hotels in the United States. (Please note its inclusion in "The Last of the Grand Hotels" by J. J. Kramer.)

It is particularly inaccurate and misleading for the draft report to state that the hotel "lacks fire suppression and detection equipment and safe emergency exits". Such a statement is simply not true, even a casual walk through the hotel would disclose fire hoses, extinguishers, smoke detectors, and marked emergency exits (in addition to 24 hours security personnel).

Further, in recent years we have attempted to improve the hotel's life-safety systems, consistent with its historic nature, and within the practical confines present in Yosemite National Park. For instance, despite the statements in the draft report, the following safety improvements have been performed in recent years:

1. Enclosed smoke proof fire escape from sixth floor to ground level.
2. Enclosed fire escape from fourth floor to the second floor at south end of building.
3. Ionization type smoke detectors added to local alarm bell system.
4. Changed to wire glass all exit doors and windows in upstairs hallways.

[GAO COMMENT: We revised the statement to read "lacks adequate fire suppression and detection equipment and safe emergency exits." We have also added a reference to the fire and safety improvements listed in this letter which were completed after our visit.]



YOSEMITE

July 28, 1980

United States General
Accounting Office
Washington, D.C. 20548
Attn: Mr. Henry Eschwege, Director
Dear Mr. Eschwege:

We appreciate the opportunity you have given us to comment on the draft GAO report evaluating whether facilities in areas managed by the National Park Service meet Federal and State safety standards. Because of this company's serious concern with the safety of our guests and employees, and because we were so disturbed by the numerous inaccuracies of the draft report, we are taking this opportunity to respond in some detail.

As a general concept we would like to emphasize that we are dealing with hotels that are over 50 years old in the case of the Ahwahnee and over 100 years old in the case of the Wawona. Both facilities are entered on the federal rolls as Historic Landmarks and both hotels have been very carefully maintained and refurbished by us over the past seven years in order to retain their character as "Grand Hotels". Fifty and one hundred years ago hotels were not built to the safety standards applied today -- the techniques, materials, and equipment were not developed. One hundred years from now there will probably be even more stringent safety standards with which buildings built today will not comply. Nevertheless, as will be discussed below, we have performed a number of safety improvements on the hotels in order to achieve a high level of safety, consistent with the historic nature of the facilities. The safety of our guests is obviously of prime importance to us, and the Ahwahnee and Wawona are continuously inspected by our own safety consultants, by our insurance inspectors, and by the NPS and OSHA inspectors.

While many of the deficiencies mentioned in the GAO report have been long-ago corrected (some were even done before the GAO investigation commenced), others, by their nature, are not feasible in historic structures such as are involved here. Some suggested improvements

United States General
Accounting Office
July 28, 1980
Page 4

feasible for a building containing only 97 guest rooms; nor is it a technically possible program for a 50 year old historic structure with an inadequate water supply.

One irony in this matter relates to the GAO suggestion that we close the hotel transoms. The Ahwahnee Hotel, designed by Robert Underwood, incorporated an effective cooling system using the prevailing winds to enter the hallways from the west and exit through the transoms (the reverse on the east side of the building) providing necessary ventilation and cooling. In this age of concern with energy and the increasing role of passive solar design, it is inconsistent to have the natural ventilation system closed off and replaced by a new system requiring use of electrical energy that has to be generated at some environmental cost.

Two other hotels in California are very similar to the Ahwahnee -- the Hotel Del Coronado in San Diego, and the Santa Barbara Billmore. Both are historic hotels in the "grand" tradition (in fact, both are used for comparability purposes by the NPS). While some of the Del Coronado rooms are air conditioned, the remainder of the rooms, and the rooms at the Billmore all have usable transoms for the guest's comfort. Further, in terms of fire safety devices, the Ahwahnee is on a par with both hotels.

Our goal is to make the hotel as safe as is possible for a structure of its age and construction. We feel we are moving rapidly in that direction although some of the delays we have encountered are totally beyond our control.

WAWONA HOTEL

There are three significant factual inaccuracies in the discussion of the Wawona facilities:

Firstly, the report several times describes the structures as being "tinder dry". This is a term of absolutely no technical significance and its use indicates a lack of understanding of elementary fire safety principles.

[GAO COMMENT: "Tinder dry" is the term used in the Park Service 1977 regional safety report on the condition of the Wawona Hotel. The term is also used in a 1977 memorandum from the park superintendent to the Park Service western region director to describe the hotel.]

While the building is of wood construction, it is, in fact, no more fire-prone than it was when built over 100 years ago. The dryness or flammability of a wood structure is related to atmospheric conditions, not to its age. A 50 or 100 year old building is just as safe, or just

5. Added exit signs in dining room, Diggins Bar, kitchen, and store rooms.
6. All new furnishings pre-created for fire resistance.
7. Added panic bars to dining room exit doors.
8. New electrical disconnect panel in basement.
9. Closed off and sealed unused laundry chutes.
10. Emergency lighting for elevators, corridor and exit lighting.
11. Added ansul fire protection systems in kitchen, upgraded in 1979.
12. Cleaned out and sealed off storage areas to prevent accumulation of combustible storage.
13. Restricted parking in back dock area to allow access by fire apparatus.
14. New low pressure boilers for reliability and safety.
15. Replaced soda-acid fire extinguishers with water/pressure type.
16. Added dry chemical type in high hazard areas.
16. Replaced rugs, curtains, upholstery, and other furnishings with fire retardant materials and with treatments designed to prevent the rapid spread of fire.

[GAO COMMENT: The park safety officer informed us in August 1980 that the concessioner had completed many fire and safety improvements to the Ahwahnee Hotel since our visit in September 1979.]

Other suggestions contained in the GAO report cannot be implemented.

For instance, it is impossible to fully sprinkle the hotel because the water pressure is terribly inadequate (as mentioned in the GAO draft report). It is the NPS that provides the water system used by YRCCO and the matter is out of our control. Accordingly, although we once prepared plans for a fully sprinkled system, these have been rejected by the NPS.

In fact, our attempts to institute a comprehensive fire safety system have been met in recent years with what might be best described as a series of bureaucratic delays and reversals of position by the government. We are enclosing a copy of an internal memorandum dated November 1, 1979 describing the frustrations we have encountered in attempting to design and install a comprehensive fire safety system. Currently, we have nearly completed the "pilot" program described in the attached memorandum. Assuming that it is promptly approved by the NPS, we will proceed to finalize the plan throughout the hotel.

The GAO report states that a fire safety program of the magnitude they described would cost \$2.4 million. At that cost, it is not economically

The third error in the report is the indication that the dormitory structure, which was destroyed by an arson fire several years ago, did not result in injuries only because of a fortunate set of circumstances.

In fact, the structure burned at a time when the Wawona area had already been closed for the season to employees and guests. Because the incident happened when there were no people near the premises, it burned unobserved for some time -- thus, accounting for its total destruction.

[GAO COMMENT: We have revised the report to make it clear that the employee dormitory was vacant when it burned.]

As to the specific defects mentioned, the following have been corrected by YF&CO. (some of the corrections occurred before the GAO investigation even commenced, others have been performed in the last year):

1. Installed ansul hood system in kitchen.
2. Rewired and installed new electrical panels in kitchen.
3. Installed photo-cell smoke detectors in all sleeping rooms.
4. Installed new fire hose at standpipe locations.
5. Installed manual fire alarm system with signal to National Park Service dispatch.
6. Cleaned out closets and storage areas; fire proofed with 5/8 inch fire wall.
7. Installed fire rated doors in Washburn Cottage.
8. Night watchman on duty from 10 p.m. to 6 a.m. seven days a week.
9. Organized fire and evacuation team using hotel employees.
10. Replaced soda-acid fire extinguisher with water/pressure type.
11. Installed dry chemical in high hazard areas.
11. All new furnishings pre-treated for fire resistance.

[GAO COMMENT: The park safety officer informed us in August 1980 that the concessioner had completed many fire and safety improvements to the Wawona Hotel since our visit in September 1979.]

as flammable, as a new wood building constructed in the same manner and subjected to the same atmospheric conditions. Thus, wood is relatively dry when cured for construction and thereafter its dryness is directly related to the moisture content of the air, not its age.

[GAO COMMENT: All the statements in the above paragraph are incorrect. The National Park Service fire safety engineer provided the following information:

As a wooden building ages the wood becomes more ragged and fibrous because of dryness and rotting. As a result the building's kindling factor increases, and consequently, its flammability increases. The atmospheric conditions determine whether the predominant deterioration factor is rotting (in humid climates) or dryness (in dry climates). The flammability of the wood increases with age, regardless of what the atmospheric conditions are.]

For the draft GAO report to repeatedly use the term "tinder dry", is an unfortunate attempt to inject emotionalism into a serious issue. We feel that is a "cheap shot".

[GAO COMMENT: This statement was addressed previously.]

A second error is the statement that guests "have been endangered" because the facility "lacks fire suppression and detection equipment". As was the case with the Ahwahnee, a simple walk through the buildings would disclose suppression and detection equipment such as fire hoses, extinguishers and smoke detectors plus 24 hour security personnel during periods of use.

[GAO COMMENTS: We deleted "have been endangered" and revised the statement to read "lacks adequate fire suppression and detection equipment." We have also added three references to the fire and safety improvements listed in this letter, all of which were completed after our visit in September 1979.]

Finally, the draft report completely ignores the fact that to our knowledge, the facilities meet all legally imposed standards. They do not violate any applicable State or Federal regulation (contrary to the inference contained in the draft). Rather, they simply fail to meet modern N.F.P.A. standards which are generally considered to be most stringent criteria identified in the United States for fire engineering of buildings of modern construction. Such standards are models or "ideals" for architects to utilize. They are not in any sense the law or applicable building codes. The hotels are frequently inspected by OSHA, who, except for minor matters that are quickly corrected, have not found any violations of the law.

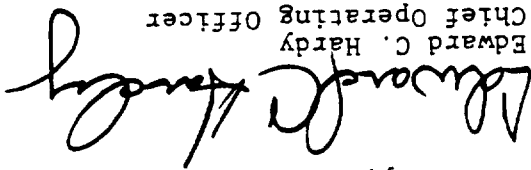
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Page 7

We believe that an objective study would have determined the following:

1. The buildings are not unsafe.
 2. The buildings do not violate any law or federal regulation.
 3. The buildings do contain many modern safety features.
 4. There has never been a fire-related injury in any of the buildings.
- In connection with our ongoing refurbishment and upgrading of the Ahwahnee, we have retained for some years noted San Francisco historic architect, Walter Sonthheimer, who previously designed the refurbishment of the San Francisco Mint.

Thank you for considering these comments. We request that you incorporate our comments as an attachment to any report dealing with the Ahwahnee or Wawona facilities.

Sincerely,


Edward C. Hardy
Chief Operating Officer

ECH/cka
Enclosure

previously.]

[GAO COMMENT: This statement was addressed

dry". Further, it is unfortunate that the report chooses to take an emotional approach, using meaningless, but attention getting terms such as "tinder

improvements have been made since our visit.]

We acknowledge that many fire and safety deficiencies are the concessioner's responsibility. Correction of all other deficiencies are the concessioner's responsibility. We added a statement that the inadequate water pressure for Ahwahnee Hotel sprinkler system was a Park Service responsibility. Correction of all other deficiencies are the concessioner's responsibility.

[GAO COMMENT: We added a statement that the inadequate water pressure for Ahwahnee Hotel sprinkler system was a Park Service responsibility. Correction of all other deficiencies are the concessioner's responsibility. We added a statement that the inadequate water pressure for Ahwahnee Hotel sprinkler system was a Park Service responsibility. Correction of all other deficiencies are the concessioner's responsibility.]

It is also discouraging that the draft report does not deal with the costly efforts we have made to improve the level of safety (in fact, many of the specific suggestions in the report have already been corrected -- a point the reader would never suspect), nor does it acknowledge that many of the deficiencies are beyond our control.

We are disappointed by many aspects of the report. If one wanted to determine that buildings constructed 50 or 100 years ago do not comply with modern fire safety techniques, we suggest that there would be an easier way of finding that out than making a year-long government study. It is obvious to anyone that an historic structure, by necessity, will lack some of the safety features found in a new structure, but alarms, fire retardant paint, and other safety upgrading provide a reasonable degree of safety.

CONCLUSION

The remaining suggestions in the draft GAO report are of a major nature; and, if performed (or, if capable of being performed), would be the responsibility of the owner of the building, the NPS. Once again, we believe the buildings are as safe as is practically possible, given their age and construction. They are certainly safer, due to the improvements that we have made, than they were when constructed.

We appreciate the opportunity to comment on the draft GAO report relating to a portion of the facilities we operate in Yosemite National Park.

United States General Accounting Office
July 28, 1980
Page 6

BILL VANDEN BOSSCHE
 NOVEMBER 1, 1979
 PAGE TWO

By letter dated September 11, 1979, Howard Chapman, Western Regional Director advised our architect, Walter Sonthamer, that this approach was acceptable and that we should proceed. Superintendent Binnewies responded by letter dated October 3, 1979 that we should send final drawings to him, as well as the Regional Office.

Based upon the advice we received from Mr. Chapman (who is in charge of all NPS parks in the Western United States), we proceeded with plans and drawings utilizing Mr. Wilburn's approach. Accordingly, on October 23, 1979 a "walk-through" at this session our architect and consultants would explain to the various NPS safety personnel how the overall plan was to be implemented, and that any minor problems could be clarified.

Unfortunately, the local (Yosemite Park) NPS personnel questioned the entire approach being utilized. Superintendent Binnewies announced that the ultimate decision on the plan to be instituted rested with him and that he had not yet approved the approach. We were preparing to implement (despite the fact that it was based upon the recommendations of Western Regional Safety Manager Wilburn, and approved by the Western Regional Director). It was the NPS recommendation on October 23 that we set up the fifth floor of the Ahwahnee as a "pilot project" installing automatic transom closers in the five rooms, together with the smoke detectors. We are now proceeding on this basis (with an anticipated completion of the pilot program at the end of the year), in the hopes that the NPS will reaffirm this approach and that we may then be allowed to complete the project.

Accordingly, it may be that after substantial delays from the Park Service, we are still not certain what direction they will allow us to go in implementing a fire safety program.

AFS:d1g

more...

The purpose of this memo is to recap where we are in connection with the Ahwahnee Fire Safety program. On January 26, 1979 we submitted a proposal to the National Park Service to fully sprinker the Ahwahnee Hotel. It was the advice of our safety experts that such would obviate the need to lock and seal the transoms in the rooms (since a locking of the transoms would severely affect visitor comfort and might adversely affect visitor safety). Additionally, this approach would provide a much greater level of overall fire safety than merely locking the transoms.

We reminded the NPS by letter dated March 14, 1979 and again by letter dated May 11, 1979 that we were awaiting their response and direction. We then received a letter dated May 29, 1979 from Superintendent Arnbarger that was somewhat ambiguous. Thus, it said that the Regional Historical Architect had approved the plans, and that Dick Wilburn, Western Regional Safety Manager recommended links for each transom. Superintendent Arnbarger then said he was awaiting our final plans for the sprinker system. Based on this, we continued, as we had been doing, in designing the system to fully sprinker the hotel. The drawings were in fact completed by June 1, 1979.

The next step, however, was that the NPS furnished us with a memo dated June 13, 1979 from Mr. Wilburn, the Western Regional Safety Manager. In this memo he recommended that instead of fully sprinkling the hotel, a program be instituted whereby the hotel was partially sprinklered, and automatic transom closing devices were installed in the rooms (as well as a series of other fire retardant and fire detection measures).

Accordingly, based upon this advice we revised our plans and submitted a description of a fire safety program in accordance with Mr. Wilburn's memo of June 13, 1979. This description was submitted to Mr. Wilburn by our architect on September 6, and to Superintendent Binnewies by letter of September 20, 1979.

DATE NOVEMBER 1, 1979

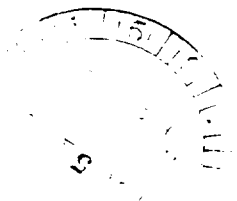
TO BILL VANDEN BOSSCHE

FROM ANTHONY F. SAUBER

SUBJECT AHWAHNEE - FIRE SAFETY

COPIES

E. HARDY, S. LEW, B. SANDS, J. STEIN, W. SONTHEIMER



MCA INTEROFFICE MEMORANDUM •

[GAO COMMENT: The parkway superintendent informed us on August 12, 1980, that he had accompanied the Park Service regional safety officer during an inspection of the Treetop Cottage and the Old Inn during the prior week. The superintendent said that he had observed many of the improvements described in the concessioner's letter and additional work that was in progress. The superintendent is awaiting the safety officer's report on the present condition of the buildings.]

THOMAS J. O'CONNELL

PISGAH INN - DRAWER 749 - WAYNESVILLE, NORTH CAROLINA 28786

July 10, 1980

Mr. Henry Eschwage, Director
Community and Economic Development Division
United States Accounting Office
Washington, D. C. 20548

Dear Mr. Eschwage:

I am in receipt of your letter relative to "Employee Residences
at Mount Pisgah", addressed to Mr. J. Aaron Prevost.

This Spring we spent a considerable amount of money on the
Cottages and Old Inn to improve the employee housing facilities
at the Pisgah Inn.

Treetop Cottage was rewired and now meets the requirements of the
National Electrical Code. A new heating system was installed to
eliminate the old oil burner and single flue that extended through
the second story beyond the roof line. New bathroom fixtures were
installed and the plumbing was revised to meet state and local
sanitary codes. Fireproofing (sheetrock) was added to the walls,
to decrease the combustibility factor. Additional smoke detectors
and fire extinguishers have been installed.

The second story of the Old Inn is not being used for employee
housing. Some rooms that have direct egress to the outside have
been rewired (to NLE specs) and the walls and ceilings have been
reinforced with sheetrock. These rooms are used from time to time
when we have an employee overflow from the cottages.

It is our sincere desire to make the Pisgah Inn as safe as possible
for our guests and employees. We have a constant upgrading program
in effect.

If you would like any additional information, please feel free to
call on me.

Sincerely,

PISGAH INN

Thomas J. O'Connell
Thomas J. O'Connell
Copy: Mr. Chuck Novak

3. Ventilation System The ventilation system in the kitchen was replaced in 1979 after the addition of broiler equipment that, when in use, tripped the automatic fire suppression devices in the old ventilation system.

At no time were there any fires caused by accumulated grease in the system.

[GAO COMMENT: The report was revised to state that three fires occurred because of the boiler's inadequate ventilation system and that the ventilation system was upgraded in October 1979, shortly after our visit.]

Your correction of this report would be appreciated.

Sincerely,

STEVENS PASS, INC.
Merle H. Brooks
 Merle H. Brooks
 General Manager

cc: Gordon Reihardt
 Bernard Kueferer

Stevens Pass, Inc., 1411 Fourth Avenue, Seattle, WA 98101 (206) 292-9190

[GAO COMMENT: The building does have an automatic fire detection system and a manual fire alarm system, but does not have an automatic fire alarm system or a sprinkler system. The report has been revised to reflect these facts.]

2. Fire System The building does have automatic fire detection devices and an alarm system. Both of these have been in service since 1970.

[GAO COMMENT: While the re-wirings may have met code requirements when the work was done, the wiring does not meet present code requirements.]

1. Electrical Wiring This building has been remodeled several times within its lifetime and the re-wiring has met code requirements each time. The only problem is that the building service is not of sufficient size to accommodate any additional circuitry for expanded facilities.

Your draft report accompanying your letter of July 1, 1980 contains several inaccuracies that should be corrected.

Dear Sirs:

Re: Forest Service-Owned Skiers Day Lodge at Stevens Pass

Attention Roy J. Kirk

United States General Accounting Office
441 G Street N. W. Rm. 6814
Washington, D. C. 20548

July 7, 1980



Ground Suppliers
 Travel Systems Ltd
 Lake Tahoe Reno San Francisco



Mr. Dave Rubin
 UNITED STATES GENERAL
 ACCOUNTING OFFICE
 July 16, 1980

Page 2

MAIN LODGE: The following improvements in this 10,600 square foot building have been completed and approved by the Douglas County Building Department and the Forest Service.

ELECTRICAL: The entire building has been rewired to meet 1979 National Electric Code at a cost exceeding \$30,000.

The entire kitchen, coffee counter area and bar have been renovated in total. Of particular note in regards to fire safety are: 5/8" sheetrock on all walls and ceilings, new or like new equipment (stoves, broilers, refrigerators, etc.), renovation and reinstallation of total LPG system, renovation of kitchen hood and installation of a complete new fire extinguishing system over the cooking area, and renovation of diesel heating and water heating systems. The cost of these improvements (including electrical) exceeded \$70,000.

Smoke detector alarms have been installed in all rental rooms, second floor fire exits have been improved, and a second story one hour fire wall has been installed. An existing fire alarm system which connects directly to the fire station has been serviced and reactivated.

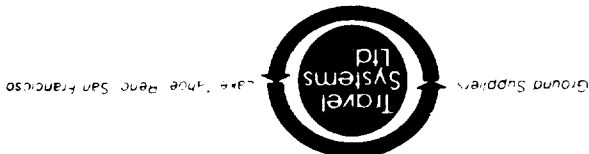
CAMPGROUND/TRAILER PARK: All electrical hook-up sites are being upgraded to 1980 National Electric Code. This work is more than 50% completed at a cost of over \$10,000. Additionally, all facilities (shower, restroom and laundry buildings) have been upgraded to present codes. It should be noted that no open campfires are permitted and that water is available at more than half of the sites.

RENTAL CABINS: Twenty of the twenty five cabins have been rewired to 1979 National Electric Code with completion of the remaining five scheduled for September 1980. Smoke detectors have been installed in all cabins and LPG systems have been brought to safe standards. Cost of improvements exceeds \$25,000.

SERVICE STATION: All serious hazards with the heating, LPG, and electrical systems have been rectified. Final upgrading to current codes will be completed by September 1980.

SNACK BAR: The snack bar has been completely renovated, including electrical, LPG, plumbing, fire system and restaurant equipment. The cost of renovation was approximately \$7,500.

(702) 588-5656 - TELEX: 354-449 P O Box 1667 Zephyr Cove, Nevada 89448
 Owners and Operators of the M.S. Dixie Cruise Vessel



July 15, 1980

Mr. Dave Rubin
 UNITED STATES GENERAL
 ACCOUNTING OFFICE
 1500 N.E. Irving Street
 Portland, OR 97232

Dear Mr. Rubin,

This letter is in response to the evaluation report on the health and safety standards of Forest Service owned resorts, specifically that part referring to Zephyr Cove Resort at Zephyr Cove, Nevada.

Zephyr Cove Resort is operated under Special Use Permit from the Lake Tahoe Basin Management Unit (LTBMU) U.S.D.A. Forest Service. As the permit holder, Travel Systems, Ltd. has assumed responsibility for a massive renovation project which addresses all pertinent areas of health and safety. Naturally, we would like your final report to reflect the improvements and high standards which have been achieved since the Forest Service and Travel Systems, Ltd. have taken active control of the property.

A general explanation of the condition of the properties at the time of your inspection is probably in order. A condition of the purchase agreement was that the existing lease be allowed to expire normally and without change or interference. Thusly, neither the Forest Service or Travel Systems, Ltd. had "active" control of the property until November 1, 1979. The fire which nearly destroyed the duplex cabin occurred; do to employee fault, prior to opening for the general public and prior to Forest Service control.

During the period between the purchase and November 1, 1979, the Forest Service prepared and issued a prospectus for operation and maintenance of Zephyr Cove Resort. The prospectus contained detailed reports from mechanical and engineering as well as other experts regarding necessary changes to meet building safety codes. In selecting the successful bidder for the operation of Zephyr Cove Resort, the maintenance section of the bid was one of the two primarily aspects considered. Obviously, by the selection, Travel Systems, Ltd., presented a very strong and in depth maintenance proposal.

Since assuming control of the property on November 1, 1979, Travel Systems, Ltd., has expended over \$200,000 renovating the facilities in order to meet applicable building or safety codes. Licensed contractors (General Contractor, Electrical Contractor, and Plumbing Contractor) as well as in-house staff have been working full time from November 1, 1979, through the present in order to achieve this goal. These improvements are listed below by either physical area or by type of system.

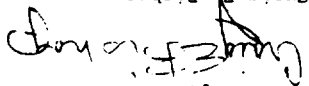
(702)588-5656 — TELEX 354-449 P O Box 1667 Zephyr Cove, Nevada 89448
 Owners and Operators of the M.S. Dixie Cruise Vessel



Mr. Dave Rubin
 UNITED STATES GENERAL
 ACCOUNTING OFFICE
 July 16, 1980

Page 4

I hope that this information is adequate to demonstrate the intentions and achievements of the Forest Service and Travel Systems, Ltd. in providing for a safe facility. If any further information or documentation is needed, please feel free to contact me.

Sincerely,


Craig E. Bishop
 General Manager
 Zephyr Cove Resort

CEB/nd

Enclosures

cc: Arn Albrecht

[GAO COMMENT: In August 1980 the Forest Service official responsible for recreation facilities at the Zephyr Cove Resort said that all the health and safety deficiencies discussed in our report have been or will be corrected by the improvements discussed in this letter. The report refers to improvements made after our visit. The enclosures were not included because of their length and the fact that the information was summarized in the letter to us.]

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 Owners and Operators of the M.S. Dixie Cruise Vessel

(148010)



Mr. Dave Rubin
 UNITED STATES GENERAL
 ACCOUNTING OFFICE
 July 16, 1980

Page 3

STABLES (Caretaker Home): All systems have been upgraded to current codes at a cost of approximately \$5,000.

CENTRAL SYSTEMS (Electrical): All services on the property have been, or will in the near future be brought to current code. Work is being done by a licensed contractor and is inspected for approval by both the Douglas County Building Department and Forest Service inspectors.

LIQUID PETROLEUM GAS SYSTEMS: All systems are brought up to safe and operable standards prior to activation, and many systems are completely renovated to current code.

WATER SYSTEM: The water system, which includes both pump driven lake feed, and gravity spring feed is being upgraded. However, at this time it is questionable whether the finances are justified to increase the system capacity enough to provide a self sufficient fire fighting capability.

FIRE SAFETY STANDARDS: Enclosed are two documents which represent a more detailed explanation of the current status of fire safety standards.

1. The evaluation prepared by the Lake Tahoe Fire Protection District was an addendum to the prospectus. All recommendations have been completed with except the installation of a sprinkler system and upgrading the water supply capacity. These recommendations have been waived because it is not economically feasible on a short term basis.

2. The insurance inspection/appraisal provided by Pacific Delta gives specific details of systems, problems and solutions, to fire safety on the property. As explained in the report, Zephyr Cove Resort was rated as a National Board Class 9, and as a result of the inspection this rating was reduced to National Board Class 5.

CONCLUSION: Obviously Travel Systems, Ltd., has made tremendous improvements in the area of fire prevention. However, it should be equally obvious that should a fire break out, Zephyr Cove Resort would be ill prepared to fight it. In such as a case, major fire fighting would be the job of the Lake Tahoe Fire Protection District and the Forest Service. Considering the cost involved, outside financial assistance would be required to install a sprinkling system in the lodge and to upgrade the water supply system.

NOTE: The Douglas County Fire Department is located within 1/4 of a mile from the Zephyr Cove Facility.

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