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I. ADMINISTRATIONA. Budget and ProgramsFinal 1986 Budget for YellowstoneONPS FUNDS

General Management	595,100
Interpretation	535,600
Resource Management and Visitor Protection	2,237,600
Maintenance	6,292,100
Concessions	155,800
Administration	1,695,500
Research	<u>699,600</u>

Subtotal ONPS Funds	12,211,300
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OTHER FUNDS

Gardiner School Reconstruction	945,000
Education of Children	555,000
Seasonal Sanitarian	10,000
VIP	8,700
Resource Management Trainee	3,000
Fisheries Investigation	25,000
Grizzly Bear Survey	5,000
Fire Pro Monies	167,291
Water Rights	60,000
Energy Conservation Costs	3,600
Denver Service Center Funding	16,000
Geothermal Funding	112,000
Elk Management	82,300
Bear Management	326,000
Radio Collar Adult Female Grizzly	22,000
PRIPS: Cyclic Maintenance	537,183
Cultural Cyclic Maintenance	101,028
Repair/Rehab	1,408,850
Construction 620	4,708,134
Federal Highway Funds	85,500
General Donations	17,640
Fishery Donations	<u>9,256</u>

TOTAL PARK BUDGET	21,419,782
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## B. Data Processing

We have installed a data switch which has saved our operators 30 or more minutes a day. The switch has ended user frustration by minimizing the times that they could not get on the system due to a particular processor being overloaded. We have developed and implemented an interpark message system, a quarters rating and notification system, and an equipment tracking and inventory system.

We support and train personnel from every division in the park on the use of the system and all available software. At this time, the packaged software we use is DATAFAST programming aid, DATASCAN database, IEOS word processing, and MULTIPLAN spreadsheet (DATABUS, BASIC, COBOL and FORTRAN languages and upward of 50 customized systems). We have graphic and statistical packages on the PC's that we support and train personnel from Administration, Concessions, Denver Service Center, Fish and Wildlife, Interpretation, Maintenance, Resource Management and Visitor Protection, and Research units.

## C. Personnel

The Personnel Branch has undergone a series of inspections this past year. These inspections focused on our staffing program and utilization of our delegated authority. The inspection results indicate significant improvements in our program, although some problem areas remain. We are continuing to "fine tune" this program. Manpower needs are reviewed on a regular basis and reduced where workload changes permit. Increased emphasis is being directed toward conducting training classes in the park with local resources. This approach helps reduce expenditures for training and travel and also increases training opportunities for employees. Increased use of computers and associated programs and the sharing of personnel data with other parks are two areas which are being explored for potential benefits.

## D. Telecommunications Services

1. Radio Communications. Yellowstone's radio system is still serving the park well. Most of the present equipment was purchased in 1982 and is holding up well. Areas not adequately served are East Entrance and the Northeast Entrance/Beartooth area.

2. Telephone Communications. We have continued to place emphasis on planning and managing our telephone services. As a result, we have contained or reduced costs in many areas. Nearly all ATT-IS telephone sets have been replaced with government-owned phones. A significant effort was placed on developing a computerized data base system for tracking all Mountain Bell services and their costs. This system, which includes a full technical description of each circuit, will be complete by March of 1987. It will be the first such system to be used in the National Park Service.
3. Data Communications. The need for data communications continues to grow. Preliminary planning for expanding data communications out into the park has been initiated and will become a major project for 1987.
4. Data acquisition, alarms, and remote monitoring. The Old Faithful Geyser monitor system continues to provide excellent data for the park geologist and others of the scientific community. The use and dependence upon fire and intrusion alarm systems continues to grow. This past year, all systems were evaluated and restored to good working order. Records were updated/improved. The workload in this area is expected to increase.

## II. CONCESSIONS MANAGEMENT

### A. Concessioners

TW Services reported 672,855 overnight guests during the summer of 1986. During the same period, 1,450,974 meals were served in TW Services' food service facilities. This compares to 680,919 overnight guests and 1,600,611 meals during the same period in 1985.

Hamilton Stores, Incorporated, reported an increase in sales of approximately 5 percent. The West Thumb General Store was removed, by burning, in the fall of 1986 in accordance with the park's Master Plan.

Yellowstone Park Service Stations sold 2,680,170 gallons of gasoline in 1986 compared to 2,586,277 in 1985.

West Park Hospital reported treating 2,954 visitors and 2,315 park and concessions employees. West Park Hospital's staff provided over 89 hours of assistance in continuing education programs for park emergency medical technicians and park medics. The National Park Service purchased approximately \$745 in equipment, including a blood glucose monitor, a child and an adult resuscitator, and a pair of adult anti-shock mast trousers for West Park Hospital's use in the park.

B. Winter Operations

TW Services opened the Mammoth Motor Inn for the fifth winter season on December 19, 1986. As expected, operation of the hotel and winter services have become very successful. The Old Faithful Snow Lodge continues to be popular to winter visitors.

C. TW Services, Incorporated, Contract - Five-Year Extension

The contract amendment which was executed on October 28, 1985, took effect on November 1, 1986, with a termination date of October 31, 1991. In addition to providing, up front, a \$1 million advance to accelerate room rehabilitation, the amendment to the contract substantially increased funds available under the Capital Improvement and Maintenance Program for improvements in Yellowstone over the next five years.

D. Hamilton Stores, Incorporated - Franchise Fee Increase

In December 1984, the Regional Director sent a letter to the President, Hamilton Stores, notifying him that, based on the concessioner's financial picture, the National Park Service (NPS) intended to reconsider the amount and character of their franchise fee, which is currently 2 1/2 percent of the previous year's gross receipts, and that the National Park Service wanted to enter into discussions with them in the early part of 1985. Subsequently, numerous meetings have been held, and correspondence has been exchanged regarding the impact and affect of the proposed franchise fee change. In the last exchange with Hamilton Stores in November 1986, they indicated a willingness to proceed with negotiations and offered an approach to reaching an agreement. Negotiations are ongoing.

E. Yellowstone Park Service Stations - Joint Venture Agreement

Copies of the draft Joint Venture Agreement for Yellowstone Park Service Stations, prepared by the National Park Service, were submitted in October 1986 to Hamilton Stores, TW Services, and Yellowstone Park Service Stations for review and comments. Negotiations are underway to develop this agreement. The National Park Service is determined to become more involved in directing the activities of Yellowstone Park Service Stations since we have a 50 percent interest in this venture.

F. Expiration of Medical Concessions Contract

The contract for medical services, currently being provided by West Park Hospital, Cody, Wyoming, has been extended through October 31, 1987. This extension will allow the Park Service to evaluate possible inclusion of a capital improvement program for

the Lake Hospital into the fact sheet. The fact sheet, soliciting proposals for providing medical services in the park, should be issued in the next few weeks.

G. Year-Round Medical Services at Mammoth

The effort to provide a year-round clinic at Mammoth to serve people in the Mammoth/Gardiner area has not been successful. We will continue to work with West Park Hospital and the U.S. Public Health Service to recruit a physician to provide this service.

H. Restoration of Lake Hotel

Since the inception of Package 620 and the Capital Improve and Maintenance Program, various projects and improvements have been undertaken at the Lake Hotel, including fire/safety improvements, rehabilitation of the kitchen, replacement of boilers and steam lines, foundation work, and renovation of the dining room, gift shops, and lobby area. Restoration and upgrading of the rooms in the east wing of the hotel began in the fall of 1986 and continues through the winter. The rooms are being brought up to a level compatible with the restored lobby and dining room. The hallways are also being renovated to enclose the piping, and a new sprinkler system and new carpeting, similar to the lobby carpeting, are being installed. Future plans call for the National Park Service to undertake improvements to the exterior of the hotel, landscaping, and parking access under Package 620. In 1988 the central portion of the hotel will be worked on, and in 1989 and 1990 the west wing will be done.

I. Firewood Permit

The current permit with Triangle Firewood Company expired on October 31, 1985. A Statement of Requirements was issued on October 9, 1985, soliciting bids for the continued operation of firewood services in Yellowstone National Park. Proposals were received from six individuals and the current concessioner. Two proposals offered a higher franchise fee than the 3 percent offered by the current concessioner; however, neither offered more operationally. After a financial review and background check of the two proposals, only one was determined to be acceptable. Exercising his preferential right of renewal, the current concessioner amended his proposal to meet the increased franchise fee. After negotiations with the concessioner, an amended permit was executed on April 23, 1986, with an increase in franchise fee from 3 percent to 3.75 percent.

J. Capital Improvement and Maintenance Program (CIMP)

Under the Capital Improvement and Maintenance Program, TW Services is required to commit 22 percent of their previous year's gross revenue toward maintenance and upgrading facilities they operate. These projects include: kitchen equipment at Mammoth and Roosevelt; restroom rehabilitation at Mammoth, Canyon, and the Old Faithful Inn; exterior painting at Old Faithful Lodge cabins; new drapes for the Mammoth cabins; upgrade of mattresses, box springs, pictures, and lighting at Canyon; replacement of tables and chairs at Canyon Lodge cafeteria and removal of asbestos at the employee dining room; replacement of door locks at the Old Faithful Inn (Old House); construction of office at Bridge Bay marina; purchase of laundry vehicles; employee recreation room upgrade at Lake Lodge and Roosevelt; and fire safety and sanitation improvements.

K. Package 620

From FY 80 to 85, \$29.3 million was provided under Package 620 to correct health and life/safety code deficiencies and sanitation problems. The program also addresses some of the more "long-term rehabilitation" projects such as renovation of public restrooms, dining room and lobby renovation, room and bath rehabilitation, bath additions, water system improvements, kitchen renovation, and other non-emergency projects. In FY 86 two major projects were begun and are currently underway: (1) Mammoth Restaurant Kitchen renovation (current contract amount, \$1.6 million) and (2) Lake, Old Faithful, and Mammoth asbestos abatement and fire systems project (\$2.7 million).

III. INTERPRETATION

A. General

Training for seasonal and permanent staff members remained a high priority with the Division of Interpretation. In 1986 five days of consolidated training were held at the YCC Camp from June 9-13. Subject matter was diverse, including such topics as: bear biology, communication skills, geology, and storytelling. Exposure to issues and new research continued into the summer with the Interpretive Summer Seminar Series. Sessions included discussions of fire management, current mountain lion research, and Yellowstone weather patterns.

Chief of Interpretation George Robinson traveled to Harpers Ferry Center in August to discuss a number of projects with the staff: production of an aerial-oblique poster of the greater Yellowstone area (completion in 1989); production of a Yellowstone area natural history handbook; fundraising

strategies; and final changes in the Interpretive Prospectus (approved December 1986).

1. VIP Program. Volunteers continued to provide valuable assistance to all divisions within Yellowstone Park. During 1986, 271 VIP's compiled 22,488 hours, providing over \$155,000 worth of voluntary services. Of the \$8,700 allocated to the park for VIP funds, 93 percent was spent on volunteer subsistence, with the remaining 7 percent being used to purchase uniform items, such as shirts, pants, and nametags. Projects that volunteers were involved with included: the YCC program, study of the solid waste disposal system, campground host program, research data collection, and participation in special commemorative ceremonies.
2. Yellowstone Association. During 1986, the Association provided \$54,158 of aid to the Division of Interpretation. Among projects funded were: printing and distribution of the "Discover Yellowstone" bi-weekly interpretive schedule and other leaflets; support of annual training; and salaries of part-time librarians.

The Yellowstone Institute continued to offer classes on a variety of subjects, including zoology, plant life, history, and geology. During the period of June 9 through August 31, 47 courses were given at the Institute with 586 individuals participating, a 48 percent increase over 1985.

#### B. West District

The West District Interpretive staff for the 1985-86 winter season again consisted of one permanent district interpreter and four seasonals. All four employees lived at Old Faithful, even though one was assigned to informal contact duty at the warming hut, which is set up each winter at the Madison picnic area. Previously the employee assigned to that duty has lived at the Madison residential area. The process of commuting from Old Faithful provided an additional patrol each day for visitor and resource protection values. It also provided opportunities for additional interpretive contacts.

The winter program at the Old Faithful Visitor Center went well with a diversity of activities, including conducted geyser basin walks, half-day ski tours, interpretive demonstrations, and evening slide programs. The visitor center was open to the public from December 18 through March 9. We were assisted by a Volunteer-In-Parks for 24 hours per week from December 18 through February 18.

The 1986 summer staff lost two positions this year, dropping from 11 in 1985 to 9. The reduction was compounded further by a two-week delay in hiring seasonals in spring and a reduction in staff numbers during the fall. The Yellowstone Association hired an information receptionist to assist seasonal interpreters at the visitor center information desk. Without this assistance, the number of conducted activities would have been reduced by 20 percent. Additional assistance was received from five concession employees who volunteered at the information desk during mornings and evenings when only one person was normally scheduled for duty. Their aid was greatly appreciated.

The information receptionist position assigned to the Chamber of Commerce in West Yellowstone had to be abolished this year due to lack of funds. Literature and other information was supplied by the district interpreter to help visitors who stopped at that office.

Several of the Madison Museum exhibits were taken to Bill Chapman in October for rehabilitation. They will be ready for reinstallation next spring.

In addition to regularly scheduled activities, several special programs were presented to educational and youth groups, concession employees, the Secretary's Advisory Board, and the board of A Christian Ministry in the National Parks.

#### C. South District

During winter 1985-86, both the Canyon and West Thumb warming huts were staffed seven days per week with paid interpreters. At Canyon two seasonal interpreters evenly divided the duties so that each worked 3.5 days per week. That was their preferred option, and it worked extremely well. At West Thumb there was one full-time interpreter and one two-day-per-week interpreter. Emphasis in both huts was to present short (10 minute) interpretive talks or demonstrations to visitors while they were eating or warming up. This proved to be an extremely effective means of interpretation which will be continued in future years. (The new exhibits in the hut greatly helped interpret inside.) Canyon rim snowmobile tours were offered at 1 p.m. daily but were not well attended. Tours of the West Thumb Thermal Basin were offered daily as groups of visitors came through and were well attended and extremely popular. Winter interpreters continued to be the main contacts of winter visitors. Much valuable safety and route-planning information was dispensed at the huts which prevented potential problems from developing. Winter interpreters are valuable members of the park team; we should insure that at least these minimum levels of services continue in the future.

In summer, severe budget constraints for the entire park affected interpretation in the South District; staffs were reduced in all areas. At both Canyon and Fishing Bridge, seasonal supervisors were not hired. Instead two permanent employees from the Special Projects unit were detailed to perform those functions. That experiment was a success for many reasons. Emphasis continued to be on more creative methods of interpreting the world's first national park. More diverse programs than ever before were offered (but fewer total program hours) in spite of budget cuts. Yellowstone's initial budget strategy was to close the Grant Village Visitor Center all season; plans were made to that effect. In late spring the decision to open Grant was made for the park. At that late date no traveling exhibits could be found, and the exhibit hall was closed (permanent exhibit options are being examined). Funds were available for only two interpreters (down from seven in 1985 and five in 1984), who primarily staffed the visitor center desk and only occasionally were able to give interpretive programs. The area was woefully understaffed which led to poor visitor services and poor employee morale. In all three areas, the Yellowstone Association assumed more responsibilities in the visitor centers and worked more hours. Without their help, we would have been overwhelmed.

A new South District Clerk was hired in late March and worked full-time until about mid-October. The position description was changed from full-time to subject-to-furlough as an experiment to save money and reduce the park's FTE. Unfortunately other clerks were not fully able to assume the limited off-season duties of the South District Clerk, and the position will have to be changed in 1987 to better serve seasonal employees.

During winter 1986-87, Canyon was staffed seven days per week as in previous years, and Grant was staffed five days per week due to a lack of qualified employees to hire for the two-day position.

#### D. North District

The North District Interpretive staff provided interpretation and information at Mammoth Hot Springs and Norris. Due to budget cuts, there was no interpreter and no interpretive services in the Tower/Roosevelt area for the first time in many years. During the summer, Mammoth had five seasonal interpreters (six in 1985) and Norris three (four in 1985). These represent the third successive annual declines. The staff also worked shorter seasons. The two members of the Special Projects staff who assisted with North District programs in the summer of 1985 were detailed as supervisors in the South District, resulting in an additional cut in the program at

Mammoth. Winter 1985-86 staff included one full-time seasonal for part of the winter overlapping with two part-time seasonals (occupying the equivalent of one full-time position) and several successive full-time volunteers (with a maximum of one at a time). This was the same level as the previous winter. During the spring, subject-to-furlough interpreter Dick Townsend retired after almost 30 summers of service.

The Albright Visitor Center at Mammoth was open every day of the year, serving 196,846 visitors in FY 86, an increase of 27 percent over FY 85. The Norris Museum was open from May 15 through September 30 (with the help of the Maintenance staff), serving an estimated 650,000 to 800,000 people. Improvements in interpretive facilities suggested, and in some cases overseen, by interpretive supervisors included: a trail and viewing platform for Canary Spring at Mammoth, completion of the trail delineation project in the Norris Back Basin, and replacement of log seats at the Norris Campground Amphitheater.

Though fewer programs were given by the smaller staff, the diversity of programs and aspects of the park interpreted remained high. Except for the volunteer from the Student Conservation Association at Mammoth, all were experienced interpreters (all but one with Yellowstone experience). The proportion of programs specifically for children was greater than in FY 85 or probably any previous year. Several special programs were provided for the local children at the day care center.

Unforeseeable events affected the interpretive program. Indian Creek Campground, where the interpreters based at Mammoth present evening programs, was closed for part of the summer and restricted during much of the rest because of the proximity of a female grizzly, bear #122. While the campground was open, the interpreters increased the already large role that they play in educating campers about safe practices in bear habitat. The severe illness of one staff member and of the father of another cut their employment seasons short.

Particularly at Norris, the small staff size and large visitation caused us to rely more heavily than ever on Yellowstone Association sales clerks to provide basic information while selling books. If this trend continues, these employees should receive more comprehensive training on handling emergencies, performing information duty, etc.

The winter seasonal interpreters and one volunteer at Mammoth, with some help from the district naturalist, presented a diverse program of winter activities. Participants were principally visitors staying at the Mammoth Hotel. The Wildlife Camera

Safari program, a weekly car caravan offered in cooperation with the Gardiner Chamber of Commerce, took place again from mid-January to mid-March. Attendance was somewhat down from the high of the previous year.

The Mammoth area naturalists continue to be the principal observers of geological changes in the activity of the hot springs. They noted an increase in the activity on and near Opal Terrace at the base of Capitol Hill. Minerva, Jupiter, and Canary Springs continue to have the greatest flow. The location of the runoff channels and vents of these springs changes frequently. During most of the year there was almost no activity along the crest of Narrow Gauge Terrace (a fissure ridge). The large, rapidly growing spring on the ridge's south side declined to the point of completely stopping flow for a period in November (1986). Bath Lake remains dry, and the spring across the road from it shows flow from only one moderately sized and one small vent. Throughout the summer there was substantial flow from an area to the northeast just below the rim of Highland Terrace. This is a relatively major new development. Flow continues on Angel Terrace, though the greatest volume is coming from a vent low along the south edge of the hill. Refer to the terrace report for changes in more minor features.

The North District Naturalist also serves as Park Historian, maintaining the park archives and supervising the Park Curator and Librarians. A large number of letters requesting historical information were answered. The library was open 19 hours a week all year. Approximately 800 people used the library (410 NPS employees and 380 members of the general public). The librarians made interlibrary loans (both directions) totalling 110 items. They accessioned 71 books, an uncounted number of vertical file items, and circulated 450 books. Many books, particularly those from the extensive rare book collection, were used only in the library. A steady stream of donated albums of Yellowstone visits, older pamphlets and books, and manuscript items were received.

The Park Historian commemorated the centennial of the Army's arrival in Yellowstone by writing several articles, press releases, and public announcements and arranging a ceremony involving the Secretary of the Interior, a representative of the Army, etc.

#### E. Curator

This year publishing and wayside exhibits occupied most of the Curator's time. In April, a Macintosh Plus computer with hard drive and assorted software and a Laserwriter printer were

installed in the Special Projects office. Nearly all of April and May were spent learning how to use the equipment in preparation for producing the biweekly "Discover Yellowstone" throughout the summer. Seven of these "magazines" listing interpretive activities and including articles about the park's natural and human history, as well as activity pages and information on facilities and services, were produced by the Curator, distributed by Yellowstone Association personnel, and sold for 50 cents at visitor centers and concession facilities around the park. The Macintosh will also be used in the production of the park newspaper in the future and is used to store and calculate statistics needed for the Annual Statement for Interpretation.

Wayside exhibit planning continued to be a high priority item. Parkwide proposals arrived and were circulated to district interpreters, rangers, and the Resource Management and Research offices for review. The package was approved in May. Winter Wayside Plan preparation continued. Reference material, photographs, maps, and illustrations were gathered for each exhibit panel and shipped to Harpers Ferry Center. The North District portion of parkwide planning was also launched.

In January excessive levels of radon gas were recorded in the basement of the Albright Visitor Center. Highest and most hazardous levels were measured in museum collection storage and the Curator's office, with slightly lower but still unsafe levels recorded in the Research Library. Levels recorded in the Blacksmith Shop, the structure housing the historic photo collection, were so high that this space was deemed suitable only for storage. Temporary alternate work space was located. Improvements to the ventilation system were made, but this compromised maintenance of a stable environment for proper collection storage. Because of the need for security and a stable environment, the standard approach to reducing radon gas levels causes problems and is not as effective as in a residence.

Continuing the trend of the last several years, demand for access to the collection grew in 1986. Researchers, writers, and park staff requested prints and/or negatives of more than 2,000 photographs. Wayside exhibit planning alone requires large numbers of photos during planning and design phases. A first and absolutely essential step to improve conditions is to move the collection into a space that is safe for people and objects.

The Curator also coordinated the renovation of exhibits at Madison Museum; coordinated preparation of 10-237's and 10-238's; conducted Winter Camera Safaris; and helped staff the

information desk/backcountry office at the Albright Visitor Center.

F. Special Projects Unit

In 1986 the Division of Interpretation's Special Projects Unit continued work in two major program areas: developing Expedition: Yellowstone!, the park's school outreach program, and providing program direction and logistical support to the summer interpretive operation by assisting with seasonal training and supervising the programs at Canyon and Fishing Bridge.

Work was completed on the writing of the Expedition: Yellowstone! curriculum teacher's workbook. Set for publication in the fall of 1987, the workbook has undergone extensive testing with teachers and students in the field and in classrooms.

The curriculum's storybook, Expedition Yellowstone, A Mountain Adventure, by Sandra Chisholm Robinson, was published in June of 1986 by Roberts Rinehart and is being sold by The Yellowstone Association.

In addition, Expedition: Yellowstone! received considerable publicity through articles that appeared in the Livingston Enterprise and several news spots that were broadcast on television stations in the Salt Lake City area.

In other work, Joe Zarki served as the chairman of a Superintendent's committee on training and orientation. In 1986 the Orientation Committee designed, developed, and conducted a series of orientation programs for park employees. A pilot 4-hour program was presented 16 times in May and June to over 250 employees at various locations around the park.

A proposal for "Yellowstone '89," a world conference on interpretation to be held in Yellowstone in 1989, was drafted and presented to Director Mott. The Director gave his approval to this idea which will rely on financing from grants and corporate donations. This conference will be a major focus of the Special Projects Unit in coming years.

Other work included: breeding bird surveys for the Fish and Wildlife Service; coordinating the Audubon Society Christmas Bird Count; serving on the Superintendent's publications committee; supporting interpretive operations through special programs; advising seasonal employees; and maintaining the collection of interpretive educational activities.

#### IV. MAINTENANCE

##### A. General

Much of the staff's time was devoted to dealing with severe budget cuts due mainly to the Gramm-Rudman Act. The major project that proceeded was the new maintenance facility in Mammoth which was continued through an 8a contract with the Small Business Administration. The work order system was refined and is being expanded to include the South District operation. This should set the groundwork for the proposed intensified Maintenance Management System that is due to come on line in 1987. The lack of a cyclic maintenance program is again the division's biggest concern.

##### B. Buildings

Work on park buildings consisted of responding to critical work orders involving repairs necessary to keep the buildings open and functional. Due to ONPS funding levels, cyclic and preventive maintenance have been deferred at least another year. Most building repair and rehabilitation accomplished this year was funded under PRIP. Most of the cyclic work was deferred, thus increasing the backlog of necessary work.

Park crews replaced historic metal shingle roofs with new metal shingles on Buildings 24 and 31, and the Fire Cache roof was reshingled with clay tile shingles to return it to its historical condition. The south side roof remains to be done.

Park maintenance and YCC crews stained the Mammoth Aspen Dorm to protect the wood and blend the dorm in with other area buildings.

##### C. Utilities

Work progressed in a manner similar to "Buildings" work. Percolation beds at Madison sewage plant were cleaned and rebuilt, and new utilities were installed to the concession dormitory at Tower Fall. Three-phase standby power capability was provided for the Grant Village maintenance shop, and fuel storage was increased at Grant Village and South Entrance.

##### D. Quarters

North District quarters work orders and quarters turnover renovation was handled by the quarters crew. The crew completed 32 quarters this year in turnover renovations.

Quarters buildings in the West Entrance and Grant Village districts were painted.

The quarters program continues to lose approximately \$500,000 per year, and the quality of housing has decreased to the point that it is a disgrace. Over 25 percent of the units are of a temporary nature (trailers, transahomes, wingfoots) that were never intended for use in this climate.

E. Repair/Rehab Projects

Approximately \$1.8 million was obligated by the park during FY 86 on repair/rehab projects. A description and status of each project administered or coordinated by the Maintenance Division is as follows:

1. Rewire Historic Residential Buildings (\$341,000). Day Labor - 100 percent complete. Rewired and replaced fiberboard with gypsum board in Buildings 12A, 83, 31, 9A, 17, 13B, 106, and 191. These buildings are located at Mammoth Hot Springs, Lamar, and Lake. Upgraded the electrical wiring to current National Electric Code and improved the life/safety aspects of the buildings. All buildings are on or eligible for the National Register.
2. Enclose Stairwell and Provide Smoke Detection (\$102,000). Day Labor and contract - 100 percent complete. Installed new halon fire protection system in the Rare Books Room in the Museum. Installed complete fire detection system in Building 70 which contains 20 apartments. A fire sprinkler system was installed in all exit corridors of Building 36. In addition, fire-rated doors were installed on all office openings into corridors in order to provide safe egress in the event of a fire.
3. Replace Heating Plants (\$52,400). Day Labor and contract - 100 percent complete. A new primary steam boiler was installed in Building 36, and the two separate heating systems were connected into one. Additional steam baseboard heat was added to offices which contained an insufficient number of radiators.
4. Paint Exterior and Interior of Park Buildings (\$44,000). Day Labor and contract - 100 percent complete. The exterior trim and siding of 16 "Mission 66" quarters were painted by park crews. Change orders to a FY 85 8a contract were awarded to paint Buildings 2A, 2B, and 3.
5. Reroof Portion of 131 Buildings (\$58,000). Day Labor and contract - 100 percent complete. Deteriorated portions of the roofs of Buildings 36 and 70 were repaired, and heat tape installed on areas of the roof where dangerous icicles form each winter. Additives to a FY 85 contract were awarded to reroof interior park buildings.

6. Replace Hand Dryers in Visitor Center (\$6,100). Day Labor - 100 percent complete. Seventeen hand dryers were purchased and eight installed. Four additional hand dryers were repaired. The remaining nine hand dryers will be installed during the summer of 1987.
7. Install Radon Barriers (\$48,000). Day Labor - 100 percent complete. Crawl space and/or basement vents were installed in 78 residences in the Mammoth area. Additional insulation was installed in crawl spaces where vents may have an adverse effect during winter months. Monitoring and testing continued.
8. Replace Lift Station Pumps and Controls (\$24,600). Day Labor - 100 percent complete. Installed two pumps (one in each lift station at Madison) and built and installed two control panels for the lift stations. Spare parts were also purchased for sewage pump controls.
9. Replace Components of Sanitation Systems (\$46,400). Day Labor - 100 percent complete. Installed a 10-inch Palmer Bolis flume and vault at Canyon. A 12-inch Parshall flume and vault was installed at Grant Village. Construction was begun on the new lab at the Canyon wastewater plant. The building is totally framed and roofed with rough plumbing and electrical (interior finish remains). This project was only 50 percent funded.
10. Replace/Rehab Brick Chimneys (\$10,000). Contract and Day Labor - 100 percent complete. The contract portion amended a FY 85 contract to line a chimney at the Lake Ranger Station and repair fire boxes at Mammoth. New metal chimney units were installed for certain chimneys which were not considered safe for use.
11. Rehab Backcountry Cabins (\$40,400). Day Labor - 100 percent complete. The Heart Lake Patrol Cabin project was completed (log stabilization and replacement, removal of the concrete floor slab, and replacement of a rock masonry foundation with a wood floor). Reinking and restaining were accomplished. Similar work was also accomplished on the Hellroaring Patrol Cabin.
12. Replace Thermal Area Walks (\$30,000). Day Labor - 100 percent complete. Thermal area walks at Mineral Terrace, Castle Geyser, and Geyser Hill were replaced with new boardwalks.

13. Repair/Rehab Curbs and Sidewalks (\$10,000). Day Labor - 100 percent complete. This limited funding was used to construct entrance porches, walkways, and area walks in the Tower Junction government trailer court. The walks help keep the trailers clean as well as provide a safe walking surface.
14. Stripe Park Roads (\$10,500). This money, in conjunction with funding from the implementation of the traffic safety study recommendations, was used to award a contract for parkwide road and parking area striping. The work will be accomplished in 1987.
15. Repair Historic Roofs - Mammoth (\$185,000). Two supply contracts procured an additional 400 squares of historically reproduced metal shingles for use at Fort Yellowstone. A construction contract was awarded to reshingle Buildings 4, 5, 6, and 7 in 1987. All funds were 100 percent obligated.
16. Rehab Log Structures - Lamar (\$39,700). Contract - 100 percent complete. The Lamar barn was historically restored with log end repairs and sill log replacement. Similar work was accomplished on two other log structures at Canyon.
17. Repair Ranger Museum - Norris (\$20,000). Contract - 100 percent complete. The exterior of the Norris Soldier Station was restored, and some materials were purchased for the interior work. The Norris Museum received some cyclic exterior wood treatment.
18. Replace Comfort Station Fixtures (\$10,100). Day Labor - 100 percent complete. All comfort stations in the Bridge Bay Campground had new dividers and doors installed.
19. Repair Reese Collection and Disposal Facilities (\$10,000). Day Labor - 100 percent complete. Ten solid waste compactors were replaced, and 60 were painted.
20. Install Maintenance Facilities - Mammoth (\$350,000). Contract - 100 percent obligated. The funding was combined with ONPS funds to award an 8a contract for the construction of a maintenance garage at Mammoth. This structure will allow the existing garage to be utilized as a structural fire center.
21. Rebuild Unsafe Road Shoulders (\$50,000). Day Labor - 100 percent complete. The road shoulder from Mammoth to Twin Lakes was re-established. This should decrease accidents until the road can be rebuilt.

22. Rehab Buildings to meet NFPA (\$125,500). Day Labor - 100 percent complete. Rehabilitated the bunkhouse, mess hall, and quarters at the Beartooth Road Camp to NFPA standards.
23. Bison Boundary Fence (\$17,300). Day Labor - 100 percent complete. A bison fence, cattle guard, and adverse equipment was purchased and installed to endeavor to keep bison from leaving the park on plowed roads.

In addition to the above 1986 projects, work was completed on contracts from FY 85 on roofing, vault toilets, garage foundation, sidewalks, and painting.

F. Roads and Front Country Trails

Tree planting, mulching, and walkway construction continued in the Grant Village development and new dorm and cabin area. Grading and drainage in the cabin area was also accomplished. The Grant Village contractor trailer court and maintenance shop area were paved.

Log bridge railings at Midway and Geyser Basins were replaced, and new boardwalk view areas were constructed at Kepler Cascades and Canary Springs.

Log delineator posts were placed in Slough Creek and Tower Campgrounds to channel disturbance.

The Canyon South Rim Trail from Uncle Tom's to Chittenden Bridge was rehabilitated by surface leveling, replacing bridges, and improving drainage. YCC crews helped park maintenance crews on this project.

Hazard tree removal and tree planting was accomplished in the Mammoth area.

Spring opening was delayed due to a late start and extremely icy conditions in the park. The West Entrance was opened to Mammoth and Old Faithful on April 12 and officially closed on November 6. The East and South Entrances opened on May 13 and closed on November 6. The Beartooth Highway opened on June 3 and closed on September 22. The Beartooth Highway closed early because of work being done by the Montana Highway Department near Red Lodge.

There was no major roadwork due to budget cuts, and patching was virtually the only treatment most of the roads received. Fishing Bridge intersection was completed.

The Federal Lands Highway Program (FLHP) continued in the planning stage with the Old Faithful-West Thumb road in the final design stages. In preparation for this work, \$65,000 was spent on seed collection. Traffic counters were installed at Mammoth, Madison Junction, South Entrance, and Fishing Bridge Junction. The traffic study was finalized and the recommendations were made a part of the striping contract with FLHP funding.

#### G. Backcountry Trails

Backcountry trail work was accomplished by three trail crews, but much work remains to try and catch up to the work that was deferred over the last decade. The heavy construction projects accomplished in 1986 are outlined as follows.

1. Slough Creek Wagon Road. Replaced four metal culverts with timber ones. Performed tread and maintenance work.
2. Lost Lake Trail. Tread and drainage work and a stock bridge were constructed.
3. Fawn Pass/Big Horn Pass Area. Constructed bridges over Fawn Creek, the Gardner River, and Panther Creek. Redecked a bridge on the Beaver Ponds Loop Trail. Cleared an avalanche in Big Horn Pass with assistance from West Yellowstone Jump Center. Constructed a bridge on the Electric Pass Trail.
4. Cache Creek Area. Cleared trail over the Thunderer, up Republic Pass, and down Cache Creek and performed maintenance the entire way.
5. Concession Trails. Tread work near Roosevelt and 100 yards of gravel near Petrified Tree was accomplished. Installed one stock bridge near the Mammoth Terraces and five stock bridges on the Cascade Creek Trail.
6. Buffalo Fork Trail. Constructed four bog bridges and performed tread work.
7. Crescent Lake Trail. Rerouted one and one-half miles of trail and reconstructed an additional one-half mile. The old trail had excessive grade and wet spots. The new tread was cleared and excavation was begun. Erosion control, bridges, culverts, waterbars, and checkdams were installed. Revegetation was begun.

8. Daly Rims/Sky Rim Trail. Performed maintenance, reconstruction, and preparation work from Daly Creek to the top of the rims. Installed two bog bridges and blasted rock and stockpiled timber in preparation for a log crib switchback section.
9. Seven Mile Hole Trail. Completed reworking the trail with four short reroutes, 150 steps, checkdams, and waterbars. The entire trail was raked of small rock.
10. Heart Lake Trail. Performed maintenance and reconstruction from the trail head to the cabin. Replaced two bridges and rerouted 400 yards of trail near the three-mile marker. Constructed a stone retaining wall.
11. Trail Creek Trail. Worked on a 170 foot bog bridge near the lower ford and stockpiled materials to replace the bridge in 1987.

#### H. Energy

Separate reporting of "process energy" has given more meaning to the building and utility portion of electrical usage. That portion shows a significant decline in the year as compared to 1985 and has been a major factor in reducing the annual energy input to 147,000 btu/sq. ft. - down 21 percent from last year. Helping this favorable trend was the continued lowering of fuel oil consumption. At 206,000 gallons, usage was down 10 percent from last year and was just 53 percent of the amount consumed annually 10 years ago. Propane use was up somewhat during the year; gasoline consumption dropped 7 percent to its lowest level since tracking began in 1975; and automotive diesel fuel use was at about the normal level to sustain essential road maintenance.

#### I. Operations

As with other facets of the division, the operations portion was hindered the lack of sufficient cyclic funds. The equipment fleet continues to be replaced at a non-efficient rate. A new push plow, rotary snow plow, grooming attachment, and 29 snowmobiles were purchased.

The old Grant Village dump was cleaned up. The old Firehole Lake dump was landscaped. Both dumps were closed. The old Old Faithful Lodge cabin area was landscaped with debris hauled and holes filled.

Two old comfort station buildings were moved from Fishing Bridge to the Lake maintenance area. One will become the electric shop, the other will be a carpenter shop. This will relieve activities which have crowded the Lake maintenance shop.

A building was moved from Old Faithful to Norris to be made into a washhouse, removing the old one from the naturalist dorm.

Hot tubs were installed in Old Faithful, Madison Junction, Grant Village, Lake and Canyon in order to reduce winter stress.

Lumber storage was added on to the Grant Village maintenance shop. Concrete aprons were added to the stall entrances, and a fire door was installed on the south side of the building.

## V. RESEARCH

### A. General

The Division of Research continues in its role of providing management with data and recommendations pertinent to: (1) informed management decisions; (2) information provided the media, public, and other agencies (both national and state); and (3) research needed in the future. The division also coordinates all (government, university, commercial, independent) research conducted in the park and serves as policy and logistics advisor to the Fisheries Assistance Office, U.S. Fish and Wildlife Service. Public, media, and political interests continue to focus on Yellowstone's resource issues, many of which are controversial, and thus the necessity for a strong and viable research function continues.

The division's staff now consists of 12 permanent and up to 26 seasonal employees working on three general subjects: plant and animal ecology, geology, and the Interagency Grizzly Bear Study Team. There were also several VIPs and SCAs who made valuable contributions to the division's mission.

### B. Research in the Park

Yellowstone's special physical and biological attributes attract researchers from all over the world. During 1986 about 167 research projects were underway in the park, over 92 percent of which were carried out by university, commercial, independent, or other government agency scientists. These projects represent the expenditure of about three million dollars in public and private funds. Roughly 20 percent of this total represents National Park Service-appropriated monies.

Of the total number of research projects, 63 percent have a biological theme, 30 percent relate to the physical sciences, and less than 8 percent are involved with sociological or "other" topics.

Of the 104 biological projects, 51 percent dealt with park animals, 22 percent were involved with plant life, and 27 percent with flora and fauna living in geothermal systems.

Fifty projects related to the physical sciences. Broken down further, 64 percent were classic geological topics, and 36 percent were involved with geothermal subjects.

## VI. RESOURCE MANAGEMENT AND VISITOR PROTECTION

### A. General

To improve the resource management program in Yellowstone, four staff members were assigned to ranger districts as resource management coordinators. A Communications Center position and a smokejumper position were abolished, and two management biologist positions were established.

A 40-member, residential YCC camp operated with a seasonal staff of 10. Teenage participants were recruited nationwide, and several states were represented.

A permanent, full-time headquarters clerk position was converted to a job-sharing position. Two permanent employees share the job responsibilities and split the 80-hour pay period by working 40 hours each per pay period.

The Student Conservation Association sponsored a 2-week long work skills training program at Tower Falls. A total of 8 Student Aids (1 handicapped) worked in the park for 12 weeks. SCA also provided 2 high school work groups, one of which was a German exchange group.

### B. Personnel

#### New Permanent Staff

<u>Name</u>	<u>Position</u>
Terry McEaney	Management Biologist
Pat Laitner	Clerk Typist
Don Singer	Fire Protection Inspector
Sue Fullerton	Ecologist
Marilyn Laubach	District Clerk
Bonnie Gafney	Park Ranger
Collette Daigle-Berg	Park Ranger
Rick McAdam	Park Ranger
Melissa Marsino	Communications Clerk
Andy Fisher	Communications Clerk
Mary Meagher	Research Biologist
Jean Nuetzel	Secretary

In 1986 the following permanent ranger personnel resigned, transferred to another division within the park, or transferred from Yellowstone: William Grigsby, Gary Dunning, Les Herman, Jesse Rivera, and Judy Mihan. In addition, Resource Management Trainee Sue Consolo transferred to a permanent assignment in Badlands National Park.

C. Fish and Wildlife Management

1. Major Fishery Resources Accomplishments in 1986

- a. Parkwide Projects. Volunteer angler report cards were issued for the 14th year in conjunction with fishing permits. Approximately 163,282 permits were issued with 4,816 report cards returned. Yellowstone hosted 124,899 anglers who spent 294,849 man days of angling in the park. Angler use is up slightly over 1985. Data for 1986 was presented in our annual report.
- b. Aquatic Survey Program. The backcountry lake program included a return visit to Riddle Lake. The stream survey program collected data on 50 streams with a fish population estimate on Soda Butte Creek and electrofishing the Madison River for a species check.
- c. Yellowstone Lake. High water during runoff and a high lake level eliminated the operation of the Clear Creek fish trap. The annual gillnetting program was accomplished, and limnological samples were taken on Yellowstone Lake. A study was conducted on roadside tributaries to Yellowstone Lake to determine spawning potential and bear use.
- d. Assistance to Researchers. Substantial assistance was provided independent researchers from the University of Wisconsin and S.M.U. of Texas. The Wisconsin group was studying basic productivity of Yellowstone Lake, and S.M.U. was studying sediment heat transfer in Yellowstone Lake. Assistance was also provided to the University of Utah with collection of suckers for a fish identification project, and lab space was provided for a project on mosquito parasites.
- e. Arnica Creek. A renovation project was conducted on Arnica Creek for a second time to eradicate eastern brook trout which were discovered in the spring of 1985. Only 30 small brook trout were found in the 45 miles of the Arnica Creek drainage which indicated that the first treatment was quite effective. The second treatment should finish the job, however, the stream will continue to be monitored in the future.

- f. Yellowstone River. The annual spawning population monitoring at LeHardy Rapids was accomplished, and visitor use at LeHardy Rapids was at record levels due to new signing and boardwalks.
- g. Yellowstone River Sedimentation Study. This study was continued in 1986 at about the same level of sampling as 1985. Sediment and turbidity samples were collected at some 30 sites within the study area in an effort to establish which drainages produce the most sediment. The study is a cooperative project with the Fish and Wildlife Service, National Park Service, U.S. Geological Survey, Trout Unlimited, Soil Conservation Service, Montana Department of Fish, Wildlife, and Parks, and Park County Soil Conservation District.
- h. Lewis Lake. The Lewis Lake lake trout project continued in 1986 with collections of male sperm to be used with eggs from the Jackson National Fish Hatchery, Jackson, Wyoming. 1,083 million eyed eggs were shipped to Michigan.
- i. McBride Lake. The McBride Lake cutthroat brood stock enhancement program was continued in 1986. Yellowstone furnished the State of Montana with McBride Lake cutthroat eggs, which they use to enhance the genetic capabilities of their cutthroat brood stocks. This project repeats every 10 years for a 3-year period, and Montana uses McBride cutthroat in all their cutthroat stock programs.

## 2. Wildlife Management

- a. Elk. The Northern Yellowstone Elk Working Group was established in 1985 to address a comprehensive interagency management program. On December 11, 1986, the northern range elk population aerial census was conducted by Yellowstone National Park, U.S. Forest Service, and Montana Department of Fish, Wildlife, and Parks personnel. Four Super Cubs were employed simultaneously covering different areas of the northern range. A total of 15,963 elk were recorded during the survey. These figures appear to be very close to last year's survey (Dec. 4-5, 1985) when 16,117 elk were counted. The simultaneous average employed this year, using four Super Cubs, appears to be an excellent means of censusing the northern elk herd as long as there are favorable weather conditions. Total elk population for the park is estimated at 25 to 30 thousand.

- b. Bears. There were 2,810 bear sightings reported during the 1986 season; 1,533 grizzly, 1,029 black, and 248 unknown species of bear. Three injuries to people by bears occurred during the 1986 season. One was by an unknown species of bear and two by grizzlies. Two of the three injuries were surprise encounters, both occurring while persons were hiking alone and off the established trails. One involved a single unknown species of bear and the other a sow grizzly with cubs. The third incident resulted in a human fatality when a photographer approached an adult female grizzly too closely.

There were 26 property damages by bears; 15 by grizzly, 3 by black, and 8 by unknown species of bear.

There were 2 management removals in Yellowstone National Park during the 1986 season. One was an adult female (radio collared bear #59) responsible for the human fatality and the other was a yearling male (radio collared bear #127) that was captured and sent to a zoo after numerous conflicts.

Bears captured and relocated inside Yellowstone Park totaled 9 grizzlies and 3 (sow with 2 cubs) black bears. Radio collared bear #122, a sub-adult female, was captured and relocated twice, radio collared bear #59 was captured and relocated with her two cubs once, radio collared bear #79 was captured and relocated once, and radio collared bear #134 was captured and relocated once. Yellowstone Park personnel were involved in 17 relocations involving bears captured outside the park.

- c. Bison. An environmental assessment was completed for the Bison Boundary Control Plan. Bison management was one of the more critical and sensitive management issues of 1986. The plan calls for the park to make reasonable efforts to maintain the bison within Yellowstone. A great deal of effort was directed toward keeping the bison within the confines of the park. A bison guard (cattle guard) and related wing fences were installed near the Undine Falls parking area. Another bison barrier was installed along the Yellowstone River Trail. Fifty-nine bison were taken by Montana hunters during 1986.
- d. Raptors. The peregrine falcon reintroductions continue to show positive results. A total of four young peregrine falcons were placed in a hack box, and three of the four reached the fledgling stage. A pair of

peregrines (one unbanded adult male and one banded sub-adult female) were found occupying a cliff near Madison Junction. The peregrines in the Grand Canyon of the Yellowstone were again successful and fledged 3 young.

A total of 11 eaglets fledged from 16 bald eagle territories surveyed. Boundary studies continued again this year. Preliminary banding results indicate eaglets fledging the first year actually leave the ecosystem in the fall. Most of these banded eaglets eventually return to their natal areas.

- e. Trumpeter Swans. The trumpeter swan production in Yellowstone was outstanding in 1986. A total of 12 cygnets fledged from 5 nests. This is some of the best swan production in Yellowstone in years. The mitigation techniques as described in the Resource Management Plan appears to have some application for boosting trumpeter swan production.

### 3. Threats to the Park Resources and Monitoring

- a. Mining and mining-related activity. Homestake Mining Company and American Copper and Nickel Company, Inc., formed a joint venture to operate the Jardine gold mine. A mine permit application was approved by the State of Montana and a Hard Rock Impact Mitigation Plan was prepared. A final environmental impact statement (EIS) for the project was released last year. The park staff will continue to work with the Forest Service and State of Montana as the project moves towards completion.
- b. Water resources. Water compact negotiations continued between the National Park Service and State of Montana concerning federal reserved water rights. Park staff, National Park Service Washington water rights staff, and the Regional Solicitor have prepared a document that delineates the Service's position on federal reserved water for park units in Montana. This effort is being carried out concurrently with the Park Service's involvement in Montana statewide water adjudication.

### D. Wilderness and Backcountry Management

During 1986, 13,814 people (31,414 visitor use nights) obtained permits for overnight camping in Yellowstone's backcountry. A total of 4,641 permits were issued with an average of 2.98 people per permit. Stock use nights totaled 7,493 (2,099 horses); an average stay of 3.57 nights per head.

While foot travel in 1986 remained nearly the same as 1985, stock use reached an all time high; a 44 percent increase over 1985 and a 12 percent increase over the previous record year (1982). These figures do not include the 450 stock use nights from the Appaloosa Horse Club trip taken during August. When they are added, the increase in use in 1986 over 1985 is 53 percent.

A comprehensive backcountry management plan was initiated and developed during 1986 and is expected to be finalized by the summer of 1987.

E. Park Visitation

Annual 1986 park visitation totaled 2,405,063 reflecting a 6.3 percent increase or 142,608 persons compared to 1985.

	<u>OPEN</u>	<u>CLOSE</u>	<u>VISITATION</u>
NORTH	OPEN YEAR-ROUND		415,367
WEST	4/12/86	11/5/86	816,785
SOUTH	5/16/86	11/5/86	613,892
EAST	5/13/86	11/6/86	423,225
NORTHEAST	6/3/86	9/22/86	135,794

F. Lost and Found Summary

The Visitor Services Office assigned 4,469 found numbers to items valued at approximately \$82,700. Of these, 637 were returned to the owner, 521 were claimed by the finder, and 202 were mailed to Eyes for the Needy. This represents a 26 percent return rate.

G. Fee Collections

1. <u>Entrance and Golden Eagle:</u>	\$581,600.50
Northeast	\$ 38,405.50
North	\$ 94,547.50
West	\$256,585.50
South	\$ 18,812.00
East	\$173,250.00

2. Boat Permits: \$22,690

3. Campgrounds: \$894,901.30

H. Permits Issued

Golden Eagle -	6,653	Special Use -	45
Golden Age -	12,582	Park Supplier -	389
Golden Access -	491	Commercial Use License -	108

I. Central Communications Center Records Summary

	<u>1984</u>	<u>1985</u>	<u>1986</u>
Employee Vehicle Registration	3,190	3,200	3,823
Visitor Identification Notices	426	336	299
Backcountry Permits Recorded	5,065	4,397	4,641
Number of People on Permits	15,890	13,944	13,814
Teletype Messages Sent on Law Enforcement Teletype System	8,402	11,232	14,940
NCIC Enquiries	10,739	13,392	16,609
Wrecker Requests	850	533	602
Law Enforcement Record Checks	30,696	38,629	43,460
All Points Bulletins	45	45	20
Field Investigation Cards/Bonds	6,049	9,354	*2,322
Information Packets Mailed	23,669	36,084	31,977
Incoming Calls on Switchboard	183,096	184,566	189,468
Informational Calls	20,730	30,430	38,538
Motor Vehicle Accidents	447	383	397

\*Past figures have included both FI cards and bonds; beginning with 1986, figure represents bonds only.

Three major law and order operations occurred during 1986.

Operation Big Game was conducted during April in an attempt to curtail illegal gathering of antlers in the park. Twenty-six park rangers were involved over a 21-day period. Eight persons were arrested for possession of natural features.

Two Earth First! demonstrations supporting grizzly bears and their habitat and the removal of the Fishing Bridge and Grant Village developments were conducted in May and July. Approximately 100 Earth First! demonstrators were involved in both assemblies. Fifty-four rangers attended a week-long crowd control training session and were involved in both assemblies. Nineteen persons were arrested at Fishing Bridge and Grant Village during the July demonstration for disorderly conduct and interfering with a government function when they blocked Fishing Bridge and access into the Grant Village Restaurant.

J. Fire Management

1. Structural Fire. A subject-to-furlough professional career training officer was added to the structural fire program this year.

One hundred forty fire fighters received 2,700 hours of training for an average of approximately 19 hours per firefighter.

One hundred ninety-six fire alarms occurred with a total of 2,303 man hours being employed on these responses. There were 3 responses to motor vehicle accidents and 23 responses to fires with estimated damages of \$16,350. There was one minor injury reported at a fire in the Roosevelt Lodge area.

2. Wildland Fires. Yellowstone experienced a moderate to high level of fire danger during the 1986 fire season. Thirty-three fires occurred in Yellowstone. Twenty-seven were lightning caused, all of which were allowed to burn naturally for a total of approximately three acres. Four fires were man caused totaling less than one half acre, and all were suppressed. Two fires were caused by trees being blown across power lines. These fires were also suppressed and burned approximately one acre.

Yellowstone personnel assisted interagency fire fighting efforts by providing manpower, overhead, and the contract Lama helicopter. Yellowstone personnel were sent on 16 out-of-park fires in Montana, Wyoming, Idaho, Oregon, and Alaska.

Fire research plots in Yellowstone were burned in October totaling approximately 10 acres. The plots were selected by research staff personnel to study fire effects and wildlife activity in aspen, grass, willow, and sagebrush fuel types. Yellowstone fire staff conducted the burning operations with assistance from district and research personnel.

3. Air Operations. An Alouette Lama was contracted from June 15 through September 30, 1986. A total of 143.7 hours were flown on the contract helicopter (64.5 hours fire management; 20.5 hours search and rescue; 13.4 hours bear management; and 45.3 hours administration). An additional 17 hours were flown by non-contract helicopters. Other air operations included forest fire patrolling and monitoring by the Cessna 206 based at West Yellowstone Interagency Fire Center and game counts using various Super Cubs. There were no aircraft accidents during 1986.

Helirappel training was expanded in 1986 in Yellowstone. Thirty-five individuals were trained (22 Yellowstone employees, 8 smokejumpers from West Yellowstone, 4 Grand Teton employees, and 1 Glacier Park employee). Approximately 250 rappels were made from the contract helicopter with no injuries. One short haul operation was

performed, transporting a climbing accident victim to safety saving valuable hours and lessening the transporting risk. One rappel was made to monitor a natural fire burning in the backcountry to assess its potential and map it.

#### K. Forestry Program

1. Forestry Crew. There was no forestry crew this year. However, hazard tree removal was accomplished by park resource management coordinators and park rangers.
2. Exotic Weed Control. The Forestry Technician/West District Resource Management Coordinator treated approximately 30 acres of spotted knapweed in the North District and 5 acres in the West District. Various other weeds were also treated.
3. Hazard Trees. Forty dead douglas firs were removed from the Roosevelt Lodge and cabins area. Forty-two trees were removed from Tower Campground, and dead trees were removed from around the Mammoth Chapel. The limber and lodgepole pines remaining in the Mammoth Campground and headquarters area were treated with insecticide to protect them from mountain pine beetle. Hazard trees were also removed from Indian Creek Campground.

#### L. Emergency Services

Nine deaths occurred in the park during the year of which four were natural causes. There were three deaths due to motor vehicle accidents, one suicide, and one bear-caused fatality. There were 564 medical emergencies and 48 search and rescue incidents.

### VII. SUPERINTENDENT'S OFFICE

#### A. Public Affairs Office

1. Personnel. Employees directly associated with the Public Affairs Office included a GS-11 Management Assistant, a GS-7 Park Ranger, and a GS-3 Clerk Typist. Six individuals worked as volunteers in the Public Affairs Office in 1986 assisting with various projects. Daniel Alcalde, a ranger from the Argentine Park Service, served as a volunteer providing assistance in many capacities for several divisions from June through August.

Amy Vanderbilt served as Acting Public Affairs Officer while Public Affairs Officer Greg Kroll was on assignment in South America from November 17 until December 17. Anita Varley was hired as a GS-3 Clerk Typist on May 5.

2. General Information Services. The Public Affairs Office serves as a clearinghouse of information for the park and local communities and responds daily to written, telephone, and walk-in requests for assistance and information.

A wide range of correspondence, often requiring detailed answers, numbered more than 1,000 pieces. More than 25 percent of this correspondence was from foreign countries.

The Public Affairs Office worked closely with the Regional and Washington Public Affairs Offices, keeping them informed on a variety of matters and seeking advice on sensitive issues. Major news items involving Yellowstone included grizzly bear and bison management, the Fishing Bridge development relocation issue, the possibility of increased summer tourism, wolf reintroduction, and a grizzly bear-caused fatality. Early in 1986, Playing God in Yellowstone by Alston Chase was published. The book, critical of NPS management policies in Yellowstone, caused a great deal of media attention. We responded to numerous TV and newspaper interviews on this issue.

We provided assistance and research in preparing a wide variety of fact sheets for the Regional and Washington Offices and the park in general. Frequent assistance was given to the International Affairs Office in Washington with foreign language requests for park information. We also programmed the visits of more than 25 foreign dignitaries and foreign park managers while they were in Yellowstone.

3. News Releases. There were 37 news releases, 18 call-outs, and 1 advisory issued in 1986.
4. Media Relations. Yellowstone continues to be a focal point for local, regional, and national media. This last year was a very busy media year, with a large focus on grizzly bear and bison management, the Fishing Bridge development relocation plans, and the Alston Chase debate. During the year there was growing concern and media interest in the developments on Church Universal and Triumphant property adjacent to the park. Other resource management programs and issues also received considerable attention. In a routine week, we responded to an average of 30 to 40 media inquiries.

Notable media contacts over the course of the year included: "ABC Good Morning America," "NBC Today Show," National Geographic Society, "PBS," "PM Magazine," Newsweek, Time, Outside and Sunset Magazines, "National Public Radio," "Voice of America," Denver Post, New York Times, Washington

Post, Wall Street Journal, Los Angeles Times, Christian Science Monitor TV, KSL TV and KUTV Salt Lake City, Miami Herald, Rocky Mountain News, High Country News, and "MTN News," Billings, Montana. We also remained in daily contact with: Billings Gazette, Bozeman Daily Chronicle, Livingston Enterprise, Cody Enterprise, Idaho Post Register, Casper Star Tribune, Jackson Hole Guide, Jackson Hole News, West Yellowstone News, "UPI," and "AP."

Jim Carrier, a reporter for The Denver Post, spent the summer and two weeks this winter in West Yellowstone, Montana. He wrote over 40 columns covering many issues and ideas about the park. The Public Affairs staff enjoyed providing numerous information and interview requests enabling him to obtain a broad view of Yellowstone's many facets.

5. Official Visitors. Throughout the year, the Public Affairs Office assisted with programs and arrangements for United States and foreign government dignitaries, park officials, and other guests. A sampling of official visitors follows.

Assistant Secretary of the Interior Bill Horn visited Yellowstone August 13-20. He met with key staff members and concessioners. He was also able to accompany them on a backcountry trip to the Bechler area.

Interior Secretary Don Hodel was here September 11-14 and participated in several events. He attended the 40th Annual Meeting of the Christian Ministry in the National Parks and delivered a devotional message to the congregation in the Mammoth Chapel. Later that day he joined the speakers at the U.S. Cavalry Centennial Ceremony.

Neal Sigmon, Staff Assistant on the House Appropriations Subcommittee on Interior, was here August 25-28. He met with park personnel on many issues, including budget, restoration and improvement, research/resource management, user fees, concessions, etc. He was accompanied by Superintendent Barbee and Assistant Superintendent Clary on these tours.

The Postmaster General of France was here July 9 after his involvement with the Liberty Weekend Celebration at the Statue of Liberty. Amy Vanderbilt accompanied the party on a tour through the park.

Fulco and Fabrigi Pratesi visited in October to gather information and discuss an article which appeared in the January '87 issue of Gente Viaggi magazine. This is an

Italian travel publication with the largest circulation in Europe. Mr. Pratesi is president of the World Wildlife Fund and was very interested in our wildlife management policies. Mr. Guido Rossi, the photographer for the article, was also here and requested special assistance with aerial photography.

Mr. Raymond Morris, president of Pet Milk Corporation and a friend of the National Park Service, visited on June 21 with his wife, Mary. They were accompanied on their tour by Anita Varley.

The Public Affairs Office also coordinated arrangements for many other official foreign visitors to the park in cooperation with various agencies and the International Affairs Branch of the National Park Service.

Foreign visitors on official visits came to Yellowstone from the following nations:

Argentina	Israel (3)	Panama
Australia (8)	Italy	Seychelles Island
Bhutan	Ivory Coast	Sierra Leone
Brazil (2)	Japan (2)	South Africa
Cameroon	Kenya (2)	Spain (2)
Canada (4)	Kuwait	Sweden
China (3)	Malawi	Taiwan
Costa Rica (2)	Malaysia	Tanzania
Denmark	Morocco	West Germany (4)
France (3)	New Zealand (3)	Western Samoa
India	Nigeria (2)	Zimbabwe

The Public Affairs Office coordinated the Yellowstone visit of the 20th International Seminar on National Parks and Equivalent Reserves. The 36 park managers from 29 countries were here 5 days in August, analyzing park management issues with Yellowstone staff. Greg Kroll accompanied the group during their visit.

6. Filming Permits. Fifty-two film and photography permits were issued. Some of the major filmers included: National Geographic Society, NBC, CBS, PBS, "PM Magazine," KUED-TV, as well as filmers from Japan, Germany, and Italy. The Public Affairs Office staff provided orientation information to all commercial filmers and photographers, assuring compliance with park regulations. In particular, Filming Coordinator Amy Vanderbilt spent considerable time coordinating two grizzly bear film projects. The National Geographic Society, in conjunction with WQED-TV, prepared a one-hour television feature on the history of bear

management, including current management concerns. The National Audubon Society contracted with Franz Camenzind to prepare a 30-minute film on grizzly bears which is scheduled to be completed in late 1987. The Interagency Grizzly Bear Committee has offered support and funding of this ongoing project.

7. Meetings and Conferences. The Public Affairs Office was involved in planning and coordinating the Association for Conservation Information (ACI) winter workshop entitled "A Cold Look at Reality" at Mammoth Hot Springs Hotel, January 19-24.

In May the Public Affairs Office participated in the Tri-State Travel Rendezvous, May 16-18, at Old Faithful Lodge.

The Greater Yellowstone Coalition held their fourth annual meeting at Lake Lodge, May 30 through June 1. The Public Affairs Office staff assisted with preparations and coordination at the meeting and provided interviews and information for media representatives attending the sessions.

The 20th International Seminar on National Parks and Equivalent Reserves spent five days in Yellowstone August 11-15. The seminar was planned and coordinated by the Public Affairs Office and was joined during their entire stay by the Public Affairs Officer.

The Secretary's Advisory Board held their annual meeting at Lake Hotel, September 16-18, after a tour from Grand Teton National Park through Yellowstone. Superintendent Barbee and other park managers made presentations on park issues to the board prior to their meeting. Joan Anzelmo coordinated the functions and meetings at Yellowstone.

In September, Amy Vanderbilt represented the Public Affairs Office at the Interagency Grizzly Bear Committee, Information and Education Subcommittee, meeting in Jackson, Wyoming.

8. Special Events. A Yellowstone Park Employee Reunion was held in Mammoth September 12-14. Arrangements for this large and enthusiastic group were coordinated by the Public Affairs staff, TW Services, Inc., and committee members Joan Elliott and Mr. and Mrs. Ken Ashley. The activities included: a get-reacquainted social, entertainment, a barbeque, a guided tour of Old Fort Yellowstone, and a program complete with awards. There was considerable media

interest in this event, and the Public Affairs staff provided assistance for the media as well as the reunion guests.

A U.S. Cavalry Centennial Ceremony was held on September 14 on the Fort Yellowstone parade ground in Mammoth. The inclement weather did not dampen the spirits of the mounted color guard or the speakers (Superintendent Barbee, Secretary Hodel, and Captain Richard Miller, an officer of the U.S. Army 1st Cavalry). The highlight of the program was the canon display and discharge displayed by soldiers from Yellowstone and Fort Laramie who were dressed in authentic period uniforms.

9. Photo/Slide Requests. The Public Affairs Office answered over 100 requests for loans of slides and photographs on Yellowstone subjects. With the help of our two volunteers, Neil and Trish Ramhorst, we were able to expand and improve our photo/slide library.

The Public Affairs Office continues to provide photographs for media interests on several newsworthy and special events throughout the year.

10. Publication Editing Requests. The Public Affairs Office responded to more than 60 written requests for editing publications about Yellowstone and numerous phone requests for the same. These requests were often complex, requiring extensive research to supply accurate information. The staff of the Public Affairs Office spent many hours coordinating a multi-division effort on the revision of the publication, Yellowstone, the Story Behind the Scenery.
11. Special Projects. The Public Affairs Office updated the reference volume on the Greater Yellowstone Area. This book was again made available to locations throughout the park enabling employees to assist visitors with questions regarding Yellowstone, the surrounding forests, other regional NPS areas, and gateway communities.

Yellowstone continued to utilize the Foreign Language Handbook to locate park staff who can translate for international visitors and incoming correspondence.

## B. Status of Planning

1. Fishing Bridge Development Concept Plan/Environmental Impact Statement. In April 1986, a second Public Response Newsletter was distributed that illustrated future planning schedules. Since release of the newsletter, unforeseen

delays have occurred. The University of Wyoming Socioeconomic Survey Report was delayed some five months due to internal problems. This report was completed in August 1986. Also, we anticipate completion of the Grizzly Bear Cumulative Effects Analysis. Because the Cumulative Effects Model is rather new and has not been fully implemented, we experienced constant program problems and data gaps that contributed to the delay. In addition, the park did not have the necessary computer hardware to run the Cumulative Effects Model and, therefore, had to rely on Forest Service computers. Because of Forest Service workloads, the use of their computers has been hindered.

Following is a comparison of planning schedules illustrated in the April 1986 newsletter and the revised planning schedule.

	<u>April 1986 Newsletter Schedule</u>	<u>Revised Schedule</u>
Completion of University of Wyoming Socioeconomic Survey Report	March 1986	August 1986
Completion of Cumulative Effects Analysis	June 1986	December 1986
Prepare and distribute draft Environmental Impact Statement to the public	October 1986	May 1987
Public comments on the draft Environmental Impact Statement received and analyzed	January 1987	June 1987
Prepare and distribute final Environmental Impact Statement	May 1987	October 1987
Public review and preparation of the Record of Decision	June 1987	November 1987

In January 1986, park staff met with Fish and Wildlife Service staff to discuss strategy for an Interim Management Plan for Fishing Bridge and Grant Village until the EIS is completed. In May 1986, an Interim Management Plan was completed, and the Fish and Wildlife Service issued a "no jeopardy" biological opinion, which will be effective

through 1987. We are hopeful actions at Fishing Bridge can move forward in 1988 following the November 1987 completion of the Fishing Bridge Environmental Impact Statement/Development Concept Plan.

2. Lake and Bridge Bay Development Concept Plan. In July, the planning team finalized alternatives for consideration in the DCP upon consultation with park staff. The alternatives address a variety of issues including circulation, housing, building use, interpretive needs, and campers needs. The alternatives will try to react to the preferred alternative in the Fishing Bridge DCP/EIS. This planning effort is on hold until release of the draft Fishing Bridge DCP/EIS in mid-May. Once this occurs, a planning newsletter will be distributed to solicit public input on issues and alternatives. The draft DCP/EIS will be ready for the public sometime in late 1987.
3. Winter Use Plan. In March the first rough draft of the plan was reviewed by park staff. Review was mixed, many feeling that the plan was too detailed and restrictive. A major rewrite has taken place. However, release to the public has been delayed due to an intensified effort on Fishing Bridge. Release of the plan is slated for April or May 1987.
4. Cultural Resource Management Plan. A "skeleton" plan has been completed with several components missing awaiting completion by park and regional office staff. An extensive update of the List of Classified Structures is nearing completion. The intent and format of Cultural Resource Management Plans has changed in the last year relative to the State Historic Preservation Office and the Advisory Council on Historic Preservation review. We are developing a plan in form and content for Yellowstone that will be sent in draft to the regional office in June 1987.
5. Little progress was made on new park sign standards. Routed wood sign standards are near completion, and regulatory signs will comply with MUTCD. Concession signage will be the number one priority in early 1987 with completion of a parkwide sign system program ready by March.

#### C. Safety

Emphasis has continued on visitor safety through rehabilitation programs for concessioner-operated facilities. A contract was awarded to replace the automatic sprinkler systems and remove asbestos in the Lake Hotel, Old Faithful Inn, and Mammoth Motor Inn. Six more National Park Service-owned, concessioner-operated dormitories will have automatic sprinkler systems installed as a part of the same contract.

Funds were received, based upon fire safety evaluation system work, to upgrade most National Park Service dormitories in FY 87.

The park Safety Officer has acted as the Regional Safety Officer since April 22, 1986, providing assistance to numerous regional locations, including visits to Bent's Old Fort National Historic Site, Glacier National Park, Grand Teton National Park, and Grant-Kohrs National Historic Site.

The park Safety Committee continued to play an active role in park safety programs. Topics addressed were: earthquake awareness, visitor/wildlife safety, and winter operations. Numerous training sessions were conducted throughout the year, including defensive driving, woodstove safety, snowmobile operations, winter survival, hearing conservation, first aid, EMT, fire fighting, etc.

Three wildlife incidents with bison occurred in the park, down from 13 in 1985; flyers and pamphlets warning the park visitor of bison injuries are handed out at all entrances. Two bear incidents occurred, including one fatality.

A respiratory program has been initiated in the garage. The Documented Safety Program for the Yellowstone Operating Procedure (YOP) was revised, and Personal Protective Equipment, Motor Vehicle Accident, and Government Motor Vehicle Programs were written and implemented as a part of the YOP.

## VIII. OTHER

### A. Auxilliary Programs

1. A Christian Ministry in Yellowstone National Park. In 1986 the ministry, under the direction of the Reverend Dr. William R. Young, Resident Minister, was staffed by 45 college and seminary students representing 12 different Protestant denominations and the Roman Catholic Church. In addition to leading 35 services of worship each Sunday, the staff provided Bible studies, Christian education, and fellowship opportunities throughout the park. Over 18,000 park visitors attended services of worship during the summer months.

The Gardiner-Mammoth Winter Ministry continues to provide spiritual care and nurture for year-round personnel and residents of the communities.

2. Church Committee. The Superintendent's Church Committee is responsible for the care and coordination of the use of the Mammoth Chapel. The chapel is operated on a self-supporting basis in regard to janitorial services and furnishing maintenance. The National Park Service maintains the building and provides utilities. The chapel was built by the U.S. Army in 1912 and has been designated an historical structure.

The Mammoth Chapel is used mainly for religious services and weddings for park visitors and residents. Chapel use in 1986 consisted of 47 religious services and 11 weddings. Total attendance at religious services in the chapel was 5,428 people. The chapel is also utilized during the week by park visitors who are interested in the history or architecture of the building or use it for private religious reasons.

Repair work on the chapel windows has been accomplished, and all the drapes have been installed. The restrooms and nursery have been redone, and the display case for historical documents has been started.