

A Report to Congress



Yosemite
Flood Recovery Action Plan
September 30, 1997



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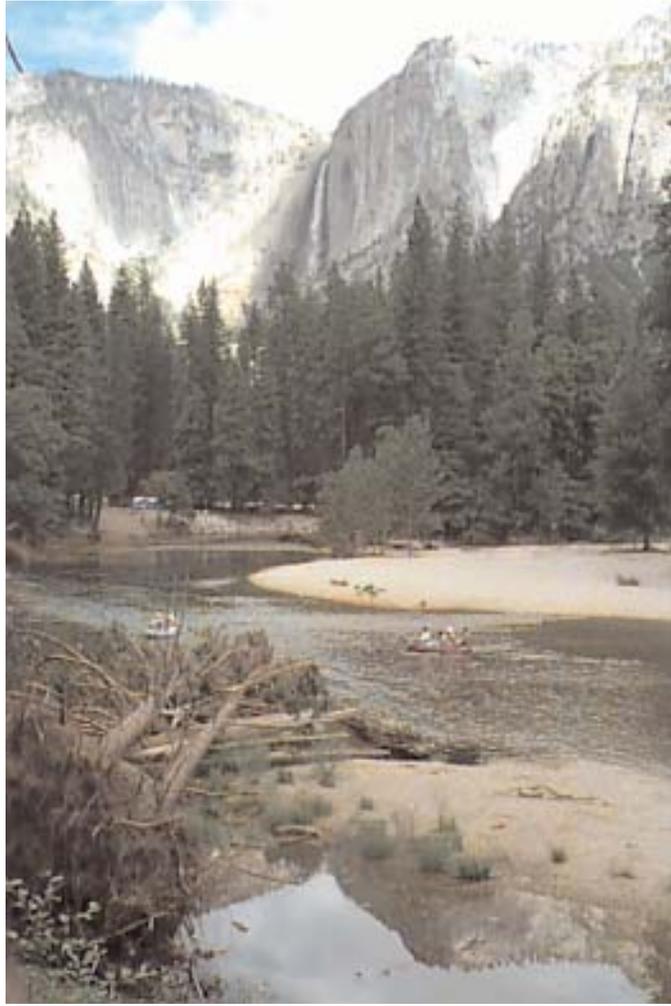
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Introduction

During the first three days of 1997, Yosemite National Park's major rivers and tributaries flooded many park areas, causing severe damage to infrastructure. Damaged facilities included the four main routes leading into the park, major electrical, water, and sewer systems, 439 employee bed spaces, over 500 guest lodging units, over 350 campsites, 17 resource restoration projects, and at least 10 known archeological sites.

Initial response to the Yosemite flooding was managed under an Incident Command System. Yosemite Valley was reopened for partial visitor use on March 14, with full road access restored on May 23. The last road to be repaired to a passable condition was the Tioga Pass road, which opened on June 13. A special team of engineers, architects, landscape architects, resource specialists, and technical experts completed detailed damage assessments and cost estimates. Even before legislation was signed that provided the park with emergency restoration funding, Yosemite expended approximately \$13 million in emergency repair and recovery planning and compliance costs. The Federal Highway Administration greatly facilitated the park's reopening through its Emergency Relief for Federally Owned Roads (ERFO) program.

The Emergency Supplemental Appropriations Act (Public Law 105-18), signed on June 12, 1997, provided Yosemite National Park with \$176 million to fully cover flood recovery projects. In accordance with the terms of the act, some of these funds will come from the concessioner to cover its contractual obligations to repair and replace damaged facilities. An additional \$10 million designated in this act, plus \$11 million committed from future National Park Service-Federal Lands Highways Program funds, will fully implement the Yosemite Valley transportation management initiative. Therefore, the National Park Service will spend \$197 million on Yosemite recovery projects.

This document is prepared and submitted to Congress in response to its request in Senate Report 105-16 accompanying the Emergency Supplemental Appropriations Act.

The Committee expects the Park Service to submit to both the Appropriations Committee and the Committee on Energy and Natural Resources a spending plan within 90 days after the enactment of this bill. The plan should detail the expected sequencing of planned construction and rehabilitation projects, associated cost estimates from the most recent assessment report, expected annual expenditures by major spending category, a

description of work performed and obligations incurred to date, and an assessment of the impact of the rehabilitation plan on the annual operating needs of the park.

The decision to move forward on projects is guided by the park's 1980 *General Management Plan* and other existing or proposed planning documents. One such document, the *Draft Yosemite Valley Implementation Plan*, must be approved before the transportation or campground replacement components of recovery can go forward. The draft will be released to the public in fall 1997, with an expected record of decision by May 1998. For a complete list of planning documents that affect recovery efforts see the "Compliance" section of this document.

There have been three other floods near this magnitude since 1937. The park's primary recovery objective is to ensure that flood-damaged facilities, resources, and operations will not be vulnerable to another flood of this magnitude. A primary purpose of this *Flood Recovery Action Plan* is to describe organizational and procedural details of the flood recovery process and estimated costs to accomplish the work.

This action plan is comprised of three main sections. *Flood Recovery Efforts* discusses people and processes involved with the recovery effort. The *Spending Plan* addresses topics requested in the Emergency Supplemental Appropriations Act. The last section, *Package Status*, presents information on costs incurred to date (through July 1997). In addition, appendix A presents package and project information including compliance and construction status.

Reporting will be conducted on several levels. At the end of each fiscal quarter a report of flood recovery planning and accomplishments will be submitted to Congress. The first quarterly report will be available by the end of January 1998, and cover all of 1997. Subsequent reports will be submitted within 30 days of the end of each quarter. Annually, the *Flood Recovery Action Plan* will be updated to describe accomplishments and reexamine spending and scheduling projections. Also, to increase community and general understanding of the recovery effort and how it relates to other ongoing park initiatives, the park will develop monthly briefing packets, similar in format to the recent "Planning Update" series.

Flood Recovery Efforts

FLOOD RECOVERY TEAM

Organization

The flood recovery team itself was assembled from several units of the National Park Service, but the recovery effort has included significant participation from the Federal Highway Administration. The core of the flood recovery team is comprised of Yosemite National Park employees. The recovery team has received assistance from the Denver Service Center in the form of consultation. In the future, the Denver Service Center will provide design, contracting, and construction management services. Additional services will be obtained from private sector architectural and engineering firms, construction contractors, and Yosemite National Park staff as needed.

Objectives

The flood recovery team was designed to achieve several objectives:

- Enhance accountability through project managers who are responsible for projects from beginning to end.
- Ensure that park staff is adequately involved with the facility development staff and with the process.
- Phase facility development projects based on compliance issues, size, and complexity of projects, location, type of work, and amount of design needed to implement the repair.
- Accomplish projects in an orderly sequence that coincides with the facility development process used for the National Park Service's line-item construction program.

Roles and Responsibilities

A core management group within the flood recovery team will be responsible for providing direction and reporting to the superintendent on all recovery team operations. Project managers will identify project needs, obtain expertise needed to accomplish the task, schedule work, and coordinate and track the effort. This will include preparation of status reports and presentation of briefings to the public as well as governmental groups and organizations.

A compliance group will review all projects and identify and coordinate all compliance needs. Its staff will recommend preferred project compliance process and strategy, provide scheduling input to project managers, review compliance documents, and provide recommendations to recovery management. The compliance group will act as liaison to local, state, and federal agencies for compliance submittals, reviews, and approvals; brief recovery management on compliance status; assist project managers in resolving compliance problems; and represent compliance interests in recovery management and project meetings.

HOW THE PROJECTS WILL BE ACCOMPLISHED

The recovery team will use park staff, the Denver Service Center, the Federal Highway Administration, and private architectural and engineering firms to provide facility development services to plan and design the projects. Generally, for large line item-type projects, the Denver Service Center will be the contracting officer, and projects will be advertised and awarded through their Office of Contracting Services following established procedures for line-item construction projects. Contract administration and construction inspection will be accomplished by employees from the Denver Service Center who have extensive training and experience in this field and are well versed in *Federal Acquisition Regulations*.

During the week of July 7, the recovery team met with consultants from the Denver Service Center to package the individual projects identified in the March 1997 *Detailed Assessment Report*. Packages were developed to facilitate project management, scheduling, contracting, staffing, accounting, and external reporting. They are a grouping of similar types of projects, generally by location. Additionally, the resulting packages more closely resemble line-item projects and facilitate identifying those most appropriately targeted toward disadvantaged/minority contractors. This process took 210 projects listed in the March *Detailed Assessment Report* and reduced them to 62 packages (see appendix A).

In addition, there are 74 ERFO related road damage projects that have been identified and are being accomplished through Department of Transportation/Federal Highway Administration funding (see appendix B). These ERFO projects were not incorporated into park packages due to their separate funding source. To date, the Federal Highway Administration has spent \$5.3 million, and a total program of \$9.8 million has been approved for road damage not covered in Yosemite's estimate.

Issues of health and safety have been of paramount concern to everyone involved in the management of the flood incident and recovery.

Clearly, under the circumstances the record is exemplary. Health and safety have been considered in making repairs, in planning the sequence of the recovery effort, and in the designs of replacement facilities.

ACCOUNTABILITY

Given the size and nature of this program, the accounting and budgeting control process will follow that normally used for the NPS construction program and ensure that these high profile projects are completed. The National Park Service will complete capital asset plans for major components that specify cost, schedule, and performance goals, consistent with OMB's planning and budgeting requirements for acquisition of capital assets. Subsequent reports will also specify steps that the National Park Service is taking to manage the potential risk of cost escalation or the risk of not achieving the specified schedule and performance goals. Regional office, WASO, and park staff will monitor funding status and package costs through the National Park Service's accounting system. The park will be the central point of control and documentation for the total recovery package.

COMPLIANCE

Although it is the distinct mission of the recovery effort to rebuild facilities in the most expedient manner, in consideration of the park's invaluable natural and cultural resources, all compliance requirements will be adhered to fully. Each flood recovery project has an associated project compliance document, whether categorical exclusion, environmental assessment, or other. For some projects, approved compliance actions were previously established in planning documents such as the 1980 *General Management Plan* and the 1992 *Concession Services Plan*. A *Yosemite Lodge Development Concept Plan/Environmental Assessment* was completed on July 17, 1997, to cover the work identified in Package 905 – Reconstruct Yosemite Lodge. The *Draft Yosemite Valley Implementation Plan* is well underway and scheduled for public review in October 1997. It will address the work proposed in Packages 920 – Reconstruct Rivers Campgrounds, 921 – Reconstruct North Pines and Walk-In Campground, and 922 – Repair Picnic Areas. The *El Portal Road Improvements Environmental Assessment* was completed in August 1997 for Package 936 – Reconstruct El Portal Road. An environmental assessment is scheduled for completion in December 1997 for Package 948 – Reconstruct Mirror Lake Bridges and Trails. The spreadsheet in appendix A identifies the status of compliance for each project—compliance in progress or compliance completed.

GREATER YOSEMITE AREA PLANNING

Yosemite National Park will continue to provide opportunities for surrounding communities, special interests, and the general public to be involved in planning efforts. Prior to completing the draft plans for the Yosemite Lodge reconstruction and El Portal Road (Highway 140) reconstruction, the park consulted with interest groups, including local officials, to incorporate their concerns into the alternatives. This is currently being done for the preparation of the *Draft Yosemite Valley Implementation Plan*, which will guide many recovery projects. In addition, the park is hosting walk-throughs of project sites, briefings for elected officials, and workshops with representatives of interested groups, including local officials and members of the business communities. Yosemite National Park is also a founding member of the Yosemite Area Transportation Strategy (YARTS) group. Other members of this group include Madera, Mariposa, Tuolumne, and Mono Counties, CalTrans, the U.S. Forest Service, and representatives of business and environmental groups. YARTS has been established to plan, coordinate, and if possible, implement a regional transportation system. By actively participating in the YARTS group, the National Park Service is ensuring that the in-park shuttle system and traffic management program will be coordinated with the regional transportation system.

NEGOTIATIONS WITH THE CONCESSIONER REGARDING REPAIR OR REPLACEMENT OBLIGATIONS

Some of the facilities that were damaged and destroyed by the flood include facilities operated by the Yosemite Concessions Services Corporation (concessioner). These include over 500 guest lodging units and 439 employee bed spaces. Pursuant to the terms of the concessioner's contract with the United States governing the use and maintenance of these facilities, it is the concessioner's responsibility to replace and repair the facilities that were damaged and destroyed by the flood. However, the amount to be recovered from the concessioner and a date for receipt of payment is unknown. Therefore, the Emergency Supplemental Appropriations Act includes a legislative provision specifying that up to \$30 million of the \$176 million would be available only upon the department negotiating "an agreement with the Yosemite Concessions Services Corporation or any responsible third party to satisfy its repair or replacement obligations for the facilities."

The department is in the midst of these negotiations. It is expected that the concessioner will file a property claim in the near future against its insurer for damage caused by the flood; however, it is unclear at this time whether the insurer will honor the claim and what action the department may be required to take to force payment if the insurer does not honor the claim. In any event, any funds received from the concessioner to satisfy its contractual and financial obligations to repair and replace facilities pursuant to the contract will result in a reduction in the appropriated funds equal to the funds provided by the concessioner. Thus, in no case will the total expended for repair and replacement of flood-damaged facilities exceed the amount provided by Congress.

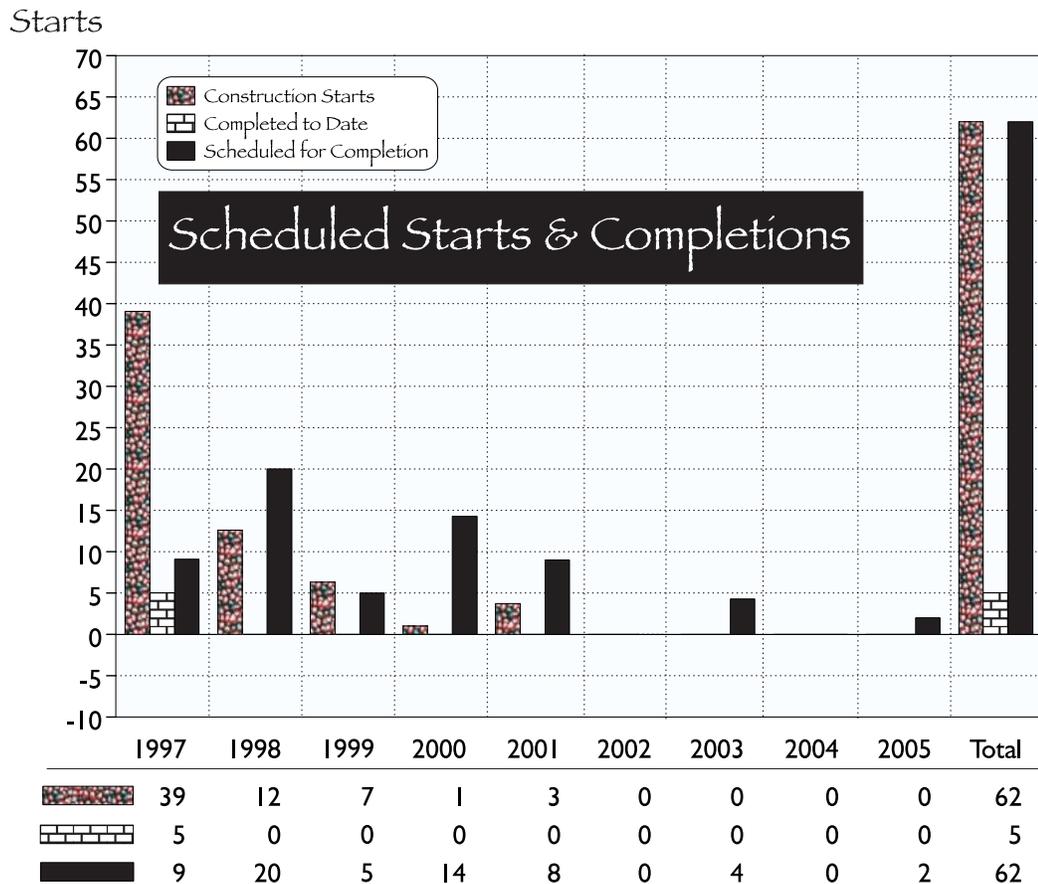


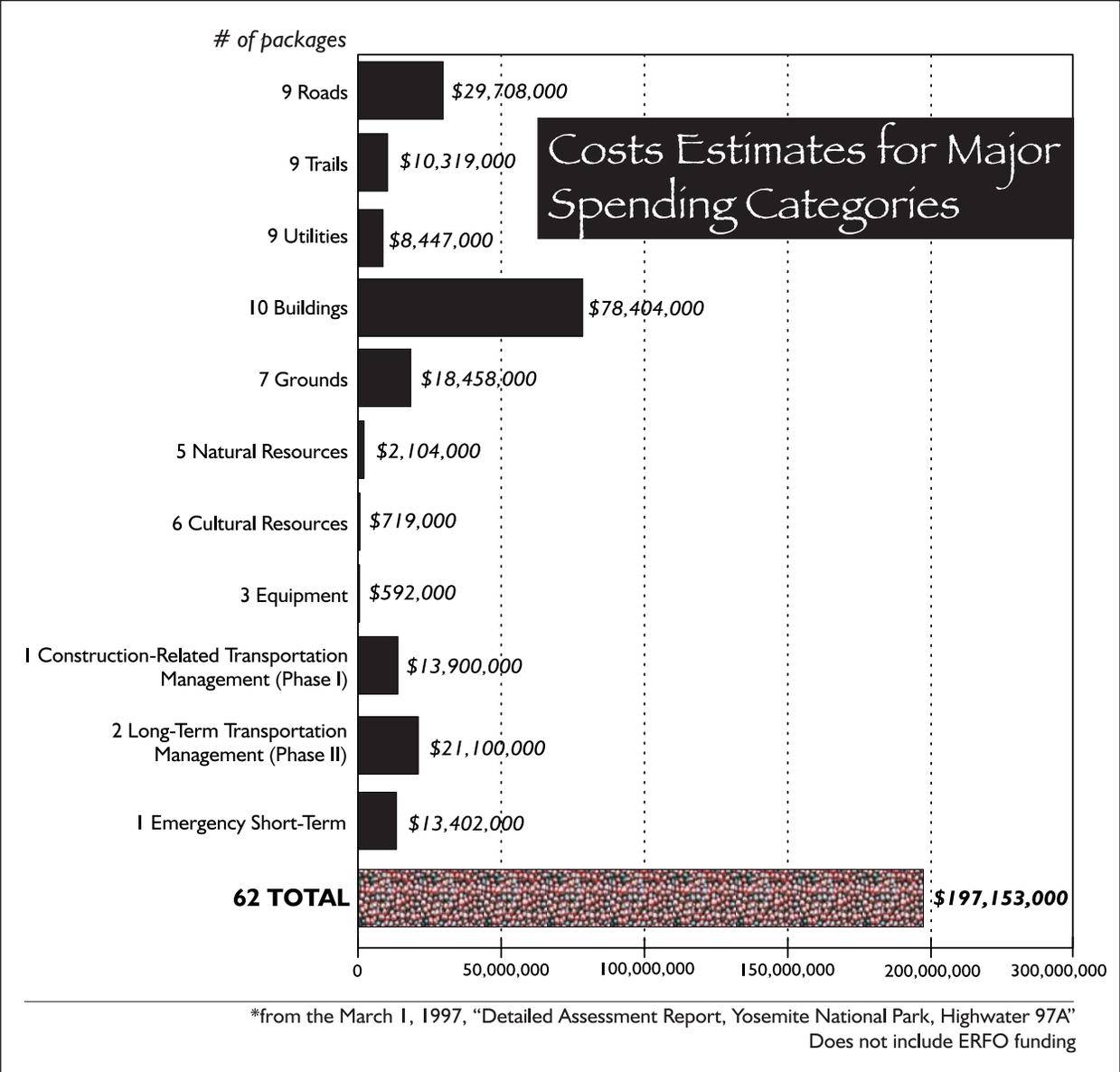
Spending Plan

SEQUENCING OF PLANNED CONSTRUCTION AND DETAILS OF REHABILITATION PACKAGES

Sequencing or scheduling of work began immediately following the flood, has been important in the shaping of the packages, and will continue until all work is completed. For large, complex packages the recovery team expects planning and compliance to take approximately one year, design one year, and construction from one to three years. However, smaller packages will be planned and designed in the same year, and construction will occur immediately or in the following year.

In 1997, construction is expected to begin on 39 packages. To date, 5 packages have been completed. In 1998, another 12 packages will begin and by 2001, all 62 packages will be underway. The following graph illustrates by year the number of packages scheduled to start, the number completed to date, and the number scheduled to be completed by the end of each year.





**EXPECTED ANNUAL EXPENDITURES
BY MAJOR SPENDING CATEGORY**

Annual spending will become better defined as the facility development process proceeds and phases of construction are scheduled. For example, a contract for Highway 140 reconstruction is expected to be awarded before the end of the year. The project will begin in 1997, but monies will be expended over the course of three years to allow for nonconstruction periods of unrestricted access during peak visitor seasons. The table below shows the dollar amounts of projects anticipated to begin in a given year by major spending categories.

Construction Starts										
	Roads	Trails	Utilities	Buildings	Grounds	Natural Resources	*Cultural Resources	Equipment	Transportation	TOTAL
	Emergency Short-term Funds for Recovery									\$13,402,000
1997	\$28,958,595	\$10,045,026	\$5,813,391	\$32,236,883	\$784,524	\$627,923	\$651,666	\$592,000	—	\$79,710,008
1998	334,458	172,634	545,672	38,128,790	—	1,202,805	67,334	—	11,100,000	51,551,693
1999	—	101,340	2,087,937	496,782	17,673,476	—	—	—	\$13,900,000	34,259,535
2000	—	—	—	—	—	—	—	—	10,000,000	10,000,000
2001	414,947	—	—	7,541,545	—	273,272	—	—	—	8,229,764
TOTAL	\$29,708,000	\$10,319,000	\$8,447,000	\$78,404,000	\$18,458,000	\$2,104,000	\$719,000	\$592,000	\$35,000,000	\$197,153,000
<i>*Archeological and historical site preservation and stabilization.</i>										

Roads. Flooding seriously damaged the four primary routes into Yosemite National Park. Landslides and road failures made access into the park difficult for several months. But by mid summer, repairs had already been completed on many roads and parking areas. The 7.5 miles of devastated El Portal Road (Highway 140) within the park have been stabilized temporarily. All road repairs and reconstruction are expected to be completed by the end of 2000, except for repairs to the El Portal sandpit scheduled for 2001. Revegetation of areas disturbed by construction will not be completed until 2001. These areas require large quantities of seeds and vegetative materials and, therefore, long lead times to collect and propagate adequate materials.

Package 936 – Reconstruct El Portal Road

Brief Description: This package provides complete reconstruction of approximately 7.5 miles of the two-lane El Portal Road from the western park boundary to Pohono Bridge in Yosemite Valley. This road is located in the narrow Merced River canyon. The flood removed sections of road, structural retaining wall, and the stone guard wall located in the road shoulder.

Estimated Cost: \$27,015,353

Impacts on visitors, resources, park operations: Although Highway 140 has been temporarily stabilized, reconstruction will protect this route from possible failure should subsequent floods occur. Highway 140 is the all-weather access to the park. The total average daily traffic for both directions on this highway was 2,950 vehicles. The roadway carries approximately 40% of the bus volume in the park. During the off-peak winter months, the road carries up to 45% of the total traffic entering the park. This work will reconstruct 22,511 linear feet of guard wall, over 44,000 square feet of structural retaining wall, and the sewer line located beneath the road surface and drainage will be improved the entire 7.7 miles. Unsafe curves will be improved and the road will be rebuilt to a sustainable standard. Construction will take place during off-peak visitation periods. Public access periods will be provided during construction to accommodate park visitors, local communities, businesses, school districts, park and concession employees, and the construction contractor. A contract for this work is expected to be awarded before the end of the year. Size, complexity, and maintaining access during the work all contribute to the length of this three-year effort.

Compliance Status: 100% complete, FONSI signed 8/28/97 for the *El Portal Road Improvements Environmental Assessment.*

Construction Starts: 1997

Construction Ends: 2000

Package 937 – Reconstruct El Portal Sandpit

Brief Description: This package will reconstruct the El Portal sand-pit, an economical source for aggregate used in park maintenance operations.

Estimated Cost: \$414,947

Impacts on visitors, resources, park operations: Without the sand pit, the park will have to purchase aggregate materials for road maintenance, thus incurring higher operating costs. Planning and compliance issues require the work be scheduled to begin in 2001.

Compliance Status: Not started; documentation will begin in 1998 to meet the project schedule.

Construction Starts: 2001

Construction Ends: 2001

Package 938 – Replace Signs Parkwide

Brief Description: This package will replace park directional and informational signs lost or damaged in the flood. Over 500 signs and 185 posts have been replaced, and parkwide sign damage inventories are being developed for programmed repair or replacement. Included will be traffic management, wayfinding, and informational signs needed to address flood-related circulation changes and construction.

Estimated Cost: \$94,445

Impacts on visitors, resources, park operations: Replacement of signs began immediately following the flood. Due to continual construction, this will be an ongoing effort for four more years.

Compliance Status: 100% completed 7/7/97

Construction Starts: 1997

Construction Ends: 2001

Package 939 – Replace Bridge Riprap

Brief Description: This package will repair 250 feet of streambank erosion with rock protection at Tenaya Road Bridge, along Tenaya Creek, and adjacent to Sugar Pine and Ahwahnee Bridges, along the Merced River.

Estimated Cost: \$334,458

Impacts on visitors, resources, park operations: Repair will protect bridges from possible failure in subsequent floods.

Compliance Status: 100% complete 8/18/97

Construction Starts: 1998

Construction Ends: 1998

Package 940 – Repair Yosemite Valley Roads

Brief Description: Repair and replacement of 14 miles of damaged pavement on North Side Drive, South Side Drive, and various roads in Yosemite Valley are included in this package. Flooding and subsequent heavy construction traffic has caused major surface cracking and settling. Construction continuously occurring in the valley for the next four years will exacerbate this condition and contribute to the length and cost of repair.

Estimated Cost: \$875,298

Impacts on visitors, resources, park operations: Repair of pavement will prevent loss of road surfacing and structure and provide safe vehicular circulation in the valley. 97% of the 4+ million visitors (1,066,000 private vehicles and 17,656 buses) per year travel to and spend significant time in Yosemite Valley.

Compliance Status: 100% complete 9/16/97

Construction Starts: 1997

Construction Ends: 2001

Package 941 – Repair High Country Roads

Brief Description: This package includes the repair of 2.3 miles of washed-out road base, shoulders, and asphalt, the replacement of culverts, the rebuilding of headwalls, the replacement of aggregate base course, and the repaving of roads and 30 damaged parking spaces serving high country access.

Estimated Cost: \$415,299

Impacts on visitors, resources, park operations: Roads and parking areas that provide public access (62,800 private vehicle entries at Tioga Pass 1995) to park resources have been stabilized during summer 1997. Because of the short construction season at these

altitudes and restricted access for limited visitor parking, permanent repairs will be completed over several years.

Compliance Status: 80% complete 6/22, 20% pending 12/1/97

Construction Starts: 1997

Construction Ends: 2000

Package 942 – Repair Big Oak Flat and Foresta Roads

Brief Description: This package includes the repair and replacement on 18 miles of damaged road surfaces on both Big Oak Flat Road and Foresta Dana Way. These roads were damaged by the flood and subsequent heavy construction traffic. Scheduled reconstruction of damaged facilities adjacent to these roads forces permanent repairs to be scheduled concurrent with that work over a four-year period.

Estimated Cost: \$247,385

Impacts on visitors, resources, park operations: Repairs are necessary to retain road prism and road surface for public and administrative use.

Compliance Status: 100% complete, 6/12/97

Construction Starts: 1997

Construction Ends: 2001

Package 943 – Repair Wawona Road (Route 41)

Brief Description: This package provides for pavement repair and replacement on the Wawona Road used by 440,000 visitor vehicles per year. Increased traffic is anticipated on this road due to reconstruction and closures of Highway 140, El Portal Road, periodically over a three-year period.

Estimated Cost: \$245,594

Impacts on visitors, resources, park operations: Repairs are necessary to permanently stabilize road base, shoulder, and surface for public use.

Compliance Status: 100% complete 5/22/97

Construction Starts: 1997

Construction Ends: 2001

Package 944 – Repair Concession Roads/Parking

Brief Description: This package includes the repair of road and parking area damage in the vicinity of the Ahwahnee Hotel and Tecoya area. Parking is at a premium throughout this area for both visitor use and employee housing.

Estimated Cost: \$65,221

Impacts on visitors, resources, park operations: Repairs are needed to avoid total loss of road base, drainage, and surface for public and administrative use.

Compliance Status: 100% complete 8/27/97

Construction Starts: 1997

Construction Ends: 1997

Trails. Most of the trails below 7,000 feet throughout Yosemite sustained accelerated erosion. Major damage occurred on trail segments that closely parallel major drainages, and where trails cross watercourses. This includes many miles of trail in Yosemite Valley. Wilderness trail system damage included bridges, retaining walls, water bars, and trail tread. By the end of 1997, a significant amount of trail repairs and reconstruction will be completed. Aided by crews from the California Conservation Corps the repair of over 800 miles of trail is progressing quickly. More complex trails in Yosemite Valley, however, will take longer to redesign and repair.

Package 946 – Remove Yosemite Creek Bridge

Brief Description: This package provides for the removal of damaged Yosemite Creek pedestrian bridge and approach trails in Yosemite Valley. It includes the relocation of pedestrian lighting and access to existing trail on north side of road.

Estimated Cost: \$101,340

Impacts on visitors, resources, park operations: Pedestrian circulation in the lodge area will change with the implementation of the 1997 *Approved Yosemite Lodge Comprehensive Design*, and this bridge will not be used. Its removal will be scheduled as a part of the lodge reconstruction.

Compliance Status: 100% complete, FONSI signed 7/17/97 for the Yosemite Lodge Development Concept Plan/Environmental Assessment.

Construction Starts: 1999

Construction Ends: 1999

Package 947 – Reconstruct Yosemite Valley Trails and Bridges

Brief Description: This package provides for the reconstruction of trails and the reconstruction and replacement of bridges (10) mostly in Yosemite Valley that were damaged by the flood.

Estimated Cost: \$1,305,732

Impacts on visitors, resources, park operations: Until these trails and bridges are reconstructed or replaced, park visitors will be inconvenienced and may attempt dangerous detours. Routes to valley destinations will be circuitous for park maintenance operations and park visitors alike. Trail and bridge work in this package is scheduled to occur over the next three years.

Compliance Status: 100% complete 9/16/97

Construction Starts: 1997

Construction Ends: 2000

Package 948 – Reconstruct Asphalt Trails and Bikeways

Brief Description: This package provides for the reconstruction and paving of 7 miles of asphalt pedestrian trails and bikeways in Yosemite Valley that were damaged in the flood.

Estimated Cost: \$398,406

Impacts on visitors, resources, park operations: Repair is necessary for bicycle and pedestrian circulation and a positive visitor experience in Yosemite Valley. Reconstruction will follow recommendations in the 1980 *General Management Plan* and the 1997 *Draft Yosemite Valley Implementation Plan/Supplemental Environmental Impact Statement*.

Compliance Status: 100% complete 8/18/97.

Construction Starts: 1997

Construction Ends: 1997

Package 949 – Reconstruct Mirror Lake Bridges and Trails

Brief Description: This package includes the reconstruction and replacement of two bridges and trails in the vicinity of Tenaya Creek and Mirror Lake in upper Yosemite Valley. One mile of trail will be rerouted out of the floodplain and into the talus slope. These trails connect campsites to visitor use facilities and provide opportunities for enjoyment of the spectacular natural surroundings found in Yosemite National Park.

Estimated Cost: \$1,223,632

Impacts on visitors, resources, park operations: Replacement of bridges lost to the flood will improve pedestrian, stock, and bicycle circulation in the vicinity of Mirror Lake and Tenaya Creek and contribute to visitor use and enjoyment of the park and reduce the risk to visitors. Design and construction of several projects in this package will be complex and contribute to the lengthy completion of the work. Phased reconstruction will allow some work to be accomplished each year while minimizing visitor disruption and reducing disappointment.

Compliance Status: 50% complete 8/27/97, 50% underway in the *Mirror Lake Trail Re-route Environmental Assessment* with an estimated completion of 10/15/97

Construction Starts: 1997

Construction Ends: 2000

Package 950 – Reconstruct Wapama Falls Trail

Brief Description: This package provides for the replacement of three bridges in the high country in the vicinity of Wapama Falls. The flood-widened creek channels, requiring longer bridge replacement spans. Mortared causeways and riprap leading to the bridges and 400 linear feet of trail in the Tueeualala Falls, Falls Creek area must be replaced. Access to remove the destroyed bridges and to transport replacement materials for this work will be by helicopter.

Estimated Cost: \$597,510

Impacts on visitors, resources, park operations: Passage on the trail is extremely dangerous to visitors. Maintaining trail closure is operationally labor intensive and limits park visitors from experiencing some of the high country of Yosemite National Park.

Compliance Status: 100% complete 8/27/97
Construction Starts: 1997
Construction Ends: 1997

Package 951 – Reconstruct High Country Trail Bridges

Brief Description: This package provides for the repair of seven bridges and the replacement of eight bridges in the high country. Repair will be on bridges where stringers were undamaged but decking and handrails were lost. In several instances, stone walls must be reconstructed to serve as approaches to the bridges, or abutments were damaged and repairs are required. Removal of debris and transportation of new materials will be by helicopter to these remote locations.

Estimated Cost: \$1,399,090

Impacts on visitors, resources, park operations: Passage on the trail is extremely dangerous to visitors. Maintaining trail closure is operationally labor intensive and limits park visitors from experiencing some of the high country of Yosemite National Park.

Compliance Status: 100% complete 9/16/97
Construction Starts: 1997
Construction Ends: 1998

Package 952 – Repair Happy Isles Bridges and Trails

Brief Description: This package includes the replacement of two bridges, abutment repair to one bridge, the reconstruction of approximately 750 linear feet of paved trail, and the construction of a stone retaining wall 30 feet long and 6 feet high in the Happy Isles area.

Estimated Cost: \$159,163

Impacts on visitors, resources, park operations: Replacement of bridges lost to the flood will improve visitor circulation in the Happy Isles vicinity and greatly contribute to visitor use and enjoyment of the area. Phased reconstruction will allow some work to be accomplished each year while minimizing visitor disruption and reducing disappointment.

Compliance Status: 60% complete 6/26/97, 40% underway with estimated completion 10/1/97.
Construction Starts: 1998
Construction Ends: 2000

Package 953 – High Country Trail Assessments and Repairs

Brief Description: This package includes reconstruction of 12 miles of high country hiking trail from Glen Aulin down the Grand Canyon of the Tuolumne River to Pate Valley. Work includes rebuilding washed-out trail, reconstruction of lost or damaged stone retaining walls, and removal of debris.

Estimated Cost: \$5,120,656

Impacts on visitors, resources, park operations: Passage on the trail is extremely dangerous to visitors. Maintaining trail safety is operationally labor intensive and limits park visitors from experiencing some of the high country of Yosemite National Park.

Compliance Status: 50% completed 8/18/97, 50% pending with estimated completion of 9/98

Construction Starts: 1997

Construction Ends: 2001

Utilities. Pumps, motors, controls, telemetry, instrumentation, and other mechanical and electrical equipment were submerged and damaged or destroyed by the flood. Silt was deposited in lines and manholes of the sewage collection system. Primary power into Yosemite Valley was compromised when floodwaters partially undermined a power transmission tower located in the Merced River. Underground power conduits, switching gear, and transformers were flooded, damaged, or destroyed. Repairs began immediately, and now all utility systems are functioning. However, many of the repairs were temporary fixes. Many permanent repairs, such as the valley water distribution system, will require professional design and will be constructed in phases. By 2000 all permanent repairs to utility systems are scheduled for completion.

Package 954 – Hydrological Assessment Lower Yosemite Falls

Brief Description: High water uprooted trees and caused substantial movement of streambank materials and channels. Trail along Yosemite Creek was washed away.

Estimated Cost: \$13,471

Impacts on visitors, resources, park operations: The trail had to be rerouted temporarily to accommodate visitors. The hydrological study will determine the appropriate location of any replacement

trails or future development in the Lower Falls area. The fluvial movement cannot be estimated without professional analysis.

Compliance Status: 100% completed 8/97

Construction Starts: 1998

Construction Ends: 1998

Package 955 – Reconstruct Yosemite Valley Utility Systems

Brief Description: This package involves repairing and improving essential water and wastewater systems in Yosemite Valley. Drinking water wells #1, #2, and #4 will receive new motor control centers to replace the damaged controls. The main sewage lift station in Yosemite Valley will be retrofitted to improve water tightness against future flooding.

Estimated Cost: \$3,413,481

Impacts on visitors, resources, park operations: The three wells produce all of the potable water for Yosemite Valley (342 million gallons/year). The lift station collects nearly all of the sewage from Yosemite Valley before pumping it to El Portal. These systems are the most critical utility components of the park infrastructure. Completion of this project will greatly minimize the potential for serious disruptions to visitor services in Yosemite Valley.

Compliance Status: 85% complete 9/16/97, 15% in progress with estimated completion 12/1/97.

Construction Starts: 1997

Construction Ends: 1999

Package 956 – Repair Electrical Systems

Brief Description: This package repairs damage to the park's electrical infrastructure. This parkwide project, which has already begun, consists of repairing both primary and secondary distribution lines. Examples include the replacement of a severely damaged high voltage electrical tower, the "under-river" electrical lines that were destroyed in Wawona, and various primary and secondary electrical distribution system damages in the valley.

Estimated Cost: \$452,801

Impacts on visitors, resources, park operations: The primary and secondary electrical transmission lines are essential to park operations

and visitor services. Failure to make the necessary repairs would result in disruption of both.

Compliance Status: 100 % complete 9/16/97

Construction Starts: 1997

Construction Ends: 1998

Package 957 – Repair Yosemite Valley Fuel Systems

Brief Description: This package will repair fuel systems (under-ground tanks, piping, etc.) damaged at the Yosemite Creek Lift Station, the Valley Medical Clinic, and the Lower River Lift Station.

Estimated Cost: \$83,827

Impacts on visitors, resources, park operations: Repairs will ensure no more fuel leaks into soils which cause damage to water resources and are costly to clean up.

Compliance Status: 100% complete 7/18/97

Construction Starts: 1997

Construction Ends: 1998

Package 958 – Repair White Wolf / Lake Eleanor Sewer

Brief Description: This package includes utility system repairs and reconstruction in the high country of Yosemite. The project will include reconstruction of the White Wolf sewer main (6,00 linear feet), repairs to mechanical equipment submerged at the Tuolumne Meadows sewer treatment plant, and utility infrastructure repairs at various High Sierra Camps.

Estimated Cost: \$2,087,937

Impacts on visitors, resources, park operations: The sewer system at White Wolf serves the White Wolf Lodge, NPS campground (86 campsites), and employee housing. Reliability of this sewer system is essential to maintain uninterrupted services at this developed area.

Compliance Status: 50% complete 6/23/97, 50% in progress with estimated completion of 12/1/97

Construction Starts: 1999

Construction Ends: 2000

Package 959 – Wastewater Collection Investigation

Brief Description: This project involves the inspection, cleaning, and repair of sewer collection system piping in Yosemite Valley and El Portal. During the flood, these sewer systems were infiltrated with sand and gravel and high volumes of floodwater. Over 7 miles of sewer lines will be cleaned out, inspected, and repairs made as needed.

Estimated Cost: \$803,919

Impacts on visitors, resources, park operations: Failure to clean out sewer lines would lead to clogs and resultant sewage spills.

Compliance Status: 67% complete 6/22/97 CE's, 33% pending 12/1/97 in progress

Construction Starts: 1997

Construction Ends: 1998

Package 960 – Repair Concessions Utilities

Brief Description: This package will involve the demolition of old utility systems no longer needed at Yosemite Lodge as well as installation of new utilities for the proposed development.

Estimated Cost: \$437,015

Impacts on visitors, resources, park operations: New utility systems are needed to accompany the new development at Yosemite Lodge.

Compliance Status: 100% complete. 7/18/97 CE's

Construction Starts: 1997

Construction Ends: 2000

Package 961 – Repair Water and Waste Water Treatment Facilities El Portal

Brief Description: This project repaired 312 linear feet of sewer line that was destroyed when Highway 140 washed away. The project will also include repair of a damaged water well at the El Portal sandpit, as well as the replacement of an effluent outfall system that was washed away near the El Portal wastewater treatment plant.

Estimated Cost: \$296,773

Impacts on visitors, resources, park operations: The effluent outfall system is a critical component of the El Portal Wastewater Treatment Plant, serving thousands of guests and residents in Yosemite Valley and El Portal.

Compliance Status: 100% Complete 7/18/97

Construction Starts: 1997

Construction Ends: 1998

Package 962 – Repair Abbieville Water and Sewer Systems

Brief Description: Under-river water and sewer lines to the Abbieville trailer village in El Portal were destroyed by the raging waters of the Merced River. This package will provide a permanent repair to the temporary system currently in place. The new sewer main will be rerouted 3,100 linear feet to avoid another under-river crossing.

Estimated Cost: \$545,672

Impacts on visitors, resources, park operations: Hundreds of people who live in the El Portal Trailer Court and Abbieville are currently relying on a temporary “aerial sewer pipe” that is suspended over the Merced River by steel cables. This project will provide a permanent solution to the “risky” aerial sewer line.

Compliance Status: 100% complete 9/16/97 with Corps of Engineers consultations.

Construction Starts: 1998

Construction Ends: 1998

Package 963 – Repair Wawona Water and Wastewater Distribution Systems

Brief Description: Repairs will be made to the water intake structure (including dam) along the South Fork of the Merced River. Damaged bridges and wastewater piping will be repaired and or replaced at the effluent sprayfield. A destroyed river staff gauge that is essential to river level monitoring on the South Fork of the Merced River will be replaced.

Estimated Cost: \$325,575

Impacts on visitors, resources, park operations: The intake structure is the source of the potable water for the entire Wawona area devel-

opment. In its present condition, the intake will run dry during periods of low water in the river, causing complete disruption to hundreds of guests and residents in the service area.

Compliance Status: 50% complete 9/16/97, 50% pending 12/1/97
Corps of Engineers consultation.

Construction Starts: 1997

Construction Ends: 1998

Buildings. Damage to buildings was extensive, affecting approximately 60% of guest accommodations at Yosemite Lodge, 95% of guest accommodations at Housekeeping Camp, and 100% of employee quarters in Yosemite Lodge and Camp Six. The historic Yosemite Valley Chapel, the Resource Management Office (Residence One), and a National Park Service employee residence at Cascades were also flooded.

Reconstructing replacement lodging structures and employee dormitories outside the 100-year floodplain requires extra effort as does the accompanying environmental compliance. Reconstruction of Yosemite Lodge was originally part of the *Draft Yosemite Valley Implementation Plan*. However, to expedite this important component, a separate environmental assessment was prepared. Thus, an initial phase of lodge construction will begin in 1998, with demolition and installation of infrastructure. Buildings will begin taking shape in 1999, and by 2000 they are expected to be completed.

Package 903 – Replace Flood Damaged Buildings

Brief Description: Work under this package includes demolition and replacement of an administrative building and garage and one employee housing unit. The administrative building will be replaced with a new facility located in El Portal. Procurement of supplies, materials, and equipment from the building damaged during the flood will be included in this work. Initial design of replacement structures will include site analysis to determine the most appropriate site in El Portal.

Estimated Cost: \$1,583,740

Impacts on visitors, resources, park operations: Displaced park resource management staff are now located in temporary office space dispersed throughout the park.

Compliance Status: 1980 *General Management Plan*, need to write memo to the file with final action – pending 12/98.
Construction Starts: 1998
Construction Ends: 1999

Package 904 – Construct Temporary Contact Stations

Brief Description: This package will provide four temporary contact stations for use in traffic and visitor management during the course of construction, including use for fee collection during Highway 140 construction. Prefabricated units will be purchased as they are needed.

Estimated Cost: \$107,792

Impacts on visitors, resources, park operations: Fee collection and traffic management control will continue without interruption.

Compliance Status: pending with estimated completion 11/15
Construction Starts: 1998
Construction Ends: 1998

Package 905 – Reconstruct Yosemite Lodge

Brief Description: This package will reconstruct a new Yosemite Lodge Area. A total of 189 cabins, three motel units, and two cottages located within the floodplain will be removed and replaced. Replacement will be based on the 1992 *Concession Services Plan*. Existing roads, parking areas, pedestrian paths, and bike paths will be removed and replaced based on the 1997 *Approved Yosemite Lodge Comprehensive Design* and the 1997 *Draft Yosemite Valley Implementation Plan/Supplemental Environmental Impact Statement*.

Estimated Cost: \$31,610,621

Impacts on visitors, resources, park operations: All new facilities will be constructed above the 100-year floodplain. The new facilities will provide 440 rooms, resulting in a 55-room reduction as approved in the 1992 *Concession Services Plan*. Sustainable design and construction practices will be used to support principles of natural and cultural conservation. The road through the lodge area will be redesigned and converted to a pedestrian walkway to enhance walking and photographic opportunities of the Yosemite Falls area.

Compliance Status: 100% complete, FONSI signed 7/17/97 for the *Yosemite Lodge Development Concept Plan/Environmental Assessment*. Additional compliance information in the 1997 *Draft Yosemite Valley Implementation Plan* and the 1992 *Concession Services Plan/Environmental Impact Statement*.

Construction Starts: 1997

Construction Ends: 2000

Package 906 – Relocate Concession Employee Housing

Brief Description: The 1997 flood damaged major concessions employee housing areas at Camp Six and Yosemite Lodge. This package includes demolition of existing structures and construction of replacement housing totaling 439 beds. Circulation, utilities, and site work associated with construction of new housing units are included in this package. Floodplain areas where structures are removed will be restored.

Estimated Cost: \$36,206,942

Impacts on visitors, resources, park operations: Replacement housing will be located outside the floodplain. The 13.5 acre Camp Six area will be restored to its natural state following recommendations contained in the 1997 *Yosemite Lodge Development Concept Plan/Environmental Assessment*.

Compliance Status: 100% complete, FONSI signed 7/17/97 for the *Yosemite Lodge Development Concept Plan/Environmental Assessment*. Additional compliance information located in the 1997 *Draft Yosemite Valley Implementation Plan* and the 1992 *Concession Services Plan/Environmental Impact Statement*.

Construction Starts: 1998

Construction Ends: 2000

Package 907 – Reconstruct Housekeeping Camp

Brief Description: This package includes the reconstruction of Housekeeping Camp facilities damaged by the flood. Following the 1980 *General Management Plan* and the 1992 *Concession Services Plan*, 230 units, support buildings, and infrastructure, will be reconstructed.

Estimated Cost: \$7,541,545

Impacts on visitors, resources, park operations: The Housekeeping Camp facilities are extremely popular with visitors. Reconstruction will continue the opportunity for the unique lodging experience.

Compliance Status: Direction provided through the 1980 *General Management Plan* and the 1992 *Concession Services Plan*.

Construction Starts: 2001

Construction Ends: 2003

Package 908 – Repair Concession Buildings

Brief Description: This package provides for the repair of buildings in the Tecoya, Yosemite Village, and Curry Village areas that were damaged by floodwaters. The work includes replacement of siding, drywall, flooring, carpet, mechanical systems, insulation, and interior and exterior finishes of 10 buildings.

Estimated Cost: \$220,120

Impacts on visitors, resources, park operations: Repairs allow for the structures to continue to be used for their intended purposes.

Compliance Status: 100% complete 8/27/97

Construction Starts: 1997

Construction Ends: 1998

Package 909 – Repair High Sierra Camps

Brief Description: Damaged buildings, grounds, and utilities at High Sierra Camps and Tuolumne Backcountry will be repaired and replaced under this package.

Estimated Cost: \$496,782

Impacts on visitors, resources, park operations: Operational facilities allow visitor use and enjoyment of the park's high country.

Compliance Status: Pending with estimated completion 11/15/97

Construction Starts: 1999

Construction Ends: 2000

Package 910 – Repair Yosemite Valley Chapel

Brief Description: This package provides for the repair of the Yosemite Valley Chapel, which had floodwaters 3 feet deep in the building. Finishes and furnishings including mechanical systems, communications system, sheet rock, pews, organ, piano, and altar furnishings lost to the flood will be repaired or replaced. Accessibility improvements will be made.

Estimated Cost: \$377,554

Impacts on visitors, resources, park operations: The Valley Chapel is an extremely popular attraction, with frequent ceremonies and services being conducted. Restoration permits the continued operation of the Chapel.

Compliance Status: 50% complete with estimated completion
11/15/97

Construction Starts: 1997

Construction Ends: 1998

Package 911 – Repair Yosemite Valley Comfort Stations

Brief Description: Comfort stations at Mirror Lake, Cathedral Picnic Area, Valley View, Bridalveil Falls, and Happy Isles receiving flood damage will be repaired under this package.

Estimated Cost: \$28,588

Impacts on visitors, resources, park operations: Public health and safety will be maintained in areas of high public use.

Compliance Status: 100% complete 8/18/97

Construction Starts: 1997

Construction Ends: 1997

Package 912 – Repair Flood Damaged Buildings

Brief Description: This package provides for the repair of administrative buildings at Arch Rock, Cascades, and Camp Six, and employee housing at Arch Rock that were flooded. The work includes cleaning and replacement of flooring, carpet, insulation, exterior siding, interior and exterior finishes, an air conditioning unit, and 30 linear feet of privacy fencing at four structures. A total

of 720 square feet of office space for backcountry utilities will be replaced.

Estimated Cost: \$230,316

Impacts on visitors, resources, park operations: The structures are needed for fee collection and park operations.

Compliance Status: 100% complete 8/18/97

Construction Starts: 1998

Construction Ends: 1999

Grounds. Floodwaters covered all 261 sites in Lower and Upper River Campgrounds, over 90 sites in Lower Pines Campground, and all 11 group sites. Paved campground roads and sites were destroyed or covered with silt and debris. Debris and silt also filled restrooms, transformers, and lift stations. Again, due to floodplain issues, substantial design is required to adequately plan for the reconstruction of campgrounds. The campground replacement is a component of the *Draft Yosemite Valley Implementation Plan* and therefore dependent on a record of decision on that plan (expected May 1998). It is anticipated that 1999 will see the largest amount of construction taking place to reconstruct campgrounds in Yosemite Valley.

Package 920 – Reconstruct Rivers Campground

Brief Description: This project will implement recommendations in the *Draft Yosemite Valley Implementation Plan* once it is approved. The proposal is to completely remove all 265 campsites, 9 restrooms, asphalt paving, dump station, and restore 45 acres of native ponderosa pine forest and streambank/riparian edge. New campground sites will be located out of the floodplain.

Estimated Cost: \$4,184,798

Impacts on visitors, resources, park operations: Removal of these campgrounds would allow the Merced River and its tributaries to function naturally across this floodplain. The river would benefit by increasing its geomorphic diversity and ability to dissipate energy during floods. This work is scheduled to begin in 1999 due to the anticipated schedule for approval of the *Draft Yosemite Valley Implementation Plan*.

Compliance Status: Pending 5/98 Record of Decision for the *Draft Yosemite Valley Implementation Plan/Supplemental Environmental Impact Statement*.

Construction Starts: 1999

Construction Ends: 2001

Package 921 – Reconstruct North Pines & Walk-in Campground

Brief Description: Due to damage sustained in the January 1997 flood, North Pine campsites will be reduced by 25, leaving a total of 60 sites to be reconstructed under this package. A total of 104 campsites will be constructed in the Lamon Orchard area adjacent to North Pines. A new amphitheater will be constructed in North Pines Campground. At the North Pines Walk-in Campground, 30 sites will be constructed. Reconstruction of existing or construction of new campsites follows the recommended action in the 1997 *Draft Yosemite Valley Implementation Plan/Supplemental Environmental Impact Statement*.

Estimated Cost: \$5,808,765

Impacts on visitors, resources, park operations: Sites will be relocated out of sensitive river habitat and away from high frequency flood areas. Overall campsite density will be reduced and circulation patterns improved.

Compliance Status: Pending 5/98 Record of Decision for the *Draft Yosemite Valley Implementation Plan/Supplemental Environmental Impact Statement*.

Construction Starts: 1999

Construction Ends: 2000

Package 922 – Reconstruct Pines Campgrounds

Brief Description: This package involves removal of 102 campsites and the reconstruction of 71 campsites in the Lower Pines Campground. Upper Pines Campground will have 162 campsites reconstructed and 11 new group camping sites constructed. The amphitheater at Lower Pines will be removed and be reconstructed in the Upper Pines Campground. Reconstruction of existing or construction of new campsites follows the recommended action in the 1997 *Draft Yosemite Valley Implementation Plan/Supplemental Environmental Impact Statement*.

Estimated Cost: \$7,679,913

Impacts on visitors, resources, park operations: Sites will be relocated out of sensitive river habitat and away from high frequency flood areas. Overall campsite density will be reduced and circulation improved.

Compliance Status: Pending 5/98 Record of Decision for the *Draft Yosemite Valley Implementation Plan/Supplemental Environmental Impact Statement*.

Construction Starts: 1999

Construction Ends: 2000

Package 923 – Repair Picnic Areas

Brief Description: This package provides for the restoration of picnic areas at Cascade Creek, Sentinel, Yellowpine, Swinging Bridge, and Wawona damaged by the flood. Numerous picnic tables, garbage cans, pedestal grills, and one vault toilet need to be replaced, and over 1 mile of paving will be repaired. Silt and debris will be removed.

Estimated Cost: \$409,120

Impacts on visitors, resources, park operations: Repair of flood-damaged day-use picnic areas will provide an important facility for park visitors.

Compliance Status: 100% complete 7/26/97

Construction Starts: 1997

Construction Ends: 2001

Package 924 – Repair Fence

Brief Description: This package provides for the repair and replacement of 220 linear feet of chain-link fence adjacent to the percolation ponds at the El Portal Wastewater Treatment Facility.

Estimated Cost: \$9,935

Impacts on visitors, resources, park operations: Accidental contact by humans or animals with sewage will be prevented.

Compliance Status: 100% complete 6/26/97
Construction Starts: 1997
Construction Ends: 1997

Package 925 – Replace Interpretive Signs and Benches

Brief Description: Under this package 225 interpretive signs and exhibits, and 12 wooden benches lost and damaged in the flood will be replaced at Happy Isles and throughout Yosemite Valley.

Estimated Cost: \$329,703

Impacts on visitors, resources, park operations: Signs are necessary to provide information to park visitors on park resources, safety issues, recovery efforts, and construction progress.

Compliance Status: 100% complete 9/18/97
Construction Starts: 1997
Construction Ends: 2000

Package 926 – Repair Grounds at Concession Facilities

Brief Description: Drainage improvements in the Curry Village and Tecoya areas caused by the flood will be accomplished under this package.

Estimated Cost: \$35,766

Impacts on visitors, resources, park operations: Eroded areas, damaged culverts, and stairs will be repaired for public safety and resource protection.

Compliance Status: 100% complete 6/23/97
Construction Starts: 1997
Construction Ends: 1998

Natural Resources. Flooding damaged 3.5 miles of resource protection fencing and 170 restoration signs that must be replaced. Saturated soil and high winds have weakened and undermined a large number of trees in developed areas. Removal of hazardous debris from the Merced River will be completed by 1998. Natural resource restoration areas that were damaged during the flood will be repaired and revegetated beginning next year and continuing until 2003.

Package 928 – Remove Hazardous Trees

Brief Description: Saturated soil and the high winds that accompanied the flood have weakened and undermined a large number of trees in developed areas. An extensive survey has been completed, and mitigation of hazardous trees to protect public safety is underway.

Estimated Cost: \$74,529

Impacts on visitors, resources, park operations: Mitigation of hazardous trees is necessary to protect public safety in developed areas.

Compliance Status: 100% complete 8/18/97

Construction Starts: 1997

Construction Ends: 1998

Package 929 – Repair Trailer Park Levee El Portal

Brief Description: This package will repair damage sustained to the El Portal Trailer Park levee which protects this developed area from Merced River floodwaters. Flood-damaged rock along the base of the levee will be replaced with 1,675 cubic yards of rock, and a backflow gate will be added to a culvert in the levee.

Estimated Cost: \$273,272

Impacts on visitors, resources, park operations: Repair of this river levee is necessary to protect public safety in this developed area during major flood events. Temporary repair has been completed, and permanent repair will be completed based on proposed land use planning in the park's *Draft Housing Plan* (12/97).

Compliance Status: 100% complete 8/27/97

Construction Starts: 2001

Construction Ends: 2003

Package 930 – Remove Hazardous Debris from Merced River

Brief Description: Hazardous debris was deposited along the floodplains of the Merced River throughout Yosemite Valley and El Portal. Flood-deposited debris is being removed from approximately 575 acres of floodplain. This debris includes hundreds of picnic tables, garbage from flooded campground trash cans and dump-

sters, damaged bridge decking and railings, fencing, signs, road and campground asphalt and structures.

Estimated Cost: \$553,394

Impacts on visitors, resources, park operations: Removal of this hazardous flood debris is necessary to protect public safety and restore natural resources.

Compliance Status: 100% complete 6/23/97

Construction Starts: 1997

Construction Ends: 1998

Package 931 – Stabilize River Banks

Brief Description: Floodwaters caused significant streambank erosion in several developed areas that will require stabilizing nearly 3 acres of streambank. Native plants will be used to stabilize and restore these streambanks. This bank stabilization will help protect buildings, bridges, and natural and cultural resource sites.

Estimated Cost: \$342,961

Impacts on visitors, resources, park operations: Streambanks will be stabilized with native plants, which will reduce bank erosion and protect developed areas.

Compliance Status: 100% complete 8/14/97

Construction Starts: 1998

Construction Ends: 2000

Package 932 – Restore Streambank Vegetation

Brief Description: This package includes the repair of river and meadow restoration project sites within Yosemite Valley that were damaged during the flood of January 1997. Over 3.5 miles of restoration fencing has been replaced and/or rebuilt, and 170 interpretive restoration signs are being replaced. Over the next five years, nearly 6 acres of streambank and floodplains will be revegetated with riparian, mixed conifer, and meadow plant communities.

Estimated Cost: \$859,844

Impacts on visitors, resources, park operations: Natural resource restoration has been ongoing in Yosemite for 10 years, with highly

impacted resources being restored to natural conditions. The 1980 *General Management Plan* established the priority for reclaiming priceless beauty and restoring critical habitat to protect and preserve these resources, and provide for a quality visitor experience. This work has already begun, and plant materials will be produced over the next two to three years, for complete site revegetation by the year 2003.

Compliance Status: 100% complete 9/16/97

Construction Starts: 1998

Construction Ends: 2003

Cultural Resources. High water inundated archeological sites and historic structures and significantly eroded archeological deposits in some areas. At least 10 known archeological sites in the El Portal, Yosemite Valley and Wawona National Register Archeological Districts were heavily damaged. Archeological and historic site stabilization and protection began immediately following subsidence of floodwaters and are expected to be completed by 2000.



Package 913 – Site Data Collection – El Portal & Yosemite

Brief Description: This package provides for the assessment, possible stabilization, and data recovery at five archeological sites that were impacted by floodwaters in the El Portal-Yosemite Valley area.

Estimated Cost: \$44,354

Impacts on visitors, resources, park operations: Nonrenewable, archeological resources will be documented and thus preserved for the public interest.

Compliance Status: 60% complete 8/18/97, 40% pending 11/1/97

Construction Starts: 1997

Construction Ends: 1998

Package 914 – Prehistoric Site Stabilization – El Portal

Brief Description: This package provides for bank stabilization of a known prehistoric burial site (CA-MRP-181) in El Portal. The work includes the construction of a 200- by 20-foot riprap, cement grouted wall along a cut bank of the Merced River.

Estimated Cost: \$455,594

Impacts on visitors, resources, park operations: Preservation of this significant site is of a concern to local Native Americans, and significant archeological resources will be preserved.

Compliance Status: 100% complete 4/29/97

Construction Starts: 1997

Construction Ends: 1998

Package 915 – Prehistoric Site Stabilization

Brief Description: This package provides for the post-flood assessment, possible stabilization, and data recovery at two prehistoric archeological sites: one in El Portal and one in the Wawona area.

Estimated Cost: \$67,334

Impacts on visitors, resources, park operations: Nonrenewable, archeological data will be collected and thus preserved for the public interest.

Compliance Status: 100% complete 8/18/97
Construction Starts: 1998
Construction Ends: 1999

Package 916 – Data Collection Wawona

Brief Description: This package provides for the post-flood assessment, possible stabilization, and data recovery of four archeological sites in the Wawona area. The work includes the collection and documentation of at-risk artifacts that were exposed from the high floodwaters.

Estimated Cost: \$26,800

Impacts on visitors, resources, park operations: Nonrenewable, archeological data will be recorded or collected and thus preserved for the public interest.

Compliance Status: 100% complete 8/18/97
Construction Starts: 1997
Construction Ends: 1998

Package 917 – Prehistoric Site Evaluation High Country

Brief Description: This package provides for the post-flood assessment and data collection of at-risk cultural resources within back-country watersheds that may have incurred high flood damage. In addition, the work also includes the data recovery and study of an exposed prehistoric burial feature and associated activity locus in Pate Valley, northern park area.

Estimated Cost: \$57,919

Impacts on visitors, resources, park operations: At-risk archeological resources will be managed and studied in the public interest.

Compliance Status: 100% complete 8/27/97
Construction Starts: 1997
Construction Ends: 1998

Package 918 – Parkwide Socioeconomic Impacts

Brief Description: California Department of Tourism reported that visitors to Yosemite account for a \$2.1 billion impact on the California economy. When the impact of the January flood event became apparent the park determined more socioeconomic information was required to make the most effective reconstruction decisions.

Estimated Cost: \$66,999

Impacts on visitors, resources, park operations: The park was fully closed for 10 weeks and had some form of restricted access or services for over six months. Extended road closures and reduced facilities dramatically impacted visitors and gateway community economies. Construction planning and restrictions expected over the next four years will attempt to minimize visitor impacts.

Compliance Status: Complete 7/18/97

Construction Starts: 1997

Construction Ends: 1997

Equipment. Equipment used by the backcountry utilities, restoration, wildlife management, and buildings and grounds programs was damaged, destroyed, or washed away when park offices and storage areas were flooded. These are being replaced throughout 1997 and 1998.

Package 933 – Replace Property

Brief Description: Replace two portable gas powered pumps and repair a sludge hauling semitrailer damaged by the flood.

Estimated Cost: \$16,256

Impacts on visitors, resources, park operations: The pumps are used for emergency pumping and utility service maintenance activities. The sludge-hauling trailer is used in the operation of the El Portal sewage treatment facility, which serves Yosemite Valley. The property is essential to continued utility service to the valley.

Compliance Status: Not applicable

Construction Starts: 1997

Construction Ends: 1997

Package 934 – Replace Resource Management Supplies

Brief Description: This package will replace or repair all equipment, supplies, and tools that were damaged or lost during the flood at several park offices in Yosemite Valley. Equipment and supplies included fencing materials, power and hand tools, backcountry gear, wildlife technical equipment, and specialized backcountry utility equipment and supplies.

Estimated Cost: \$558,602

Impacts on visitors, resources, park operations: The equipment and supplies are critical to the operation of backcountry facilities and resource protection parkwide. Without replacement, backcountry services, including High Sierra Camp activities, could be restricted. Resource protection supplies include revegetation materials and fencing materials, which are vital to reducing erosion and managing visitor access to sensitive resource areas.

Compliance Status: Not Applicable

Construction Starts: 1997

Construction Ends: 1998

Package 935 – Replace Damaged Well Equipment

Brief Description: This package provides for the replacement of chlorine gas disinfection systems for three wells in Yosemite Valley. Included are chlorine bottle scales, chlorinators, self-contained breathing apparatus and chlorine regulators.

Estimated Cost: \$17,142

Impacts on visitors, resources, park operations: The equipment is essential to meet Clean Drinking Water regulations and OSHA safety requirements. The wells provide all drinking water for Yosemite Valley.

Compliance Status: 100% complete 8/27/97

Construction Starts: 1997

Construction Ends: 1997

Transportation. High water flooded 6.11 miles of Northside and Southside Drives and another 10.46 miles of secondary roads in Yosemite Valley, causing an estimated \$5.3 million in damage at 38 sites. The valley's road system was already a heavily used, near-gridlock corridor throughout most summers. In considering repair options with road system problems, the flood has provided an opportunity to solve the transportation problem and incorporate objectives of the 1980 *General Management Plan* to reduce valley traffic and congestion.

The visitor transportation management packages include three phases that develop a transfer area at the west end of the valley, purchase an alternative fuel shuttle bus fleet, construct shuttle transit centers at Yosemite Village and the transfer station, and expand shuttle services. Additionally, phases include restoration of roadways and parking areas to natural conditions and revised traffic circulation patterns.

Data gathering on traffic circulation, geology, soils, topographic surveys, etc. required for preliminary site design has begun.

Planning of transportation systems is linked to the *Draft Yosemite Valley Implementation Plan*, expected to be released in October 1997 and outcomes of the Yosemite Area Regional Transportation Strategy (YARTS) endeavor undertaken with the park, surrounding communities and the state. When full implementation of transportation planning is achieved, over 2,000 parking spaces in the east end of the valley will be removed and the sites restored to natural conditions.

The Emergency Supplemental Appropriations Act provided the park with a total of \$35 million to implement the Yosemite Valley transportation management initiative. Following is a discussion of how these funds will be spent.

Package 900 – Phase I Transportation

Brief Description: This package includes transportation improvements for Yosemite Valley through the construction of an inter-modal vehicle transfer facility, flood related changes in traffic circulation patterns, and construction of new bus stops. Included will be utility services for the transfer facility and restoration to natural conditions of abandoned roadways and parking. Interim parking may be developed at the transfer facility if required to meet transportation needs, but would not commence construction prior to 2001.

Estimated Cost: \$13,900,000

Impacts on visitors, resources, park operations: Day-use visitors will use the transfer facility and park shuttle transportation for access to the valley, reducing traffic congestion and enhancing the visitor experience and facilitating flood reconstruction. Abandoned roadways will be adapted to bikeways and/or restored to natural conditions.

Compliance Status: Pending 5/98 Record of Decision for the *Draft Yosemite Valley Implementation Plan/Supplemental Environmental Impact Statement*.

Construction Starts: 1999

Construction Ends: 2003

Package 901 – Phase II Transportation

Brief Description: This package includes construction of the Yosemite Village Information/Interpretative/Transit Station and incorporation of ongoing transportation management planning, including reduction of private vehicle parking and regional transportation support facilities.

Estimated Cost: \$10,000,000

Impacts on visitors, resources, park operations: Implementation of this package expands Phase I plans to include minimal orientation and interpretive facilities at the Phase I transfer area and in Yosemite Village. It will include adjustment of the Phase I program as needed to implement regional transportation strategies with outlying communities. It will result in day-use visitors accessing scenic features, interpretive sites, and recreational sites by shuttle bus, bike, or on foot, greatly reducing traffic congestion, noise, and pollution.

Compliance Status: Pending 5/98 Record of Decision for the *Draft Yosemite Valley Implementation Plan/Supplemental Environmental Impact Statement*.

Construction Starts: 2000

Construction Ends: 2005

Package 902 – Transportation (FLHP)

Brief Description: This package includes improvements to traffic circulation patterns in the valley, construction of new bus stops, and procurement of alternative fuel shuttle busses.

Estimated Cost: \$11,100,000

Impacts on visitors, resources, park operations: Will result in day-use visitors accessing scenic features, interpretive sites, and recreational sites by shuttle bus, bike, or on foot, greatly reducing traffic congestion, noise, and pollution.

Compliance Status: Pending 5/98 Record of Decision for the *Draft Yosemite Valley Implementation Plan/Supplemental Environmental Impact Statement.*

Construction Starts: 1998

Construction Ends: 2005

Emergency Incident Response

Package 919 – Emergency Incident Response

Brief Description: Initial emergency response was managed under the national Incident Command System (ICS) method of staffing, decision making, expenditure tracking, and emergency procurement. Short-term expenses have included: rental of vehicles, portable toilets and heavy equipment; supplying emergency food, water and temporary lodging; restoration of limited electrical, water and sewer services; removal of flood debris and restoration of minimal travel corridors; and provision of law enforcement, fire protection, emergency medical and search and rescue services. Overtime, travel, and per diem costs for National Park Service employees as well as a wide cross-section of other state and federal emergency workers hired for the short term were also incurred. The ICS system was shut down on June 11, 1997.

Estimated Cost: \$13,402,000

Impacts on visitors, resources, park operations: For all practical purposes the entire park was closed from January 1 through March 15, 1997, when Yosemite Valley was reopened for limited visitor use. The entire park was open by mid June. Approximately 500,000 visitors may have been denied access by the park closures and subsequent construction restrictions. All roads were open for full access

(though repaired to a temporary status) by mid June. Some visitor and park operational inconveniences will recur as major construction proceeds over the next four years, although every effort will be taken to minimize restrictions.

Compliance Status: 100% completed 6/12/97

Construction Starts: 1997

Construction Ends: 1997

ASSESSMENT OF THE IMPACT OF THE REHABILITATION PLAN ON THE ANNUAL OPERATING NEEDS OF THE PARK

As discussed earlier, the flood recovery effort is fully funded. No increase in annual operating needs is anticipated to accomplish recovery reconstruction. Every effort is being made to build the most efficient facilities in order to minimize costs, yet adequately protect park resources.

During the recovery period, visitors will be impacted by reduced visitor service facilities (fewer lodging units and campsites) and by typical inconveniences associated with major construction (road access restrictions, noise, and appearance of in-progress construction). As detailed in the individual package descriptions, facilities will be incrementally coming back on line over the next four years.



A "before" shot of the Silver Apron Bridge



An "after" shot of the repaired Silver Apron Bridge

Package Status

DESCRIPTION OF WORK PERFORMED AND OBLIGATIONS INCURRED THROUGH JULY 1997

Total obligations incurred as of July 21, 1997 — \$19,579,589. This amount includes the \$13,402,000 shown in the Emergency Incident Response. And in addition, since the incident, \$6,177,589 has been spent on specific packages described in this report.

Costs could not be broken into individual accounts for this report until package formulation contained herein was completed and account structures approved. Beginning with the first quarterly report, costs will be distributed to their associated accounts rather than shown as a lump sum. That report will include a narrative description of accomplishments and spreadsheets, similar to those in appendix A. Obligations to date will be shown on the spreadsheets. The first quarterly report will be available by the end of January 1998, and will cover all of 1997. Subsequent reports will be submitted within 30 days of the end of each quarter.

This document serves as a bridge between the March 1997 *Detailed Assessment Report* and future quarterly reports. In appendix A under each major spending category are listed packages. Below each package individual projects from the *Detailed Assessment Report* are listed. Quarterly reports will include a spreadsheet with the major spending categories and their associated packages. Individual projects will not be listed.

Appendix A lists projects from the original damage assessment that are organized by major spending categories and grouped into packages for accounting purposes as described earlier. Appendix B lists ERFO projects that have been funded through the Federal Highway Administration.

Roads. Repairs have been made on Highways 41, 140, 120, and in Yosemite Valley on Southside and Northside Drives, and Happy Isles and Mirror Lake Roads. All roads are now passable. To reopen these roads, unstable soils were removed and the area stabilized and reshaped, utility lines were repaired or replaced, road shoulders were reinforced, aggregate base course was installed, asphalt surfacing was applied, and topsoil was installed. By mid-March, Highways 41 and 120 were reopened for public use. Highway 140 was reopened on May 23. Tioga Road from the park entrance to its intersection with Highway 120 had seven damaged areas, but by June 13 it, too, was open. In the three packages listed, 12 projects have been completed since January. Most roadwork was completed with the Federal Highway Administration's

ERFO program, which covers costs to bring roads back to pre-flood condition. Over \$5.3 million has been spent of \$9,771,352 approved in the ERFO program.

Trails. Five frontcountry trail bridges in Package 947 have been completed to date in Yosemite Valley. Work on 26 projects in packages 948, 949, 950, 951, 952, and 953 is in progress.

Utilities. Necessary design and construction contracts put critical utility operations, including Yosemite Valley sanitary sewer line, El Portal sewer line, and the Wawona wastewater system, back in full operation by early May. Contracts for design services have been initiated to replace damaged equipment in the Yosemite Valley water wells and a critical sewage lift station. Three high voltage electrical repairs and one major sewer line replacement have been completed. Projects in five utilities packages are currently in progress.

Buildings. NPS staff has produced the *Yosemite Lodge Development Concept Plan/Environmental Assessment*, which defines the redevelopment concepts for the lodge area and provides compliance for the action. A building program was developed to define building type and function to meet the needs of the park and concessioner. A detailed multiyear, phased facility development schedule has been devised to identify critical tasks, project milestones, highlight decision points, and minimize impacts on ongoing park and concession operations. Seventeen building projects are in progress. Work in six packages is in progress.

Grounds. Campground repairs at Wawona and reconstruction of picnic areas at Cascades and Swinging Bridge should be completed by the end of 1997. Altogether, work in four packages is in progress.

Natural Resources. Work on Package 928 – Remove Hazardous Trees, will be completed by September 1998. Almost all of the projects in Package 932 – Restore Streambank Vegetation are in progress.

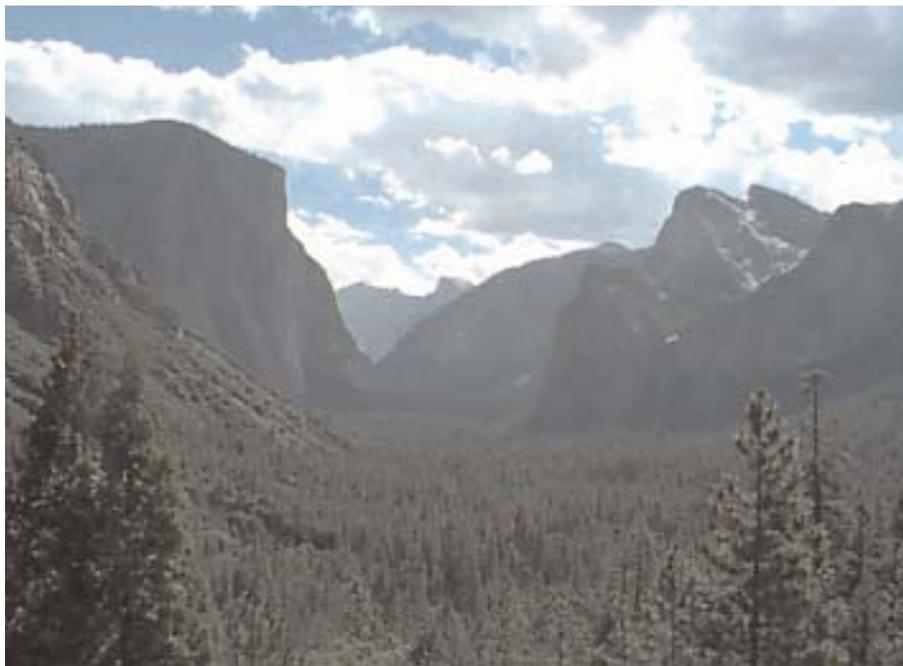
Cultural Resources. Four site stabilization packages are in progress. The economic impact assessment, Package 918, has been completed.

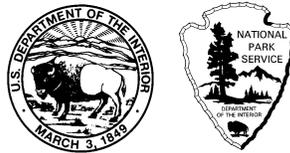
Equipment. Resource management and backcountry utilities, supplies, and equipment were lost in the flood. All three packages in this spending category are being replaced throughout 1997 and 1998.

Transportation. Implementation of transportation facilities depends on the outcome of the *Draft Yosemite Valley Implementation Plan* expected to be released in October 1997. However, preliminary data gathering and design are underway.

Summary

Adequate flood recovery funding has been requested and appropriated. Infrastructure has been temporarily stabilized. A packaging and sequencing of projects has been developed and continues to be refined. A flood recovery staff has been assembled and is being formalized. Environmental compliance requirements have been addressed, with project monitors in the field from the start. Reporting procedures have been developed. Planning, design, and construction expertise is at work or will be provided as needed. Quarterly and annual reports will document progress and account for spending. In short, full recovery from flood damage may be a huge undertaking, but the National Park Service has assembled a team and a process that can successfully meet this challenge.





As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

