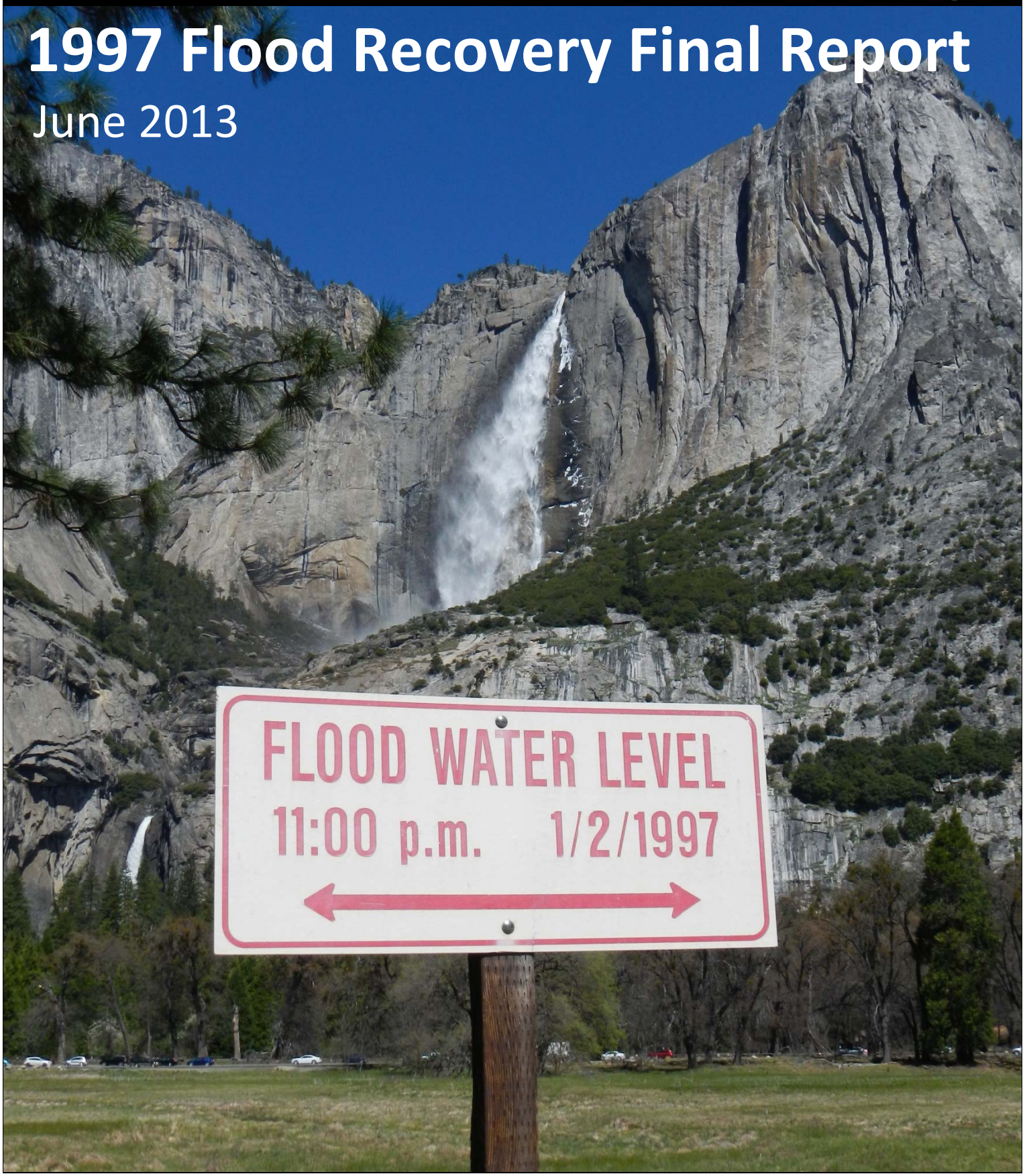
U.S. Department of the Interior
National Park Service

Yosemite National Park

1997 Flood Recovery Final Report

June 2013



United States Department of the Interior

NATIONAL PARK SERVICE
Yosemite National Park
P.O. Box 577
Yosemite, California 95389

June 2013

Message from the Superintendent:

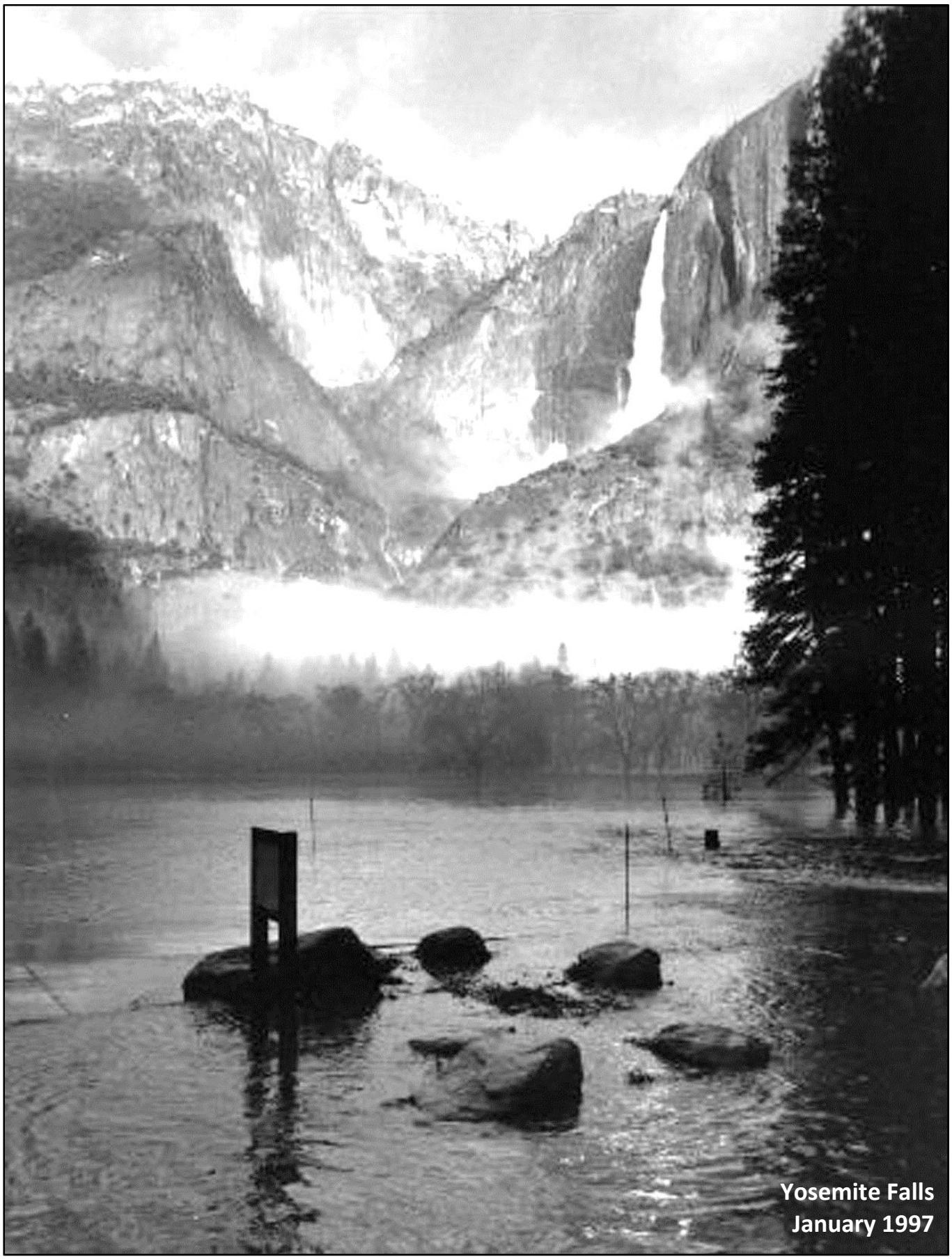
We are pleased to provide you a copy of the 1997 Flood Recovery Final Report: Yosemite National Park. This document provides a comprehensive record of the completed program that enabled the park to recover from a major natural disaster. Yosemite is one of the most popular national park areas in the country, serving four million visitors a year. The park features an abundance of thundering waterfalls; soaring cliffs; sculptured granite peaks, glacially carved canyons; untrammeled wilderness; and ancient sequoia groves. Recognized as a World Heritage Site its iconic scenery has been an inspiration to visitors from around the world.

Park visitation was significantly impacted in January 1997 by a flood of historic proportions. The flood severely damaged a whole range of facilities from miles of roads, bridges and trails, to utility systems, to several hundred units of guest lodging, campsites, and employee housing. Initial response to the Yosemite Flood was managed under an Incident Command System. A team of engineers, architects, landscape architects, resource specialists, and technical experts completed detailed damage assessments and cost estimates. Based on those findings, the Emergency Supplemental Appropriations Act was passed by the House and Senate and signed by the President on June 12, 1997, to provide Yosemite National Park with $178 million to cover flood recovery projects. This amount was later supplemented by an additional $79 million from other funding sources. Today, because of this funding, the park provides quality services to its visitors from across the globe.

This Report conveys a brief history of the flood recovery effort and provides summaries for each of the topic categories of damage and repair, expenditures and detailed package reports. The ten categories of flood recovery work described in this report include Emergency Incident Response, Roads, Trails, Utilities, Buildings, Grounds, Equipment/Property, Natural Resources, Cultural Resources, and Transportation Management. As project implementation began, a series of lawsuits and court ordered injunctions delayed or caused the cancellation of several of the planned projects.

Yosemite National Park, representing the visitors it serves and the resources it protects, is greatly appreciative of the tremendous support provided that enabled this national treasure to recover from the devastating flood.

Don L. Neubacher
Superintendent



Yosemite Falls
January 1997

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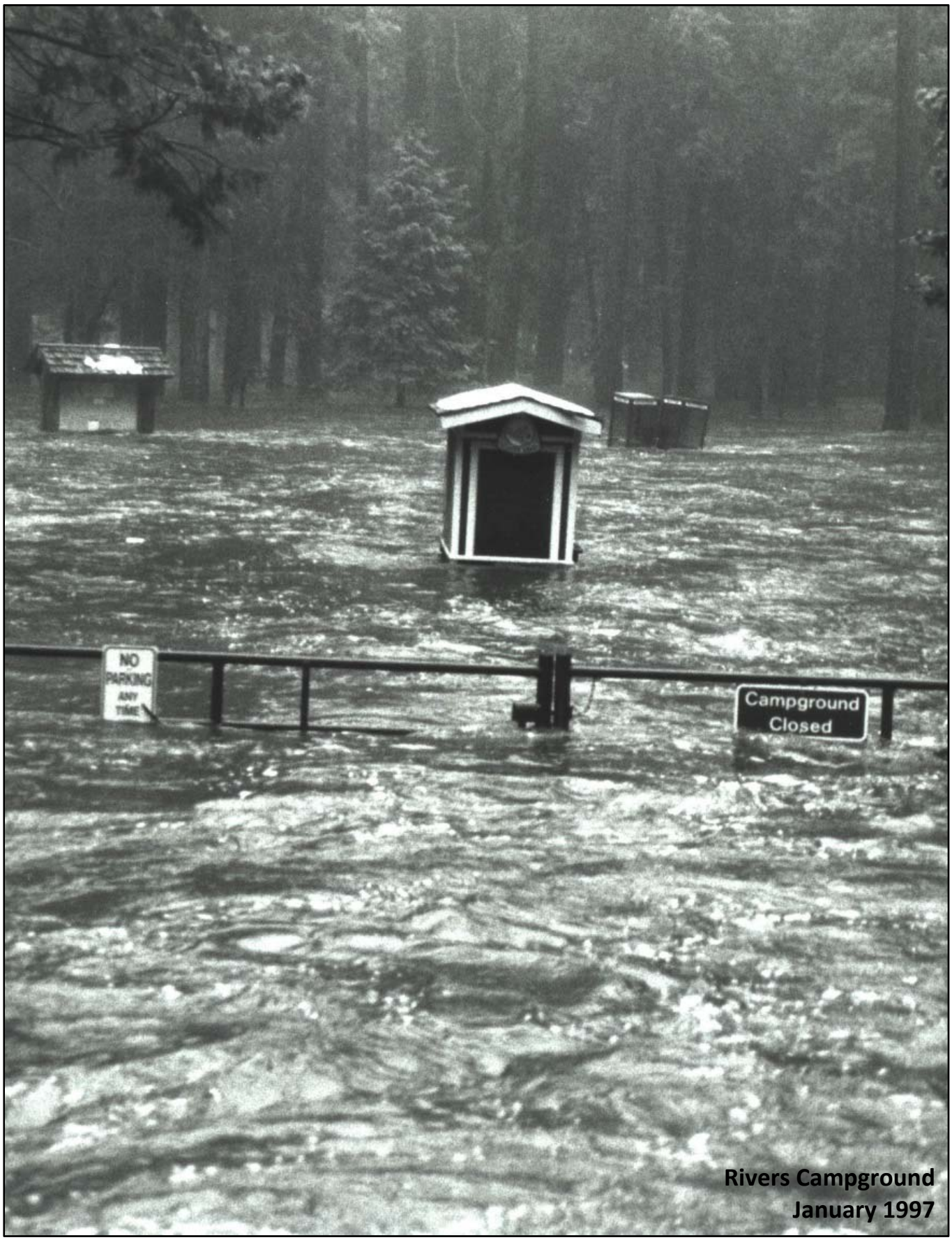


Rivers Campground
January 1997

The January 1997 flood was the largest experienced in Yosemite by this generation. The water volume of the Merced River reached 24,600 cubic feet per second, the highest flow in 80 years of recording. We know there have been three other floods of similar magnitude since 1937. The primary flood recovery objective was to restore facilities and operations in a way that would prevent destruction from future high water events. Secondly, the park wanted to make sure that flood recovery projects were compatible with the park's long-range vision as defined in the 1980 *General Management Plan.*

Damage in the park was widespread and affected every aspect of park operations. At the time of the flood, hundreds of park visitors were stranded in Yosemite Valley and park personnel necessary for emergency operations were unable to get into the Valley. Getting visitors safely out of the park and emergency personnel in took several days. An Incident Command System (ICS) team was established to address the immediate needs of the park visitors and staff. The majority of the park's infrastructure had been inundated with water. Temporary services were established for water, sewer and electrical systems. Roads were partially opened to transport in supplies and materials necessary for the rebuilding. It took nearly 2 ½ months for the park to reopen for limited visitation.

As devastating as the flood was on a human scale, it also provided an unprecedented opportunity for positive change. These changes, many of which were called for in the Yosemite 1980 *General Management Plan*, improved conditions for park resources by allowing the natural processes to prevail and also enhanced the visitor experience. The park was committed to relocating as many facilities as possible outside the floodplain or outside of Yosemite Valley. The flood recovery objectives were:

- Park facilities, resources, and operations damaged by the flood will be fully restored in scope, scale and function to a condition that will not be damaged by a future flood of this magnitude.

- The park community and adjacent communities that provide the human resources upon which visitor operations, resource protection, and disaster recovery efforts depend will be supported in their personal recovery efforts.

- The park will be reopened for public use to the greatest extent possible, consistent with recovery efforts and safety.

To accomplish these goals and begin the road to recovery, over 350 damage assessments along with cost estimates for repair work were developed by the National Park Service (NPS) and provided to Congress. This led to the 1997 Emergency Supplemental Appropriations Act that provided $178,553,000 to cover flood recovery projects. Beginning on page 178 of the Appropriations Act, the National Park Service was designated $187,321,000 for emergency construction expense. Of this amount $176,053,000 was allocated for Yosemite. An additional $10 million was designated in the appropriation for transportation planning for the park. The remaining $11,268,000 of the NPS appropriation money was allocated to other national parks. The 1997 Emergency Supplemental

Appropriation Acts is attached as Appendix A. This effort was augmented by further funding from other sources that supplemented the original 1997 Appropriation of $178,553,000. An additional $79,276,064 was contributed to the effort resulting in a total combined flood recovery funding of $257,829,064.

Combined Flood Recovery Funding		
Emergency Supplemental Appropriation	$	176,053,000
Transportation Add-On	$	10,000,000
Insurance Settlement Reduction	$	(7,500,000)
Total Allocated from 1997 Appropriation	**$**	**178,553,000**
Total Additional Contributed Funding	**$**	**79,276,064**
Total Combined Flood Recovery Funding	**$**	**257,829,064**

At the request of Congress, Yosemite prepared the Flood Recovery Action Plan, which described the organizational and procedural details of the flood recovery process and estimated costs to accomplish the work. This plan is attached as Appendix B. The park also submitted Quarterly Reports to Congress which provided progress updates, planned accomplishments, costs and obligations, and other relevant information. The Quarterly Reports continued through December 2006 when due to ongoing litigation delays no further progress was being made on flood recovery projects. The park suspended submitting additional Quarterly Reports and any remaining project information is included in this final report.

In 2012, the final flood recovery funds were obligated. From the beginning, the flood recovery projects had been estimated to be complete in four to five years. This time frame was not met due to a series of lawsuits challenging specific projects, court ordered injunctions and the preparation of park planning documents. As a result of the lawsuits, the time table for obligating all of the flood recovery funding was 15 years.

Flood Damaged Campground

Pipe removal from Ahwahnee Meadow

Pipe removal Merced River near Stoneman Bridge

Some of the originally identified flood recovery projects were cancelled or the scope of the project was reduced. A project was cancelled or the scope reduced if the project could no longer be completed due to Court ordered injunctions issued from ongoing litigation, or it was determined that the project was no longer necessary to meet management goals.

Funding from cancelled or reduced projects was redirected to pay unanticipated costs of court ordered planning, inflationary project increases due to delays, and to complete necessary utility projects. Redirected funding was reviewed and approved by the NPS comptroller and identified for Congress in the Quarterly Reports. No additional work could be continued on court enjoined and/or cancelled flood projects until the *Merced Wild and Scenic River Comprehensive Management Plan* was completed.

Yosemite National Park has been fully restored to public access and replacement facilities have been developed with long term durability. In many cases where replacement infrastructure has been relocated, the new facilities are located outside the Merced River floodplain and away from sensitive wetlands, meadows, woodlands and the riverbed itself.

The unprecedented undertaking to restore Yosemite National Park and expend the funds strategically and efficiently required the coordinated efforts of a large team of dedicated personnel, both from the public and private sectors. As a result, the park is now in a dramatically different condition than during the aftermath of the 1997 flood. Today, the visitor to Yosemite can once again drive on all the major roads, hike all the trails, benefit from upgraded utility systems, stay in rehabilitated facilities and experience cultural and natural resources that have been restored from the devastating flood damage.

During the first three days of January 1997, a tropical storm with warm torrential rains fell over Yosemite National Park partially melting the heavy high elevation snow pack. Water inundated the park's rivers and tributaries and resulted in one of the most devastating floods in the park's history. Flood waters reached nearly 16 feet in some areas (six feet above flood stage) and left much of Yosemite Valley underwater for several days. The flood was the largest recorded (though historic floods prior to 1915 may have been larger) in Yosemite's history and caused severe damage to facilities, infrastructure and resources parkwide. All of the largest floods have resulted from rain falling on snow. Other such floods occurred in 1937, 1955, 1960, and 1964; several of these were nearly as large as the January 1997 flood.

Damaged facilities included the four main roads leading into the park, secondary roads throughout the park, major electrical, water and sewer systems, 439 employee bed spaces, over 500 guest lodging units, more than 350 campsites, 17 resource restoration projects and at least 10 known archeological sites. As a result of the damage caused by the flood waters, Yosemite was closed to the public until March 14, 1997, when the park was partially reopened for visitor use.

On June 12, 1997, the Emergency Supplemental Appropriations Act (Public Law 105-18) was passed by the House and Senate and signed by the President, which provided Yosemite National Park with $178,553,000 to repair and replace infrastructure, resources and property damaged during the flood. The amount of the appropriation was determined based on the individual assessments completed on the damage sustained by the multitude of bridges, trails, roads, buildings, signage, natural and cultural resources and infrastructure as a result of the flood waters.

Additional guidance on the flood recovery appropriation was given on June 19, 2001, when the House Appropriations Committee submitted a report (H.R. 107-103) which directed Yosemite National Park to:

- Undertake a study of the potential for expanded opportunities for additional camping in Yosemite which identified costs and other factors associated with additional camping facilities,

- Move forward with the reconstruction of Yosemite Lodge area, including restoration, rerouting of Northside Drive, the Indian Cultural Center and the Camp 4 expansion,

- Begin implementation of the Yosemite Valley Plan, concentrating on flood recovery, actions to enhance the visitor experience and access, expanding the in-valley shuttle system with clean-fuel technology, restoration and implementing projects that make use of flood recovery, fee program and donated funds,

- Actively cooperate and participate with local counties in the preparation of county general plans and to determine whether park administrative facilities, visitor services and facilities, housing and other facilities necessary for park operations can be located outside the boundaries of the park, and

- Take no action on a transportation system outside the boundary of Yosemite National Park without concurrence of the House and Senate Committees on Appropriations.

Yosemite assembled a flood recovery team to provide accountability, direction, facilitate project development and ensure orderly sequencing of projects. The core of the flood recovery team was comprised of Yosemite National Park employees with significant participation from the Federal Highway Administration. The NPS Denver Service Center (DSC) provided design, contracting, and construction management services. Additional services were obtained from private sector architectural and engineering firms, construction contractors, and Yosemite National Park staff as needed.

Sequencing or scheduling of work began immediately following the flood. For large, complex packages the recovery team expected planning and compliance to take approximately one year, design one year, and construction from one to three years. However, smaller packages could be planned and designed in the same year, and construction occurred immediately or in the following year.

It was anticipated that recovery would take approximately four to five years from the time funding was approved for all of the park's facilities to be repaired. This time estimate more than doubled as a result of litigation and subsequent court imposed injunctions which delayed or precluded some flood projects from being accomplished.

Construction related litigation began upon implementation of flood recovery projects in 1997. Litigation challenges were based on the National Environmental Policy Act and the Wild and Scenic Rivers Act and required the park to prepare a *Merced Wild and Scenic River Comprehensive Management Plan*. Ongoing litigation involving the *Merced River Plan* resulted in the cancellation of several large construction projects including the Yosemite Lodge Area Redevelopment and Upper Pines Campground Expansions.

On October 1, 2009, the court approved a Settlement Agreement submitted by the parties in the *Merced River Plan* (MRP) litigation which stated: "This agreement is executed solely for the purpose of compromising and settling this litigation and nothing herein shall be construed as, an admission against interest or positions taken or of wrongdoing or liability, by any of the settling parties with respect to any fact or issue involved in any pending or future litigation."

DAMAGE ASSESSMENTS

As the floodwaters receded it became apparent that Yosemite Valley and other areas of the park had experienced extensive damage by the flood waters. An Emergency Incident Response Team (EIRT) was organized to begin the process of producing damage assessment and facilitating emergency repairs. The core EIRT was comprised of Yosemite National Park and DSC staff and with significant participation from the Federal Highway Administration (FHWA). The FHWA greatly facilitated the park's reopening through its Emergency Relief for Federally Owned Roads (ERFO) program.

Damage assessments were prepared to determine the scope of the destruction and begin developing a recovery action plan. The damage assessments provided park managers with descriptions, recommended actions and estimated repair costs.

There were 210 individual projects identified by the damage assessments listed in the March 1997 *Detailed Assessment Report*. To facilitate project management, scheduling, contracting, staffing, accounting, and external reporting the 210 projects listed in the *Detailed Assessment Report* were organized into 62 project packages. The packages are groupings of similar types of projects, generally by location. The package categories are: roads, trails, utilities, buildings, grounds (including campgrounds), natural resources, cultural resources, equipment (property), and transportation management. Detailed completion reports for each of the 62 packages are attached in Appendix C.

Superintendent's Bridge Under Reconstruction

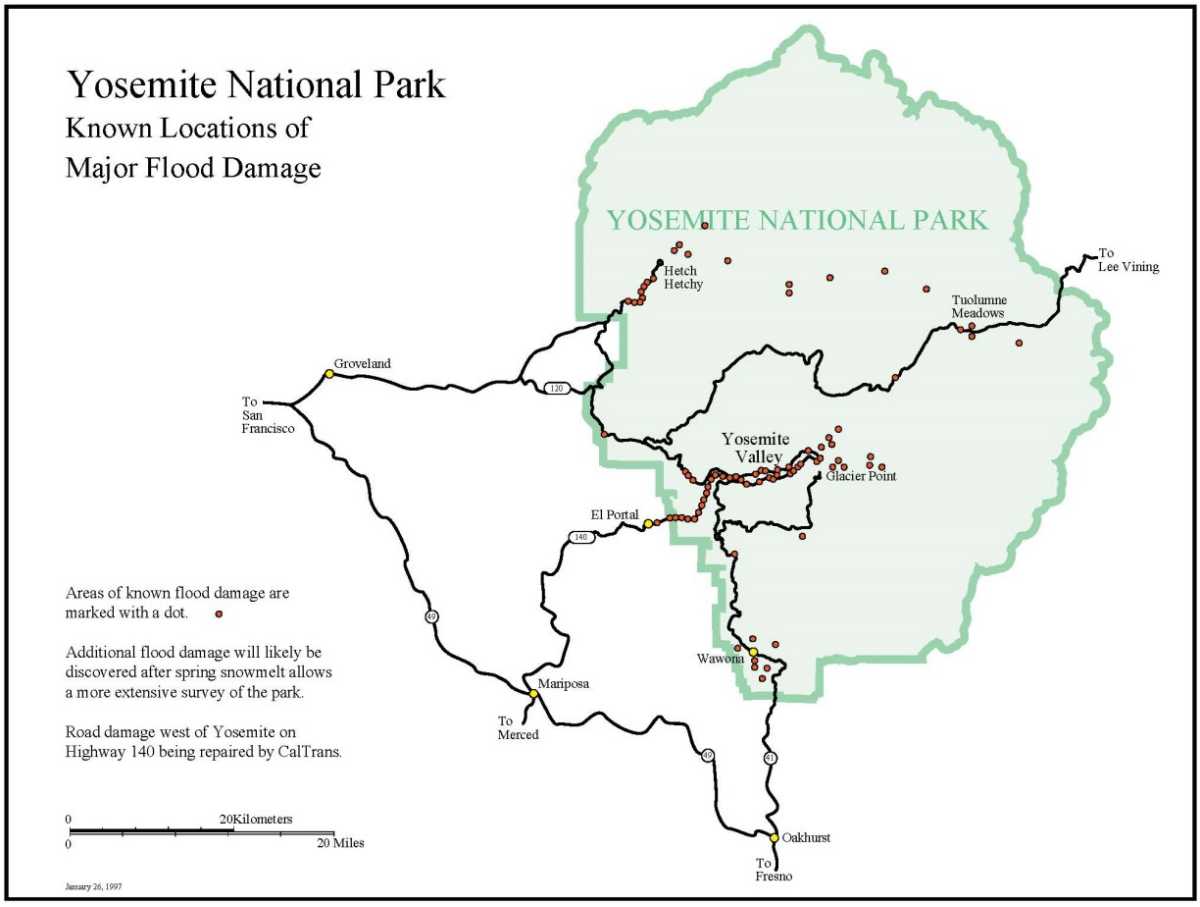
River Crossing to Consolidate Utility Lines

In addition, 74 Emergency Relief for Federally Owned Roads (ERFO) related road damage projects were identified and were accomplished through Department of Transportation/Federal Highway Administration funding. These ERFO projects were not incorporated into park packages due to their separate funding source. The Federal Highway Administration spent $7,527,022 to repair road damage not covered in Yosemite's funding request.

The Tioga Road and other areas of the park above 7,000 feet in elevation were closed due to winter weather conditions in the high country. Aerial observations revealed 30 damaged or destroyed trail bridges, and countless trail and road washouts. Damage estimates were completed from visual observations although discovery of additional damage was anticipated when access to the road and high country became possible in early summer.

Upon completion of the damage assessments, it was determined that the park would need $176,053,000 to pay for the recovery efforts recommended in the damage assessments. An emergency funding request was made and the Emergency Supplemental Appropriations Act was approved in June 1997.

SITE LOCATIONS OF FLOOD DAMAGE – JANUARY 1997



Damage from the 1997 flood occurred throughout Yosemite National Park, with the majority of the flood related damage located along the Merced River from east Yosemite Valley downstream to the park boundary. The Yosemite Village area suffered extensive damage to buildings, infrastructure, resources, and visitor services. Debris from campsites, picnic areas, structures, and visitor use areas washed into the Merced River and had to be removed.

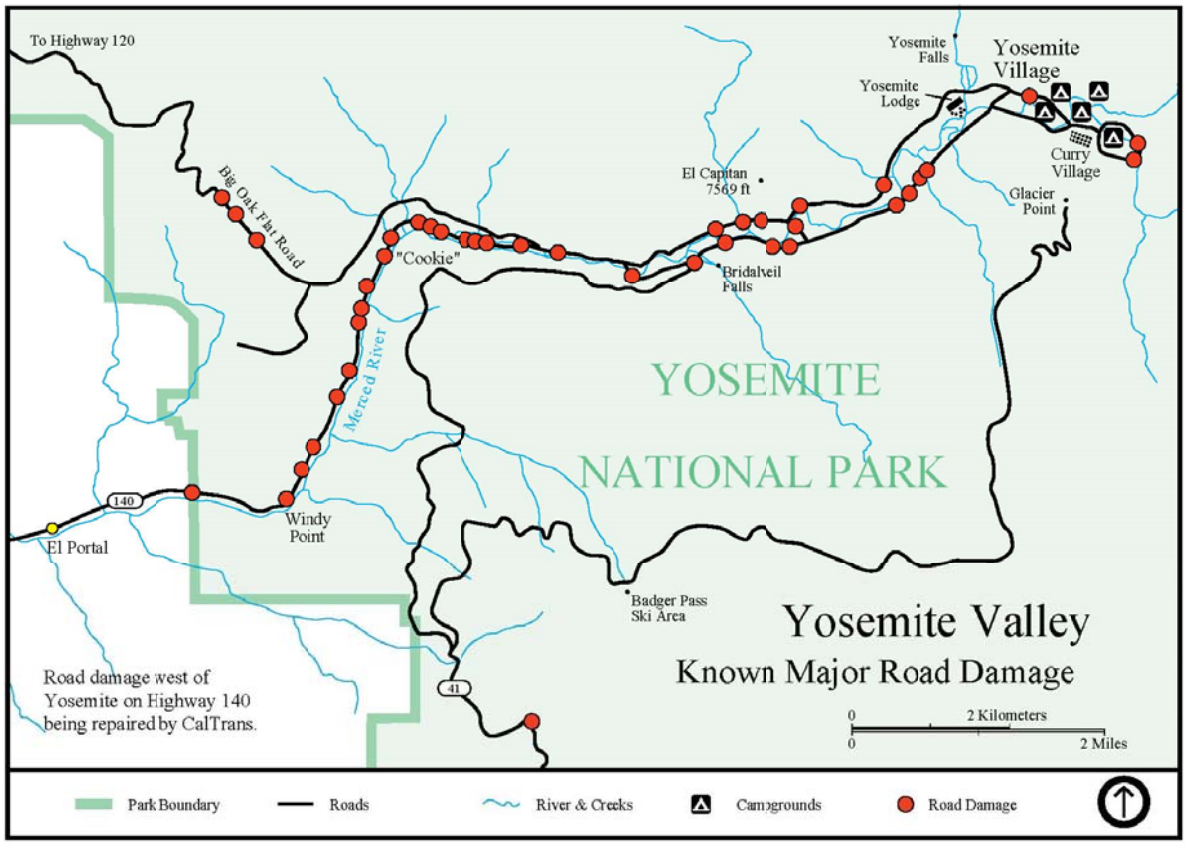
The El Portal Road, which paralleled the Merced River was extensively damaged and remained closed to the public until repairs could be completed. Additional damage occurred along the Merced River in the El Portal Administrative Site west of the park boundary.

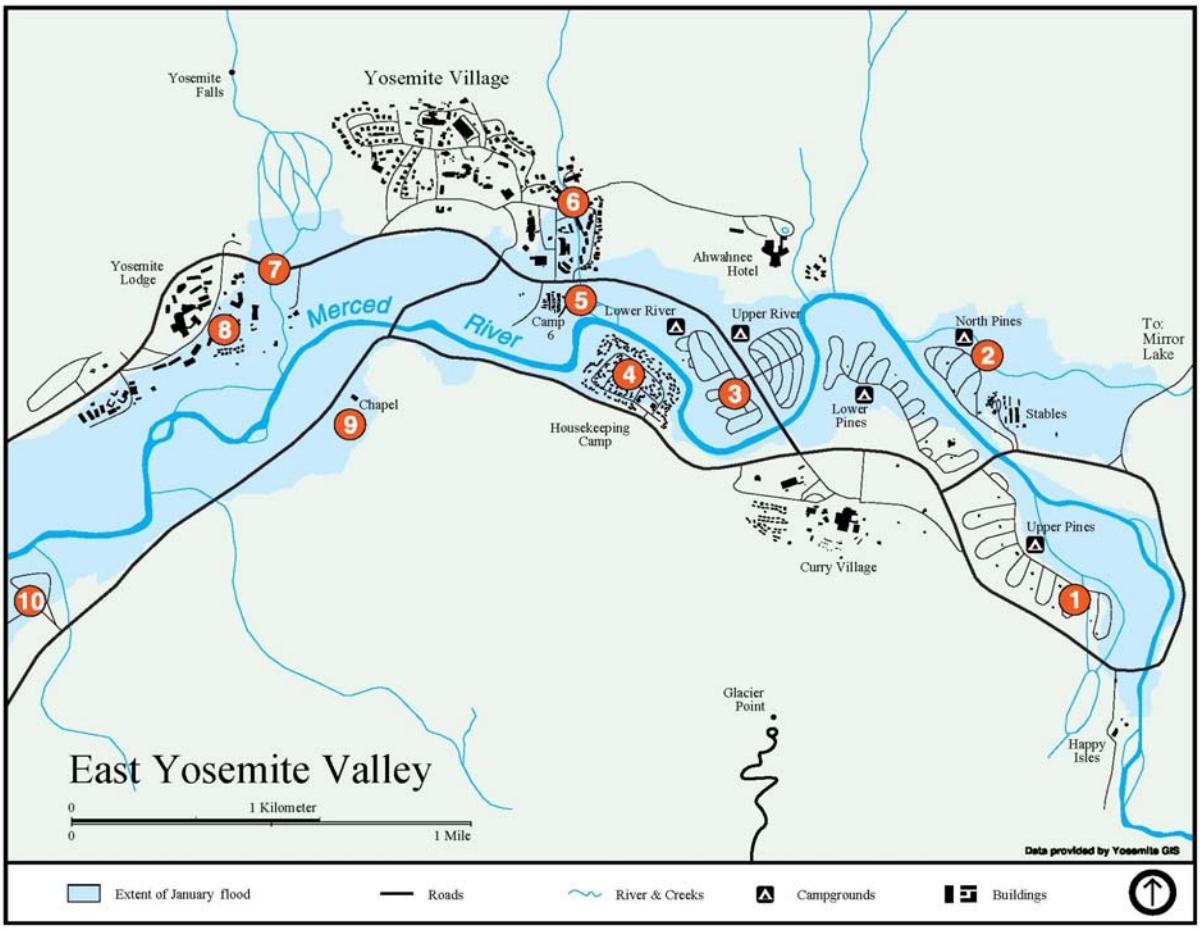
Other areas of concentrated damage occurred along the South Fork of the Merced River in Wawona and the Tuolumne River and its tributaries in the northern wilderness areas of the park. Outside of the Valley, much of the damage occurred to trails, roads, trail bridges, bridges and archeological sites.

Yosemite Chapel
January 1997

Damage to all four of the major roads in and out of the park limited access for contractors, staff and supplies necessary to repair the damage. The park was closed from the time the flood occurred in January until March 14, 1997, when it partially reopened for visitor use.

Many visitor lodging facilities, campgrounds, employee housing units and office spaces which were heavily damaged or destroyed by flood waters were subsequently relocated out of the flood plain. Other facilities are awaiting the completion of the *Merced Wild and Scenic River Comprehensive Management Plan* (MWSR/CMP) for location determination.





East Yosemite Valley flood damage site locations are illustrated above. Descriptions of damage for the ten key locations follows below.

1 **Pines Campground Area** – The Happy Isles Bridge was damaged, and the adjacent road and bridle paths were washed out. North Pines Campground was completely flooded and sixty percent of Lower Pines Campground was flooded. A new channel of the river now exists through Lower Pines Campground. Campground furnishings were washed downstream and restrooms were full of sand. In Lower Pines Campground sewer lines were exposed and sand and debris infiltrated the sewer collection system. In North Pines Campground the lift station was flooded and electrical equipment damaged.

2 **Tenaya Creek Drainage** – The Mirror Lake trails and footbridge were eroded or destroyed. Both shoulders of the Mirror Lake Road were washed out. The Tenaya Creek Road Bridge was damaged. Employee housing at the concessioner stables were flooded. All 11 group campsites were severely washed out. The restrooms, trails and footbridges were flooded and damaged. The Merced River flowed across several oxbows with a current strong enough to dislodge structures, carry away pavement, cause serious erosion, and leave widespread debris and siltation.

3 **Rivers Campground** – 278 campsites and nine restrooms were completely flooded. Campground furnishings were washed downstream. A layer of debris, silt and sand was left behind. The recreational vehicle dump station was damaged. The sewer lift station was flooded, damaging electrical equipment. The amphitheater walkway and site lighting were damaged.

4 **Housekeeping Camp** – 250 concession operated rental structures, one laundromat, ten restrooms and two shower houses were flooded by water ranging in depth from 2 to 10 feet. Debris and sand deposition was extensive.

5 **Camp Six** – 80 wood framed employee tent cabins and support facilities floated off their footings and destroyed attached underground gas and overhead electric utilities. Several contractors used this location as a construction staging area. Field offices, stockpiles of material, and equipment were extensively damaged. The concessioner stored seven tour tram vehicles in this area. Major engine damage occurred when they were submerged.

6 **Indian Creek Drainage** – Indian Creek overflowed its banks and flooded the nurse's dorm, concession employee housing, a fire station and service garage. The road shoulders, bridge abutments and culverts were eroded.

7 **Yosemite Creek Drainage** – The trails and bridges near Yosemite Falls were heavily damaged or destroyed. The Resources Management Office (Residence 1) and storage garage were flooded, damaging structures, equipment and important resource records. Three water wells that served the entire Valley were flooded causing extensive damage to pumps, motors, generators, controls and chlorinators. The main sewer lift station serving the entire Valley was flooded causing extensive damage to generators, transformers, motors, controls and pumps.

8 **Yosemite Lodge** – 189 concession operated rental cabins flooded 5 to 8 feet deep. 172 concession operated motel rooms flooded up to 5 feet deep. 224 concession employee quarters and 15 support facilities flooded up to 8 feet deep. Underground utilities, landscaping and parking areas were also damaged.

9 **Chapel Area** – The Yosemite Chapel flooded ruining furnishings, carpet, insulation, the heating system and rock skirting. The foot bridges and roadway were damaged in this area. Resource protection fencing was washed away.

10 **Sentinel / Yellow Pines Area** – Sentinel Creek left one foot deposits of silt on Southside Drive for several hundred feet. The picnic and group camp areas suffered erosion, siltation and restroom damage.

SUMMARY OF FLOOD RECOVERY FUNDING

On June 12, 1997, the Emergency Supplemental Appropriations Act (Public Law 105-18) was signed by the president. The Appropriations Act provided the NPS with $187,321,000 and identified $176,053,000 of that amount to cover expenses for flood recovery projects in Yosemite National Park. An additional $10 million was designated in the appropriation for transportation planning. From the original appropriation amount, an insurance settlement claim due the concessioner in the amount of $7.5 million was subtracted. This brought the total amount of the 1997 appropriation to $178,553,000.

1997 Emergency Appropriation

Emergency Supplemental Appropriation	$ 176,053,000
Transportation Add-On	$ 10,000,000
Insurance Settlement Reduction	$ (7,500,000)
Total Allocated from 1997 Appropriation	**$ 178,553,000**

In addition to the funding appropriation, other fund sources provided an additional $79,276,064 in funding for flood related projects. Other fund sources include: Line Item Construction, Federal Lands Highway Programs and the Recreation Fee Program. This amount also includes the insurance settlement received by the concessioner which was used to repair and/or replace government owned and concession operated facilities.

The Office of Management and Budget (OMB) originally withheld $30 million of the flood recovery appropriation pending settlement of the insurance claim. In 2004, the claim was settled for $7,500,000, and the withheld balance of $22,500,000 was released to the National Park Service by OMB. The insurance settlement was held in a Concession Improvement Fund for use toward Yosemite flood projects. Below is a breakdown of this funding according to the funding source.

Silver Apron Bridge Before Repair

Silver Apron Bridge After Repair

Combined Funding Sources

Total Allocated from 1997 Appropriation	**$ 178,553,000**
Federal Highway Emergency Relief for Federally Owned Roads (ERFO)	$ 7,527,022
Federal Lands Highways Alternative Transportation Program	$ 7,789,964
Federal Lands Highways Program	$ 5,919,219
Line Item Construction Dam Safety Program	$ 2,968,496
Reimbursable Concessioner Improvement Fund (Insurance Settlement)	$ 7,500,000
Recreation Fee Program	$ 47,571,363
Total Additional Contributed Funding	**$ 79,276,064**
Total Combined Flood Recovery Funding	**$ 257,829,064**

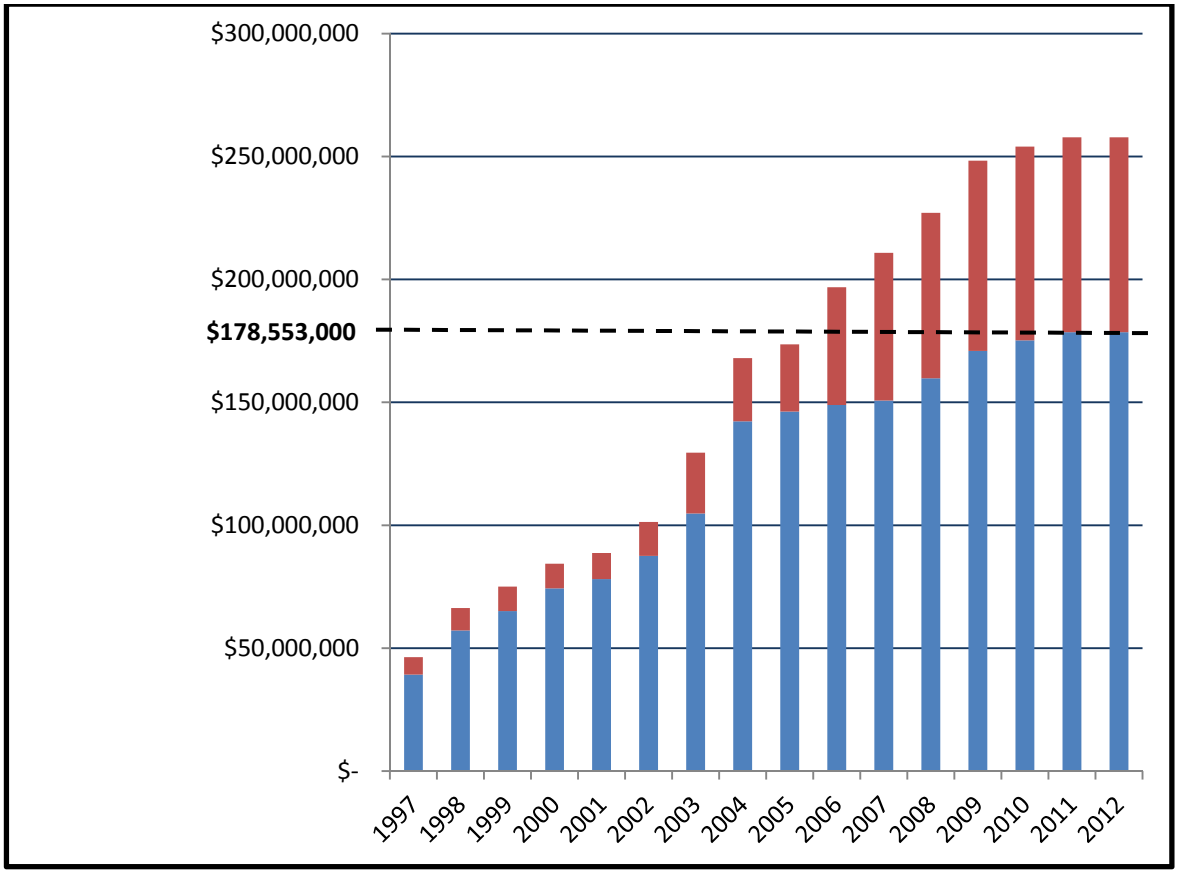
A total of $257,829,064 was obligated for flood recovery projects. Below is an itemization of the appropriation and resulting obligations allocated by damage categories. Each category has subcategories of packages which are groupings of similar projects. Funding information on specific packages can be found under the damage category heading in this report and on the detailed completion reports generated for each package in Appendix C.

Flood Recovery Funding Request and Obligations by Category

Category of Damage	Original 1997 Appropriation Amount	Obligation Amount from 1997 Appropriation	Other Program Funding Obligation	Total All Obligations
Emergency Incident Resp.	$ 13,402,000	$ 9,405,000	$ 0	$ 9,405,000
Roads	$ 29,708,000	$ 35,462,862	$ 15,668,185	$ 51,131,047
Trails	$ 10,319,000	$ 7,572,183	$ 0	$ 7,572,183
Utilities	$ 8,447,000	$ 27,487,318	$ 51,224,508	$ 78,711,826
Buildings	$ 70,904,000	$ 70,294,003	$ 0	$ 70,294,003
Grounds	$ 18,458,000	$ 8,581,996	$ 0	$ 8,581,996
Natural Resources	$ 2,104,000	$ 689,331	$ 2,968,496	$ 3,657,827
Cultural Resources	$ 719,000	$ 621,290	$ 0	$ 621,290
Equipment / Property	$ 592,000	$ 545,437	$ 0	$ 545,437
Transportation	$ 23,900,000	$ 17,893,580	$ 9,414,875	$ 27,308,455
Total	**$ 178,553,00**	**$ 178,553,000**	**$ 79,276,064**	**$ 257,829,064**

Flood Funding Annual Expenditures

The bar chart below provides information on the cumulative annual expenditures for flood recovery. Blue indicates the amount expended annually from the 1997 Emergency Appropriation ($178,553,000) and red the annual amount from the other combined funding sources ($79,276,064) listed above which were used for flood related projects. A breakdown of obligation amounts by year and fund source can be found in Appendix D.



Project Status Summary

The Project Status Summary (PSS) provides information on the 210 projects listed in the 1997 Detailed Assessment Report and consolidated into 62 packages. The report provides information on the projects status, original cost estimate amount and the final cost for each package. The Project Status Summary is attached as Appendix E.

The PSS provides information on 220 projects. This includes the original 210 projects identified for the appropriation funding plus an additional 10 projects which were added at the direction of Congress or as a result of newly discovered flood damage. Of the 220 projects 193 were completed, 14 were cancelled as no longer necessary to meet management goals, and 13 were cancelled due to a change in planning objectives or the Court ordered injunction.

GENERAL ACCOUNTING OFFICE – 1999 REVIEW

The General Accounting Office (GAO) conducted a review of the use of flood recovery funds by Yosemite National Park. The GAO was asked to address the following questions:

1. Are planned and actual expenditures consistent with the park's planning documents?
2. Do the costs of the disaster recovery projects appear reasonable?
3. Is there any merit to the allegations that we received about the misuse of some of the disaster recovery funds?

Upon completion of their investigation, the GAO made the following conclusions:

1. There were no inconsistencies between the park's planning documents and planned and actual expenditures at the time of their investigation.
2. The estimated costs for the sampled projects appeared to be reasonable.
3. The allegations about the misuse of disaster recovery funds were not substantiated.

The GAO began their review of the flood recovery program in June 1998 and completed the review in December 1998. At the completion of the review, the GAO did not recommend any changes to how the flood recovery program was being managed. The GAO report is attached to this document as Appendix F.

Flood Recovery Emergency Response Team Meeting

To ensure a coordinated recovery of the damaged facilities, the 210 projects listed in the *Detailed Assessment Report* were organized into 62 project packages. The packages are groupings of similar types of projects, generally by location. The package categories are: emergency incident response, roads, trails, utilities, buildings, grounds (including campgrounds), natural resources, cultural resources, equipment (property), and transportation management. A summary by category follows in this section describing the original damage assessment, the repair summary and final obligations. Detailed completion reports for each of the 62 packages are attached in Appendix C.

EMERGENCY INCIDENT RESPONSE

Original Damage Assessment Summary

As the floodwaters ebbed and the depth of the damage became apparent, an emergency incident response team was established using the Incident Command System (ICS) method of staffing, decision-making, expense tracking and emergency procurement to deal with the immediate needs of the park staff and visitors who were affected by the flood.

Short-term emergency expenses were anticipated to include the rental of vehicles, portable toilets and heavy equipment; supplying emergency food and water; and providing temporary lodging for emergency personnel.

Additional necessities included the restoration of limited electrical and sewer services; removal of flood debris; restoration of minimal travel corridors; and providing law enforcement, fire protection, emergency medical, and search and rescue services for visitors and staff.

Emergency Supplies Being Delivered by Helicopter

Actual Repair Summary

The ICS continued management of the recovery effort through June 11, 1997, when the park's flood recovery team became responsible for recovery operations. The ICS completed emergency repairs and managed the initial operations necessary to reopen the park to visitors.

Temporary Sewer Line at Cascades

The core of the flood recovery team was comprised of Yosemite National Park employees with significant participation from the Federal Highway Administration and consultation assistance from the NPS Denver Service Center.

The ICS established limited electrical, water and sewer services; arranged for temporary lodging for emergency personnel, emergency medical and search and rescue services; and organized rental equipment and supplies. Administrative costs incurred by NPS employees as well as expenses for a wide cross-section of other state and federal emergency workers hired for the short term were also incurred.

Final Obligations

Package	Completion Date	Original Estimate	Final Cost
919 Emergency Incident Response	1998	$ 13,402,000	$ 9,405,000
Total Emergency Incident Response		**$ 13,402,000**	**$ 9,405,000**

ROADS

Original Damage Assessment Summary

The four primary routes into Yosemite National Park, El Portal Road, Wawona Road, Big Oak Flat Road and Tioga Road, were seriously damaged or weakened by flood waters. Landslides and road failures made access into the park difficult for several months.

Wawona and Big Oak Flat Roads were reduced to one lane due to landslides and road failures. El Portal Road, which runs adjacent to the Merced River, suffered 19 major failures and more than 30 weakened areas when floodwaters washed away sections of the road and the historic rock retaining wall. Eroded embankments destabilized and undercut large sections of the El Portal roadway. Tioga Road was closed for the winter; however, significant damage to roads and bridges was observed from the air.

Secondary roads throughout the park suffered water damage to their shoulders and road base, culverts plugged, and stone headwalls destroyed. Floodwaters undermined many of the roads and destroyed pavement. An 800 foot section of the Foresta Road in El Portal which serves the NPS warehouse complex and a 600 person residential area was washed away.

Regulatory and directional signs park-wide were damaged or destroyed. Water, debris, and stream bank erosion contributed to the undermining of vehicle bridges park-wide. Bridge damage ranged from bent railings to the need for complete replacement. Some bridges were deemed unusable or had load restrictions in place until repairs were made.

Actual Repair Summary

Wawona Road, Big Oak Flat Road and several roads within Yosemite Valley were temporarily stabilized to allow access into and around Yosemite Valley and other areas where repairs were needed. By mid-summer 1997, repairs had already been completed on many roads and parking areas. By 2001, 32 miles of damaged roads throughout the park had been repaired.

Construction to repair damage to a 6.4 mile segment of the El Portal Road (Sections A, B and C) began in September 1998 and ended in September 2000. An additional 1,400 foot (0.27 mile) section of the El Portal Road (a portion of Section D) was completed in fall 2009 using funding provided by the Federal Lands Highway Program (FLHP).

The project for completion of the final 4,400 feet (0.83 mile) of Section D has been cancelled. Upon the availability of appropriate funding, the park will be able to proceed with projects which are consistent with the Merced Wild and Scenic River Comprehensive Management Plan.

Road reconstruction included the placement of utility corridors adjacent to or below the road surface to allow for removal of water, sewer and electrical conduits from meadows and streams. The alignment of utilities under the roads has allowed Yosemite to remove over

8,100 linear feet of utility alignments (water, sewer and electrical) from ecologically sensitive areas.

Over 500 signs and 185 posts were replaced. All directional and informational signage lost or damaged during the flood were replaced pursuant to the park's sign inventory. Sign types included traffic management, wayfinding, visitor information, trail information and temporary flood related directional signage.

The Emergency Relief for Federally Owned Roads (EFRO) contributed substantial funding for repairs made to the El Portal Road, Big Oak Flat Road, Wawona Road, Foresta Road and roads within Yosemite Valley.

The South Fork Bridge on the Wawona Road was seriously damaged by flood waters. The bridge was condemned and closed to traffic. The Federal Highways Administration (FHWA) erected a temporary bridge next to the closed South Fork Bridge to allow for access to the park on Highway 41. In 2005, funding from FHWA replaced the temporary bridge with a permanent bridge.

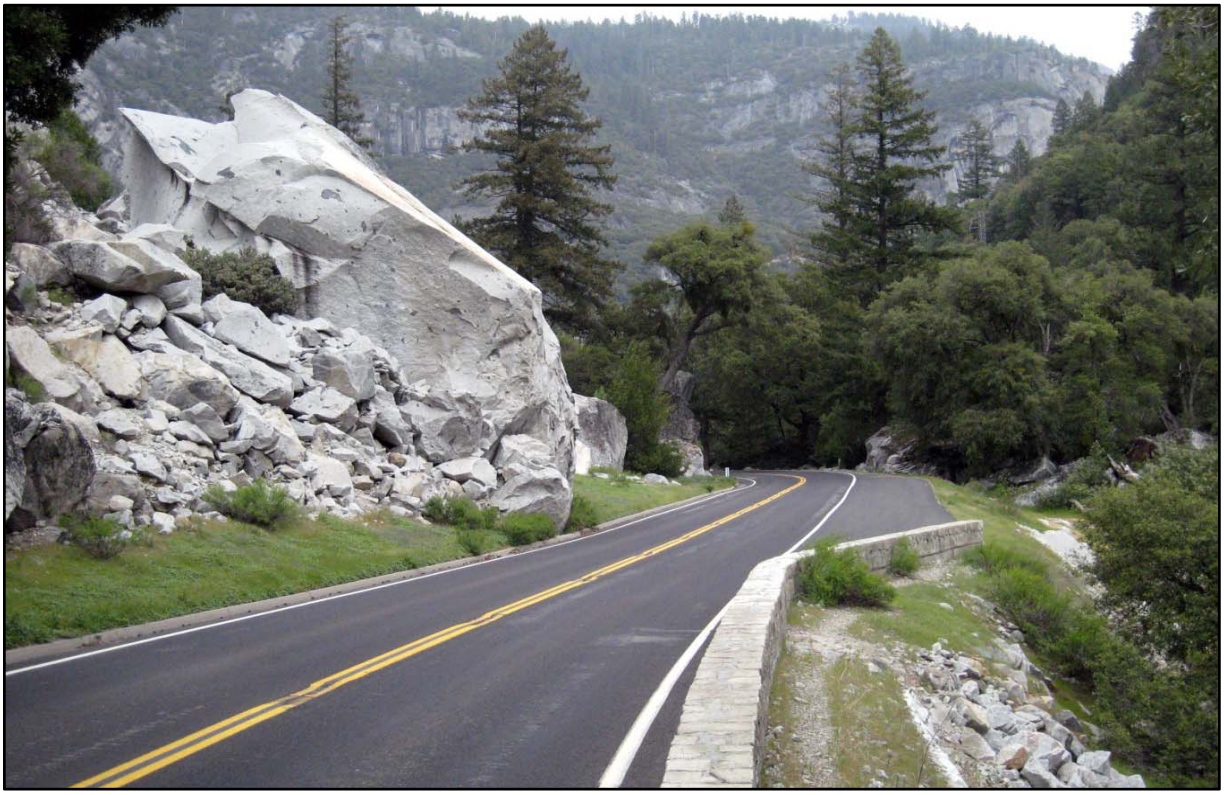
Flooding on the Road to Yosemite Valley Clinic

Final Obligations

Package	Completion Date	Original Estimate	Final Cost
936 Reconstruct El Portal Road	2000	$ 27,015,353	$ 30,568,944
937 Reconstruct El Portal Sand Pit	2000	$ 414,947	$ 146,794
938 Replace Signs Parkwide	2003	$ 94,445	$ 71,727
939 Replace Bridge Riprap	1998	$ 334,458	$ 2,094
940 Repair Yosemite Valley Roads	2010	$ 875,298	$ 3,350,905
941 Repair High Country Roads	1998	$ 415,299	$ 107,662
942 Repair Big Oak Flat and Foresta Road	2004	$ 247,385	$ 211,899
943 Repair Wawona Roads	2004	$ 245,594	$ 171,742
944 Repair Concession Roads/Parking	1998	$ 65,221	$ 0
945 Roadside Revegetation	2004	$ 0	$ 831,095
Total Roads		$ **29,708,000**	$ **35,462,862**

Final costs from the 1997 appropriation was $35,462,862, plus an additional $15,668,185 from other fund sources for a total of $51,131,047 obligated for roads. Other fund sources for this category are: ERFO, FLHP and Recreational Fee.

Aerial View of Highway 140 at the Cookie



Post-Reconstruction of Highway 140 at the Cookie

TRAILS

Original Damage Assessment Summary

The majority of the trails below 7,000 feet throughout Yosemite were damaged by floodwater erosion. Major damage occurred where trails closely parallel major drainages and at stream crossings. Floodwaters also damaged or destroyed 30 trail bridges throughout the park, including well known bridges at Yosemite Falls, Tenaya Creek and Happy Isles. Several of the most heavily used bridges in Yosemite were destroyed.

Floodwaters damaged or destroyed culvert headwalls and trail retaining walls; eroded bikeway shoulders; and washed out entire sections of many of the trails in Yosemite. Silt and sand deposited on many of the trails needed to be removed.

Damage was also sustained by the many footbridges and the approaches to the bridges which connected the trails in the Valley with Yosemite's high country. Several bridges were completely washed away while others suffered minimal damage. Bridge damage included washed out abutments; damaged footings; missing or bent posts and railings; damaged wood decking; tread damage; and scoured surfaces.

Yosemite Falls Trail

Actual Repair Summary

The Mirror Lake Trail and bridges were repaired along with the loop trail which circles the lake. Major repair to the asphalt multi-purpose trail and bikeways in Yosemite Valley was completed. Nine Valley trails were reconstructed. Trail work included retaining wall repair, rebuilding and cleaning of drainage structures and debris removal.

Happy Isles Vehicle Bridge and Yosemite Creek Bridge were demolished and 10 other Yosemite Valley trail bridges were reconstructed.

The hydrological assessment of Lower Yosemite Fall was completed. Additionally, archeological surveys and documentation were done where necessary.

Four new bridges were constructed along the Wapama Falls Trail and 400 feet of trail was replaced or repaired. Ten new bridges were constructed and an additional six bridges repaired in the high country. Bridge work included stone wall approaches, abutments, causeway and riprap repair.

Approximately 197 miles of high country trails in the 5000 to 8000 elevation range were repaired or reconstructed. Work included the rebuilding of washed out trails, and repair to retaining walls and drainage structures and removal of debris. Substantial work was required to rebuild the abutments and spans of bridges in their remote backcountry locations.

Final Obligations

Package		Completion Date		Original Estimate		Final Cost
946	Remove Yosemite Creek Bridge	2001	$	101,340	$	40,678
947	Reconstruct Yosemite Valley Trails and Bridges	2003	$	1,305,732	$	1,452,714
948	Reconstruct Asphalt Trails and Bikeways	2002	$	398,406	$	313,328
949	Reconstruct Mirror Lake Bridges and Trails	2003	$	1,223,632	$	772,194
950	Reconstruct Wapama Falls Trail	2000	$	597,510	$	363,929
951	Reconstruct Highcountry Trail Bridges	2002	$	1,399,090	$	670,390
952	Repair Happy Isles Bridges and Trails	1999	$	159,163	$	73,116
953	Highcountry Trail Assessment and Repairs	2005	$	5,120,656	$	3,872,888
954	Hydrological Assessment – Lower Yosemite Falls	1999	$	13,471	$	12,946
	Total Trails		**$**	**10,319,000**	**$**	**7,572,183**

Backcountry Bridge

UTILITIES

Original Damage Assessment Summary

Yosemite Valley's water supply was compromised when high water submerged all three water collection wells. Pumps, motors, controls and other mechanical and electrical equipment of the water treatment and distribution system were damaged or destroyed by the flood. The pumps were able to be operated on a temporary manual system and the wells were placed on generator power. Support legs for a 69,000 volt electrical tower feeding Yosemite Valley were severely damaged and required complete tower replacement.

Sewage lift stations at Yosemite Creek, North Pines Campground and Lower River Campground were inundated by flood waters. North Pines and Lower River lift stations were full of sand and debris. At Yosemite Creek lift station all mechanical and electrical equipment was submerged causing failure of the pumps. Flooding also deposited silt in many of the 250 manholes and into the 57,000 linear-foot sewage collection system.

The primary power source into Yosemite Valley was compromised when flood waters partially undermined a power transmission tower. Other secondary power conduits were damaged or destroyed due to erosion and slope failures. Switching gear and transformers located underground were flooded and packed with silt.

Post-Flood Sewer Line Replacement

Installation of New Water Main

Installation of New Sewer Main

Actual Repair Summary

New motor control centers were installed at Yosemite Valley lift stations. Pumps were replaced at Yosemite Creek lift station and repairs were made to the Yosemite Valley fuel system. The Yosemite Valley and El Portal sewer collection system piping was inspected, cleaned and repaired. Work included: water flushing lines, video inspections, repairs and sealing of more than 250 manholes, plugging abandoned lines and reburying of exposed lines. The force sewer main and water main for Abbeville trailer village in El Portal was reconstructed.

The Lake Eleanor sewer system was repaired and the damaged equipment was replaced. Repairs were completed to the water system intake structure, effluent spray fields and campground waterline in Wawona. Three hundred feet of sewer main was reconstructed and repairs completed to Cascades Well and Well #5.

Following the 1997 flood, the extensive damage to sewer systems in Yosemite Valley led to numerous sewage releases and issuance of a Cleanup and Abatement Order by the California State Water Quality Board. Once repairs began, the full extent of the damage to the utility infrastructure revealed that additional work would need to be done.

Cleanup and Abatement Order 5-00-703 issued by the California Regional Water Quality Control Board and approved by the court directed the NPS to complete utility rehabilitation and improvements necessary to prevent potential sewage spills (Attached as Appendix G). As a result, funding from cancelled projects was redirected to cover the increased costs of utility system rehabilitation. Redirected funding was reviewed and approved by the NPS comptroller and identified for Congress in the Quarterly Reports.

An assessment was made of the Yosemite Valley utility system to determine what improvements to the facilities would be made to ensure protection of human health and water quality. The assessment identified the status of the utility lines and categorized them according to their potential for failure. The categories included: Imminent Failure, Near-Term Failure, Mid-Term Failure, and Long-Term Failure. This allowed the park to develop short and long term utility projects to complete rehabilitation of the utility system in a sequential manner.

The park developed an integrated utility master plan to guide the phasing, upgrade, relocation, abandonment and/or removal, and consolidation of various utilities (sewer, water, electric, and communication) and to determine a comprehensive course of action to address the Cleanup and Abatement Order. The Utility Master Plan provided for an efficient consolidation of utilities, maximizing the use of existing transportation corridors and minimizing use of environmentally sensitive areas. Utility systems (power, water and sewer) in the Valley were redesigned and relocated to minimize the potential for damage from future flooding events.

The rehabilitation of the utility systems in Yosemite Valley and Wawona included combining water, sewer, electrical and communication systems into utility corridors in common underground pathways to allow for easy access and maintenance and to minimize impacts to environmentally sensitive areas. Additionally, many of the abandoned, obsolete and non-functional utility systems located in the river and meadows were removed.

Additional work to complete the redesign and relocation of the remaining utility projects has been enjoined by the court pending the completion of the *Merced Wild and Scenic River Comprehensive Management Plan*. Upon availability of an appropriate funding source, the park will be able to proceed with projects which are consistent with the *Merced Wild and Scenic River Comprehensive Management Plan*.

Downed Electrical Tower in Merced River

Final Obligations

Package		Completion Date	Original Estimate	Final Cost
955	Reconstruct Yosemite Valley Utility Systems	2011	$ 3,413,481	$ 23,995,104
956	Repair Electrical Systems	2011	$ 452,801	$ 1,303,112
957	Repair Yosemite Valley Fuel Systems	1998	$ 83,827	$ 9,204
958	Repair White Wolf/Lake Eleanor Sewer	2001	$ 2,087,937	$ 188,448
959	Waste Water Collection Investigation	2003	$ 803,919	$ 440,843
960	Repair Concessions Utilities	2001	$ 437,015	$ 829,943
961	Repair El Portal Water and Wastewater	1998	$ 296,773	$ 214,670
962	Repair Abbieville Water and Sewer Systems	2000	$ 545,672	$ 335,105
963	Repair Wawona Water and Wastewater	1997	$ 325,575	$ 170,889
	Total Utilities		**$ 8,447,000**	**$ 27,487,318**

Final costs from the 1997 appropriation was $27,487,318, plus an additional $51,224,508 from other fund sources for a total of $78,711,826. Other fund sources for this category are: Recreation Fee and the concessioner's insurance settlement.

BUILDINGS

Original Damage Assessment Summary

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. Room furnishings, insulation, drywall, and mechanical and electrical equipment were severely damaged. In Housekeeping Camp, a laundromat, ten restrooms and two shower houses also suffered flood damage.

The historic Yosemite Valley Chapel, the Resources Management Office (Residence One), and an NPS employee residence at Cascades were among the buildings damaged by floodwaters. Carpeting, insulation, furnishings, flooring, equipment, and heating and electrical systems were damaged when the water rose three to four feet.

Seasonal Housing at Camp 6 in Yosemite Valley

Actual Repair Summary

Due to the era of their construction, many of the flood-damaged buildings contained asbestos or lead paint, requiring hazardous materials investigations before demolition or repair. Planning for reconstruction of the guest accommodations and employee dormitories required extensive public involvement through the *Yosemite Valley Plan/Supplemental Environmental Impact Statement*. Buildings slated for removal under the *General Management Plan* and/or the *Concession Services Plan* were designated for relocation out of the floodplain.

A new Resources Management and Science office building was constructed in El Portal. The new building provided office space for NPS employees outside of the Valley. Compliance documents were completed for Yosemite Lodge Redevelopment, Indian Cultural Center and Camp 4 projects. Repairs and accessibility upgrades were completed at Yosemite Valley Chapel.

Repairs were completed to buildings at Arch Rock office and Cascades residence. Offices were relocated out of Camp 6 and repairs were finished at Arch Rock housing units. Comfort stations were cleaned and repaired throughout Yosemite Valley.

Four hundred thirty nine concession employee bed spaces located in flooded tent cabins and dormitories were removed. New employee housing structures were constructed for concession employees to accommodate approximately 217 employees. Two hundred forty eight guest accommodations were removed. Repairs and cleaning were completed at

concessioner housing, buildings and guest cabins. All concession operations in Yosemite are conducted in structures which are currently owned and will continue to be owned by the NPS, therefore those structures which were damaged or destroyed by the 1997 flood were the responsibility of the NPS to repair or replace.

Construction documents for Yosemite Lodge Reconstruction project were completed prior to a court decision regarding fragmented planning. New planning objectives in the *Yosemite Valley Plan* (YVP) resulted in a change to the scope of the Lodge redevelopment area and the previously prepared construction documents required redesign.

The new construction documents for the Yosemite Lodge Redevelopment and Curry Village Cabins project were completed and a construction contract awarded. The Yosemite Lodge Area Redevelopment project included the Yosemite Lodge, Camp 4, Northside Drive realignment, and an Indian Cultural Center at the site of the last historically occupied Indian village in Yosemite Valley.

A subsequent court ruling required a stop work order followed by contract cancellation. All remaining work for this project was cancelled and funding from this project was redirected to complete necessary utility projects associated with the Cleanup and Abatement Order.

Guest Lodging at Housekeeping Camp

New Curry Village Concession Employee Housing

Final Obligations

Package		Completion Date	Original Estimate	Final Cost
903	Replace Flood Damaged Buildings	209	$ 1,583,740	$ 5,108,953
904	Construct Temporary Contact Stations	NA	$ 107,792	$ 0
905	Reconstruct Yosemite Lodge	2010	$ 24,110,621	$ 20,550,392
906	Relocate Concession Employee Housing	2009	$ 36,206,942	$ 44,301,475
907	Reconstruct Housekeeping Camp	1998	$ 7,541,545	$ 5,830
908	Repair Concession Buildings	NA	$ 220,120	$ 0
909	Repair High Sierra Camps	2001	$ 496,782	$ 20,107
910	Repair Yosemite Valley Chapel	1999	$ 377,554	$ 160,217
911	Repair Yosemite Valley Comfort Stations	1999	$ 28,588	$ 14,348
912	Repair Flood Damaged Buildings	2001	$ 230,316	$ 132,681
	Total Building		**$ 70,904,000**	**$ 70,294,003**

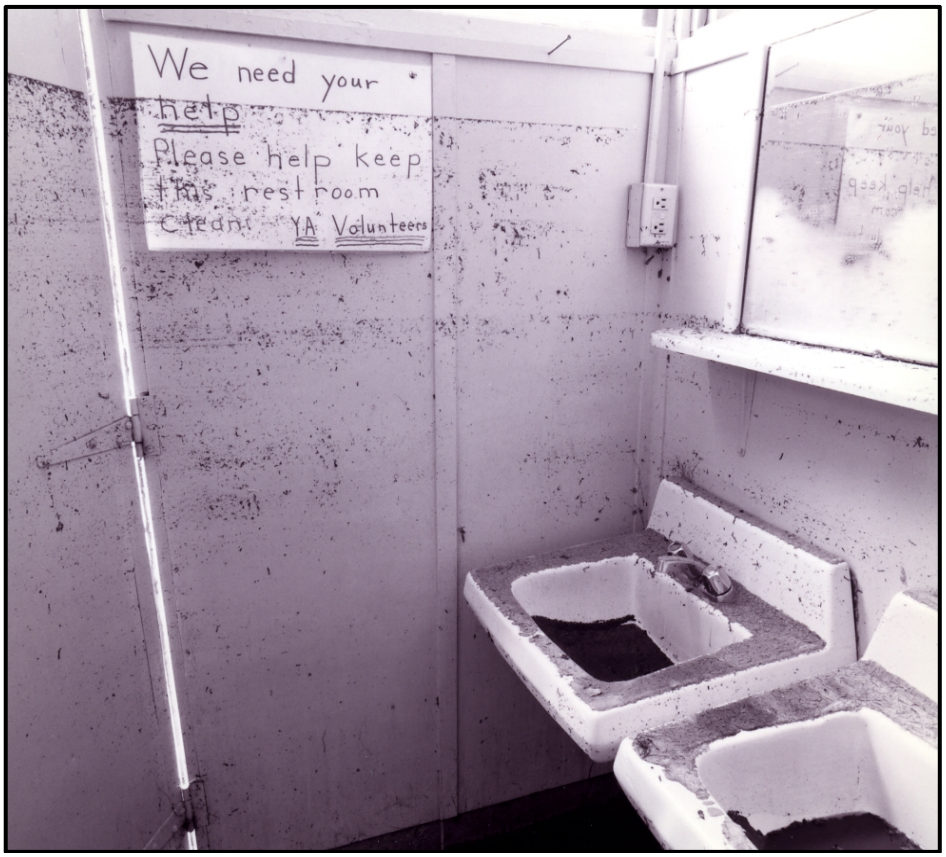
GROUNDS (INCLUDES CAMPGROUNDS)

Original Damage Assessment Summary

Flood waters as deep as five feet covered all 261 sites in Lower and Upper River Campgrounds, over 90 sites in Lower Pines Campground, and all 11 Valley group sites. Hundreds of picnic tables, bear-proof food storage boxes, waste cans, and fire grates were washed down the river, and damaged or destroyed. Paved campground roads and sites were destroyed or covered with a foot or more or silt. Debris and silt also filled restrooms, transformers, and lift stations.

Lost sites were to be reconstructed according to the *General Management Plan* and *Valley Implementation Plan* recommendations. Substantial design work would be required in order to relocate campsites out of the active floodplain and away from rockfall zones.

High water significantly damaged Sentinel and Yellow Pines picnic areas. Picnic tables and grills were washed away and required replacement. Flooding and silt deposit damaged parking areas and vault toilets throughout Yosemite Valley. These need to be cleaned and repaired prior to use. Flood waters also destroyed or damaged 32 educational, resource management and safety related exhibits. These exhibits promote resource preservation and visitor information, and will be repaired or replaced.



Silt Deposits in Campground Restrooms

Actual Repair Summary

The restoration of Cascades Picnic Area was completed. New picnic tables and grills were installed at Wawona picnic areas. Drainage improvements were completed at the Yosemite Medical Clinic and Curry Village.

Damaged interpretive signs park-wide were inventoried. Design, fabrication and installation was completed of lost or damaged interpretive wayside exhibits. Seven markers were placed throughout Yosemite Valley depicting floodwater levels. Two videos were produced; one on the effects of the flood and the other on the El Portal Road reconstruction.

Upper River and Lower River campgrounds were removed including: campsites, restrooms and asphalt paving. Where campgrounds and campsites have been removed, the former campground areas have been restored to natural conditions. Construction documents for 30 recreational vehicle and 59 walk-in campsites at Upper Pines Campground were completed. Construction of these sites was delayed due to a court injunction requiring revision of the *Merced River Plan*.

The House Appropriations Committee's report (H.R. 107-103) directed Yosemite National Park to undertake a study of the potential for expanded opportunities for additional camping in Yosemite. The goal of the study was to examine existing campgrounds and their potential for expansion, as well as locate areas for possible new campgrounds. This study was limited to areas outside of Yosemite Valley and was only meant to show where additional camping opportunities might exist and what development of the new campsites would cost.

Lower Pines Campground

Post Flood Ecological Restoration of Rivers Campground

All remaining work for this project was cancelled and funding from this project was redirected to complete necessary utility projects associated with the Cleanup and Abatement Order. More information on specific campground projects is available in Appendix C.

Final Obligations

Package		Completion Date		Original Estimate		Final Cost
920	Ecological Restoration of Rivers Campgrounds	2009	$	4,184,798	$	2,251,247
921	Reconstruction North Pines and Walk-In Campground	2005	$	5,808,765	$	1,967,090
922	Reconstruct Pines Campgrounds	2008	$	7,679,913	$	4,116,959
923	Repair Picnic Areas	1999	$	409,120	$	7,542
924	Repair Fence	1997	$	9,935	$	3,030
925	Replace Interpretative Signs and Benches	2004	$	329,703	$	219,377
926	Repair Grounds at Concession Facilities	1999	$	35,766	$	16,751
	Total Grounds		**$**	**18,458,000**	**$**	**8,581,996**

Picnic Table and Other debris Near Merced River

NATURAL RESOURCES

Original Damage Assessment Summary

While flooding is a natural process which does not damage natural resources such as meadows, riverbanks and trees, ongoing river protection projects were affected. Hundreds of picnic tables, trash cans, tons of garbage and other debris were swept into the Merced River. These site amenities had to be removed and when determined usable returned to campsites and picnic areas. Flood waters and debris in the river caused significant stream bank destabilization throughout the park.

Flooding damaged 3.5 miles of resource protection fencing and 170 restoration signs. Protection fencing prevents thousands of visitors from trampling sensitive riparian zones, meadows, and critical habitat such as that for the black oaks. Natural resource restoration areas that were damaged during the flood will be repaired and revegetated. Resource restoration signage provides critical information to visitors for the protection of natural resources and will be replaced. Flood damaged boardwalks providing visitor access through sensitive meadows will be repaired or replaced.

Saturated soil and high winds weakened and undermined a large number of trees in developed areas creating a hazard to visitor and employee safety. Tree failures damaged buildings, equipment and blocked roadways. An extensive survey and mitigation of hazardous trees is necessary for public safety purposes.

Actual Repair Summary

The hazardous tree survey was performed and necessary mitigation measures were implemented for unsafe trees. Inspection and temporary repairs were completed to the levee at the El Portal Trailer Park.

Flood deposited debris was removed from 500 acres of Merced River floodplain in Yosemite Valley and 75 acres of floodplain in El Portal. Debris included: picnic tables, garbage, bridge decking, fencing, signs, asphalt and broken storm drains. Eroded river banks were stabilized and revegetated as needed.

Riverbank restoration and stabilization was accomplished by collecting 350 pounds of native plant seeds. Seedlings were planted and revegetation completed for most projects. More than 3.5 miles of restoration fencing was replaced or rebuilt. One hundred seventy restoration signs were replaced. Fish population and habitat monitoring was completed.

Cascades Dam which was constructed in 1917 within the banks of the Merced River as an element of the hydroelectric generating facility for Yosemite National Park was removed. The Cascades Dam in its post-flood condition represented a public health and safety hazard due to potential collapse, a condition exacerbated by structural damage and weakening caused during the 1997 flood. Removal of the dam restored the natural free-flowing condition of the Merced River.

All remaining restoration work for this project was cancelled and funding from this project was redirected to complete necessary utility projects associated with the Cleanup and Abatement Order.

Resource Protection Fencing at Devil's Elbow

Final Obligations

Package		Completion Date	Original Estimate	Final Cost
928	Remove Hazardous Trees	1999	$ 74,529	$ 58,328
929	Repair Trailer Park Levee El Portal	1999	$ 273,272	$ 615
930	Remove Hazardous Debris from Merced River	2002	$ 553,394	$ 317,407
931	Stabilize River Banks	2000	$ 342,961	$ 6,851
932	Restore Stream Bank Vegetation	2001	$ 859,844	$ 306,130
	Total Natural Resources		**$ 2,104,000**	**$ 689,331**

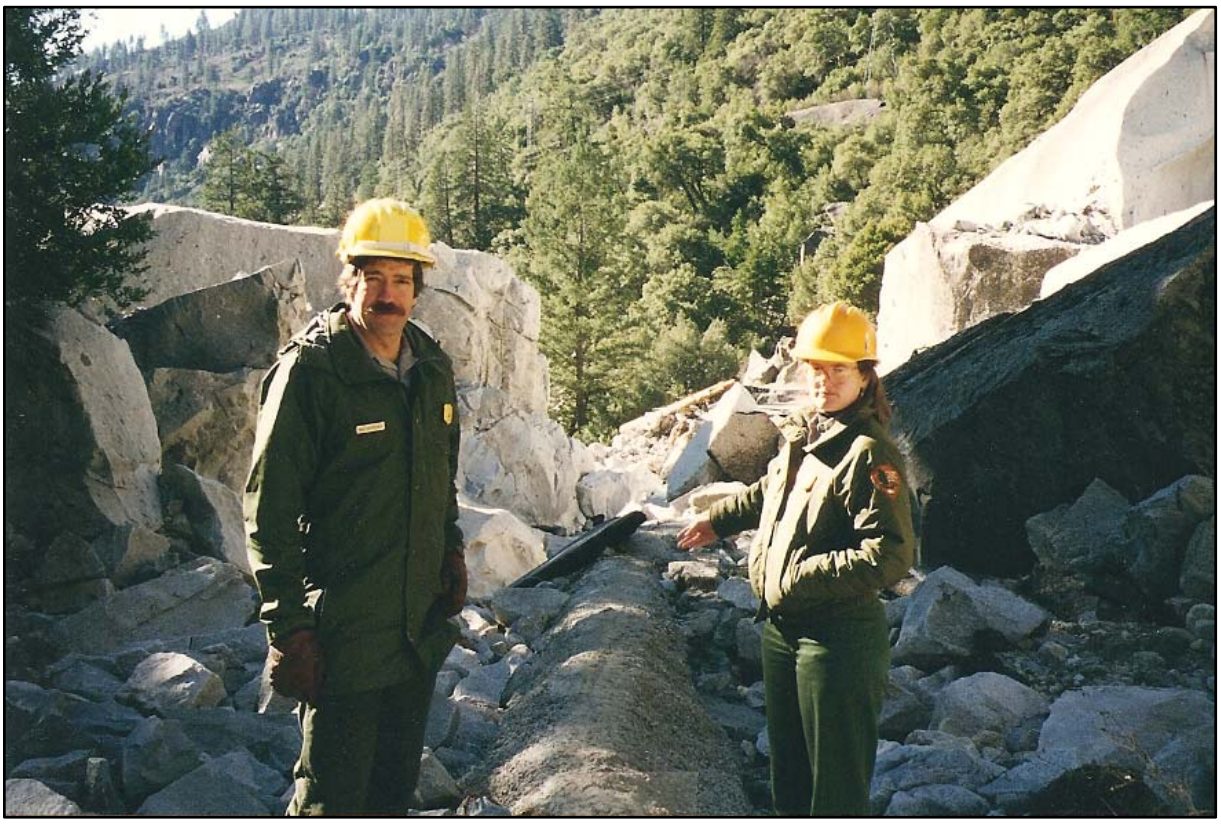
Final cost from the 1997 appropriation was $689,331, plus an additional $2,968,496 from other fund sources for a total of $3,657,827. Other fund sources for this category are: Line Item / Dam Safety.

Native Plant Propagation for Restoration

CULTURAL RESOURCES

Original Damage Assessment Summary

Cultural resources adjacent to drainages in the lower elevations of the park sustained heavy damage during the flood. High water inundated archeological sites and historic structures, and significantly eroded archeological deposits in some areas.



Park Staff Conducting Site Damage Assessments

At least ten known archeological sites in the El Portal, Yosemite Valley and Wawona National Register of Archeological Districts were heavily damaged. This resulted in total removal of some cultural features and artifacts, erosion of surface deposits and displacement of artifacts. Detailed documentation of flood damage, as well as possible data recovery and/or stabilization, is required.

Two archeological sites with known human burials were seriously damaged, with bone currently exposed in an eroded riverbank. Consultation with Native American groups has been initiated to determine whether stabilization or data recovery will be conducted.

At least five historic dumps were exposed, creating health and safety hazards as well as the potential for looting. Mitigation will include documentation and surface collection.

Actual Repair Summary

Site visits and fieldwork was conducted for sites in El Portal, Yosemite Valley and Wawona. Site data was updated and finalized. Flood erosion was documented. Exposed historic artifacts were collected and catalogued. Sites not previously discovered during the original flood assessments were processed and site data collection and records were completed.

American Indian remains that were discovered were documented per Native American Graves Protection and Repatriation Act and reburial was carried out.

Previously undocumented Traditional Gathering Areas in El Portal were processed. All site records were completed, artifacts catalogued, project materials archived and databases updated.

Over 100 backcountry archeological sites were assessed for flood damage. Eroded site areas were mapped, reports completed, projects archived, and materials cataloged.

A park-wide socio-economic study was conducted to determine the impacts of the park's closure on the economy of the surrounding areas.

Granite Grinding Rock Displaced by Flood Waters

Final Obligations

Package		Completion Date		Original Estimate		Final Cost
913	Data Collection El Portal and Yosemite	2004	$	44,354	$	17,807
914	Prehistoric Site Stabilization – El Portal	2005	$	455,594	$	386,644
915	Prehistoric Site Stabilization	2004	$	67,334	$	75,974
916	Data Collection Wawona	2003	$	26,800	$	13,480
917	Prehistoric Site Evaluation – High Country	2004	$	57,919	$	67,199
918	Park-wide Socio-Economic Impacts	1997	$	66,999	$	60,186
	Total Cultural Resources		**$**	**719,000**	**$**	**621,290**

EQUIPMENT/PROPERTY

Original Damage Assessment Summary

Equipment used by the backcountry utilities, restoration, wildlife management, and building and grounds programs was damaged, destroyed, or washed away when park offices and storage areas were flooded.

Equipment included office equipment, power and hand tools, wildlife capture equipment, cameras, fencing materials, portable gas powered pumps and a sludge-hauling trailer.

Property Damaged During the Flood

Actual Repair Summary

Property damaged by floodwaters was replaced or repaired. Property included: power and hand tools, backcountry gear, wildlife equipment and utility equipment and supplies. Office furnishings, computers, telephones and office equipment were replaced.

Portable gas-powered pumps were purchased. All components for well treatment systems were replaced. The sludge-hauling trailer was repaired.

Resources Management Office in Residence One

Final Obligations

Package		Completion Date		Original Estimate		Final Cost
933	Replace Property	1997	$	16,256	$	607
934	Replace Resource Management Supplies	2006	$	558,602	$	520,615
935	Replace Damaged Well Equipment	1997	$	17,142	$	24,215
	Total Property		**$**	**592,000**	**$**	**545,437**

TRANSPORTATION MANAGEMENT

Original Damage Assessment Summary

Yosemite Valley's road system is heavily used and approaches near gridlock in the summer months during peak use. After considering repair options and pre-existing traffic and parking problems, Congress added funding to the flood recovery package to help solve the transportation issue and incorporate objectives of the 1980 *General Management Plan* to reduce traffic and congestion.

Solutions included purchase of replacement shuttle buses with electric/hybrid engines. Planning of transportation systems was linked to both the Yosemite Valley Plan and the existing Yosemite Area Regional Transportation System (YARTS).

Yosemite Valley Pre-Flood Diesel Shuttle Bus

Actual Repair Summary

Transportation planning was initiated in support of the *Yosemite Valley Plan*. Design was initiated for realignment of Northside Drive, schematic design for interim improvements to Yosemite Village parking, and the bus transit area at Camp 6. Several transportation projects were enjoined or delayed due to litigation. Enjoined and subsequently cancelled projects are pending completion of the *Merced Wild and Scenic River Comprehensive Management Plan* and project funding.

Historical data was compiled on ridership for the Yosemite Valley shuttle bus system. Yosemite's transportation management planning was evaluated with the Department of Transportation and other experts. Traffic and transit information system planning was conducted. Hybrid buses for Yosemite Valley were purchased.

Yosemite Valley Post-Flood Hybrid Shuttle Bus

Final Obligations

Package	Completion Date	Original Estimate	Final Cost
900 Phase I Transportation	2008	$ 13,900,000	$ 10,043,355
901 Phase II Transportation	2005	$ 10,000,000	$ 7,850,225
Subtotal Transportation		**$ 23,900,000**	**$ 17,893,580**
Contributing Fund Source			
902 FLHP Funding Commitment	2007	$ 11,100,000	$ 7,789,964
Total Transportation		**$ 35,000,000**	**$ 25,683,544**

Final cost from the 1997 appropriation was $17,893,580, plus an additional $9,414,875 from other fund sources for a total of $27,308,064. Other fund sources for this category are: FLHP – Alternative Transportation Program and Recreation Fee.

Cascades Dam Prior to Removal

All flood recovery projects had an associated compliance document, whether a categorical exclusion, environmental assessment, environmental impact statement or other planning document. For some flood projects, approved compliance actions were previously established in the planning documents listed below.

Since the completion of the *1980 General Management Plan* (GMP) additional studies and analyses have subsequently been conducted which related to natural processes, visitor enjoyment, transportation and housing. These efforts took on greater urgency following the flood in 1997 with the need to replace visitor facilities damaged or destroyed by the flood. Planning efforts since the flood have involved extensive public involvement and studies to assist the park in reaching its goal to "conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." This often leads to difficult choices when passion and strong opinions conflict.

In response to litigation and to public comments requesting a comprehensive approach to examine all of these activities together, the National Park Service consolidated the *Draft Yosemite Valley Housing Plan*, the *Draft Yosemite Valley Implementation Plan*, and the *Draft Yosemite Lodge Area Development Concept Plan*, into one comprehensive plan for Yosemite Valley. The *Yosemite Valley Plan* (YVP) incorporated many of the goals of these previous planning efforts and reevaluated their potential actions and interrelationships.

The NPS invited extensive public involvement during the planning process. This included public meetings held throughout California, open houses, walking tours of project sites, special interest group presentations, and webinars to obtain public input during the planning process. Public comments were an important part of the decision making process.

Flood associated planning documents have been the subject of ongoing litigation since shortly after the 1997 flood. The Settlement Agreement (Appendix I) reached to resolve outstanding litigation explicitly rescinds the *Yosemite Valley Plan Environmental Impact Statement*, the *Yosemite Lodge Area Redevelopment Environmental Assessment*, and the *Curry Village and East Yosemite Valley Campground Improvement Project Environmental Assessment* except for certain projects specifically identified in the Agreement.

Additionally, there were other projects which relied on the *Yosemite Valley Plan* that were underway, partially completed, fully completed, or specifically exempted by the Settlement Agreement which were allowed to be completed.

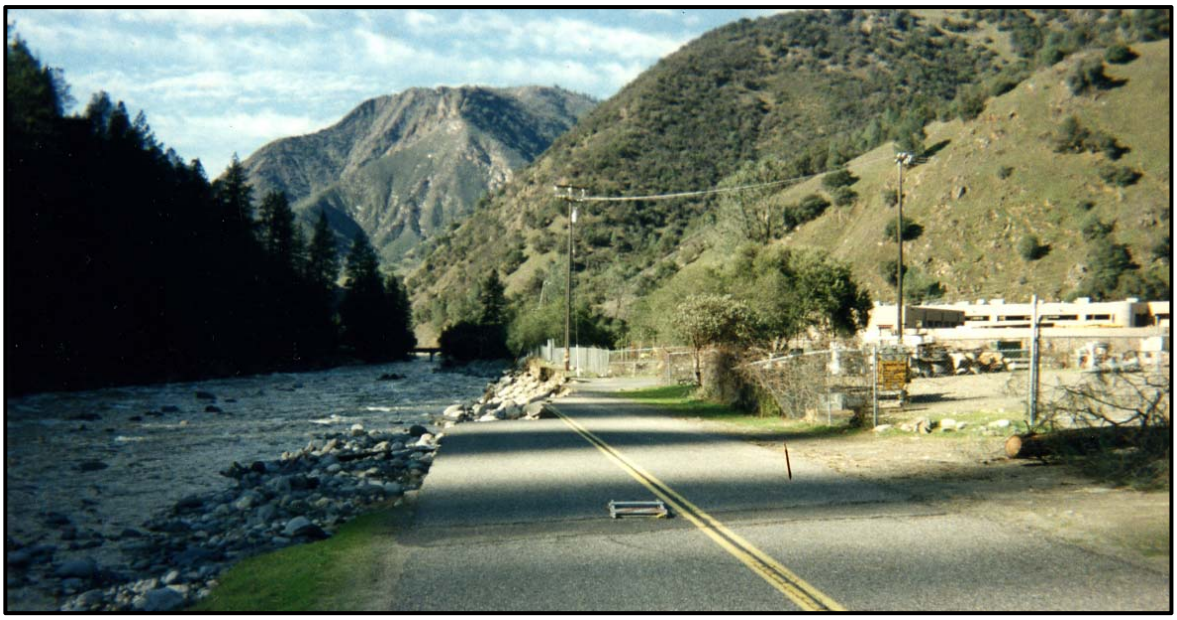
A portion of the projects authorized by the East Yosemite Valley Utilities Improvement Plan, EA/FONSI were court enjoined. As stipulated by the injunction and agreed to in the Settlement Agreement, the NPS is expressly prohibited from implementing the ten future development utility corridors projects.

Below is a partial list of flood related compliance documents:

1980 General Management Plan, September 1980. The five broad goals of the GMP are: Reclaim Priceless Natural Beauty, Markedly Reduce Traffic Congestion, Allow Natural Processes to Prevail, Reduce Crowding and Promote Visitor Understanding and Enjoyment.

Concessions Services Plan, Environmental Impact Statement, August 1992. This plan represented a planning effort to further define the management of concession services in Yosemite National Park. The plan focused on actions to implement the goals for concession services outlined in the *1980 General Management Plan*.

Yosemite Valley Housing Plan – Draft Supplement to the Final Environmental Impact Statement for the General Management Plan, 1992 and 1996. This plan addressed two major concerns of the NPS: 1) The need to improve housing for NPS, concession and other employees who provide visitor services in Yosemite Valley, and 2) The desire of the NPS to remove nonessential employee housing from Yosemite Valley, which would implement an objective of the 1980 *General Management Plan* (Consolidated into YVP).



Flood Damaged El Portal Road in Front of El Portal Administrative Complex

Draft Yosemite Valley Implementation Plan, Supplemental Environmental Impact Statement, 1997. This plan provided specific steps for carrying out the goals of the *1980 General Management Plan*, including the removal of nonessential structures, restoration and protection of natural areas, relocation of facilities out of sensitive or hazardous areas, and reduction of traffic congestion. The plan proposed a comprehensive approach with detailed actions and a phasing schedule to fulfill the goals of the *General Management Plan* (Consolidated into YVP).

Road and Bridge Damage in Yosemite Valley

Draft Yosemite Lodge Area Development Concept Plan, Environmental Assessment, July 1997. This plan would implement previously approved actions of the 1980 *General Management Plan* and the 1992 Concession Services Plan. This plan would have reconstructed new lodge area buildings out of the January 1997 flood area; removed the gas station near the lodge; replaced concession employee housing; redesigned Camp 4 (Sunnyside Campground); and rerouted vehicle and pedestrian circulation (Consolidated into YVP).

El Portal Road Improvement, Environmental Assessment, August 1997. The purpose of this plan was to improve El Portal Road to better meet the needs of visitors, improve park operations, improve the El Portal Road access to and from surrounding communities, improve safety, protect park resources and reduce the potential for road closures from future flooding.

Yosemite Valley Plan, Supplemental Environmental Impact Statement, December 2000. The purpose of this plan was to present a comprehensive management plan for Yosemite Valley – from Happy Isles at the east end of the Valley to the intersection of the El Portal and Big Oak Flat Roads at the west end. It also presented actions in adjacent areas of the park and the El Portal Administrative Site that directly relate to actions proposed in Yosemite Valley (Partially rescinded by court).

Merced Wild and Scenic River / Comprehensive Management Plan, February 2001. The Merced River was designated a Wild and Scenic River in 1987. Eighty-one miles of the Merced River, including its headwaters, are within the boundaries of Yosemite National Park and the El Portal Administrative Site, administered by the National Park Service. The designation gives the Merced River special protection under the Wild and Scenic Rivers Act and requires the managing agency to prepare a comprehensive management plan for

the river and its immediate environment. The specific purpose of the *Merced River Plan* is to provide direction and guidance on how best to manage visitor use, development of lands and facilities, and resource protection within the river corridor (Invalidated by the court).

Destroyed Tent Cabins

East Yosemite Valley Utilities Improvement Plan, Environmental Assessment, November 2003. This plan proposed utility improvements to develop a utility system that maximizes the efficiency of utility operations and maintenance and minimizes the potential for future environmental impacts. The goals of the project were to:

- Ensure adequate service to east Valley facilities relocated or developed under the *Yosemite Valley Plan,*
- Implement upgrades needed to address previously identified utility condition and capacity issues,
- Maximize use of existing transportation and utility corridors and proposed new transportation corridors,
- Minimize potential future impacts to environmentally sensitive areas, and
- Protect and preserve the Merced Wild and Scenic River as called for in *the Merced Wild and Scenic River Comprehensive Plan* (Merced River Plan) (NPS 2001) (Some projects enjoined by court).

Curry Village and East Yosemite Valley Campground Improvement Project, Environmental Assessment, February 2004. This plan provided the detailed planning and design to implement the concepts and actions developed by the YVP. The EA defined the locations of new facilities and road configurations and provided more detailed plans for Curry Village and the campgrounds (Partially rescinded by court judgment).

Yosemite Lodge Area Redevelopment, Environmental Assessment, February 2004. The plan provided for improved facilities and services for people who visit Yosemite Valley. Improved facilities and services are needed to:

- Replace some of the overnight accommodations at Yosemite Lodge that were lost during the 1997 flood and remove some lodging units that remain within the 100-year floodplain,
- Replace some of the campsites in Yosemite Valley that were lost in the 1997 flood,
- Provide a national park lodge experience at Yosemite Lodge instead of the existing motel-type experience,
- Reduce traffic congestion on Northside Drive in the vicinity of Yosemite Lodge and Lower Yosemite Fall; and
- Provide for a traditional tribal presence in Yosemite Valley (Partially rescinded by court judgment).

Merced Wild and Scenic River / Revised Comprehensive Management Plan, July 2005. This revised plan amends the existing 2000 *Merced River Plan* to address the two deficiencies identified by the Ninth Circuit Court of Appeals. The revised plan also amended Yosemite National Park's *1980 General Management Plan* as required by the U.S. District Court. The changes primarily addressed: 1) concerns about the complexity of the user capacity component, and 2) concerns associated with the river boundary and related management zoning in the El Portal segment of the Merced River corridor. (Invalidated by the court).

Merced Wild and Scenic River, Draft Comprehensive Management Plan and Environmental Impact Statement, Fall 2013). This plan is currently in the process of being completed by the NPS. For information on this plan, visit the Yosemite National Park Planning website at: http://www.nps.gov/yose/parkmgmt/planning.htm.

Bridge Damage in Yosemite

Below is a synopsis of the litigation history that is associated with flood recovery projects and how the sequence of the litigation affected the completion of these projects. A detailed chronology of the litigation is attached to this document as Appendix H.

Seven lawsuits have been filed since the flood in January 1997 that impacted the projects identified for repair, reconstruction or other action. Six of the lawsuits directly addressed flood related projects and the other was by the United Anglers of California for violation of §505 of the Clean Water Act, 33 USC §1365.

Lawsuit Number 1: Filed on May 26, 1998 – Friends of Yosemite Valley (FOYV) vs. U.S. – Camp 4 Lawsuit (C-98-2154) – Camp 4 is a walk-in campground and the favored camping location for rock climbers in Yosemite Valley. The American Alpine Club and a group of local climbers sought to keep the NPS from building employee housing adjacent to Camp 4. A settlement was agreed upon by all parties.

Lawsuit Number 2: Filed on August 20, 1998 – Sierra Club vs. U.S. – Yosemite Lodge Lawsuit (C-98-3213) – Sierra Club objected to the reconstruction of Yosemite Lodge as set forth in the Environmental Assessment (EA) for the Reconstruction of Yosemite Lodge. Claims were brought under National Environmental Policy Act (NEPA) 42 USC §4321 et seq. and the Wild and Scenic Rivers Act (WSRA) 16 USC § 1271 et seq. The judge found that the Yosemite Lodge EA did not comply with NEPA. The judge rejected the plaintiff's claim that the EA did not comply with the WSRA. As a result of the hearing, the NPS decided to rescind the EAs Finding of No Significant Impact (FONSI) for the Lodge project and the Sierra Club agreed to dismiss its case.

Lawsuit Number 3: Filed on September 18, 1998 – Mariposa County vs. U.S. – Mariposa County Law Suit (C-98-6062) – Mariposa County attempted to halt the El Portal Road Reconstruction project claiming that the Environmental Assessment for the project failed to analyze traffic and economic impacts on the residents of Mariposa County. The County also asserted that the EA did not comply with NEPA. Mariposa County's Request for preliminary injunction was denied due to the paramount public interest in having the all-weather route into the park open and the importance of the road project outweighed the hardship the County would suffer as a result of the project's construction schedule. The court further found that the County was not likely to succeed on its NEPA claim. The County subsequently dismissed their case.

Lawsuit Number 4: Filed on February 19, 1999 – Sierra Club and Mariposans for Environmentally Responsible Growth (MERG) vs. Babbit – El Portal Road Project (C-99-5219) – The plaintiff's assert that the El Portal Road reconstruction project violated NEPA and WSRA. After trial the court found that portions of the El Portal Road project violated both NEPA and the substantive requirements of the WSRA. The court enjoined the NPS from commencing work on Segment D of the project, the only segment on which no work had been started. Work on segments A, B and C was allowed to be completed. The court ordered the NPS to prepare and adopt a valid Comprehensive Management Plan (CMP)

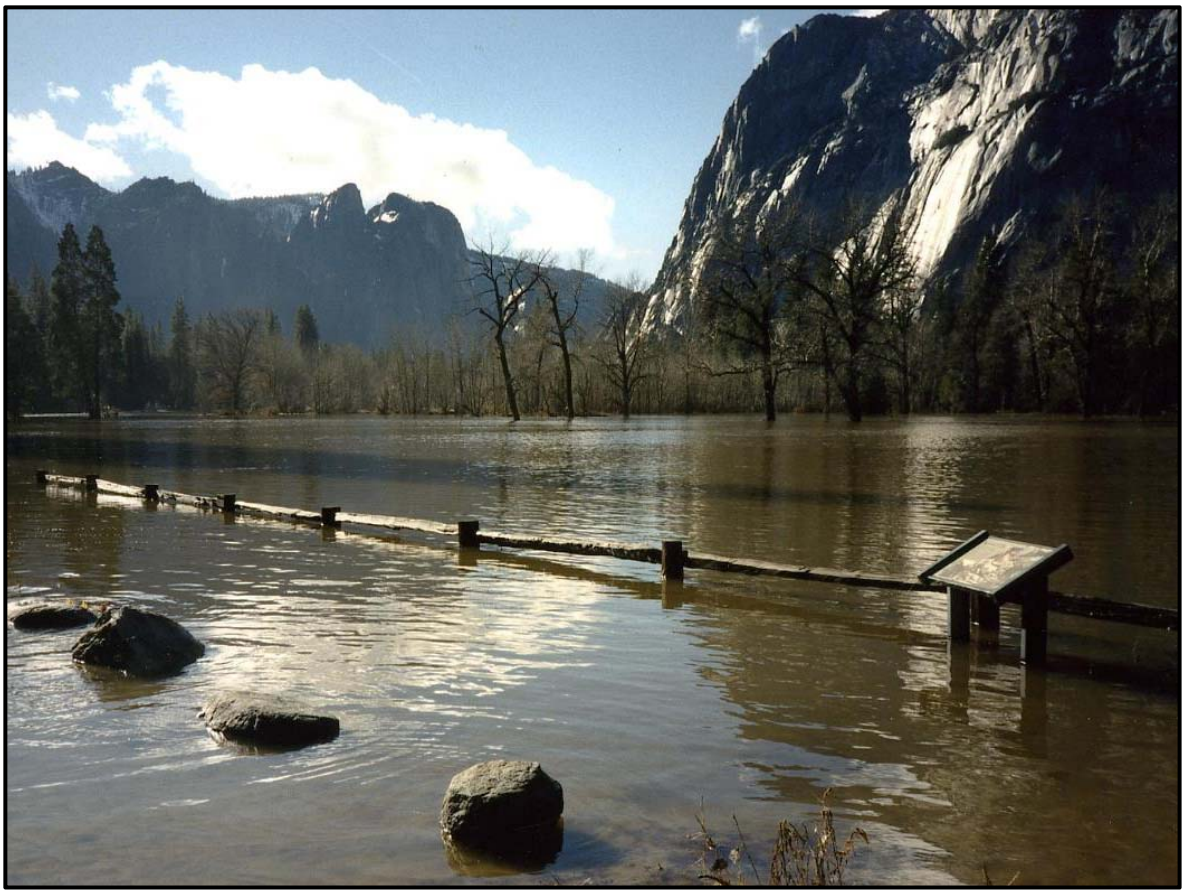
for the Merced River in accordance with the WSRA within twelve months, July 12, 2000, (extended to August 14, 2000). A Record of Decision (ROD) for the MWSR/CMP Final Environmental Impact Statement (FEIS) was signed on August 9, 2000.

Lawsuit Number 5: Filed on August 14, 2000 – Friends of Yosemite Valley and MERG vs. Norton – *Merced River Plan* (MRP) Lawsuit (CV-00-6191) – FOYV and MERG challenged the MWSR/CMP based on NEPA and WSRA. The lawsuit was filed five days after the ROD was signed for the MWSR/CMP FEIS. The plaintiffs contended, in part, the MWSR/CMP did not adequately describe impacts; failed to present a reasonable range of alternatives; failed to protect the river's Outstanding Remarkable Values (ORVs); improperly classified the segment of the river in East Yosemite Valley and improperly designated ORVs for the river.

Employee Housing at Camp Six

A hearing was held in the MRP lawsuit on November 6, 2001. The judge upheld the 2000 MRP and ruled that the Visitor Experience and Resource Protection framework – the NPS service-wide program for carrying capacity management was an appropriate means by which to manage user capacity. An appeal was filed by FOYV/MERG challenging the trial court's decision. On appeal, the 9th Circuit Court of Appeals determined the entire *Merced Wild and Scenic River Comprehensive Management Plan* was invalid. A subsequent injunction was issued stopping many of the flood recovery projects until a new *Merced River Plan* could be completed.

Yosemite began work on the second *Merced River Plan* officially known as the Merced *Wild and Scenic River Revised Comprehensive Management Plan/Supplemental Environmental Impact Statement* (RMRP/SEIS). Work was completed on the flood related projects that were not enjoined. On July 25, 2005, the PWR Director signed the ROD for the Revised MWSR/CMP SEIS. Upon completion of the MWSR/CMP, the Court ruled that



Leidig Meadow in Yosemite Valley

the previously issued injunction expired, and the NPS renewed their efforts to complete the flood recovery projects.

On November 11, 2005, the plaintiff filed a Supplemental Complaint to challenge the Revised MWSR/CMP SEIS, contending that it failed to comply with the WSRA, NEPA, APA and previously issued 9th Circuit Opinion. After a hearing, the court found the Revised MWSR/CMP invalid and ordered the NPS to prepare a legally valid Comprehensive Management Plan for the Merced River. Many of the flood recovery projects continued to be enjoined pending completion of the third MRP. In December 2006, the park began planning on a new MRP.

On March 27, 2008, the 9th Circuit Court of Appeals upheld the District Court's opinion that the Park prepare a new CMP for the Merced River pursuant to the WSRA. In an effort

to resolve outstanding issues associated with the MRP, the parties entered into mediation with a court appointed judge. On September 29, 2009, a joint Settlement Agreement was filed by the parties resolving the outstanding issues from the MRP and YVP lawsuits. The settlement agreement is attached to this document as Appendix I.

Yosemite continues working on the 2013 MRP. The Draft EIS was released for public review and comment on January 8, 2013, with the FEIS anticipated to be released in Fall 2013. Upon completion of the 2013 MWRS/CMP and availability of appropriate funding, the park will be able to proceed with projects that are consistent with the Merced Wild and Scenic River Comprehensive Management Plan.

Lawsuit Number 6: Filed on October 6, 2000 – United Anglers of California vs. U.S. – Clean Water Act Lawsuit (CV-F-00-6768) – Filed pursuant to the §505 of the Clean Water Act, 33 USC §1365, the plaintiffs allege unlawful discharges from the park's sewer collection system into the Merced River violated the Clean Water Act. A settlement agreement by the parties was reached which required the NPS to take specified actions, by specified dates, to inspect, clean and repair the sewer collection system in Yosemite. The settlement agreement allowed the court to retain jurisdiction of the case for two years to enforce the terms of the agreement. The case was subsequently dismissed by the court.

Lawsuit Number 7: Filed on December 28, 2006 – Friends of Yosemite Valley and Mariposans for Environmentally Responsible Growth vs. U.S. – *Yosemite Valley Plan* (YVP) Lawsuit (CV-06-1902) – FOYV and MERG challenged the YVP/SEIS based on NEPA and WSRA. The plaintiff contended in part, that the YVP/SEIS failed to adequately analyze alternatives and environmental effects; and that the YVP was inconsistent with the 1980 *General Management Plan* to which it is purportedly tiered. On September 29, 2009, a joint settlement agreement was filed by the parties resolving the outstanding issues from the MRP and YVP lawsuits.

Yosemite Valley Roads

GLOSSARY OF TERMS

AAC	American Alpine Club
APA	Administrative Procedures Act, 5 U.S.C. §701 et seq.
CMP	Comprehensive Management Plan
CRWQCB	California Regional Water Quality Control Board
DEIS	Draft Environmental Impact Statement
DSC	Denver Service Center – National Park Service
EA	Environmental Assessment
EIRT	Emergency Incident Response Team
EIS	Environmental Impact Statement
ERFO	Emergency Relief for Federally Owned Roads
FEIS	Final Environmental Impact Statement
FHWA	Federal Highway Administration
FLHP	Federal Lands Highway Program
FONSI	Finding of No Significant Impact
FOR	Friends of the River
FOYV	Friends of Yosemite Valley
GAO	Government Accounting Office
GMP	General Management Plan
ICS	Incident Command System
IUMP	Integrated Utilities Master Plan
MERG	Mariposans for Environmentally Responsible Growth
MRP	Merced River Plan
MWSR	Merced Wild and Scenic River
MWSR/CMP	Merced Wild and Scenic River / Comprehensive Management Plan
NEPA	National Environmental Policy Act, 42 U.S.C. §4321 et seq.
NPCA	National Parks Conservation Association
NPS	National Park Service
NRDC	Natural Resources Defense Council
OMB	Office of Management and Budget
ORV	Outstandingly Remarkable Value
PSS	Project Status Summary
PWR	Pacific West Regional Office of the National Park Service
RCMP	Revised Comprehensive Management Plan
ROD	Record of Decision
SEIS	Supplemental Environmental Impact Statement

TWS	The Wilderness Society
VERP	Visitor Experience and Resource Protection
WSRA	Wild and Scenic Rivers Act, 16 U.S.C. §1271 et seq.
YARTS	Yosemite Area Regional Transportation System
YVP	Yosemite Valley Plan
YVP/SEIS	Yosemite Valley Plan/Supplemental Environmental Impact Statement

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