Yosemite National Park Sign Study

Final Report–Stage C Sign System Design & Schematic Details

Prepared for: Mr. Bill Delaney Professional Services Contracts Manager National Park Service Administration Building Yosemite National Park Yosemite, CA 95389

Prepared by: Meeker & Associates, Inc. Environmental Graphic Designers 1865 Palmer Avenue, Larchmont, NY 10538 (Contract: 1443CX2000-92-033)

with sub-consultants Walker & Macy, Landscape Architects Kilareski and Mason, Traffic Engineers Avallone / Lewis, Consulting Engineers

September 7, 1994

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Introduction: Stage C-Comprehensive Design

The recommendations documented in this report represent the basic system design as requested by the government, and an expansion and refinement of the preliminary designs presented at the December 17, 1992 meeting in Yosemite. This includes comments and suggestions received from seven workshops with park staff, and the recommendations from the design team on the entrances to attended campgrounds, and comments received from a review committee consisting of: Mr. Delaney (Contracting Officers Technical Representative), Mr. Gleason (Chief of Publications, Harpers Ferry), Mr. Vignelli (consultant designer, Vignelli Associates), and Mr. Galvin (Associate Director, Planning and Development).

The material in this report was presented as part of the Comprehensive Design and Mockup Review on July 14, 1994 in Yosemite National Park.

Although the stylistic approach has changed through this process, the hierarchy of signs and materials palette follow the direction recommended in Stages A: Information Gathering and Analysis, and Stage B: Preliminary Design. The consultant team attempted to design a system that would fulfil the aesthetic and functional requirements for signs in Yosemite National Park, as well as the review committee.

The sign system is divided into four groups based on function.

- Identification signs for park entry portals and major destinations
- Roadway guide signs to direct traffic
- Traffic regulatory (mounting only), and parking control signs
- Small postings for information and instruction, rules and regulations, protection and safety; as appropriate to park entrances, trailheads, campgrounds, general resource protection, as well as trail guide signs, and street name signs.

Sign types selected for final design represent the various signing applications as identified in the park-wide inventory and survey, as well as the unmet needs articulated in the meetings with park staff.

Panel Grids and Typographic Guidelines: The format of each sign type follows a specific grid (layout), which dictates typeface, size and placement on the panel for; park and place identification, highway guide signs, and small panel postings. Panel sizes have been limited to a finite number, with appropriate size for a particular location being determined by the distance at which the sign is viewed; and in the case of road signs the speed of approach. The grid formats are included in each respective section of this report. For all but the small post or bollard signs, panel and type sizes are specified in metric sizes in conformance to 1996 federal adoption of international standards.

The scale of all general postings are as small as possible, to minimize their presence in the landscape.

Typeface: There are two typefaces, Helvetica Bold, a sans-serif typeface and Century Expanded, a roman typeface. Helvetica is used on road guide signs and headline legends. Century is used for text and signs. The typographic format for all signs is mixed case (initial capitals only), displayed in a flush left format.

Helvetica Bold was prescribed by the NPS because of its use in the unigrid publications program. Century Expanded typeface was selected by the NPS in consultation with Vignellí Associates.

Materials: All materials are durable, require little maintenance, and use non proprietary products. We have attempted to use the inherent qualities of the materials to create forms that can be finished front and back, and do not require elaborate coatings, coverings, or interior structures. The identification signs are redwood (with possible use of granite or porcelain for special applications), road signs use high density overlaid plywood panels (HDO) with retro-reflective face and weathering steel uprights and frame, and information postings are porcelain enamel with extruded dark bronze Duranodic aluminum retainer and tubular weathering steel uprights.

The information posting system is built on: (2) two sizes of standard steel tubing for uprights (with caps and attachment holes pre-drilled), (1) one common extrusion to retain all panel assemblies regardless of size (with an optional single face retainer) and (1) one standard tamper resistent bolt (two bolt lengths). Using this simple group of parts, the system will accommodate from one to twelve panels that build on a constant 30 centimeter module.

Color: The color palette uses colors indigenous to the landscape and those inherent to the

materials being used; with the exception of traffic regulatory and safety signs which adopt referential color standards. For identification signs timber posts and panels would be stained using natural browns. Highway guide sign panels are retro-reflective dark brown with white legend. The weathering steel recommended for information postings is a rich dark-brown, with terra cotta panels, beige type with yellow ochre and sage green illustrations and captions.

Mounting Assemblies: One of the goals of this project has been to simplify the methods for sign mounting in Yosemite. Currently there are dozens of different mountings, materials used for similar types of postings, and no standards for placement. In the system proposed there are:

- (2) two mounting assemblies for identification signs (blade & double post) (4 sizes)
- (1) one mounting assembly for highway guide signs (4 sizes)
- (1) one mounting assembly for all standard information panel posting
- (1) one mounting assembly for traffic regulatory signs
- (1) one mounting assembly for post mounted signs

Ease of assembly and integrity of structure are key to the long term viability of the system. Prior to initial presentation of this system in July of 1993, all assemblies were analysed by E.A. Avallone (structural engineer) with the opinion they will be structurally sound. In Stage G: Engineering and Specifications, all component parts and complete assemblies will be engineered in detail and refined relative to assembly quality and structural fitness.

This will be followed by Stage H: Prototype, in which one or two signs of each type will be built, installed, and evaluated prior to construction of a larger Yosemite installation.

Vandal resistance of the signs and structures: Though nothing can stop a determined vandal, there are deterrents that can be built into a program to reduce vandalism. The designs proposed use a basic palette of durable materials, signs are assembled using mechanical fasteners with tamper resistent heads. To make the assembly vandal resistent, all back faces are finished and devoid of exposed hardware and end bolts can be concealed inside the tubular uprights and plugged to eliminate all exposed access.

Signs can be serviced easily with the proper tools and repaired in the field, using a system of machined parts that will not require special fitting or field adjustment. Porcelain enamel faces are secured to the backing panels with flexible adhesive to absorb surface impact. Besides the basic design, the best deterrence is good periodic maintenance to stop a pattern of vandalism before it escalates.

Concessioner/Park Sign Integration: All sign types included in the system can be used by concessionaire in the same way they are used by the NPS. Examples were provided in the detailed presentation for site identification, inclusion of concessionaire destinations on road guide signs, pedestrian guide signs, and small area maps.

Design Plans: The goal of the system is to present messages in a legible, timely, consistent, and inviting manner and accommodate change as park area plans mature and evolve. Adaptation of the system, along with proper planning and maintenance will reduce the overall investment as well as liability exposure. The intent is to create a manageable system that can be procured, and maintained cost-effectively and will enhance the park identity.

A system for sign plan documentation has been prepared to aid the implementation and long term maintenance of the program. The plan allows documentation all sign types in a coded database and is be linked to location information plotted on Autocad based maps of the park. In the initial sign plan, existing conditions, and proposed replacements (identification and road guide signs) will be documented and plotted.

Comprehensive design presentation: The designs summarized in this presentation were presented on July 14, 1994 in Yosemite National Park, to park staff and NPS representatives from the Western Region, Denver Service Center, and Washington, D.C. including Mr. Denis Galvin and Mr. Michael Findlay.

Methodology and Process

Through analysis of existing conditions, comments from park staff, and exploration of possible alternatives, the design process integrates content, context, scale, form, and placement into a cohesive system of signs. This process, as articulated in our proposal workplan is described below.

The scale and integration of graphic and material elements has been completed for each sign in the system. Structures have been simplified as to visual quality, life cycle cost, and program management requirements. Sign and legend sizes have been recommended for optimal legibility and appropriateness to setting.

The design refinement has been a process of tailoring the design to ensure the sign system meets the needs as requested by the government.

- C.1 Select final designs for refinement, showing signs in all possible configurations.
- C.2 Refine base, panel, and siting of entry portal sign designs.
- C.3 Refine design system of guide, identification, secondary, and safety signs.
- C.4 Scale relationships of component parts for all sizes of signs in the system and prepare schematic drawings of each assembly configuration.
- C.5 Prepare sign panel layout grids and typographic use guidelines.
- C.6 Prepare hierarchical matrix of signs by type, size, materials, and fabrication.
- C.7 Test actual material samples and refine color recommendations relative to sign materials.
- C.8 Submit finished designs to NPS for review prior to preparation of prototype. Recommend sign types and sizes for mock-up demonstration.

Sign System Design and Schematic Details

The following thirty panels included in this report illustrate the proposed sign system. They were presented in Yosemite National Park on July 14, 1994. Descriptions of the designs are provided in the following report.

Graphic Elements

- 1. Graphic Elements (Typeface, Symbols, and Arrow)
- 2 Symbol Signs (General, Accommodations, Services, Water Recreation, Land Recreation, Winter Recreation)

Identification Signs

- 3 Park Identification Signs (Horizontal Grid and Elevation)
- 4 Park Identification Signs (Vertical Grid and Elevation)
- 5 Place Identification Signs (Horizontal and Vertical Grid and Elevation)
- 6 Place Identification Signs Scale Display
- 7 Identification Sign Assembly Display (Double Post and Monolith)

Road Signs

- 8 Road Guide Sign Elevation
- 9 Roadway Guide Signs (Modular Grid and Examples)
- 10 Roadway Guide Signs (Application Examples)
- 11 Roadway Guide Signs Assembly (Angle Iron and Tubular Steel)
- 12 Traffic Signs (Examples, and Elevation)
- 13 Traffic Sign Assembly

Small Panel Sign System

- 14 Panel Sign System (Grid, Examples, and Elevation)
- 15 Post Sign System (Grid, Examples, and Elevation)
- 16 Resource Protection: Land, Wildlife and Personal Safety
- 17 Fee Station / Unattended Information Station
- 18 Campground
- 19 Trailhead
- 20 Area Entry Postings
- 21 Pedestrian / Bicycle Guide Signs

- 22 Street Name Signs
- 23 System Components
- 24 Sign System Assembly Single Module
- 25 Sign System Assembly-Multiple Module
- 26 Sign System Assembly-Wall Mounted
- 27 Sign System Assembly-Bollard (Post)

Program Planning and Management

28 Program Planning and Management

Graphic Elements

In Stage A recommendations were made to replace the current typeface, Clarendon, with two companion typefaces; one a san-serif and the other a roman typeface.

The san-serif typeface is Helvetica Bold, and is used for guide sign legends and headlines of small panels. For small panel text and place names on large identification signs Century Expanded is used. Both typefaces are upper/lower case, flush left format.

Helvetica Bold, a modern typeface designed in 1957 by Max Miedinger for the Berthold foundry, is the specified typeface for all NPS folders. Its basic character is defined by a high "x" and closed counters on lower case letters, a machined precision of form and little variation between the horizontal and vertical strokes.

Century Expanded was designed by Morris Fuller Benton as a modern "High Style" magazine typeface in 1900 (Century Magazine), is characterized by its thin strokes, exaggerated block serifs, uniquely stylized letters, and an unusually tall "x" height of the lower case.

Following the NPS decision to use Century Expanded, we advised the government that the typeface would be more effective if redrawn in a heavier weight for legibility and improved reproduction. This redrawn version of the typeface (adding 150% to strokes and trimming the serifs) was used in the July 14, 1994 large panel mock-up presentation.

Recreation Symbols

The symbols used in the system are the new National Recreation Symbols developed initially by the Corps of Engineers and refined and augmented in a subsequent grant from the National Endowment for the Arts to the Society for Environmental Graphic Design with endorsements from the NPS. The project was undertaken to build upon and upgrade the existing NPS designs into one system. The designs reflect a visually cohesive, highly legible system of symbols for use in parks. The system contains over 20 symbols not included in the original NPS recreational symbols.

Graphic Elements



Helvetica Neue 75 Bold

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz 1234567890

Yosemite National Park embraces a vast tract of scenic wildlands set aside in 1890 to preserve a portion of the Sierra Nevada mountains that stretches along California's eastern flank.

Mhx

Century Expanded

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz 1234567890

Yosemite National Park embraces a vast tract of scenic wildlands set aside in 1890 to preserve a portion of the Sierra Nevada mountains that stretches along California's eastern flank.

Symbols



Arrow



Symbol Signs

General 凤 кт M Deer Viewing Are RS-011 Trucks RS-004 ∎ 🛱 Lighthouse RS-D07 Bear Viewing Area RS-012 ∎ A Tunnel RS-005 Falling Rocks AS-008 Smoking RS-002 Accomodations 56 **†** Ġ **6** -Restaurant/Food Service RS-019 Snack Bat RS-102 Controllers RS-111 Lodging RS-018 Restrooms RS-022 Symbol of Access RS-028 ∎© Radios RS-103 Women's Restroom RS-023 Services ? ĥ Ĩź X 96 2 Mechanic RS-027 Airport R5-029 Ranger Stal RS-015 Telepho RS-025 Erst Aid RS-024 Post Office R5-D26 Gas Station RS-032 Vehicle Ferry RS-033 Showers RS-035 Water Recreation Ű Ð **.** In **A**. فارقان H ■⊙ Firewood Cutting RS-112 ■ 🖨 Laundry/L RS-085 ₩©₩ Litter Receptacle RS-086 Fish Batchery RS-010 ∎ ● S ⊖ Boat Launch Ram RS-054 Trash Dumpst RS-091 ∎ A Library RS-110 Tour Boat RS-087 ■ ಈ Marina RS-053 Theater RS-109 5 ∎⊗⊜ Wading RS-088 Diving E O A Fishing Area RS-063 Canoeing R5-079 ■ © @ Scuba Divin RS-060 B © Fish Cleaning RS-093 Seal/Sea Lion Viewing RS-106 Fish Ladder RS-089 Wind Surfing RS-108 Lifejackets RS-094 Í <u>x</u> **÷Ĭ** Ţ. N 0.0 E <u>/:</u>. ド ₩© ♦ 🖨 All-Terrain Vehicle Trail R\$-095 ESA Climbing RS-082 Hunting RS-072 EGA Technical Rock Climbing RS-081 Baseball RS-096 Rock Collecting Rock 2018 ■ C Widlife Viewing RS-076 ∎⊖ Spelunking/Caving RS-084 Exercise/fitme Area R5-097 j 部令府 Chair Uft/Ski Lift RS-105 E A Snow-shoeing RS-078 Ice Fishing RS-092











■ A Picnic Shelter RS-039



Viewing Area/ Overlook R5-036



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Sleeping Shelter RS-037

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Trailer Sanitary Station RS-041



ES P

21

III 9 44 Campground RS-038



Point of Interest RS-080



Fire Extinguishe



Trailer Sites R3-04D



NO A Recreation Vehicle Sites NS-104



■ A Picnic Site RS-044



E A Kennel RS-045





Land Recreation



Horse Trail RS-064



B⊙ ● ↔ Motor Bike Trail RS-065





0-0

■S ← A Off-Road Vehicle Trail RS-067







Ece Skating RS-050



Cross Country Skiing
RS-046



■ © ♥ A Downhitt Skling RS-047

∎⊗◆a Ski jumping RS-048











































Park Identification Signs

At Yosemite there are five distinctly different entry portals, each unique in character. Regardless of how many times one visits Yosemite there is an excitement and expectation that is part of the experience. The quality of the entrance must fulfill that expectation and should reflect the inherent quality of Yosemite.

The entry portals inherently provide a grand sense of arrival. The park identification sign should be an architectural frame to the artival experience and as such warrant improvements befitting the scale and importance of each specific portal. These signs become "photo opportunity" sites for entering visitors, who want to have their picture taken at the arrival point. It is recommend that each of the entrances be designed with landscape improvements and plazas to create an inviting inviting initial park experience.

The portal is also a place to give visitors information about where they are going and what to expect when they get there. General park and accommodation information should be provided at this point (as noted in earlier reports) examples shown on page 41 of this report.

Panel format: The panel layout is a contemporary design that incorporates a dark overbar similar to the band that crosses the top of all NPS publications. The legend is placed in a flush left alignment using a modified version of Century Expanded. Two grid formats (horizontal and vertical) are provided.

Legend content: All Yosemite entrance signs include the full name of the park and no other graphics. To illustrate how this approach would adapt to other NPS locations, a simple study of a representative group was applied to the horizontal and vertical formats. Panel widths vary depending on lengths of park names.

Color: The color of the signs are light brown with bark (near black) overbar and medium brown uprights. Black has been used as the legend color to negate the shadowing created by routing when light tone fill is used with narrow stroke letters.

Size and placement: Park identification signs are single face, mounted perpendicular to the viewers approach. The sizes and mounting heights for each entrance have been specified to the scale and unique conditions at those locations.

Architecture and form: Initially sign and mounting structures were designed that used historic reference to portal structures and materials indigenous to the respective areas in Yosemite. Two design concepts were prepared for each of the four main park entrances. These designs were omitted by the review committee in the interest of a common contemporary sign standard.

The result is two sign forms, a double post assembly and a ground monolith that can be oriented horizontally or vertically. The materials palette uses proven materials of the land; routed redwood with redwood uprights with alternate materials for special applications include sandblasted stone, and porcelain enamel.

Size and placement: The intended locations for the signs are approximately the same location as existing Yosemite identification signs, with overall site improvements recommended.

Place Identification Signs

For campground and scenic vista, trailhead and visitor center, the place identification sign becomes a focal point to celebrate each of the eighty primary facilities in the park. When installed at an appropriate scale and siting, and with related site improvements, the sign can enhance the entrance to each location.

The Yosemite place identification signs have been designed as a contemporary structure in keeping with the graphics prepared by the Harpers Ferry Center. This link is manifested in the use of upper and lower case typography aligned flush left, and the dark horizontal overbar similar to the black overbar which has become the signature of the Harpers Ferry NPS publications.

Grid format: The panel format follows one of two proportional grids. Though similar, one grid has a strong horizontal orientation and one a strong vertical orientation. To accommodate various legend lengths there are a variety of standard panel widths.

Mounting format: There are different mounting configurations for the place identification signs. These include double post and monolith. As shown on the scale display, the vertical panel is used primarily in a monolithic application where a taller sign is more befitting the site, or where the sign needs elevation relative to sightlines. The horizontal sign, in double post or monolithic format, is used for signs placed at eye level.

The sizes and mounting heights for place identification signs have been specified using an even progression of legend sizes. Most place identification signs are double face, mounted perpendicular to the viewers approach unless conditions dictate a single face sign.

Color: The color of the signs are light brown with bark (near black) overbar and medium brown uprights. The legend color is black. Black has been used as the legend color to negate the shadowing created by routing narrow stroke letters and using light tone fill.

Identification Assembly: The panel, post, and frame material recommended for the Yosemite identification signs is redwood. The sign face will have routed legend with paint filled legend. Use of redwood has strong history of use in National Parks and is an ideal material for identification signs because of its durability. If properly sized to the location, redwood signs have mass and scale well suited to this application.

The routed redwood panel (2" nominal) is attached to a dimensional redwood frame using protruding hex head lag bolts, that are attached into 5cm sq. keyhole receiving plates on the back of the panel. The number of attachment points is determined by the size of the panel. A companion panel is placed on the back of the frame to enclose the assembly. Once attached to the frame, the panel functions as the web of a beam. The overbar is placed on top of the assembly and functions as a top cap to limit moisture penetration into the core. All attachment hardware is concealed and both front and back of the assembly is finished. On double post assemblies, the frame (2.5cm wider overall) is attached to the inside of the leg to eliminate all exposed attachments and create a finished reveal between panel and post. Posts are single piece construction heart timber with laminated cap to protect the end-grain (up to 8" nominal). For larger assemblies, the uprights are box sections fabricated from 2" plank material.

Mounting: Double post redwood signs are mounted by direct embedment into the ground. Larger assemblies and monolithic panels may be sleeved over steel uprights as required. Baseplate footings are discouraged because they require a two step installation process that is more expensive and not necessary under conditions where direct embedment is possible. Monolithic panels will be placed on a concrete or stone pad, with internal upright steel sections to provide lateral structure for the assembly.

Hardware: All hardware is stainless steel or zinc plated steel.

Optional materials: The identification panel design can also be produced from a variety of other materials depending on the character and requirements of the location. These include:

• Granite panels with sand blasted legend attached to a fabricated steel frame. These would most commonly be the sheer monolith. In granite, the dark overbar would be a polished black granite with grey sign face (flame finish). A larger panel may require more than one piece of granite. Slab stone mounting detail is similar to redwood except the panel may be thinner and the bolt keyhole assembly is reversed (stainless steel bolts HILTI embedded into the panels and the keyholes incorporated into steel box frame).

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• Porcelain enamel pans (with inserted HDO backing panels) attached to a redwood frame and uprights. Size is limited to a panel no larger than 48" x 72" (or proportionally larger if the black overbar is a separate pan).

• Individual cut brass or aluminum (dark bronze Duranodic) plate letters, pin mounted flush to concrete or stone surface.

• Cut weathering plate steel letters that are plug welded onto same material with sign legend and overbar in forward relief. Sign panel can be mounted to concrete wall or fabricated as a free standing steel structure.

Park Identification Signs

White House

Yosemite National Park Lincoln Memorial

Statue of Liberty National Monument

Aniachak National Monument and Preserve Great Smoky Mountains National Park

Rock Creek Park Sewall-Belmont House National Historic Site

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Park Identification Signs

Lincoln Washington Great Smoky John F. Kennedy Center for the Memorial Monument Mountains. Performing Arts National Park Arches National Park Frederick Dinosaur Chesapeake Law Olmsted National and Ohio Canal National National Monument **Historic Site** Historic Park Adams National Historic Statue of Liberty National Chattahoochee Rock Creek Park Sewall-Belmont River National House National Historic Site Recreation Site Monument Area





Place Identification Signs







Roadway Guide Signs

The road guide sign is the single most important sign in this system for effectively guiding visitors to destinations throughout the park. They must have needed conspicuity while fitting into the environment. Their size should be carefully scaled to the minimum size that can afford good night legibility by aging drivers.

As part of preliminary design, three different conceptual formats were developed for the conventional road guide sign design. The goal in this exploration was to develop a highly legible panel system that would be adaptable to the many different roadside conditions. These formats allow use of destination name, recreation symbol or route shield, distance, directional arrow and/or turn instructions.

Ideally the panel would have the shortest possible horizontal dimension for mounting on the narrow road shoulders at Yosemite. For visual continuity and for park identity, the overall design would be unique to the NPS.

Although it is not as narrow or unique as the other formats studied, the more conventional Scheme 3 was selected (see Stage B report) by the NPS as the most utilitarian format for all intended applications. In this format, the order alignment, and size relationship of all elements is consistent. It uses a proportional grid that is base on the size of the legend.

Panel Format: The format has been designed with standard panel widths and depths for ease of use and economy of material stocking. A sign panel is assembled using modules for legends (single line, double line, or triple line), and modules for top border, bottom border, and line breaks (measurement used to separate messages on signs with multiple destinations and direction).

The format was carefully developed to accommodate all legend requirements identified in Yosemite.

Legend size: Because of the scale and prevailing speeds on park roadways, sizing of legends viewed should be standardized where possible. Current assumptions, with upper and lower case legends, are 5cm letters on campground roads, 10 and 15cm letters for general park roads, and 15 and 20cm letters for higher speed park roads. The typeface is

Helvetica Bold upper and lower case (initial capital letters), aligned flush left.

Sign materials, structure and assembly: The basic structure is a simple post and panel system, with finished back and minimal exposure of connecting hardware. The signs use readily available materials in a uniform way, and are easy to assemble in the field.

All signs are double post mount with legs placed outboard. Two cross members are placed behind and attached to the top and bottom edge of the panel give rigidity to the assembly. All road guide signs are assembled in the same way with structural members scaled to the respective standard legend sizes. This assembly also allows for convenient attachment of sheet metal "eye-brow" in areas with heavy snow load.

Sign uprights and cross members are weathering steel with high density overlaid plywood sign panels. The sign face is a white high intensity long life retro-reflective sheeting faced with warm brown computer cut translucent adhesive film.

The steel cross members are bolted to sub-surface "T-nuts" embedded in the panel to eliminate penetration of sign face with mechanical fasteners.

Mounting will generally be direct embedment because it is the lowest cost and convenient for field crews, the signs can be installed with a concrete footing and baseplate if needed. All fasteners are stainless steel.

High density overlaid plywood has been recommended for guide sign panels, because it is strong and does not require additional cross members if subjected to the throw out of snowblowers. HDO is the highest quality grade of industrial plywood, far superior to normal marine plywood. The key to longevity is sealing the edges and painting the backs before installation with poly silicone enamel. This process was developed by the USDA Forest Service following years of testing at sites around the country.



Roadway Guide Signs









Roadway Guide Signs



Complex/Simple Messages

Mariposa Grove Giant Sequoias

3.2 km

Distance



Tenaya Lake

Multiple Symbols



↑ Tenaya Lake
 ← White Wolf
 ▲ ● @

Route Symbol





Traffic Signs

The content and form of traffic regulatory warning signs are mandated by the Federal Highway Administration in the Manual on Uniform Traffic Control Devices. Recommendations in this project include mounting standards for regulatory and warning signs, design of a consistent panel for parking control signs, and a study showing how selected regulatory signs could be adapted to the style of the system.

Regulatory sign layout: In the following display panel, two regulatory signs were styled in the modular square format using Helvetica Bold. Adoption of these designs would require approval by the FHWA and to our understanding, there is no intention to seek that approval at this time.

Regulatory sign mounting and placement: When mounting traffic signs, they should be placed as low to the ground as possible (as low as 150cm to base of panel) to improve sightlines of obtrusive postings if lowering mounts will not effect motorist safety. The back of the signs are to be painted. The mounting designs use a weathering steel upright with HDO panel with embedded "T-nut" for fastening panel from the back of the upright through the panel without penetration of the sign face with only tamper resistant bolt heads showing on the back face.

Parking control signs: Parking control is a constant problem during the peak season as there is limited space available and parking is discouraged along roads to eliminate safety hazards for other cars, pedestrians, and bicyclists. To address this problem, a panel system has been designed that incorporates bold color coded panels with white headline overbar and large symbols denoting prohibited parking or type of parking. The headline is Helvetica Bold with small qualifying legends in Century Expanded.

Parking signs: The proposed parking control signs are small (5" x 10") retro-reflective panels using the post mounting to reduce visual clutter created by conventional (12" x 18") parking control signs. They are placed at eye level (120cm - 135cm high) along curb lines or the edge of the road. These small posts placed 15-30m on center become markers that define the parking or prohibited zone.

Where site conditions require taller mount large parking signs a (20cm x 40cm) panel can

be used. These use a plate aluminum panel (double or single face) flag sandwiched between back to back mounted structural weathering steel angles, mounted at the normal 7'-0" to the base of the panel.

Traffic Signs

Regulatory



No Parking



Parking Bollard & Flag









Small Panel Sign System

As part of the initial park survey and discussions with park staff (Stage A), dozens of different types of postings and posting requirements were identified. These included rules and regulations, instructions on the use of park facilities, information on park programs and activities, and general safety signs to advise visitors on possible dangers and on proper use of park resources and facilities. There was no consistent language or format. Signs with similar legends or function were displayed in many different materials and styles of both panel and mounting. Signs were often over scaled to the site or not placed for optimal viewing. Multi panel displays were eclectic at best; with some locations (such as campground entrances) using as many as 16 different types of signs (see *Informational and Regulatory Sign Legend Study: 9.24.92*).

From this analysis of information currently posted, a panel system was designed to address these requirements. This posting concept was designed with examples of how it applies to trails, trailheads, campgrounds, park entrances, safety hazards, and to inform and instruct visitors on resource protection. The design concept was reviewed with park staff (12.13 –17.92) and refined in a series of legend studies (see Stage A and B reports, Legend Workshop and Design Presentation Report: 1.12.93, and Staff Editorial Comments Summary and Suggested Legends: 4.22.93).

The panel system is designed to bring together all of the different types of postings into one comprehensive system that presents information in a consistent, inviting, and easy to read format. Once at an information station there is an opportunity to teach visitors about their environment and instil respect for the park resources, as well as display rules, and regulations. The panel posting system integrates all posting activities by various park interests into a coordinated, manageable, and cost efficient system. The system design reflects the strong grid style utilized in the NPS folders, helping to build upon an established Park Service voice and visual identity.

The system consists of two types of panels: square $30 \text{ cm} \times 30 \text{ cm}$ panels for individual and multi panel postings, and small 5" x 10" panels mounted on a post (bollard) for single site specific postings.

Content: The system can be implemented in a decentralized way using guidelines for text and illustration. The system will however, be most effective if there is a single editor, designer, and illustrator for all signs; coordinating panel content and tone.

Legend format and grid: The sign panels are based on a standard three column grid format. Panels include a headline "Danger" "Oak Woodland Restoration" in Helvetica Bold in the upper part of the panel with an optional sub-head using Century Expanded Italic. The panel text using Century Expanded, is placed in the lower part of the panel in either large (two-column wide) or small text (one-column wide).

Text titles are placed in the first column (far left) of the square panels. Rules (lines) are used as a graphic device to separate groups of text for clarity and visual organization.

Wherever possible, the panels should be illustrated using photographs or other wood cut style artwork to aid communications and make the panels as interesting to the viewer. Most illustrations will be one color.

Bilingual signs: As needed, foreign language translations can be incorporated into safety or information panels at a smaller type size (approximately one-half English text size) within the standard grid format. Panels will accommodate up to six different translations. Common languages in Yosemite include Japanese, German, French, Spanish, and Mong.

Color: The basic panel color for the tile panels is a deeply saturated terra cotta brown, with beige type and yellow ochre or sage green illustrations and captions. Background for map panels and tesource education panels is beige with black and terra cotta graphics and legends. All safety signs adopt standard referential colors: danger signs are red with white type, warning signs are yellow with black legend, and notice signs are green with white legend. Prohibition postings using the post system are yellow with black legend and symbol, and red circle and slash.

Typeface: The typefaces for the panels include Helvetica Bold for headline legends, and Century Expanded for text. A standard group of type sizes are recommended for all panels, based on legibility and viewing distance.

Panel size: All general postings use standard panel sizes based on a 30cm x 30cm square and can be used individually or as a multiple sign assembly. Panels with more text and graphics than can fit on a square panel may extend vertically onto a longer (double length

display) $30 \text{cm} \times 60 \text{cm}$. Signs viewed from other than standing distance ie: park fees at an entrance are proportionally larger (60 cm and 90 cm wide). The 5" x 10" post panel is specified in inches to fit on a standard fabricated tubular section.

Within the system are basic sign groups by function including:

• Resource Education: illustrated panels on the park, or specific information about a natural resource project such as a meadow restoration.

• Procedure: instructive step by step descriptions to advise visitors such as how to register at a campground or store food properly from animals.

• Rules : simple panels listing the rules for a trail, campground, or park, in a simple, common easy to read format.

• Protection: short and very site specific safety signs used to advise visitors of a danger or warning relative to the land, wildlife or personal safety.

• Maps: sections of quadrangles for trails (15 or 7.5 min.), and special maps designed for other locations as needed (section of the Valley, a campground, etc.)

The small panel system is illustrated on the four following pages as described below. The legends as shown were developed based on initial survey and the comments received in the 12.13-17.92 workshops. They are shown for concept only.

Protection: Land, Wildlife, and Personal Safety: Protection is a general category that includes site specific safety warnings, resource education, and instruction. These panels can be displayed as single modules at site specific locations and also incorporated into multiple postings at campgrounds, picnic areas, trailheads, entry portals, and other places where visitors gather.

Fee Station / Unattended Information Station: Information displays for entry portals are designed for sites around a park entrance where visitors can pull over for information. This may be the photo opportunity area (around the main entrance sign) or a turn-out inside the park. The function is to provide information that will help orient the first time visitor and help them plan their trip into the park.

Campground: Campgrounds are locations where a wide variety of information is posted; both at the entrance and at gathering places such as restroom facilities. These postings vary depending on the type of facility; for example, unattended sites are dependent on postings to display registration procedures and use information. Most posting requirements are standard for similar areas, and can easily be tailored with specific information (length

of stay, fire regulations, campsite capacity, etc.).

Trailhead : Although postings are used at all trailheads, the amount and type of information will vary depending on the trail. For example, a popular valley hike may use a large installation incorporating a variety of panels (map, trailhead description, trail rules, resource protection information, etc.), and a back country hike would use a small installation with only the minimal wilderness boundary sign.

Panel Sign System

Trail Rules

	When borses pass, stand quietly on the inside of the trail
	Pack out all that you pack in
	Do not run or stray from trails
Regulations Prohibit	Bicycles or motor vehicles Dogs and Uats Horses without guides Smoking while travelleg Campfries without prendts Cutting across switchhacks
	Keep Wildlife Wild
	Keep Wildlife Wild

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Yosemite National Park Rules

Packing and comping pormitted in designated areas only Campfires are permitted in designated areas only and mu-he attended to at all times All sewage must be dumped at designated stations only Firearms must be declared Hunting is prohibited Pets must be leashed at all times and are not allowed in the backcountry or on any trails

Do not injure any plottlife Do not feed or approach park wildlife

It is illegal to remove any cones, plants or wildlife from the Park area



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Gift Shop Mountain Shop

Bicycle Rentals Mountaineering School & Z







Post Sign System













Resource Protection Land, Wildlife, Personal Safety

Tile Display

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	Keep Wildlife Wild		Danger! Waterfall		Bear Encounters		A Natural Habitat for Native Fish
۰.	Human Sud Brills Invit a Monard: they loss the desire for natural folds and became begans, has been for ear wheels and produces.						
Animal Tracks of Yournas	No. Marker Block Annual Marker All Process Associated and Technologies Description Environments Like parameters Environments and Kall Station		Watch your step acar the water, the rocks are deceptively slippery.		Beens may try to share your lunch, your lood can lure them dangerously close.		Yosemite is dedicated to the restoration of native fish and the datural environment,
4	men di anacorde Milli colornet In char de l'ana l'arrente Mendi annon d'altere i l'anace erranne men galle i calercia di Vergen, que d'alte ana di		Stay out of the water upstream from the fails. If you lose your footing, powerful		If a hear approaches, scare it away by yelling clapping your hands, and acting aggressive toward it.		a se a la com
₩	sing adus card birth datas. Construct Press (Press Journal Joury Cardinalistic). Construct Neuropean and Advances (Press, Parka Parka, Parka), and Parka Parka Parka Neuropean and Neuropean Advances Neuropean and Neuropean Advances Neuropean and Neuropean Advances Neuropean and Neuropean Advances Neuropean Ad		currents will carry you over the falls. There is no second chance.	~:	Protect your food from all park animals, Pack food and trash in closed containers.		See If you can identify the specie above on your next Pack outing. They are (from left to right) Pickeret, Pike, Smallatouth Boss and Largemouth Boss.
					Danger		Fishing Regulations
	Keep Wildlife Wild		Oak Woodland Restoration		Bear habitat, proper food storage is required by law.		Merced River, Yasemile Valley, from Happy Isles footbridge to the Pohono Bridge.
<u>iz -</u>	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	n da kada in Na salari Li salari		Violators Subject to Fine	Store food and containers in bear-proof storage lockers. When no lockers are present, use car trunk. If no trunk is	Fishing Season	Rivers & Creeks: From the last Saturday in April through November 15, Frog Creek season begins June 14
	Human food spoils wild animals. They lose their desire for natural foods and become beggars- corrections for cart when he and		Because of concentrated use this Oak Woodland area has suffered scrious damage over the years. Barbaida materian		available, keep food items in vehicle, covered and out of sight with all windows and vents		Lakes & Reservoirs: Open to 6sbing year round
	predators.		attempting to reverse the impact on the land.		Deposit all garbage in the nearest refuse container.	Bait Fishing	Prohibited park wide, artificial lures or flics with barbless book are permitted.
	animals are potentially dangerous. They may bile or scratch, and can spread disease.	1 x	Your remaining on maintained traits will help restore a natural induitat for the birds, insects and wild for with which we chare the				
	Please don't feed the animals.		Valley,	Regulations	Food in texts	Trent Fishing	Native trout, catch and release
				Prohibit	Food or food containers, conking utensits or table scraps in the open		only. All fish caught must be carefully and immediately released to the waters they cam from
					Food containers in vehicle with windows cracked or open		Brown trout, five fish allowed pe day, ten in posssion.
	Keep Wildlife Wild		Merced River Restoration		Feeding, or leaving food for park animals		It is the responsibility of the angle to be able to identify fish species.
						Licensing	A California fishing license is required.
	No matter how appealing, all park animals are potentially dangerous. They may bite or scratch, and can spread disease.		This riparian zone is the most unique part of the Merced Rivers' four-handred mile reach. The river bank restoration will reintroduce				Licenses and any additional information may be obtained at concession facilities in Yosennite Valley and Wawma <i>Gyar round?</i> and Fuohume Meadows during the sumiter sensor only.
	Please don't feed the animals,		hundreds of species to their original habitat.				
	Sie sind geset alich – En obligatorio man wegelachtet Albeithes – tener trades ins alimen wag autantschilteret – del automorid		Until the project is completed				
	These effected at the second statement of		a temporary port that can be				

Bollard

Danger	Danger	Warning	Warning	Notice	Notice	Notice	Notice
Bose Habitet Proger Food Storage is Required by Federal Law Violators Are Subject to Pine	High Water Scason, Rolling and Dealing Ave Prohibited Violations Are Subject to Fine	Lake and Stream Water Contain Bacter 2, Datafeet Bediet Using	Slipperty Rocks and Strong Current, Whiling is Very Hanridoos	Merced River Bank Under Restoration, This Section Closed to Dublic Use Violators Will Re Subject to Fine	Oak Woodland Resteation Area Peace Stay on Maintained Trails	Peeding Animals is Surjetly Prohibited	Precifing Animals is Strictly Prohibited



Fee Station

Unattended Information Station

Tile Display

	Entrance Fees
\$5.00	Auto, truck or motor home Valid for 7 days
\$3.00	Motorcycle, bicycle, bus passenger, walk-in Valid for 7 days
\$15.00	Annual Yosemite Park Pass
\$25.00	Annual Golden Eagle Pass Valid at all National Parks
free	Golden Age Pass For U.S. residents, 62 & over
free	Golden Access Pass For the permanently disabled U.S. residents only

Tile Display









Campground

Tile Display

	Tuolumne Meadows Children of the first of the state of th		Campground Rules		Regulations
	Construction of the second sec	Daily Fee Occupancy Check out	SLOO per day, 82,00 per day for Galden Asce and Golden Access Passpart budders Occupancy is limited to 2 vehicles and 6 popula per compati- Camping Is limited to 14 days per year 12,00 nom	Violaters subject to fine	Cremp in designated composites unly Keep welicles on established readboxy. Food anist be stored properly No picticking Do not infare any photolise Damaging trees (such as using mills and wires) and distincting will is probled.
	Self Registration		Campfire Regulations		Campfrees are permitted in established pils only and must be attended to at all intess Quiet houses (D830pm-f600am Pets must be trashed at all times and kept off all trails
1	Occupy vacant campsite, note number, and reburd here within 30 minutes. Place exact fee in envelope and detach stub.		 An order to grange the unique of in Yoscenite Valley, and the effects of various pollutants, wood campfires are permitted during evening hours only. All ungatended campfires must 		Sewage must be dumped at designated stations only
3	Phere completed caveloge in pipe safe and display stub on campsine post.		be extraguisted prior to going to bed or leaving the campsite. As always, collecting freewood in Yosenite Valley and burning wet or green freewood is prolnibiled.		

Bollards

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Pets on Leash A All Times



Trailhead Information Station

Tile Display

	Entering Yosemite Wilderness
	Wilderness permits are required for overnical ase.
	Camping is permitted in designated areas only.
	Bear Habitat, proper food storage is required by law.
	Pack out all that you pack in.
Regulations	Pets and firearms
Probibit	Collicator foregoing traces and finder
	Chemis of green acces and minus
	Camplices without permits
	Camplices without permits Woodfires in areas above 9200 ft.
	Campflies without permiss Woodfires in areas above 9200 ft. All motorized vehicles
	Compthes without permits Campthes without permits Woodfires is arrays above 9200 ft. All instanced whicles Lasse herefing of stock





Mirror Lake Trailhead

2.7 ku	Aliwahnee Hotel
3.0 55	Royal Arch
4.3 Ku	Indian Cave
5.5 _{KM}	Washington Column
6.ñ <u>k</u> u	Mirror Lake Non-scatter to construct the solution for some first solution of the solution of the two constructions of the solution of the first construction of the first solution of the first construction of the first solution for the other solution of the first solution for the first solution of the first solution for the solution of the first solution of the first solution of the solution of the solution of the first solution of the solutio
	Trail Rules
	When horses pass, stand quictly
	Dentric opside on one team.
	Do not can or stray from trails.
Regulations Prohibit	Biggeles of motor vehicles Does and Cats

its ont guides tile traveling vithout permits oss switchbacks

	Waterwheel Falls		Trail Rules
	No temple mide with hands can compute with Yotespile. Every rack in its walk seems to discuss the life.		When horses pass, stand quietly on the juside of the trail
	o good Convine, Some lean back in outlestic repose, alters, absolutely sheev or averity so for itonsmids of feer, advance lowood their combenions in itanshiful		Pack out all that you pack in. It is daugerous to rot or stray from hiking trails.
	attitudes, giving technine to		
	Southa non chevra traction	Regulations Prohibit	Bicycles or motor vehicles
			Dogs and Cats
	Waterwheel Falls	i f	Horses without guides
	Trailhead		Smoking while traveling
			Compfires without permits
			Cutting across switchbacks
4.0 651	White Wolf Trail		
9,5 KM	Graat Lakes		
10.0 KM	Ten Lakes Basin		
19.0 Ku	Waterwheel Falls Trail		
23.0 KM	May Lake		
29.0 KM	California Fails		
3(.0 KA	Waterwheel Falls		
		đ.,,	



Area Entry Postings

The area entry is an extension of the panel system and consists of vertical aligned $30 \text{cm} \times 60 \text{cm}$ rectangular panels displayed in series, describing specific rules and prohibitions (with symbols and text). They are intended for use at the entrance to a campground, picnic area or other public place to reduce the wide variety of postings currently displayed. In essence this is a system of standard panels to identify the most important four pieces of information for a visitor entering an area. Area entry signs are formated on a standard layout grid and use Helvetica Bold (1.167" upper and lower case, flush left, initial capitals only) with large National Recreation Symbols in positive or prohibition format.

Color: The recommended color for the area entry postings are ochre (gold, not yellow) retro-reflective sheeting with black legend and symbol, prohibition symbols use the red circle and slash. An optional changable, double face terra cotta panel with campground symbol has been recommended to identify campground availability ("Campsites Available" "Campground Full") and help control entry traffic of visitors looking for campsites.

Structure and materials: The sign materials and structure adopts the format of the general posting (see Sign System Assembly, page 53). The panel is .080 aluminum with retroreflective sheeting background and cut vinyl graphics, legend and symbol.















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Pedestrian/ Bicycle Guide Signs

The two designs for front country pedestrian path and bikeway guide signs use the same grid format, panel sizes, mounting and materials as the panel system (30cm x 30cm) and post mounted signs (5^{n} x 10^{n}).

The small sign assembly will accommodate 2-sided panels allowing one sign structure to incorporate panels for opposite directions of approach. Panels are placed at intersections of trails or bikeways and should be in clear sightlines of approaching walkers and bike riders.

The post assembly is a more discrete sign, used as a single direction panel on trails or paths with minimal congestion.

Format: The upper part of the grid allows for clear placement of the arrow. Destinations and appropriate recreation symbols are displayed in the lower section of the panel. Rules (lines) are used as a graphic device to separate destinations on the panel. Intersections with more than two destinations in a single direction may use an extended vertical (30cm x 60cm) panel; or if there is more that one directional option at a trail decision point, two panels can be stacked vertically on the same two post standards.

Typeface and color: Pedestrian path and bikeway guide signs use Century Expanded (upper and lower case, flush left, initial capitals only). The recommended color for the pedestrian path and bikeway guide signs is terra cotta with beige legend.

Structure and materials: The sign materials and structure adopt the format of the general posting (page 52).

Sign panel designs and / or adaptations for Yosemite back country signs were omitted from the project workscope at NPS direction.

Pedestrian / Bicycle Guide Signs

Tile Display





Geology Exhibit Dana Campfire Circle [**P**]

4

Glacier Point to Valley via Vernal and Nevada Falls ())

⇒ Trail to Giant Sequoias



Bollard









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Street Name Signs

The Yosemite staff had planned to implement a street name sign program on all valley streets and roads. The standard posting system has been adapted to include a design for street name signs. The street names chosen by the park were literal descriptions of the place, it was recommended in the Stage A report to use names with historic reference as a way to build interest and understanding for visitors.

Mounting: Street name signs are flag mounted from 6" square upright timber posts with sign mounted between 102" and 114" above grade level.

Structure and materials: A 15cm x 90cm, .080 aluminum panel (with possible use of 60cm and 75cm widths for shorter names) is fastened to the post using the standard, round, extruded aluminum, cartier bars (top and bottom). The bars have threaded ends and spanner nuts with screws to attach the sign to the post.

Format and typeface: The street name is optically centered (10cm baseline) on the vertical axis and flush left (7.5cm from the left edge of the panel), using the Modified Century Expanded (7.5cm) upper and lower case.

Color: Medium brown retro-reflective face with white retro-reflective legend.



Sign System Assembly

Two compatible sign structures are recommended for all small sign postings. The primary structure is a modular square panel mounting system used for single or multiple displays. The second method is a panel mounting system with sign attached to a small post (bollard).

All small scale postings throughout the park can be built with a finite group of component parts, that can be assembled in various ways depending on posting requirements. Common attributes of these materials are that they:

- are rugged
- require little maintenance of surface (no paint or coatings)
- use standard mill finishes
- are mechanically fastened using tamper resistent hardware
- will accommodate a variety of vandal resistent graphic applications
- allow the use of highest quality graphic reproduction with color

The following schematic drawings illustrate various possible applications of the system.

- Sign System Assembly- single module, straight or fabricated angle upright (p. 52)
- Sign System Assembly- multiple module (p. 53)
- Sign System Assembly- wall mount (p. 54)
- Sign System Assembly- post (bollard), angular panel insert for pedestrian viewed and vertical panel insert for vehicular viewing (p. 55)

For ease of assembly and maintenance, all parts are built for a standard 30cm module with panels prepared to size. Retainer frames and uprights are cut to standard lengths with predrilled attachment points. Inherent in the design are no sharp corners and finished assemblies front and back with attachment points concealed. Components (p. 51) include:

- 1. Extruded 2.5cm dia. (full round and half round) aluminum retainer bar with anodized dark bronze Duranodic finish
- 2. Sheet .125" aluminum panel core to provide rigidity to assembly
- 3. Porcelain enamel sign panels (30cm x 30cm) & back panel, or 5" x 10" post panel
- 4. Square tubular weathering steel uprights (two or three sizes 2" x 3", 4" x 3", 5" x 3") with cast weathering steel protective insert caps for tops of tubes (for each size)
- 5. Stainless steel bolts for assembly with tamper resistant heads (two or three sizes)

System Components

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Program Planning and Management

Once a systematic approach to park signing is adopted, low life cycle cost will be predicated on a sign management system that includes coordinated planning and documentation, centralized procurement, planned implementation, and periodic maintenance.

Sign Plan: A sign plan has been developed for documenting existing and proposed identification and road guide signs as part of this contract. This is a data base system linked to park maps on AutoCad. The maps will show sign locations on a scaled print with sign type code and unique number, the corresponding data base will include a more comprehensive (coded) description of the signs that can be easily referenced in a notebook format. An illustration of the code system is shown on the following page.

Implementation: The implementation of a park wide system can be done in many different ways depending on related capital plans or availability of funding. Implementation can be organized by sign type (all guide signs), by area of the park (all campgrounds on Tioga Rd or all signs in Tuolumne), or by attrition (periodic maintenance replacements and new signs as requested).

Using the sign plan document as a planning tool will reduce redundant signing and clutter and help assure a more efficient and coordinated installation. The sign plan should be maintained, recording periodic upgrades, additions, and maintenance inspections.

Cost Savings and Program Life Cycle Management: The system is designed to realize lower cost and longer life for all sign types (identification, guide, and general posting). Although specific data have not been compiled, from our experience the specified sign materials will last longer than other viable material palettes, without costing more.

A conceptual cost model was developed for Yosemite, and then applied to the NPS as a whole. The Yosemite investment is between 1.5 to 2% of all NPS signs. With the \$70 million dollar initial cost assigned to a system wide installation, the estimated annual cost savings from this design compared to a less systematic program would be \$7.7 million annually (system wide), or a savings of about \$110,000. to \$160,000. a year for Yosemite.

The model addresses the following four major areas of cost, and assumes a 10 year average life.

Lower initial sign cost due to extended life and lower maintenance

- Annual management cost savings due to sign plan/system approach, efficient procurement process, and centralized purchasing by material type
- Lower design and planning fees due to system approach, computerized records, ease of use by remote locations, and adaptability to varying conditions
- Reduced cost due to vandal resistent and easily maintained design for all general postings

Not included are the cost savings from a comprehensive sign and program management - system, built on the model developed for Yosemite National Park. These include:

- Increased value due to improved design
- Enhanced liability defense due to planned safety markings, improved loss prevention and legal documentation for claims
- Reduced procurement time due to efficient processing order delivery
- Reduced inventory cost with fewer parts to stock
- Lower field manpower cost, due to system simplicity and adaptability of common parts
- Reduced maintenance due to use of materials with low service requirements

The actual cost of a sign becomes a relatively small part of the program cost. Tort claims, costs to repair a sign in a remote location with parts that are not compatible, premature replacements, and management time are less tangible, but should be considered as primary areas were a system design will reduce costs.

Sign System Management

Value

Improved Communication Enhanced Image of NPS

Implementation

By Sign Type By Park Area By Attrition

Planning

PC based CAD/database Hierarchical Sign Code



Cost Savings

Initial Purchase

Streamlined system Reduced procurement time

Program Management

Low design and planning costs Low inventory cost

Lifecycle

Low field service cost Reduced maintenance Increased value, longer life cycle Vandal resistant design

Signs for Mock-up Demonstration

In the mock-up process, a representative group of signs in the system were simulated at full scale using cardboard panels and computer cut legends. The function is to field test the size, color, mass, legibility, and proposed placement of these various sign types. These were placed in and around the clearing north of Happy Isles. Signs by type, and size in the mock-up demonstration are listed below.

Parking Signs:	5" x 10" post assembly
	15cm x 22.5cm panel
	30cm x 45cm panel
Small Panel Posting:	Representative group of information, instruction, and safety
	postings (30cm x 30cm) displayed in single, single angle,
	double and six panel assemblies with tubular mounting and
	extrusion
Post Signs:	5" x 10", with two assemblies with six different panels
	showing a variety of applications
Trail Guide Signs:	5" x 10" post assembly
	30cm x 30cm, and 45cm x 45cm panels for size review
Highway guide signs:	30cm double symbol
	22.5cm double symbol
	15cm two message/ two direction
	10cm three message one direction
	10cm one destination with distance
	10cm three destination/ three direction
	5cm with one three line destination
	5cm three destination/ three direction.
Street Name Sign:	Two panels with 7.5cm legend
Area Entrance Sign:	One-four panel display with simulated legs and assembly
Park Identification:	15cm vertical monolith Yosemite National Park
	30cm horizontal double leg Yosemite National Park
Place Identification:	7.5cm horizontal panel, double leg (Campground Reservations)
	12.5cm horizontal panel, double leg (Campground Reservations)
	12.5cm vertical panel, double leg (Riding Stables)
	15cm horizontal panel, double leg (Lower Pines Campground)
	22.5cm horizontal panel, double leg (Upper Pines Campground)

