

**Sign Planning &  
Implementation Guidelines**

Yosemite National Park



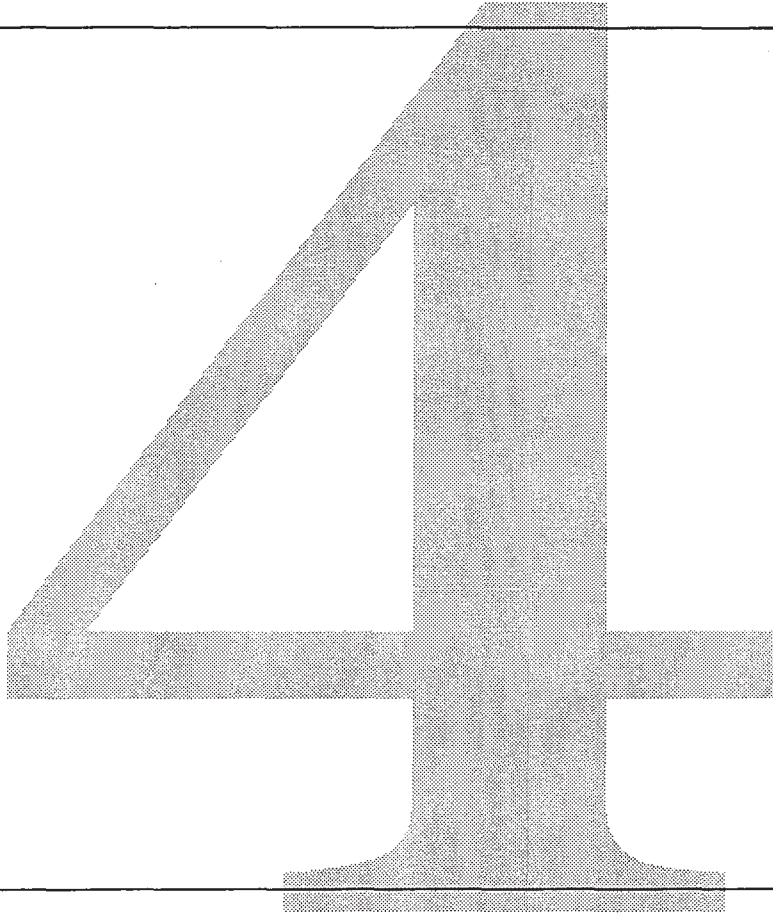
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National Park Service

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Implementation Guidelines**  
Yosemite National Park

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Prepared by:  
Meeker & Associates, Inc.  
Environmental Graphic Designers  
22 Rockwood Drive, Larchmont NY 10538

NPS Contract: 1443CX2000-92-033  
with sub-consultants  
Walker & Macy, Landscape Architects  
E. A. Avallone, Consulting Engineer  
Bruce Hopkins, Interpretive Writer  
Lawrence Duke, Illustrator  
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# 1 Introduction

- Planning and Development of Pilot Sign System for Pines Campground
- Executive Summary of Pines Program
- System Display Developed for Pines Campground

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## **Introduction: Planning & Development of a Pilot Sign System for the Pines Campground**

The purpose of this project is to plan, design and implement a representative prototype installation of the Yosemite National Park Sign System Design in the Pines Campground area; to evaluate and refine the functional appropriateness of the system as developed, and document the design process for use by park staff.

This process has included;

- Site and sign content analysis by the consultant team that included specialists in environmental graphic design, editorial planning and writing, and landscape architecture and site planning.
- Meetings and workshops (October 16-19, 1995) with a representative group of park staff who install posted information (campground and trail managers, maintenance and sign fabricators, interpreters, wildlife managers, planning, procurement, and concession management) to identify requirements of each.
- Review of findings with NPS representatives for comment.
- Prepare conceptual designs and area location sign plans. Specific to this process; the content and graphic presentation of the small panel posting system was refined based on communication needs identified by park staff.
- Prepare recommendations for wayfinding related site improvements. The function of these improvements is to improve circulation, reduce denigration of surrounding land, and create an improved site for effective placement of wayfinding graphics.
- Document the process and prepare guidelines for sign use by sign type.
- Prepare specifications and fabrication drawings for construction and implementation of the plan as designed.

The Yosemite Sign Program has been initiated to improve signing in the park relative to both functional and aesthetic criteria. Specific attributes include:

- Present signage in a legible and inviting manner
- Provide uniform wayfinding guidance
- Communicate clearly and consistently
- Build upon design traditions and identity of the Park Service
- Maximize public safety and reduce exposure to liability
- Design a system that will accommodate change as requirements evolve
- Provide a systems approach to planning, fabrication, implementation and maintenance
- Enhance and maintain infrastructure investment
- Create a system that can adapt to park character and landscape
- Base system on NPS principals for sustainable design

In essence, the signs must provide the information needed to guide and inform visitors while being a manageable

and cost efficient program.

**Wayfinding:** Much of this is based on a concept called wayfinding. In an environment like a National Park, wayfinding is a complex process because there is so much that is unfamiliar to the user. Wayfinding assumes that site quality and design, verbal instruction, and printed hand outs are an integral part of the process. The following is a summary definition of wayfinding as developed for Yosemite National Park:

The elements of wayfinding are a series of visual, editorial, and environmental cues to help visitors navigate and experience Yosemite National Park without confusion and conflict; the cues must enhance their enjoyment and understanding of the park without damaging the park's rich natural and cultural resources.

## Executive Summary

The contractor conducted a series of workshops with Yosemite National Park employees in the park (October 16-19, 1995), to gather information for a Prototype Sign System using the Pines Campground area.

The intent of the project is to:

- Review the applicability of the conceptual Yosemite National Park Sign System Design as submitted in the Stage E: Final Report on Sign System Design and Development.
- Develop a comprehensive prototype sign plan for the Pines Campground area.
- Identify specific requirements for small panel signs as placed throughout the area to identify, inform, warn, and guide visitors about park resources.
- Prepare guidelines for sign planning and design based on this process.
- Prepare construction documents for fabrication and installation.
- Construct signs and evaluate the overall design and implementation process.

During this process, the reception to the overall system design and the functional aspects of each part of the system by park staff were positive. Park staff noted that this system would help in addressing existing communications problems with visitors and provide coordination for sign program management.

Site Improvements: Recommendations were developed for minor site improvements and maintenance to enhance sign placement, improve wayfinding and the overall visual quality for the camping experience. These include:

- The addition of directional signing in advance of the Pines area to aid access.
- The addition of formal entrance signs at each campground.
- Upgraded entry roads to facilitate traffic flow for RVs and others entering and leaving.
- Elimination of a few campsites to allow for small sign posting near restrooms and outlet trails.
- Installation of post and cable barriers to reduce soil compaction from volunteer trails and to enhance general campground ambience.
- Modify restrooms screens to focus direction of entry for small panel posting.
- Restore riverbank vegetation to help define boundaries and improve general appearance of the area.

Small panel signs: In the workshops, park staff set priorities on the content, editorial tone, and placement for small panel signs. The primary emphasis was to systematically coordinate the complex array of messages that are currently placed at a single entry kiosk, and place multiple installations of this information in closer proximity to the each campsite where it will be easier to access by visitors.

In addition to a refined series of bear warnings and proper food storage panels; some specific recommendations included:

- Re-numbering the campsites to aid wayfinding and emergency response.
- Recommended instructions at the entry kiosk for visitors entering when it is unattended.
- Providing maps to orient visitors to shuttle bus stops.
- Providing safety warnings about turbulent water during runoff season, and a mountain lion warning due to recent sightings.
- Addition of campground services panel to address commonly requested information in a convenient display.
- The following are six guideline documents that were developed as part of the Pines Campground Prototype System Design Project. These include: Sign Planning and Documentation, Schematic Concepts for Site Improvements, Guidelines for Sign Use and Placement by Sign Type, Design of Small Panels, and a Catalog of Small Sign Panels, and maintenance guidelines.

Other components of the small panel system will include a display for day use trail heads, and general resource education panels to give visitors more site specific information on the Pines area and natural resources management. Panels have also been designed for trailheads to incorporate the Access trail system. A system of maps have been designed for specific communication requirements including; Yosemite Village, Yosemite Valley (shuttle bus route, bikeways and trails), and a topographic trail mapping system of the Yosemite Wilderness.

Fabrication and Installation: It has been recommended that the signs be fabricated under contract to three specialty craft fabricators (small panel, redwood identification signs, and road guide signs). Assembly and installation will be executed by a private contractor or park sign shop staff. The goal is to integrate the economy of a specialty fabricator with the site knowledge of park staff.

As a prototype, each aspect of planning and ordering will be designed to afford greatest economy with the highest quality product.

The prototype, planned for a fall 1997, was delayed until 1998 because of the flood.



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## 2 Sign Planning and Documentation

- Sign Planning and Documentation
- Introduction; Sign Planning and Documentation
- Sign Planning Flowchart and Checklist
- Sign Planning for the Pines Campground
- Illustrations of Planning Documents
- Sign Planning Code System

The goal of the Yosemite Sign Study has been to develop a systems approach to signing throughout the national park. The basic design concept attempts to combine the functional and esthetic requirements of visual communications and wayfinding in the park with existing National Park Service graphic standards.

These guidelines describe the process for planning a sign installation using the Pines Campground area as a prototype of what can be done in the rest of the park.

Because it is a prototype, refinements in both the visual quality and functional attributes of the design system no doubt will evolve. As the park staff implements this new system and becomes familiar with its various elements, the planning process described in this section also may need to be refined.

As a system of signs, each type of sign or component part has been developed to accommodate a specific function or functions to be used consistently not only in the Pines Campground but in similar areas of the park and eventually in other parks around the country.

With this systems approach, all planning, procurement, implementation, maintenance, and functional changes can be accomplished efficiently, because each repair, replacement, upgrade, addition, or new installation will not require a site specific design and ideally will be ordered from one of three suppliers familiar with the sign program design standards.

### System Components

This sign program consists of three basic types of signs:

#### 1) Identification—signs to identify locations.

Identification signs are formal, architectural installations used to frame and celebrate the entry to a facility or resource of the park and generally will be coordinated and placed with site improvements to create an image equal in stature to the resource.

2) **Vehicular Guidance**—road signs used to direct motorists to specific areas or locations. Regulatory and warning traffic signs augment these functional wayfinding tools and follow standard MUTCD guidelines.

3) **Small Post and Panel Sign System**—small signs with general information for park visitors. This posting system includes information about rules, regulations, instructions, front-country trails, facilities, safety precautions, and resource management issues. The majority of the signs in the park will utilize these standards as communication tools used to guide, warn, and inform visitors on how to use the park in ways to enhance their experience while maintaining the integrity of the resource. The Small

Post and Panel System of common formats, sizes, and structures accommodates various needs of different management groups in the park. With this approach, messages can be placed individually or as a small multi-panel assembly. The editorial approach is to give visitors essential details in an engaging and easy-to-understand manner. Signs are placed at sites, such as viewpoints or entrances, where visitors can use the information immediately. They also can be grouped at sites, such as campground comfort stations and shuttle stops, that visitors frequent and customarily have time to read and digest the information provided.

### Summary of Steps

To implement the new sign system on an existing site requires a working familiarity with the sign system, the site to be signed, and the way the facility or facilities are used.

The stages, tasks, and reference tools involved in this process are summarized in the Sign Planning Flowchart and Checklist.



**Sign Planning Flowchart and Checklist**

	<b>Stage</b>	<b>Task</b>	<b>Reference Tools</b>	<b>Check</b>
1	<b>Site Survey and Existing Condition</b>	Inventory of existing conditions	Survey worksheet	<input type="checkbox"/>
		Documentation of primary signs	Site plan	
2	<b>Evaluation &amp; Analysis</b>	Review overall requirements by sign type	Evaluation questions in planning guide	<input type="checkbox"/>
		Record special requirements by sign type and location	Survey worksheets	
3a.	<b>Planning large signs</b>	Prepare sign plan Road guide Identification Area entry Pedestrian guide Miscellaneous post Parking control	Sign code Sign schedule worksheet Site plan drawings Sign use by sign type	<input type="checkbox"/>
		Prepare panel face layout and site location detail	Grid templates	
		Engineer/plan site specific installation/structure		
3b.	<b>Planning small signs</b>	List small panel postings by type and placement location	Catalog of existing panels	<input type="checkbox"/>
		Identify requirements of non-standard panels		
		Consult writer and designer to complete		
4	<b>Site improvements</b>	Identify site related issues for wayfinding	Park design standards for roads, paths, edges, campsites, etc.	<input type="checkbox"/>
		Consult landscape architect, traffic engineer or site engineer as required to develop plan		
5	<b>Cost estimate</b>	Estimate sign cost to implement	Cost schedule by sign type	<input type="checkbox"/>
		Estimate related construction costs		
6	<b>Construction package</b>	Sign schedule Sign plan Panel layouts and digital image files Material specifications by type Bid schedule		<input type="checkbox"/>
7	<b>Purchase</b>	Order signs & coordinate delivery	Procurement contracts	<input type="checkbox"/>
		Inspect delivery		
8	<b>Installation</b>	Stake site	Sign site plan	<input type="checkbox"/>
		Assemble and install signs		

## Sign Planning for the Pines Campground

The purpose of this project is to evaluate the sign system designed for Yosemite (see Yosemite National Park Sign Study: Stage E--Final Report on Sign System Design and Development, February 28, 1995) by testing it in one area of the national park and to develop a procedure for identifying sign requirements.

The sign plan is a written record identifying each sign by type and legend, along with a site plan showing its proper location. The sign plan also provides the framework for budget preparation and sign procurement as well as the documentation to be used for new installations, replacements, removals, and maintenance.

The steps for developing a sign plan for a project area are:

- Inventory of existing conditions
- Analysis of sign requirements with park staff members
- Preparation of sign plan
- Implementation of a program based on the Yosemite sign system design.

See Attachments:

- 1) *Inventory of Existing Conditions Survey Worksheet*
- 2) *Inventory of Existing Conditions Photo Record with Number*
- 3) *Existing Condition: General Sign Location on Plan Drawing*
- 4) *Proposed Replacement Guide Sign and New Identification Sign*
- 5) *New Sign Location Plan Drawing*

**Project Coordination:** Sign planning and project management should be coordinated by a single person who understands the sign system and how it can accommodate the informational needs of park users and the staff's communications needs. The sign program coordinator is responsible for the design, planning, and coordination of various interests to create a comprehensive program. This plan should include all park signs, including those for identification, road guides, and recreation. These standards also can be used for signing concession areas within Yosemite.

**Compliance with the System:** The format and design standards for each type of sign must be maintained. Although every effort has been made to standardize sign legends, individual sign conditions vary. If a sign requires a unique legend not provided in this design plan, it should be prepared following the applicable grid format and general approach to legend style.

The appropriateness of an individual sign to a setting is to be determined by the project manager on a case-by-case basis but based upon the overall park sign system. The project sign plan should be based on local needs, site

geography, existent hazards, and the way the site is being used by the public.

Consistent use of the sign system throughout the park should reduce management costs as visitors move about the park more efficiently.

**Sign Plan Development:** In the development of the Yosemite Sign System design, a full inventory of existing park identification and road guide signs was completed and fully documented by the design consultant. Legends of dozens of information, safety, regulatory, and instructive signs were cataloged. From this work, a parkwide identification and road guide sign design and plan has been prepared, along with the Small Post and Panel Sign System for all other types of postings.

Here is a description of the procedures used in preparing the sign inventory in the initial stages of the Yosemite Sign Study:

- 1) **Inventory of Existing Conditions**--The first step in developing a project sign plan is to catalog all existing signs. Materials used for this field work are:
  - a) Copies of Sign Inventory Worksheets
  - b) Site plans (Because of the large scale of the Pines Campground, this process required a number of drawings, including an area map for signs outside the project and detailed individual site maps; a drawing scale of 50 should be large enough to allow accurate location notations of existing signs.)
  - c) Camera with negative print film
  - d) Tape measure and field pedometer
  - e) Changeable number card (1.5 inch numbers minimum, 4 digit)
  - f) Squeeze clamp

Existing conditions and field recommendations are documented on Inventory Worksheets with corresponding notations of locations on a site plan. Important information for the inventory is size (legend, panel, post), field conditions (setback, orientation, grade slope), and the specific legend, with notes on how the installation could be improved or coordinated with other postings. On the site plan, use a T-shaped graphic for single-face signs or an H-shaped graphic for double-face signs, to indicate orientation (*shown on attached illustrations*) at the location of each sign. The mapped signs are then numbered and keyed to the Sign Inventory Worksheet.

A photo record, or snapshot, should be made of each sign with the inventory number card clipped to the sign panel when photographed. For example: "LP-001" would be sign number 1 in Lower Pines. These photos should be attached to the Inventory Worksheets when compiled for a complete reference of the existing installation.



This inventory, site plan, and photographic record become part of the base information needed to develop a project sign implementation plan and serve as a reference of existing conditions.

Repetitive installations such as campsite identification bollards or no parking signs need not be photographed individually; one visual reference is adequate. Each sign location, however, should be noted on the sign plan and in the inventory.

Catalog all sign legends (text) for instructions, rules, and procedures even though the size, placement location, and format may be different in the new installations.

**2) Evaluation**—Once the base data is complete, analyze the inventory to determine what signs are needed to improve wayfinding while minimizing visual intrusions on the naturalness of the park. Be familiar with the design guidelines in the System Documentation Report as you analyze sign requirements.

Evaluate each sign's context, content, scale, form, and placement and determine its purpose: identification, guide (vehicular and pedestrian), information, instruction, and safety.

This definition of wayfinding evolved out of the Pines Prototype planning process:

*The elements of wayfinding are a series of visual, editorial, and environmental cues to help visitors navigate and experience Yosemite National Park without confusion and conflict; the cues must enhance their enjoyment and understanding of the place without damaging the park's rich natural and cultural resources.*

Based on this definition, here is a list of planning questions that may be helpful when analyzing sign requirements for a location:

- a) Are there any signs that are no longer necessary or appropriate?
- b) Are all signs properly scaled and sited?
- c) What new information needs to be communicated?
- d) What could be noted more effectively (smaller, reworded, fewer words, illustrated, etc.)?
- e) What physical site-related changes would enhance the subsequent effectiveness of a new sign installation and wayfinding in general?
- f) How would a change of a policy or procedure make the proposed signs more effective?
- g) What are the logistical (ordering, coordination) or functional problems (vandalism, durability, ease of repair)?

- h) How can various types of postings be effectively integrated to enhance the collective quality of information posting?

Based on this evaluation, identify the appropriate sign type within the sign standards system for the specific application and document the recommended sign using the planning code spread sheet. Note that an existing sign function may be treated in a different location or way, a replacement sign may not have the same legend as the existing sign, or where there are currently a group of signs, this installation can be consolidated into a single assembly. Sketch the layout or draft text for the sign based on the grids shown in the specifications. An overall goal is to develop the plan with fewer signs, signs of smaller scale, information presented at the location where it will be of greatest benefit to the visitor. Equally, the overall program is most effective if there is system wide consistency and a common NPS voice regardless of the type or source of the communications. There will be exceptions based on difficult communications problems. It is recommended that these be analyzed and prepared with planners most experienced in the use of the sign system design.

The evaluation is intended to reduce the unnecessary proliferation of signs, eliminate confusing and ambiguous displays, reduce the scale, and create a common voice. It is preferable to have few signs than too many; too many signs in a given area dilute the impact of an individual sign.

**3) Preparation of Project Sign Plan**—The sign plan specifies and identifies the locations for all signs. This record can be revised and updated on an ongoing basis as signs are replaced, added, or removed. The sign plan will be recorded using the following materials and methods of documentation:

- a) Sign Schedule listing all signs proposed using the documentation code
- b) Site plans with general location plot of each proposed sign by code number
- c) Scaled computer-generated drawing of each sign face with field notes on placement locations and unusual site-specific field conditions affecting installations.
- d) A copy of the sign inventory worksheet with photograph attached to show what sign is being replaced.

A simple sign-coded notation system, such as the one developed for this project, provides a shorthand spreadsheet database.

The sign plan will be prepared using the inventory of existing conditions and new requirements determined through the evaluation process. Signs will be specified based on the System Documentation.

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The sign plan drawings will show those signs that are planned for implementation along with signs to be replaced. The new sign schedule will identify both the new sign that complies with this manual and the existing sign as consecutive but separate entries on the worksheet. Once the replacement is complete, the old sign will be deleted from the schedule and the new sign installation date entered.

**4) Implementation**—Next, prepare an implementation plan to phase-in new signs that conform to the new system. Depending on budget and park priorities, this can be a comprehensive replacement or a phased program based on one of the following scenarios:

a) Replacement by attrition: Since the average life of most exterior signs is 7 to 10 years, approximately 10 to 15 percent of the signs will need to be replaced each year. These will be identified in the Sign Schedule Worksheet for that year.

b) Replacement by site: This involves changing all the signs in a specific area. If there are 10 areas at a park, schedule replacement of all signs in two of the areas annually. In five years, the entire project will be in full compliance to the program without a major expenditure in any one year. This comprehensive method of implementation affords the greatest visual impact of the sign program.

c) Replacement by category: This involves changing all of the signs of the same type throughout the park, such as all the road guide signs or all the trailhead installations. Because multiples in each category may be ordered, there could be a cost savings in both procurement and installation with this method. Also, since all signs of one type are installed at the same time, they will all be on the same maintenance schedule.

Once an implementation schedule has been developed, it should be incorporated into the sign inspection and maintenance program. In this way, the sign plan also serves as a management tool for preparing budget requests and for reviewing sign requisitions while coordinating replacements and maintenance.

Field Record: Example of field survey sheet used to record existing conditions

INVENTORY WORKSHEET

number	017	viewed by	<input checked="" type="checkbox"/> vehicle	<input type="checkbox"/> pedestrian
date	by	viewing distance	50'	
sign type		posted speed	35	
location	C	setback	24"	
facility		roadway type		

legend	panel	post	footing	installation		
size	4" / 2.25"	size	36 x 48	size	2.5 x 4	<input checked="" type="checkbox"/> ground
typeface 1	height	<input type="checkbox"/> bracing	72"	<input checked="" type="checkbox"/> embedded	<input type="checkbox"/> attached	<input type="checkbox"/> wall
typeface 2	quantity	quantity	2	quantity	<input type="checkbox"/> fence	
material	material	material	Alu	material	<input type="checkbox"/> gate	
color	color	color		color	<input type="checkbox"/> ceiling	
condition	condition	condition		condition	<input type="checkbox"/>	

sign message

← North Pines  
Campground

← Group Camping  
Permit Parking

notes

sketch

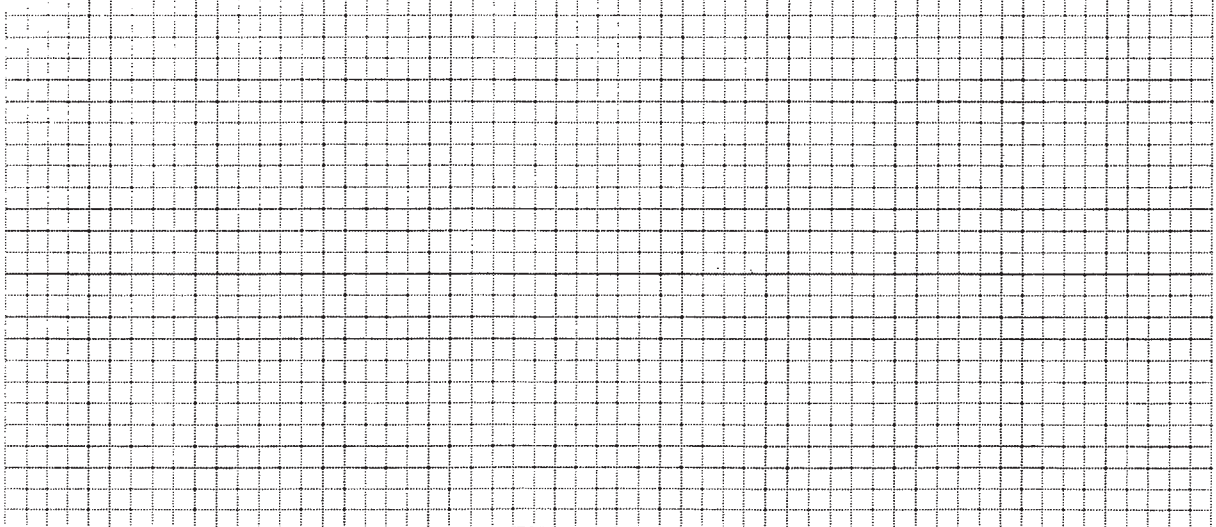
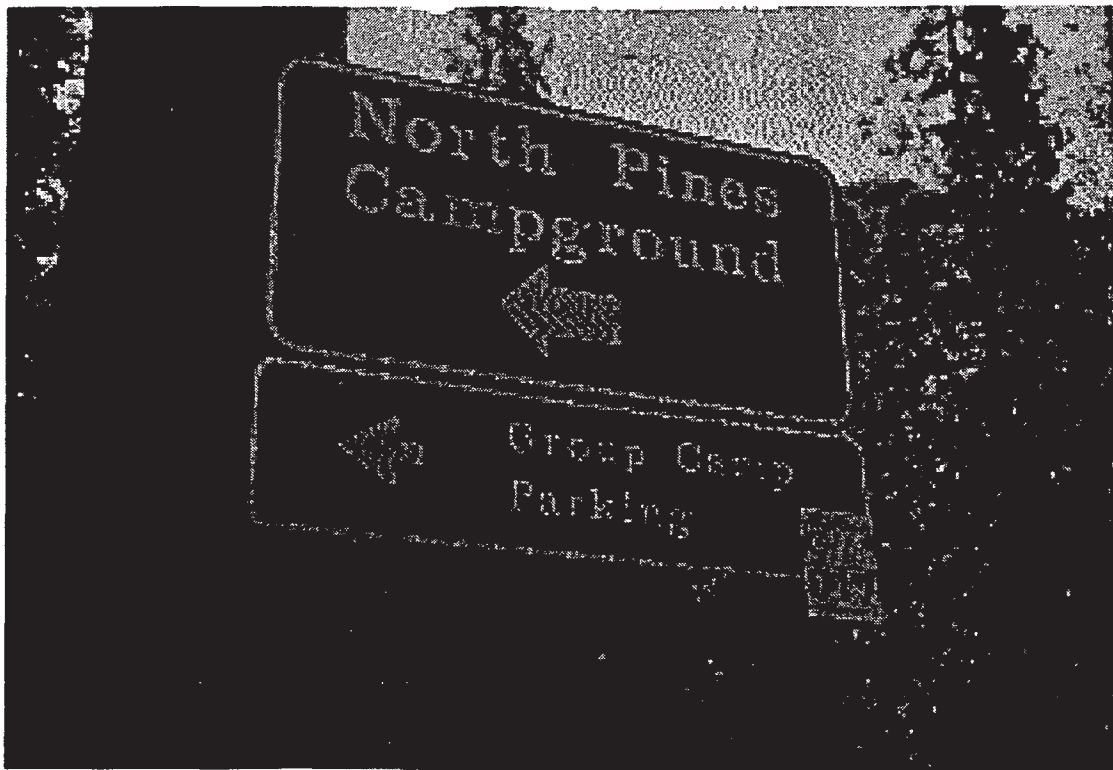
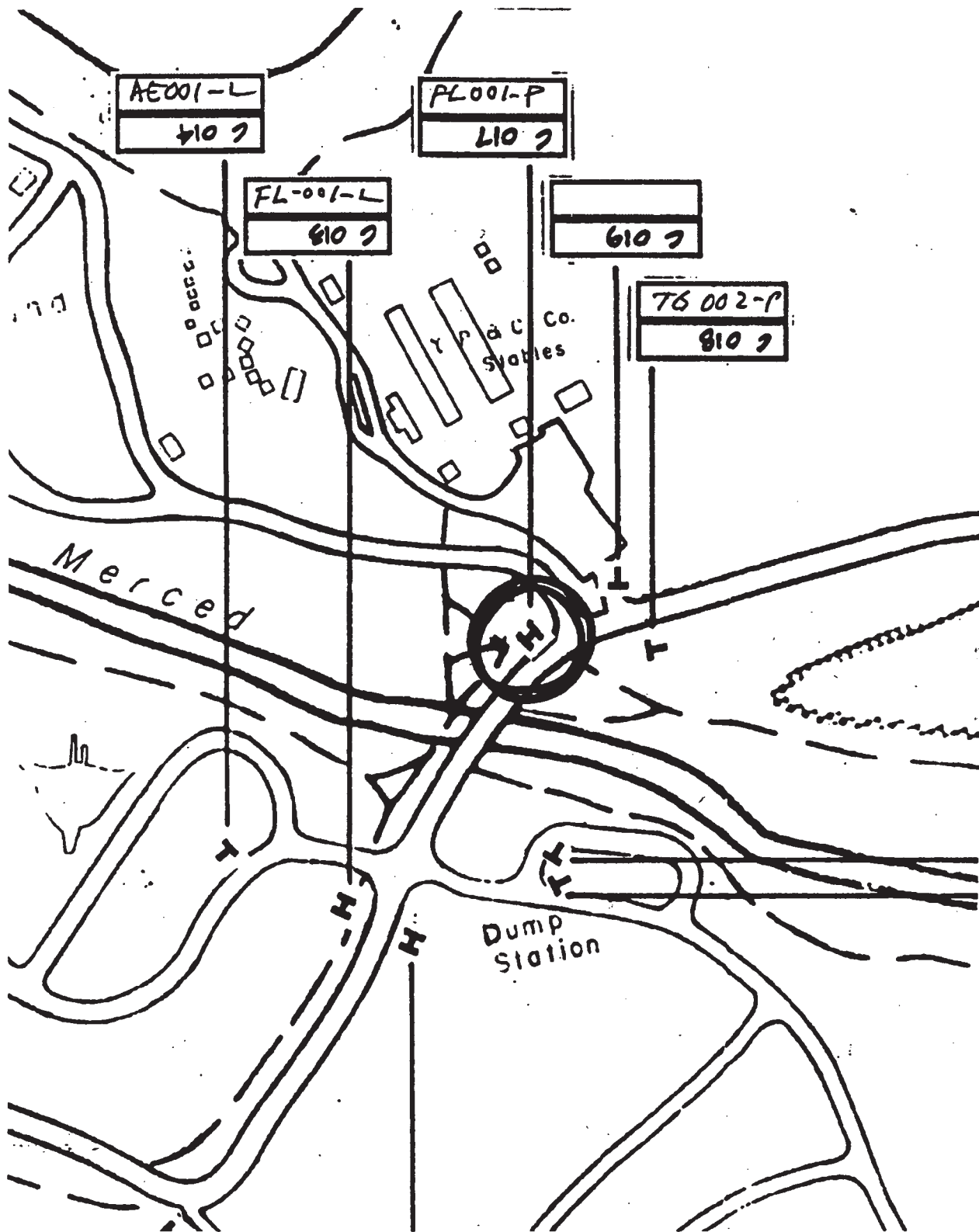


Photo of each sign: Example of photographic record of existing conditions with survey number attached to sign and field data.

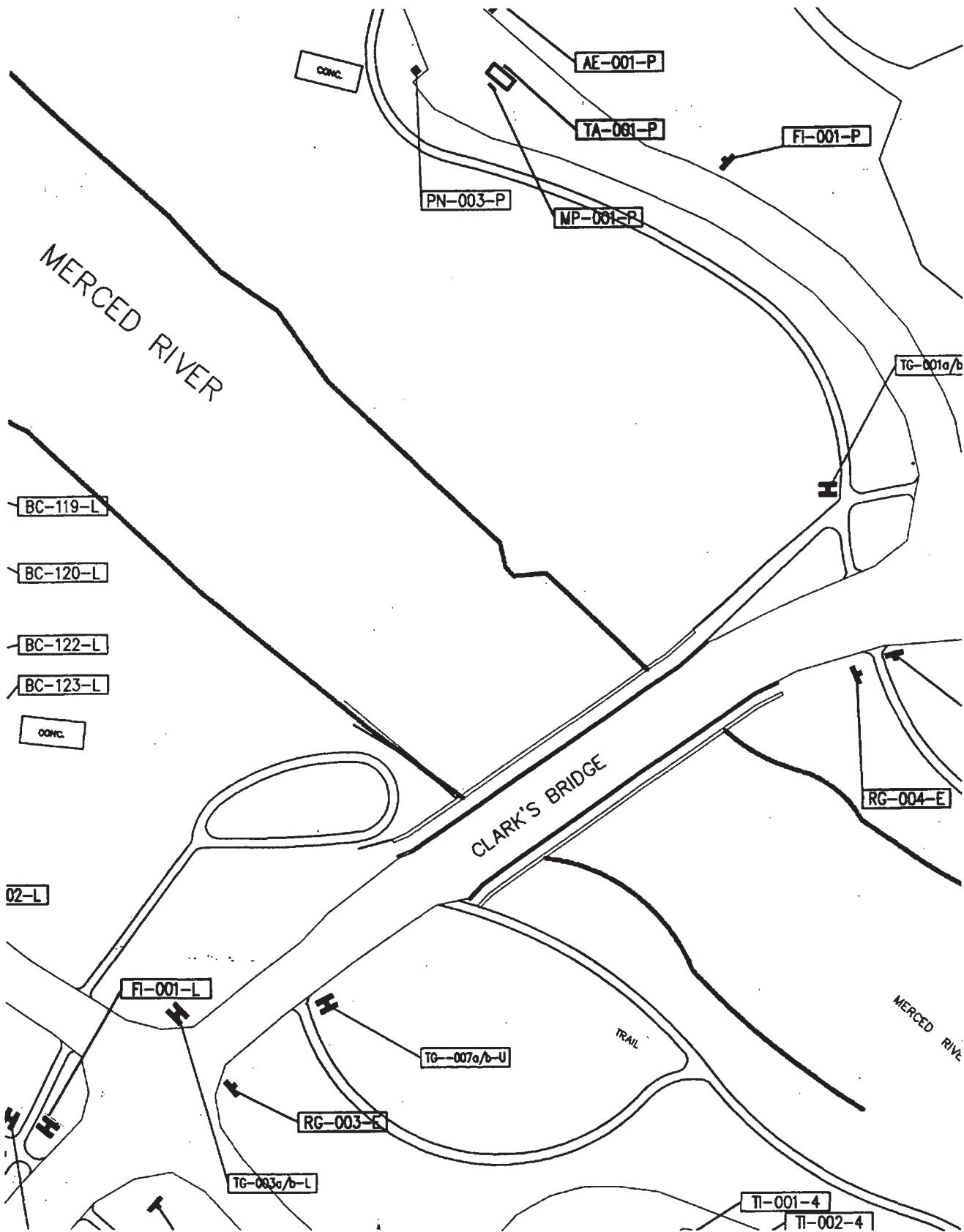
<p>CC 017</p>	<p><b>GENERAL</b>  date 10/13/92  sign type Directional  facility Campground  viewed by vehicle  mounting ground</p>	<p>distance 50'  posted speed 35  hagl 72"  setback 24"  roadway type 2L-2W</p>	<p><b>FOOTING</b>  size  qty  material  color  condition</p>
	<p><b>LEGEND</b>  size 4' / 2.25"  typeface C  material Vinyl  color White  condition</p>	<p><b>PANEL</b>  size 36" x 48"  qty 1  material ALU  color Brown  condition</p>	<p><b>POST</b>  size 2.5" x 4"  qty 2  material TS  color Brown  condition</p>
	<p><b>MESSAGE</b>  North Pines Campground  (arrow left)</p> <p>Group Camping Permit  (arrow left)</p>		<p><b>REMARKS</b></p>



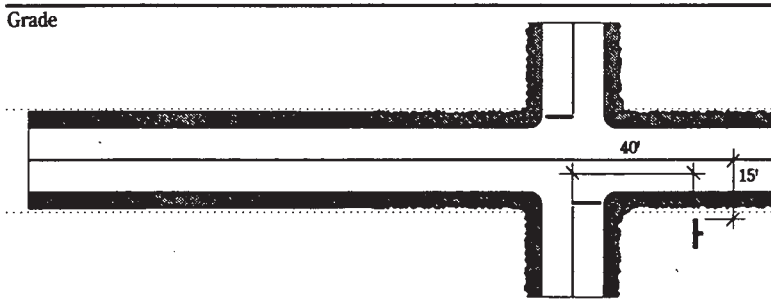
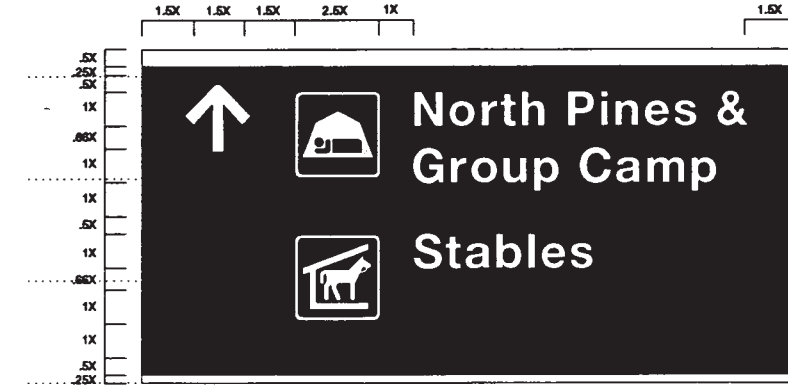
Field plotting of sign location: Example of plotted sign location on available site plan drawing or maps



Finished sign location plan: Example of actual sign location drawing plotted with final sign code. Note: Sign location moved to opposite side of bridge because bridge obstructs sightlines



Sign plan sheet: Example of sign plan displays scaled drawing of sign plan. Sign is produced from this same computer file with no additional layout required.



Notes:

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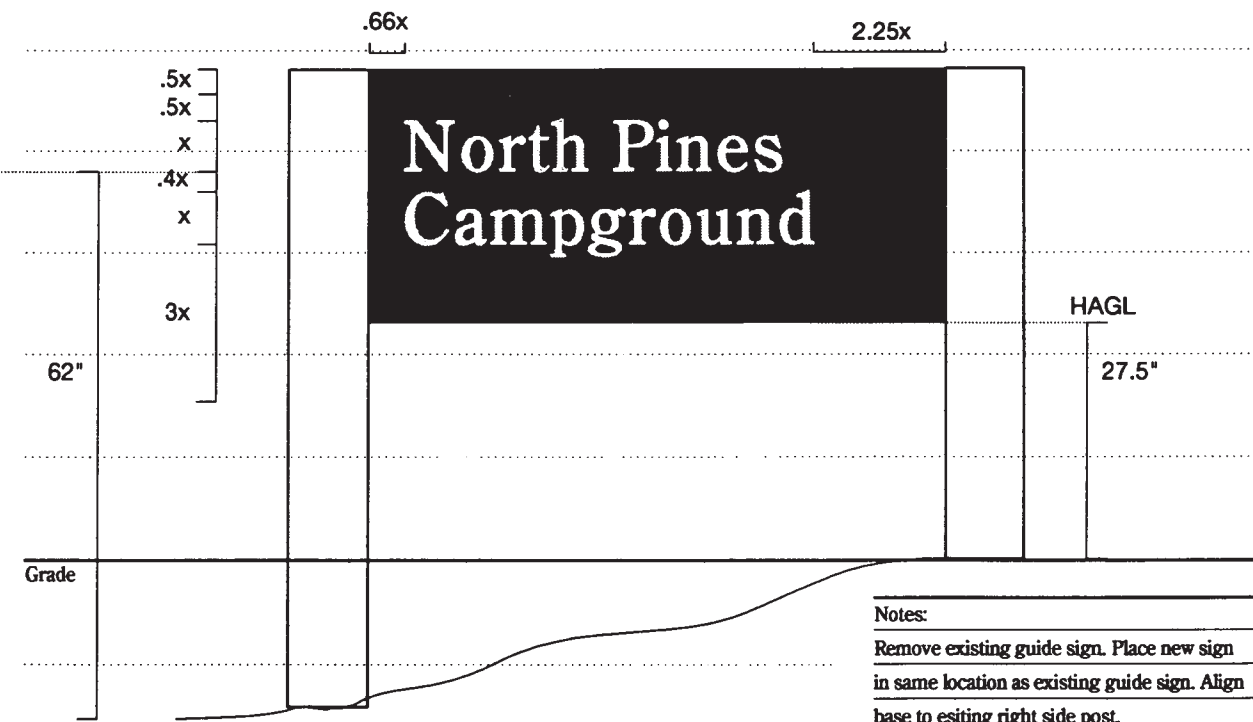
Grids	RG-1
Panel Size	98.2 cm x 193.5 cm
Legend/Symbol Size	10 cm / 25 cm
HAGL	72" (183 cm)

Panel	AHI
Post	TS-4x3
Grade	-12" Overall
Setback	15'

Code	RG
Identification #	RG-003-E
Replacement #	NA
Location	Clark's Bridge



Sign plan sheet: Example of sign plan displays scaled drawing of sign plan. Sign is produced from this same computer file with no additional layout required.



Notes:  
 Remove existing guide sign. Place new sign in same location as existing guide sign. Align base to existing right side post.

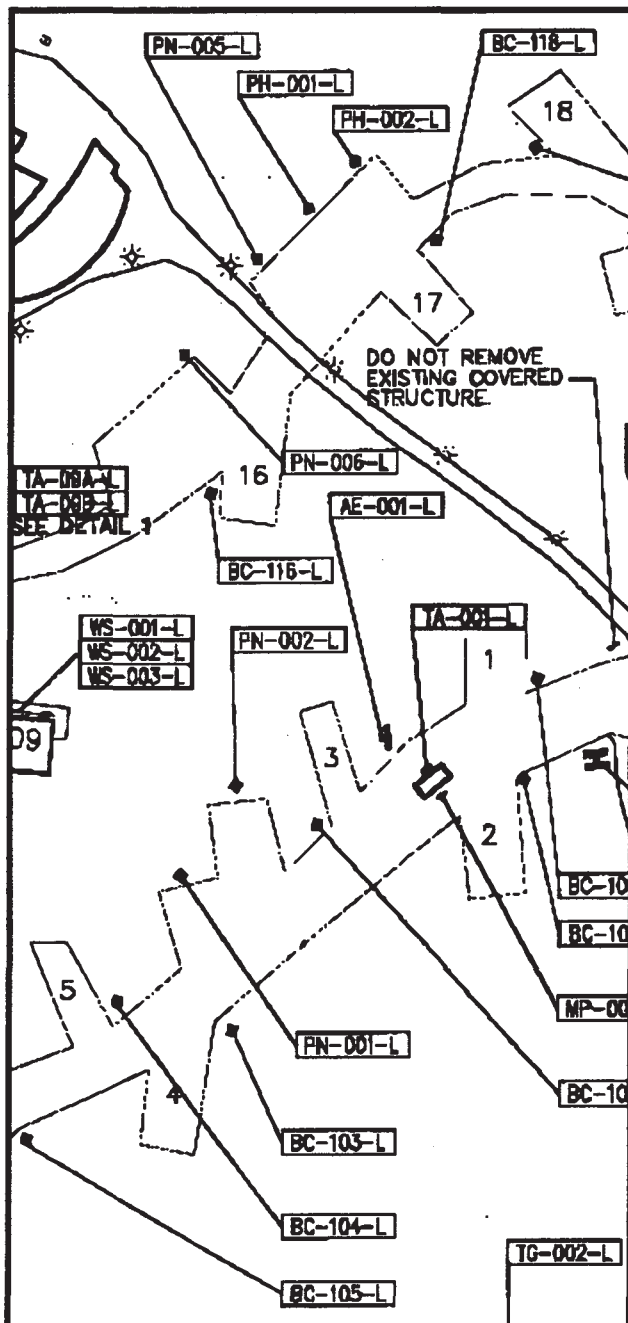
Grids	FI-V	Panel	RRW-DF	Code	FI
Panel Size	43.5" x 56"	Post	Base-Double Granite Slab	Identification #	FI-001-P
Legend/Symbol Size	15 cm	Grade	20"/60"	Replacement #	NA
HAGL	Standard	Setback	see above	Location	P



## Sign Specification Code

All codes refer to sign types, placement locations, graphics and materials for the Yosemite Sign Program. Assembly reference assumes associated hardware included. Lengths are referenced in specifications or calculated from panel size. Sign locations identified on sign plan drawings are identified with Sign Type Code + Unique number + Location code, i.e. (RG-000-L). Sign schedules include all appropriate information using codes referenced below.

Sign planning database includes all attributes of the sign as shown in code (see example on following page). Signs plotted on location drawing are identified with an abbreviated code that includes sign type identification numbers and location as shown below.



## Sign Type/Type Code

Park Identification	YI
Facility Identification	FI
Road Guide	RG
Traffic Regulatory	TR
Parking Control	P
Parking (PP.1)	PP
No Parking (PN.1)	PN
Bus	PB
Truck/Other special condition	PS
Handicapped	PH
Post/Bollard:	B
Campsite Identification	BC
Symbol Information/Identification (BS.1)	BS
Symbol Prohibition (BP.1)	BP
Trail Guide	BT
Safety: Danger (Red)	BD
Safety: Warn/Caution (Yellow)	BW
Safety: Notice (Green)	BN
Wall/Door	W
Symbol Information/Identification	WS
Symbol Prohibition	WP
Safety: Danger (Red)	WD
Safety: Warn/Caution (Yellow)	WN
Safety: Notice (Green)	WN
Small Panel:	T
Multi-panel assembly (HxV)	TA
Regulation/Rule/Info	TR
Information/Instruction	TI
General Interest	TS
Resource Education	TE
Trail Guide	TG
Trail Description	TO
Quadrangle section	TQ
Local area map	TM
Danger (Red)	TD
Warning/Caution (Yellow)	TW
Notice (Green)	TN
Area Entry Rules (Slat Sign)	AE
Small Guide	SG
Miscellaneous Posting	MP
Street Name	SN
Information Display Case	IDC

## Location

Ahwahnee	AW
Ahwahnee Meadow	AM
Arch Rock to Pahono Br (140)	A
Big Oak Flat Road to (120)	BO
Brigalveil Fall	BF
Cathedral Picnic Area	CA
Camp Curry	C
Camp Six	CS
East End of Valley Road (SSD/Curry/Pines)	E
El Capitan Meadow	EC
El Capitan	EP
El Capitan Crossover	Z
Four Mile Trail	FM
Glacier Pt Rd	G

Code-No.-Loc	Replace#	Grid	Panel Size HxW	No. Panels	Assembly	Legend Size HxW	HAGL	Mounting (cm)	Panel	Frame
RG-001-E	new	RG-8	77x130	1	77x130	10cm	180	D-SF-A/X	AHI-C	TS 2x2
FI-001-L	new	FIH-2	64" x 28"	2	28"x64"	15cm	70	D-DF-A/A	RRW	RW-66x28
AE-001-L	new	AE	30x90	4	120X90	66m	60	D-SF-A/X	AHI-C	AEF-90
TA-001-L	new	T/MP	varies	3	90x60	Std	90	W	PE	AEF-60
MP-001-L	new	MP-3	45x45	1	-	30 mm	115	W	AEG-C	-
PN-001-L	existing	PK	12.5x25	-	-	72/48-11cm	110	B	AHI-S	-
SG-001-L	existing	SG-1	30x90	2	60x90	7.5c	90	D-SF-A/X	AHI-C	AEF-90
TA-01A-L	new	SP	30x30	12	90x120	Std	90	D-SF-A/X	PE	AEF-120
WS-001-L	existing	PB-2	12.5x25	-	-	Std	140	W	PE	11.5x24
TG-001-L	new	SP-3	30x30	1	30x30	69pt	90	D-SF-A/B	PE-2	AEF-30
BC-102-L	3	PB-4	12.5x25	-	-	200pt.	80	B	AHI-S	-

Group Camp/Backpackers Camp	B	Small Guide	SG
Happy Isles	HI	Street Name Signs	SN
Hetch Hetchy	HH	Park Identification	
Hodgdon Meadow/Old Big Oak Flat Road	HM	Horizontal	YIH-2
Housekeeping	HK	Vertical	YIV-3
LeConte Memorial	LM	Facility Identification	
Lembert Dome	LD	Horizontal	FIH-1, FIH-2, FIH-3
Lower Pines Campground	L	Vertical	FIV-1, FIV-2, FIV-3, FIV-4
Lower River Campground	LR	Road Guide	RG1 to RG9 (1-4)
Mariposa Grove	MG	Traffic Regulatory	TR (with FHWA code)
May Lake	ML	Parking Control	PK
Mirror Lake/Tenaya Creek	MT		
North Pines Campground	P	<b>Legend Size (cm)</b>	4.4, 5, 6.6, 7.5, 10, 15, 20, 30
Intersection North Side Dr/Southside Dr	NS		
North Side Dr from SSD to Pohono Br	N	<b>HAGL: Dimension per spec and field conditions</b>	
Pahono Bridge	PB	(Mounting Height above grade level)	
Rivers	R		
Sentinel Bridge Crossover/Cooks Meadow	X	<b>Panel Size</b>	
Sentinel Creek/Yellow Pine	SY	Small Panel	30x30, 30x60, 45x45, 60x60
South Entrance to Bridalveil (41)	SO	Beveled Post/Bollard/Identification	12.5 x 25
South Side Dr from Pahono to NSD	S	Straight Post/Bollard	12 x 25
Sunnyside	SS	Street Name	15x60, 15x75, 15x90
Swinging Bridge	SB	Area Entry/Small Guide	20x60, 30x90
Tamarack Flat	TF	Identification	Varies: Insert size
Tioga	T	Road Guide	Varies: Insert size
Tuolumne Lodge	TL		
Tuolumne Campground	TC	<b>Mounting Assembly</b>	Combines post and face assembly
Upper Pines Campground	U	in code (D-DF-A/A)	
Upper River Campground	UR	Double Post	D
Wawona	WA	Single Post	S
White Wolf	WW	Monolith	M
Yosemite Creek	YC	Flag	F
Yosemite Fall	YF	Wall	W
Yosemite Lodge	YL	Post/Bollard	B
Yosemite Village	YV	Double Face	DF
Yellow Pine	PB	Single Face	SF
		Same front and back	A/A
		Different front and back	A/B
		No sign on back face	A/X
<b>Grid Format</b>			
Small Panel	SP		
Large Type	SP-1		
Text Type	SP-2		
Trail Guide	SP-3	<b>Panel Material</b>	
Post/Bollard	PB	Porcelain Enamel	PE
Text	PB-1	2 color	PE2
Symbol	PB-2	3 color	PE3
Trail Guide	PB-3	4 color	PE4
Campsite Identification	PB-4	5 color	PE5
Miscellaneous Posting	MP1 (2 or 3)	Laminate with computer graphic legned	GL
Area Entry	AE	Information Display Case	IDC
		Redwood routed	RRW

Post or Rail	Base	Footing	Grade	Setback	Color (ft)	Status Bk/Lg	Legend
TS-6x3	-	DE-C	Level	10	BR/RW	P05/30/96	(L): Pines Campground, RS-038
FRW-9x8	-	DE-C	7/84"	23.5'	GB/RW	P05/30/96	Lower Pines/ Campground
TS3-S4	-	DE-E	Level	5	GL/BK-RD	P05/30/96	RS-038, Rsv Req/RS-012, Food Stg. Req/RS-038, Q Hrs. 10-6/PS-017, No Pets
-	-	-	-	-	Varies	P05/30/96	Panels E.1b/M.1b/60x60 special (Campsite Reservation List)
-	-	-	-	-	GL/BK	P05/30/96	Checking-out instructions
TS5-S225	-	DE-E	Level	3 avg	W/RD-BK	P07-28-96	No Parking/Utility Service Vehicles Only (PS-034)
TS3-2	-	DE-E	Level	5-8 avg.	BR/RW	P05/30/96	(S) Campsites 200-890 / (R), Campsites 112-123
TS5-3	-	DE-E	Level	na	Varies	P05/30/96	Panels: R.1b/R.2/R.3/S.2/S.4/I.1/I.5/II.6/RE.3/M.1b
-	-	-	-	-	TC/BG	P05/30/96	Mens Restroom, RS-028
TS2-1	-	DE-E	Level	2	TC/BG	P05/30/96	TG-001-L (See legend schedule and digital art supplied)
TS5-S	-	DE-E	Level	3-5 avg.	TC/BG	P05/30/96	102 (with symbol for Disabled RS-028)

Aluminum w/ Engineering Grade	AEG	<b>Setback</b>	
Aluminum w/ High Intensity	AHI	0'-0"	
Aluminum w/ Diamond Grade	ADG		
(Add graphic process to sheeting code (AEG-C))		<b>Color (Panel/Legend)</b>	
Computer cut graphics	-C	Panel Color	
Screen Printed graphics	-S	Terra Cotta (PMS 1815)	TC
		Beige (PMS 453)	BG
<b>Post</b>		Olive (PMS 5753)	OG
Panel System/Tubular Steel Post		Blue (PMS 309)	BL
2 x 2	TS2-1, TS2-2, TS2-3, TS2-4	Red (PMS 485)	RD
2 x 3	TS3-1, TS3-2, TS3-3, TS3-4	Yellow (PMS 124)	YE
2 x 5	TS5-2, TS5-3, TS5-4	Gold (PMS 130)	GL
2 x 2 (angled)	TS2-A	Weathering Steel Brown	WB
Large Trail Guide Sign		Brown (3869 FHWA)	BR
2 x 3	TS3-1B, TS3-2B	White (580-10)	WH
Area Entry/Small Guide/Tubular Steel Post		Gold (580-64)	GL
2 x 2	TS2-S1, TS2-S2, TS2-S3, TS2-S4	Red (580-72)	RR
2 x 3	TS3-1, TS3-2, TS3-3/4	Blue (580-75)	BL
Post/Bollard		Black (580-85)	BK
3 x 5-Bevel	TS5 B	Green (580-77)	GR
3 x 5-Straight	TS5 S	Deep Grey Brown (ID)	GB
Identification Sign (Redwood) (length based on panel size)		<b>Legend Color</b>	
4.5 x 6.5 Solid Redwood (7.5)	SRW-4.5 x 6.5	Beige (PMS 453)	BG
6 x 6.5 Solid Redwood (10)	SRW-6 x 6.5	Terra Cotta (PMS 1815)	TC
9 x 6.5 Fab. Redwood & TS stem (15)	FRW-9 x 6.5	Umber (PMS 154)	UM
12 x 6.5 Fab. Redwood & TS stem (20)	FRW-12 x 6.5	Olive (PMS 5753)	OG
Road Guide Sign/Tubular Steel (length based on panel size)		Blue (PMS 309)	BL
3 x 3	TS-3 x 3+L	Black (PMS BK-7c)	BK
4 x 3	TS-4 x 3+L	Red (PMS 485)	RD
5 x 3	TS-6 x 3+L	White (580-10)	WH
6 x 4	TS-6 x 4+L	Reflective White	RW
<b>Frame/Rails</b> (length based on post / panel size)		Red (580-72 traffic symbols & parking)	RD
Tubular Steel (X=quantity)	TS-2x2+X	Blue (580-75 parking)	BL
Const. Heart Redwood (2x4/7.5-10, 4x4/15-20)	RW+HxW	Black (580-85)	BK
Extrud/Alum, bar+core	AEF-30, (45, 60, 90, 120)	Gold (580-64 recycle legend)	GL
Welded Tubular Steel (3x6)	WS+HxW	Green (580-77 parking/recycle)	GR
		ID White	IW
<b>Base</b>		<b>Status/Date</b>	
Stone (Sierra White Granite)	SWG	Planned	P-00/00
<b>Footing</b>		Ordered	O-00/00
Direct Embedment: Earth	DE-E	Installed	I-00/00
Direct Embedment: Concrete	DE-C		
Poured in place concrete	PP-C	<b>Legend</b>	(specify content)
<b>Grade</b>			
0'-0"/0'-0"			



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### **3 Schematic Concepts for Site Improvements**

- Improvements for Wayfinding
- Recommendations for Pines Campground Area
- Granite Curbs
- Concrete Barriers
- Rock Edging
- Post and Cable Fencing
- Rail Fencing
- Preliminary Recommendations to the Valley Improvement Plan

## Schematic Concept for Site Improvements for Wayfinding

The effectiveness of a sign will be contingent on the clarity of the site as well as the legibility and visual quality of the sign itself. The site becomes an orienting frame around the sign that gives meaning and justification to the placement. Site quality becomes a stage for the placement of a sign.

As part of the Pines Campground sign plan, a minimum level of site improvement has been recommended to provide a basis for the sign placement. The majority of these recommendations incorporate varying levels of site restoration following principals developed in other areas of the valley. This includes better delineation of trails and paths, addition of trails and paths where needed to mitigate indiscriminate trampling, separation of vehicular and pedestrian traffic, and placement of barriers to prevent access to areas being restored. All recommendations are integral to good site management and should not be effected by possible changes from the Valley Improvement Plan.

These recommendations follow a comprehensive analysis of site, and discussions with natural resources restoration staff as well as the respective management operations in the park including; trails, roads, sign maintenance, and campground management.

### Recommendations

The existing character of the roads, pathways, bridges and site features within the Pines Campgrounds is based on rustic design principles established in the early part of this century. As campgrounds are enhanced and reconfigured, care must be taken to reflect the same level of detail found in other sections of the Park. Naturally occurring materials should be used wherever possible and the scale of detailed site features should complement and not overpower the natural environment.

Overuse continues to plaque all the campgrounds and has led to site degradation, soil compaction, and confusing circulation patterns. The following pages include specific recommendations for more clearly defining pedestrian and vehicular circulation by incorporating edging, curbs, barriers, and fences to direct circulation and allow degraded areas to be restored. In addition to more articulated edge conditions, the following general improvements are recommended:

**Paths;** Provide for pedestrian routes to reduce pedestrian and bike travel on narrow campground spine roads. Augment or improve trails in campgrounds to mitigate volunteer trails to restrooms and shuttle stops.

**Structures;** Upgrade privacy screens on restrooms to orient users to front of comfort stations. Paint structures

including entrance kiosks and restrooms in darker colors (deep green or deep brown) that will hide less redeeming architectural style and reduce overall presence of structures in the landscape.

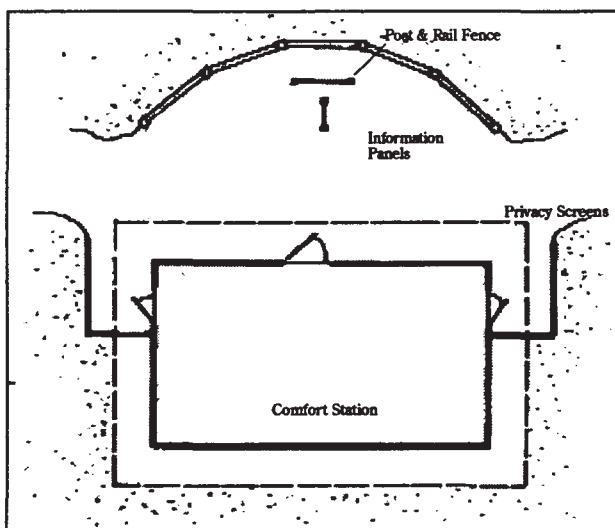
**Vehicular Entrance;** Improve the turning radius of the entry to Lower Pines Campground to reduce lane crossover and site degradation.

**Communications;** Place telephones throughout the campgrounds with information kiosks at restrooms or at the heads of campground loops to provide users a link to services identified in the proposed signs. Use a style of telephone booth that is more visually compatible with the environment. This includes building phones into information kiosks or using freestanding structures with dark bronze frames similar to those used in Hodgdon Meadow.

**Visual Clutter;** Reorganize and screen garbage dumpsters in the campgrounds to improve the visual quality of the entry experience.

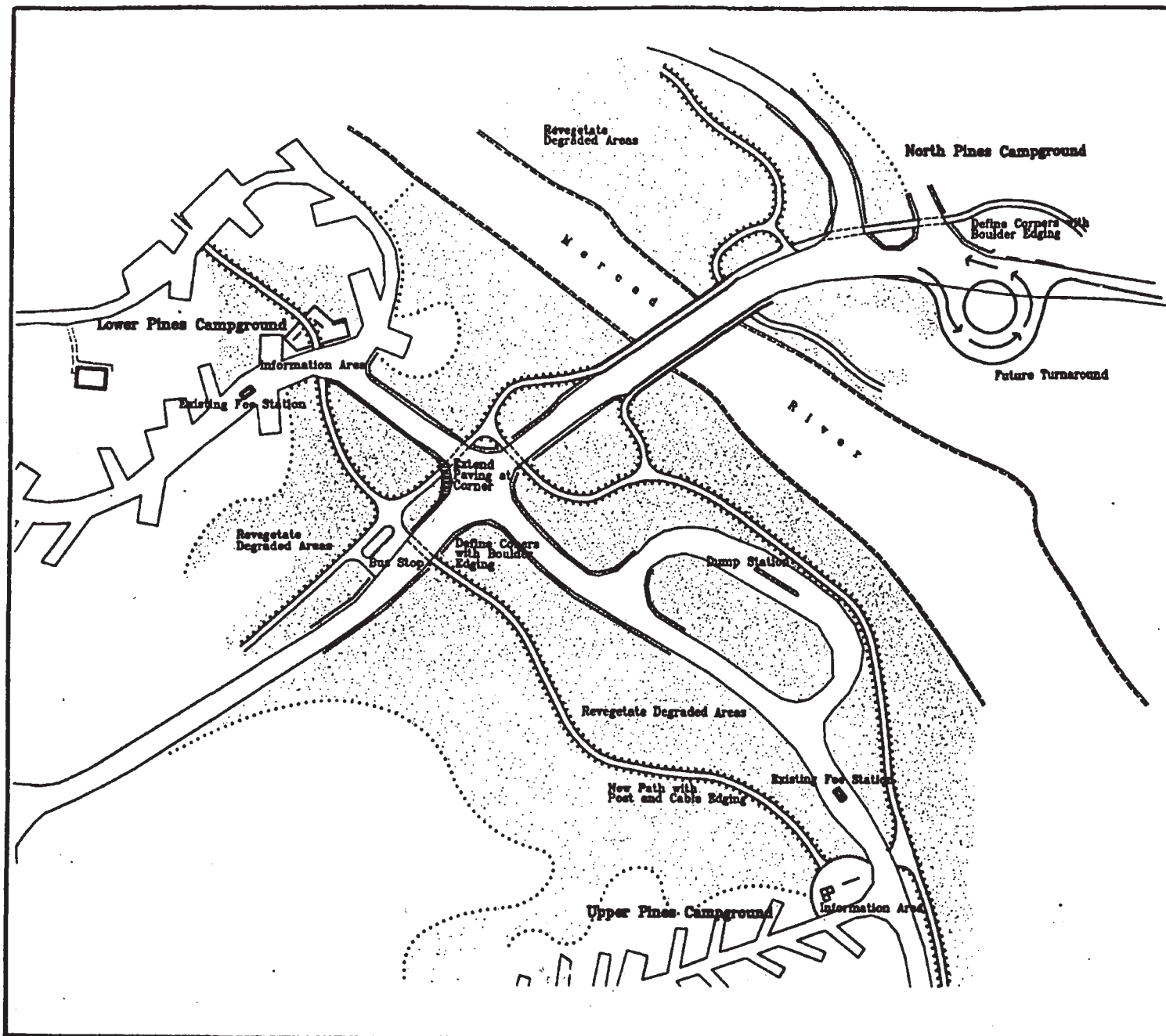
**Shuttle Bus Stops;** Enhance the physical presence of the shuttle bus stops adjacent to the Pines Campgrounds. This includes design of a sheltered structure and site improvements to better define the area.

**Information Kiosks;** Each campground has the need of highly visible locations where information relating to campground services, regulations and warnings about drinking water and bear hazards can be posted. In Pines the Campgrounds, the comfort station provides a good location for a centralized information dissemination point. The area surrounding each information station should be clearly defined and some type of edging provided for informal seating. Each station should additionally be edged with large rocks, granite curbing or fencing to define circulation and curtail degradation to the natural environment of these areas.





# Prototypical Site Improvements



## Concrete Barriers

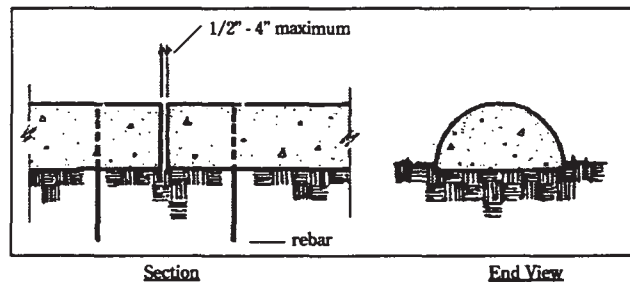
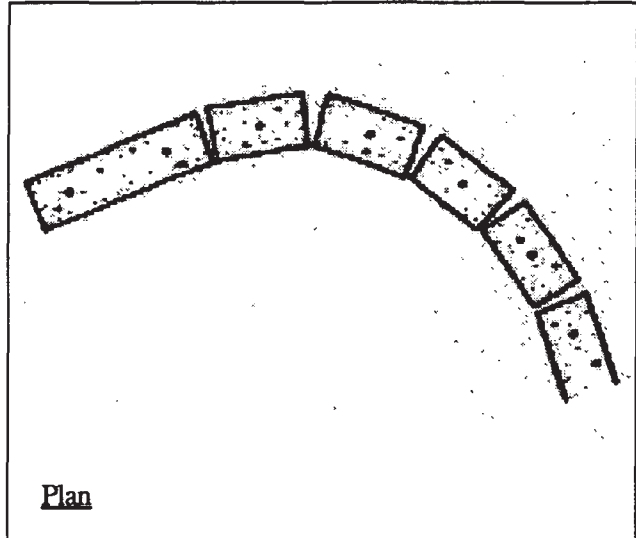
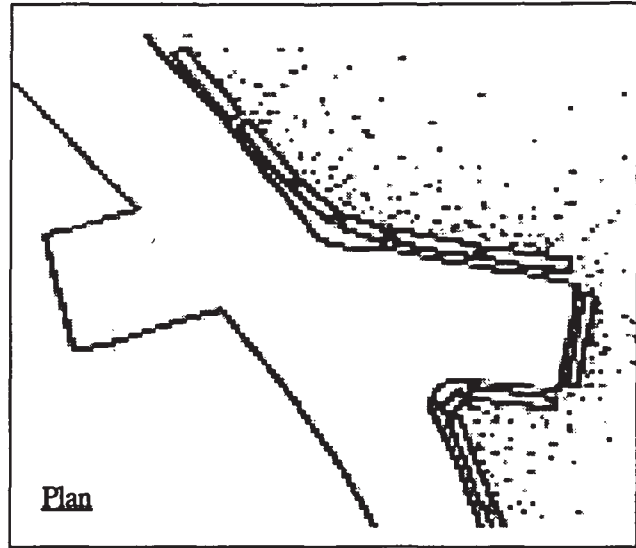
Half-round concrete barrier "logs" have been used as an edging material at many of the campsite entrances to define pedestrian and vehicular circulation. Over the years, logs have deteriorated and shifted in alignment creating an un-tended appearance.

The visual integrity of these entrance areas is important to maintain. Therefore, barriers should be either replaced or realigned to provide a more consistent edge treatment. Although the use of concrete barriers is not a recommended edging system for new construction, existing installations should be maintained and upgraded as part of standard maintenance. In addition, space between sections should be reduced, half logs or shorter sections should be used to form curves and corners, and sections should be eliminated where they are not needed. Existing logs that are in good condition could be reused, but broken or eroded logs should be discarded.



### Specifications

- Butt the ends of the concrete logs to form a continuous edge. Spacing between log sections should not exceed 4".
- Maintain an even height of the edging.
- Imbed the log section in 2" of soil to anchor the edging and obscure bottom surfaces.
- Use half-log or shorter sections to form curves or tight corners.
- Pin each log into the grade with rebar.



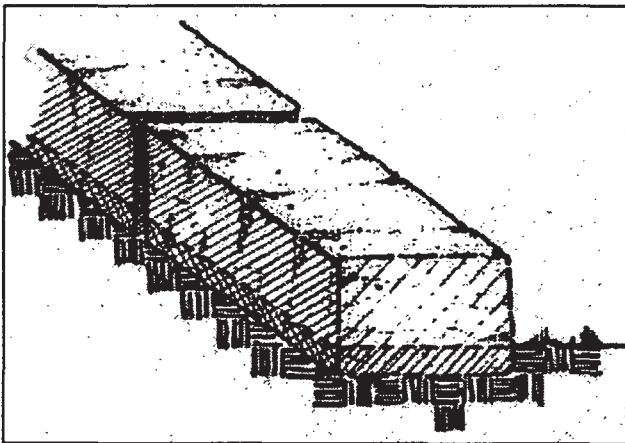


## Granite Curbs

There is a great tradition of stone use in Yosemite National Park. In keeping with the historic tradition, granite should continue to be used wherever possible for edging and curb work. Cut granite is the most highly refined of the recommended edging materials and its placement in the landscape should be reflective of the character of the stone. Suitable locations for cut granite edging include highly domesticated areas or locations where existing granite edging is present. Specifications for granite edging should follow existing practices.

### Specifications

- Use sierra white granite indigenous to Yosemite Valley.
- Place cut granite curb sections tightly against each other.
- Imbed stone 6 - 8" in soil with 6 - 8" exposed above grade.



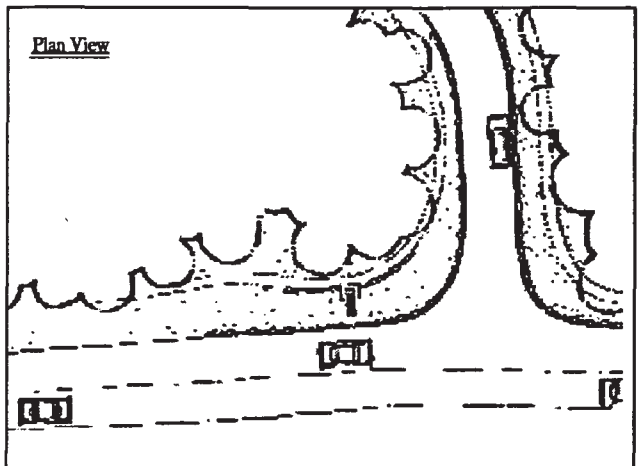
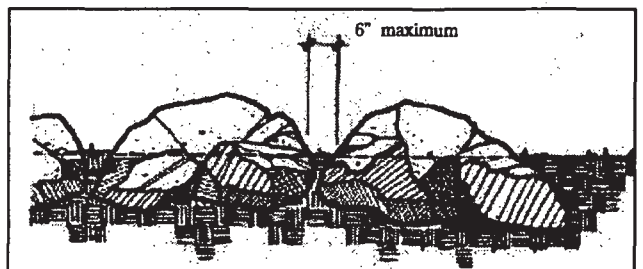
## Rock Edging

Native rocks are currently used to edge roads at various locations throughout the Pines Campgrounds. As part of an area upgrade, the rocks should be properly set to provide a tailored edge. The main entrance drives to the campgrounds could be better defined if the rocks were reset more compactly and partially buried in the ground. Care should be taken to assure a uniform elevation of the tops and that the rocks are placed no more than 6" apart at grade level. This type of edging would also be appropriate to define edges at restrooms, information areas and other high use locations.



### Specifications

- Use stones commonly found in the area. Rocks should be a minimum of 15" and a maximum of 36" in diameter.
- Bury 30 - 40% of the total rock dimension to improve stability and "fit" into the natural environment.
- Assure a uniform top elevation of the edging.
- Abutt rocks with no more than a 6" separation at grade level.



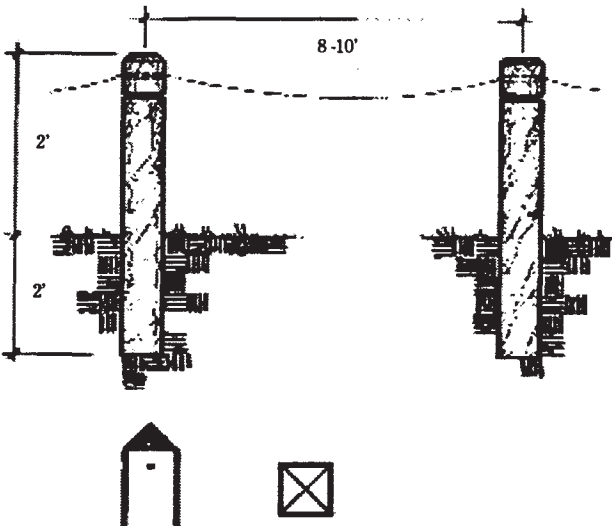
## Post and Cable Fencing

Heavy, uncontrolled use at the Pines campgrounds has led to degradation of the native vegetation and compaction of the soil. In order for plant material to become reestablished, pedestrian use must be confined to designated pathways. The post and cable barrier system has been successfully used in other Valley locations to protect restored vegetation areas. It is recommended that the post and cable barrier system be used along both sides of the new pathways proposed for the Pines Campgrounds.



### Specifications

- Posts should be constructed of 4" x 4" x 4' cedar or redwood in natural color.
- Bury post directly a minimum of 24 inches into the soil. Exposed height should be approximately 24 inches above grade.
- Place posts approximately 8" - 10" on center.
- Thread 3/8" cable through posts. Cable should be light in color for enhanced visibility.
- Match details of existing post and cable fencing.



Alternate Post Cap Treatment

## Rail Fencing

An alternative method of controlling pedestrian movement in high use areas is to construct rail fencing. Several types of rail fencing currently occur in the Park including the Hetch-Hetchy style fence with a single rail between two posts; and the zig zag style rail fence which is the most expensive and labor intensive style to construct. New wood fencing should be consistent with these established styles. Although rail fencing is more expensive to install than post and cable, it requires less maintenance and is significantly longer lasting. Because of the higher cost of this style of fencing, its use in the Pines campgrounds should be limited to heavily visited areas with high visibility such as parking areas and along paths at entry locations.



Zig Zag Style Fence

### Specifications

- Use a rough textured wood in a natural color to construct split rail fencing.
- Match details of existing fencing.
- Use dowels consistent with their rustic character to hold rails in place.



Hetch-Hetchy Style Fence

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## Preliminary Recommendations to the Valley Improvement Plan

Long term, we recommend that the Valley Improvement Plan study the following recommendations for inclusion into an overall improvement of the Pines campgrounds. These concepts include:

- Addition of a bus turn-around at an area adjacent to the stables entrance to eliminate the need to turn at the sanitary dump station and to accommodate the numerous vehicles that enter the area by mistake and now have no safe method of turn around.
- Realign the entry to the Upper Pines Campground providing needed queuing area for the sanitary dump station and for campground users during peak seasons. This will eliminate congestion confusion and safety problems that now exist at the current 4-way upper and lower pines entrance area.
- Elimination of some campsites to reduce density at the front of the campgrounds for both conservation and visual improvement.
- Review valley circulation to reduce loading and confusion at "intersection from hell" with possible use of Camp 6 via Sentinel Bridge for incoming traffic to Visitor Center and Day Use.
- Relocate dump station away from campground to reduce non-Pines traffic with large vehicles in the area, provide for longer queuing of waiting vehicles, and to increase capacity of the station (double wide).
- Reduce density in campgrounds to allow restoration of degraded areas, reduce impact on natural resources, and improve overall quality of the area.
- Eliminate or relocate campsites to reduce density at the entrances to campgrounds. This includes sites in first loop of Lower Pines between fee station and amphitheater, sites along the river on the road into North Pines, and in Upper Pines, the sites adjacent to information kiosk and sites at selected locations at the top of loops to allow planned access to the trails to Happy Isles and shuttle stops.

The following drawings illustrate the recommendations developed in the Design Workshop (October 16-19, 1995) and include:

- Prototypical Site Improvements for the entrances to three Pines Campgrounds showing areas for grounds restoration, pedestrian routes, and edge improvements for roadways. Area take-offs for proposed improvements include the following:

Rock Edging	1940 LF
Post and Cable Fencing	-5733 LF
New 12' Wide Paths	2293 LF
Revegetated Areas	6 Acres

- Existing Conditions for entrances to the Pines Campgrounds.

- Long Range Site Improvements that include enhanced circulation for the sanitary dump station, relocation of entrance kiosks, improved trails and bike routes, elimination of front campsites, and a bus turn-around beyond the stables.



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## **4 Guidelines for Sign Use and Placement by Sign Type**

- Introduction; Sign Use and Placement by Sign Type
- Place Identification
- Road Guide
- Traffic Regulatory and Warning
- Parking Control
- Small Post and Panel
- Post/Bollard/Wall Identification
- Area Entry
- Miscellaneous Posting
- Pedestrian / Bicycle Guide
- Small Vehicular Guide



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## Guidelines for Sign Use and Placement by sign Type

This guideline for sign use by sign type provides general instruction for sign planners and installers on the application and placement of signs in the Yosemite Sign Program. Sign types included are listed below:

- Place identification Signs
- Road Guide Signs
- Traffic Regulatory and Warning Signs
- Parking Control Signs
- Small Post and Panel Signs
- Post/Bollard/Wall ID Signs
- Area Entry Signs
- Miscellaneous Postings
- Pedestrian/Bicycle Guide Signs
- Small Guide Signs

The systems approach included in this program affords park staff the ability to locate signs of the same type in a consistent way. With consistency, a sign program will be easier to plan and maintain installations. A uniform looking installation will reduce apparent sign clutter and make the system easier for visitors to use because of the similarity of placement from one sign to the next.

Because of inherent differences in site conditions and viewers approach, there will be some variation from one facility to another. It is however important to be as consistent as possible. This includes placing signs at a common mounting height, scaling sign sizes to the viewing distance, presenting messages in a uniform way, and locating signs at the expected location for ease of view by the approaching visitor.

To enhance the quality of the park, care should be taken to insure that the sign placement is also visually appropriate to the specific site. Each placement must be carefully identified and staked by a person well familiar with the Yosemite Sign Program and the way each site is used by visitors to the park.

Basic guidelines that are common to most sign placements are:

- Place signs on the approaching viewers right side.
- Place signs perpendicular to the viewers approach.
- Scale signs appropriate to site and/or sight lines.
- Size sign panels based on viewing distance and leg-end size.
- Place wayfinding guidance in advance of destination. For vehicular approach, distance will be based on speed of approach, complexity of intersection and quality of sight lines.
- Place signs of the same type at a common height above grade.

### General guidance on sign placement, installation and old sign removal.

For complete specifications on sign mounting, installation, and footings refer to Material Specifications and

Fabrication Drawings for the Yosemite Sign Standards.

- All signs to be mounted at locations as marked with a stake by the NPS with respective identification number. Stakes for double post signs adjacent to roads or trails identify the inboard post. Information Stations are identified using two stakes for the two posts of the primary installation. Orientation of the assembly to follow location drawing.
- All small panel signs to be pre-assembled prior to installation.
- Small panel double post signs and campsite identification bollards are directly embedded in 10" x 10" x 36" holes. Backfill with existing material in 6" lifts to 95% compaction.
- Post/bollards for Campsite Identification and Parking Control signs are directly embedded in 10" x 10" x 36" holes. Backfill with existing material in 6" lifts to 95% compaction.
- Road guide signs to be installed following mounting specifications in fabrication and material specifications document.
- Identification signs to be installed following mounting specifications in fabrication and material specifications document.

### Demolition and Sign Removal

- All existing signs being replaced are to be removed unless otherwise noted and disposed of properly and/or recycled as appropriate. Area around removed sign to be back filled and restored to original grade.
- Holes in masonry surfaces to be filled with tinted grout to match existing surface.
- Holes in wood surfaces to be filled with exterior grade wood filler and patch painted to color match existing structure surface.

### General Placement Guidelines Reduce Impact of Sign Installation to Existing Sites

- Objects of archeological significance may affect sign placement. Installer to consult with designated Project Manager or Contract Officer prior to installing signs. If archeological resources are discovered in the process of digging footings for signs, stop the installation and notify the Sign Program Coordinator.
- Trees and tree root systems may affect sign placement. When placing signs that may impact on tree root systems, follow guidelines on tree and plant protection included in the General Requirements /Installation section of the Fabrication and Material specifications document. If there is a potential for tree root damage when placing a sign, adjust the sign placement location accordingly. If a sign placement location must be changed, verify sight-lines of adjusted locations to make affirm that sign is still visible from the designated approach.
- Subsurface obstructions may limit the depth of a standard footing. Guidance is provided in the specifications

- 
- document for adjusting footing configuration.
- Surface obstructions including rock tables and tree stumps may affect sign placement. If conflict exists, adjust the sign placement location accordingly. If a sign placement location must be changed, verify sight-lines of adjusted locations to make affirm that sign is still visible from the designated approach.
  - Impact of sign location on adjacent land use. If proposed sign location will adversely affect adjacent land use, such as placement of an information station too close to a campsite, or locating sign where it can become a safety hazard, identify an alternate placement location or change the land use plan to mitigate conflict.

Specific guidance is provided by sign type in each respective section that follows based on the function and general site geometry.

### Place Identification Signs

**Application:** For campground and scenic vista, trailhead and visitor center, the place identification sign is used as a welcome portal to celebrate each of the 80 primary facilities in the park. When installed at an appropriate scale and location with related site improvements, the sign will create a sense of arrival for visitors.

**Legend:** Include the full name of the facility and the distinctive NPS black band. Do not use acronyms, abbreviations, or decorative graphics on the panel.

**Mounting format:** The vertical panel is used where site conditions make this less obtrusive monolithic more appropriate or where site conditions will not allow embedded posts. Monoliths are placed on a simple granite base. The double-post, horizontal format is used for signs placed at eye level with site conditions that allow embedding of posts.

**Size:** Although the design is proportional and can be scaled on a site-specific basis, four sizes are specified: 7.5 cm, 10 cm, 15 cm, and 20 cm. The mounting heights have been specified for each size but may be adjusted based on site conditions.

Identification signs are sized relative to viewing distance and sight lines. Because most locations have advance guide signs to direct viewers into the location, the size of the identification is determined by what scale feels appropriate to that particular location. For most locations, a 7.5 cm, 10 cm, or 15 cm legend sign will be appropriate. Larger locations may require a sign with larger legend and overall presence. To help identify the correct size and locations, use cardboard site mock-ups.

**Typeface and grid format:** The legend is displayed in uppercase and lowercase (initial capital letters only) NPS Century Old Style Medium, aligned flush left.

**Panel format:** The panel format allows two options with a 1 to 4 line proportional grid for monoliths and a 1 to 3 line proportional grid for double-post signs allowing both horizontal orientation and vertical orientation depending on length of the legend and arrangement of the type. The overall panel widths and lengths are based on a standard proportion for all signs of this type. The format includes a dark horizontal overbar similar to the black overbar which has become the signature of Harpers Ferry NPS publications and wayside exhibits.

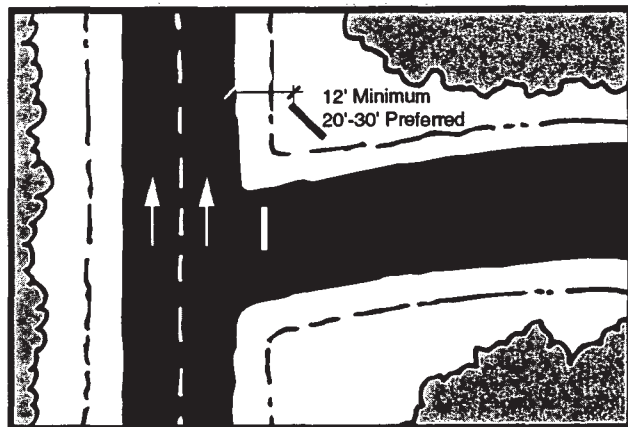
The assistance of a graphic designer may be required to select the most pleasing configuration of the name on the panel. One example: Lower Pines Campground, with the

words Lower Pines being equal in length to the word Campground, is most pleasing if displayed in a two-line format instead of three lines. In general, a long first line with shorter second line is preferable to the opposite configuration.

**Placement:** For most sites the sign is placed perpendicular to the approaching viewers' sight lines with a double-faced assembly, such as those for the entrances to the Pine Campgrounds. Although most of the traffic approaches from one direction, the sign is double-faced for pedestrians and others passing from the opposite direction. At some locations, such as Sentinel Creek Picnic Area, the sign is placed on the actual entry road and need not have a legend on the back face.

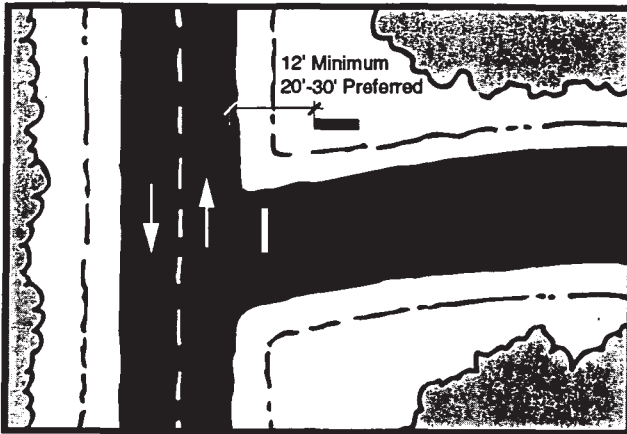
The sign becomes an architectural element and should be placed integral to the site with an adequate setback to create a framed setting for the sign. There are no set rules for exact location of identification signs. Appropriate setback will vary depending on site conditions. Formal entrances leading to heavily traveled destinations should incorporate the sign as a design element with minimal site domestication.

Examples of various site configurations follow:

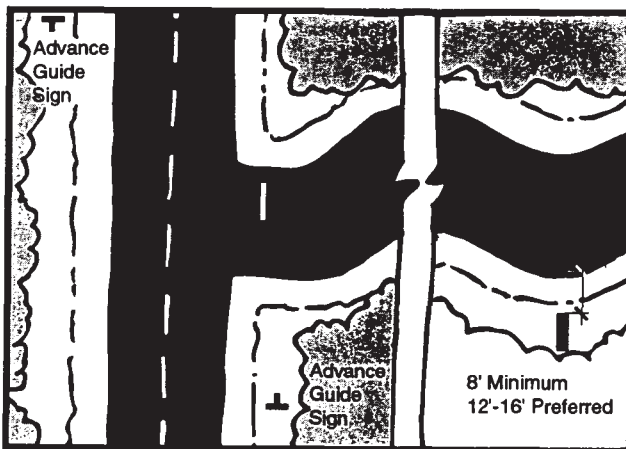


- *Single face identification sign placed in advance of entrance. For clear view by entering visitors. Augment identification sign with appropriate advance road guide signs.*

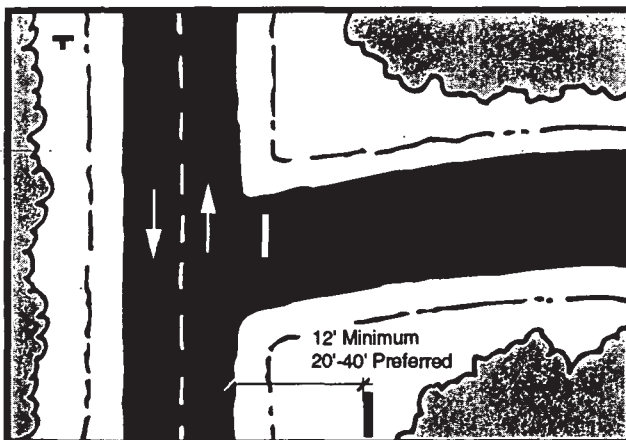




- Double face identification sign placed near corner for clear view from primary direction of approach.



- Single face identification sign placed along facility access road if destination is not close to main road. Advance road guide signs are used to identify destination from main highway.



- To frame entry or large or important locations, a single face identification sign placed perpendicular to approach. Use where sight lines are not critical or at locations augmented with advance road guide signs.

## Road Guide Signs

**Application:** Road guide signs are used on primary roads to direct the first-time or infrequent visitor to facilities and areas in Yosemite. For vehicular areas within campgrounds, picnic areas, and large parking facilities, use small guide signs specified in the Small Panel Sign System.

Guide signs are placed at or in advance of a destination point to direct visitors to a location. The legend should assume a lack of prior knowledge. This lack of familiarity and the park's narrow winding roads require that sign size, placement, and legend content be carefully planned. Drivers must receive adequate notice in advance of destinations and be able to clearly read and respond to the information on signs.

The following guidance on the planning and placement of road guide signs should not preclude seeking the advice of a traffic engineer who is familiar with the site conditions and the desired function of a specific sign. These road guide sign placement guidelines are provided for information only, and do not preclude the need for a site analysis, legend formulation, and placement location plan by a qualified traffic engineer.

**Legend formulation:** Guide sign legends are to include only enough information to direct motorists to the next decision point; they should direct them to a general area and then to a specific location.

Ideally a sign should include only one destination. If there are more destinations for a particular intersection point than can be placed on signs, list only those destinations that are most important. A maximum of three is preferable, for a driver's ability to read and react to a complex array of options is limited.

Legend content must be succinct and consistent without ambiguity. Where possible, avoid using similar words for different destinations, such as *Yosemite Village* and *Curry Village*. In this instance, *Yosemite Village* and *Camp Curry* are preferred. Another common example is a sign guiding visitors to *Yosemite Lodge* and *Yosemite Village*. An alternate approach is to delete the repetitive *Yosemite* and use *Yosemite Lodge* and *Visitor Center & Village* as the two preferred destinations.

### Guide signs:

- For a single destination will include place name with optional recreation symbol.
- For two or three destinations will include place name with optional recreation symbols.
- For four destinations will include only the place name

(no symbols). Signs with four destinations should be located at the far corner of an intersection, not in advance of the STOP sign to give a viewer time to read and interpret the complex message.

The ordering of messages on guide signs with appropriate arrow alignment is:

- First position--Straight
- Second position--Left
- Third position--Right

**Typeface:** The typeface is Helvetica Bold uppercase and lowercase (initial capital letters), aligned flush left. Distance and advance direction (NEXT LEFT, 1/4 MILE, etc.) are to be all capital letters .75X cap height.

**Symbols:** National recreation symbols (size to grid 2.5X cap height for standard grid and 3X when used on vertical format single destination signs).

**Grid Format:** Road guide signs must be orderly and consistent but be adaptable to the many different roadside conditions being signed. These formats allow for consistent use of destination name, recreation symbol or route shield, distance, directional arrow and/or turn instructions. Based on the size of the legend (X), the order, alignment, layout, and size relationship of all elements are common on a proportional grid.

The grid format has been designed to give a consistent figure/field relationship of legend to panel regardless of overall length or depths by using adjustable panel widths and standard depths of legend modules. A sign panel is assembled using modules for legends (single, double, or triple lines), and modules for top border, bottom border, and line breaks (measurement used to separate messages on signs with multiple destinations and direction). Ideally, each panel should have the shortest possible horizontal dimension for mounting on the narrow shoulder roads in Yosemite.

**Legend Size and Reaction Time:** Because signs are placed along a roadway, they must be sized to allow for clear comprehension from a moving automobile traveling at the posted speed. Guide signs are to be placed in advance of the decision point so that the driver can read, interpret, and react to the information with time for safe movement if there is a change in direction. Calculations for sign size relative to viewing distance and reaction time should follow FHWA guidelines.

Because of scale and prevailing speeds on park roadways, legend sizes should be standardized where possible. Current assumptions, with uppercase and lowercase legends, are 7.5 cm letters on campground or off-highway roads, 10 and 15 cm letters for general park roads, and 20 cm letters for higher-speed park roads. These sizes are

based on a one-for-one replacement from Modified Clarendon as currently used.

For a reference guidance on size and placement using the same Helvetica typeface for road guide signs, see the *U.S. Army Corps of Engineers Sign Standards Manual: Guidelines for Letter Size and Sign Placement* (pages 6.16-6.18).

**Mounting:** Sign assemblies will be embedded in concrete footings. The sign upright can be modified to incorporate a breakaway base plate or frangible coupling as per the *FHWA Traffic Control Devices Handbook* (Part II), the *AASHTO Standard Specification for Structural Supports for Highway Signs, Luminaire and Traffic Signals* (Chapter 4), the *AASHTO Roadside Design Guide* (and as incorporated into the NPS Sign Manual 1988), and the *NCHRP Recommended Procedures for the Safety Performance Evaluation of Highway Features* (Report 350). Use of breakaway bases are discouraged by the AASHTO standards when signs are mounted on an uneven grade where calculation of impact point is not possible, or in pedestrian zones where an impacted sign may dislodge and hit a bystander.

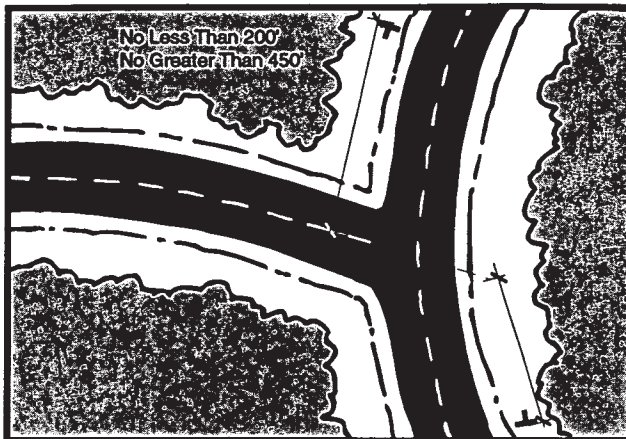
**Sign Placement:** Standardization of sign locations should be maintained whenever possible. The general rule is to locate signs on the right-hand side of the roadway where drivers customarily look for them. Signs in other locations, except for those mounted overhead on mastarms, should be considered supplementary to signs on their right.

Placements should follow a uniform plan so that motorists, once accustomed to the plan, will be able to find signs easily. A reference handbook, *Placement Guide for Traffic Control Devices* (FS 8171 2603, out of print), has been prepared by the Forest Service and supplements the MUTCD.

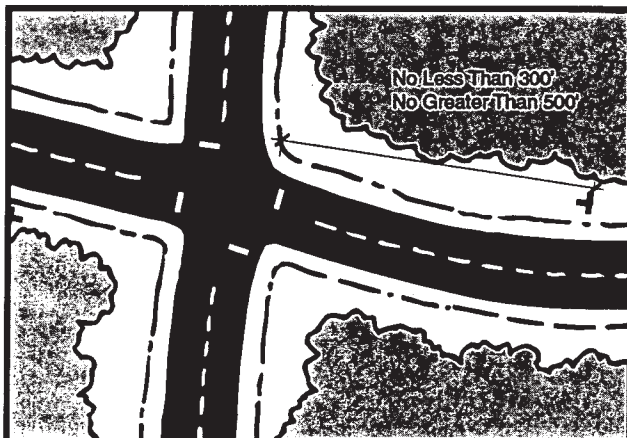
Signs should be located so that they do not obscure each other or are hidden from view by other roadside objects. Placement should allow drivers at least 250 feet to read the sign and an equal distance to react in advance of a turn. Actual distance will vary depending on speed of approach, clarity of sight lines, and available locations for sign placement. The lateral clearance for smaller guide signs should be from 6 to 12 feet from the edge of the pavement (the fog line). For larger road guide signs, the lateral clearance from the edge of the pavement may be greater as dictated by site conditions. To make certain that signs are not obscured by parked or standing vehicles and to ensure uniformity in placement, the recommended minimum mounting height of 6 feet should always be followed. For greater legibility at high-speed locations, or in more congested areas, the height of the sign from the ground to the base of the panel can be 7 feet.

Placement for specific conditions:

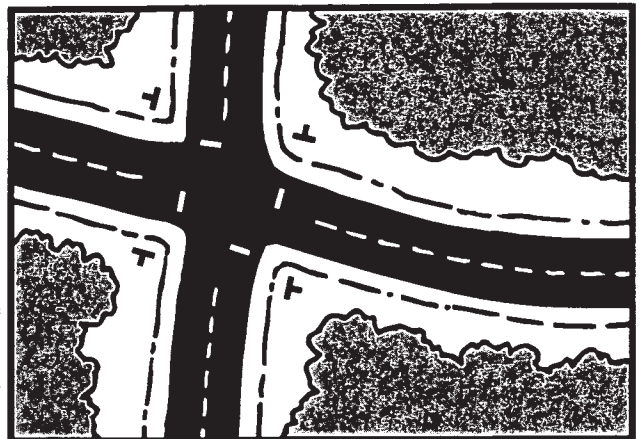
Placement for specific conditions:



- Guide signs with one destination legend are to be located not less than 200 feet and not more than 450 feet in advance of the intersection to allow viewers to see the sign, read the legend, and react.



- Guide signs with up to three destination legends are to be located not less than 300 feet and not more than 500 feet in advance of the intersection to allow viewers the needed time to see the sign, read the legend, and respond accordingly.
- Symbol signs and (road number) cardinal direction guide signs are posted in advance of intersections and within the intersections themselves.



- Junction signs and advance turn arrows should be placed no less than 400 feet in advance of the intersections.
- Within the Valley, guide signs placed at the primary multi-directional intersections three directions or more on the sign and two or more possible directions of travel with four-way STOP are placed beyond the intersection for ease of view when a driver is at the stop line.

#### Traffic Regulatory and Warning Signs

The content and form of traffic Regulatory and Warning signs are mandated by the Federal Highway Administration in the *Manual on Uniform Traffic Control Devices*. This standard includes guidelines for mounting these signs and the design of a consistent panel for parking control signs.

**Placement:** The exact placement of Regulatory and Warning signs will differ depending on the type of sign and road condition. In general, Regulatory signs are to be installed where the mandate or prohibition applies or begins. Warning signs are to be placed in advance of the conditions to which they call attention.

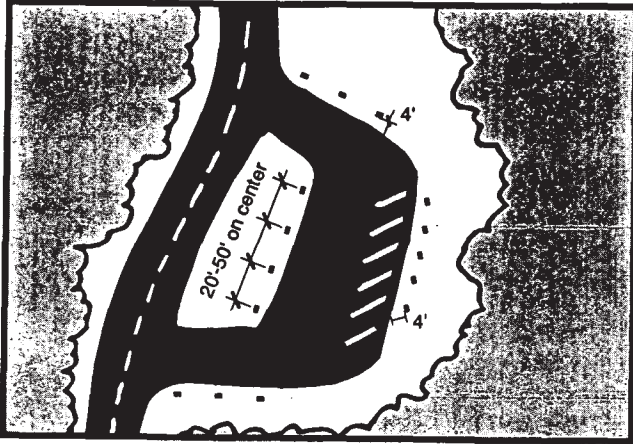
STOP and YIELD signs should be placed at the point at which compliance is to be made. Even in open areas, STOP signs should not be placed more than 25 feet from the intersecting roadway. A suitable stop line in advance of pavement marking or other marking device should be placed on the roadway at the intended point of compliance to supplement the STOP sign.

Warning signs generally are placed slightly in advance of the point of compliance. Where speeds are relatively low, Warning signs should be posted no more than 250 feet in advance of the hazardous condition to which they are directing attention. On higher-speed roadways, Warning



signs should be posted 500 to 1,000 feet in advance of the hazard. These distances are necessary to permit the driver to make the appropriate response to comply with the regulation.

Regulatory and Warning signs are placed 6 to 12 feet from the edge (fog line) of the roadway pavement. Whenever possible, each traffic sign should be mounted on a single post.



- *Within a campground, regulatory signs are used to maintain lane control, direction, and speed limits. At an entry kiosk, use signs sparingly and place at the driver's right. Affirm lane control with well maintained curbs and pavement markings*

**Posts and Mountings:** The standard mounting for all Regulatory and Warning signs that are less than 36" square uses 3" x 2" tubular steel posts. Signs larger than 36" x 36" will use two posts. These posts must break easily when struck by vehicles. Refer to standard federal highway or local CalTrans specifications for design of suitable breakaway bases.

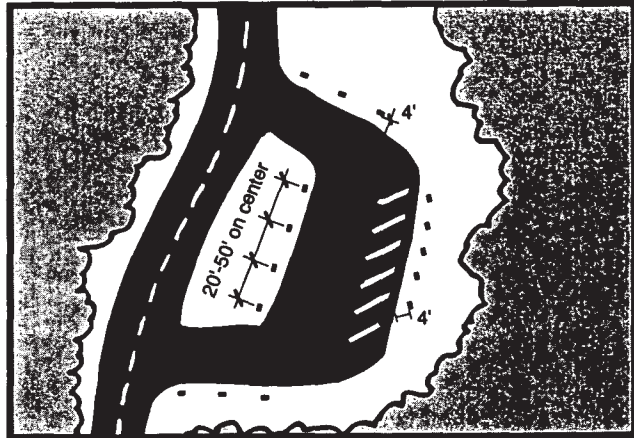
## Parking Control Signs

**Application:** Parking signs are used to stop or control parking along park roads and within congested areas of the park. To reduce clutter and maintain sight-line quality, it is preferable to use the small Post/Bollard format if this understated solution can effectively control the posted zone.

**Typeface and Grid Format:** The system incorporates bold color-coded panels with a white headline overbar and large symbols denoting prohibited parking or the type of parking. The headline is Helvetica Bold with small qualifying legends in Century Old Style.

**Legend:** The legend includes signal panel overbar with Parking or No Parking legend. The zone is qualified with smaller secondary legend "Loading Zone" and large color-coded circle or circle and slash with "P".

**Size and Placement:** The recommended parking control signs are 12.5 cm x 25 cm retro-reflective panels using the post mounting to reduce visual clutter created by conventional (12" x 18") parking control signs.



- *Bollard Placement: Small parking control posts are placed 20 to 50 feet on-center, becoming a line to define the parking or prohibited zone. Placed at eye level (135 cm high) along curb lines (offset 2 to 3 feet) or the edge of the road shoulder (offset 3 to 4 feet). Frequency will be contingent on local conditions. Parking control signs placed at the front of a parking stall shall be centered and placed 4 feet beyond the wheel stop.*

Where site conditions require more conspicuity, where signs need to be seen from a greater distance, or must be viewed in a location with blocked sight lines, large parking sign panels (20 cm x 40 cm) are used. These plate aluminum panels are attached to a 2" x 2" x tubular steel pole and mounted 7 feet from grade to the base of the panel.

## Small Post and Panel Signs

**Application:** The Small Post and Panel Sign System is designed to present information in a consistent, inviting, and easy-to-read format for general postings, resource education, and safety warnings. The signs can be used to teach visitors about the environment, to instill respect for park resources, and to display rules and regulations. All postings by various park interests are coordinated in a comprehensive, manageable, and cost-efficient system.

**Legend:** See guidelines in the sections on *Using the Small Post and Panel Signs* and *Tips on Writing Texts for Small Panel Signs*.

**Content:** The system can be implemented by the park staff using guidelines for texts and illustrations. The system, however, will be most effective if there is an editor, designer, and illustrator to coordinate panel content and tone for all signs. Panels are fabricated by a porcelain enamel manufacturer under an existing NPS contract. The system's basic legend groups by function are:

- Resource Education—illustrated panels about Yosemite, or specific information about a natural resource project such as a meadow restoration or wildlife conservation.
- Procedure/Instructions—instructive step-by-step descriptions to advise visitors on such matters how to register at a campground or store food properly.
- Rules/Regulations—listings of rules for a trail, campground, or park in a simple, easy-to-read style. These may be standard for all facilities of a similar type or include information tailored to a certain location.
- Protection/Safety—short and very site-specific safety signs used to advise visitors of a danger or warning relative to the land, wildlife, or other personal safety factor or hazardous condition.
- Maps—sections of quadrangles for trails (15 or 7.5 min.) and special maps designed for other locations, such as a section of the Valley or a campground.

**Size:** The system consists of Square 30 cm x 30 cm panels for individual and multi-post and panel installations. All general postings use the standard panel size of 30 cm x 30 cm that can be displayed 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 cm x 60 cm). Signs viewed from other than standing distance, such as ones regarding park fees at an entrance, are proportionally larger (60 cm and 90 cm wide).

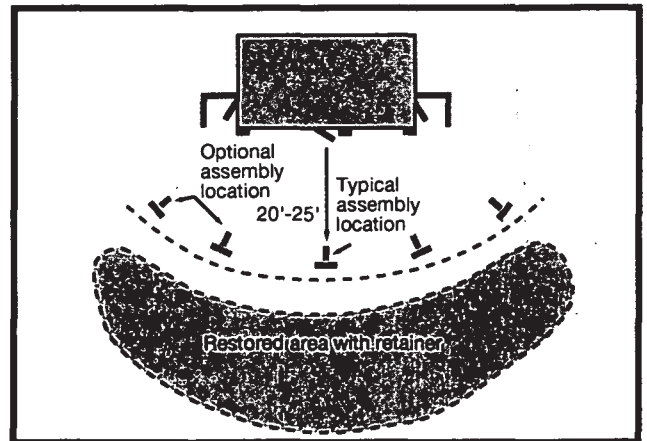
**Panel Grid and Typeface:** The 30 cm x 30 cm panels are based on a standard three column grid format. Panels include a Helvetica Bold headline in the upper level with an optional introductory deck using Century

Old Style Italic. The main text, in Century Old Style, is placed in the lower part of the panel in either large (two-column wide) or small (one-column wide) displays. Rules are used as a graphic device to separate groups of text for clarity and visual organization.

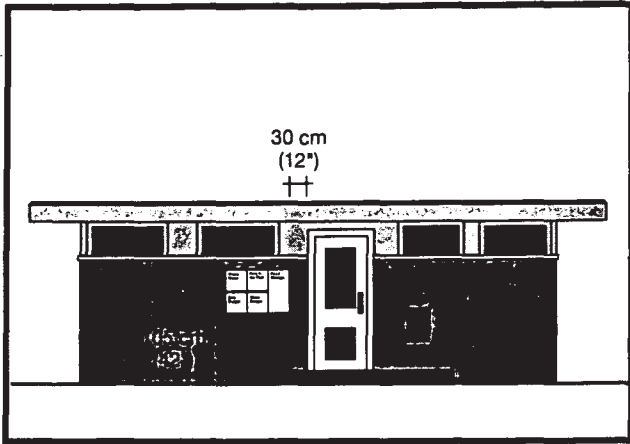
Wherever possible, the panels should be illustrated with photographs, line drawings, or other woodcut-style artwork to aid communications and make the panels interesting to the viewer. Most illustrations are one color.

**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 foreign languages in Yosemite include Japanese, German, French, Spanish, and Mong.

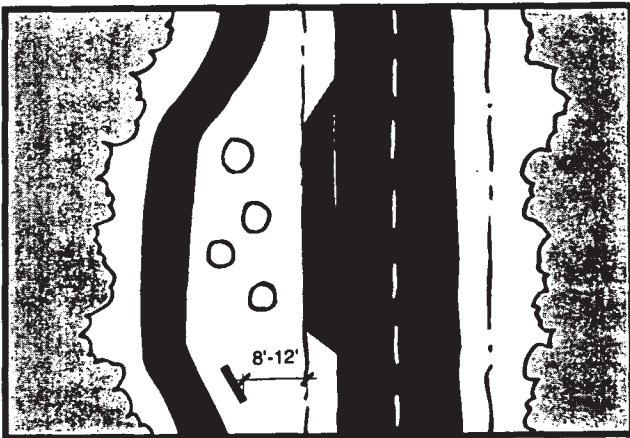
**Placement:** Signs are to be placed at the location where the message is appropriate or can be most effective, or at central points of congregation, such as the comfort station in a campground, at a trailhead, or viewpoints. Guidance for most common placement locations are: Placement for specific conditions:



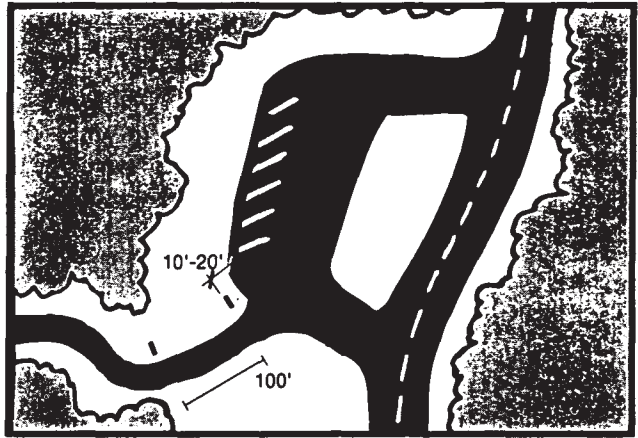
- **Comfort Stations:** Free standing information kiosks at campground comfort stations are placed for ease of view of campers passing the front of the building. Placement will generally be at a position on an arc line that is between 20 to 25 feet from the front of the building. Generally this is perpendicular to the center water closet door, but may rotate left or right depending on common circulation patterns. Where possible and proximity to campsites.



- **Comfort Stations:** Building wall mounted information panels are placed at a similar height above grade as the post mounted assemblies. Place double height assemblies 105 cm from grade to the base and single panels at 150 cm. Align mounting to building lines to create an orderly looking installation.



- **Shuttle Stops:** Frame shuttle stop maps and information kiosks for ease of view by all. Place installation 8 to 12 feet back from boarding area to reduce congestion in a small area. Orient map graphics to be consistent to location so readers are not required to mentally invert the map for correct interpretation.



- **Trailheads:** Information assemblies (1x4) are placed to draw the viewers eye to the mouth or beginning of the trail to reduce common trampling of broad area surrounding these locations. To reduce placing too much information at a single installation, a second (1x2) installation may be placed 100 feet down the trail with the wilderness boundary sign and trail shortcut panels. For example, trailhead installations may incorporate edging devices to reduce denigration of surrounding areas.



- Larger panel assemblies may require field adjustment based on existing architectural constraints and the angle at which the sign is viewed. Entry kiosk signs viewed from a car will be slightly lower to accommodate view from a sedan as well as a RV



## Post/Bollard/Wall Identification Signs

**Application:** The Post/Bollard/Identification signs are single panel 12.5 cm x 25 cm installations designed to identify site specific installations in a consistent format. These are small, discrete site specific postings for pedestrians. Sign panels are mounted to a fabricated steel post/bollard for locations including campsite identification, small trail guide signs, safety warnings and prohibitions. Wall mounted applications include identification signs for restrooms and doors to other facilities.

**Legend:** The legend and color will vary depending on application.

- Campsite identification bollards will include the campsite number in large bold numbers.
- Information specific to a site including site accessibility for disabled campers can be included on the panel below the number. campsites are numbered with even numbers on the right and odd on the left. Begin each loop with new 100 number. Omit numbers that break odd-even flow similar to a street address.
- Safety/Protection--short and very site-specific safety signs used to advise visitors of a danger or warning relative to the land, wildlife, or other personal safety factor or hazardous condition. Safety panels are placed in the area immediately adjacent to a hazard being posted and include signal word, and qualifying text (action and consequences), and use appropriate referential colors.
- Identification signs identify the facility with associated recreation symbol in the lower section of the panel.
- Prohibition and instruction signs include short headline to describe rule or procedure with associated recreation symbol (positive or prohibition) in the lower section of the panel.
- Trail guide signs include directional arrow, destination identification and appropriate recreation symbols.

**Colors:** Listed below are the Post/Bollard/Identification sign background and legend colors.

*Information/Identification:* Terra cotta background with Beige legend

*Trail Guide:* Terra cotta background with Beige legend

*Symbol Prohibition/Instruction:* Gold background with black legend and Red circle and slash

*Safety/Protection:* Red background with Beige legend for Danger and Yellow background with black legend for Warning

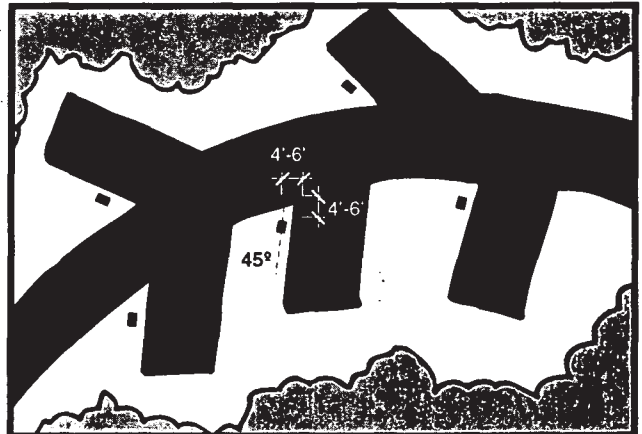
**Size:** 12.5 cm x 25 cm panels mounted on a post (bollard) for single site-specific postings.

**Panel Grid and Typeface:** The 12.5 cm x 25 cm post panel is based on a group of 2 x 4 unit grids. Panels

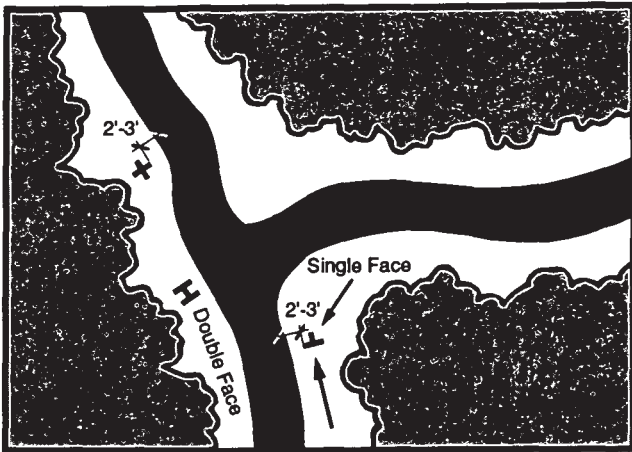
include a Helvetica Bold headline in the upper part of the panel. The panel text, in Century Old Style, is placed full width in the lower part of the panel. Symbols are placed in the bottom half of the panel. Rules are used as a graphic device to separate groups of text for clarity and visual organization.

**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 foreign languages in Yosemite include Japanese, German, French, Spanish, and Mong.

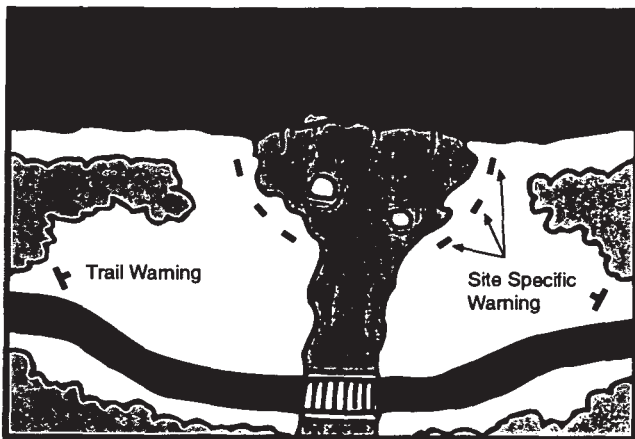
**Placement:** Signs are to be placed at the location where this small discrete sign will be easily viewed by the intended audience. Post/Bollard/Identification signs are not to be used in congregated areas where they can be easily blocked from view by another person. Because of their small size, post/bollards placed along trails should not be placed where they are difficult to see and could become a safety hazard. Guidance for most common placement locations are:



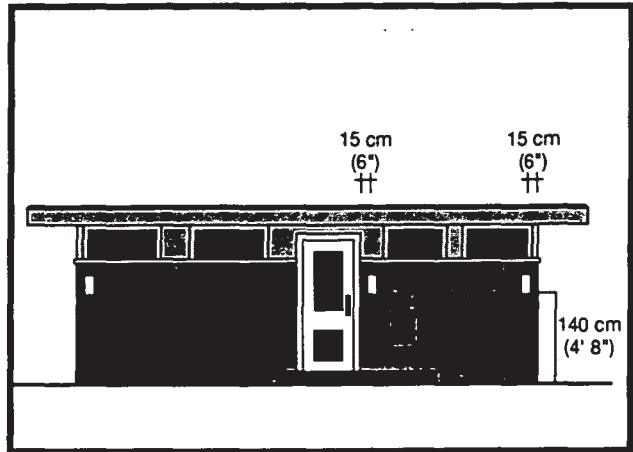
- *Campsite Identification:* Bollards are placed behind concrete curb at the near front corner of a parking pad, 4 to 6 feet back from the edge of the road on a 45o angle to the approaching driver. Adjust placement to assure that vehicles backing into adjacent spaces will not drive into the installation.



- **Trail Guide Panel:** Bollards are placed approximately 2 feet off the edge, of a pathway. If installation is double face, locate sign for clearest view from both directions.



- **Site Specific Postings:** instruction, prohibitions and safety signs are placed clearly between the hazard or prohibition and the viewers approach. If the hazard is approachable along a continuous zone such as the top of a waterfall, multiple signs should be place along the edge zone to assure that viewer will see at least one of the warnings. When physical barriers are not provided, place sign at a safe distance back from the hazardous condition.



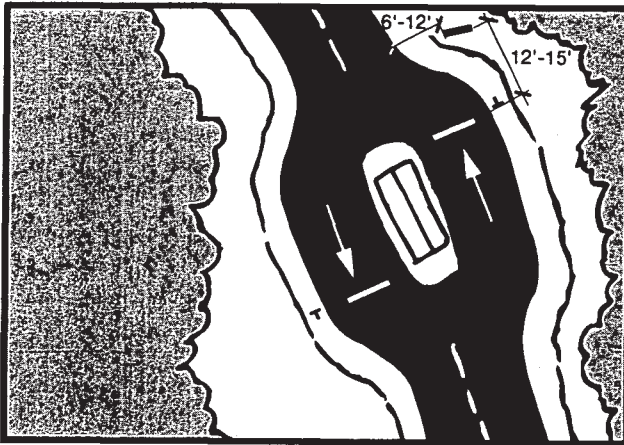
- **Wall Mount:** Surface mounted signs are placed at eye level (small identification signs are placed on the opening side of the door, 140 cm to the base of the panel and 15 cm from the edge of the doorframe) or on the facing edge where the entrance is on the return side.

## Area Entry Signs

**Application:** Area entry signs are designed as a systematic way to post specific rules and prohibitions with symbols and text. They are designed for use at the entrance to a campground, picnic area, or other public place to reduce the wide variety of postings currently displayed. This system allows a maximum of four panels to identify the most important pieces of information for a visitor entering an area.

**Legend:** All displays include a symbol on the left with a two-line descriptive text on the right section of the panel. Common legends include (symbol noted in parentheses): (Auto) On Paved Roads Only, (Tent Camper) Designated Areas Only, (Tent Camper) Quiet Hours 10 pm–6 am, (Dog on leash) Pets on Leash, (Picnic Table) Closes at Dusk, (Bear) Food Storage Required, (P) Registered Campers Only, (Tent Camper) Campground Full, (Fire in prohibition format) No Fires, (RV in prohibition format) No Recreation Vehicles, (Dog in prohibition format) No Pets, and (P in prohibition format) Do Not Enter, Private Drive.

**Placement:** Signs are to be placed at the location where this small discrete sign will be easily viewed by the intended audience.



- *Area entry sign assemblies: Placed to the driver's right side along the entry road into a campground or recreation area. The sign is placed between 6 and 12 feet off the edge of the pavement. At campsites with entry stations, place signs 12 to 15 feet beyond the station stop line and angle slightly toward driver to afford a clear view of the sign when stopped at the kiosk for registration information.*

**Panel Size:** This assembly is specified in two sizes, one with 30 cm x 90 cm panels for viewing from an automobile and a proportionally smaller assembly with 20 cm x 60 cm panels for pedestrian accessed entries.

**Typeface and grid format:** Area entry signs are formatted on a standard layout grid and use Century Old Style Medium (uppercase and lowercase, flush left, initial capitals only) with large National Recreation Symbols in positive or prohibition format.

**Color:** The background color of area entry panels is ochre (gold, not yellow) retro-reflective sheeting with black legend and symbol; prohibition symbols use the red circle and slash. An optional changeable, recreation brown panel with campground symbol has been recommended to identify campground availability (Campground Available or Campground Full) and to help control entry traffic of visitors looking for campsites.

## Miscellaneous Postings

**Application:** There will always be miscellaneous postings of general information regardless of how well coordinated and planned a sign program may be. These temporary or permanent panels are posted to address a particular, site-specific need not covered by the other types of signs in the system.

**Content:** They may be used as a singular site-specific display or within multi-panel assemblies, such as at a campground entrance kiosk. Examples of miscellaneous postings include:

- Meadow Restoration: Remain on Maintained Trails
- Temporarily Closed: Use Trash Containers at Entrance Station
- No Camping or Sleeping in Vehicles: Violators Will Be Cited and Towed

**Placement:** Miscellaneous postings are to be sized for good legibility from the anticipated viewing distance of the approaching viewer (see chart below) and are placed for clear viewing relative to the content.

**Panel and Legend Size:** These signs are a proportionally grided square panel. Using the grid formats provided, the panel should be sized for legibility and good conspicuity in the intended location.

**Typeface and Grid Format:** Three grid formats are shown with the amount of text and viewing distance determining which panel grid is selected.

Miscellaneous posting signs are formatted on a standard square layout grid and use a Helvetica Bold headline or signal word with Century Old Style typeface for information text. All type is displayed in uppercase and lowercase, flush left, initial capitals only.

The base panel size is 30 cm square but is proportionally adaptable to larger sizes, such as 45 cm (as shown) depending on viewing requirements. Keep the panel as small as possible while maintaining effectiveness.

Panel size	Type size/legibility distance		
	long text	medium text	short text
30cm x 30cm	2cm/20.3ft	3cm/28.1ft	4cm/39ft
45cm x 45cm	3cm/28.1ft	4.5cm/43.75ft	6cm/57.8ft
60cm x 60cm	4cm/40.6ft	6cm/52.6ft	8cm/78ft

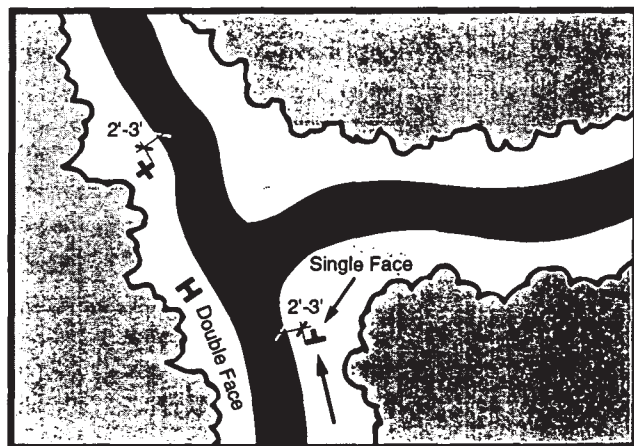
**Color:** The recommended color for miscellaneous postings is ochre (gold, not yellow) retro-reflective sheeting with black legend.

## Pedestrian/Bicycle Guide Signs

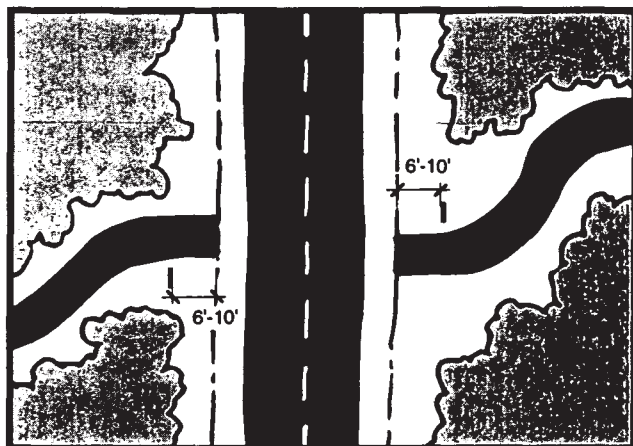
**Application:** These signs are used to guide pedestrians and bicyclists along park paths and bikeways.

**Legend:** Includes arrow, name of destination(s), and symbols related to service, activity, or accommodation at that site.

**Placement:** The small sign assembly will accommodate two-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 sight lines of approaching walkers and bike riders. Guidance for most common placement locations are:



- Single and double face trail guide signs are placed 2 to 3 feet off the traveled way for optimal viewing (left or right) based on local conditions.



- Place guide signs that cross a valley roadway in advance of crossing; 6 to 10 feet back from gravel edge to for paths and bikeways with a 2 to 3 foot offset. A second small stop sign may also be placed at the edge of the road to notify bike riders of cross traffic as required.



**Size:** Standard size sign is 30 cm x 30 cm square. Wide paths require 45 cm x 45 cm signs.

**Typeface and Grid Format:** Two formats have been included in the system for front-country pedestrian path and bikeway guide signs using the same grid format, panel sizes, mounting, and materials as the Small Post and Panel Sign System (30 cm x 30 cm), and Post/Bollard mounted signs (12.5 cm x 25 cm).

**Format:** The format grid is a three-column square format this divided into three equal horizontal sections. Each section can accommodate a two-line destination name, symbols, and an arrow that is aligned left (straight and left) or aligned right (right direction). Rules are used as a graphic device to separate destinations on the panel. Intersections with more than three destinations in a single direction may use an extended vertical (30 cm x 60 cm) panel.

**Typeface and color:** Pedestrian path and bikeway guide signs use Century Old Style (uppercase and lowercase, flush left, initial capitals only). The recommended color for the pedestrian path and bikeway guide signs is terra-cotta with beige legend.

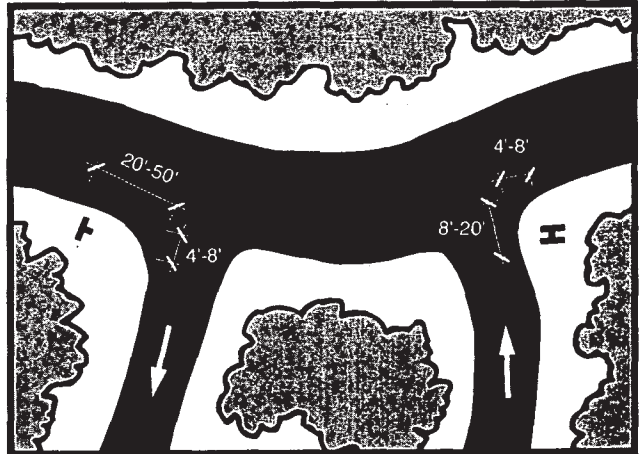
## Small Guide Signs (Vehicular)

**Application:** The small guide sign provides a systematic way to guide visitors to destination in and around off-road recreation facilities such as campgrounds and viewpoints using the standard post and panel systems.

**Legend formulation:** Guide sign legends are to include only enough information to direct the motorist to the specific location. If there are more destinations for a particular intersection, use a second panel for the second destination. Examples include:

Panel 1:	(Arrow Straight)	Campsites 300-621
Panel 2:	(Arrow Left)	Sanitary Dump Station
Panel 3:	Campsites 200-264	(Arrow Right)

**Placement:** Small guide sign assemblies are placed along campground and picnic area roads and in large parking areas such as Mariposa Grove.



- *Small Guide Signs: Are placed on the driver's right, 20 to 50 feet in advance of the intersection and between 4 and 8 feet off the edge of the pavement or road shoulder. Place exit signs 8-12 feet in advance of road access road with "Do Not Enter" panel to be placed on the back face where appropriate.*

**Panel Size:** Panels are 30 cm x 90 cm with standard legend appropriately sized for reading from an automobile.

**Typeface and grid format:** Small guide signs are formatted on a standard layout grid with 7.5 cm Century Old Style Medium legend (upper and lower case, flush left, initial capitals only), and large arrow graphic aligned left (destinations straight or left), or right (destinations to the right) on the standard grid. Symbols may be used selectively per typographic and grid format specifications.

**Color:** The background is recreation brown with white legend retro-reflective sheeting. Regulatory signs are white with black legend and red symbols.





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## 5 Guidelines for Writing Text For Small Panel Signs

- Introduction; Using Small Post and Panel Signs
- Tips on Writing Texts for Small Panel Signs
- Illustrations of Panels with Guidelines on Text Writing

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## Introduction: Using the Small Post and Panel Signs

The Small Post and Panel Sign System affords a consistent format for all postings by the various program and management offices in Yosemite. If properly executed, this system will integrate the many different types of information presented to visitors without creating clutter and without overwhelming them with too much information. This system follows three formats that are designed to work together depending on the specific sign function. They include:

**Small Panel:** This 30 cm x 30 cm square module can be posted as a single panel or ganged in a group of panels. Postings include regulations, rules, visitor information, instructions, general interest subjects, resource education, trail guides, trail maps, "you are here" maps, and safety warnings and hazards.

**Post/Bollard:** The companion small Post/Bollard panels are intended for site-specific postings. These include campsite identification, trail guides, and safety postings. The symbols for No Parking, Bus Stop, Truck/Loading, Handicapped Zone, and other facilities, activities, or prohibitions can be adapted in same basic grid format of the post system.

**Area Entry Signs:** Slat signs using the same structural system as the post and panel may be used at the entrance to an area to post the major rules for the area.

To plan for a small sign:

- Identify issues to be communicated
- Identify the locations where the information will be best displayed for effective communications
- Identify the type of panel--regulatory, safety, instruction, information, resource education--and the editorial approach; refer to the existing panels developed as part of the Pines Campground prototype project

- Determine how this panel will fit with other information currently displayed and if the same message is applicable to other areas of the park; attempt to solve a problem parkwide to make the planning and implementation process more efficient; make sure grouped panels are not redundant.

Once the requirements for a panel have been drafted, work with an interpretive writer, graphic designer, and illustrator to prepare the content of each panel. Used the guidelines for legend development.

To maintain the integrity and effectiveness of the system, carefully follow the grid and typographic format. Use the proper colors from the sample palate below to affirm meaning and to separate panels in multi-panel displays:

- Information--terra-cotta with beige legend
- Direction (trail)--terra-cotta with beige legend
- Instructions--olive with beige legend
- Regulations--deep blue with beige legend
- Resource Education--beige with one or two of the following colors: blue, terra-cotta, olive, and black
- Maps--beige with dark blue, green, terra-cotta, and black topographical and trail identification
- Danger--safety red with beige legend
- Warning/Caution--safety yellow with black legend

## Tips on Writing Texts for Small Panel Signs

Visitors want to enjoy the park, not read signs. Do not overload individual sign panels or you will bore visitors and they will leave without getting the essential information.

Most people will not stand for more than two or three minutes to read a sign. Where it is necessary to give long lists of information, consider putting it in the park newspaper, creating a special publication, putting it on the back of a permit or ticket, or devising some other way to convey the information. Keep the text on the small panels as brief as possible.

Each panel should focus on one subject.

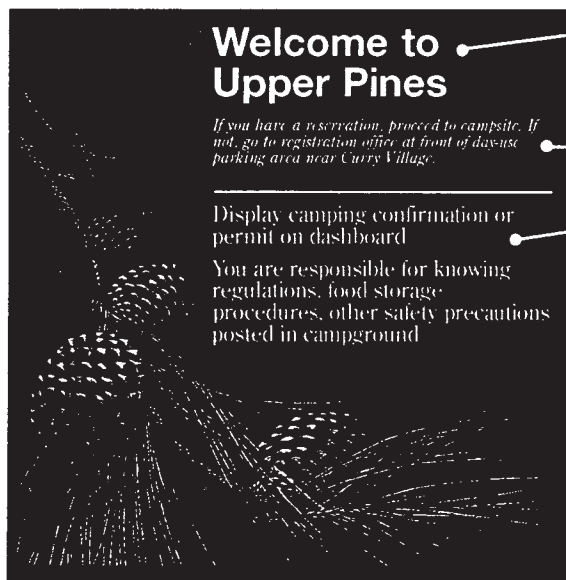
First, grab the visitor's attention with a clear, concise heading and, wherever possible, a strong graphic element.

Second, to go under the heading, write an introductory sentence or two totaling no more than three lines. Try to set a positive tone in the introduction; state why regulations are being enforced, why an area is being restored. Engage their attention by posing a problem. You might pique their curiosity by saying: "An exotic fungus is killing this native shrub" or "The fish population is declining 10 percent each year." They are bound to read on as you explain the why behind those statements, what is being done to resolve the problems, and, if possible, what they can do to help.

Third, to go in the bottom two thirds of the panel, give them your message. In this section of the panel be as brief and direct as possible. Be telegraphic:

- Avoid most forms of the verb "to be;" say "Swimming not allowed" or "No swimming" instead of "Swimming is not allowed"; say "Campfires permitted" instead of "Campfires are permitted"
- Eliminate articles (a, an, the)
- Delete conjunctions (and, but, or, nor, for)
- Avoid most adjectives, adverbs
- Use commas or semicolons instead of "and" wherever possible
- Do not put periods at ends of lines listing various points of information
- Do not use contractions (don't, doesn't, aren't) to avoid confusion, especially with those with little command of English
- Use complete sentences and proper punctuation in feature panels about resource education, historic sites, natural history topics

The examples below and on the following pages include a variety of panel types with notes on how to prepare various kinds of panel text.



Panel is designed for entrance station when it is not staffed but also reinforces attendant's message when staffed

Title provides greeting and identification of facility

Text restricted to essentials so it can be read from vehicle quickly

## Yosemite's Wilderness

*You are entering Yosemite's Wilderness, the size of Rhode Island. It is a wonderful place to explore, but very fragile. Please respect it.*

### Regulations

Wilderness permit required for overnight use

Camp in existing, well-used sites at least 100 feet from water source

Obey bear-proof food storage rules

Wood fires limited to below 9,600 feet; must be in fire rings; no cutting of trees, limbs

No motorized vehicles, bikes, strollers, pets, loose herding of stock, firearms

Pack out all you pack in

*Despite brevity, opening expresses three ideas--size, fragility, respect*

*On regulation signs, list only the most important rules*

*Text conveys a sense of authority without bureaucratic reference to Code of Federal Regulations*

## Valley Camping Over the Years

*The camping tradition in Yosemite Valley goes back at least 800 years, when the Ahwahneechee Indians lived here in seasonal camps.*

*Early camping in the valley. Photo from the collection of the Yosemite Museum*



In 1855, about 40 tourists visited the Valley. Soon visitors began arriving by stagecoach. Though cars reached the Valley in 1900, they were not officially allowed in the national park until 1913. The earliest visitors set up camps throughout the meadows and at the river's edge. Now nearly 4 million visit and 700,000 camp in the Valley every year.

*General interest panels help balance preponderance of regulatory and general visit information in multi-panel postings*

*Restrict all panel openings to two or three lines in complete sentences*

*Mini-essays historical approach may provoke discussions among visitors about impact of numbers of campers*

## Oak Woodlands Restoration

*Years of trampling has compacted soils in these California black oak stands, and seedling oaks could not become established.*

To restore the woodlands, black oak (*Quercus kelloggii*) seedlings have been planted in the fenced area. Plastic tubes and wire screens protect them from browsing by animals. You can help the gradual restoration process by staying outside the enclosed area. In a few years the oaks will provide shelter and acorns for birds, deer, rodents, and bears.



*Opening briefly states resource management problem*

*Mini-essay explains why area is roped off, purpose of plastic tubes and screens, and what will happen in the area*

*With an understanding of the "why," visitors tend to honor protective measures*

## Camper Services

*Consult the "Yosemite Guide" for current schedule of visitor activities, facilities, toll phone numbers, and other information.*

Telephone	Located at campground entrance
Emergency	Police, fires, medical, dial 911
Park Info	Recorded message, call 372-0200
Ranger	Call 372-0301, after 5 p.m. 372-0214
Questions	Ask at visitor center, open 9 a.m. to 5 p.m., longer hours spring-fall
Sanitary Dump	Entrance Upper Pines Campground and Lower River Campground
Showers	Year round at Curry Village; spring-fall at Housekeeping Camp
Laundry	Housekeeping Camp summer only
Supplies	Groceries, ice, firewood at Curry Village or Yosemite Village
Water	Use freshwater tap and waste water utility sink at restrooms
Camp Programs	Lower Pines Amphitheater and Lower River; see "Yosemite Guide" schedule
Free Shuttle	Toward Visitor Center and Camper Store—Stop 19; Toward Happy Isles—Stop 15, or see map in "Yosemite Guide" and at stops

Where necessary, a panel twice the depth may be used to cover essential information, but resist temptation to fill it; some open space provides relief in multi-panel assemblies

Opening provides reference to current information

Because sign focuses on a variety of basic information, it does not need to be illustrated

## Campground Regulations

*About 700,000 people camp in Yosemite Valley every year. This campground was created to reduce wild spread damage to the natural vegetation.*

Campers	Reservations required; 7-day total May 1 to September 15; maximum of 6, including children, per campground
Vehicles	2 per campsite on paved parking pad; park others at Curry Village
Checkout	10 a.m.
Quiet Hours	10 p.m. to 6 a.m.; use generators between 7 a.m. and 7 p.m. only
Bears	Proper food storage required
Other Rules	No nails, axes, knives in trees Do not drain waste water onto ground; use utility sinks at restrooms No extension cords to restroom outlet

Opening indicates why there are campgrounds instead of a camp-where-you-like policy

Subtitles in left column direct reader's attention to specific items of interest; do not repeat subtitles in text to the right

Be telegraphic; give only essential information





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## 6 Sign Maintenance and Repair

- Sign Condition Survey Criteria
- General Maintenance Procedures
- Mounting and Hardware
- Maintenance of Routed Redwood Signs
- Maintenance of Retro-Reflective Signs
- Maintenance of Porcelain Enamel Signs
- Sign Inspection Field Report

Note: This maintenance guideline has been prepared to supplement the *Sign Planning and Implementation Guidelines* prepared as part of the Pines Campground Prototype System Design (September 6, 1998)

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## Introduction: Sign Maintenance and Repair

This guideline describes the basic procedures required for proper maintenance of the signs included in the Yosemite Sign Program.

Although this guideline provides a record of the actual maintenance procedures required; the procedures described are fundamentally the same as those currently used by the Yosemite Sign Shop.

The principal goals of good maintenance is making sure that the sign content is accurate and up to date and keeping the overall sign installation in good physical shape.

This means that:

- missing, broken, or degraded signs be identified in a timely manner
- repairs are made without delay
- unnecessary, or out of date signs be updated or removed
- new signs are added as needed in a coordinated effort to provide needed information while controlling unnecessary proliferation of signs.

The Yosemite Sign Standards program has been designed and organized as a comprehensive system that is efficient to maintain and repair. To achieve the overall efficiencies included in the system plan, the project will require that a Yosemite Sign Coordinator be charged to implement related program management procedures that include the establishment of procurement contracts for sign fabrication, the preparation of all planning, graphics, and text for signs (by NPS or under service contract); and the coordination of existing park staff for sign planning and evaluation, and sign installation and maintenance. With management functions established, planning the proposed system will help improve communications and wayfinding in the park with all appropriate management and cost controls.

Specific attributes of the system design that will reduce maintenance and life-cycle cost include: component parts are strong, durable, and easy to replace. Production of all replacement sign faces can be manufactured from existing computer files, eliminating the need for field measurement or preparation of new artwork. All signs have been documented in plans that will make planned inspection and or identification of missing signs convenient, and the overall system is based on sound principles of wayfinding and information design for park wide consistency.

Diligent, planned sign maintenance is a necessary component for the Yosemite sign standards implementation and management. If maintained correctly, signs will last longer and overall program costs will be reduced; thus protecting the overall investment in the system. Furthermore, each sign is placed for a specific purpose. When a sign is missing or damaged, there is an increased potential for an accident, thus creating a liability that may

have been prevented. Broken and noticeably weathered signs dilute the effect of the other signs in the system. Where vandalism is prevalent, the presence of one vandalized sign acts as an inducement for other incidents of vandalism to occur. Equally important, the effect of the collective system of signs will help visitors wayfind and use the park more effectively with less impact on the land. With diligent management of the park sign plan, indiscriminate postings will be eliminated, content of all signs will be kept accurate and up to date, and damaged and worn signs will be replaced in a timely fashion. A well maintained system will reflect positively on the overall image of park staff and the NPS as a whole.

### How To Use This Section

This is a guide to good sign maintenance practices. It includes guidelines for inspection, record keeping, repairing, refurbishing, cleaning, and replacing signs. The front of the section describes maintenance procedures; including preparation of Sign Inspection Field Reports. The back of the section outlines specific maintenance tasks and, where appropriate, some of the maintenance methods described in step-by-step procedures. A list of recommended tools, supplies, and suggested documentation for inspection and maintenance records are included. Using this section as a guideline, the Yosemite Sign Coordinator, working in conjunction with the Yosemite Sign Shop, can establish procedures for inspection and maintenance of signs, and upgrade and maintenance of the overall Yosemite National Park sign program.

Using planned maintenance procedures, project management will become more cost efficient and will increase the effectiveness of all posted information for wayfinding and visitor information.

## Sign Condition and Information Content Survey

Deficiencies are to be identified in the twice a year survey of all signs by the Sign Coordinator, and by facility maintenance personnel who identify damaged or worn installations when performing scheduled (daily / weekly) maintenance of park facilities.

The Sign Coordinator will survey all park signs at the beginning and end of the recreation season. Using the sign schedule and sign location plan for reference, this inspection will include a careful review of the sign content (see Process for Scheduled Plan Review and Update: Stage J Report), as well as the physical condition of all signs. If a sign is missing or damaged; the problem should be reported for immediate repair to the Yosemite Sign Shop.

Where possible, orders for replacement signs will be ganged to reduce procedural time and possibly qualify for quantity discounts. However, if a problem is identified outside the seasonal survey process, it should be rectified as expeditiously as possible, not waiting for additional signs to expand an order. Any changes to the sign plan that results from the maintenance survey should be incorporated into the sign plan documents.

### Scheduled Inspection Survey, Work Orders, and Record Keeping

The Yosemite Sign Coordinator should inspect all signs on a regularly scheduled basis. Once installation is complete for the signs currently planned (identification, road guide and small signs in the Valley) the parkwide survey will take approximately 30 to 40 hours. When the entire system is implemented parkwide, the survey will take one person as much as 60 hours. Note that surveys are generally more effective when done by one person who takes full responsibility for all record keeping. If a survey team includes two people, the assignment of labor should be delegated to assure that all maintenance or content problems are fully recorded at the time the inspection is made.

Good maintenance practice suggests that, at minimum, all signs in the park (other than wilderness trail signs) should be inspected both before the recreation season begins and after it is over. Locations like campgrounds that are exposed to heavy use or frequent incidences of vandalism, or where weather conditions are extreme, may require scheduled inspections on a more frequent scheduled basis. Locations with critical safety signing such as the apron of a water fall should be inspected more frequently if subject to vandalism. Also, maintenance personnel for campgrounds, picnic areas, and scenic destinations should be trained to report a damaged sign when first noticed to allow prompt repair or replacement.

### Materials Required For Survey

For inspection; use dated copies of the sign plan documents listed below.

- Sign Location Drawings (Use copies that can be marked-up with field notes. Reduced size prints are generally easier to use than large size prints)
- Sign Schedule (sorted by location code)
- Sign Inspection Field Report (copies in tablet form)
- Catalog of standard small signs for numerical reference

The logistics of sign inspections in the field can be cumbersome. In the process of inspecting each sign, while evaluating the physical condition as well as the content, the surveyor must juggle the site plan, and sign schedule, while filling out the *Sign Inspection Field Report* as needed. The most convenient procedure is to sort the sign schedule by location code to allow complete review of an area or road corridor in a lineal fashion. This minimizes the need to cross-reference various documents. If the sign is in good order, check it off on the sign schedule and sign plan with a highliner type marker.

*Inspection Criteria:* The Sign Coordinator should inspect the condition of each sign. Glance inspections from a vehicle are not adequate. If a sign is damaged or deteriorated, missing connection hardware, or defaced or broken in any way; the surveyor should photograph the sign and document what is required to rectify the problem on the *Sign Inspection Field Report*. Where possible, note all required parts and tools needed to aid the maintenance staff in their work planning.

In the process of preparing a maintenance inspection, the Sign Coordinator should evaluate whether each respective sign is still needed, if the legend is correct, and if the sign is appropriate for the location. Any deficiencies should be noted on the park sign plan documents for appropriate plan upgrade.

The following is a list of review items for use during sign inspections.

#### *Plan validation*

- Cross check location drawing with sign schedule and affirm with notations on both documents.

#### *Mounting*

- Uprights are straight and plumb
- Posts not loose or rotated
- Posts are not damaged
- Wall mountings are secure
- Redwood sign posts stained and sealed

#### *Hardware and Joints*

- Bolts, top caps, plugs, and attachments are secure

#### *Sign Panel: Substrate*

- Redwood sign panels are stained and weather sealed
- Aluminum guide sign panels are flat and undamaged
- Backs of aluminum guide sign panels are painted
- Edges of reflective sheeting are tight to panel

#### *Sign Face*

- Sign is in good repair
- Applied letters are not missing or broken
- Routed letters are paint sealed
- Color is bright and unfaded
- Panel is clean and free of stains or markings
- Surface is not crazed, splintered, or lifting

#### *General*

- Note any other damage from vandalism or normal deterioration
- Adjacent vegetation is not adversely effecting viewing or material
- Surrounding site and grade conditions are in good order

As the system is fully implemented throughout Yosemite, there will be a need to assure compliance and discourage placement of non standard signs. Signs that do not comply should be recorded and reviewed for possible replacement with compliant sign, or should be identified for removal.

#### *Compliance*

- Verify that the sign complies with NPS Sign Standards.

#### **Sign Inspection Field Report**

In the process of field inspection, the Yosemite Sign Coordinator should prepare a *Sign Inspection Field Report* for each sign requiring attention. From this review, maintenance work should be scheduled, and or existing conditions evaluated based on changes in operations. Repair work should be scheduled with the highest priority given to requirements of safety critical signs. As needed; replacement signs, posts, and hardware will be pulled from Yosemite Sign Shop inventory. Replacement sign panels should be ordered to complete the work order in a thorough, timely, and efficient manner.

#### **Daily Inspection**

Because project rangers and maintenance personnel are in the campgrounds, picnic areas, and other heavily used areas on a daily basis; they will often notice a problem as it arises. It is recommended that they keep a tablet of the *Sign Inspection Field Report* in their vehicles to report a problem to the Sign Coordinator for repair.

#### **Sign Program Record Keeping**

Record keeping is an important aspect of sign maintenance

and program management. The sign maintenance records can be used to measure the frequency of various types of repairs and the location of problems so that planning and management functions can be balanced accordingly. Dates of installation should be noted on the sign schedule to allow the tracking of sign life and replacement schedules.

The primary forms of documentation include the sign location plan drawings and the companion sign schedule. It is imperative that both of these documents be kept up-to-date. Similarly, a file of all *Sign Inspection Field Reports* should be maintained for reference.

#### **Vandalism**

The problem of vandalism cannot be overlooked in a sign maintenance program. Defacement and destruction of signs will occur throughout the park. Vandalism ranges from defacement of panels, forcible damage to structures, to theft. To combat vandalism, repair or replace damaged signs immediately. Vandal damage is infectious and can be thwarted by diligent attention to problem areas.

Materials and assembly methods specified in this system design were selected because they are generally vandal-resistant. For example, most attachments are concealed and materials are stiff and durable. It is however possible to damage sign faces regardless of the material. Depending on the amount of damage, wood sign faces can be re-stained, porcelain panels can be touched-up with enamel until they are replaced, and retro-reflective faces can be patched or re-skinned. If a sign is beyond repair, patch the sign as best possible and order a new replacement panel based on the computer plan on file.

Park maintenance personnel should be advised to report any damaged signs as soon as it is identified so that it can be repaired in a timely manner. Make repairs in a professional manner. Make sure that all finishes are properly masked and applied. Improper or sloppy maintenance can destroy a sign just as easily as vandalism or no maintenance at all.



The following are general maintenance procedures for each of the various materials, coatings, and graphic applications used on NPS signs. These include: aluminum (AEG, AHI, ADG) signs with retro-reflective sign faces, porcelain enamel panels (PE), and routed redwood (RRW) signs. Most every task described can be completed with common hand tools. To make these procedures easier, maintenance personnel should prepare a simple sign maintenance kit of tools and repair materials that can be easily transported to the site to help expedite routine maintenance operations.

First, determine if the sign is in satisfactory condition or should be repaired or replaced. This is usually a field judgment. More often than not, it is cheaper to replace a badly damaged sign than to attempt extensive repairs. Compare the repair and labor-hour costs with a new sign cost and service life when deciding whether to repair or replace a sign. If the problem is too severe, and the sign cannot be repaired in a cost efficient manner then it should be replaced.

You may need to consult with the manufacturers of the signs or sign materials to learn of the most efficient way to perform a specific repair or solve a maintenance problem not described in this section.

#### **Grounds Maintenance**

Tree branches, shrubs, weeds, and brush around the mounting should be removed to insure that there are unobstructed sight lines to the sign and that it is clearly legible for the approaching viewer. Maintenance crews should be careful not to damage the sign posts during mowing or trimming.

#### **Safety Practices in Field and Shop**

Personnel safety is a prime concern in performing sign maintenance. Crew supervisors and members must be familiar with standard health and safety procedures to insure that field tasks are accomplished safely and efficiently.

Do not set out to maintain roadside signs without all the appropriate advance warning signs and devices needed to protect motorists and workers at each site. To protect sign crews and road users alike, follow these rules regarding clothing, vehicles, and barricades.

- Maintenance personnel must wear clothing as specified by the Maintenance Division's Safety Officer for conspicuity and protection.
- Equip maintenance vehicles with appropriate signals and flashing lights, and have a slow moving vehicle (inverted triangle SMV) sign properly displayed.
- Erect barricades, flashers, cones, and "Work Zone" signs in work areas where roads are open to vehicle travel. Follow guidelines in Part VI; Work Zone Traffic Control, in the Traffic Control Devices Handbook.

#### **Sign Mounting**

*Sign Posts:* All mountings should be straight and plumb. If a post in a double post assembly has been bent, it should be replaced because a damaged pole will not allow the proper attachment of the rails and panel assembly.

When posts that are directly embedded become loose, or crooked, they will need to be re-embedded. To repair, excavate existing mounting and resecure sign in an upright position. Once upright, refill the hole in (6") six inch lifts that are evenly tamped on all sides. Because all posts assemblies include a stabilizer blade on the embedded portion, do not attempt to forcibly straighten the post.

*Loose Wall Mountings:* Clips and anchor cleats on wall-mounted signs may become loose over time. For signs mounted on masonry surfaces, replace a loose anchor with a larger anchor and remount with anchor shields that incorporate epoxy based adhesives with the embedded bolt. If this is not possible, fill the existing hole with compatible media and remount using a new hole and anchor in a nearby location.

Unnecessary vibration is destructive to mountings on masonry surfaces. If the final mounting is not flush to the wall, shim wall-mounted signs with wooden blocks or rubber pads to alleviate possible play or movement.

#### **Sign Hardware**

Mechanical fasteners may become loose over time through normal vibration as well as expansion and contraction of the natural materials used to make the signs.

*Tighten Bolts:* As part of the routine maintenance cycle, all sign bolts should be tightened to be snug, but not too tight. Tightening bolts too tightly may rupture the reflective sheeting, causing premature sign face failure.

*Screws and Clips:* On redwood signs, insure that bolts and screws that hold hardware are secure. Screws used to hold keyhole plates in redwood signs will loosen after a few years. As required, tighten; if this is not adequate, fill holes with epoxy (two part catalytic) adhesive and re-attach screws and panel. Allow adhesive to dry completely before re-attaching sign to the frame.

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## Facility Identification Signs with Routed Redwood Panels

### Sign Cleaning: Routed Redwood Panels

With proper care, routed redwood signs can last for decades. Periodic cleaning can prolong the life of the finish, but eventually dirt and weathering will necessitate some heavier cleaning and/or refinishing of the surface.

The discoloring associated with redwood as it ages is a combination of surface dirt and mildew. Surface dirt is the accumulation of airborne particles which cling to rough surfaces and open pores in the wood, especially when the wood has been dampened by rain or dew. This dirt builds up through time, and attracts another unsightly companion: mildew.

Mildew has the appearance of being a blackish surface dirt, but in reality is microscopic organisms living off the accumulated impurities on the wood. Sunlight is the biggest enemy of mildew. Mildew will grow on signs located in damp, shady environments where the sign does not have direct exposure to sunlight.

There are ready-mixed solutions which will wash away surface dirt and kill existing mildew, bringing the redwood back to a new, reddish-brown color. Among the many products available, Easy-Off® and Tilex® mildew removers are widely available in supermarkets and are convenient pump bottles. Do not use oven cleaner, only mildew removers. X-14® also works well but seems to be harsher on the skin if contact occurs. Rubber gloves and glasses should be worn when handling any of these products.

**Step 1** Spray the product on the weathered wood in generous quantities and scrub with a soft scrub brush or stiff paint brush. The surface must stay wet for at least ten minutes, with continuous reapplication of the mildewcide cleaner as it soaks in and tries to evaporate. Best results are obtained if the sign was dry to begin with, so there is no dilution of the cleaner by water on the surface.

**Step 2** After ten or fifteen minutes, with occasional scrubbing, the sign should be thoroughly flooded (hosed, if possible) with clean water. Scrubbing while rinsing will get the chemical residue out of the wood grain, which may cause uneven streaking if left on the wood.

**Step 3** Allow the sign to dry completely before continuing the refinishing process. This may mean waiting several days in cool, damp weather. When the surface feels dry, commence finishing.

### Other Markings on Routed Redwood

Because of the porous nature of redwood, damage by paint and other markings on redwood sign panels could be increased by washing with a solvent. In such cases, it is recommended to sand away the marked or stained area using a fine grade (150 grit) sandpaper. When most of the problem has been removed, re-stain the entire sign panel.

### Refinishing Redwood Signs: Staining Redwood Panels

The appearance of redwood signs with routed legends will also change as the sign weathers. The overall color may initially become darker and then begin to lighten. The contrast of the letters and background may also be reduced as the paint-filled letters become soiled. However, once this initial break-in period has passed, the sign should, if properly maintained, retain the same look for the life of the sign.

The following sections describes how to re-stain panel surface using semi-transparent wood stain as specified. Use Olympic brand semi-transparent stains as specified in Section 3 of the Material Specifications. Use only the specified material to assure compatibility with the existing materials. The material provides added protection to the exposed surfaces of the sign. The sign should be re-stained every three years to provide good weather protection to the sign assembly. If the sign is exposed to harsh weather or environmental conditions or subject to the sandblast effect of wind, refinishing may be required on a more frequent schedule. Refer to the procedures listed below when re-staining signs:

**Step 1** Remove the sign faces. It is recommended that you refinish the sign faces in the shop instead of in the field.

**Step 2** The sign panel must be clean, dry, and free of any chemical or cleaning solvents. Lightly sand (150 grit) the sign surfaces to smooth any raised grain and help clean surface for refinishing.

**Step 3** Dust sanded panel and wipe clean. Apply stain with a very short-napped roller. Avoid putting on a coat which is so heavy that the stain creeps down into routed areas. It takes several coats, built up over a few hours time, to sufficiently enhance the wood grain and protect the wood. The roller must first be rolled out, almost dry, into a scrap board, so only a little stain is carried onto the sign surface. Overlapping strokes of the roller will show to some extent, so roll in the direction of the grain if possible. The first coat should be allowed to penetrate, but not harden, and then the second coat should be applied. This may mean as little as one hour between coats on a hot, dry day or as much as four to five hours in shady, humid conditions. Excessive drying between coats (overnight, for instance) will mean poor penetration of the second coat, and a somewhat shiny surface until it weathers a few months. Because the color pigment in the can of stain and in the roller pan will settle quickly, the stain should be stirred frequently (every five minutes) to maintain color consistency. If stain runs down into routed letters it can be wiped out while still wet and not affect the lettering, in most cases.

**Step 4** If the routed letter areas need re-painting, use the specified exterior enamel paint or reflective liquid. Brush in carefully with a small brush, being careful not to



get paint onto the front surface of the sign panel.

**Step 5** Allow the stain to dry before the sign is re-assembled.

#### **Repairing Routed Wood Sign Faces**

Many abrasions or bullet holes in a routed redwood sign will be difficult to see from a normal viewing distance. If damage is extreme, follow the procedures listed below to repair the existing problem.

**Step 1** Remove all splintered wood and dress all bullet holes and damaged wood with a knife.

**Step 2** Fill all cracks, holes, and imperfections with 2-part catalytic wood filler.

**Step 3** Sand the repaired sections, sign edges, back and face. Dust off sign with air hose or tack rag; thoroughly clean repaired section.

**Step 4** Apply two consecutive coats of semi-transparent stain to repaired area.

#### **Refinishing Sign Posts and Frames**

All redwood sign posts and frames will require periodic refinishing to properly seal the wood and maintain good color and finish. Because the sign frames are large and unwieldy, they are best refinished in the field unless it proves more efficient to refinish them in the Sign Shop.

Refer to the procedures listed below when re-staining signs:

**Step 1** The post and frame assembly must be clean, dry, and free of any chemical or cleaning solvents.

**Step 2** Remove the sign faces to expose the sign frame and provide access to overall assembly. Lightly sand (150 grit) the sign surfaces to smooth any raised grain and help clean surface for refinishing.

**Step 3** Dust sanded legs and frame and wipe clean. The stain should be applied with a very short-napped roller. Apply two coats. The first coat should be allowed to penetrate, but not harden, and then the second coat should be applied. This may mean as little as one hour between coats on a hot, dry day or as much as four to five hours in shady, humid conditions. Excessive drying between coats (overnight, for instance) will mean poor penetration of the second coat, and a somewhat shiny surface until it weathers a few months. Roll in the direction of the grain if possible. Because the color pigment in the can of stain and in the roller pan will settle quickly, the stain should be stirred frequently (every five minutes) to maintain color consistency.

**Step 4** Stain or apply Woodlife sealer to the interior sections of the sign assembly. Allow the stain and sealer to dry before the sign is re-assembled.

#### **Repainting Sign Legends on Routed Redwood Sign Panels**

All refinishing of sign faces and repainting letters shall be done in the Yosemite Sign Shop. To refinish the paint on routed sign legends, follow the procedure described below (refer to material specifications for product references).

**Step 1** Thoroughly clean out all loose or cracked paint from interior of letters

**Step 2** Brush apply a minimum of two (2) coats of paint in routed areas to ensure a uniform finish. Follow manufacturer's specification for application and drying time. To prevent bleeding on the face of the panel, Do Not use thinner to remove residual liquid, but wipe clean with dry cloth. Remaining surface liquid shall be removed with the final sanding of the sign face.

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## Road Guide Signs and Small Panel Signs with Retro-reflective Legends

General sign maintenance of road guide and small panel system signs with retro-reflective faces will include cleaning the face as needed and patching damaged sections of the sign background and legend. The following sections describe the basic procedures for preventive maintenance. Note however if a sign requires extensive repair, it will be more economical to replace the panel than to perform labor intensive repairs.

The manufacturers of retro-reflective sign face materials will warrantee sheeting products for varying periods depending on the grade of the product. Degradation from age will include reduction of retro-reflective intensity, surface oxidation, and fading. Retro-reflective and adhesive vinyl sheetings are also susceptible to accelerated aging and deterioration from extreme weather or other environmental conditions. The freeze and thaw cycle and extended burial of signs in snow packs can cause panel edges and adhesive graphics to delaminate. The abrasive effect of wind in combination with sand can also destroy the outer coating on the sheeting material surface of the sign face. As a part of the field inspection of all signs, the Sign Coordinator should identify signs that are getting to the end of their useful life so that they can be included in a scheduled replacement program.

Although not visible during day light viewing, the retro-reflective qualities of reflective sheeting will also begin to deteriorate as the material ages. For wayfinding and safety-related traffic regulatory signs, the testing procedure described in this section should be utilized if there is any question about a sign's legibility when viewed at night under reflected light conditions.

If a sign is removed for maintenance, it should be replaced with a temporary traffic control device while maintenance is performed.

### Sign Cleaning:Retro-reflective Panels

Retro-reflective signs are to be clean and free of stains to insure good legibility and maximum reflectivity. The following cleaning instructions are applicable for aluminum signs with retro-reflective sheeting sign faces.

**Step 1** Flush sign surface with clean water to remove loose dirt.

**Step 2** Wash sign with soft brush, rag, or sponge. Use a mild, non-abrasive bio-degradable detergent that will not damage adjacent vegetation and is chemically neutral and free of strong aromatic solvents or alcohols. A list of appropriate cleaners tested for engineering-grade sheeting, painted surfaces, and stained posts and panels is available from the respective material manufacturer. Wash from top down. Avoid abrading the surface with unnecessary scrubbing. Once the detergent has been applied, keep a steady stream of water flowing on the sign face to wash away dirt.

**Step 3** Rinse entire sign face with clean water and allow to dry.

### Removing Difficult Materials on Retro-reflective Sign Faces

Specific procedures for cleaning signs with stains or markings that are commonly difficult to remove are provided below.

- *Tar, Oil, Diesel Smut, Bituminous Material:* Use a mild solvent such as mineral spirits. Then wash the surface with mild detergent and water. Rinse with clean water to remove any solvent residue.
- *Pollen and Fungus:* Wash the surface with a 3 to 5 percent sodium hypochloride solution such as a commercial brand of bleach, followed by mild detergent and water. Rinse with clean water.
- *Lipstick and Crayon:* For reflective sheeting with factory impregnated color, use a mild solvent such as mineral spirits to remove the material. Follow with detergent and water and clean water rinse. Because the solvent may also dissolve the legend on screen printed sign faces, test clean a small area before solvent washing the entire sign face.
- *Paint on Reflective Sheeting:* It may be possible to remove paint sprayed onto a reflective sheeting sign face using a commercial paint remover designed for this purpose. The type of paint, length of exposure, and type of remover used may affect the life of the sheeting. Spot test the specific remover on an old sign panel that has the same sheeting to make sure that the remover will not destroy the sign face. Following the cleaning procedure, the sign face may require an application of clear urethan coating available from sheeting manufacturers to restore the top surface and extend the life of the sign. Note that this method may not work for signs with screen printed signs because the legend will also be removed in the cleaning process.
- *Other Markings on Reflective Sheeting:* It may be more appropriate to patch the damaged area of the sign or replace it, if markings cannot be removed by the methods described above.

### **Spot Patching Retro-Reflective Sheeting Backgrounds**

Spot patching is recommended only for relatively new signs because color change and retro-reflective deterioration will make it difficult to effectively match the adjacent surfaces. When patching a sign, make sure that all replacement sheeting shall be of the same brand as the material to which it is being applied. Once existing sheeting is removed, clean any oil, grease, or dirt from the application surface by wiping with paint thinner or naphtha. After cleaning, wipe surface dry using a clean rag.

**Step 1** Securely tape the replacement sheeting to the sign along one edge of the patch. The tape should create a hinge. The patch should overlap surrounding sheeting by at least 1/2 inch.

**Step 2** Fold back, placing the sheeting face down against a clean, dust-free surface and carefully remove the backing paper.

**Step 3** Gently lift and position the hinged self-adhesive sheeting on the application surface. When the temperature is below 50 degrees F, activate adhesive with activator solution available from the material manufacturer.

**Step 4** When sheeting is positioned, press it firmly to the surface with a squeegee, using overlapping strokes, starting at center and working out to edges. Initial squeegee pressure must be very firm to avoid forming air pockets.

**Step 5** Remove the tape hinge and re-squeegee the edges using very firm pressure. Any remaining bubbles can be released with a pin and re-squeegeed.

### **Patching and Repair of Sign Panels: Replacing Damaged Legends, Borders, and Symbols**

Applied sign legend graphics that have been scratched, broken, or delaminated can be replaced. Request the replacement graphics from the Yosemite Sign Shop or contract fabricator. The replacement graphics must match the size, stroke width, and spacing of the existing graphics exactly. These will be computer or die-cut markings supplied on a self-adhesive carrier film with backing paper protecting the adhesive. To apply, follow the instructions below. This procedure is recommended only for single letters or small areas of a sign.

**Step 1** Clean the mounting surface. It must be free of dust or any solvent residue.

**Step 2** Draw vertical and horizontal alignment lines on the carrier film. Draw or mark the vertical and horizontal lines on the right and left edge of the mounting surface to register alignment.

**Step 3** Securely tape the graphic in place along the top. The tape should act as a hinge, allowing the graphic to be lifted back over itself without shifting.

**Step 4** Carefully remove the backing paper covering the adhesive and hinge the graphic back in place onto the panel surface.

**Step 5** Squeegee the surface of the carrier film with firm strokes left-to-right using the squeegee tool provided by the manufacturer.

**Step 6** Once the new markings are thoroughly squeegeed, gently remove the carrier film by lifting a corner and pulling the material back on itself. If the new graphic begins to lift off with the film, re-squeegee the section and resume the removal.

**Step 7** Re-squeegee entire legend. Remaining air bubbles may be punctured with a pin and re-burnished.

### **Patching and Repair of Sign Panels: Bullet Holes or Punctures on Aluminum Signs**

It is generally not cost efficient to repair aluminum sign faces damaged from bullet holes. It is recommended that these signs be replaced as soon as conditions are identified in order to discourage similar problems with other signs. A bullet-damaged sign can be repaired in the shop and re-used, following the procedures below.

**Step 1** Remove all damaged background sheeting and legend.

**Step 2** Straighten the sign using a hammer and backing plate.

**Step 3** Remove any additional sheeting damaged during straightening.

**Step 4** Clean the entire area with Xylo; then naphtha. Note: screen printed sign surfaces will be dissolved using these cleaning agents.

**Step 5** Patch the bullet hole or puncture on both sides using 3M No. 425 UAL aluminum foil tape. Use your squeegee to apply firm pressure. Apply to both sides of the sign. On large holes, begin by placing the foil at the bottom of the hole, overlapping each strip shingle fashion as you move up.

**Step 6** Apply reflective background sheeting, extending it at least 1/2 inch beyond the foil tape strips.

**Step 7** Preferably resurface a panel with a new sign face, or if the damaged area is quite small, replace damaged legend with die-cut, pressure-sensitive, pre-spaced letters, borders, or symbols and firmly squeegee in place.

**Step 8** Paint taped surface on back with metallic paint to match area.

### **Repairing Damaged Aluminum Signs**

A bent aluminum traffic sign can often be restored simply by straightening. If the reflective background or legend has not been scraped or severely damaged a replacement face may be applied over the old sign face. Generally, it is easier to repair a sign that is bent or has a damaged face in the shop instead of at a field location. The bent panel may be hammered out using hardwood backing blocks or straightened on sheet metal rollers. Once repaired, follow above instructions for the repair of backgrounds and legend area.

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### **Reflective Sheeting Color and Reflectivity**

The manufacturer of each grade of reflective sheeting provides a recommended life expectancy for each grade of sheeting. This life is generally based on the quality of retro-reflective brightness of the material but can also be a function of surface quality and the intensity of color. Common sense will dictate the replacement cycle for daytime color and general visual quality. To test the functional life of the material when used at night, follow the steps below. Careful attention should be given to a sign during inspection when it is nearing the end of the anticipated useful life. For this information, refer to the date of installation on the Project Sign Schedule.

**Color Fading on Reflective Sheeting** If the color of the background has faded and the type has become yellowed to the point where there is not sufficient contrast to read the sign from its intended viewing distance, the sign panel should be replaced. This problem will be most acute on panels where bright sun and abnormally strong concentrations of ultraviolet light shine. If this problem arises prematurely based on manufacturers specifications, the Sign Coordinator should consult the manufacturer of the reflective sheeting to learn if this material has failed prematurely or is faulty.

### **Inspection of Nighttime Reflectivity**

Reflective signs must be inspected at night as well as during the day to insure night-time legibility. The problem of night safety on roads is acute. Statistics show that, while only one-third of drivers travel after dark, over half of the fatalities (53 percent) occur at night. Underscoring the importance of sign reflectivity is the fact that 90 percent of a driver's actions result from decisions made based on what is seen. To this end, signs must be optimally legible during this viewing period.

**Step 1** With masking tape, affix an eight-inch by ten-inch sign inspection guide test panel to a clean section of the sign. The Sign Coordinator can obtain sign inspection kits from the reflective sheeting manufacturer.

**Step 2** Step back about thirty feet. Hold the flashlight approximately two inches from your eyes and shine it at the panel. Do not use the vehicle headlights.

**Step 3** If the inspection guide is brighter than the sign, then the sign should be replaced within a year.

**Step 4** If the sign is brighter than the inspection guide, then the sign will not have to be replaced for a number of years.

**Step 5** If the sign and the inspection guide appear of equal brightness, then the sign has from one to five years of useful life left, depending on the grade of sheeting.

With experience, this test procedure, it becomes easier to evaluate reflective brilliance without using the inspection guide on each sign. With enough experience, the inspection guide is only needed for questionable cases.



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## Small Panel System: Maintenance and Repair Procedures for Porcelain Panels

Porcelain enamel signs are durable and generally maintenance free. Panel surfaces will not fade or oxidize, and surface markings are easily removed with conventional cleaners and solvents.

- *Dirt, grime, fingerprints:* For periodic cleaning, use a solution of water and a simple household liquid detergent. Apply with a sponge or rag and rinse with clean water. For stubborn areas, use a mild non-abrasive cleaner such as "Soft-Scrub" and rinse with clean water. To eliminate water spots, wipe the panel with a common household glass cleaner or a solution of vinegar and water.
- *Graffiti:* This is possibly the most common form of vandalism but is easily removed without damage to the panel. Because porcelain enamel has a non-porous, baked glass finish, virtually nothing will stick permanently to the surface. To remove spray paint, grease markers, permanent ink etc. use paint thinner or lacquer thinner (Use proper personal protection when using lacquer thinner including protection of skin and eyes). After removing markings on panel, rinse with clean water and clean panel with glass cleaner to remove any grease or film residue from the solvent.
- *Chipped enamel:* Porcelain enamel panels though extremely durable, can be damaged by direct impact to the face by a rock or sharp implement. This type of problem is most often attributed to vandalism. If the graphics are destroyed, the panel should be replaced. Minor surface damage can be repaired by spot painting the exposed area with a two step process that includes the application of metal primer to exposed steel, followed by painting the effected area with a quality (automotive type) enamel to the effected area. Patch kits are available from the sign manufacturer. Use a small, good quality spotting brush to apply the paint. Two finish coats are recommended for durability in the park environment. Do not paint beyond the damaged area.
- *Rust:* If you notice rust forming you should first try to locate the source of the problem. Most rust forms as a result of a chipped corner or an unprotected point of impact. The smallest imaginable spot that is not encapsulated with the porcelain enamel may begin to rust and, over time, become noticeable. To repair, determine the source of the rust. This may involve removing the panel to inspect concealed edges. To repair, clean all rust from the panel using detergents, non-abrasive cleansers, and vinegar. Lightly sand the area with a fine grit sand paper (400 grade) to remove the rust completely. Thoroughly clean, rinse, and dry the panel. Once the area is dry, apply a good quality primer and finish with two finish coats as described above for chipped panels. If you should require further assistance in the maintenance of your sign please call the manufacturer for assistance.



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## Sign Inspection Field Report

A *Sign Inspection Field Report* is to be used by the Sign Coordinator and maintenance personnel to identify signs needing repair or revision. This Field Report is to be used for both scheduled maintenance surveys and as part of daily inspections of the projects while conducting routine business.

It is imperative that damaged signs be reported as soon as the problem is noticed so that the necessary maintenance work can be scheduled and completed in a timely manner.

A draft version of the proposed *Sign Inspection Field Report* is attached. As the program is institutionalized, the design of this form will evolve. This form is designed to help track the incidence and location of various types of repairs. It also serves as a primary defense in negligence claims, because it provides sound documentation for a well managed wayfinding, visitor information and safety sign program. Finally, this form can be used to track costs of labor and materials.

Instructions: The following information should be included in the report.

- 1) *Plan ID Number*: Identify if known. If not known, describe sign type and placement location so that information can be filled in by the Sign Coordinator when the sheet is returned.
- 2) *Location*: Identify location of sign by area or road name.
- 3) *Date*: Enter the date of report.
- 4) *Description of problem*: As shown, provide a brief but thorough enough description of the problem so that an accurate repair or replacement order can be prepared. Where appropriate, make a photo of the problem area for reference. Photos should include a reference number to eliminate confusion between problems.
- 5) *Recommended action*: Provide a general description of the work needed to repair or replace the sign, and check the appropriate boxes.
- 6) *Special or non-standard conditions*: Describe any condition that will effect the repair.

The bottom half of this report becomes the work order that will be used to plan and track the repair from start to completion. This includes a description of the work to be done as interpreted from the field report, as well as the actual labor, materials, and equipment required to complete the job. Note that the sign number is will become the requisition number.

Instructions: The following information will be entered by the Sign Coordinator or Sign Shop personnel in the process of planning and scheduling a sign repair or upgrade.

- 1) *Planning / Design*: Identify all appropriate information. If a sign is repaired or added, attach the sign layout sheet

and all related documentation.

- 2) *Materials*: Prior to scheduling a repair order, identify all materials required for the repair. If items are ordered, note expected availability to aid scheduling of field work.
- 3) *Repair location*: Enter schedule for repair and location as needed.
- 4) *Labor and Equipment*: Note personnel and equipment requests for the same repair.
- 5) *Plan Update*: To complete the project, all changes must be incorporated in the sign plan documents.

# Sign Inspection Field Report

Survey by: \_\_\_\_\_

Sign No. \_\_\_\_\_ Location \_\_\_\_\_ Date \_\_\_\_\_

Description of problem \_\_\_\_\_

Photo record \_\_\_\_\_

Recommended action: \_\_\_\_\_

- \_\_\_ Wash Sign
- \_\_\_ Remove Graffiti
- \_\_\_ Repair Sign Face
- \_\_\_ Repair Sign Panel
- \_\_\_ Repair Sign Mount
- \_\_\_ Repair Sign Frame
- \_\_\_ Remove Sign
- \_\_\_ Upgrade & Replace Sign Panel
- \_\_\_ Upgrade Site

Special or non-standard conditions \_\_\_\_\_

Review Sign Coordinator Comments \_\_\_\_\_ Date \_\_\_\_\_

Planning / Design New Panel/ Plan \_\_\_\_\_ Text / Legend \_\_\_\_\_ Illustration \_\_\_\_\_ Repro Artwork \_\_\_\_\_

Revise Existing/ Plan \_\_\_\_\_ Text / Legend \_\_\_\_\_ Illustration \_\_\_\_\_ Repro Artwork \_\_\_\_\_

Other / Related Impact \_\_\_\_\_

Materials Post(s) \_\_\_\_\_ Order / Stock (circle) \_\_\_\_\_ Availability (date) \_\_\_\_\_ Cost \_\_\_\_\_

Rail(s) \_\_\_\_\_ Order / Stock (circle) \_\_\_\_\_ Availability (date) \_\_\_\_\_ Cost \_\_\_\_\_

Hardware \_\_\_\_\_ Order / Stock (circle) \_\_\_\_\_ Availability (date) \_\_\_\_\_ Cost \_\_\_\_\_

Panel \_\_\_\_\_ Order / Stock (circle) \_\_\_\_\_ Availability (date) \_\_\_\_\_ Cost \_\_\_\_\_

Other (describe) \_\_\_\_\_ Order / Stock (circle) \_\_\_\_\_ Availability (date) \_\_\_\_\_ Cost \_\_\_\_\_

Repair Location Removal (date) \_\_\_\_\_ Repair (date) \_\_\_\_\_ Re-Install (date) \_\_\_\_\_ Cost \_\_\_\_\_

\_\_\_ Field Repair \_\_\_\_\_

\_\_\_ Sign Shop Repair Notes: \_\_\_\_\_

Labor & Equipment Personnel \_\_\_\_\_ Date \_\_\_\_\_ Cost \_\_\_\_\_

Special Equipment \_\_\_\_\_ Date \_\_\_\_\_ Cost \_\_\_\_\_

Plan Update Inspection of work (date) \_\_\_\_\_ Sign Location Plan (date) \_\_\_\_\_ Sign Schedule (date) \_\_\_\_\_ Sign Layout Sheet (date) \_\_\_\_\_

Notes: \_\_\_\_\_

