



# MERCED WILD AND SCENIC RIVER

## Draft Comprehensive River Management Plan / EIS



**User Capacity  
and Visitation  
Webinar  
Feb. 14, 2013**





## Today's Speakers



Kathleen  
Morse



Rachel  
Collins





# Presentation Overview

1. Introduction and Background to Capacity
2. Process to Address Capacity
3. Capacities Represented in the Merced River Plan
4. Enhancing the Visitor Experience







Part 1

# INTRODUCTION AND BACKGROUND TO CAPACITY

PROVIDING ACCESS AND PROTECTING RESOURCES





# What is User Capacity?

## Wild and Scenic Rivers Act

Why

- *A plan ... “shall address resource protection, development of lands and facilities, user capacities, and other management practices necessary or desirable to achieve the purpose of this act”*

## Secretarial Guidelines

What

- *“... the quantity and mixture of recreation and other public use which can be permitted without adverse impact on the resource values of the river...”*

## U.S. Court of Appeals for the Ninth Circuit

How

- The plain meaning of the phrase “address user capacities” is simply that the comprehensive management plan must deal with or discuss the **maximum number of people that can be received in a Wild and Scenic River Corridor.**





# Addressing User Capacity

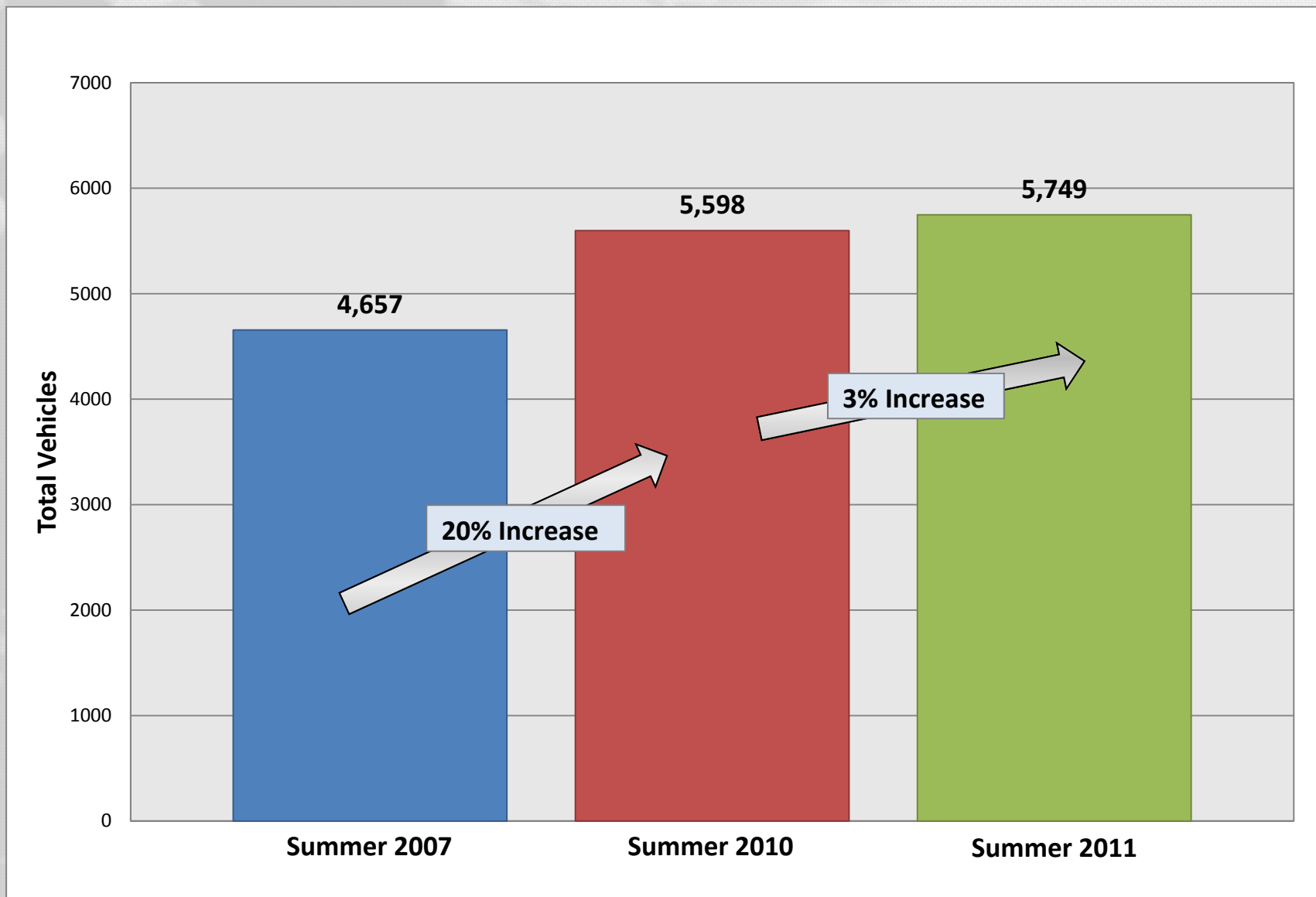
“ ... the *kinds* and *amounts* of public use which the river area can sustain without impact to the values for which it was designated.”

— 1982 Secretarial Guidelines for the Wild and Scenic Rivers Act





## Average Daily Vehicles Arriving in Yosemite Valley





# Overnight vs. Day Use

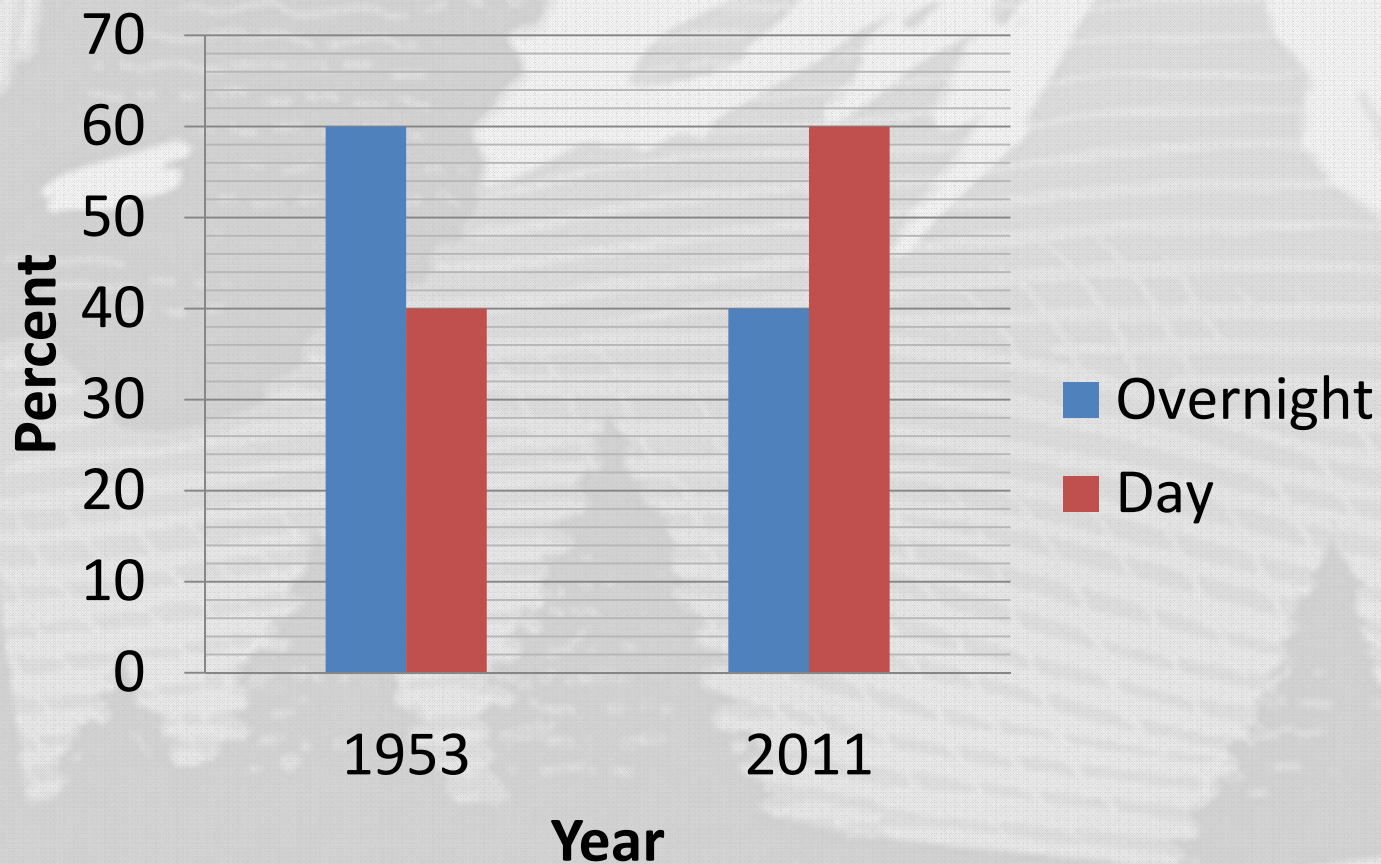




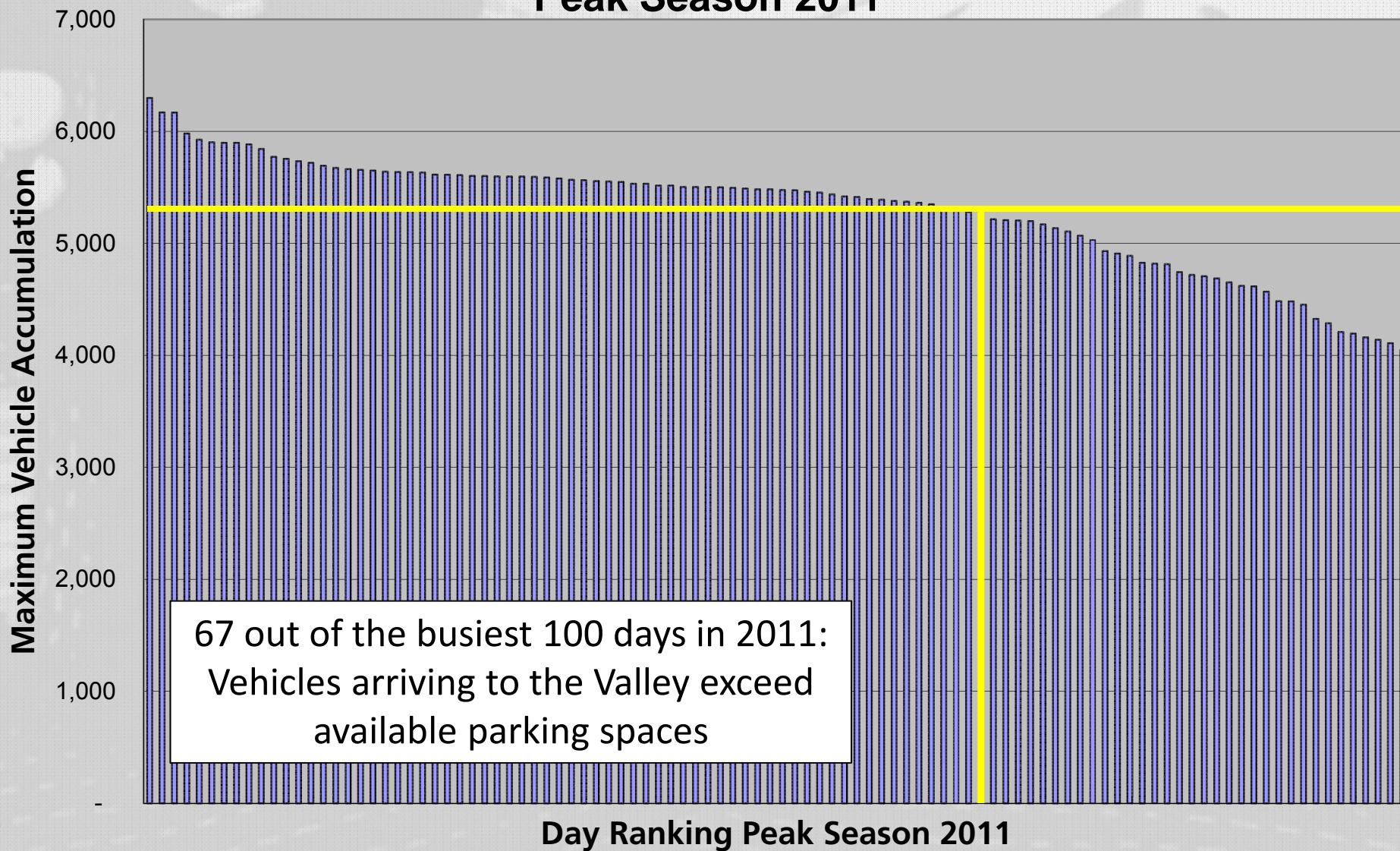
Photo: July 15, 2011  
Chapel Straight, Yosemite Valley







## Yosemite Valley Maximum Vehicle Accumulation By Date Peak Season 2011







Part 2

# PROCESS TO ADDRESS USER CAPACITY

PROVIDING ACCESS AND PROTECTING RESOURCES





# Key Points of User-Capacity Process

- Identifies kinds and amounts of use as appropriate.
- Integrated into overall river planning process.
- Not a single number.
- Is an outcome of the planning process, not predetermined.
- Involves both science and value judgments.
- Applies monitoring to ensure that use does not adversely effect or degrade river values.







# Process to Address User Capacity

1. Define river values and management goals
2. Document conditions and identify considerations
3. Analyze kinds of use
4. Develop concepts and themes for alternatives
5. Identify indicators and standards
6. Analyze use and impacts to river values
7. Define draft alternatives and initial capacities
8. Relate capacities to river value conditions
9. Monitor and adapt management





## Baseline Conditions Report

1. Define river values and management goals
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## Baseline Conditions Report

1. Define river values and management goals

2. Document conditions and identify considerations

3. Analyze kinds of use

## Preliminary Alts Concepts

4. Develop concepts and themes for alternatives

5. Identify indicators and standards

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**Baseline  
Conditions  
Report**

**Preliminary  
Alts Concepts**

**MRP DEIS  
Chapter 5**

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**Baseline  
Conditions  
Report**

1. Define river values and management goals

2. Document conditions and identify considerations

3. Analyze kinds of use

**Preliminary  
Alts Concepts**

4. Develop concepts and themes for alternatives

**MRP/DEIS  
Chapter 5**

5. Identify indicators and standards

6. Analyze use and impacts to river values

**MRP DEIS  
Chapters 6 and  
8**

7. Define draft alternatives and initial capacities

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**Baseline  
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Chapter 5**

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**MRP DEIS  
Chapters 6 and  
8**

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**Ongoing**

9. Monitor and adapt management





# Process to Address User Capacity

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# User Capacity Considerations

## Capacities are an Outcome of:

### 1. Biophysical Constraints

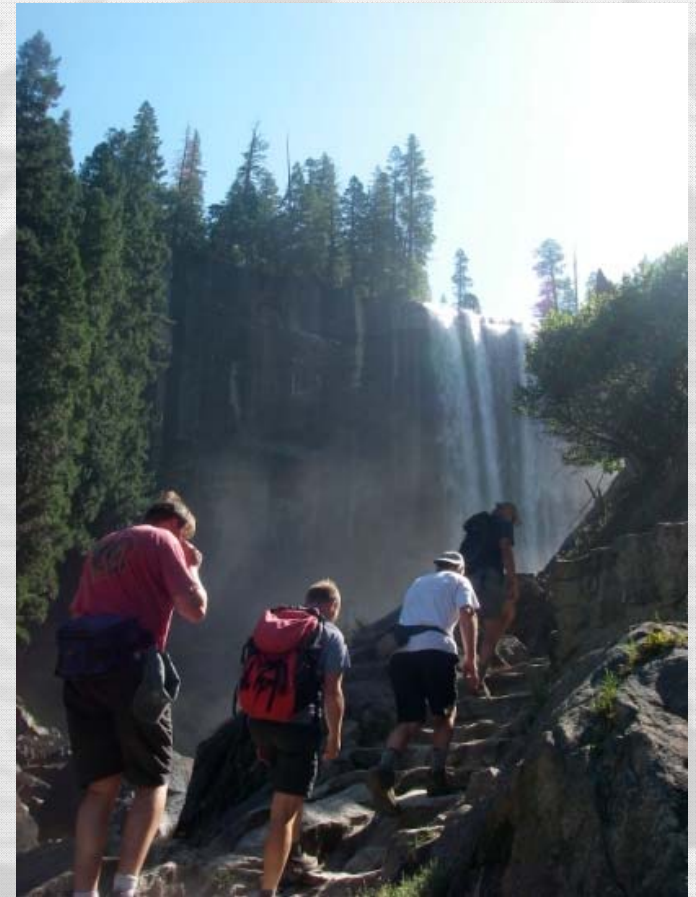
Rock-fall hazard, valley topography, floodplain, river buffer

### 2. Actions to Protect River Values

infrastructure location and design, mitigation measures

### 3. Capacity and Efficiency of Transportation System and Parking

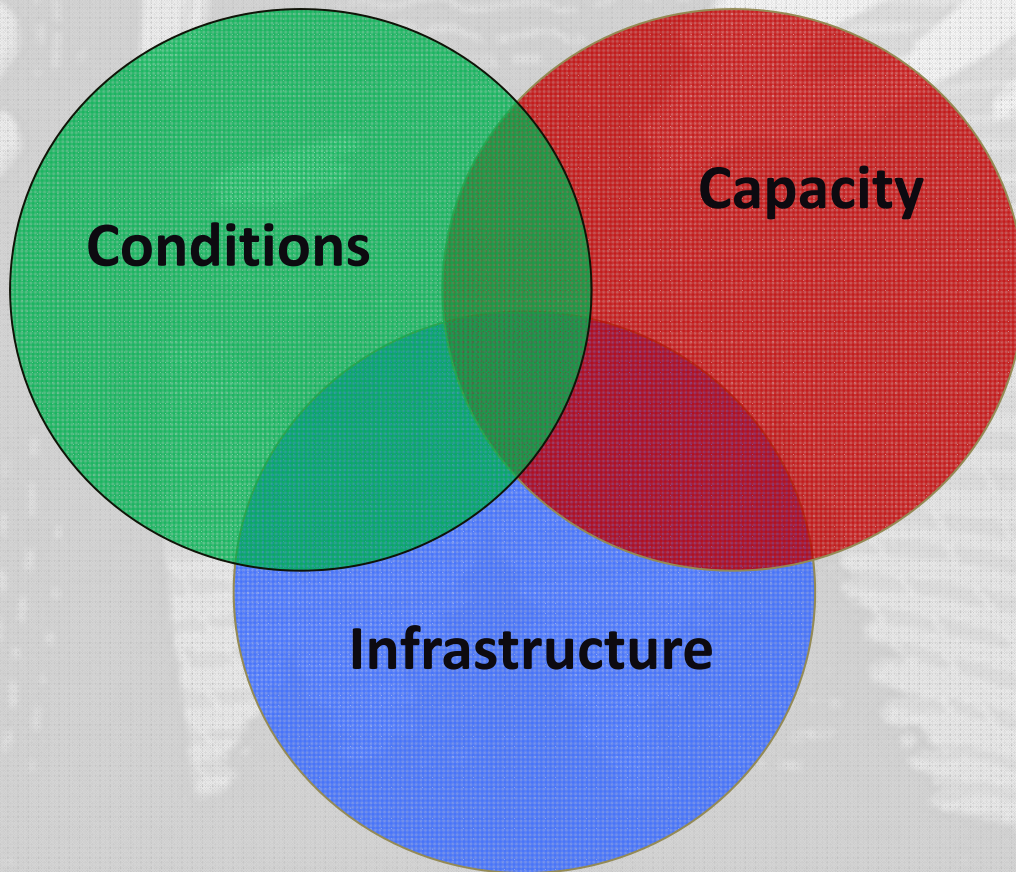
### 4. Visitor-use Patterns, Behaviors and Impacts







# Tradeoffs in the Merced River Plan

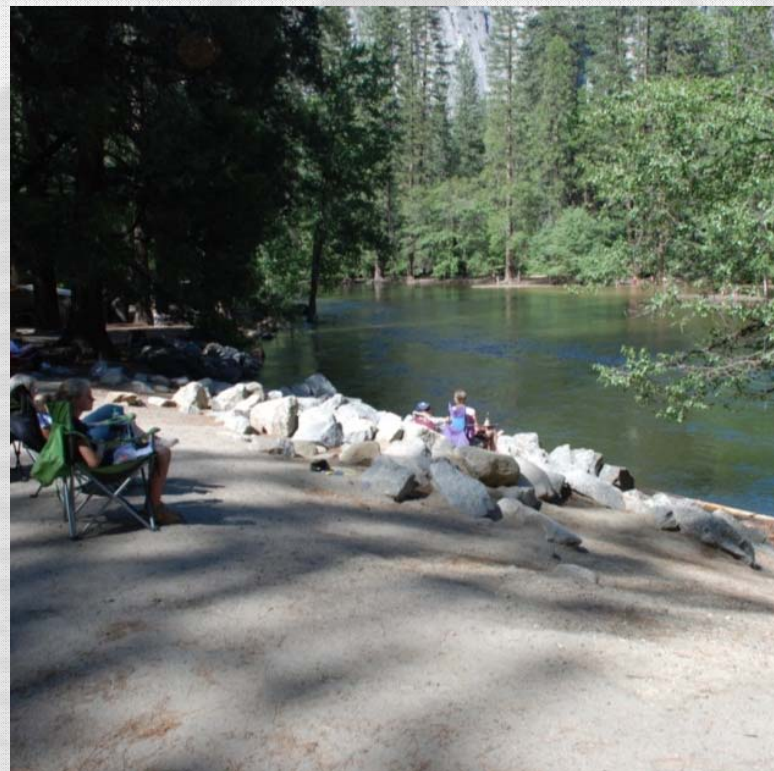






# Analyzing Kinds and Amounts of Use

1. Is there a potential effect on river values?
2. Which values may be affected?
3. Cause of effect
  - Kinds of use
  - Amounts of use
  - Location or timing of use
  - Infrastructure







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# Developing Concepts for Alternatives

- Major restoration within the 100-year floodplain
- Significant reduction in facilities and services

Alternative 2  
Self-Reliant Visitor  
Experiences



- Significant restoration within the 150 feet of river
- Marked reduction in facilities and services

Alternative 3  
Dispersed Visitor  
Experience



- Targeted restoration within 150 feet of river
- Reduced facilities and Services with significant camping increase

Alternative 4  
Resource-Based  
Visitor Experience



- Essential restoration within 100 feet of the river
- Reduced facilities and services with moderate camping increase

Alternative 5 (Preferred)  
Enhanced Visitor Experience



- Limited restoration within 100 feet of the river
- Expanded facilities and services with largest camping and lodging increase.

Alternative 6  
Diversified Visitor Experience







# Identifying Indicators and Standards

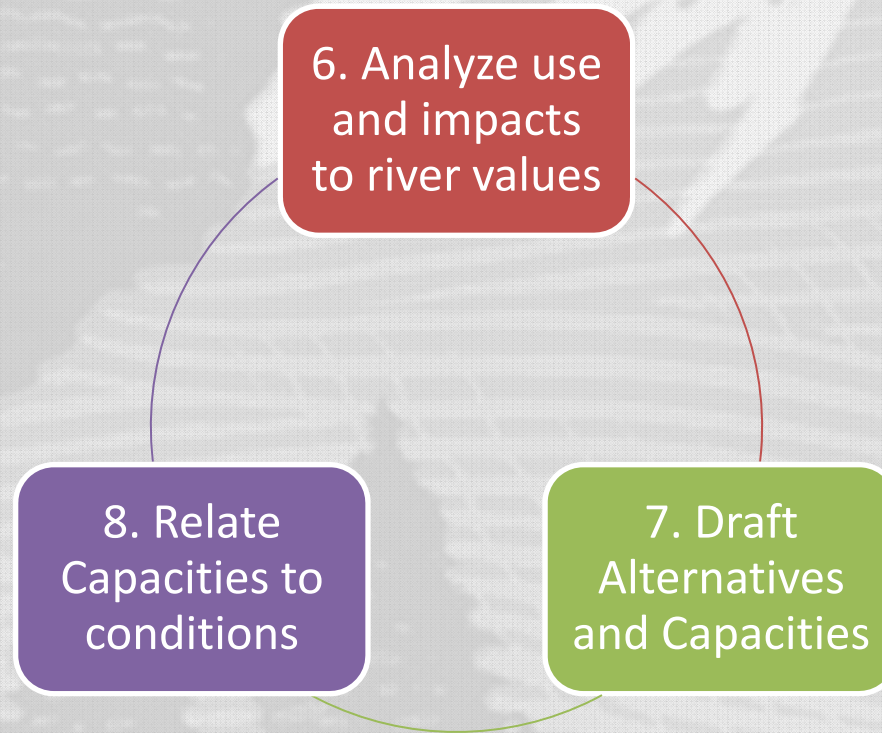
***Indicators*** are variables selected to represent important ecological, cultural, or experiential conditions in an given area.

***Standards*** define the thresholds for those indicators and establish the benchmark for acceptable conditions.





# Refining Capacities







# Refining Capacities

6. Analyze use and impacts to river values

**TABLE 6-6. SUMMARY OF KEY USER CAPACITY MANAGEMENT ACTIONS: YOSEMITE VALLEY**

Alternatives	1	2	3	4	5	6
	Current conditions	Self-reliant experience and selective floodplain restoration	Dispersed experience and selective riverbank restoration	Resource-based experience and targeted restoration	Enhanced experience and essential riverbank restoration	Dispersed experience and selective riverbank restoration
<b>Infrastructure</b>						
Lodging units	1,034	556	621	823	1,053	1,248
Camping	465	450	417	701	540	739
Roads and bridges	6 total	3 removed	3 removed	2 removed	1 removed	0 removed
Intersections	4-way	4-way	4-way	4-way	1 Round-about	2 Round-aboats
Restoration crossings	Yosemite Lodge On grade	On grade	On grade	On grade	Underpass	Underpass
Yosemite Village	On grade	On grade	On grade	On grade	On grade	Underpass
Length of fencing to protect sensitive areas	33,570	Same as Alt 1	Same as Alt 1	17,765 additional	17,765 additional	21,560 additional
<b>Policy and Regulation</b>						
Lodging capacities	Concession operated, available by reservation					
Camping capacities	NPS operated by combination of reservation system and first come first served					
East Valley traffic diversion	Yes	No	No	No	In future if needed	In future if needed
East Valley day use parking permit system	None	Yes	Yes	Yes	In future if needed	In future if needed
Food storage regulations	Food storage regulations at campgrounds and other areas in the Valley would continue.					

8. Relate Capacities to conditions

7. Draft Alternatives and Capacities

TABLE 6-4: SUMMARY OF USER CAPACITY-RELEVANT INDICATORS AND STANDARDS

Alternatives	1	2	3	4	5	6
	Current condition	Self-reliant experience and selective floodplain restoration	Dispersed experience and selective riverbank restoration	Resource-based experience and targeted restoration	Enhanced experience and essential riverbank restoration	Dispersed experience and selective riverbank restoration
<b>Biological indicators and other management actions</b>						
Meadow fragmentation – average						> 93% average for all; > 90% for individual
Riparian condition – % of reaches in high classification						> 20%
Riparian condition – % of reaches in moderate or high classification			90%			80%
<b>Densities at attraction sites or on trails (square feet per person; higher number means less dense/more space)<sup>1</sup></b>						
Primary viewing areas	50	70	60	50	50	40
Vernal Fall trail	40	60	60	50	40	35
East Valley multi-use and hiking trails	40	60	60	50	40	35
West Valley hiking trails	100	140	120	100	80	80
<b>Waterfront per person at beaches (linear waterfront per person; higher number means less dense/more space)<sup>1</sup></b>						
East Valley high use shore areas	10	10	20	10	5	
East Valley medium use shore areas	10	10	20	10	5	
West Valley low use shore areas	10			10		
<b>Boating densities (Boats per 400 feet; higher number means more dense/less space)<sup>1</sup></b>						
Stoneman Bridge to Sentinel Beach	6	1	2	6	3	9
<b>Transportation indicators (Vehicles on the ground at one time –VAOT)</b>						
Parking occupancy (VAOT)						< 90% of parking supply occupied

1. Standard: average cannot violate standard more than 10% of time between 10am and 4 pm.

TABLE 6-5. SUMMARY OF USER CAPACITIES BY ALTERNATIVE: YOSEMITE VALLEY

Alternatives	1	2	3	4	5	6
	Current management or "No action"	Self-reliant experience and selective floodplain restoration	Dispersed experience and selective riverbank restoration	Resource-based experience and targeted restoration	Enhanced experience and essential riverbank restoration	Dispersed experience and selective riverbank restoration
<b>Visitor overnight capacity</b>						
Camping	2,892	2,916	2,938	4,398	4,032	4,626
Lodging	3,672	1,842	2,069	2,826	3,639	4,380
<b>Total</b>	<b>6,564</b>	<b>4,758</b>	<b>5,027</b>	<b>7,224</b>	<b>7,729</b>	<b>9,006</b>
<b>Visitor day use capacity</b>						
Day parking	7,260	5,858	5,328	6,497	7,549	7,941
Regional transit	293	241	241	337	684	788
Tour buses	720	720	720	720	720	720
<b>Total</b>	<b>8,272</b>	<b>6,819</b>	<b>6,289</b>	<b>7,554</b>	<b>8,954</b>	<b>9,449</b>
<b>Administrative capacity</b>						
Employee housing	1,315	658	1,086	1,087	1,136	1,136
Employee day parking	Chart Area	332	332	332	332	332
<b>Total</b>	<b>1,647</b>	<b>990</b>	<b>1,418</b>	<b>1,419</b>	<b>1,468</b>	<b>1,468</b>





# Representing User Capacities

## User Capacity

- Used to calculate the number of people in an area at one time (PAOT)
- Based on maximum occupancies
- Specific to a type of use (day, overnight, parking)

## Visitation

- Use to calculate visitors over time
- Based on expected occupancies
- Includes all uses







# User Capacity

Each Alternative has a defined **user capacity** for each river segment.

## **Alt 5 (Preferred) Valley User Capacities\*:**

Day Use	8,954 PAOT
Overnight Use	7,729 PAOT
<b>TOTAL</b>	<b>16,683 PAOT</b>

\* Administrative use is an additional 1,568 PAOT





# User Capacity and Visitation

Estimates of **total peak daily visitation** are derived from user capacities.

- Current Peak Daily Visitation: **20,900 people**
- Alt. 5 Peak Daily Visitation: **19,900 people**
- Alternatives range from: **13,900-21,800 people**

***User Capacity is the “container”; Visitation is how it is likely to be filled and refilled during the course of a day.***





Part 3

# **CAPACITIES REPRESENTED IN THE MRP DEIS**





# Types of Capacities

## Overnight Use

- Camping
- Lodging
- Wilderness



## Day Use

- Vehicle Spaces

## Administrative Use

- Bed Spaces



## Transportation System

PROVIDING ACCESS AND PROTECTING RESOURCES





# CAPACITY UNITS: OVERNIGHT USE

## Management Goals:

- Protect natural processes
- Promote visitor enjoyment





# Calculating Capacity: For Overnight Use

- People at One Time (PAOT) measure
- Wilderness: Based on zone capacities and trailhead quotas.
- Valley/Wawona: Based on Maximum occupancy
  - Lodging = pillow counts (~4 persons/room)
  - Camping = site occupancy (6 persons/site)

## Overnight Visitor PAOT

Wilderness

385 PAOT

Valley

7,729 PAOT

Wawona

787 PAOT





# Lodging Units

	No Action	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
<b>Merced River Above Nevada Fall</b>						
Merced Lake High Sierra Camp	22 (60 beds)	0	0 (15 beds)	0	11 (42 beds)	22 (60 beds)
<b>Yosemite Valley</b>						
The Ahwahnee	123					
Housekeeping Camp	266	0	0	100	232	232
Curry Village	400	433	355	355	453	453
Yosemite Lodge	245	0	143	245	245	440
Total Valley Lodging	1,034	556	621	823	1,053	1,248
<b>Wawona</b>						
Wawona Hotel	104					
<b>Total Lodging in Corridor</b>	<b>1,160</b>	<b>660</b>	<b>725</b>	<b>927</b>	<b>1,168</b>	<b>1,374</b>
% Change corridor wide		-43%	-37%	-20%	+2%	+18%





# Camping Units

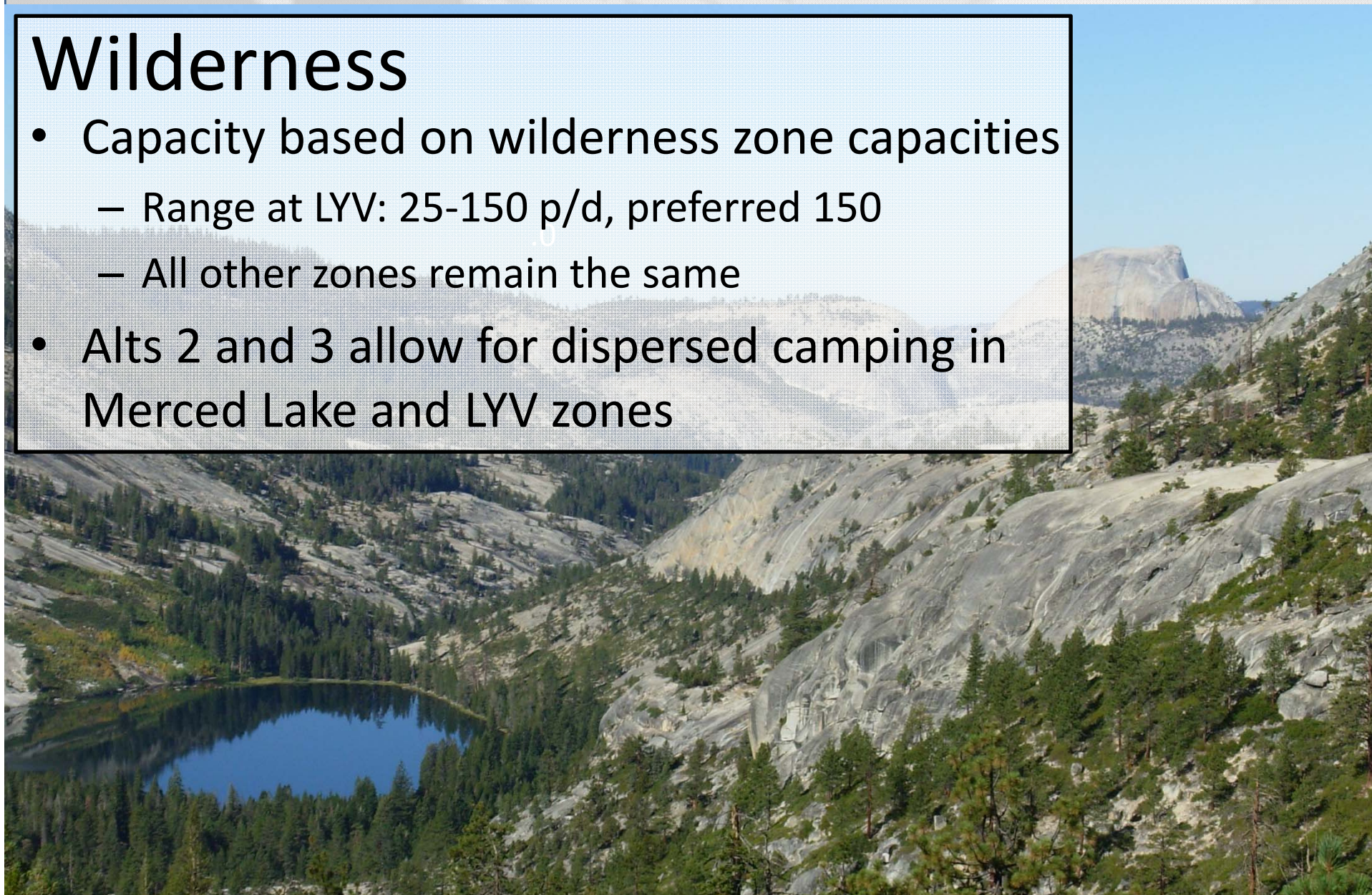
	Alt 1	Alt 5	Details
<b>Yosemite Valley</b>			
Backpackers	25	10+16	16 walk-in sites outside of the 100 year floodplain
Camp 4	35	35 + 35	No change to this National Historic Register site, 35 walk-in sites constructed east of Camp 4
Lower Pines	76	71	5 sites within 100 feet of the river removed
North Pines	86	72	14 sites within 100 feet of the river removed
Upper Pines	240	238 + 87	36-site RV, 49 walk-in, 2 group sites
Yellow Pine Admin Site	4	4	Group administrative sites
Former Upper River	0	30	30 walk-in sites
Eagle Creek	0	42	40 auto sites and 2 group sites
<b>Wawona</b>			
Wawona Campground	99	86	Sites removed within 100 feet of river or culturally sensitive areas
<b>Total Camping in Corridor</b>	<b>565</b>	<b>726</b>	





# Wilderness

- Capacity based on wilderness zone capacities
  - Range at LYV: 25-150 p/d, preferred 150
  - All other zones remain the same
- Alts 2 and 3 allow for dispersed camping in Merced Lake and LYV zones







# Administrative Use

- Replace substandard housing with code compliant units
- Relocate some employees to El Portal or other sites outside of the river corridor
- Reduce and relocate employee parking in appropriate locations







# Overnight Use Capacity Management

- **Camping and Lodging**
  - Continue reservation systems for campsites and lodging facilities
- **Wilderness**
  - Maintain trailhead quota system
    - Monitor trailhead quotas as necessary to maintain zone capacities
  - Continue monitoring efforts for encounter rates on major trail segments.





# Day Use: Management Goals and Considerations

- Freedom to explore by private vehicle
- Options for public transit
- Out-of-Valley parking
  - in El Portal
  - West Valley Temporary Overflow vehicle staging area
- Reduce congestion and crowding
  - Pedestrian Underpass
  - Traffic Circle







# Calculating Capacity for Day Use

- People at One Time (PAOT) measure
- Vehicle Based Estimates
  - Contributions from personal vehicles, commercial tours, and regional transit

## Day Visitor PAOT

Wilderness

369 PAOT

Valley

8,954 PAOT

Gorge

869 PAOT

El Portal

740 PAOT

Wawona

1,606 PAOT





# Roadside vs. lot parking

- Parallel and angled parking

- Easy to see and use
- Traffic “friction”
- Diminishes naturalness and viewscales
- Resource damage w/o curbing
- Some safety problems



- Lot parking

- Possible screening
- Improved safety
- Encourages visitor immersion
- Efficiency is an issue







# Improved intersections vs. traffic flow

## Development traffic flow correlation

- Bottlenecks due to ped crossings, stop sign junctions, and 1-lane capacity
- Affects travel times and queue lengths

## Other tradeoffs

- Costs
- Space for improved intersections
- Loss of naturalness
- Construction impacts
- Opposition by the unfamiliar



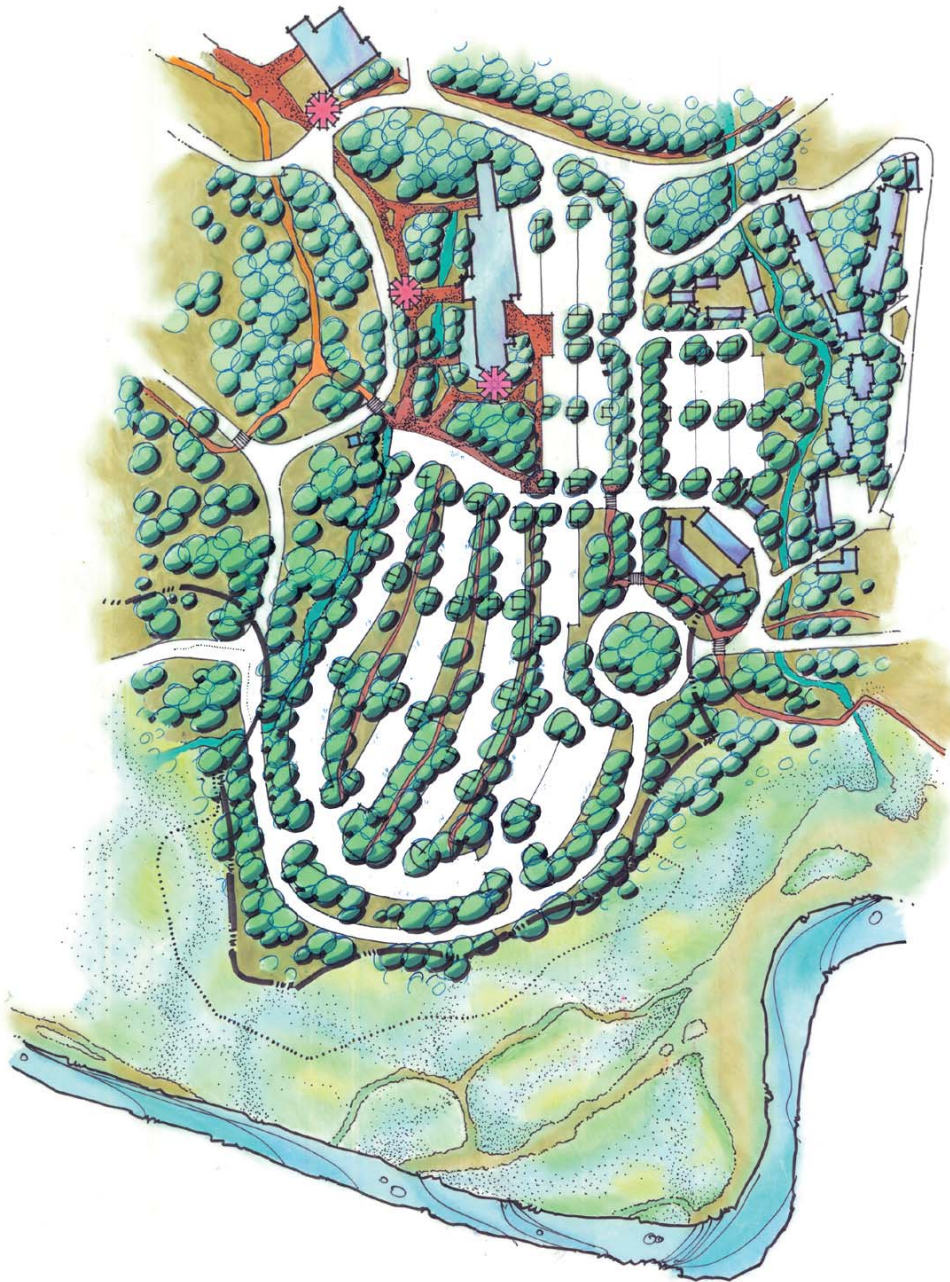




# Yosemite Village Day-Use Parking Area

## Preferred Alternative:

- Increase parking capacity
- Relocate admin facilities
- Move parking away from river
- Designate walkways visitor services
- Re-align roads to promote vehicle flow







# Day User Capacity Management

- Proactive day-visitor traffic and parking management program
- Expansion of public transit on other corridors
- Extension of Valley shuttles to West Valley
- Strategic placement of day-use parking
- Increased efficiency in the overall traffic system







# MANAGEMENT SITUATION: TRANSPORTATION

Management Goals:

- Improve System Performance
- Provide Equitable access for all visitors





# Arriving to the Park

(70% of All Visitors to Yosemite Valley)

- Personal Vehicle = 84.4%
- Commercial Tour Bus = 4.8%
- RV = 3.2%
- YARTS = 1.3%
- Motorcycle = 1.1%
- Bicycle = 0.2%
- Walk = 0.6%
- Other = 4.4%







# Transit Options

Corridor	Alt 1 (No Action)	Alt 5 (Preferred)	Range of Alts
Highway 140 From: Merced/Mariposa (year round)	8 round trip runs / day	12 round trip runs / day Additional stop at the El Portal remote day-use parking area	8 -12 runs
Highway 41 From: Fresno/Oakhurst	No service	12 runs per day Dedicated shuttle to Badger Pass for shuttled to Glacier Point	1-12 runs per day
Highway 120 West From: Groveland/Sonora (summer only)	1 run per day	4 runs per day	1-8 runs per day
Highway 120 East From: Inyo/Mono County (summer only)	1 run per day	2 runs per day	1-2 runs per day

	No Action	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Total Visitors per Day by Regional Transit	523	475	475	648	1295	1468





# Shuttle Options

Valley Shuttle	Alt 1 (No Action)	Alt 5 (Preferred)	Range of Alternatives
East Valley (year round)	10 min peak interval	10 min peak interval	10 min peak interval
Visitor Center Express* Camp 6 to VC	15 min peak interval	7 min peak interval	7 min to 15 min intervals
El Cap Crossover*	30 min peak interval	30 min peak interval	15 min to 30 min intervals
West Valley- Bridalveil Fall*	No service	60 min peak interval Expanded shuttle from VC to Bridalveil Fall with additional stops	No Service (2,3) 60 min intervals (4,5) 30 min intervals (6)
Wawona Shuttle			
Wawona to Mariposa Grove*	20 min interval	20 min interval	Continue Existing Service
Wawona to Yosemite Valley*	1 round trip run per day	Service discontinued in favor of transit on Hwy 41	Service discontinued in favor of transit on Hwy 41

\*routes run during summer season only.





# Traffic and Parking Management

- 1) Traffic and parking management program
- 2) Expand public transit and remote parking in El Portal
- 3) Valley shuttle extended to Bridalveil Falls
- 4) Diversion to overflow parking at West Valley area
- 5) Diversion to overflow parking in El Portal
- 6) Diversion at checkpoints in park and at entrance stations to other destinations
- 7) Staggered transportation fee at entrance stations (for peak use days)
- 8) Day use permits by mix advanced and first-come-first-served reservation







# Additional Parking Management

## Managing through Reservations

### East Valley Day-use Parking Permit System

#### Parameters to consider:

- Economic implications for gateway communities
- Seasonality
- Allocation
- Distribution
- Compliance
- Costs and Fees







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# Monitoring Efforts







# ENHANCING THE VISITOR EXPERIENCE

## Providing Access and Protecting Resources

Recreational Opportunity, Setting, and Experience all matter.

Therefore the MRP:

- Ensures that all capacities are protective of river values
- Develops a range of alternatives that represent a variety of social conditions
- Considers management and monitoring as an integral part of a sustainable process





# User Capacity/Visitation

## East Yosemite Valley Peak-Day:

Current User Capacity (People-at-one-time):	13,594 PAOT
<b>Current free-flow visitation:</b>	<b>14,800 people</b>

Effective 2011 Capacity	14,836 PAOT
2011 Observed Max Visitation	<b>20,900 people</b>

Alternative 5 User Capacity:	16,683 PAOT
<b>Alternative 5 managed peak-day visitation:</b>	<b>19,900 people</b>

<b>Range of Alternatives – Peak-Day Visitation</b>	<b>13,200 – 21,800 people</b>
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# Where to Learn More

## Merced River Draft Plan and EIS

- Chapter 6- User Capacity and Visitor Use
- Chapter 5- River Values and their management
- Chapter 8a- Alternatives
- Appendix N- Determination of Extent Necessary

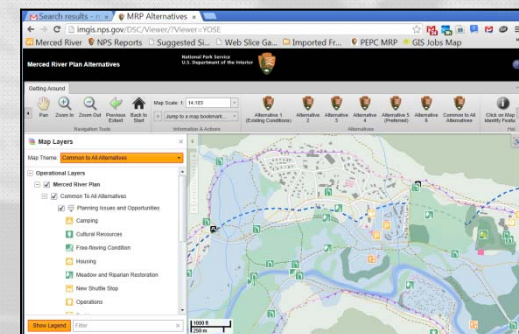
## On the Internet

- For fact sheets and research studies, visit: [www.nps.gov/yose/parkmgmt/mrp.htm](http://www.nps.gov/yose/parkmgmt/mrp.htm)
- For the Merced River Plan interactive map, visit: <http://imgis.nps.gov/yose>

## MRP Document Organization

### Volume 1

- Abstract
- Executive Summary
- Chapter 1: Introduction
- Chapter 2: Purpose and Need for the Plan
- Chapter 3: Boundaries and Segment Classifications
- Chapter 4: Section 7 Determination Process
- Chapter 5: River Values and their Management
- Chapter 6: Visitor Use and User Capacity
- Chapter 7: Facilities and Services Analysis
- Chapter 8a: Alternatives
- Chapter 8b: River Value Analysis

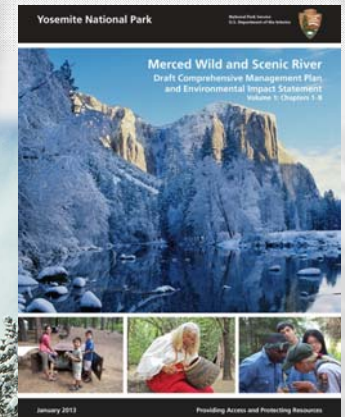






# Merced River Plan Public Review and Comment Period

- 100-day review period  
January 8 – April 18, 2013
- Comment online  
[http://parkplanning.nps.gov/mrp\\_deis](http://parkplanning.nps.gov/mrp_deis)
- Or via email:  
[yose\\_planning@nps.gov](mailto:yose_planning@nps.gov)
- Or via US mail:  
National Park Service  
Merced River Plan  
P.O. Box 577  
Yosemite NP, CA 95389







# Questions?

