



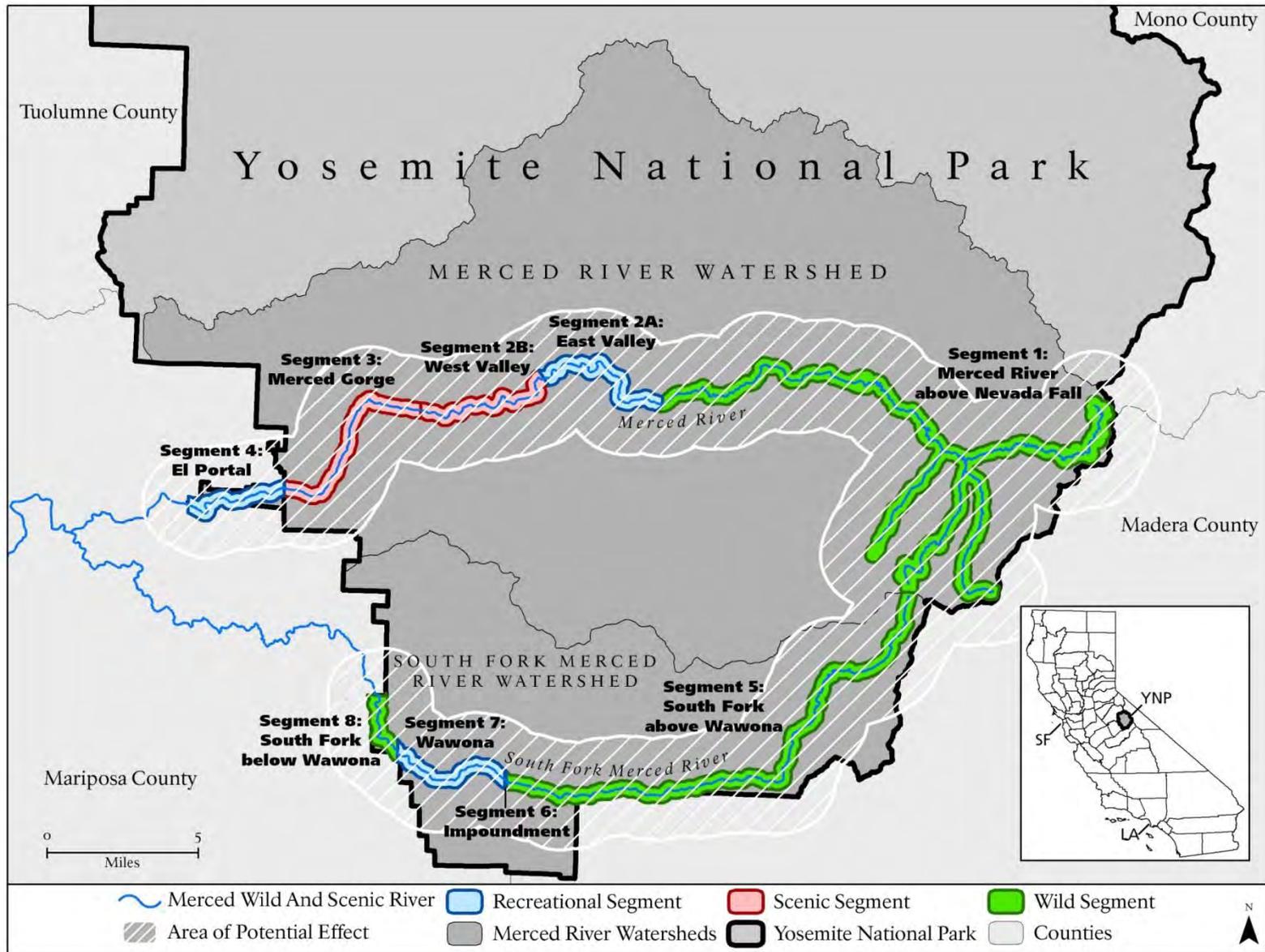
MERCED RIVER

Comprehensive River Management Plan

...Providing Access and Protecting Resources



Measuring and
Monitoring User Capacity





Wild and Scenic Rivers Act 1968

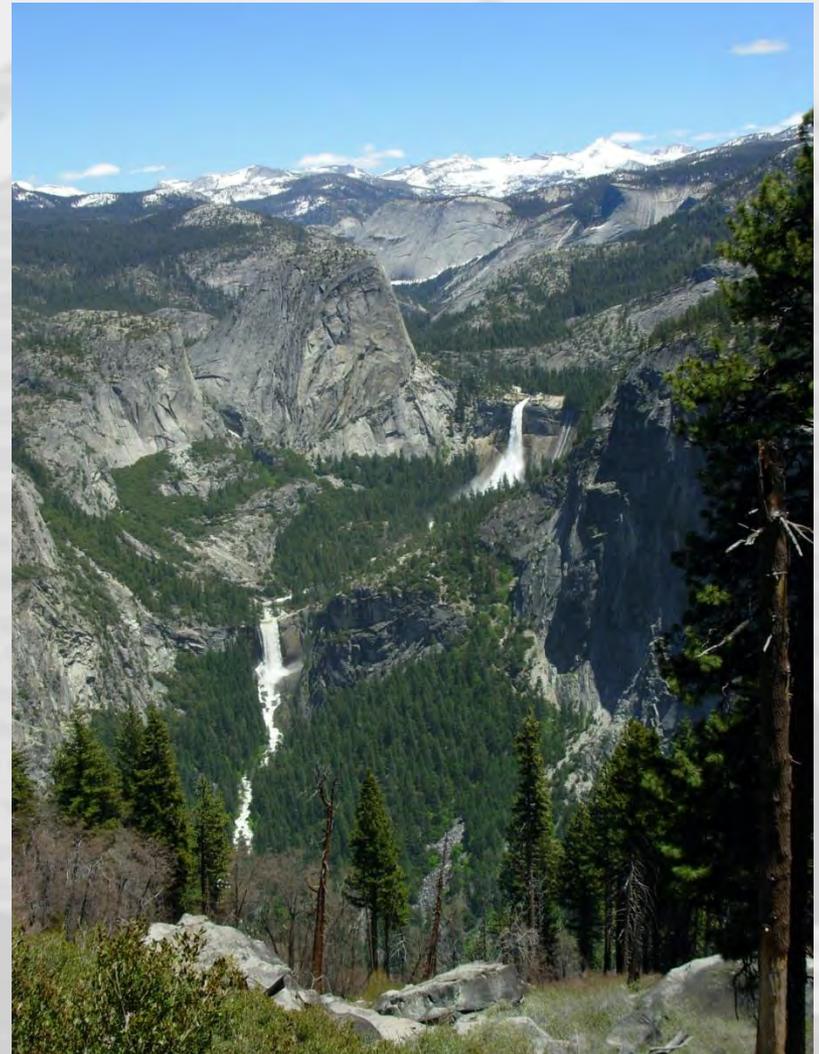
- Protects free-flowing condition
- Protects water quality
- Protects and enhances the river's *Outstandingly Remarkable Values* – the qualities that make the river worthy of special protection
- Ensures visitor access and enjoyment
- **Requires management plans to be completed to provide long-term guidance**





WSRA and the MERCED RIVER

- 1987: River designated
 - *1997 – 100 year flood event*
- 2000: Initial plan developed and published
- 2005: Supplement prepared
- 2014: Final Plan Released and Record of Decision Signed





What is User Capacity?

Wild and Scenic Rivers Act

- *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”*

Why

Secretarial Guidelines

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

What

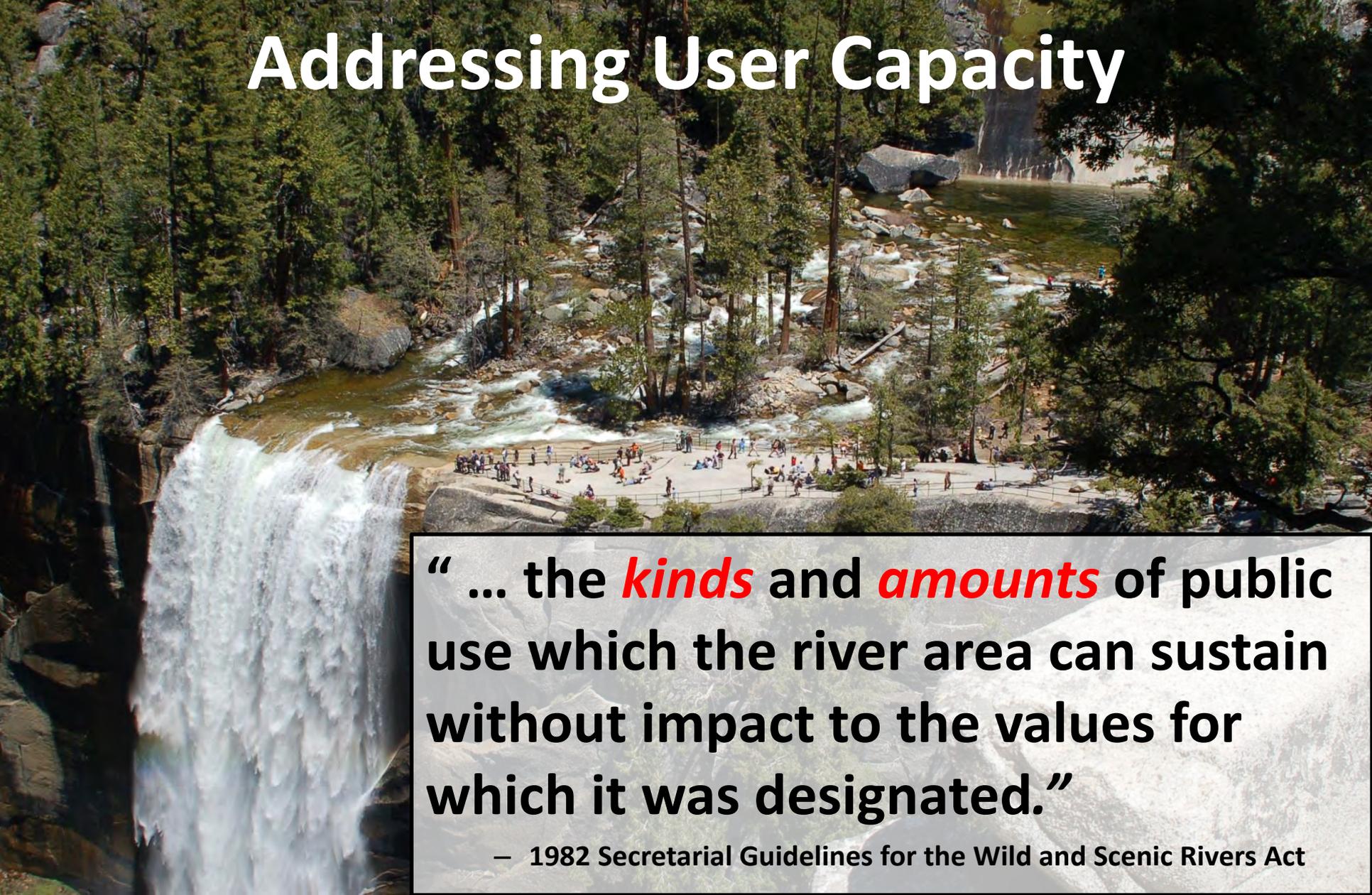
U.S. Court of Appeals for the Ninth Circuit

- 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.**

How



Addressing User Capacity

A high-angle photograph of a river flowing through a dense forest. In the foreground, a waterfall cascades down a rocky ledge. The river continues downstream, surrounded by lush green trees. A large group of people is gathered on a rocky bank in the middle ground, some sitting and some standing, enjoying the view. The scene is bright and sunny, with shadows cast by the trees.

“ ... 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



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





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





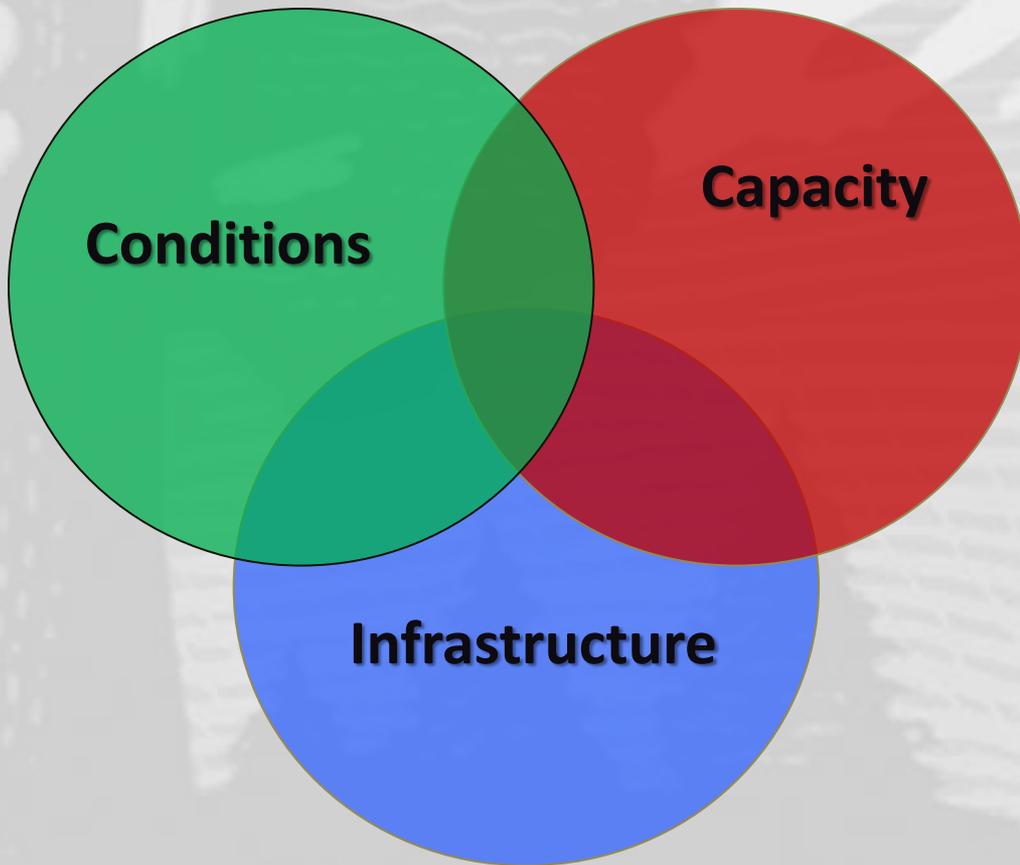
Identifying Indicators and Standards for Desired Conditions

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.

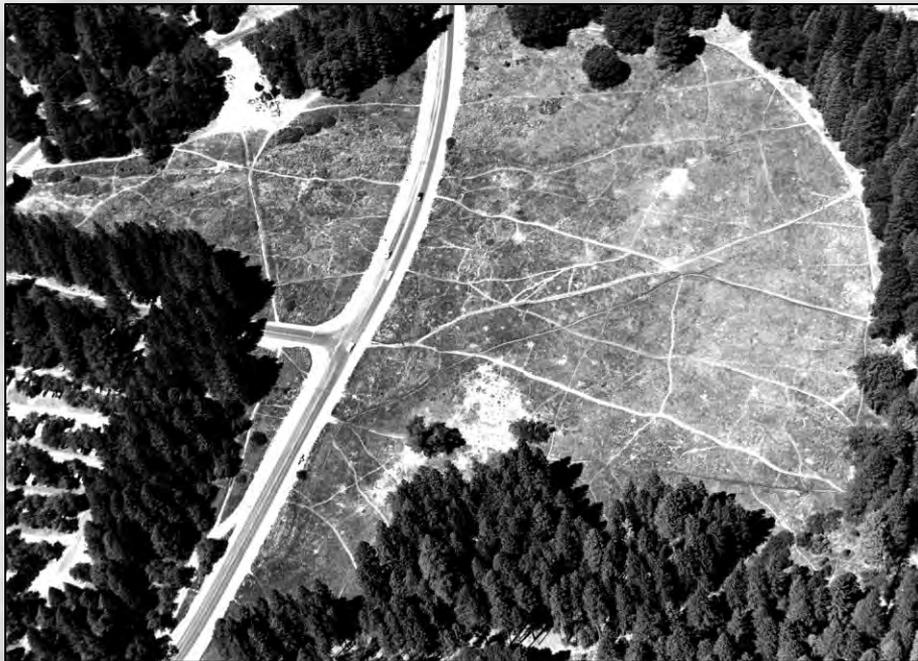


Tradeoffs in the Merced River Plan





Example 1: Meadow Protection & Enhancement



1987: Stoneman Meadow informal trails

Using Largest Patch Index (LPI-5)

Management Standard is **93%** weighted mean (segment-wide) with no individual meadow less than **90%**

Adverse impact is **81%** weighted mean (segment-wide)

Degradation is **40%** weighted mean (segment-wide)



Potential Responses and Trade-offs

Adjust Infrastructure

- Trail delineation
- Removal of informal trails
- Recontour topography
- Fences
- Boardwalks

Adjust Capacity

- Increased education and enforcement
- Adjust roadside parking
- Manage access



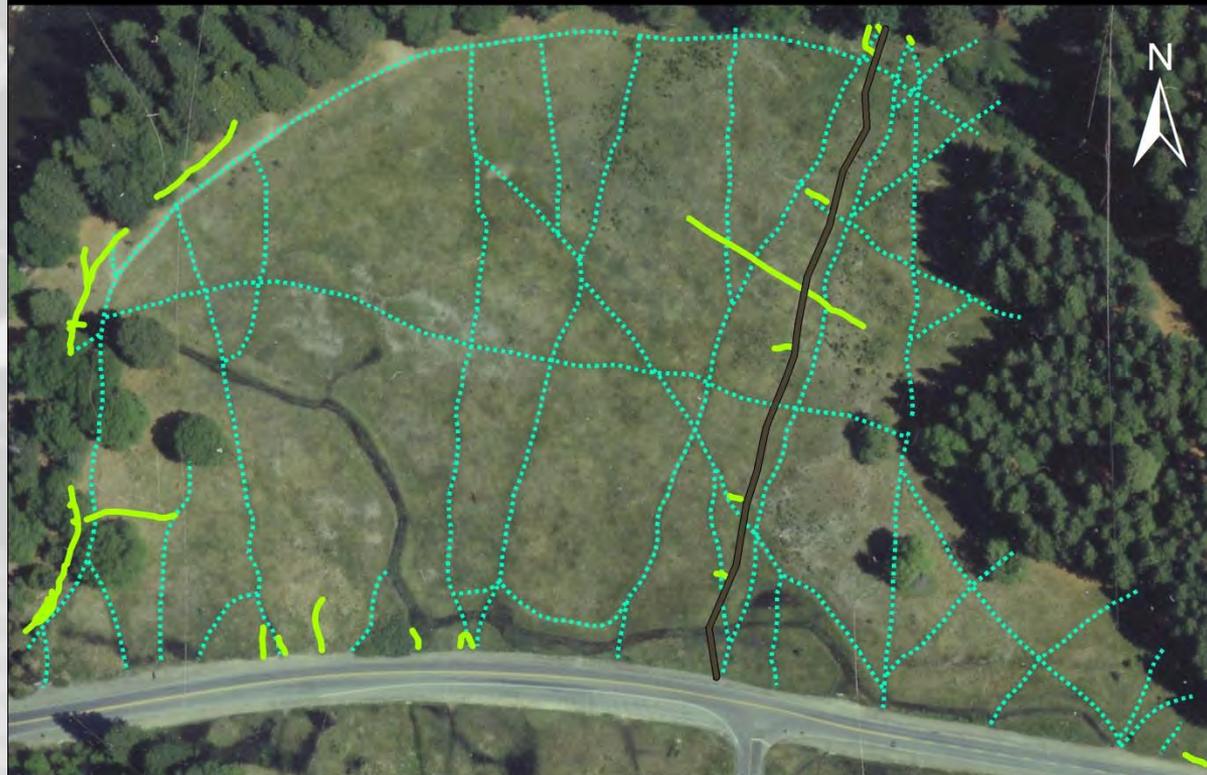
El Capitan Meadow in 2000

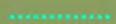


El Capitan Meadow in 2012

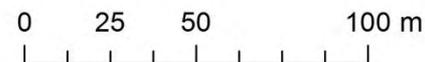


Stoneman Meadow 1978 vs. 2011

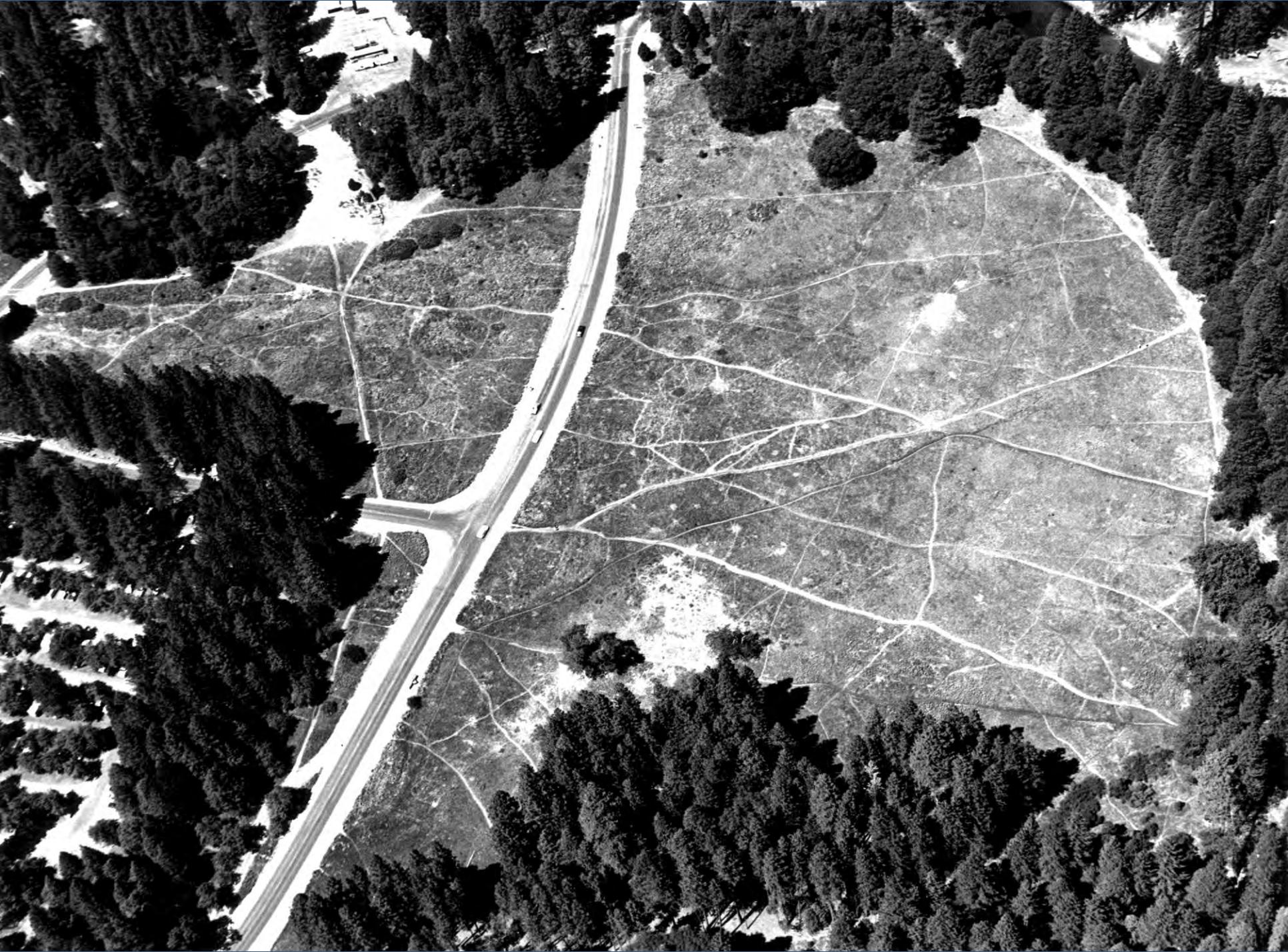


Trail Symbol	Total length of trails	LPI-5 Value
1978 	3170 meters	40.40
2011 	327 meters	99.12

 Current Boardwalk



These 1978 informal trail values were determined based on the presence of trails in this aerial photograph from the Yosemite Archives. For LPI-5 values, all 1978 trails were given a default trail width of 12".



8/2005

Image © 2012 DigitalGlobe

Google earth

Imagery Date: 8/9/2005

1987

37°44'25.89" N 119°34'15.38" W elev 3978 ft

Eye alt 5455 ft

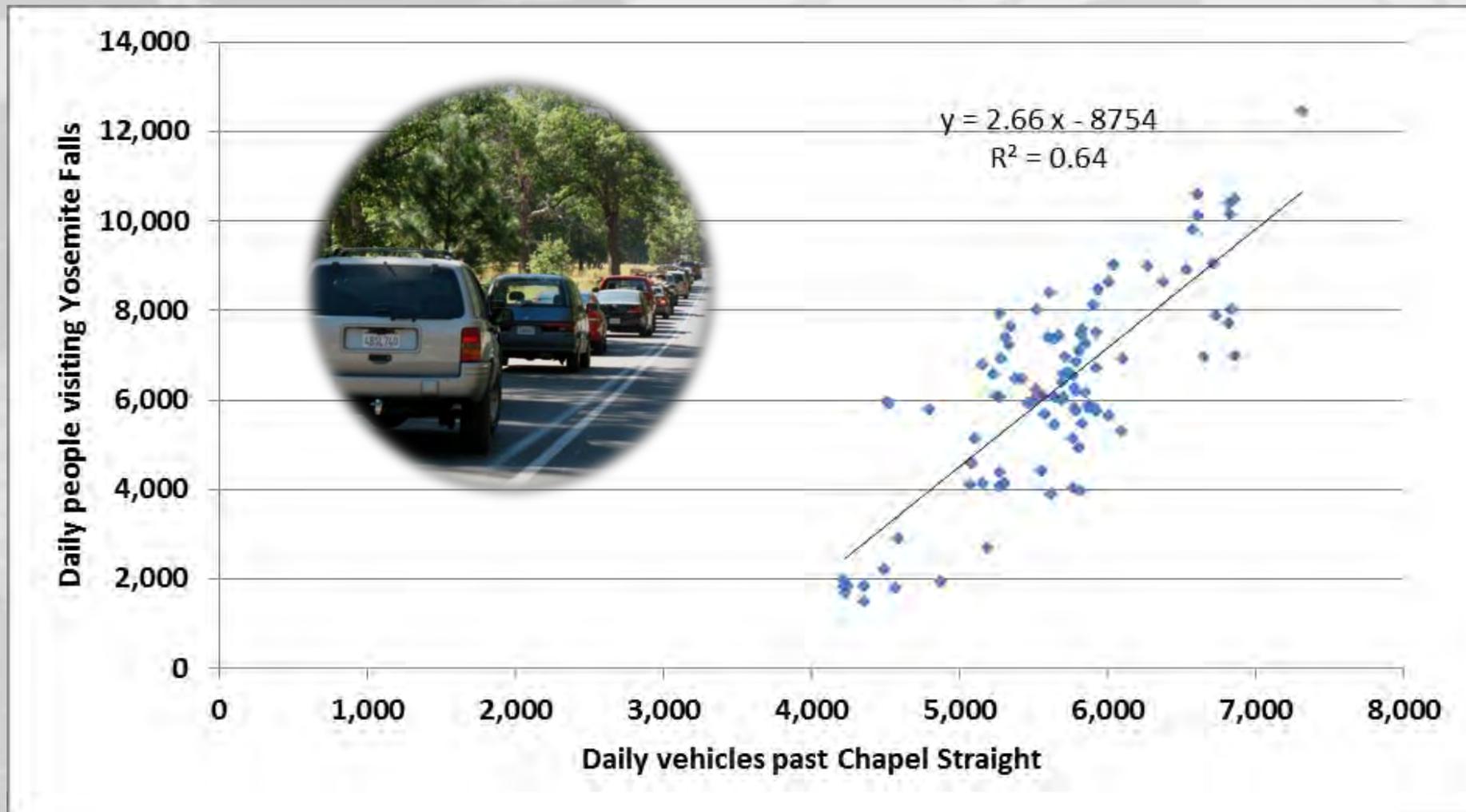


Example 2: Recreational Use & Crowding



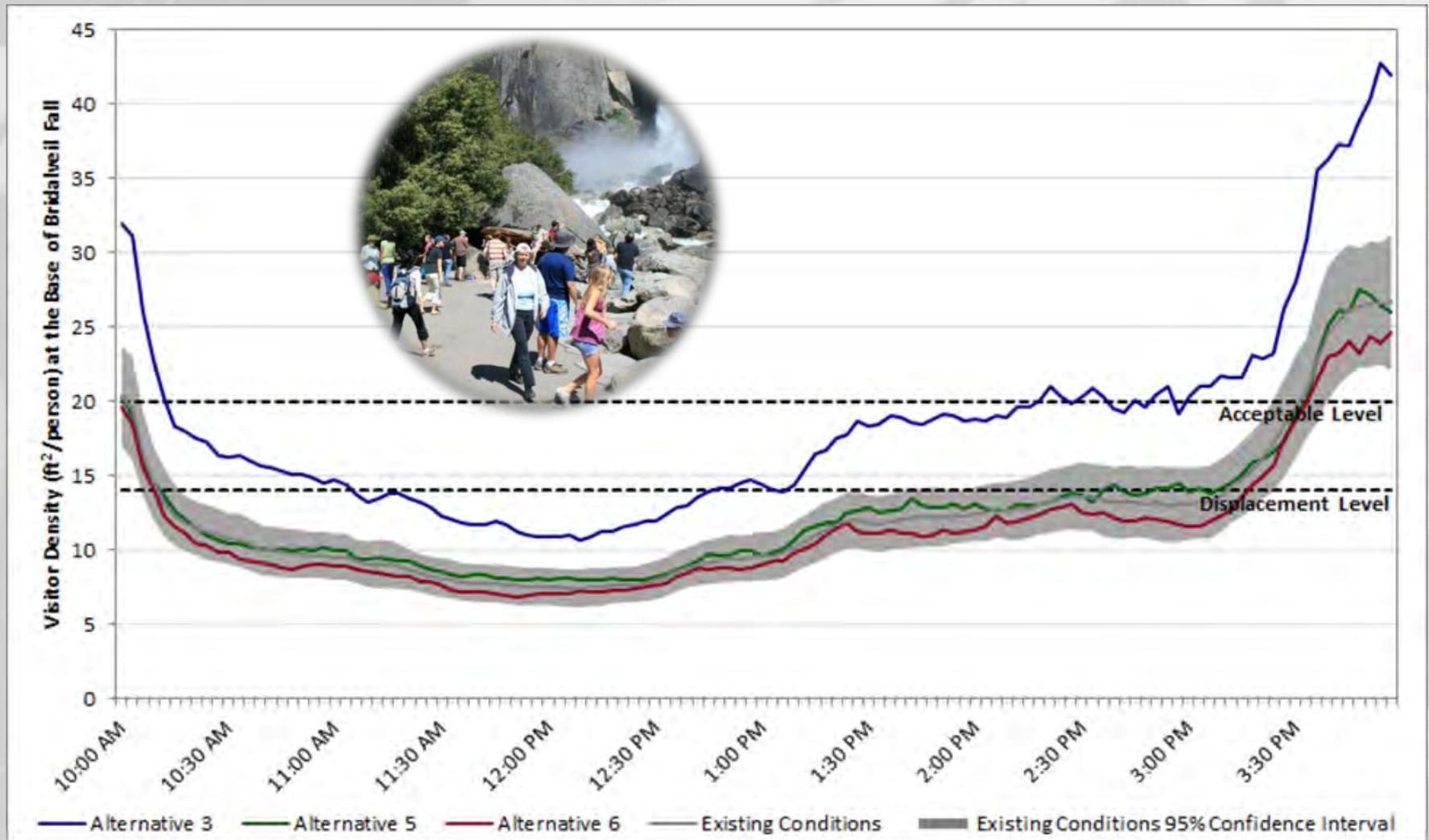


Understanding Use Relationships: What can we measure?



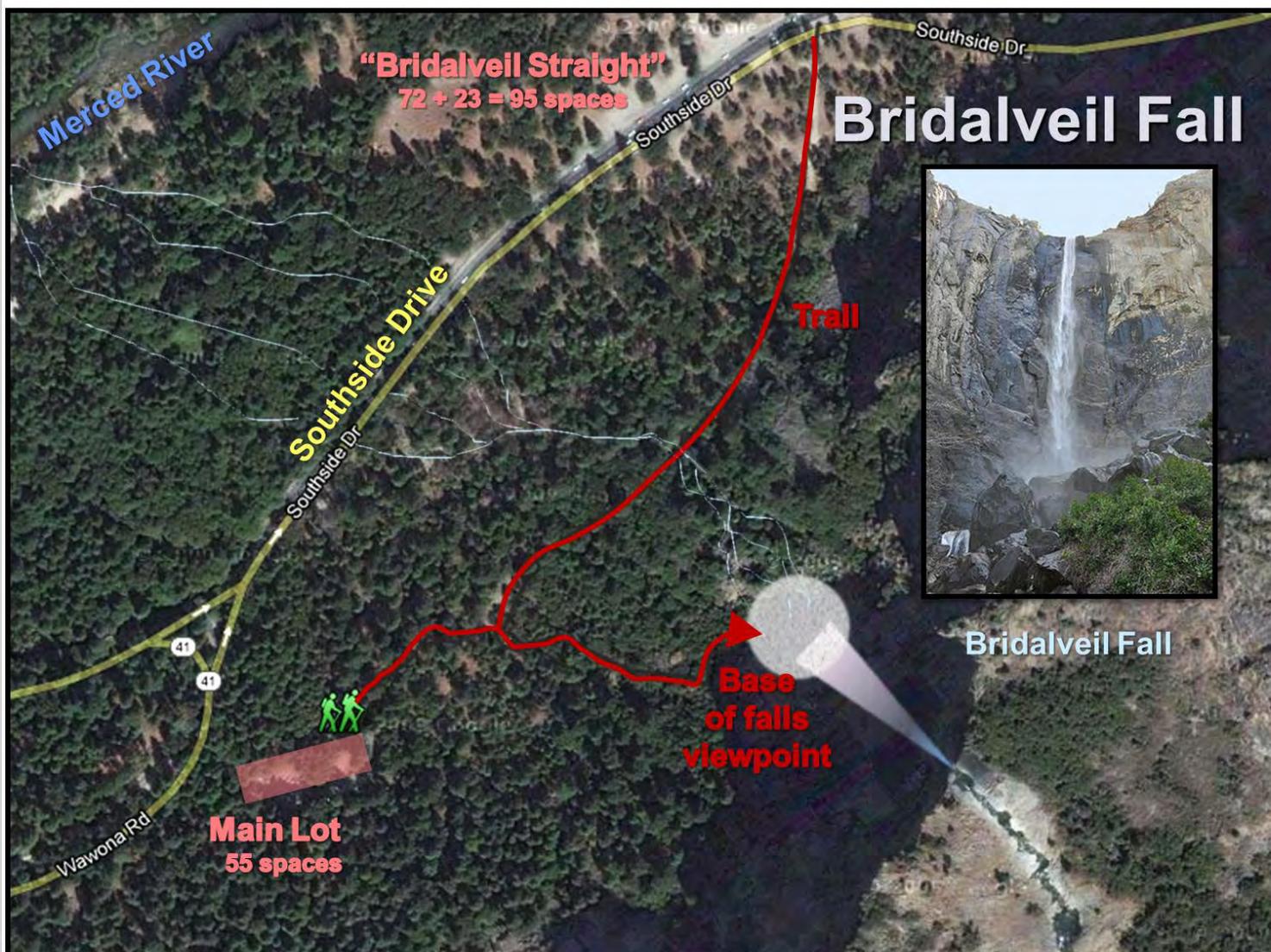


Understanding Use Patterns





Understanding Visitor Use Patterns





Lessons Learned: Questions to ask when considering capacity decisions:

- Determine what is important to you
 - What type of experience are you providing?
 - What resources are you protecting?
- Understand your “sideboards”
 - What can we consider, and what is out of bounds?
- Outline assessment needs
 - What do we know? What do we need to find out?
- Define the true problem



