

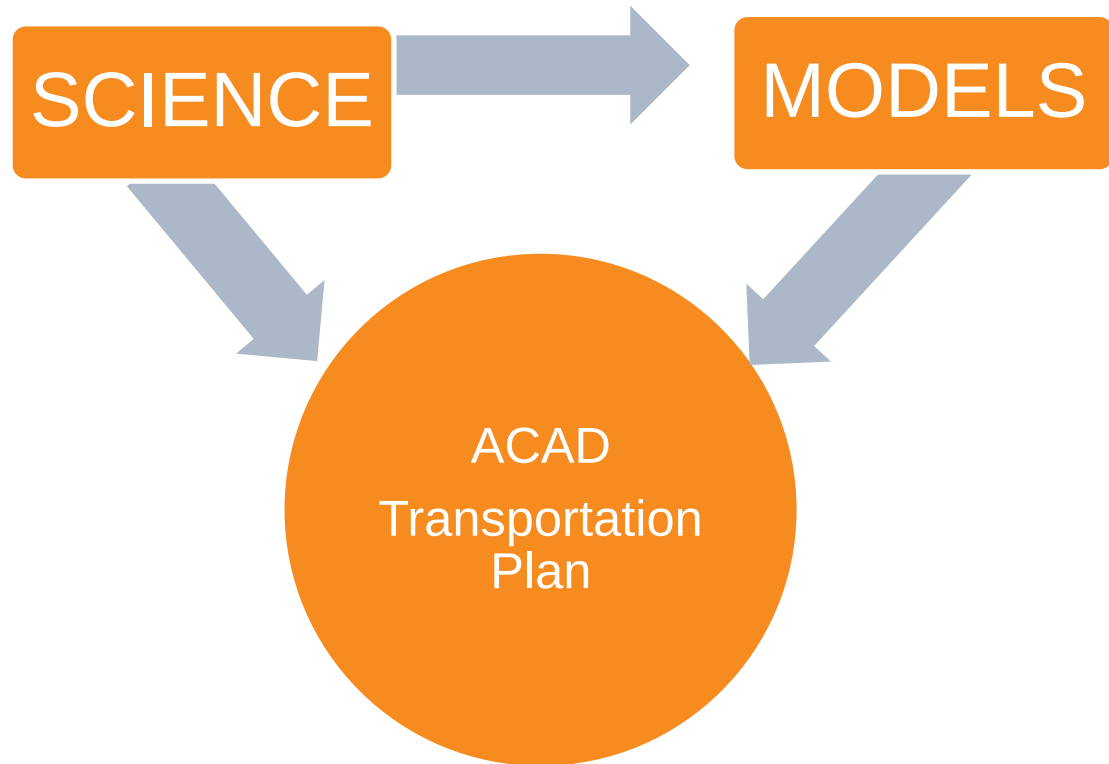


Managing Success: Modeling the Plan

Prepared for: Acadia Science Symposium 2018

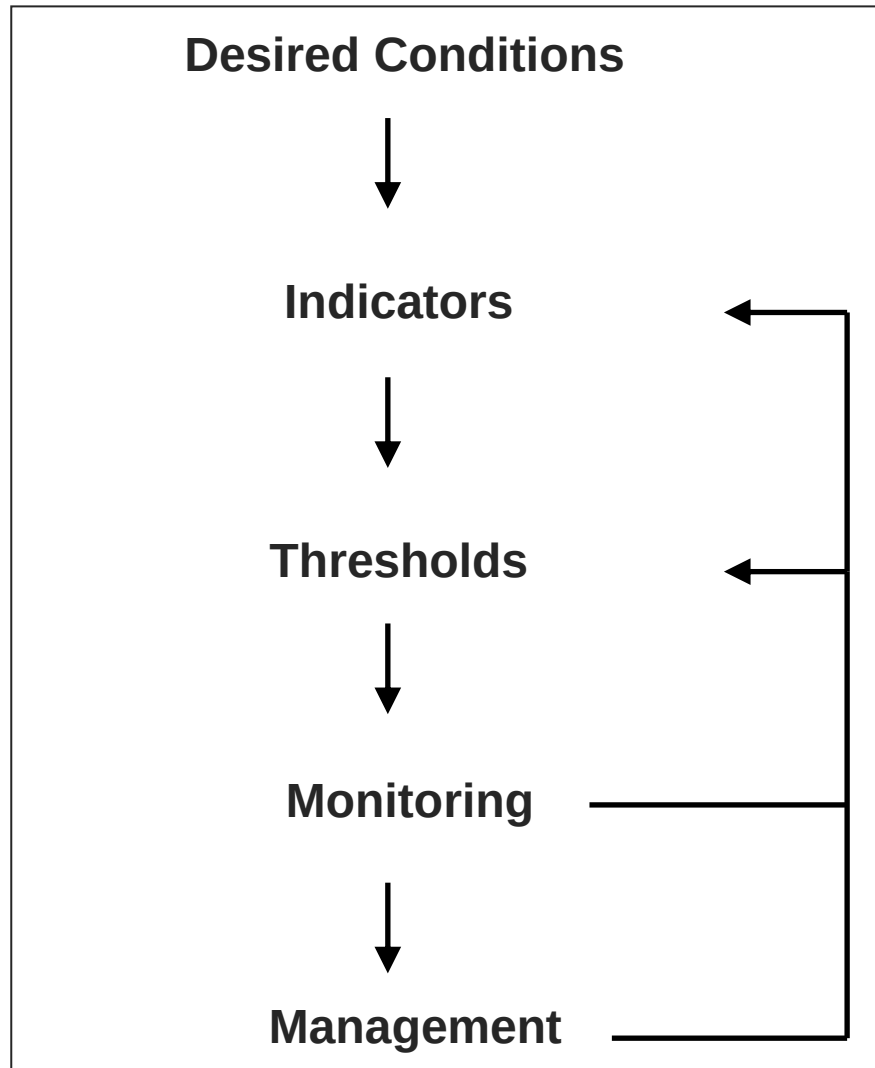
October 20, 2018

Overview



- Using models to inform transportation planning
- The role of partnerships and collaborations

Indicators, Thresholds, & Monitoring



Desired conditions:

Narrative statements describing conditions the agency aims to provide

Indicators: Specific, measurable, manageable proxies for management objectives that describe current conditions

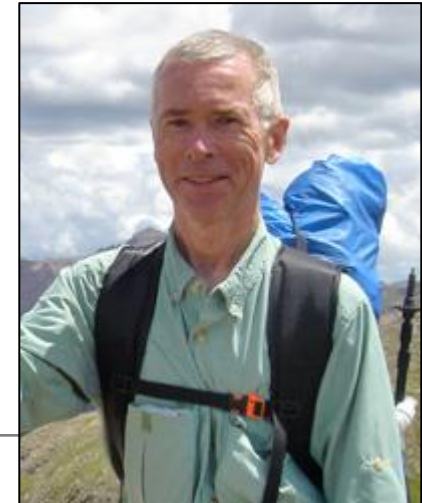
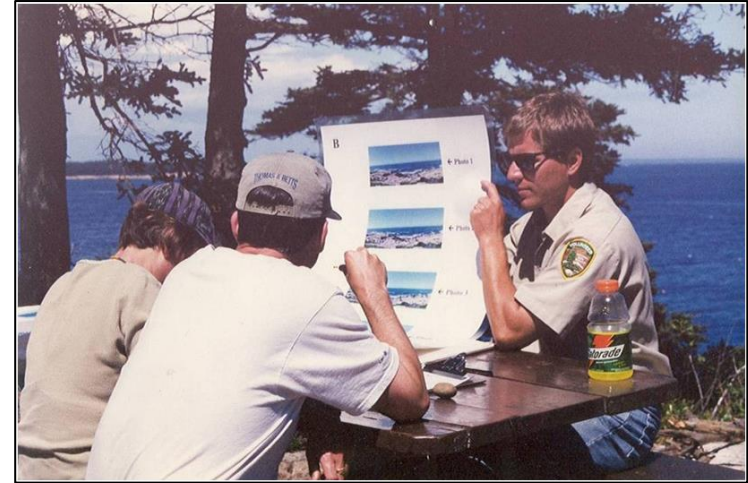
Thresholds: Numerical expressions of desired conditions for indicators



Rich History of Science in Acadia

Visitor-based indicators and standards of quality

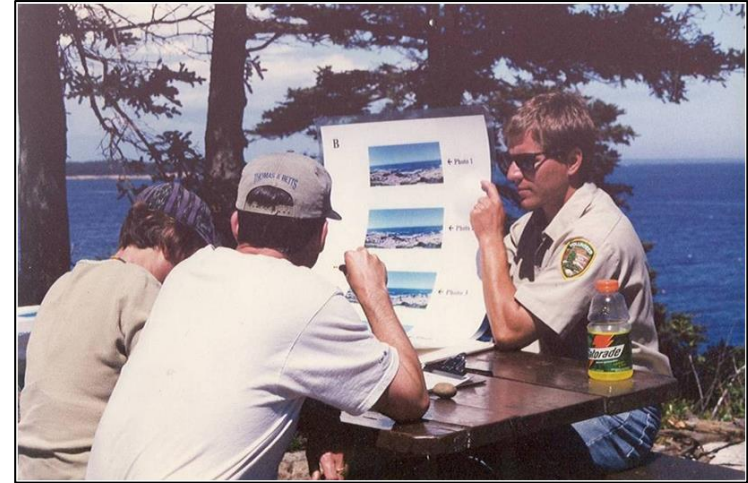
- Schoodic Peninsula (2000/2001)
- Isle au Haut (2001)
- Ocean Drive (2005)
- Sand Beach and Thunder Hole (2000)
- Carriage Roads (1997 & ??)
- Cadillac Mountain (2005-2006 & 2015)
- Trails (2005)



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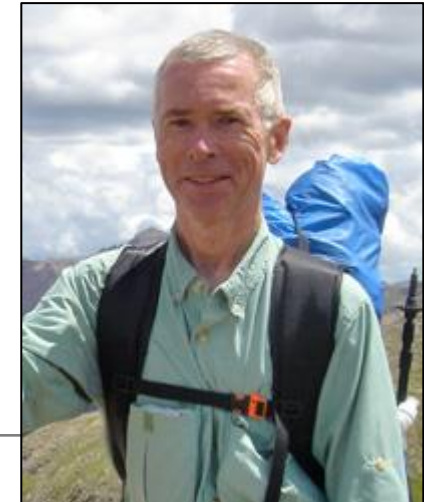
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Computer simulation models of visitor use and crowding-related capacities

- Schoodic Peninsula (2000/2001)
- Isle au Haut (2001)
- Ocean Drive (2005)
- Carriage Roads (1997 & ??)
- Cadillac Mountain (2015)
- Ocean Drive (2017)



Modeling 101

WHY?

Provide empirical basis for informing a transportation & visitor use management planning process

- Describe current conditions for a complex, dynamic, and integrated recreation system
- Estimate transportation and visitor use capacities based on indicators and thresholds developed through NPS planning process
- Estimate relationships among visitor use levels, visitor-related impacts, and desired conditions
- Inform NPS decisions to manage to desired conditions
- Evaluate the potential implications of management scenarios on a complex recreation system



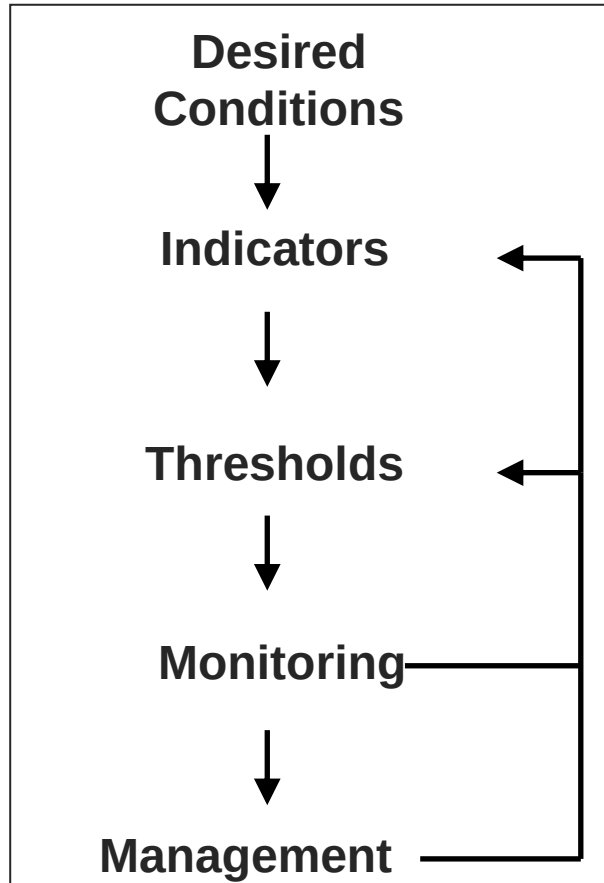
Modeling 101

HOW?

1. Conceptual model development
 - Select indicators of quality
 - Specify preliminary draft thresholds



Modeling 101



Desired Condition: Visitors can experience Ocean Drive, find parking, and avoid traffic congestion most of the time

Indicator: Number of vehicles at one time (VAOT) parked in the ocean drive corridor

Preliminary Draft Threshold:
X VAOT or fewer, Y percent of the time



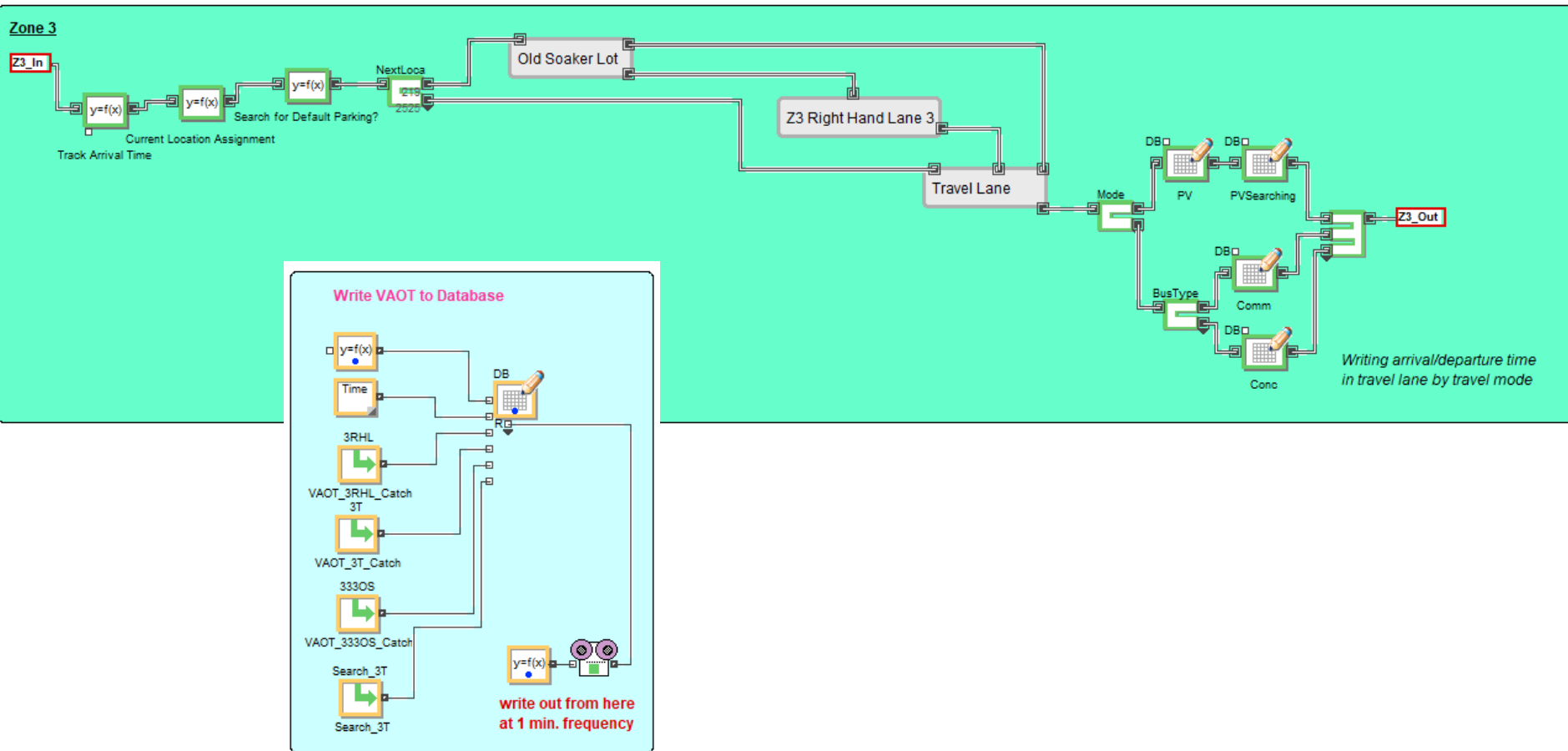
Modeling 101

HOW?

1. Conceptual model development
 - Select indicators of quality
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2. Data acquisition and compilation
3. Input analysis
4. Model construction (ExtendSim)



ExtendSim Computer Simulation Model Parking Sequence



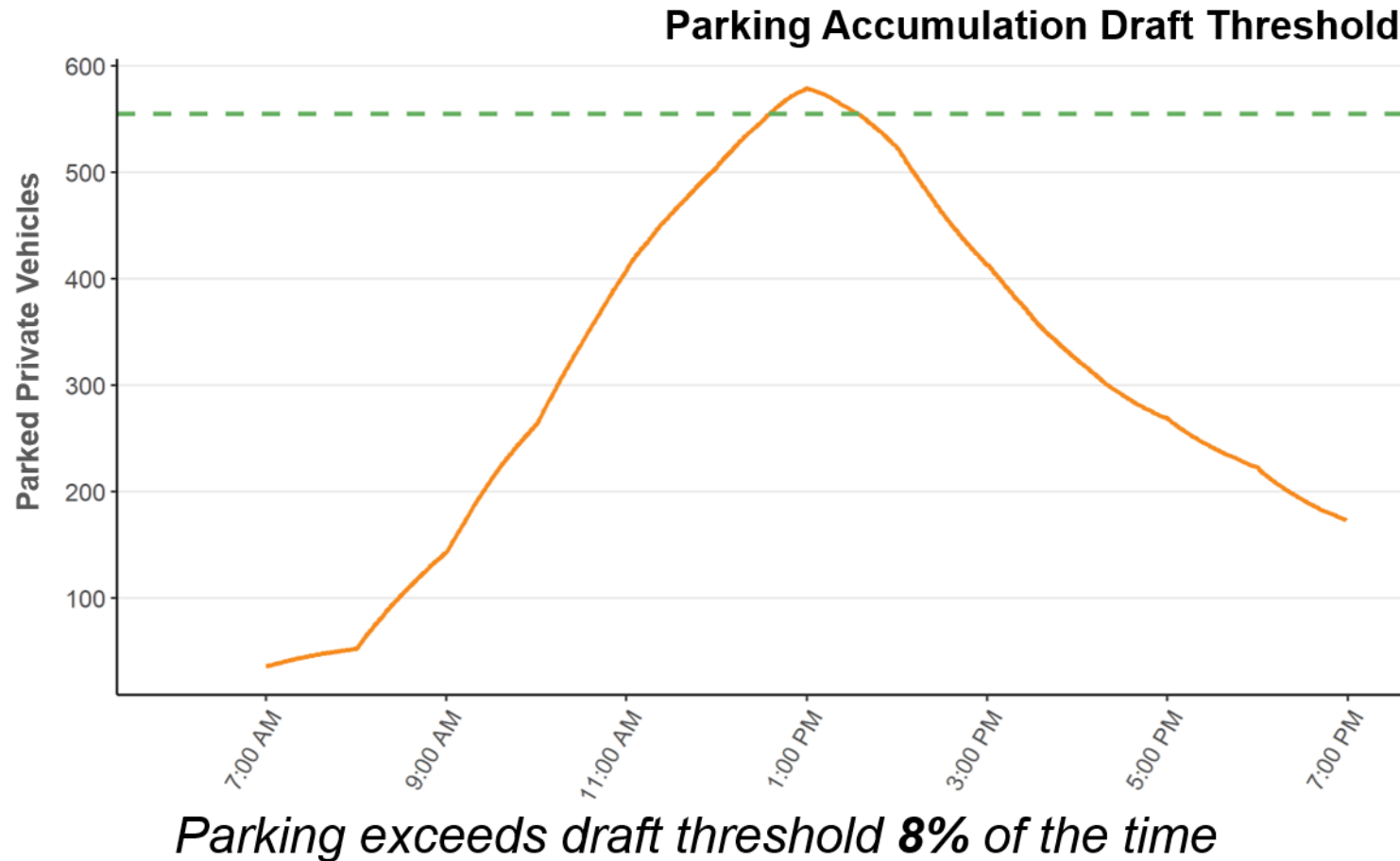
Modeling 101

HOW?

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5. Model verification
6. Model validation
7. Simulation analysis
8. Estimate current conditions



Model Estimates: Current Conditions



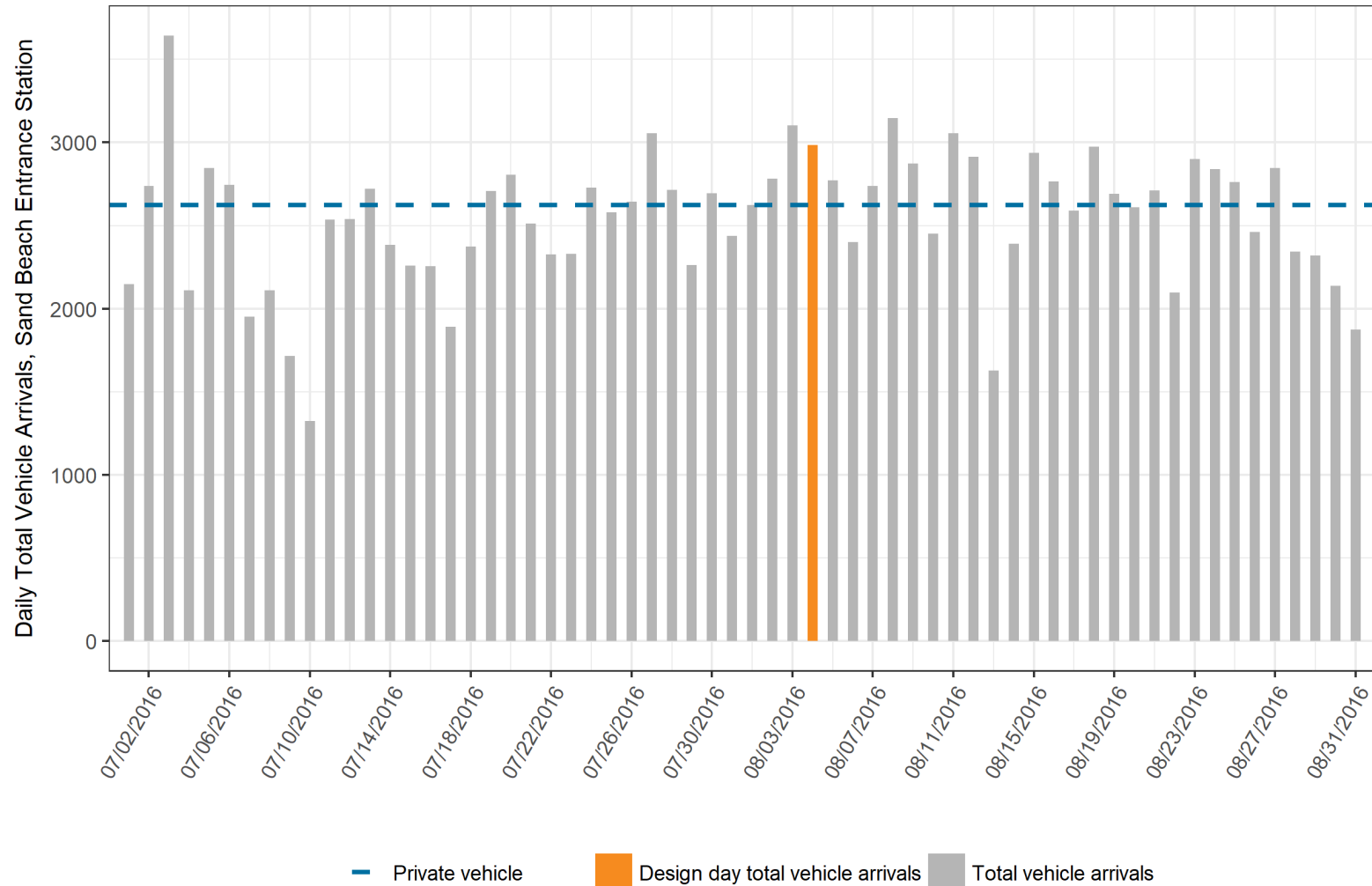
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8. Estimate current conditions
9. Estimate capacity based on indicators and thresholds



Draft Model Estimates: Daily Parking-related Capacities



Examples of the Approach in Action!

- Yosemite — Half Dome Permit System, Merced River Plan
- Golden Gate — Muir Woods Parking Reservation System
- Mount Rainier
- Rocky Mountain
- Sequoia & Kings Canyon
- Arapaho & Roosevelt National Forests
- Acadia — Cadillac Mountain
- Acadia — Ocean Drive
- Zion — Angels Landing



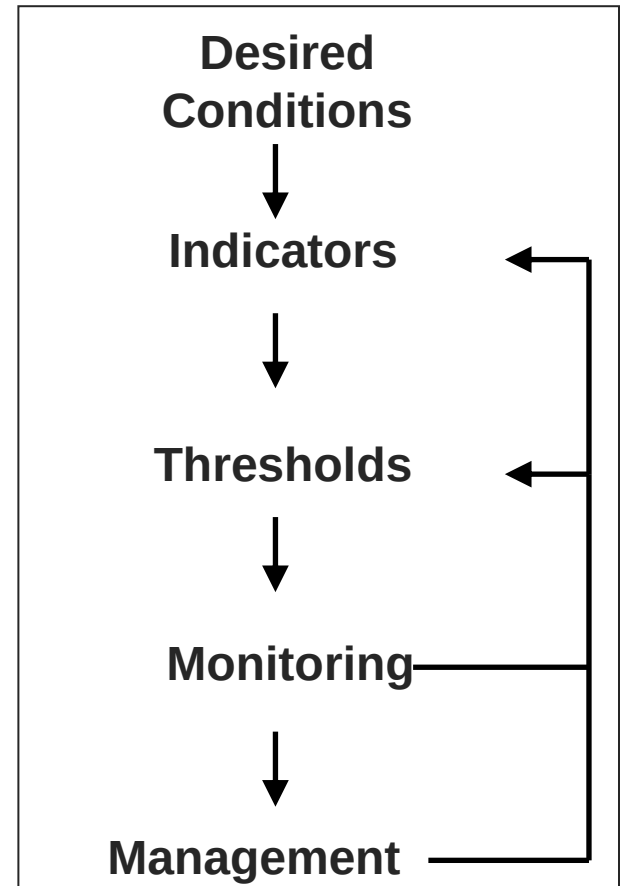
Models are *TOOLS*

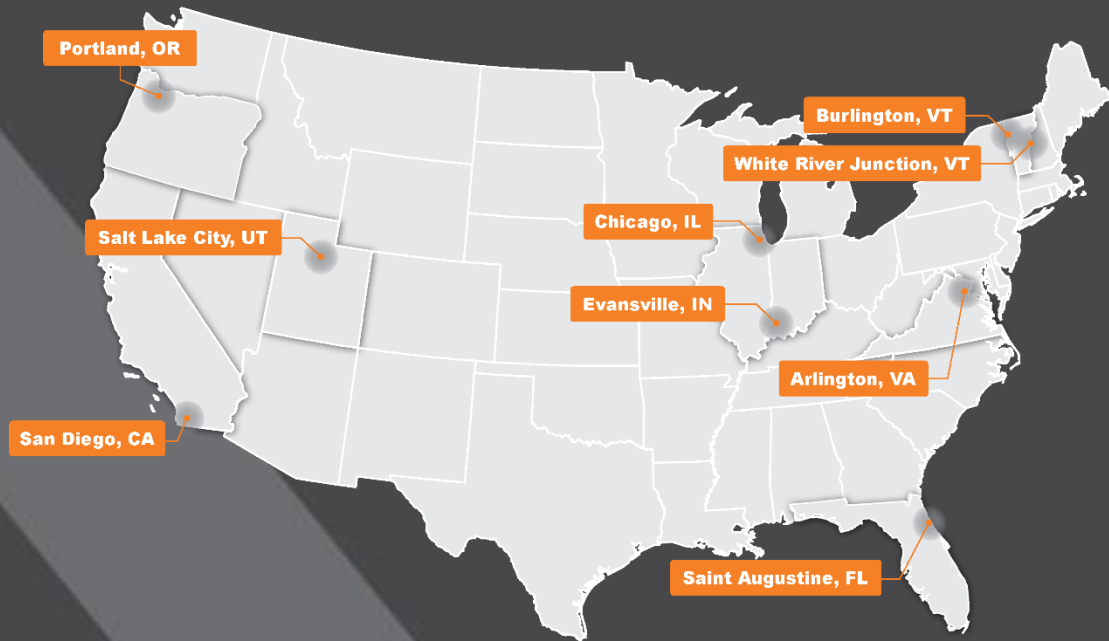
- Estimate current conditions based on model dynamics
 - EX: parking occupancy/availability at 5 min. intervals through a visitor day
- Evaluate potential implications of management decisions
 - Models anticipate and provide precise estimates of the implications of management decisions
 - Models provide an informed approach to minimize unintended consequences
 - Models afford a comparison of management strategies and scenarios
- Inform park decisions to manage to desired conditions



Partnerships & Collaboration

- To identify:
 - Desired conditions
 - Indicators
 - Preliminary draft thresholds
- To inform:
 - Model inputs
 - Management decisions
- To implement:
 - Model outputs as data informs the planning process





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