VISITOR USE MONITORING PROGRAM DEVELOPMENT AND IMPLEMENTATION

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Executive Director, SORP

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Director, Institute of Outdoor Recreation and Tourism at Utah State University  
Secretary, SORP

SORP is the voice for advancing the outdoor recreation profession.
The HUMAN DIMENSIONS Program works to develop a fundamental understanding of human behaviors, actions and attitudes within a natural resource setting to foster resource conservation and high-quality visitor experiences.

**TODAY’S PRESENTERS**

**Human Dimensions Program**

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**SORP is the voice for advancing the outdoor recreation profession.**
PRESENTATION OVERVIEW

Foundation

Themes, methods and measures

Sample

Applied examples

Long-term capacity and sustainability

Questions and discussion
Interagency Visitor Use Management Council Visitor Use Management Framework (IVUMC VUM)

- Monitoring is one component
- Element One: Why, build the foundation
**EXISTING GUIDANCE**

**REVIEW**
- Agency purpose
- Guiding language
- Existing recreation framework
- Other management guidance

**WHERE**
- Vision/mission/charter
- Legal orders
- Planning documents
- Public process proceedings

**WHY**
- Existing guidance, commitments and themes
EXISTING GUIDANCE

Sec. 176. - Open space purposes-open space land.

Open space land shall be acquired, maintained, preserved, retained, and used only for the following purposes:

(a) Preservation or restoration of natural areas characterized by or including terrain, geologic formations, flora, or fauna that are unusual, spectacular, historically important, scientifically valuable, or unique, or that represent outstanding or rare examples of native species;

(b) Preservation of water resources in their natural or traditional state, scenic areas or vistas, wildlife habitats, or fragile ecosystems;

(c) Preservation of land for passive recreational use, such as hiking, photography or nature studies, and, if specifically designated, bicycling, horseback riding, or fishing;

(d) Preservation of agricultural uses and land suitable for agricultural production;

(e) Utilization of land for shaping the development of the city, limiting urban sprawl, and disciplining growth;

(f) Utilization of non-urban land for spatial definition of urban areas;

(g) Utilization of land to prevent encroachment on floodplains; and

(h) Preservation of land for its aesthetic or passive recreational value and its contribution to the quality of life of the community.

Mission

The mission of the Open Space and Mountain Parks Department (OSMP) is to preserve and protect the natural environment and land resources that characterize Boulder. We foster appreciation and uses that sustain the natural values of the land for current and future generations.
Reviewed available guiding language and commitments

- Create comprehensive list of potential themes (old + new)
- Prioritize using available guidance and review of planning and operational needs
- Parameterize into specific questions with objective bounds
Specific questions with objective bounds

- Past monitoring projects
- Archival research and secondary data sources
- Informal monitoring, anecdotal information, staff experience
Use and application of results (not collecting just to collect)

- Tie to a decision, process, deadline, prior commitment, staff needs, day to day operations, future planning
- Consider temporal and spatial scope
- Plan to deliver, create realistic time frame and deliverables
Aligning with short-term capacity

Refer to prioritized list of specific measurable questions

Consider placement on IVUMC sliding scale

Review staffing, funding

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>RATIONALE</th>
<th>HIGH</th>
<th>MODERATE</th>
<th>LOW</th>
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<tbody>
<tr>
<td>A Issue Uncertainty</td>
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<td>B Impact Risk</td>
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<tr>
<td>C Stakeholder Involvement</td>
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<tr>
<td>D Level of Controversy</td>
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<tr>
<td>Location on the Sliding Scale</td>
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</table>
THEMES, METHODS, and MEASURES

Levels
- How many are visiting
- When are they visiting
- Where are they going

Attributes
- Demographics
- Willingness to pay
- Conflict
- Experience quality
- Perceptions

Behavior
- Modes of transport
- Compliance

Activities
VISITATION LEVELS: Methods

- People at one time (PAOT)
- People per view (PPV)
- Encounters
- Automated counters

Considerations
- Spatial
- Temporal
- Resources
VISITATION LEVELS: Methods

People at one time (PAOT)

People per view (PPV)

Encounters
VISITATION LEVELS: Methods/Measures

- Number of visits
- Density
- Spatial distribution
- Temporal patterns
- Trends
VISITOR ATTRIBUTES: Methods

Observation

Survey Mode
• Online
• Phone
• Mail
• On-site intercept
Demographics
Ratings of facilities and services
Motivations
Experience quality
Trends
VISITOR BEHAVIOR: Methods

Self-reported Observations

Behavior impacts
- Trail conditions
- Amount of trash
VISITOR BEHAVIOR: Measures

Activities participated in

How long visited

Modes of transportation

Compliance levels
  • Dog regulations
  • Trail closures
COMBINING METHODS

PAOT and perceptions of crowding
Visitation levels and conflict
Perceptions vs actual impacts
Current vs desired activities
In an optimal world of unlimited resources…

you can

survey
count
observe
track

every visitor.

In the real world…

you need to gather data for **enough people** to get a **reliable approximation** of what you are trying to measure.
Sampling is the method by which we select a subset of units (people, trails, etc.) from a larger population of interest in a way that we can ideally generalize our results back to the population as a whole.
EXPLORING OPTIONS

Cost (Low)

Quality (High)

Time (Quick)

Scope
Contract/In House
Staff/Volunteers

Survey/Observation
Sample size
Question Validity/Reliability

Equipment selection
Accuracy/Resolution

Multi-scale Coverage

Concurrent Collections
Standardized/Approved Questions
Analysis
Money
SAMPLE DESIGN
Options

**Probability**
- Simple random sampling
- Stratified random sampling
- Systematic Sampling
- Multi-stage Random sampling
  - Locations (trails)
  - Days
  - Times

**Non-Probability Sampling**
- Convenience sample
- Quota Sampling
- Haphazard Sampling
## Sample Design Options

<table>
<thead>
<tr>
<th>Consideration</th>
<th>Probability</th>
<th>Non-Probability</th>
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<tbody>
<tr>
<td>Generalizable</td>
<td>✔</td>
<td>✗</td>
</tr>
<tr>
<td>Bias</td>
<td>✗</td>
<td>✔</td>
</tr>
<tr>
<td>Trend Analysis</td>
<td>✔</td>
<td>✗</td>
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<tr>
<td>Cost</td>
<td>$$$</td>
<td>$</td>
</tr>
<tr>
<td>Staff</td>
<td>☑</td>
<td>☐</td>
</tr>
<tr>
<td>Planning time</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Implementation Time</td>
<td>☑</td>
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APPLIED EXAMPLES

- Visitation Estimate Study
- Visitation Survey Study
- Undesignated Trail Use Study
To develop a quantitative understanding of both the number and spatial distribution of system-wide recreation visits to city managed open space.

Deployed trail counters throughout the entire OSMP system at both access points and interior trail locations.

Trailhead and access point classifications
- Amenities
- Staff allocations
- Evaluate trends

<table>
<thead>
<tr>
<th>Study Duration</th>
<th>Data Collection</th>
<th>Staffing</th>
<th>Sample Frame</th>
<th>Sample</th>
<th>Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5 years</td>
<td>12 months</td>
<td>4.5 FTE over 2.5 years</td>
<td>189 monitoring stations</td>
<td>45 primary, 144 secondary</td>
<td>System-wide</td>
</tr>
</tbody>
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**GOAL**

**METHODS**

**MANAGEMENT APPLICATIONS**
To learn about and gain an understanding of visitor characteristics, trip characteristics and visitor perceptions of various aspects of OSMP management.

On-site, self-administered surveys to visitors upon exiting from their trip to capture information about their experience from that specific visit.

Acceptability rating of management strategies

- Inform infrastructure development

Provide a “high-quality experience”

Evaluate trends
To examine the effectiveness of indirect (messaging) and direct (barriers) management approaches to mitigating undesignated trail use.

A field experiment study design that included direct visitor observations paired with self-reported visitor surveys.

Effective methods for undesignated trail closures
- Direct site management actions
- Efficiency of messaging

Clarify and differentiate designated vs undesignated trails
Targeted outreach

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<tbody>
<tr>
<td>2 years</td>
<td>2 months</td>
<td>.5 FTE over 2 years</td>
<td>20 sites</td>
<td>2,232 visitor parties observed 147 surveys</td>
<td>System-wide</td>
</tr>
</tbody>
</table>

https://bouldercolorado.gov/osmp/plans-reports-brochures
Financial security
• Budget planning and defending asks

Agency backing
• Monitoring program support and business needs identification

Realistic work plans
• Plan to complete and deliver on commitments

Iterative process
High quality work products
  • Credibility, defensibility

Data availability, timeliness, responsiveness
  • Data is shared internally and externally
  • Tied to real-time applications and issues

Value added
  • Transparency in decision making
  • Support visitor use management policy creation
Type your question in the QUESTION pane in the Control Panel.
FURTHER INFORMATION

Interagency Visitor Use Management Council
• https://visitorusemanagement.nps.gov/

Open Space and Mountain Parks Department
• www.osmp.org

Human Dimensions Reports
• https://bouldercolorado.gov/osmp/plans-reports-brochures
THANK YOU!

2019 National Outdoor Recreation Conference
Rapid City, South Dakota – May 6-9

SORP is the voice for advancing the outdoor recreation profession.

WWW.RECPRO.ORG
Existing guidance

Themes/questions to answer

What’s known, not known

Use/application of information

Review short and long-term capacity