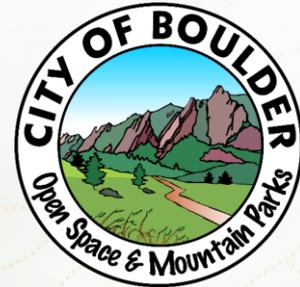


Empirically Understanding Visitors

Using Human Dimensions Research to Inform Visitor Dynamics, Experiences and Demographics



Deonne VanderWoude

Colin Leslie

Heidi Seidel

Anna Kellogg

Session Overview

Brief description of today

Visitor study importance

Brief introduction to Open Space/Mountain Parks and our visitor studies

Touch on aspects of conducting a study

Group Activity

Regroup / Q and A



Visitor Study Importance

Why conduct visitor studies?

The **Who, What, Why, When, Where and How** is fundamental for public land managers

Support **adaptive management** and data-driven decision making

Inform **planning** and on-going **operations**

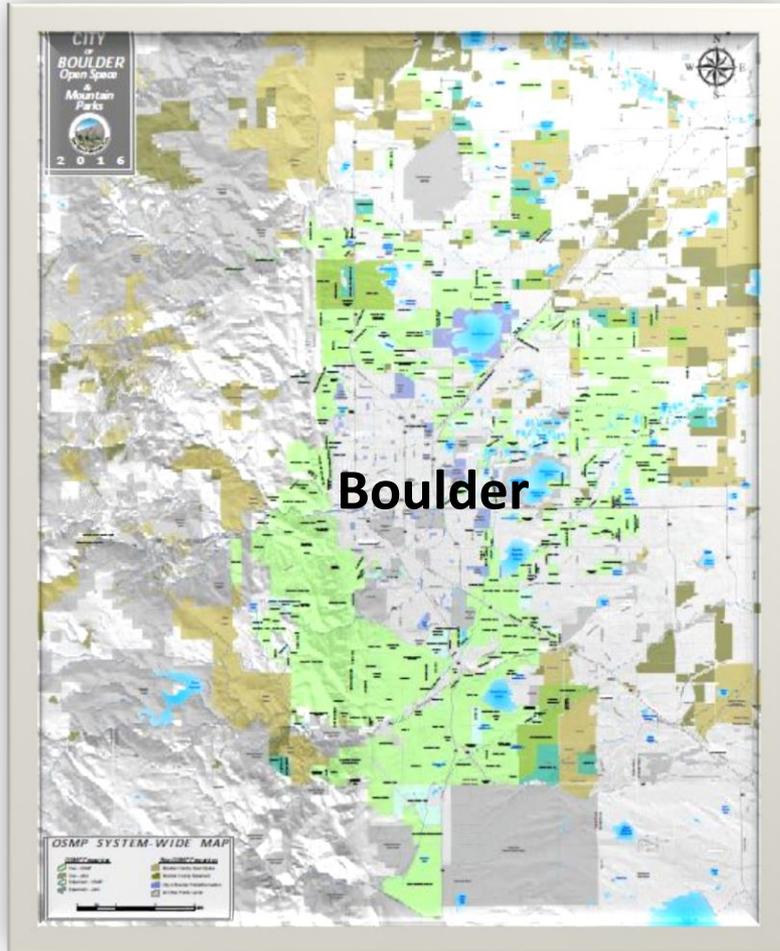
Assess visitor **experiences** and service **ratings**

Understand recreation in relation to other managed resources



Open Space/Mountain Parks Overview

Who we are



Adjacent to Boulder, Colorado

Urban-proximate **municipal open space** program

Manage ~**46,000 acres** with ~**155 miles** of designated trails

Over **200 access points**

Background

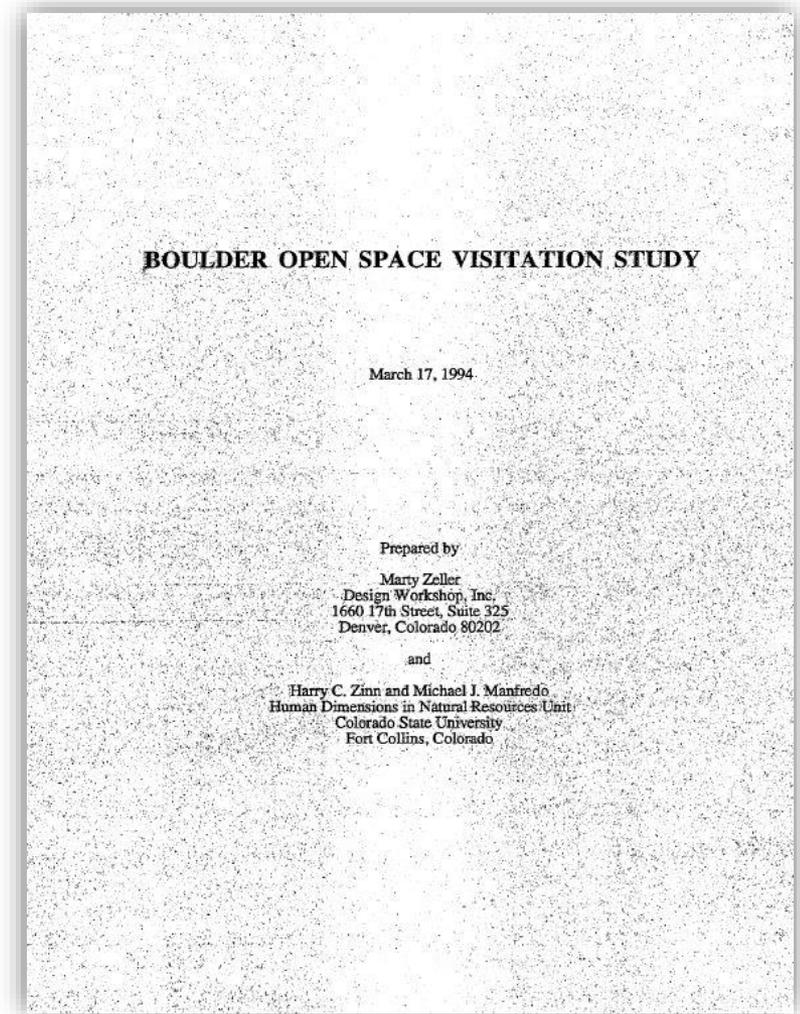
History of visitation studies

Over three decades of visitation monitoring

- Number of visitors
- Visitor attributes

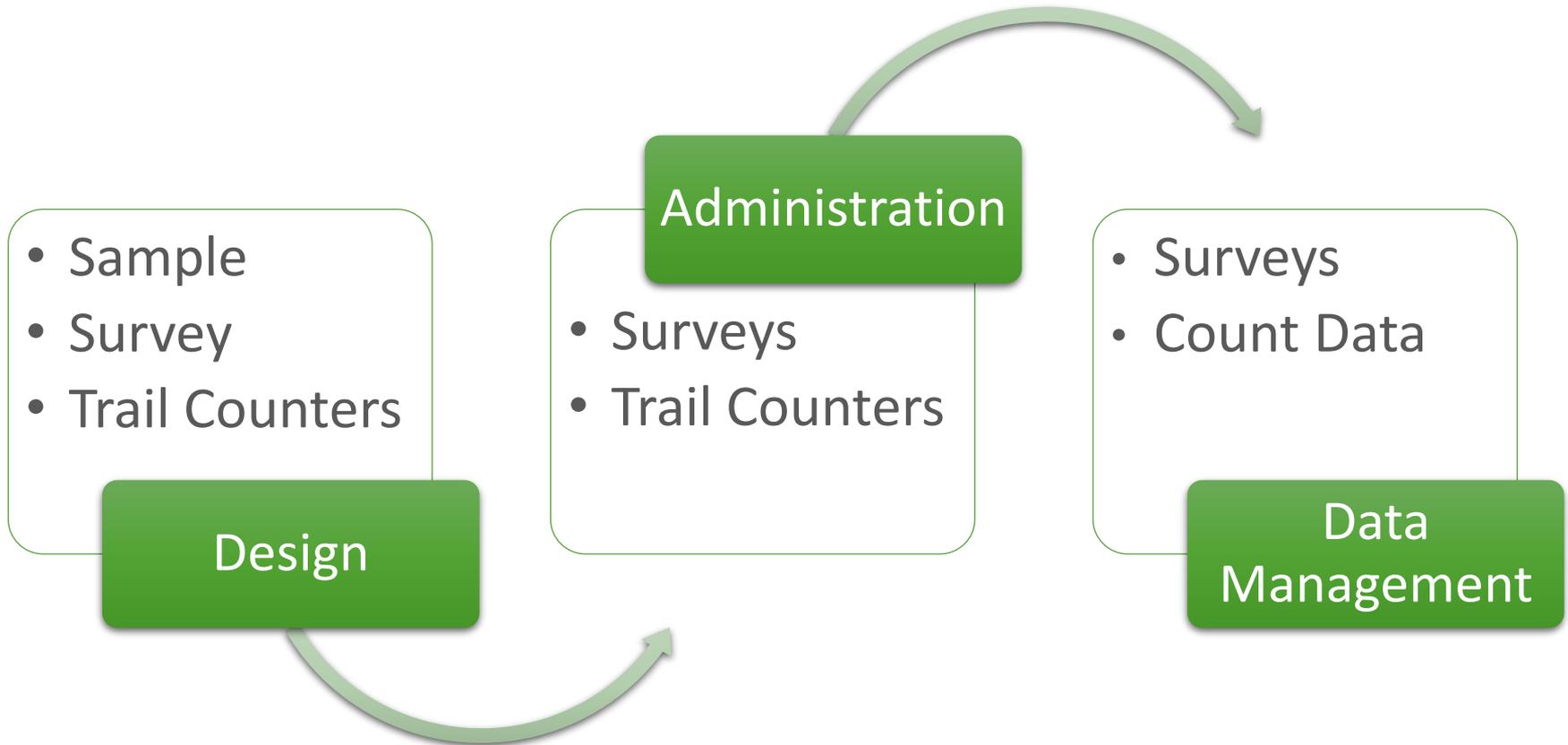
First system-wide OSMP study in 2004/2005 (**4.7 million**)

2016/2017 study to update numbers and attributes



Conducting a study

Overview



Design

Sample Design

Finding balance

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.



Sample Design

Options

Non-Probability Sampling

Volunteer sample

Leave a survey at information desk

Convenience sample

Conduct surveys Saturday morning when extra staff are available

Pros

lower cost
easy to implement

Cons

cannot trend over time
not generalizable
biased sample

Probability Sampling

Simple random sampling

Randomly pick trails

Stratified random sampling

Certain number each of high, medium, and low use trails

Multistage sampling

- Perform stratified sample of trails
- Simple random sample of days
- Simple random sample of times

Pros

generalizable
minimize bias
trend over time
defensible

Cons

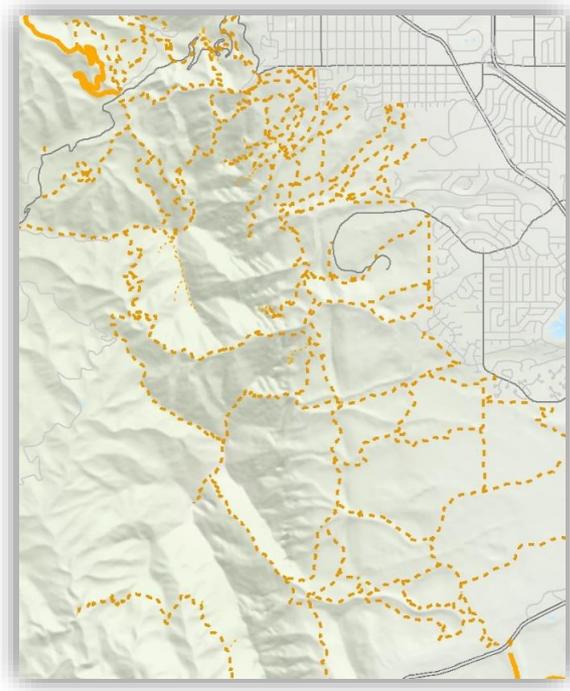
higher cost
more planning

Sample Design

Factors to consider



Seasonality



Geography



Activity Types

Survey Design

Monitoring objectives

Project goal

“The overall goal of the Visitor Survey is to learn about and characterize OSMP visitors, visitor experiences on OSMP lands, and visitor perceptions of various aspects of OSMP management.”

Monitoring objectives

- Visitor characteristics
- Trip characteristics
- Visitor perceptions



Survey Design

Question categories

Visitor Characteristics

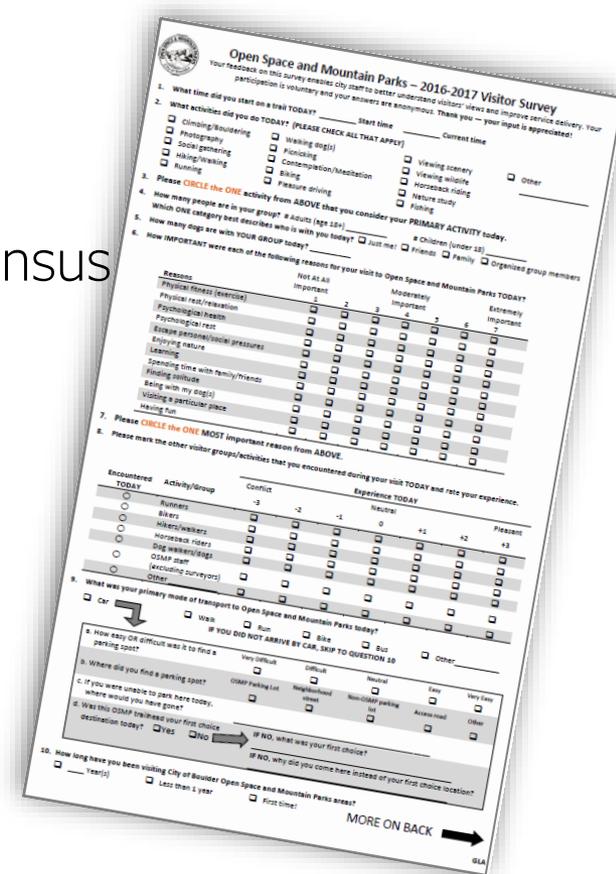
- Match demographics section with the U.S. Census

Trip Characteristics

- How many people are in your group?
- What was your primary mode of transport?
- What activities did you do today?
- Did you enter from this trailhead?

Visitor Perceptions

- How important were each of the following reasons for your visit?
- Mark and rate all visitor facilities and services that you used today
- Rate your experience with other visitor groups you encountered during your visit today



The image shows a survey form titled "Open Space and Mountain Parks – 2016-2017 Visitor Survey". The form includes the following sections:

- 1. What time did you start on a trail TODAY?** (Start time and Current time)
- 2. What activities did you do TODAY? (PLEASE CHECK ALL THAT APPLY)**
 - Climbing/Hiking
 - Photography
 - Social gathering
 - Hiking/trailing
 - Running
 - Walking (dog(s))
 - Fishing
 - Stargazing
 - Contemplation/Meditation
 - Passive driving
 - Viewing scenery
 - Viewing wildlife
 - Horseback riding
 - Nature study
 - Other
- 3. Please CIRCLE the ONE activity from ABOVE that you consider your PRIMARY ACTIVITY today.**
- 4. How many people are in your group? # Adults (age 18+)**
- 5. How many dogs are with YOUR GROUP today?** (Just me, Friends, Family, Organized group members)
- 6. How IMPORTANT were each of the following reasons for your visit to Open Space and Mountain Parks TODAY?**

Reasons	Not At All important	1	2	3	Moderately important	4	5	6	Extremely important
Physical fitness (aerobic)									
Physical recreation									
Psychological refresh									
Psychological rest									
Escaping personal/social pressures									
Enjoying nature									
Learning									
Spending time with family/friends									
Being with my dog(s)									
Visiting a particular place									
None of these									
- 7. Please CIRCLE the ONE MOST important reason from ABOVE.**
- 8. Please mark the other visitor groups/activities that you encountered during your visit TODAY and rate your experience.**

Encountered TODAY	Activity/Group	Conflict	Neutral	Pleasant				
<input type="checkbox"/>	Runners	-3	-2	-1	0	+1	+2	+3
<input type="checkbox"/>	Bikers							
<input type="checkbox"/>	Hikers/Walkers							
<input type="checkbox"/>	Horseback riders							
<input type="checkbox"/>	Dog walkers/dogs							
<input type="checkbox"/>	OSMP staff (excluding surveyors)							
<input type="checkbox"/>	Other							
- 9. What was your primary mode of transport to Open Space and Mountain Parks today?**
 - Car
 - Van
 - Run
 - Bike
 - Bus
 - Other
- 10. How long have you been visiting City of Boulder Open Space and Mountain Parks area?**
 - Less than 1 year
 - 1-2 years
 - 3-5 years
 - 6-10 years
 - More than 10 years

Counter Design

Where to Install

What questions are you trying to answer?

Scale of the project

- Entire system vs. a sub- area

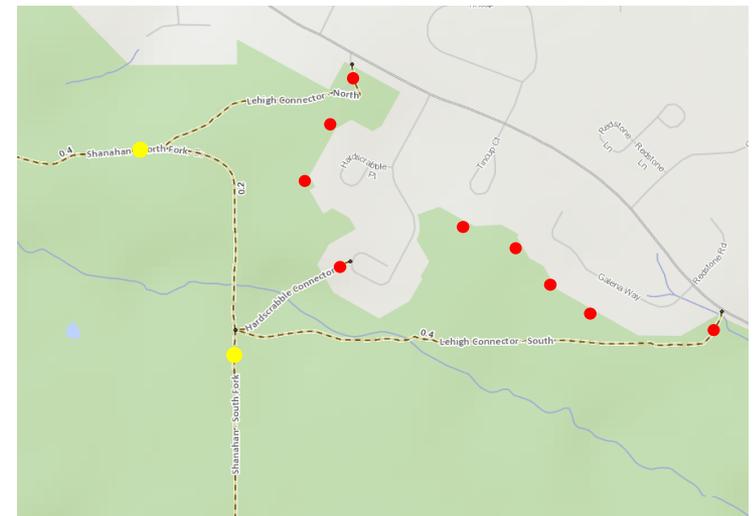
Counter placement

- Trailheads
- Interior locations
- Specific trail segments

Maximize each counter

Strategic locations

- After trail junctions



Counter Design

How many locations can you monitor?

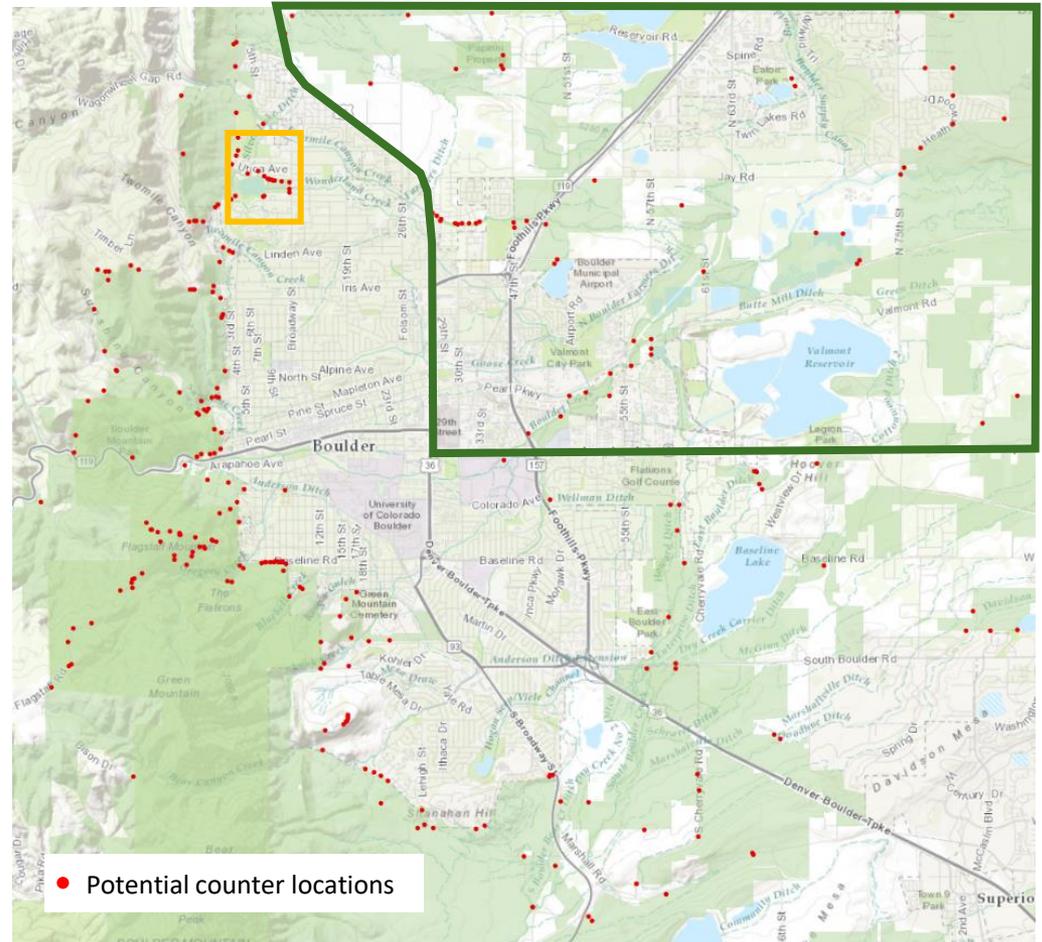
Considerations

Funds to purchase counters

Staff time to maintain, troubleshoot, and download

- Proximity
- Vandalism
- Unique situations
- Weather

Uploading, quality control, and analysis



Administration

Survey Administration

On-site setup



Welcoming/ well signed



Professional Setup



Organized Materials

Survey Administration

On-site key points

Administer upon exiting

- Experience today
- Visitors preference

Ask all visitors over 16 years old to complete the survey

- Brief overview and spot check for completion

Be professional, polite, and friendly!

Keep track of passes, refusals, and repeat visitors



Date:		Start time:		End time:		Recorder:	
Sky		Temp F	Wind	Precipitation		Location	
Sunny	Overcast		≤20 mph	Rain	Hail		
Partly Sunny			>20 mph	Snow	None		
Survey #s:							
By Individual Visitor							
Activity type		Passes		Refuses		Repeats	
Hiker	w/out dog						
	With dog						
Runner	w/out dog						
	With dog						

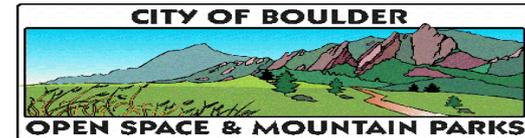
Trail Counter Administration

Where to Install

Installation guidelines:

- Narrow portion of trail
- Avoid direct sunlight
- Out of sight

The City of Boulder Open Space & Mountain Parks is conducting a study on visitor use estimation through the use of these monitors. Please do not tamper with this equipment. This is not a camera, it only counts people passing by. All data is anonymous. Your cooperation is greatly appreciated. Please contact OSMP 303-441-3440 with any questions.



Trail Counter Administration

Calibrations and Downloads

Calibrations:

Compare actual visitor counts vs. counts recorded by the monitor

- Installation / periodically during study period

Downloads:

Consistent weekly downloads

- Confirm counter working properly
- Reduce data loss

Trail Counter Calibration Sheet - All Use Classes														
Date:		Start Time:		Counter Number:			Counter Name:				LCD Before Reset:		Observer:	
Reference point (where people are coming in from/going out to)														
Time		Counter LCD		Hiker		Runner		Biker		Horse		Dog		
Start	End	Start	End	In	Out	In	Out	In	Out	In	Out	In	Out	
__:00	__:15													
__:15	__:30													
__:30	__:45													
__:45	__:00													

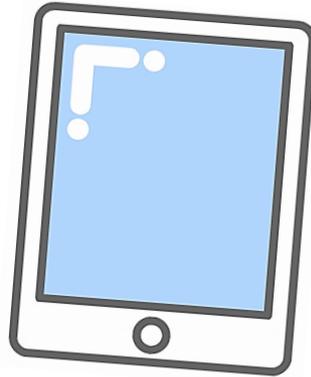
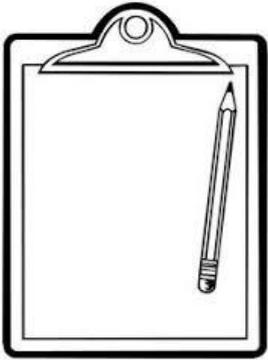
Data Management

Data Management

Making a plan

How will you collect and organize data?

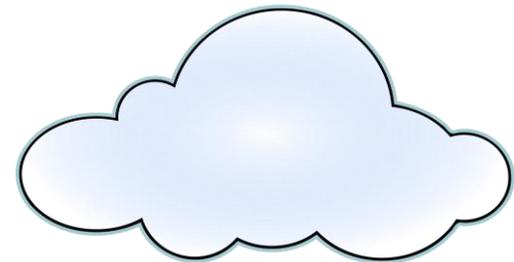
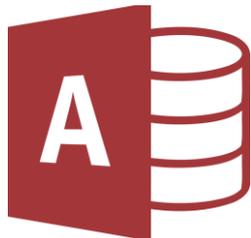
Field



Office



Database/online



Data Management

Quality Control and Analysis

Surveys

Quality control

Analysis software

Trail counters

Goal: Raw counts → visits

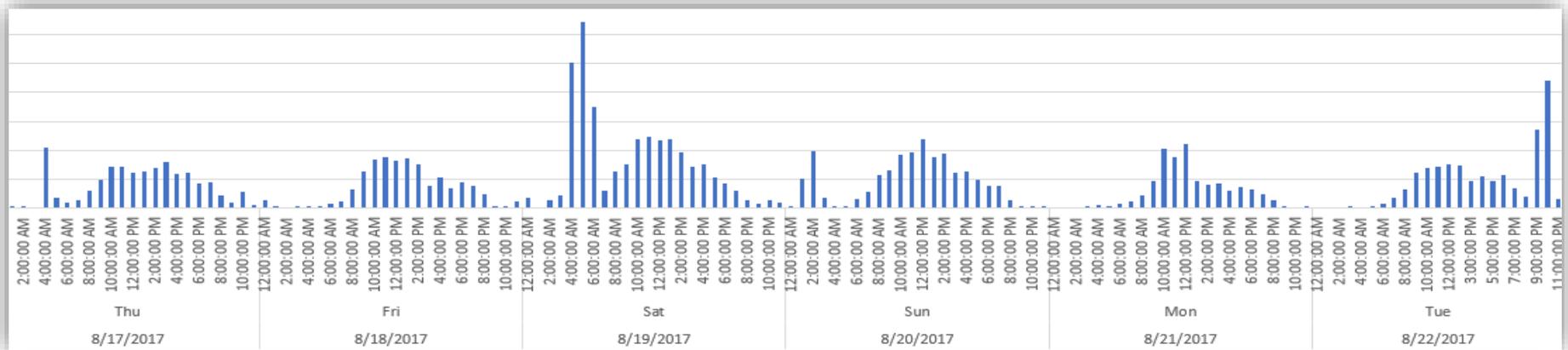
Quality control

Data cleaning

Analysis software

- Replace invalid values
- Incorporate calibration data
- Consider counter location

2017	April		
MONDAY	TUESDAY	WEDNESDAY	THURSDAY
27	28	29	30
03	04 Snow Day	05 Slushy Trails	06 Slushy Trails, sunny/warm in afternoon



Management Applications

Management Applications

How this information can be useful

Support your colleagues and their projects

Inform management plan development

Justify staffing levels and hiring requests

Allocate staff to areas of concern



Management Applications

How this information can be useful

Inform infrastructure development and amenity provision

Develop recreation desired conditions and manage for them

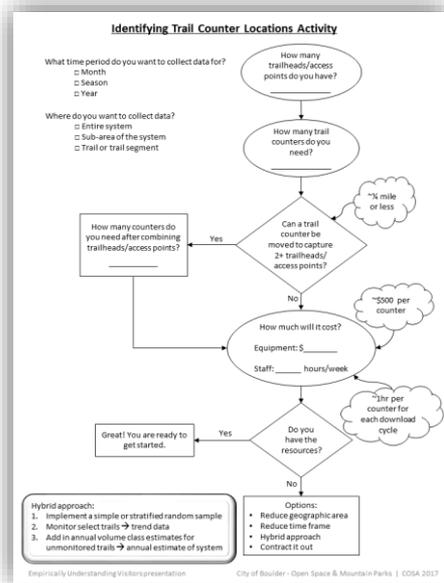
Adjust visitor management strategies as needed



Group Activity

Group Activity

Identifying trail counter locations



As small groups or individually...

- 1) Find the *Trail Counter Locations Activity* worksheet and *The Woods* example map provided in your handout
- 2) Review the example map
- 3) Fill out the activity sheet

Additional questions

What are some of the challenges you see on the map in terms of potential visitor flow patterns?

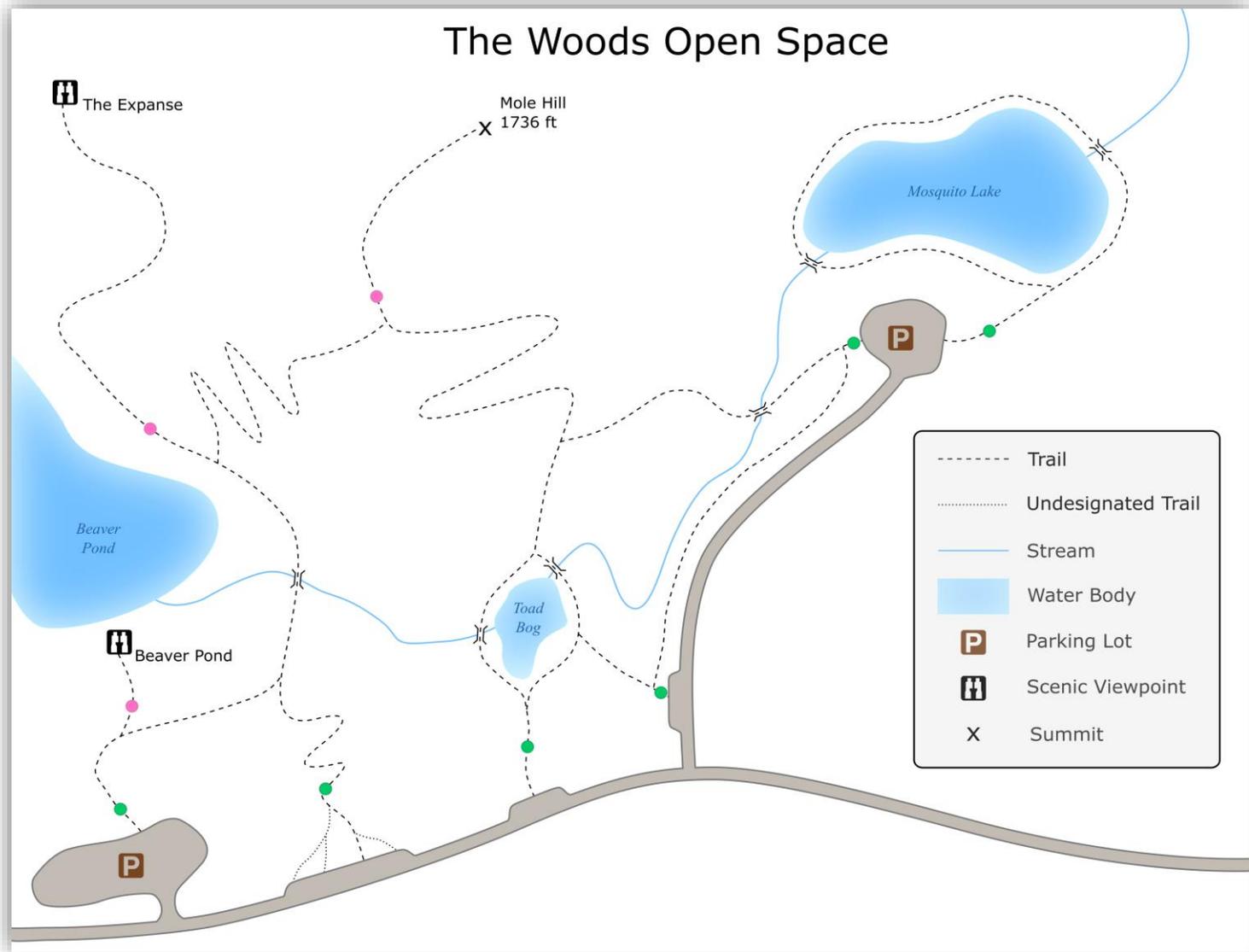
Would your current counter locations tell you how many people visit specific destinations?



3 minutes left

Group Activity

Identifying trail counter locations



Thank You!

Questions?