Trail Impact Monitoring Plan Development Process

PLAN:

Step 1- Determine information needs:

☐ What types of information may be needed?

- o Overview of general conditions
- o Baseline inventory of specific factors
- o Re-inventory to assess changes and trends from previous inventory
- o Identify and quantify site-specific biophysical impacts
- o Identify and quantify places and times where opportunities for wilderness visitor experiences exceed thresholds.

☐ How will I use this information?

- o To aid in setting or monitoring thresholds or standards as part of a planning process (i.e. LAC or VERP, etc.)
- o To assist in determining the causes of deteriorating conditions
- o To evaluate the effectiveness of resource protection measures (i.e. education, regulations)
- o To identify and assign priorities for maintenance or restoration projects

☐ What is the scope and frequency of inventory?

- o Is a census or a survey needed and how often will a re-inventory be needed?
- o I general will a quick assessment provide the needed information or is a detailed method necessary.
- o For biophysical impacts is the location and quantity of impact sufficient or are specific condition measures (i.e. tree damage, campsite size, etc.) needed?
- o For social impacts is it enough to monitor where use is high or do we also need to know if visitor expectations are being met?

Step 2- Gain and Maintain support

The process to gain support should include the following:

☐ Meet with your decision maker to identify management issues

☐ Develop a draft monitoring program proposal

☐ Present the draft monitoring program proposal to your decision maker and gain approval for implementation

Maintaining support should include:

- Keeping your decision-maker informed of progress in developing the program

- Providing review and approval opportunities if needed
- Implementing the program as planned
- Presenting the results of monitoring with consequences and alternatives for management decisions

Step 3- Identify and Select Indicators

There are four criteria for identifying and selecting indicators. Indicators should be:

☐ Significant – important and relevant for the biophysical resource and the visitor experience and sensitive to change.

☐ Responsive – management could take action to improve the conditions being measured if needed.

☐ Credible – measurements are reliable, yielding the same result with a high degree of precision when measured by different people, and they are valid, meaning there is a direct relationship between the indicator and the resource management question.

☐ Feasible – efficient to measure, relatively low cost, and with minimal impact on both the biophysical resources and the visitor's experience.

Typical trail impact indicators are:

- Informal trails
- Tread width
- Tread muddiness
- Soil erosion

Step 4- Select monitoring methods and develop protocols

There are two parts to this step: selecting monitoring methods and developing protocols.

Part A. Select monitoring methods

There are six basic considerations to take into account when selecting monitoring methods.

1. The amount and type of information needed.

2. Accuracy. The more accurate the method, the closer it will be to reflecting on-the-ground realities.

3. Precision. The more precise the method, the more it ensures exact techniques of data gathering can be replicated. If several people were to examine the same site, how similar would their estimates be?

4. Sensitivity. The more sensitive the method, the better it is in identifying response to
change.

5. Visitor burden. Some methods are more intrusive and burdensome to visitor than others.

6. Resources required. Some monitoring methods require more staff, time, and funding than others.

Part B. Develop Protocols:

Protocols are the rules or procedures you will use in the implementation portion of the process to collect data. They specify how, where, and how often data will be collected. They articulate clear, standardized definitions for the data collectors, and specific procedures for training the workforce in data collection and recording.

The typical components of this process are:

- Review and use existing protocols where appropriate.
- Develop specific measurement techniques for each indicator if needed.
- Field-test and refine the specific practices and measurement techniques to be used. You may very well have to adapt the techniques in minor ways to different sorts of situations in terms of unique locations, use patterns, etc.

The development of protocols is driven by the trail impact indicators you want to use, the monitoring methods you select, and the techniques required to obtain the specific measurements. Document your protocols and convey them through manuals and training to ensure consistent data collection techniques are followed.

Possible trail impact monitoring protocols:

- Unit of measure (inches, feet, centimeters, meters, etc.)
- Interval between sample points (point sampling method only)
- Definition of muddiness, including minimum size of area to be measured
- Standard width for trail type
- Definition of edge of trail and measurement technique for irregular edges

Step 5- Identify needed resources

To identify the necessary resources:

1) Examine the scope of the project
   - number of monitoring locations
   - frequency of return for re-inventory
   - travel time
   - other local factors

2) Calculate

- how many people will be necessary
- what period of time will the project require
- what equipment is needed

IMPLEMENT:

Step 6- Collect and record Data

Even the simplest monitoring methods and protocols involve judgment, and it is imperative that your data collectors make judgments in the same way every time to ensure data integrity.

It is common for data collection and recording work to be done by wilderness rangers, trail crews, volunteers, and other partners. To enhance workforce training, do a few trial runs to identify problems, have others test your methods, and ask lots of questions. If there is any confusion, either refine the protocols or address the issues through additional training. The key to minimizing incorrect measurements and judgments is consistent application of the protocols, which requires training and follow-up quality checking.

Train all of your data collectors at the same time to ensure consistent interpretation and application of protocols. It is important to stress the need to measure real changes and real conditions. Any sort of extraneous measurement error complicates the data and confounds the purpose of monitoring in the first place

The use of GPS as a data collection device has many benefits in that you can greatly improve the efficiency and accuracy of trail impact monitoring. However, consider both the need for such a device and the cost, since the higher-end models generally provide the best results. A big advantage of using a GPS device is that the data is collected in the device, so you can simply hook it to your computer and download the data and it is ready for analysis.

EVALUATE:

Step 7- Analyze and report

Review Step 1, the needs for the information collected, and consider different types of analyses and reports:

☐ Listings of raw data

☐ Number/distribution of campsites, trails, visitors

☐ Statistics that describe conditions related to specific objectives, thresholds, standards. etc.

☐ Relational analyses that connect impacts to certain vegetative types, season of use, etc.

☐ Trend analyses

☐ GIS analyses/presentations

Step 8- Review and revise

As conditions and use change, different management actions may be necessary and your monitoring program will also need to evolve.