

TRAIL MANAGEMENT OBJECTIVES

Trail Management Objectives (TMOs) are fundamental building blocks for all trail management and planning. TMOs tier from and reflect land planning, travel management and/or trail-specific management directions.

TMOs synthesize and document, in one convenient place, the management intention for the trail, and provide basic reference information for subsequent trail planning, management, condition surveys, and reporting.

The documentation of TMOs for each trail makes good management sense, and is a prerequisite for conducting an objective, useful trail assessment and condition survey.

Why Do My Trails Need TMOs?

A trail cannot be effectively managed, or a determination made of what's needed to objectively meet some type of "trail standard," until basic questions like the following are answered:

- What is the purpose of the trail?
- What type of use is the trail being managed for?
- What is the intended level of development of the trail?
- What is the intended level of maintenance, including resources and budget, for the trail?

Perhaps your trail(s) have been managed based largely on the type, or amount of use they were currently getting, without sufficient consideration of the intended use or future trends and needs. This sometimes resulted in managing a trail for a use that was not compatible with the trail management direction, design, or location. As the US Forest Service has learned, establishing and communicating the intended TMOs for each system trail is a proactive step that prevents this from occurring.

The TMOs pulls together and documents management direction and expectations for the trail. A documented, approved TMOs provides the land manager, staff and volunteers with the key tool they need to confidently work on the trail without having to second-guess operational and maintenance choices. The TMOs establishes the baseline, or standards, against which trail condition assessments and recommended prescriptions are measured and completed. It also ensures a management framework of continuity and consistency over time and through personnel changes. Succinctly put, the TMOs pulls it all together.

Developing Effective TMOs

The TMOs you develop should be consistent with your land management plan, recreation plan and program plan.

TMOs should be established for each trail, as opposed to one TMO for an entire system of trails. This is because every trail is different. You may decide that your trails share the same or similar design parameters, but that decision should be based upon what each trail is managed for and designed to be used for.

Establishing and documenting Trail Management Objectives (TMOs) prior to doing maintaining, rehabilitating, or constructing a trail is very important. TMOs insure consistency in trail management, budgeting and maintenance, as well as, deliver excellent results with regard to community satisfaction, use, and volunteerism.

I. Fundamental Planning

- A. **Trail Class:** *The prescribed scale of trail development, representing the intended design and management standards of the trail.* These are based upon the recognized Federal Trail Data Standards and National Trail Management Classes. Assign the most appropriate Trail Class for the trail or trail segment. If more than one Trail Class is assigned to the trail, identify each Trail Class by individual trail segment.
- B. **Managed Use:** The modes of travel that are INTENTIONALLY managed for each specific trail. Managed Use indicates a management decision to accommodate and/or encourage a specified type of trail use. Accommodating the Managed Use frequently results in user-specific trail maintenance and/or signing needs and costs. While there is only one Designed Use for a trail, there may be more than one Managed Use per trail or trail segment. For each Managed Use, document the dates during which that use is actively managed for that use. If there is more than one season of use for a particular Managed Use, make note of that in your TMOs as well.
- C. **Designed Use:** *The intended use that controls the desired geometric design of the trail, and determines the subsequent maintenance parameters for the trail.* The Designed Use must be identified for each trail or trail segment. The Designed Use identifies the single use or limiting factor that drives technical Design Parameters for the trail (i.e. tread width, grade, turning radius, etc.). The Designed Use is necessary to establish the trail's geometric design standards from which the trail is designed, constructed, operated, and maintained. While several Managed Uses may occur on the trail, there is only one Designed Use for any given trail or trail segment..
- D. **Design Parameters:** *Technical specifications for trail construction and maintenance, based on the Designed Use and Trail Class.* Design Parameters identify the technical specifications that drive trail design, construction, maintenance, and any rehabilitation. For each combination of Designed Use and Trail Class, there should be a corresponding set of established Design Parameters. It is very important, when establishing design parameters and formal planning processes for your trails, that you seriously consider contracting with an experienced professional who has proven trail project planning, design and construction experience.


II. IMPORTANT TRAIL MANAGEMENT CONSIDERATIONS


Maintenance Tasks Frequency: This indicates how often any routine task should be completed in order to maintain the trail to the managed use, designed use and design parameters you have established. Every trail, no matter how well designed and constructed, will require maintenance and repair. Thus, in addition to your TMOs, it is best to establish a recurring interval for routine maintenance tasks in order to keep the trail functional, stable and useable. For example, as we know in the mid-Atlantic regions, many invasive grow rapidly, and to keep a trail operational, the brush must be cut at fairly regular intervals. The specific species and issues are site specific and require your own experience to define. This is where your county or municipal land management plan comes into play as well. For the applicable tasks, define the maintenance interval that best reflects the frequency necessary to keep a trail or trail segment to the determined use and design parameters.


Travel Management Strategies: Establishing Travel Management Strategies for major trail uses helps the land manager balance the needs of conflicting uses, guides the manager on operational tradeoffs, and assist maintenance crews to efficiently target maintenance efforts to only necessary tasks. For example, if a land manager decides to close a particular trail, which is subject to seasonal flooding during certain times of the year, that Travel Management Strategy would alleviate the need to provide water crossings during that particular time of the year. Such **Managed Season of Use** specifically defines the period of time that the trail is available and managed in a safe and sufficient state for that trail's TMOs. On the other


hand, **Prohibited Use**, is any use that is prohibited by an official prohibition or closure order. As you're your TMOs, both Managed Season of Use and Prohibited Use should be well documented, easily available information for the public (web and kiosks) and filed in your office. Document the dates during which the use is prohibited. Cite the specific rules, regulations or standards for the prohibited use(s) and make them readily available to users before they arrive on site.


III. DESIGN TERMINOLOGY


-  **Clearing Limit:** The area over and beside the trail tread that is cleared of trees, limbs, and other obstructions.
 - a. **Clearing Height:** The height of the clearing limit measured vertically from the trail tread.
 - b. **Clearing Width:** The width of the clearing limit measured perpendicular to the trail.

-  **Cross Slope:** The percentage of rise to length when measuring the trail tread from edge to edge perpendicular to the direction of travel.

-  **Design Clearing:** The clearing limit determined to be appropriate to accommodate the Managed Uses of a trail.
 - a. **Design Clearing Height:** The minimum clearing height determined to be appropriate to accommodate the Managed Uses of a trail.
 - b. **Design Clearing Width:** The minimum clearing width determined to be appropriate to accommodate the Managed Uses of a trail.
 - c. **Design Shoulder Clearance:** The minimum horizontal and vertical clearance of obstructions (for example, removal of bicycle pedal or motorcycle peg bumpers) immediately adjacent to the trail tread that is determined to be appropriate to accommodate the Managed Uses of a trail.

-  **Design Cross Slope:** The cross slope determined to be appropriate to accommodate the Managed Uses of a trail.
 - a. **Target Cross Slope:** The cross slope that is determined to be appropriate over most of a trail to accommodate its Managed Uses.
 - b. **Maximum Cross Slope:** The steepest cross slope that is determined to be appropriate based on the Managed Uses of a trail and that exceeds the target cross slope of the trail.

-  **Design Grade:** The trail grade determined to be appropriate to accommodate the Managed Uses of a trail.
 - a. **Target Grade:** The trail grade that is determined to be appropriate over most of a trail to accommodate its Managed Uses.
 - b. **Short Pitch Maximum:** The steepest grade that is determined to be appropriate based on the Managed Uses of a trail, that generally occurs for a distance of no more than 200 feet, and that does not exceed the maximum pitch density.
 - c. **Maximum Pitch Density:** The maximum percentage of a trail with grades that exceed the Target Grade and that are less than or equal to the short pitch maximum, which is determined to be appropriate based on the Managed Uses of the trail.


-  **Design Surface:** The trail tread surface, defined in terms of surface type, surface protrusions, and surface obstacles, that is determined to be appropriate to accommodate the Managed Uses of a trail.
 - a. **Surface Type:** A characteristic of the design surface expressed in terms of material type, grading, compaction, and roughness of the trail tread.
 - 1. **Native:** A surface composed of soil, rock or other naturally occurring materials found on or near the trail.


2. Firm: A surface that is not noticeably distorted or compressed during the seasons for which it is managed, under normally occurring weather conditions, by the passage of a device that simulates a trail user in a wheelchair.


3. Stable: A surface that is not permanently affected by normally occurring weather conditions and able to sustain normal wear and tear caused by the uses for which the trail is managed between planned maintenance cycles.

b. Surface Protrusions: Trail tread imperfections, such as rock, roots, holes, stumps, steps, and structures, that are within the acceptable range of tread roughness and challenge level for the trail and that do not obstruct the Managed Uses of the trail.

c. Surface Obstacles: Trail tread imperfections, such as rocks, roots, holes, stumps, steps, downed logs, and structures, that are beyond the acceptable range of tread roughness and challenge level for the trail and that obstruct one or more Managed Uses of the trail.

 **Design Tread Width:** The tread width determined to be appropriate to accommodate the Managed Uses of a trail.

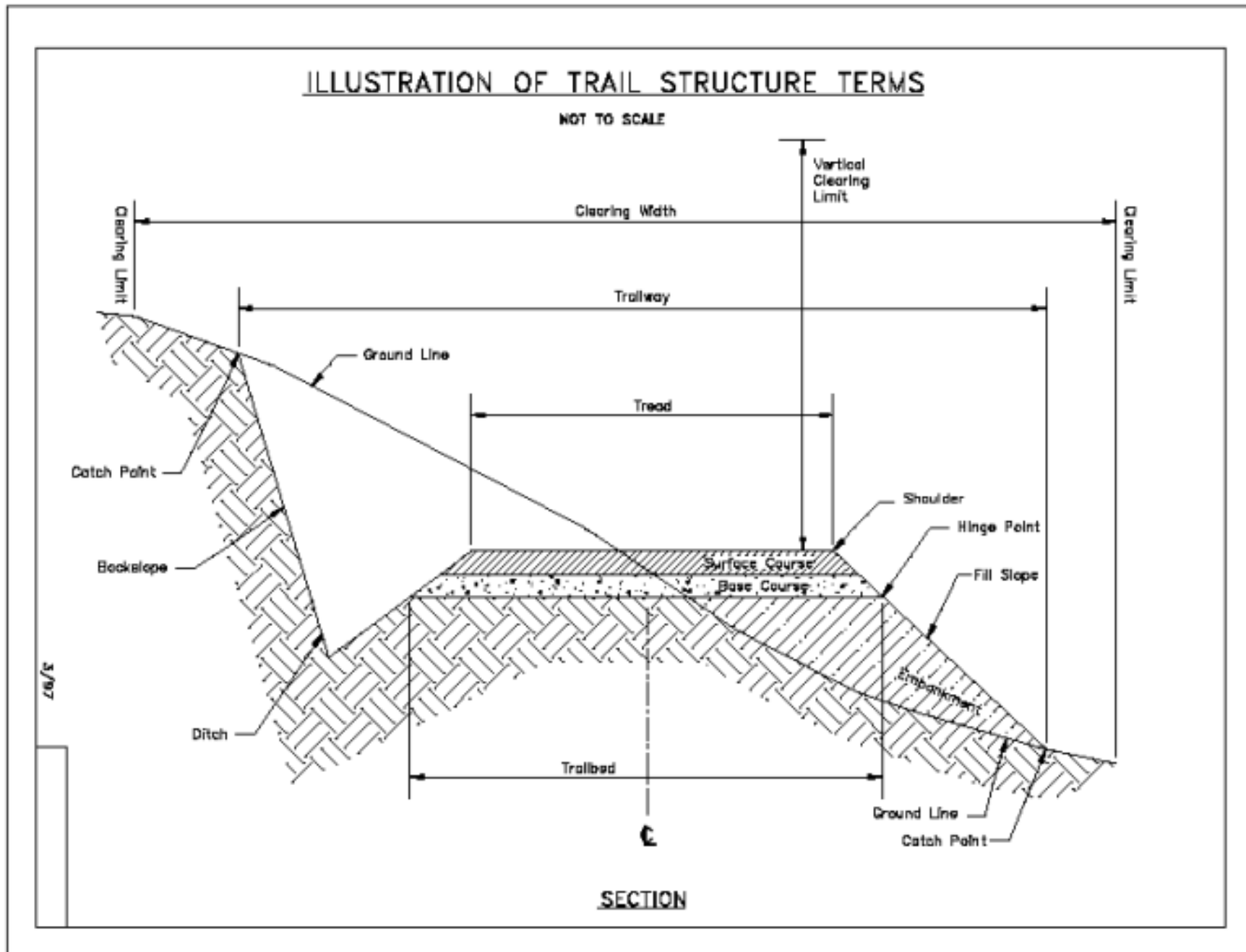
 **Design Turn Radius:** The minimum horizontal radius required for a Managed Use to negotiate a curve (for example, a switchback, climbing turn, or horizontal turn) in a single maneuver.

 **Designed Use:** The Managed Use of a trail that requires the most demanding design, construction, and maintenance parameters that, in conjunction with the applicable Trail Class, determines which Design Parameters will apply to a trail.

 **Linear Grade:** The ascent or descent of a trail segment expressed as a percentage of its length.

IV. USEFUL RESOURCES:

- ✓ American Trails
<http://www.americantrails.org>
- ✓ Americans with Disabilities Act/Architectural Barriers Act Accessibility Guidelines—
<http://www.access-board.gov/ada-aba>
- ✓ Federal Highway Administration and USDA Forest Service recreational trail publications and videos;
https://www.fhwa.dot.gov/environment/recreational_trails/publications/fs_publications/index.cfm
- ✓ Universal Access Trails and Shared Use Paths; Design, Management, Ethical, and Legal Considerations
<https://conservationtools.org/guides/115-universal-access-trails-and-shared-use-paths>



TRAIL ASSESSMENTS

I. PURPOSE

The goal of a Trail Assessment process is to develop an objective, site-based knowledge of your trail(s).

Trail assessments can serve as a stand-alone process that provides prescriptions related to rehabilitation, maintenance and management of the existing trail(s).

Trail assessments can serve as a stand-alone process that provides the necessary empirical data and information required to develop Managed Use Policies and Procedures, including;

- OPDMD Guidelines for the Pedestrian/Hiker Trails(s),
- Seasonal restrictions and/or changes to Managed Use for any type of trail.

In addition, trail assessments can be utilized as the base-line for additional planning and design aimed at new construction and/or to significantly alter the managed use and designed use parameters of existing trail(s). These can include one or more of the following steps;

1. Create plans and design specifications for selected trail, or trail segment(s). These are normally plan sheets and accompanying documentation.
2. Budget estimates for the plan and design, including materials, resources, equipment and tools, labor type (contracted, client, volunteer, and hybrid), mobilization and training.
3. Produce Schedule of Work tasks, including timeline/benchmark calendars, maps and other resources for organization/agency personnel, contractors and volunteers undertaking the project.
4. Project Management, including preparation of Request for Proposals, pre and post bid work with construction contractor(s) project construction manual, construction management, walk-through's and punch-lists, review, completion and final acceptance process for project(s).

II. PROCESS

The following steps represent the basic process that should be undertaken for each trail.

A. Trail Assessment Process

1. Confirm your TMOs for each Trail and Shared-Use Pathway
2. Conduct a Trail Assessment, which is an eyes on the trail, field based, physical evaluation of the trail & corridor

3. Use your TMOs as the method and measure of your trail(s) compliance parameters.
4. Create a detailed Trail Assessment Report of inventoried trail(s).
5. Provide prescriptions resulting from the assessment process, re; work tasks, to insure that the trail(s) is compliant with your intentional TMOs determined by the entity managing the trail(s).

Basic Trail Assessment / Inventory Sheet

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FIELD DATA COLLECTION	SITE NAME: TRAIL NAME: SEGMENT NAME:				DATA COLLECTION DATE: MANAGED USE(S): DESIGNED USE (1 ONLY!):		WEATHER:
Station & Distance	Linear Grade	Cross Slope	Tread Width	Corridor Width	Side Slope	Tread Surface	NOTES: