New York-New Jersey Trail Conference

*DRAFT- Trail Development Levels*





**Background**

“Character” as used below refers to a trail’s level of development from primitive to highly refined or evolved.

To ensure the “character” of a trail is maintained as desired after maintenance and repair, or the building of new trails meets the desired character agreed upon by land managers and trail crews, the following “**Trail Development Levels”** have been created. The goal is to bring consistency and agreement to the desired character outcomes of trail maintenance and construction. In other words, this is a guide to establish the level of development or building, maintenance, and repairs, i.e. is a repair or construction a) “overbuilt,” b) “built just right,” or c) ”underbuilt.” These three differences in perception can become the source of debate when it comes to maintaining or repairing a trail segment while trying to keep a trail’s character intact.

**Process**:

1. Does a change in trail tread surface, width, or corridor qualify as a change in character?
2. When is #1 a “problem”?
3. If usage, weather and/or erosion change a trail has the character changed?
4. What defines the acceptable limits of change in tread surface, width, or corridor?
	1. If #4 is simply yes then stop, let it be
	2. If no, then before proceeding to fix the tread to attempt to reestablish its character we need to ask:
		1. Why the character changed
		2. If there is a problem, what caused it?
		3. How can we assure it doesn’t change again if fixes or reroutes are constructed to solve changes or problems?
		4. What defines: a) “overbuilt,” b) “built just right,” or c) ”underbuilt”
5. Conflict can develop between those charged with changing character as some people believe 4a, some 4b, and b iv can be a point of contention as well.
6. If repairs or new trails are to be constructed how do we find a means to:
	1. Arrive at a character we can agree upon
	2. Build or repair to a standard that will ensure we don’t trigger changes of character again (unless of course that is the desired outcome)
	3. Reach b) “built just right,” not a) “overbuilt,” or c) ”underbuilt”

For example, for b iv imagine a trail repair on: 1) an “undeveloped” or “minimally” developed trail (class 1) and 2) on a more developed trail (class 3). On 1 changes in character might be more noticeable or considered a) “over built” or b) “built just right.” On a 2 changes in character might be seen as b) “built just right.” or c) “underbuilt.” This guide should help achieve the desired character while avoiding the pitfalls of c and repairing or rerouting the trail again in a relatively short period of time.

**Instructions**

1. Select a Development Level from the Development Level Table.
2. A trail, or trail segment between two trails (or intersections) can have only *one* Development Level.
3. The Design Parameters corresponding to the Development Level will be followed for maintenance, repairs, reroutes, and new trails.

**The Trail “*Development Levels”*** are based on USFS Trail Classes (Trail Fundamentals for National Forest System p.33, 34- Trail Class Matrix (FSH 2353.142, Exhibit 01)). The *“levels”* are arranged along a continuum representing the trail’s intended design and management standards1, and reflect the *“character”* of the trail.

1) Identify the appropriate *Development Level* based on the land management plan, road access, and trail-specific decisions.

2) Apply the *Development Level* that most closely reflects the management intent for the trail, which may or may not reflect current conditions.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| TrailAttribute | 1 Backcountry primitive (difficult)Minimally Developed Character | 2 Backcountry (moderate)Moderately Developed Character | 3 Back/front country (diff-easy)Developed Character | 4 Front country (moderate-easy)Highly Developed Character | 5 Front country (easy)Fully Developed Character |
| Tread & Traffic Flow | +Tread intermittent and often indistinct.+May require route finding.+Single lane, with no allowances constructed for passing.+Predominantly native materials. | +Tread continuous and discernible, but narrow and rough.+Single lane, with minor allowances constructed for passing.+Typically native materials.+May be hardened2. | +Tread continuous and obvious.+Single lane, with allowances constructed for passing where required by traffic volume in places where there is no reasonable opportunity to pass.+Native or imported materials.+May be hardened. | +Tread wide and relatively smooth, with few irregularities.+Single lane, with allowances constructed for passing where required by traffic volume in places where there is no reasonable opportunity to pass.+wider where traffic volume is high and passing is frequent.+Native or imported materials.+May be hardened. | +Tread wide, firm, stable, and generally uniform.+Single lane, with frequent turnouts where traffic volume is low to moderate.+wider where traffic volume is moderate to high.+Commonly hardened with imported material. |
| Obstacles | +Obstacles common, naturally occurring, often substantial, and intended to provide increased challenge.+Narrow passages; brush, steep grades, rocks and logs present. | +Obstacles may be common, substantial, and intended to provide increased challenge.+Blockages cleared to define route and protect resources. +Vegetation may encroach into trailway. | +Obstacles may be common, but not substantial or intended to provide challenge. +Vegetation cleared outside of trailway. | Obstacles infrequent and insubstantial. +Vegetation cleared outside of trailway. | +Obstacles not present.+Grades typically < 8%. |
| Constructed Features & Trail Elements | +Structures minimal to nonexistent. +Drainage typically provided without structures. +Natural fords. +Typically no bridges. | +Structures of limited size, scale, and quantity; typically constructed of native materials. +Structures adequate to protect trail infrastructure and resources. +Bridges as needed for resource protection and appropriate access. (usually natural fords) | +Structures may be common and substantial; constructed of imported or native materials. +Natural or constructed fords. +Bridges as needed for resource protection and appropriate access. | +Structures frequent and substantial; typically constructed of imported materials. +Constructed or natural fords. +Bridges as needed for resource protection and user convenience. +Trailside amenities may be present. | +Structures frequent or continuous; typically constructed of imported materials. +May include bridges, boardwalks, curbs, handrails, trailside amenities, and similar features. |
| Signs3 |  |  |  |  |  |
| User type | John’s list | John’s list | John’s list | John’s list | John’s list |
| Volume of use | Low; 0-10/day | Low; 3-20/day | Medium; 5-30/day | Medium-high; 10-50/day | High; 50/day $\leq $ |

1 For National Quality Standards for Trails, Potential Appropriateness of Trail Classes for Managed Uses, Design Parameters, and other related guidance, refer to FSM 2353 and FSH 2309.18.

2 Hardened =

3 For standards and guidelines on the use of signs and posters on trails, refer to the NYNJTC \_\_\_\_\_\_\_, or the Sign and Poster Guidelines for the Forest Service (EM-7100-15).

**Design Parameters** are technical guidelines for the survey, design, construction, maintenance, and assessment of trails, based on their Designed Use and Trail Development Level and consistent with their management intent1. Local deviations from any Design Parameter may be established based on trail-specific conditions, topography, or other factors, provided that deviations are consistent with the intent of the Development Level.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Designed Use HIKER/PEDESTRIAN**  | **Trail Level 1 BC** | **Trail Level 2 BC** | **Trail Level 3 2 BC/FC** | **Trail Level 4****2 FC** | **Trail Level 5****2 FC** |
| **Tread****Width** | **Non-Wilderness** (Single Lane) | 0–12”  | 6–18”  | 18–36” (AG 36”$ \leq $) | 24–60-72” (AG 36”$ \leq $) | 36–72-120”  |
| **Structures** (Minimum Width)  | 18”  | 18”  | 18”  | 36”  | 36”  |
|  | **AG Passing Space** (cross slope $\leq $5% any direction) |  |  | 60”x 60” @ $\leq $ 1000’ for widths $\leq $60” | 🡨 same | 🡨 same |
| **Surface3** | **Type**  | +Native, ungraded +May be continuously rough +Some scrambles | +Native, limited grading +May be continuously rough +Some scrambles | +Native, with some onsite borrow or imported material where needed for stabilization and occasional grading Intermittently rough +AG: Uniform, firm, and stable | +Native with improved sections of borrow or imported material, and routine grading +Minor roughness +AG: Uniform, firm, and stable | +Likely imported material, and routine grading +Uniform, firm, and stable |
| **Protrusions6** | $\leq $ 24” Likely common and continuous  | $\leq $ 6” May be common and continuous  | $\leq $ 3” May be common, not continuous  | $\leq $ 3 ” Uncommon, not continuous  | No protrusions  |
| **Obstacles7** (Maximum Height)  | 24”  | 14”  | 10”, AG 0-2” | 8”, AG 0-2” | No obstacles, AG 0-0.5” for pavement, concrete, wood |
|  | **Gaps perpendicular to travel** |  |  | in grates, boards, concrete 0-0.5” | 🡨 same | 🡨 same” |
| **Grade****3** **Running Slope** | **Target Grade | MDBR4** | 5% – 25% | 70 – NR4 | 5% – 18% | 70 – NR4 | 3% – 12% | 100 – 174 | 2% – 10% | $\infty $,117 - 264 | 2% – 5% | $\infty $,117 - 704 |
| **Short Pitch Maximum**  | 40% on VDS5 | 35% on VDS5 | 25% on VDS5 | 15% for 5 ft. on loam w/gravel | 5% FSTAG: 5% – 12%2,5  |
| **Maximum Pitch Density**  | 20% – 40% of trail 1000-2000 ft/mi | 20% – 30% of trail 1000-1500 ft/mi | 10% – 20% of trail 500-1000 ft/mi | 5% – 20% of trail 250-1000 ft/mi | 0% – 5% of trail 0-250 ft/mi |
|  | **FSTAG Between 60” min. Resting Interval**  |  |  | 200’ if 5-8.3%, 30’ 8.3-10%, 10’ 10-12% | 🡨 same |  |
|  | **Resting Interval Width** |  |  | Trail width or 36” if adjacent | 🡨 same |  |
| **Cross/out** | **Target Cross/out Slope**  | Natural side slope | 5% – 20%  | 5% – 10%  | 3% – 7%  | 2%–3% (or crowned) |
| **Slope** | **Maximum Cross/out Slope**  | Natural side slope  | 25% | 15%  | 10%  | 3%  |
| **Clearing** | **Height**  | 6’  | 6’ – 7’  | 7’ – 8’, AG $\geq $ 8’ | 8’ – 10’ | 8’ – 10’  |
|  | **Width**  | $\geq $ 24” vegetation may encroach into clearing area (some) | 24–48” vegetation may encroach into clearing area (light) | 36–60” AG $\geq $ 48” | 48–72”   | 60–72”   |
|  | **Constructed protrusion** |  |  | $\leq $ 4 in between 27-80” above ground | 🡨 same | 🡨 same |
| **Turns** | **Radius**  | No minimum  | 2–3’  | 3–6’  | 4 –8’  | 6–8’  |

1) For definitions of Design Parameter attributes (e.g., Design Tread Width and Short Pitch Maximum) see FSH 2309.18, section 05.

2) Trail Classes 3, 4, and 5, in particular, have the potential to provide accessible passage. If assessing or designing trails for accessibility, refer to the Forest Service Trail Accessibility Guidelines (FSTAG) for more specific technical provisions and tolerances (FSM 2350).

3)The determination of trail-specific Design Grade, Design Surface, and other Design Parameters should be based upon soils, hydrological conditions, use levels, erosion potential, and other factors contributing to surface stability and overall sustainability of the trail.

4) MDBR = Max distance between reversals- changes with soil: loam with gravel shown ($\infty $ for 5% assuming 6-10% outslope). Grades typically: -15% if rocky/durable,-10% if loamy, -5% if sandy.

4) NR = Not Recommended w/ gravel-loam; Very Durable Surface w/ large parent rock and bed rock OK

5) VDS = Very Durable Surface. For loam w/ gravel 5-12% = $\infty $-17 ft.

6) Protrusion =

7) Obstacle =

-ALL OF THE TABLE ABOVE is based off of: USFS Design Parameters (FSH 2309.18, Section 23.11, Exhibit 01)