201: Trail Standards for Design, Clearing and Maintenance

Routine maintenance consumes the majority of a trail maintainers time and energy. This time and energy is the core asset or value that FTA and our trail volunteers provide. The Florida Trail was built and maintained by FTA volunteers. Few of these very committed individuals arrived at their first trail workday knowing what is expected or what a well maintained trail looks like. In any business new employees are trained, supervised and often mentored. Trail crews and individual volunteers are no different. Knowing why they are there, what is expected and how to do it is basic to a positive outcome. The outcome of employees self-interpreting their job can be disheartening but more often disastrous. Trail standards and the application thereof are the tools by which we instruct and measure trail condition and maintenance. Trail standards are multifaceted but at the core are clearing limits.

The trail alignment of the Florida Trail ranges from a narrow, primitive and remote to wide, paved and urban. This mixture makes it impractical to have a single standard for clearing limits. Site and area specific land manager requirements only add more standardization challenges. From terminus to terminus the Florida Trail is an assortment of trail types and experiences.

To accommodate as many of the differences as possible the National Forest in Florida and the Florida Trail Association have adopted a slightly modified version of the National Trail Class Matrix and Design Parameters. The modified version has five trail classes (very primitive to very developed) and parameters or specifications for each trail class. From a land manager and a trail builder / maintainer perspective these provide quantifiable standards that can be conveyed to trail workers. For any trail work activity the trail crew leaders should be aware of the class and parameters. These should be communicated to crew members along with clearing limits information before the workday begins. First time trail workers are especially vulnerable to no instructions and / or miss information about what trail work entails and what is expected.

To do a good job the average trail worker / volunteer does not have to know the trail class but they need to know what is expected (clearing limits and blazing standards).

FNST Trail Standards / Trail Specification

Design Parameters for a Pedestrian	Example: Class 3
Tread Width (wilderness – single lane) = minimum to maximum tread width.	12” – 24”
Surface:	
Type	natural
Protrusions	≤ 3”
Obstacles	≤ 10”
Grade is elevation change.	3% – 10%
Cross Slope is the maximum cross slope.	5% – 10%
Clearing:	
Width	36” – 60”
Height	8’
Trail shoulder clearance	12” – 18”
Turns are the turning radius.	4’ – 8’

Note: See complete Trail Class Matrix and FNST Design Parameters below.

Skills Training / What You Don’t Know: Knowledge of standards for trail clearing and blazing are essential but they are only the first step. Equally important are best practices, techniques and the skills required to apply them. For

most volunteers these are not acquired in a classroom. There are plenty of judgment calls and there is no substitute for in the field training and working with experienced staff and volunteers.

Land Manager Resources for FNST Coalition:
A Land Managers Guide to: Minimum Trail Standards and Guidelines for the Florida National Scenic Trail, and
Addendum: Minimum Standards and Guidelines for the Florida National Scenic Trail

Note: Additional information on trail standards and techniques are found in Chapter 211: Basic Trail Maintenance.

Table 1: National Trail Class Matrix / USDA-FS

Trail Attributes	Trail Class 1 Minimally Developed	Trail Class 2 Moderately Developed	Trail Class 3 Developed	Trail Class 4 Highly Developed	Trail Class 5 Fully Developed
Constructed Features & Trail Elements	• Structures minimal to non-existent • Drainage typically accomplished 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 • Natural fords • Bridges as needed for resource protection and appropriate access	• 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 • Contructed 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
Signs[2]	• Route identification signing limited to junctions • Route markers present when trail location is not evident • Regulator y and resource protection signing infrequent • Desination signing, unless required, generally not present • Information and interpretive signing generally not present	• Route identification signing limited to junctions • Route markers present when trail location is not evident • Regulator y and resource protection signing infrequent • Destination signing typically infrequent outside of wilderness; generally not present in wilderness • Information and interpretive signing not common	• Route identification signing at junctions and as needed for user reassurance • Route markers as needed for user reassurance • Regulator y and resource protection signing may be common • Destination signing likely outside of wilderness; generally not present in wilderness • Information and interpretive signs may be present outside of wilderness	• Route identification signing at junctions and as needed for user reassurance • Route markers as needed for user reassurance • Regulator y and resource protection signing common • Destination signing common outside of wilderness; generally not present in wilderness • Information and interpretive signs may be common outside of wilderness • Accessibility information likely displayed at trailhead	• Route identification signing at junctions and for user reassurance • Route markers as needed for user reassurance • Regulator y and resource protection signing common • Destination signing common • Information and interpretive signs common • Access ibility information likely displayed at trailhead
Typical Recreation Environs & Experience[3]	• Natural, unmodified • ROS: Typically Primitive to Roaded Natural • WROS: Typically Primitive to Semi-Primitive	• Natur al, essentially unmodified • ROS: Typically Primitive to Roaded Natural Typically • WROS: Typically Primitive to Semi-Primitive	• Natur al, primarily unmodified • ROS: Typically Primitive to Roaded Natural • WROS: Typically Semi-Primitive to Transition	• May be modified • ROS: Typically Semi-Primitive to Rural Roaded Natural to Rural setting • WROS: Typically Portal or Transition	• May be highly modified • Commonly associated with visitor centers or high-use recreation sites • ROS: Typically Roaded Natural to Urban • Generally not present in Wilderness

[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, FSH 2309.18, and other applicable agency references.

[2] For standards and guidelines for the use of signs and posters along trails, refer to the Sign and Poster Guidelines for the Forest Service (EM-7100-15).

[3] The Trail Class Matrix shows the combinations of Trail Class and Recreation Opportunity Spectrum (ROS) or Wilderness Recreation Opportunity Spectrum (WROS) settings that commonly occur, although trails in all Trail Classes may and do occur in all settings. For guidance on the application of the ROS and WROS, refer to FSM 2310 and 2353 and FSH 2309.18.

U.S. Forest Service

Table 2. Pedestrian Design Parameters by Trail Class
USDA, Forest Service modified for the FNST

Design Parameters are technical guidelines for the survey, design, construction, maintenance, and assessment of the FNST. Local deviations from any Design Parameter may be established based on trail-specific conditions, topography, or other factors, provided that the deviations are consistent with the general intent of the applicable Trail Class and National Scenic Trail experience.

Designed Use FNST		Trail Class 1	Trail Class 2	Trail Class 3	Trail Class 4	Trail Class 5
Design Tread Width	**Wilderness** (Single Lane)	0” – 12”	6” – 18”	12” – 24” Exception: may be 36” – 48” at steep side slopes	18” – 24” Exception: may be 36” – 48” at steep side slopes	Not applicable
	Non-Wilderness (Single Lane)	6” – 12”	12” – 24”	18” – 36”	24” – 60”	36” – 72”
	Non-Wilderness (Double Lane)	36” – 48”	36” – 48 ‘	36” – 60”	48” – 72”	72” – 120”
	Structures (Minimum Width)	18”	18”	36”	48”	60”
Design Surface	**Type**	Native, ungraded May be continuously rough	Native, limited grading May be continuously rough	Native with some onsite borrow or imported material where needed for stabilization, occasional grading Intermittently rough	Native with improved sections of borrow or imported material, routine grading Stable, with minor roughness	Likely imported material, routine grading Uniform, firm, and stable
	Protrusions	≤ 24” Likely common and continuous	≤ 6” May be common and continuous	≤ 3” May be common, not continuous	≤ 3 ” Uncommon, not continuous	No protrusions
	Obstacles (Maximum Height)	24”	12”	10”	8”	No obstacles
Design Grade	**Target Grade**	5% – 20%	5% – 12%	3% – 10%	2% – 8%	2% – 5%
	Short Pitch Max	30%	25%	15%	10%	5% - 8%
	Maximum Pitch Density	20% – 30% of trail	10% – 30% of trail	10% – 20% of trail	5% – 10% of trail	0% – 5% of trail
Design Cross Slope	**Target Cross Slope**	Natural side slope	5% – 20%	5% – 10%	3% – 7%	2% – 3%
	Maximum Cross Slope	Natural side slope	20%	10%	8%	5%
Design Clearing	**Height**	6’	6’ – 8’	8’	8’ – 10’	8’ – 10’
	Width	≥ 24” Some vegetation may encroach into clearing area	24” – 48” Some light vegetation may encroach into clearing area	36” – 60”	48” – 72”	72” – 96”
	Shoulder Clearance	3” – 6”	6” – 12”	12” – 18”	12” – 18”	12” – 24”
Design Turn	**Radius**	2’ – 3’	3’ – 6’	4’ – 8’	8’ – 10’	8’ – 12’