

City of Fort Collins Natural Areas Department

Trail Design Standards

August 2015

Most Natural Areas trails are designed to be multi-use including equestrian, bike, and foot traffic.

Trails are constructed with careful consideration for slope, aspect, soil type, and anticipated use patterns.

Trail grades generally do not exceed 7%, as this percentage has been found to be the limit on tread sustainability in Colorado's Front Range clay soils. At grades steeper than 7%, tread begins to deteriorate and erode causing future maintenance issues.

The percentage of trail grade is also calculated against the percentage of existing topography to ensure maximum trail sustainability. For example, a hillside measuring 30% would support a trail grade at no more than 10%. This is referred to as the "3:1 rule."

Trail grades are calculated using a clinometer.

Trail tread (the surface of the trail from back slope to critical edge) is cut to 5%. This ensures a surface that is safe for users while also providing "sheeting" of moisture across and off the trail.

Trail width can vary from 18" to 8' wide depending on the amount of anticipated use and the visitor experience desired. For example, a trail located in the urban interface is typically wider (up to 8') while a trail in a regional natural area may only be 18" wide.

When possible, a reversal in grade is designed into the trail every fifty feet. This separates the trail into smaller watersheds allowing water to quickly drain from the trail while minimizing the effects of water erosion.

North and east facing slopes are avoided when designing new trails as these areas typically hold more moisture throughout the year. Low lying and flat areas are avoided for the same reason. When impossible to relocate trails from these areas, trails are elevated above existing grade using stone causeways, boardwalks, or turnpikes. When designing these structures, stone is preferred above wood for its longevity.

Trail structures (i.e. steps, reinforced grade dips, and check dams) are avoided due to the amount of time spent constructed and maintaining them, as well as their impact on visitor experience. Instead, particular attention is paid to the design of the trail ensuring the trail sustains itself with minimal maintenance after construction.

Vegetation along the trail is pruned back to provide a corridor that is six feet wide and eight to ten feet high. This ensures safe passage for equestrians.