

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

TRAILS AND WALKWAYS

(Ft.)
Code 568



DEFINITION

A pathway for pedestrian, equestrian, bicycle and other off-road modes of recreation travel, farm-workers, construction/maintenance access and small walk behind equipment.

PURPOSES

- To provide travel ways for recreational activities such as walking, horseback riding, bicycling, and hiking.
- To provide access to recreation areas
- To provide safe, environmentally friendly pedestrian access for planting, cultivation and harvest operations.
- To provide worker access for construction and maintenance operations.

CONDITIONS WHERE PRACTICE APPLIES

On recreational, agricultural and non-agricultural lands where prepared paths, trails and walkways are needed for safe, effective and environmentally friendly movement of people or small walk behind equipment.

CRITERIA

General Criteria Applicable To All Purposes

Plan all work to comply with Federal, state, local and tribal laws and regulations.

Impact to cultural resources, wetlands and Federal and state protected species shall be evaluated and avoided or minimized to the extent practicable during planning, design and implementation of this conservation practice in accordance with established National and Florida policy, General Manual (GM) Title 420-Part 401; Title 450-Part 401, Title 190 Parts 410.22 and 410.26, National Planning Procedures Handbook (NPPH) Florida Supplements to Parts 6001 and 600.6, National Cultural Resources Procedures Handbook (NCRPH), national Food Security Act Manual (NFSAM), and the National Environmental compliance Handbook (NECH).

Plan trails or walkways according to the intended purpose as well as to fit the landscape setting where they are installed. Plan trails or walkways intended for access to agricultural crops to meet the needs of planting, cultivation and harvesting processes while protecting soil and water resources.

Plan trails or walkways intended for recreational purposes to meet the needs of the recreational activity while protecting soil, water, fishery and wildlife resources.

Plan and lay-out trails and walkways for all purposes within the constraints posed by the existing landscape. Configure the trail or walkway to minimize adverse on-site and off-site impacts such as accelerated erosion, riparian zone degradation, stream channel and streambank damage, aesthetics or unacceptable damage to wildlife habitat, fragmentation, or restrict wildlife movement.

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service.

Design Requirements. The basic design requirements for all trails and walkways includes tread width, grade, surfacing material, cross-slope grade, clearing widths and heights and turning radii. These requirements vary based on the type and class of trail or walkway. See Table 1 for the types and classes of trails and walkways covered by this standard. When a trail will have multiple uses, choose one use as the critical design driver to determine the appropriate criteria. Refer to *NRCS Trails and Walkways Design Aid, 210-VI-LAN-04* for design procedures for different types of trails and walkways.

Tread Widths. Design tread widths to safely accommodate the intended use. The minimum tread width is determined by the type and class of trail.

Table 1 Types and Classes of Trails ^{1/}

Type	Class*
<u>Recreation Trails</u>	
Hiker – Pedestrian	1 – 5
Pack & Saddle	2 – 4
Bicycle	1 – 5
ATV	2 – 4
Motorcycle	2 – 4
X-Country	2 – 4
Snowmobile	2 – 4
Accessible Trail	3-5
<u>Non-Recreation Trails</u>	
Accessible Route	3 – 5
Farm Worker	3 - 4
Access Route	

^{1/} Trail Classes are defined in the **NRCS Trails and Walkways Design Aid, 210-VI-LAN-04**
 Trail Class 1: Minimal/Undeveloped Trail
 Trail Class 2: Simple/Minor Development Trail
 Trail Class 3: Developed/Improved Trail
 Trail Class 4: Highly Developed Trail
 Trail Class 5: Fully Developed Trail

Grade. Design trail or walkway grades to safely accommodate the planned use and to reduce the potential for erosion from runoff. Grades vary depending upon topography and intended

use. The maximum grade is determined by the type and class of trail.

Surfacing. Surfacing materials can range from native soil and rock to durable pavements such as bituminous concrete. If surfacing is required for a firm, stable trail, use surfacing material that is appropriate for the anticipated traffic and operational conditions.

Cross-slope grades. Design the cross-slope (the surface perpendicular to the direction of travel) of the trail with sufficient grade to allow water to drain off without creating erosion or difficulty using the trail. The cross-slope grade varies with surface material and trail type.

Clearing. Clearing widths and heights vary with the tread width and use. Design clearing widths to accommodate the safe use of the trail or walkway.

Turns. Design turning radii based on the intended use of the trail or walkway.

Width. Design the minimum trail or walkway width to be 4 feet (1.2 m). The width for pedestrian trails may be reduced to a minimum 3 feet (0.9 m) in areas where greater width would adversely affect environmentally sensitive areas.

Side slopes. Design cut and fill slopes to be stable for the soil material found on the site.

Drainage. Design drainage measures to be of sufficient size and at intervals to ensure adequate drainage and prevent erosion of trails or walkways by flowing water. Ensure that the outlets of drainage facilities are adequately protected to minimize erosion.

Avoid traversing wet soil areas whenever possible. If unavoidable, provide an all-weather surfacing to maintain trafficability and elevate the trail surface above ponded water.

For trails or walkways that cross streams, design the crossing to allow for the year around passage of aquatic organisms in the stream and in accordance with Florida conservation practice standard Stream Crossing, Code 578.

Erosion control. Include in the plans provisions to control water and wind erosion during construction until such time as vegetation is adequately established. Establish vegetation on disturbed areas along trails or walkways as soon as practicable after construction of a trail

reach is completed. Refer Florida conservation practice standards Critical Area Planting, Code 342 and Mulching, Code 484 for seedbed preparation, seeding, fertilizing, and mulching requirements. Use vegetation adapted to the site or existing vegetation to accomplish the desired purpose. Give preference to native plant species where compatible land use and existing plant species and avoid the use of invasive species.

If soil, degree of use, shade, climatic conditions, or concentrated water flows will cause loss of vegetation on the trail or walkway, then use non-vegetative surface treatment, such as mulches or gravel.

Bridges and Elevated Walkways. For bridges and elevated walkways with a span less than twenty feet, use the maximum loading anticipated during normal use plus a safety factor of at least 1.5.

Design bridges and elevated walkways that will be used for horses or other large livestock for a uniformly applied load of not less than 200 pounds per square foot (psf).

For bridges and elevated walkways having a span greater than twenty feet and that will only be used for pedestrian traffic, use the AASHTO *Guide Specification for Design of Pedestrian Bridges* for design.

Bridges and elevated walkways having a span greater than twenty feet shall be designed by a Registered Professional Engineer licensed in Florida.

Design bridges and elevated walkways to allow bank-full flows. For bridges and elevated walkways having a span less than twenty feet, overtopping of the structure may be allowed, provided that it is designed to withstand the hydraulic forces applied to the structure.

Safety and control. Incorporate use control and the safety of the users into the design of the trail or walkway. Where it is appropriate because of the site and intended use, include adequate directional and warning signs, handrails, gates, fencing and other safety devices. Where needed, provide protection from slides.

Accessibility. The Americans with Disability Act of 1990 (ADA) requires outdoor recreation

access routes and some hiker/pedestrian trails to be accessible to people with disabilities . Accessibility requirements need to be addressed for new construction and when existing facilities are being altered. Compliance with the ADA outdoor recreation guidelines is not required where:

- compliance would cause harm to cultural, historic, religious, or significant natural features;
- compliance would substantially alter the nature of the setting;
- compliance would require construction methods or materials that are prohibited by Federal, State or local regulations; and
- compliance would not be feasible due to terrain or the prevailing construction practices.

An accessibility evaluation will be made to determine the required level of accessibility for a trail design. Refer to *NRCS Trails and Walkways Design Aid, 210-VI-LAN-04* for accessible trail design procedures.

CONSIDERATIONS

Assure safe ingress and egress to the trail or walkway.

Trails for agricultural access generally should not exceed a 20% grade, although short sections of 50 feet or less may be up to 50%. Break long, steep grades by the use of switch backs.

General use pedestrian and equestrian trails and walkway grades should generally not exceed 10 percent. Grades for other uses may be steeper, such as hiking trails, which may be as steep as 20 percent.

In flat areas provide some grade on the trail or crown the surface to promote drainage.

For recreational trails that start from roadways, adequate parking for users may need to be provided as part of the design.

Trails for agricultural purposes may need to incorporate staging areas where equipment, supplies or harvested crops can be stockpiled.

Consider saving and maintaining key trees and other vegetation that have scenic value, provide

shade, reduce erosion and runoff, provide habitat for wildlife, and/or add to the visual quality of the area. Some selective cutting or trimming of trees or other vegetation may be necessary to provide and maintain scenic vistas at overlooks. At overlooks, keep this to the minimum needed to provide an unobstructed view of the most salient features present.

When planning the trail or walkway, consider the effect on adjoining land, neighboring residences, utilities, cultural resources, threatened and endangered species, wetlands, important farmlands, or other environmentally sensitive areas, and areas of special scenic value.

To protect water quality, consider the location of trails or walkways relative to their use and purpose. Avoid locating trails and walkways when runoff will flow directly from the trail or walkway into a stream or body of water. This is a greater concern where the trail or walkway will be used by animals that will drop manure on the trail.

In areas that are vulnerable to wind erosion, consider using coarser textured surfacing materials for trails requiring non-vegetated surface treatment. Coarser textured materials will have larger particle sizes that are less easily entrained in the air and will minimize the potential for dust formation.

PLANS AND SPECIFICATIONS

Prepare plans and specifications for trails and walkways according to the requirements of this standard.

As a minimum, include, as applicable, the following items in the plans and specifications.

- A plan view showing the location of the trail and or walkway.
- Class of trail
- Profile of trail or walkway.
- Typical cross section of trail or walkway showing the width, typical side slopes and any surface treatment.
- Type and location of signs.
- Details of drainage and erosion control structures and other appurtenances.

- Vegetative requirements.
- Construction specifications that describe in writing the site-specific details for installation of the trail or walkway.

OPERATION AND MAINTENANCE

Prepare an Operation and Maintenance (O&M) plan for each site. As a minimum, the plan must include the following:

- A schedule for regular inspections including after significant runoff events.
- Regular inspection of drainage structures and removal of sediment.
- Repair of eroded areas or damaged surfacing as soon as possible.
- Grading and shaping to maintain design grades and dimensions.
- Repair of fencing and other safety or control features as required.
- Regular inspections of bridges and elevated walkways.

REFERENCES

- American Association of State Highway and Transportation Officials. 1997. Guide Specification for Design of Pedestrian Bridges, 1st Edition. Washington, DC.
- Americans with Disability Act of 1990
- Florida NRCS Conservation Practice Standards Critical Area Planting, Code 342
- Mulching, Code 484
- Stream Crossings, Code 578
- General Manual
- Title 420-Part 401
- Title 450-Part 401
- Title 190-Parts 410.22 and 410.26
- National Cultural Resources Procedures Handbook
- National Environmental Compliance Handbook
- National Food Security Act Manual
- National Planning Procedures Handbook Florida Supplements to Parts 600.1 and 600.6
- USDA - NRCS. 2009. Trails and Walkways Design Aid. Washington, DC.