Appalachian Trail Conservancy

ATC Conservation and Trail Management Policy
Stream Crossings and Bridges

Published: 2011	**Reviewed**: April 2020
Category: Trail Management	**Updated:** April 2020

The Appalachian Trail Conservancy (ATC), a §501(c)(3) nonprofit organization, works closely with Appalachian Trail volunteer maintaining clubs ("Clubs") and other public and private partners to ensure the protection and stewardship of the natural, cultural, and experiential resources of the Appalachian National Scenic Trail (known as ANST, A.T., or "the Trail"). Approximately fifty federal, state, or other public agencies have authority or jurisdiction over lands and resources within the protected A.T. corridor. ATC has a central management role by virtue of its Cooperative Agreement with the USDI National Park Service and its close working partnership with the USDA Forest Service and other agencies.

ATC's Trail management and conservation policies are meant to provide guidance for (a) dissemination to the public; (b) use and implementation by the ATC and the Clubs; and (c) recommendations for land-managing and other agencies. It is the agencies who work within their defined procedures to propose, administer, and enforce public policy. ATC policies are recommendations developed to support appropriate, coordinated Trail-wide management.

Overview

This policy is intended to provide Trail clubs and Agency partners guidance regarding options for pedestrian passage over streams, wetlands, or obstacles and similar geographic features. The footpath of the Appalachian Trail should be located to minimize the need for stream crossings and bridges. However, in some areas, the best route for the Trail may require stream crossings. Fords, step-stones, or bridges should be located and installed to improve safety, minimize impacts to natural resources, and enhance the hiking experience.

Policy

Crossing Design: To preserve the natural, remote, and wild character of the Trail, stream crossings should employ the simplest means available that will provide a safe passage for Trail visitors and protect riparian and aquatic resources, including free upstream and downstream passage of aquatic organisms. A simple, well-designed ford or a few step-stones, combined with steps to protect the stream banks from erosion, may be used for most stream crossings.

Appalachian Trail Conservancy

ATC Conservation and Trail Management Policy
Stream Crossings and Bridges

Un-bridged stream crossings may be impassable shortly after a storm or during late winter and spring runoff; others may provide a certain measure of challenge even in low-water conditions. These primitive conditions are essential to the Appalachian Trail experience and deserve protection.

Partners planning bridge and stream crossing projects should consider a range of alternatives from the most simple (a ford) to those that are more elaborate. In general, a bridge should be constructed **or replaced only if:**

1. It is essential to hiker safety during the snow-free hiking season, recognizing that a stream may not be fordable when flooding occurs; or,
2. It is absolutely necessary to protect sensitive resources, such as soils, habitat or wildlife along a riverbank or other wet area. Note that visitors searching for a crossing point can extensively trample streamside areas.

During the project planning process, the project partners should pay particular heed to primitive and wilderness values. ATC's policy "Managing the Trail for a Primitive Experience" should be followed, and the planning questions associated with that policy addressed, before proposing a project design for new construction or replacement of existing bridges.

Footbridge Design: A footbridge is defined as a permanent, artificial structure not in continuous contact with the ground, regardless of length, width, or height above the surface, with a load-bearing free span between abutments, piers or sills, for pedestrian passage over streams, wetlands, or obstacles. Bog bridges or puncheon used for Trail hardening, and fence stiles, are not included in this definition.

All A.T. bridges should be designed to meet or exceed an accepted engineering design standard for pedestrian bridges in recreational trail environments. Standard bridge designs or specifications that have been developed by state or federal land managing agencies and approved by ATC may be used to meet this requirement.

All A.T. bridges must comply with the Accessibility Guidelines for Outdoor Developed Areas or, for bridges on USDA Forest Service lands, the Forest Service Trail Accessibility Guidelines (FSTAG). This requirement is not intended to mandate that every bridge be accessible, as the accessibility guidelines allow exceptions based on the setting, location, and other factors.

In backcountry and wilderness settings, bridges should be designed to minimize their size and complexity and present a rustic appearance. In these settings, all reasonable measures should be

considered to keep modern materials (steel, concrete, treated wood, synthetics, etc.) disguised or hidden from view.

The size, complexity, and cost of bridges generally increase with the design flood recurrence interval.[1] That is, a bridge that can withstand a 25-year flood will be smaller and less expensive than a bridge designed to pass a 100-year flood. In general, A.T. bridges should provide safe passage when a stream is at its bank-full stage. However, bridges should not be oversized or overbuilt. In practice, bridges should be built to less than a 100-year flood standard to lower their cost and make them more compatible with a backcountry setting. However, there are circumstances where, due to the nature of Trail use in the area, a bridge that is passable during a 100-year flood is necessary, resulting in larger and more elaborate structures. In most cases, such structures should be limited to sites where there is an overwhelming public-safety or resource-protection concern or where a cost-benefit analysis clearly demonstrates the benefit of the larger structure. Federal and State agencies may require structures in designated flood plains to meet specific flood standards.

Approval Process for Bridges: Proposals for new and replacement bridges require approval by ATC prior to construction. The approval process follows ATC's policy "Review and Approval of Management Plans and Project Proposals."

Proposals for new and replacement bridges with unsupported spans over 20 feet, must include:

1. A summary description of the need for the bridge and a map showing the location.
2. Construction plans (or an ATC-approved standard design) that show the bridge's elevation (side view), maximum span, and the material, species, dimension, and condition of proposed bridge stringers and walking surface;
3. Documentation of whether the proposed bridge will be located in a FEMA-mapped flood hazard area, and, if so, additional documentation of any requirements imposed by the municipality administering the FEMA program in that location.
4. A commitment to periodic inspections and maintenance.
5. Inclusion of new, or updating of existing, bridges in APPA Facility Inventory Asset System

[1] The term "flood recurrence interval" is often shortened to, for example "25-year flood" or "100-year flood." Statistically, a 25-year flood has a 4 percent probability of occurring in any given year, while the probability of a 100-year flood occurring in a given year is 1 percent

Appalachian Trail Conservancy

ATC Conservation and Trail Management Policy
Stream Crossings and Bridges

Depending on the size and complexity of the structure, ATC or the land-managing agency may require that bridge plans, specifications, and the inspection/maintenance schedule and procedure be prepared under the supervision of a registered professional engineer. If that is the case, it is the responsibility of the project proponent to engage a qualified engineer. ATC or land manager may offer to provide engineering assistance if the bridge is included in the capital plan.

Coalignment with Public Roads: In situations where the Appalachian Trail is coaligned, or on or under a bridge, with a road or highway, ATC and land managers will seek to ensure that state or local transportation officials include adequate provisions for safe pedestrian use of such facilities in accordance with standards established by the American Association of State Highway and Transportation Officials (AASHTO). Unless agreement is reached to the contrary, ATC expects that the agency responsible for construction, inspection, and maintenance of the bridge will also be responsible for the design, installation, and maintenance of the pedestrian portion of the coalignment.

Inventory, Assessment and Maintenance: All bridges are inventoried through the APPA Facility Asset Inventory system.

Bridges in the Facility Asset Inventory should be evaluated on an interval appropriate to their material, size, location and consequences of failure. ATC and clubs should work with land managers to determine the appropriate level, frequency and manner of evaluations. Bridges requiring inspection, maintenance, repair or replacement that are beyond the resources of the trail club, should be included in the Capital Planning process for funding.

For questions related to this policy please contact the Appalachian Trail Conservancy at www.appalachiantrail.org, or P.O. Box 807, Harpers Ferry, WV, 25425-807.

Appalachian Trail Conservancy

ATC Conservation and Trail Management Policy
Stream Crossings and Bridges

ATC's mission is: "To preserve and manage the Appalachian Trail—ensuring that its vast natural beauty and priceless cultural heritage can be shared and enjoyed today, tomorrow and for centuries to come."