RECREATION PROJECT CLIMATE RESILIENCE RISK FORM

GUIDANCE DOCUMENT

This guide should be used as a reference for filling out FPR's Recreation Project Climate Resilience Risk Form for applications to an FPR Recreation Grant. A brief explanation and definitions are provided for each question to offer context. If you have questions that are not answered in this form, please contact anr.FPRrecreationgrants@vermont.gov

The resilience of recreation projects is a critical component of the review process for FPR Outdoor Recreation grants. The intent of the Recreation Project Climate Resilience Risk Form is to:

1. Provide FPR staff and the grant ranking committee the information needed to assess the resilience of the project.
2. Help guide the grant applicant to develop more resilient projects.

The *Recreation Project Climate Resilience Risk Form* was designed considering the most commonly proposed recreation projects, as well as the forecasted impacts of climate change in Vermont including:

- Warmer temperatures and extreme heat
- Shorter, warmer winters
- Increased winter and spring precipitation
- More frequent heavy precipitation events
- Reduced soil moisture or drought
- Increased risk of wildfire
- Altered stream flows
- Damage from insect pests or pathogens
- Increases in nonnative plant species

HOW THE FORM WILL BE USED

Pre-application

The grant applicant will fill in the *Recreation Project Climate Resilience Risk Form* and submit it with their pre-application. FPR staff will then assess the form and note the areas where further information may be needed in the full application. Staff will then request that applicants provide additional information to address specific resilience risk factors in the full application if identified.

> **Example:** If an applicant notes that there will be waterbars or culverts included in the project, FPR staff will request that the applicant describe how they will clean and maintain that infrastructure in their stewardship plan in the full application.

Full Application

The grant applicant will submit the *Recreation Project Climate Resilience Risk Form* with the full application materials. If nothing has changed in the project design, they may submit the same form they submitted in the pre-application phase, but they may also adjust the answers based on feedback.

Example: If an applicant notes that they will cross the same stream multiple times in the pre-application, FPR staff may suggest that they reconsider the design of the project to limit the number of crossings. The applicant would then adjust *the Recreation Project Climate Resilience Risk Form* to match the new design.

Ranking Process

FPR staff will provide the completed *Recreation Project Climate Resilience Risk Form* and the answers to the questions in the full application as part of the packet for review by the ranking committee. The ranking committee will use the answers to assess the resilience of the project. This will inform the points awarded to the applicant in resilience-related categories of the scoring rubric.

Example: For the RTP program, up to 30 points (out of 120 total) are awarded for Resilience: Minimizing Environmental Impact and up to 30 points (out of 120 total) are awarded for Sustainability: Stewardship and Maintenance plan and design. The answers in the *Recreation Project Climate Resilience Risk Form* will help the ranking committee determine a score in both of these categories.

Important Note

Submitting a project that has potentially higher climate resilience risks does not necessarily mean that the project will not be selected. Rather, for projects that have higher climate resilience risk factors, we expect the design and stewardship plans to directly address the identified climate risks for those projects to score well and that the overall application will describe why the project is important despite the risk.

Example: If a project includes a trail bridge over a waterway, we expect the bridge to be intentionally designed to withstand flooding events as well as accommodate the expected load. Ideally, an engineer, river scientist, or other professional with expertise in this area will have been consulted to confirm this. Furthermore, justification of why the crossing is necessary in order to provide important recreation opportunities to the public should be included in the application.

Grant Agreement Development and Project Implementation

The *Recreation Project Climate Resilience Risk Form* will also be used by FPR staff in order to create the grant agreement and inform the final project design.

Example: If an applicant notes that there are invasive species present at the trailhead on the form, and describes how they will control them in the stewardship plan of the full application, the control of those invasives species may be included in the grant agreement.

FORM GUIDANCE

This form should be completed by project managers with assistance from others as needed. Depending on expertise, a combination of field review and online research may be necessary. If it is not possible to get the information needed before applications are due (for example, if you are unable to visit the site after a rainstorm), please choose “Unknown” or leave the question blank.

Please note that all questions should be answered for the project area for which you are applying. If you are building or rehabilitating an entire trail, please answer the questions for the whole trail, but if you are working only on one section, please answer the questions specifically for that section/project area. The project area should include the actual trail and any parts of the surrounding area potentially impacted by the project construction. A good rule of thumb would be

about a 25-50 foot buffer around the trail for most trail construction projects. If you have questions about how you should define your project area, please contact us.

Project Name – Enter the name of the project for which you are applying to an FPR recreation grant. It should match the project name on your grant application.

Organization Name – Enter the name of the organization that is the lead applicant for the grant.

Project Context

1. **What is the project type?**
   Explanation: Choose the type that best describes your project. Different project types have different constraints associated with resilience. For example, when rehabilitating an existing trail, you may have more limited options for location than if you were creating a new trail.
   Definitions:
   - **Rehabilitation of entire trail** – Work upgrading an entire trail. Rehabilitating can include adding structures and water crossings, relocating, and any other work to improve the existing trail.
   - **Rehabilitation of trail section** – Work upgrading only a section of a trail. Rehabilitating can include adding structures and water crossings, relocating, and any other work to improve the existing trail section.
   - **New trail/network** – A new trail or network in a place where no trails currently exist.
   - **New trail (network expansion)** – A new trail that connects to existing trails.
   - **Rehabilitation of parking/trailhead** – Work upgrading an existing parking lot and/or trailhead.
   - **New parking/trailhead –** Adding a new parking lot of trailhead.
   - **Signs/Kiosks –** Educational and/or wayfinding signage for a new or existing trail. Can be along the trail or at the trailhead.
   - **Other** – Any other project type. Please note the type of project in the gray space.

2. **Where is the project located in terms of the local topography?**
   Explanation: The impacts of erosion, groundwater movement, and flooding differ on different parts of the landscape, which changes the susceptibility to damage from large scale rain events.
   Definitions:
   - **Ridgetop**—summit or crest of a ridge or hill.
   - **Mid Slope**—the area between the top of a ridge and the bottom of a valley
   - **Toe of the slope**—the section of the slope where the degree of slope is lessening into a valley
   - **Valley bottom**—the low-lying area of a valley

3. **What of the following are found *upslope* within approximately 500 feet of the project area?**
   Explanation: Natural and man-made landscape features can affect the forces that may impact the project site. For example, a ditch uphill of a project site mean that water at that site may be moving faster than one might expect. Please choose features within approximately 500 feet or your project area. If there are not features upslope of your project site, choose "Not Applicable."
   Definitions:
   - **Trail sections without adequate or functional drainage** – Poorly designed or drained trails can act as streams during large rain events. If these areas are uphill of the project site, they may put the project area at risk.

- **Natural or man-made constraints on water –** Places that reduce the area through which water can flow cause water to move more quickly. Fast-moving water can cause significant damage. Understanding where these areas are in relation to the project site is critical for assessing the potential impacts to the site. Water constraints can include culverts, ditches, dams, natural canyons, and bridges.
- **Seeps or wet areas –** Seeps and wet areas are indications of places where groundwater is often close to the surface. With significant rain, these areas can be less stable, especially on slopes.
- **Steep slopes (over 20%)** – Steeper slopes are generally less stable and higher risk than shallower slopes. For more information on how to measure slopes, see question 7.
- **Unstable slopes** – Unstable slopes can be identified in multiple ways depending on the context. Rocky slopes that are unstable often have signs of rock movement and the rocks are not covered in lichen or moss. In forested areas, unstable slopes can be indicated by slanted trees. Riverbanks and bluffs are also common unstable slopes in Vermont.
- **Man-made structures** – Manmade structures can also change how water flows over a landscape and can be less resilient than natural features. Manmade structures can include buildings, roads, fences, and other structures. If the structure is associated with water, please check "**Natural or man-made constraints on water"**
- **Waterbodies** – Ponds, pools (ephemeral or year-round), lakes, reservoirs.

4. **What of the following are found *downslope* within approximately 500 feet of the project area?**
   Explanation: Downslope features, although not as obvious a risk as upslope features, can also affect the resilience of a site, particularly if they change the hydrology of the area. Most of the features are the same as upslope and are explained above. The one unique feature is explained below. If there are not features downslope of your project site, choose "Not Applicable."
   Definitions:
   - **Stream undercutting slope** – Streams can cut into the bottom of a slope and impact the stability of the slope much higher up on the slope. This happens in particular on the outside of river bends, but can happen in areas where the stream is relatively straight as well. This is most common in places where the river has created a steeply-sided valley.

General Design

5. **What is the current or planned surface of the trail or parking area?**
   Explanation: The surface of a trail or parking area includes anything you may travel over, including the ground, rock, and built boardwalks and bridges. The surface of the trail or parking area is important for understanding how the impacts of climate change will affect the resource. Surfaces are more or less erodible and may be more or less impacted by flooding. Furthermore, some surfaces may be better suited for recreation infrastructure in dynamic systems, like near rivers, than others. Many projects will have multiple surfaces and may include both natural and imported materials.
   Definitions:
   - **Natural Surface** – materials found on site
     - **Soil** – sand, soil, or organic material like leaves
     - **Rock** – bedrock, ledge or gravel that is found at the project site
     - **Wood** – wood used for trail structures (e.g. puncheon, boardwalks and bridges) that is gathered and then cut and/or milled on site
     - **Other** – any surface that is not wood, dirt or rock and is sourced from the project site

- **Imported material** – material brought to the project site from elsewhere
    - **Soil/Fill** – dirt that is quarried elsewhere and brought into the project site
    - **Lumber** - treated or untreated lumber, often used for puncheon, boardwalks and bridges
    - **Rock/gravel** – any rocks for steps or gravel not sourced from the project site
    - **Compacted stone** – a surface often used for accessible trails made of crushed stones that are then compacted with a machine, also called crushed stone, or rock dust
    - **Pavement** – asphalt or concrete
    - **Other** – any surface not listed above that is sourced from outside the project site

6. **What materials will be or currently are the structure or structures made from?**
   Explanation: Structures include signs, kiosks, trail shelters, park shelters and any other built structure that is not part of the trail surface. The material from which a structure can impact its resilience to climate impacts, its impact on the environment and the requirements for stewardship. If you are not including a structure as defined above in your application, please check "Not Applicable"

   Definitions:
   - **On-site materials** – anything sourced from the project site and used in building the structure. This could include trees milled on site, rocks or other natural materials.
   - **Untreated lumber** – lumber that has been milled off site
   - **Treated lumber** – lumber that has been milled off site and treated for rot resistance (i.e. pressure treated)
   - **Plastic/composite** – any type of plastic or mixed
   - **Metal**—any type of metal
   - **Concrete**—mixture of stone, gravel, sand, cement and water
   - **Other**—any other material not listed above

7. **Are there steep slopes over 20% grade in the project area (if an existing trail, proposed trail or access road)?**
   Explanation: Steep slopes represent the areas where significant erosion is most likely to occur. However, they are common in Vermont and may be unavoidable in trail projects. Please note that if your trail goes over steep slopes within your project area, you may be asked for further information in your full application.
   Definitions:
   - **Percent Grade**—Represents the steepness of a trail. It is determined by dividing the amount of elevation change by the amount of horizontal distance covered (sometimes referred to as "the rise divided by the run"), and then multiplying the result by 100. Another common way to measure slope is in degrees. A 20% slope equals 11.3 degrees. You can use a clinometer or a smartphone (there are multiple free apps) to measure slope.

8. **What signs of erosion are present in the project area?**
   Explanation: Erosion from water is one of the most detrimental forces on trails. A trail with only beginning signs of erosion can quickly wash out when large amounts of rain fall at one time. It is important to inspect all trails for signs of erosion and put measures in place to prevent it from worsening.
   Definitions:
   - **Leaf push**—This is an early sign of erosion water pushing leaves and leafy debris down the trail. Signs of leaf push include areas of accumulated leaves and leafy debris next to areas of soil on the trail, especially in a pattern consistent with water movement. This is often present after rainstorms.

- **Sheet flow <1” deep**—This occurs when rainwater moves in broad sheets over the ground, removing thin layers of soil. Although erosion does occur in small amounts when water moves across soil, sheet flow perpendicular to the trail is the goal of most modern trail building.
- **Rill erosion 1-6" deep**—Soil erosion that occurs when runoff water forms small channels in the soil or trail surface as it concentrates down a slope. This is a sign of significant erosion.
- **Gully erosion >6” deep**—Soil erosion that occurs when water runoff cuts into the ground to create a deep trench. This is a sign of severe erosion.
- **Loose rock over 3” diameter**—Rock debris that is not firmly attached to the ground or other rocks. It is a sign of significant erosion as it indicates that the fine a moderate particles have already eroded away. Please only check this box if the loose gravel was not placed by trail managers.
- **Loose gravel <3” diameter**—Gravel or stone fragments that are not firmly fixed in place. This indicates that the fine-grained particles in the soil have already eroded away. Please only check this box if the loose gravel was not placed by trail managers.
- **Soil deposition**—The process of soil being carried from one location to another usually by moving water. This can indicate that soil travel down the trail then settled in place when the water slowed. Please only check this box if the soil was not placed by trail managers and is currently being deposited (e.g. not from historic soil deposition).

9. **How will you/do you move water off the trail/away from facility and/or prevent erosion?**
   Explanation: There are many strategies for both repairing eroded sections of trail and for preventing future erosion. The choice of strategy depends on the use of the trail and the landscape context surrounding the trail. It is important to note that even the best-built trails require maintenance to ensure that erosion control continues. For further information about erosion control structures, see the references at the end of this guide.
   Definitions:
   - **Grade reversals**— Section of trail that drops subtly for 10 to 50 linear feet before rising again, forcing water to drain off the trail.
   - **Sidehill with outslope**—a trail that is shaped to drain water to the downhill side, often with sheet flow.
   - **Relocate the trail to a sustainable grade**—option to build a section of trail at a different location in which the trail grade is less steep to prevent erosion. This may utilize switchbacks or naturally lower slopes.
   - **Drains**— structures placed into the trail that helps divert water off the trail. Common types of drainage features include cross drains, drain dips, knicks, french drain, filter strips.
   - **Rock armoring**—rock placed into a trail so that the rock surface is approximately level with the trail surface to harden the trail
   - **Rock steps**—rock stairway built into the hillslope to mitigate a steep slope
   - **Waterbars**—diagonal channels across a path surface that divert surface water run- off away from the road or path into a protected drain way. Waterbars can be made from rock, logs or dug into the structure of the trail.
   - **Culverts**—a structure that allows water to pass under an obstacle or into a subterranean waterway. Culverts can be plastic or metal and should be sized correctly to accommodate the water drained above the structure. *Acceptable Management Practices (AMPs) for Maintaining Water Quality on Logging Jobs in Vermont* and associated app (often called the AMP Manual) details how to calculate the size of culverts for logging roads and trails, and can also be used as a resource for recreational trails.
   - **Check dams/steps**— small dam constructed across a trail to counteract erosion by reducing the water runoff velocity. They often look like a series of logs or rocks placed perpendicular to the trail creating the visual effect of steps.

- **Other**—any other drainage systems not listed above

10. **Are there muddy areas or areas where water puddles could puddle in your project area?**
    Explanation: Muddy areas or puddled water can indicate areas that may be wet most of the year. This can occur on side hill trails where there is a seep, and at valley bottoms where water cannot drain. If muddy or puddled areas are not addressed, they can often widen because of people attempting to avoid the mud, which increases the impact of the trail. On sidehill slopes, muddy areas are also more prone to failure or slumping because water reduces the friction holding the soil together. If you are not confident either way that the trail or project area is or is not ever muddy, please choose "Unknown."

11. **If yes, how will you prevent or fix this problem?**
    Explanation: If not addressed, muddy areas usually worsen and cause further resource damage. If you answered yes to question 6, please note all of the ways you will prevent muddy areas from widening and/or trail use causing water quality degradation. If you answered no, please choose "not applicable."
    Definitions:
    - **Step stones**—set of stones arranged to form a crossing over water or muddy areas.
    - **Rock armoring**— rock placed into a trail so that the rock surface is approximately level with the trail surface to harden the trail.
    - **Culverts**— a structure that allows water to pass under an obstacle or into a subterranean waterway. Culverts can be plastic or metal and should be sized correctly to accommodate the water drained above the structure. *Acceptable Management Practices (AMPs) for Maintaining Water Quality on Logging Jobs in Vermont* and associated app (often called the AMP Manual) details how to calculate the size of culverts for logging roads and trails, and can also be used as a resource for recreational trails.
    - **Ditching**—a trench dug along the side of a trail to collect runoff. This should usually also be associated with drainage structures to move water out of the ditch and away from the trail.
    - **Turnpike**—a raised trail surface parallel to a ditch, which is used to elevate a trail above wet ground. Turnpike is built by lining the area with logs or rocks, and then filling in between the sides with dirt, gravel or both. Usually there are also drainage structures associated with turnpikes.
    - **Boardwalk or puncheon with on-site materials**— wooden walkways build using natural materials found on-site.
    - **Boardwalk or puncheon with imported materials**-- walkways built using material brought into the project site from elsewhere.
    - **Repairing the outslope**—rebuilding the trail to direct water to the downhill side where it flows away from the trail and is absorbed into the slope. This is done by angling the trail surface so that water sheets off. This is semi-regular maintenance for sidehill trails.
    - **Relocation**—option to rebuild the trail at a location which avoids muddy areas or puddles.
    - **Water infiltration areas (e.g. infiltration steps, vegetated swale, etc)** —Planning a trail with stormwater strategies in mind including incorporating areas adjacent to the trail that can soak up or slow water.
    - **Other**—any other solutions not listed above.

Water Features

12. **Are there any of the following features within 50 feet of the project area?**
    Explanation: The proximity to water is an important consideration for the resilience of the recreation asset and the water body. Any time that a trail or other recreation facility is planned within 50 feet of water, particular care

must be taken in the design process. Many times, these projects will also require permits. Water features can be viewed on the Vermont Natural Resources Atlas.

Definitions:

- **Major river (e.g. Lamoille River)**— large, designated rivers such as the Lamoille River, Winooski River, White River, or Otter Creek.
    - Location in ANR Atlas: ANR Basemap Data > Stream and ANR Basemap Data > River Area
- **Small river/perennial stream**—permanent small rivers or streams that run yearlong. They may or may not be named.
    - Location in ANR Atlas: ANR Basemap Data > Stream
- **Intermittent stream (if known)**— temporary or seasonal streams that may not run the whole year.
    - Location in ANR Atlas: ANR Basemap Data > Stream, please note that there may be intermittent streams that are not in the map. Field review of the trail and facility is critical to answer this question completely.
- **Mapped wetlands**—areas of land that are saturated or covered by water, either permanently or seasonally. Please note that not all wetlands are mapped and further review for permitting may be required.
    - Location in ANR Atlas: Watershed Management > Wetland - VSWI
- **Mapped hydric soils**—also known as wetland soils. Soils that have been saturated with water for long periods of time during growing season.
    - Location in ANR Atlas: Geology > Soils - Hydric
- **Pond or lake**—inland bodies of fresh water.
    - Location in ANR Atlas: ANR Basemap Data > Waterbody
- **Vernal Pool(s)**— seasonal shallow natural-forming ponds that provide habitat areas for woodland plants and animals.
    - Location in ANR Atlas: VP Atlas – Vernal Pools > Mapped Vermal Pools Please note that there may be vernal pools that are not in the map. Field review of the trail and facility is critical to answer this question completely.

13. **Is any of this project within the mapped floodplain or mapped river corridor?**

Explanation: The mapped floodplain and mapped river corridor are dynamic systems, particularly during and after large-scale rain events. Updates to these maps are being updated regularly. These features can be viewed on the Vermont Natural Resources Atlas.

Definitions:

- **Floodplain**— area where water flowing out over the riverbank spreads out during flood events.
    - Location in ANR Atlas: Rivers > Flood Hazard Areas (Only FEMA-digitized data)
- **River Corridor**— area that provides the physical space that the river needs to express its energy and meander without causing it to dig down.
    - Location in ANR Atlas: Rivers > River Corridors (Aug 27, 2019)

14. **Are there signs of flooding within 50 feet of the project site?**

Explanation: Regular flooding is a clear sign of a dynamic system. Flooding can occur regular in the spring near many streams and rivers, but also after large rain events. Signs of flooding can include:

- Vegetation pushed up against trees, all on the same side of the trees
- Vegetation pushed down all in the same way from water moving
- A silt layer at the same height on all the trees, rocks, or vegetation
- Significant standing water

- Large deposits of sediment

15. **Are there signs of riverbank erosion or a changing watercourse within 50 feet of the project site?**
    Explanation: Rivers naturally change location as the water erodes the riverbank. Signs of riverbank erosion can include:
    - Meander bends, particularly on the outside of the bend
    - The sloughing of riverbank into the river
    - Oxbows (historical meanders)

16. **Does or will the trail cross the river, permanent stream or seasonal stream?**
    Explanation: Note whether the trail crosses a river or stream. We know that rivers and streams are prevalent on the Vermont landscape and often trails must cross them. Crossings should be perpendicular to the river, and if a built structure, should allow for the movement of water under the structure, even at high volume.

17. **How many crossings?**
    Explanation: Note how many times the trail crosses a river or stream. This should be the total crossings and can include crossings of multiple streams or rivers or multiple crossings for the same river or stream. If possible, crossings should be kept to the least number possible while building a sustainable trail.

18. **How will it cross?**
    Explanation: If the trail is crossing a river or stream, please indicate how it will cross. If there are multiple crossings, please check all that apply.
    Definitions:
    - **Engineered bridge** – a bridge that has been designed by a qualified engineer to accommodate the weights expected on the bridge. Please note timber and prefabricated steel bridges using the standard plans from the USFS are engineered plans as they have been approved by the USFS engineering staff.
    - **Simple bridge (12' or less)—** a bridge that has not been designed by qualified engineers and is less than 12 feet in length.
    - **Ford (natural)—** a shallow place where a river or steam may be crossed by wading or rock hopping. Fords should be established in shallower sections of a stream if possible.
    - **Culvert**— a structure that allows water to pass under an obstacle or into a subterranean waterway. Culverts can be plastic or metal and should be sized correctly to accommodate the water drained above the structure. *Acceptable Management Practices (AMPs) for Maintaining Water Quality on Logging Jobs in Vermont* and associated app (often called the AMP Manual) details how to calculate the size of culverts for logging roads and trails, and can also be used as a resource for recreational trails.

19. **Does or will the trail cross a wetland?**
    Explanation: Indicate whether the trail will cross a wetland, indicated by wetland mapping, field review, or the presence of hydric soils. Crossing a wetland can have more impact than being near a wetland.

20. **Have any landslides been documented within 500 feet of the project area?**
    Explanation: Landslides occur in areas of steep slopes, often when something undercuts the slope and water saturates the soils. Currently documented landslides are available on the Vermont Natural Resources Atlas.
    - Location in ANR Atlas: Geology > Landslides

Ecological Considerations

21. **Are there invasive species within 50 feet of the project area?**
    Explanation: Invasive species have the potential to significantly disrupt habitats and negatively impact the ecological health and diversity of nature systems. If spread, invasive species may result in destabilizing an ecosystem making it less beneficial to people, native plants, and wildlife. Trails can be vectors for invasive species as seeds, eggs, or insects get attached to people or pets and are brought deeper into a forested block. Common invasive species include garlic mustard, common buckthorn, non-native honeysuckle, and Japanese Knotweed.
    - Resource: VT Invasives has a comprehensive list of invasive species in Vermont - https://www.vtinvasives.org/

22. **Are there high risk tree species (American beech; White, Black or Green Ash; Eastern Hemlock in southern Vermont) present at gathering areas, such as parking areas, trailheads and vistas?**
    Explanation: The high risk tree species listed above are impacted by invasive pests and are more likely than other species to be compromised and become "hazard trees." It is often easier to eliminate the threat of a hazard tree before a high-use gathering area is created. There is a free smartphone app, Seek, created by iNaturalist, as well as many tree identification guides to help identify tree species.

23. **Are there state- or federally-listed rare, threatened or endangered species within 50 feet of the project site?**
    Explanation: The Endangered Species Act of 1973 prohibits action that could harm any threatened or endangered species. It's important to avoid disrupting the habitats of rare, threatened or endangered species in order to stabilize populations, prevent extinction, and conserve ecosystems which they depend on.
    - Resource: Lists of endangered and threatened animals and plants can be found on Vermont Fish & Wildlife's website. Permit Navigator will also flag proximity to rare, threatened and endangered species.

Visitor Management

24. **Will the trail or facility be closed seasonally (e.g. for mud season, hunting season, winters with low snow)?**
    Explanation: Limiting access during certain times of the year when conditions are undesirable or other uses may conflict can help protect the resource and enhance visitor experience and shared use. This strategy is not universal, but can work in some circumstances.

25. **Will the trail or facility be closed after major rain or flooding events to allow for drainage?**
    Explanation: It's important to consider providing ample time for water to drain from a trail or facility a major rain or flooding event. Closing a site for a short time can sometimes help the trail remain open and accessible for the long term. This strategy is not universal, but can work in some circumstances.

General Information

Submitter name, Position and Email –

Please include the contact information for the individual submitting the form

Did you consult with anyone else when filling in this form? If so, please list below and include their organizations and positions.

Please include the names and titles of the people who have worked on filling in the form. This will help the grant staff and review committee understand the knowledge base that was utilized to fill in the form.

Was this project professionally designed for laid out? If yes, who designed the project?

Professional trail builders, whether employed at non-profits or as contractors, are incredible resources for designing and building trails. If their expertise was utilized, please note this in this section.

RESOURCES

Natural Resource Information

- ANR Vermont Natural Resources Atlas - https://anrmaps.vermont.gov/websites/anra5/
- Vermont Invasives - https://www.vtinvasives.org/
- VT Fish and Wildlife list of Rare, Threatened and Endangered Species - https://vtfishandwildlife.com/conserve/endangered-and-threatened-species
- *Acceptable Management Practices (AMPs) for Maintaining Water Quality on Logging Jobs in Vermont* - https://anr.vermont.gov/sites/anr/files/co/planning/documents/guidance/AMP%20Adopted%20Rule%20Clean%2010-6-16.pdf
- Seek app by iNaturalist - https://www.inaturalist.org/pages/seek_app

Trail Guidelines

- USFS Trail Construction and Maintenance Notebook
- USFS Sustainable Recreation Site Design Guide
- USFS Wetland Trail Design and Construction
- USGS Sustainable Camping Best Management Practices
- ATC-USFS-NPS-GMC Backcountry Sanitation Manual

For a full list of recommended trail guidelines, including activity-specific manuals, visit the FPR website - https://fpr.vermont.gov/recommended-trail-standards

Climate Change Information

- Climate Impacts Assessment for Northeast United States - https://nca2023.globalchange.gov/chapter/21/
- Forest Vulnerability Assessment for Northern New England and New York - https://forestadaptation.org/sites/default/files/NEng_FEVAS_SummaryHighlights2.pdf
- Forest Adaptation Tools - https://www.fs.usda.gov/nrs/pubs/gtr/gtr_nrs87-2.pdf
- Information about recreation and climate change - https://forestadaptation.org/focus/recreation