

# A Guide to River Corridor Management Plans



**New Hampshire Department of Environmental Services  
Rivers Management and Protection Program**



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Cover Photos:

Top Left: Lower Merrimack River, Top Middle: Exeter River, Top Right: Ammonoosuc River  
Bottom Left: Upper Merrimack River, Bottom Right: Oyster River

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# Introduction

The Rivers Management and Protection Act of 1988 ([RSA 483](#)) established the New Hampshire [Rivers Management and Protection Program](#) (Rivers Program or RMPP). This is a statewide program based on a unique cooperative approach involving **state** designation of rivers to manage and protect their values and characteristics, and **local** oversight of the rivers guided by development of river corridor management plans to further protect their resources. The Rivers Management Advisory Committee (RMAC) advocates for statewide policies and actions that protect designated rivers and their associated values, while local river management advisory committees (LACs) provide feedback on site-specific permitting decisions, collaborate across towns within designated river corridors, and develop and implement the river corridor management plan for their river.

This guide is intended to help LACs and the Connecticut River Joint Commissions develop river corridor management plans for rivers designated under RSA 483. This guide is not a blueprint. It aims to explain why plans are created and present a general framework for understanding the process involved and the components that are either required or common to most plans. It is up to each individual LAC to develop, implement and revise their management plan according to the needs of the particular river and the communities around it.



A river corridor management plan supports your LAC’s work to protect resources associated with your designated river. It helps your LAC go beyond reacting to individual projects, and instead think proactively and creatively about how to improve conditions in and around the river. A management plan is a blueprint for action. It first helps identify resources in the river corridor and threats to them. It then helps your LAC identify goals, objectives, and action items that will preserve, protect, and/or restore those resources. The management plan’s action items make the plan a living document. The action plan becomes a “to-do” list for your LAC to show where a little work will go a long way to improving conditions in the corridor. Management plans help your LAC stay focused on its goals, measure progress and give committee members a

sense of accomplishment as each action item is completed.

A river corridor management plan is also an excellent tool for planning and managing development within the designated river corridor. A plan supports your LAC when making a case to partners or funders for river protection projects, or when advising local governments, including conservation commissions, planning boards, and zoning boards, in local land-use planning and decision-making. The management plan may also identify unmet opportunities for protecting the natural, historical, economic and recreational resources associated with a designated river corridor and recommend appropriate actions at the local or state levels.

The river corridor management plans developed by LACs have statewide implications. Under RSA 483, the state must “review and consider” river corridor management plans prior to issuing certain types of development permits. Each plan also becomes part of New Hampshire’s comprehensive plan for river conservation and development (RSA 483:5), and thus is considered by the Federal Energy Regulatory Commission (FERC) when that agency approves projects such as dam permit renewals.

A river corridor management plan should be written within a year or two of the river’s designation into the Rivers Program and the establishment of an LAC. The full plan should be reviewed every few years to determine if it is still relevant and revised at least every ten years. Action items resulting from the corridor plan should be reviewed and updated annually or as projects are completed. By including the action plan as its own section of

the corridor plan, it can be updated easily and frequently, thereby helping serve its purpose of guiding the LAC's actions.

Partnerships are an important part of conservation. The management plan is most effective when there is coordinated, inter-municipal cooperation as well as individual town action to implement the plan. Unlike most local planning efforts which are contained within a single community, these management plans will encompass multiple communities and include stakeholders throughout the river's watershed. Ultimately, however, your management plan "belongs" to your LAC. It guides LAC action and reflects LAC members' knowledge of the river and its communities. Even if your LAC hires a contractor or regional planning commission to write the plan, members **must** be involved in the process of developing goals and crafting the plan because ultimately it is the LAC that will be implementing the plan.

Management plans can be complex, but most follow a set of basic but iterative steps that are elaborated upon in more detail through the remainder of this guide.

- Get organized, determine the plan's scope, find funding, and create a work plan.
- Describe your river's unique resources.
- Identify threats to your river's resources.
- Establish goals and objectives.
- Develop an action plan.
- Draft the management plan.
- Implement, monitor and update the management plan.

The complexity of your plan will reflect your capacity, the circumstances that prompt plan creation or revision, and your goals for the LAC's work. In some cases, you will want to incorporate many sections by reference, and focus on the above steps for just a handful of resources, threats and associated goals. For instance, if recreation pressures have changed dramatically, you may wish to focus on recreation, fisheries, public access, or water quality impacts from increased traffic, and write a plan that focuses predominantly on recreation-related resources, threats and actions. In other cases, you will want to establish baseline information for the broad suite of resources associated with the river and take a comprehensive look at where LAC action would be most impactful. In this case, you would want to apply the above steps to a broader array of resources. Remember that the resource assessment created for your river's nomination provides a great starting point for your first plan.

This guide includes several significant changes over the previous version. We have introduced the recommendation to create an action plan ([Section 2.4](#)) of items that are under the direct control of your LAC to implement. We include the current statutory requirements ([Section 2.1.2](#)) for the contents of management plans, which have changed since the last guidance was published. Other updates in this guidance include information about finding grants ([Section 1.5](#)), current references available to LACs for plan creation (integrated with discussion of each topic area), and resources such as checklists and sample plan outlines. This guidance is intended to help your LAC create a management plan that is a practical, action-oriented tool to prioritize your next steps and maximize your positive impact on the river and its communities.

# Chapter 1: Get Organized, Find Grants, and Create a Work Plan

LACs serve as the driving force to ensure that river corridor management plans are created and effectively implemented. Having clear expectations of members, assigning responsibilities, and fostering strong ties to the local community will help when developing and implementing your plan.

## 1.1 Identify the Reasons for Plan Creation or Revision

While developing a management plan is statutorily required, many different circumstances can prompt their initiation or revision, including the designation of a new river or river segment into the Rivers Program, the emergence of new and pressing threats, changing resource conditions, your LAC's completion of a major project or goal, or simply the aging of the plan. Changed circumstances should be discussed as part of the LAC's annual or biennial review of the management plan.

When thinking about whether to update the management plan, consider the following types of questions:

- Are the components of your management plan still relevant?
- Does your management plan effectively help you achieve your goals?
- Are there corridor resources that are changing rapidly?
- Have there been significant changes in population or land use in your river corridor?
- Have there been any natural disasters in your river corridor that have affected its resources?
- Have any waterfront communities implemented ordinance changes to which the LAC should respond or adjust its activities or priorities?
- Have there been any significant impacts upstream in the watershed that did not previously need addressing but now do?
- Are there major projects planned in your watershed that an updated management plan would help you evaluate, or about which there are a large number of actions that the LAC would like to take?

If your LAC decides to pursue plan revision, having internal agreement about what factor(s) are prompting plan revision can help guide decisions about the scope of revision, how much funding and time may be necessary, what types of funding sources may be appropriate, who will be the primary preparers of the plan, and other components of the work plan. For instance, a minor plan update to reflect small changes in baseline conditions may easily be researched and written by LAC members, where an overhaul to reflect complex new threats affecting the whole watershed is more likely to require funding and hiring a contractor or regional planning commission (RPC).

## 1.2 Assign Internal Roles

Before applying for grants, preparing contracts, or starting to gather data it is important for your LAC to decide who is responsible for each piece of the process. Doing so helps avoid roadblocks and ensure accountability, timely completion, and clear communication. For instance:

- Will the plan revision be managed by the whole LAC, or spearheaded by a subcommittee?
- Are there members with particular expertise who will take lead on corresponding sections of the plan, or will each section be tackled as a group effort?
- Does the LAC have sufficient expertise within its membership to complete the required sections of the management plan, or does the group need to recruit new members, build new relationships, or hire a contractor?
- Will the plan be produced internally, by an RPC, or by a contractor? Will that be true for the whole plan, or just for particular sections?
- If hiring external parties, who will be their point of contact within your LAC?
- If applying for a grant, who will be responsible for ensuring that grant conditions such as deadlines and reporting requirements are met?



Although developing or revising a management plan likely will involve both external parties and everyone on the LAC, it is important to remember that the plan belongs to the LAC. This is your tool to guide your short- and long-term efforts to improve stewardship of our designated rivers. All members should expect to contribute their knowledge, review draft documents, and actively participate in discussions around the purpose of the plan, threats, and your LAC’s goals.

### 1.3 Build Stakeholder Relationships

Your LAC has likely already formed a number of partnerships in your local communities. Partnerships vary from place to place, but can include conservation commissions, watershed associations, lake associations, fishing clubs, rotary clubs, river outfitters, snowmobile associations, hydropower producers, and water suppliers, to name a few. Reaching out to these groups as you start to prepare your updated management plan can help you create a better plan and increase the likelihood that the plan’s recommendations will be implemented by stakeholders. Even new LACs can draw on the partnerships created during the river nomination process by contacting those who supported the river’s designation and seeking their input.



If you have not already done so, consider developing a list of stakeholders. Identify where relationships between the LAC or its members and these other stakeholders already exist, and where your LAC might prioritize outreach to affected groups or individuals during management plan development. Leverage existing relationships by letting people know that you are writing or updating a plan. When to do this outreach will vary, but partners may have specialized knowledge or information about future plans that could affect the river. Reaching out early to towns in the river corridor increases the likelihood that the towns will later adopt the final plan, and may increase the likelihood that your LAC will hear about local resources available to support plan development.

Establishing relationships takes time, and how to best do so will vary by group. Sometimes an LAC member may be able to give a brief presentation about the LAC at the regular meeting of another interest group. Other times relationships build when an LAC member attends an event hosted by other stakeholders, and in turn follows up with an invitation to participate in an LAC activity. When you attend events in the community, be prepared with a one or two sentence description of what your LAC does and any upcoming events or other ways someone who expresses interest could participate. A good “elevator speech” should be brief – less than a minute – and spark interest about a key problem (why does the LAC exist?) and how the LAC provides a solution.

Although LAC meetings are always open to the public, personal invitations to stakeholders increases the likelihood of attracting their support and involvement. Management plan development can be a great opportunity to recruit new members to your LAC and generally increase the level of public awareness and involvement in stewardship of the designated river.

Occasionally, a river corridor management plan can elicit many different, and sometimes conflicting, ideas and perspectives. People may want to have a say in the process whose outcome may affect their property or their use and enjoyment of the river. If there is a particular element of the plan that is either contentious or where information is lacking, you may wish to consider holding a well-publicized public meeting or creating a stakeholder survey to gather targeted additional information. One of your goals should be to create a balance between your LAC and town residents who will be affected by the plan you create.



Incorporating stakeholders and the public early on builds relationships that benefits all parties. Residents will know what you are doing and will be able to share ideas, suggestions and

concerns. Thinking now about the outreach you would like to do will help you define the scope of your plan development or update, which will help you decide if the LAC will want to hire a contractor to assist with plan research and writing.

## 1.4 Determine the Plan’s Scope

There are two parts of determining your plan’s scope: what land area your plan will cover, and what resources your plan will assess.

To begin the process of writing your river corridor management plan, you must determine the land area where you will focus your efforts. Under RSA 483, the designated river corridor is defined as the river and the land area located within a distance of 1,320 feet (1/4 mile) on either side of the normal high-water mark or to the landward extent of the 100-year floodplain as designated by the Federal Emergency Management Agency, whichever distance is greater. The scope of your management plan must at least include the designated river corridor. However, you can choose to include whatever area beyond the corridor that you think is relevant to the protected qualities of the river. For instance:

- Will you concentrate on only the required designated river corridor?
- Will you include an important tributary drainage area in a specific sub-watershed?
- Will some resources be evaluated on the corridor scale while others are evaluated on the watershed scale?
- Will you write a watershed-wide management plan?

Unique resources, values and threats identified outside of the corridor, yet within the river’s watershed, should be clearly identified as such. While scope is certainly at the discretion of your LAC, we suggest starting with the designated river corridor and only expanding when threats to the river’s resources suggest that additional scrutiny is necessary. For example, while most of your plan may focus on the river corridor, your water quality analysis may include monitoring results from some of your river’s major tributaries, your stormwater threat evaluation might include a GIS map of impervious surface throughout the watershed, and an analysis of aquatic organism passage may be most effective if it encompasses all of the perennial streams in the watershed. Considering scope may be an iterative process. For instance, if you learn while conducting your threats analysis ([Section 2.2](#)) that a particular threat to water quality lies outside of the corridor but within the watershed, you may wish to selectively expand your scope to accommodate what you have learned.

Your LAC should decide up front whether it is undertaking a comprehensive description of the river’s resources or focusing on a few that are threatened or changing. An update can be limited to a subset of topic areas if only those areas are relevant to your action items and the reasons prompting you to develop or revise your plan. For instance, the Connecticut River has management plans that deal only with recreation, because that was a topic of particular concern.

## 1.5 Research and Apply for Grant Funding

### 1.5.1 Overview

Management plans require detailed research, sometimes technical expertise, and an extensive commitment of time to prepare. In addition, there may be costs associated with public meetings, outreach or other needs during plan development. For these reasons, most LACs choose to contract for assistance in developing at least some parts of the plans. New corridor management plans will almost certainly require contractor assistance, and many larger plan updates will also benefit from the resources a contractor can supply. In these cases, funding will be needed. Minor plan updates may be successfully completed by LAC members, though a small amount of funding may still be needed for tasks such as updating maps.

There are a few grants for environmental planning efforts that can be used to support management plan development. The most common of these are listed on page 7. Based on language in RSA 483:8-a, LACs are

eligible to receive funding as a tax-exempt governmental entity, but you will need to have a bank account into which you can deposit funds and from which you can pay a contractor.

Different grants have different eligibility requirements about what type of organization can apply. A contractor or RPC working for the LAC can prepare the grant application but remember that New Hampshire Department of Environmental Services (NHDES) grants are subject to a competitive bidding process for contractors. That means that if your LAC is the grant recipient and you are hiring a contractor, you will need to create a request for proposals and allow multiple parties to bid for the contract unless you can justify a sole source contract because there is only one logical entity to complete the contract. RPCs can usually be contracted as sole source contractors because they are the only planning agencies in the region. You can avoid this competitive bidding step for some grants by asking the contractor or RPC to apply on your behalf. Your LAC should plan to review grant applications submitted by contractors or RPCs on your behalf, as well as the contract conditions when the grant is awarded.

### 1.5.2 How to Create a Competitive Grant Application

Grant programs can be highly competitive, with demand for resources sometimes far outstripping fund availability. You will want to talk early and often with Rivers Program staff before and during preparation of your grant application. Program staff are familiar with an array of funding sources and can advise you on preparing a competitive application. Staff can share lessons learned from past applications about what has and has not been successful for other LACs. Staff can also talk with funders who may be unfamiliar with working with government instrumentalities like the LACs and provide assistance with matters like establishing your LAC's eligibility to receive grants as non-profit entities.

To ensure your application has the best chance of success, it is also important to talk regularly with the granting organization **before preparing your application**. Ask if they will review key sections of your application draft. When writing your application, regularly look at any references or guidance the grantor provides, and make sure that you address each point raised in their guidance. This includes paying attention to everything from formatting and length requirements to the overall goals that the grantor prioritizes. Ask what makes a successful application and find out in detail what they look for when reviewing projects. Sometimes you can access the rubric that a funding organization uses to score projects. If you can, have someone within your LAC or who has not been involved in preparing a grant application do a mock scoring exercise comparing your application with the scoring rubric. Talk with the grantor regularly ahead of time and implement their suggestions. In the end, it is their opinions that will get you funding or not, so take seriously the points they raise and do not dismiss any of their comments.

Grant applications are more likely to succeed when they are specific, focused and clearly relate the actions for which the money will be used to the outcomes that the grantor cares about. Rather than generic statements about your group, lay out concise but detailed information about what you would use the money for. Are there specific data gaps you are looking to fill? Are there specific parts of your resource assessment where you need funding to obtain professional help compiling information and writing the plan? How will having a plan help affect your LAC's ability to improve or protect resources in the river corridor?

Finally, you will want to tailor your message and goals to the scope of the granting program, in both your grant application and in the management plan you ultimately prepare. For instance, if applying for a clean drinking water grant, make sure that you frame the goals of the management plan in terms of its implications for drinking water. If applying for a 604(b) grant, you will want to focus on water quality improvement and addressing non-point sources of pollution. See Table 1 for an example of how to tailor your plan to different funding sources. More details about specific funding opportunities are provided below.

### 1.5.3 Selected Funding Opportunities

It can be challenging to find grants for planning efforts, so your funding options may be limited. Below is a list of a few funding opportunities for which river corridor management plans can be a good fit. Other options may be available beyond those mentioned here, so do not feel constrained by this list. Some grants may be available

only in your watershed, in your town or county, or just for a particular type of resource (e.g. fish passage, eel grass protection, or environmental education), so remain open to other possibilities. Rivers Program staff can provide contact information for grants administered by NHDES. Note that these grants require pre-proposal consultation with NHDES, so reach out to staff early and often. Also keep in mind that **most grants have an annual funding cycle, meaning that applications are due by a particular date and can only be submitted once per year.**

**604(b) Planning Grants:** These highly competitive grants, administered by NHDES, are intended for planning projects that improve water quality, particularly through addressing nonpoint sources of pollution such as stormwater runoff. Money from these grants can now be awarded directly to LACs or to partners like RPCs. Applications should focus on water quality impairments, threats to water quality from nonpoint sources, and how the management plan would guide work to address them.

**Local Source Water Protection Grants:** NHDES administers these grants, which focus on efforts to protect drinking water sources from a variety of threats. These grants can only be obtained for rivers that are used as public drinking water sources. Money can be awarded to LACs, RPCs, municipalities or water suppliers. Applications should focus on how the plan will assist in protecting the quality and quantity of water available to be used as drinking water.

**Clean Water State Revolving Fund Stormwater Planning Loans:** This is a low-interest loan with a principal forgiveness program available to municipalities for planning projects to protect water quality. Because it is a loan and not a grant, administration is more complex and requires commitment from one municipality to take on the loan and pay the interest even when the loan principal is forgiven. The loan program is available through NHDES. Your application should reflect how plan implementation would reduce stormwater’s negative impacts to water quality.

**Land and Climate Catalyst Planning Grants:** These grants support the creation of management plans that build resilience to the likely effects of climate change. Specifically, they are interested in habitat resilience, forest carbon storage, and flood hazard mitigation. Your application can discuss aquatic and terrestrial habitats. The granting organization has guidance documents on their website that summarize the available science on various impacts of climate change; your LAC should describe in your grant application how you could adapt the management best practices contained in those guidance documents. The grantor additionally offers workshops and trainings for local organizations.

The type of funding your LAC pursues should reflect the resources and threats on which the management plan will focus. For example, if stormwater is not a major concern for your LAC, you probably would not want to apply to a stormwater planning loan. Aligning your plan’s focus with your funding source’s goals both makes your grant application more competitive and results in a focused management plan. The box below takes the four grant opportunities presented above and shows how the same goal could be described differently to cater to each funding source.

**Table 1: Tailoring Your Grant Application to the Funding Source**

<p><b>Example Issue: Nutrient Loads are Impairing Water Quality</b></p> <p><i>Note that this language has been simplified for illustrative purposes only and does not reflect the degree of detail needed in an application. Language in your application should reflect the specific circumstances of your LAC and river.</i></p>
<p><b>604(b) Planning Grant:</b> “As a primary tributary into the Great Bay, [River Name] contributes directly to overall water quality in the Bay. Studies show that the Bay experiences eutrophication primarily due to nonpoint pollution sources such as fertilizer runoff, animal waste and septic system leachate. Through the management plan process, the RPC and LAC will work together to identify nonpoint nutrient sources, inform</p>

municipalities and landowners about the issues, and create a comprehensive strategy to address nonpoint pollution sources and improve water quality throughout the watershed.”

**Local Source Drinking Water Protection Grant:** “Harmful algal blooms due to excess nutrient loads can impair water quality to the point where it is not suited for use as drinking water, even when treated. There have been several recent algal blooms at location X, 10 miles from the [name] municipal water intake. Through the management plan process, the LAC will identify nonpoint nutrient sources, inform municipalities and landowners about the issues, and create a comprehensive strategy to improve water quality and ensure surface water quality standards are met.”

**Clean Water State Revolving Fund Stormwater Planning Loan:** “Stormwater runoff carries with it nutrients that impair water quality. Studies show that the majority of the nutrient load in the [river name] river comes from nonpoint sources, meaning improved stormwater management is needed to reduce runoff and improve water quality. Through the management plan process, the LAC will cooperate with municipalities to identify nonpoint nutrient sources, inform landowners about the issues, and create and implement a comprehensive strategy to reduce stormwater runoff.”

**Land and Climate Catalyst Planning Grant:** “In New England, precipitation events are expected to increase in frequency and severity with the changing climate. The increased intensity of storms is associated with increased stormwater runoff. This means that sedimentation, erosion, and nutrient pollution are all expected to increase. The [river name] watershed has already experienced an xx% increase in nutrient runoff compared to the pre-industrial baseline. To plan for increased nutrient loading from stormwater runoff under climate change, the [river name] management plan will help identify nonpoint nutrient sources, plan an education campaign to inform landowners about the issues, and create and implement a comprehensive strategy to reduce stormwater runoff.”

In the case above, the LAC’s action is the same in all four cases: targeted outreach to landowners about best practices to reduce sources of nutrients. However, the effects of the plan activities are presented differently so as to speak to the variables of greatest interest to funders. While the same actions can be framed in different ways to sell plan development to different types of funders, your plan should always reflect the resources you are trying to protect and the threats to them, regardless of funding source. In some cases, the river’s conditions will simply lend itself more to one funding source than to another. **Do** cater your application to the grant’s particular focus and **do** closely follow the granting organization’s guidance and suggestions. **Do not** try to do so to an extent that you focus on threats that do not reflect the particulars of your river. Pick a grant whose purpose aligns with the threats to your river.

## 1.6 Create a Work Plan

A work plan is a plan of attack. It outlines tasks and time frames for completing them. Your LAC should consider the resources and constraints of the LAC and lay out key benchmarks along the path to plan completion. Creating a work plan with progress report deadlines helps keep your group on track and outlines expectations for the RPC or consultant.

Work plans are project management tools that help outline next steps, who will do them, and what anticipated deadlines are. Some work plans will also include the cost for each step. There are different types of work plans. Consider your audience and the reasons for creating a work plan. For instance:

- Many grants require work plans, often called a scope of work. A grant work plan usually focuses on deliverables and the associated timeline for completion.
- When an LAC chooses to have each member working on a different part of the plan, a work plan can guide the division of responsibilities. This work plan would focus on when group conversations will be

needed and when each person's separate task is due.

- A work plan can guide oversight of a contractor's work. This would establish the contractor's deliverables and the points at which broader conversation within your LAC is needed to guide that work.

It is up to your working group to decide how detailed the work plan should be. The work plan will likely start as a rough outline and become more detailed as the planning process progresses. You may also have different versions of the work plan, such as one provided as part of grant materials and another one that helps track internal next steps and the members accountable for them. Many of the steps of preparing a plan are iterative (see section 2.5).

It has taken LACs different amounts of time to develop river corridor management plans, but one to two years is a realistic estimate. Updating an existing plan will take six months to a year depending on the extent of the update. Less time may be required if your LAC hires an RPC or consultant.

The following outline is provided as an example of the phases of work involved in a management plan. Not all elements included in this outline will apply to all LACs. For example, timelines would be different for an LAC doing a simple plan update than for an LAC completing its first corridor plan. Your work plan should be more specific than this outline and reflect the function(s) it will serve for your LAC. [Appendix A](#) contains the outline below, but also provides specific suggestions for each LAC meeting in the "Get Organized" step. Detailed descriptions of the other steps follow in the following chapters.

### **Get Organized (3 LAC meetings)**

- ✓ Identify the reasons for creating or revising a plan.
- ✓ Name initial task leaders and decide how to organize your LAC's effort.
- ✓ Determine if the plan will be developed by members or contracted to an RPC or consultant.
- ✓ List potential partners or stakeholders within the local community with whom you are interested in coordinating.
- ✓ Contact Rivers Program staff.
- ✓ Determine the land area the management plan will consider.
- ✓ Determine the resources on which the management plan will focus.
- ✓ Research and apply for potential funding sources.
- ✓ Recruit volunteers who might be interested in helping prepare the management plan.

### **Identify Unique River Resources and Threats (about 6 months to 1 year)**

- ✓ Review existing resource assessments for conditions that the LAC knows have changed.
- ✓ Determine what could damage, degrade or destroy your river's resources.
- ✓ Gather data about areas of the resources assessment likely to have changed.
- ✓ Meet with town officials and stakeholders to gather information and recruit help.
- ✓ Discuss and evaluate information.
- ✓ Draft or revise the resource assessment.

### **Establish Management Plan Goals and Objectives (about 3 months)**

- ✓ Identify concerns that you might want to address.
- ✓ Identify positive attributes that you might want to protect.
- ✓ Discuss potential goals, objectives and action items.
- ✓ Develop draft goals and objectives.
- ✓ Get feedback from town officials and partners with a stake in the work.

### **Create the Management Plan (about 6 months to a year)**

- ✓ Compile materials drafted about resources, threats and goals.
- ✓ Discuss, revise and approve goals and objectives.
- ✓ Create a first draft of the whole plan.

- ✓ Circulate draft to key individuals (LAC members, Rivers Program staff, etc.) for comments and suggestions.
- ✓ Discuss and revise first draft based on comments and suggestions.
- ✓ Brainstorm potential action items.
- ✓ Discuss and organize action items.
- ✓ Draft an action plan, with action items for the next 2-5 years.
- ✓ Draft implementation methods for action items.
- ✓ Present second draft of the management plan, including the action plan, at stakeholder and municipal meetings for comments and suggestions.
- ✓ Write final draft based on all input.
- ✓ Discuss and approve final draft, including the action plan for the first few years.
- ✓ Present final plan at public meeting(s) such as of select boards, conservation commissions, and planning boards.
- ✓ Distribute final plan, such as through the LAC, town and Rivers Program websites.

**Implement, Monitor, and Revise the Management Plan (*ongoing*)**

- ✓ Seek municipal adoption of the plan.
- ✓ Coordinate implementation of the plan.
- ✓ Regularly monitor LAC progress completing action items. Celebrate successes and learn from mistakes.
- ✓ Update or revise the action plan as appropriate.



# Chapter 2: Create the Management Plan

Creating the river corridor management plan generally involves the following steps discussed within this chapter. However, steps are an iterative process as your objectives inform information collection and new information informs goals and action items. Some activities, such as public involvement, are likely to occur as part of several steps in the process of creating a management plan.

## Steps to Writing Your Management Plan:

1. **Resource Assessment: describe your river’s values and unique characteristics.**
2. **Determine threats to your river’s resources.**
3. **Establish goals and objectives.**
4. **Develop an action plan.**
5. **Put it all together and write the plan.**
6. **Finalize your management plan.**

## 2.1 Resource Assessment: Describe Your River’s Values and Unique Characteristics

### 2.1.1 Identify the Resources that are Threatened or Changing

In order to determine what actions would benefit your river, you first will need to assess and describe your river’s resources and their current condition. The resource assessment completed as part of the river’s nomination process provides a baseline description of the river’s resources which you can use to determine what is changing in the corridor. **The resource assessment of the management plan should focus on areas that have changed, are likely to change, or are particularly relevant to your LAC’s goals**, as that will help reveal which resources are threatened or the most important to protect and restore.

The complexity of your plan will reflect your capacity, the circumstances that prompt plan creation or revision, and your goals for the LAC’s work. In some cases, you will want to incorporate many sections by reference, and focus on the above steps for just a handful of resources, threats and associated goals. For instance, if recreation pressures have changed dramatically, you may wish to focus on recreation, fisheries, public access, or water quality impacts from increased traffic, and write a plan that focuses predominantly on recreation-related resources, threats and actions. In other cases, you will want to establish baseline information for the broad suite of resources associated with the river and take a comprehensive look at where LAC action would be most impactful. In this case, you would want to apply the above steps to a broader array of resources. Remember that the resource assessment created for your river’s nomination provides a great starting point for your first plan.

**Highlight resource conditions that are management-relevant.** What are the places where action by your LAC would help protect a resource, and what do readers need to know in order to understand the threats to that resource? For instance, you may not want to spend a lot of effort describing geological resources because most are unlikely to change much. On the other hand, if your plan focuses on drinking water, which is heavily affected by geology, you would want to include geological elements such as stratified drift aquifers that are relevant to the story you are telling about drinking water, its management, and the LAC’s relationship to it. Not every question posed in the following sections needs to be answered comprehensively for your plan to be complete and useful to your work, but each should be considered as to whether it is important to the river and the LAC. The goal is not an exhaustive inventory; it is to support data-informed action.

We recommend starting the process of your resource assessment by rereading your existing management plan (if there is one) and the resource inventory included in the river’s nomination documentation. From there, discuss how much each subject area has changed since those documents. For instance, geological resources are unlikely to be significantly different than the time of nomination, whereas categories such as surrounding land use or water quality may have changed significantly. Conversation about areas of change begins to connect the resource assessment with the threats analysis and action plan that are the core of your management plan.

If incorporating information from an existing resource assessment, you should review it carefully to verify that the



information is accurate and up-to-date, especially for information more than five years old. If resource conditions have not changed, you can copy forward information from prior versions of your management plan or the nomination document or incorporate it by reference. If you incorporate something by reference, ensure that it is publicly available and easily findable. If you cannot easily provide a link to a document, it is probably better to include the information directly.

Each Resource Topic section below contains recommended sources of information for that topic. Up-to-date information can also be obtained from local individuals and organizations such as conservation commissions, watershed associations, historical societies and recreational groups. It is helpful for your LAC to travel the river corridor and record what you see. If you are uncertain about where to find information on a particular topic, contact Rivers Program staff for assistance.

### 2.1.2 Statutorily Required Plan Elements

Some resources are required by statute to be included in river corridor management plans. These elements are not, however, listed in a user-friendly or logical way to organize your resource assessment. The statutory list also does not include important topics like water quality, groundwater, flow, or cultural and historical resources. We recommend following the sample resource assessment outline in [Section 2.1.4](#), but you must ensure that the following elements are discussed somewhere in the resource assessment. RSA 483:10 requires that management plans consider:

1. Permitted recreational uses and activities.
2. Permitted non-recreational uses and activities.
3. Existing land uses.
4. Aquatic connectivity.
5. Protection of flood plains, meander belts, wetlands, wildlife and fish habitat, and other significant open space and natural areas.
6. Dams, bridges, and other water structures.
7. Access by foot and vehicles.
8. Setbacks and other location requirements.
9. Dredging, filling, mining and earth moving.
10. Prohibited uses.
11. State-owned lands within the corridor and tributary drainage areas thereof. The plan shall include a description of the importance of those lands to the characteristics for which the river was designated.
12. Fluvial geomorphology and risk reduction.

Note that the categories required by statute for management plans are organized differently than the categories required as part of the river nomination process, despite each having a resource assessment component. The statutory requirements for management plans include additional types of information over what was included in nomination documents. The inverse is also true. The nomination resources assessment contains categories that are not statutorily required but that may be useful to include. Additional information about each of the statutorily required elements of the management plan is incorporated into the outline suggested below.

Throughout the process of preparing the resource assessment, your LAC should focus on: 1) meeting statutory requirements; 2) resources or geographic areas that are threatened; and 3) information that addresses the problem(s) prompting you to update or create your plan and that informs your goals and action plan.

### 2.1.3 How to Organize the Resource Assessment

Although there are elements required by statute to be in a management plan, you can choose to organize the plan, including the resource assessment, in whatever way makes the most sense to your LAC. The way you organize the resource assessment should reflect the particular resources and threats of your river. An example outline is provided below. However, other relevant topics may be added to the resource assessment at the discretion of your LAC, and topics may be reorganized in whatever ways help convey the concepts that are the focus of your LAC's concerns for the river and its resources. Generally speaking, the resource description should

set up subsequent discussion of threats and associated action items. We recommend writing about each resource as you go, rather than waiting to begin writing until you have completed research in all sections of your resource assessment.

How you choose to describe the resources in your assessment may relate to the type of funding that you have received. For instance, if you have a grant that focuses on drinking water you may wish to discuss geology in the section about water resource management because of the ways that geology affects the aquifer’s suitability for drinking water. In contrast, if your plan focuses on climate change, you may choose to discuss geology in association with fluvial geomorphology and flooding risk. While Table 1 explains how to discuss a topic in a grant application in a way that is relevant to that grant program, a management plan funded by one of these grants will need to present information in a similar manner.

Maps are useful tools for visually representing a large quantity of data in a quick and understandable manner. You may wish to integrate maps in a variety of sections of your resource assessment. Your river corridor management plan should contain a brief narrative explaining the significance of information shown on the maps. Base maps of the river corridor may be available from your town or RPC. If you wish to create your own maps, UNH offers an array of geospatial information through [GRANIT](#) and NHDES has a variety of [mappers](#) displaying information relevant to lakes and rivers. Both GRANIT and many of the NHDES mappers include the Designated River Corridor layer.

How you organize your resource assessment will depend on the reasons you are writing or updating your plan. The sample outline provided below is intended as a useful example that captures topics you may wish to include in a plan. Your LAC should modify it to reflect the unique circumstances of your river and surrounding communities.

#### 2.1.4 Sample Outline of a Resource Assessment

**A. [Regulatory Framework](#)**

Example topics: applicable federal regulations; applicable state statutes and administrative rules; local planning and zoning ordinances.

**B. [Land Use and Development](#)**

Example topics: identified development patterns and trends; open space; agriculture; state-owned lands; stormwater and floodplain management.

**C. [Water Quality and Quantity](#)**

Example topics: seasonal flow patterns; protected instream flows; contaminants; monitoring efforts and their results.

**D. [Water Resources Management](#)**

Example topics: water quality; water quantity; withdrawals and discharges; non-recreational uses; stream channel integrity/stream bank stabilization; geology; dams and hydropower.

**E. [Plants, Fish and Wildlife Resources](#)**

Example topics: native plants and animals; invasive plants and animals; fish and aquatic resources; wildlife resources; threatened and endangered species.

**F. [Recreational Resources](#)**

Example topics: water-based recreation; land-based recreation; public access.

**G. [Historical and Cultural Resources](#)**

Example topics: historical/archeological resources; cultural resources.

**H. [Fluvial Geomorphology](#)**

Example topics: floodplains; substrate analysis; geology; flow characteristics.

**I. [Aquatic Connectivity](#)**

Example topics: culverts analysis; implications for fisheries.

**J. [Other River Corridor and Watershed Work](#)**

Example topics: outreach and education; scientific research; other planning efforts throughout the watershed; the work of watershed associations or land trusts; sea level rise planning documents; strategic acquisition maps that guide land trusts’ decisions about where to protect land.

Have you:

- ✓ Included information about each statutory element?
- ✓ Focused on resources or geographic areas that are threatened or changing?
- ✓ Described interactions or conflicts among different uses?
- ✓ Focused on details that are relevant to LAC actions?
- ✓ Addressed the factor(s) prompting plan creation or revision?

## 2.1.5 Resource Topics

For each section suggested in the outline above, we discuss the types of questions your LAC may wish to consider as a part of writing the resource assessment. We provide suggested resources as a starting place for your research on each topic area. We also identify which statutorily required elements may be addressed by each section of the resource assessment. Note that there is no one “right” way to incorporate the statutorily required elements, and it may be appropriate to include information about one statutory required element in multiple sections of the outline structure presented above. Just make sure that the statutory required elements are included and clearly identifiable in the plan.

Your resource assessment should relate to your goals. For each resource, focus on elements that are changing, threatened, or relevant to the LAC’s scope of work. What resources relate to the concern(s) prompting you to create or revise your plan? What resources might you want to be aware of when reviewing a permit application?

### 2.1.5.1 *Regulatory Framework*

Your resource assessment should review relevant federal, state and local policies. The goal is to identify the laws and ordinances that most affect the river’s resources or the work that the LAC and stakeholders can do. You may also want to include ordinances affecting the river that are contentious or likely to change.

At the state level, designation itself gives certain protections to rivers. Your resources assessment may describe how the prohibited uses for different designated river classifications apply to your river. See the table in Rivers Program factsheet [Protective Measures for Designated Rivers \(RL-14\)](#) that shows the uses prohibited for each river classification. The classification of each stretch of your river is included in the river’s designating legislation, [RSA 483:15](#). Contact the Rivers Program with questions. If your river is a federally designated Wild and Scenic River, also include discussion of the activities done under that protection. As of 2022, the Lamprey, Wildcat, and Nissitissit rivers in New Hampshire are federally designated.

Beyond the prohibited uses associated with state designation, you should also review state and local development requirements. The Shoreland Water Quality Protection Act (SWQPA) establishes statewide requirements, but many municipalities choose to establish additional development restrictions or vegetation requirements within certain distances of the river. Information can be found by reviewing municipal master plans and zoning ordinances. Consider questions like:

- What buffer distances does each town require between the river and development, including septic systems? Are they consistent or do they vary across municipalities?
- Are there other limitations on uses within a certain distance of the river? How do these help protect the river?
- Are there requirements to maintain a certain percentage of native vegetation or particular types of vegetation within a given distance of the river?
- Are lands within a certain distance of a river zoned differently than other areas? Does the town master plan envision different development patterns along rivers compared to surrounding areas?
- How do local requirements compare to the statewide requirements of the SWQPA? The factsheet [Application of Shoreland Protections to Designated Rivers \(RL-15\)](#) explains how the SWQPA applies not only to all 4<sup>th</sup> order and higher (larger) rivers in New Hampshire, but also to most 1<sup>st</sup> through 3<sup>rd</sup> order (smaller) designated rivers. Additional information about the SWQPA is available in the [NHDES Protected Shoreland FAQ](#).

An inventory by town or a table comparing similar information across municipal boundaries may be good ways to present the regulatory framework.

**Associated Statutory Required Elements:**

- ✓ Setbacks and other location requirements.
- ✓ Prohibited uses.

**Potential Information Sources:**

- ✧ Municipal master plans.
- ✧ Municipal zoning requirements.
- ✧ [New Hampshire Rivers Management and Protection Program RSA 483:15.](#)
- ✧ RL-14 Rivers Program [Fact sheet on Prohibited Uses.](#)
- ✧ RL-15 Rivers Program [Fact sheet on Shoreland Protections and Designated Rivers.](#)
- ✧ [NHDES Protected Shoreland FAQ.](#)

**2.1.5.2 Land Use and Development**

The management plan should describe the different land uses within the corridor. You may also include land use in surrounding areas to the extent that it affects the river’s resources. For example, if there is a large logging operation within the watershed that could contribute to sedimentation, water temperature changes or the habitat suitability for native fish, you would want to ensure that operation was described in your plan, shown on a map, and its implications for the resources discussed, even if it were more than a ¼ mile from the river. Impervious surfaces are another example of a land use pattern outside the river corridor that may be affecting flow and water quality. Maps are often the most efficient way to display information, but they should be accompanied by text explaining the map and what implications the information in the map has for the river. It is particularly important that your LAC discuss the geographic scope of the management plan ahead of drafting the land use section, as you will need to strike a balance between the feasibility of writing a useful management plan and capturing the major land uses and their implications for river resources.

*Development Patterns:* This section is an opportunity to describe the different patterns of development and land use in the river corridor, such as:

- Who are the major landowners in the river corridor? Is most land private or public? How does this affect the ability to address threats to the river?
- Is development concentrated in certain areas, or diffuse throughout the corridor?
- Are lots immediately along the river mostly residential or commercial? This information may be included in municipal zoning, master plans or tax maps.

- What types of commercial uses are present in the river corridor? Are there any that depend on the river, or that threaten it through spills or hazardous waste?
- Is residential development mostly older homes, new construction, second homes or other distinctive type of construction? Large second homes with manicured lawns will have a very different impact on the river than small cabins nestled in forest, for example.
- Have there been changes in development patterns since the first management plan was written? This may inform emerging threats or relate to the changes prompting your LAC to update your plan.
- What is the percent of impervious surface in the corridor, and possibly also in the watershed? How has that changed since your last plan or nomination, and how is it likely affecting patterns of stormwater runoff? A GIS expert can help you with this analysis.
- What type(s) of agriculture are present? How has the percent of land in agriculture changed? Is it intensive agriculture that might include use of herbicides and pesticides or disturb soil in ways that create opportunity for invasive species? Do farmers tend to use cover crops, or does soil erode and contribute to runoff into the river? Do any farmers apply biosolids from wastewater to their fields?
- How are roads affecting the river? Are they set back, or do they run immediately adjacent to the river, allowing pollutants to be carried in by stormwater? In addition to LAC members' knowledge of roads, you can also see if there is monitoring data from [Volunteer River Assessment Program annual reports](#) or the [Surface Water Quality Assessment](#) that shows conductivity, which indicates the amount of road salt running off into the river.

Answers to these questions will mostly come from a combination of the local knowledge of LAC members, RPCs and [GRANIT data layers](#) used by a GIS expert. You may also be able to gather some information about development from satellite imagery on tools like [Google Maps](#) or [Google Earth](#).

*Dredging, Filling, Mining and Earth Moving:* Note that management plans are required by statute to consider dredging, filling, mining and earth moving. In the land use section, to the extent applicable, describe present or historical activities that create a large disturbance to natural patterns of sedimentation and may result in contaminants and other types of disturbance to the river system. For instance:

- Are there sand or gravel mines in the vicinity?
- Are there docks or other structures maintained by dredging?
- Are wetlands in their natural state, or channeled or filled? For example, a map of your river may reveal where it has been straightened to accommodate roads or development, which may have implications for flooding. See the fluvial geomorphology section ([Section 2.1.5.8](#)) for more information.

*State-owned Lands:* The land use section is also a good place to describe state-owned lands in the river corridor, which is a statutorily required part of management plans. To fulfill this requirement, we recommend including the Rivers Program's map of state-owned lands, narrowed to the geographic area covered by your plan. Contact the Rivers Program staff for access to that GIS map. Along with the inventory of state-owned lands, consider:

- What are the current uses of state-owned lands within the corridor and what does that mean for the river resources described in your plan? Are there state-owned lands that definitely should be retained in public ownership?
- Do state-owned lands such as DOT rights of way provide public access to the river, formally or informally?
- Do any state-owned parcels provide recreation or wildlife links between other conservation land parcels? Are there any state parks or state trails within the river corridor?
- Which agencies hold the most land within the corridor? Does your LAC have a relationship with those agencies?

You can choose to describe protected lands as part of the land use section or as part of the fish and wildlife section, depending on the focus of your plan and the purposes for which conserved lands exist in the corridor.

**Associated Statutory Required Elements:**

- ✓ Existing land uses.
- ✓ Dredging, filling, mining and earth moving.
- ✓ State-owned lands within the corridor and tributary drainage areas thereof. The plan shall include a description of the importance of those lands to the characteristics for which the river was designated.
- Protection of:
  - ✓ wetlands.
  - ✓ other significant open space and natural areas.

**Potential Information Sources:**

- ✧ [Google Maps](#) or [Google Earth](#).
- ✧ [GRANIT](#) land cover maps.
- ✧ A GIS expert can help calculate the percent land cover of various types.
- ✧ Rivers Program map of state-owned lands and conservation lands: contact staff.
- ✧ NHDES [Surface Water Quality Assessment Viewer](#).
- ✧ [Volunteer River Assessment Program annual reports](#).

### 2.1.5.3 *Water Quality and Quantity*

Maintaining or improving water quality and quantity are central goals of the Rivers Program, making this an important section of your management plan. You will want to discuss water quality and quantity for surface water in the corridor, and possibly also groundwater:

- What are the designated uses (also known as beneficial uses) listed for the river and its tributaries? The term “designated use” comes from the Clean Water Act section 101(a)(2). A river can have a designated use for fish, shellfish, wildlife and/or recreation. There are additional designated uses that the state can set, like use for drinking water or agriculture. You can do a geographic search of the [2020/2022 NHDES Surface Water Quality Assessment Map](#) to find segments of your river and their status; see the box below for more directions on how to use that site.
- Is the river meeting water quality standards for the designated uses? What are the causes of impairment under section 303(d) of the Clean Water Act or the state’s [water quality assessment program](#). All waters in the state are impaired for mercury due to emissions from midwestern power plants. As there is nothing we can do locally to affect that impairment, your management plan does not need to discuss it. Are there other impairments at a state or federal level? Are conditions improving, worsening or stable?
- What are the causes of any water quality degradation? You may wish to discuss this in the threats section of your management plan instead.
- Have Total Maximum Daily Loads (TMDLs) been established for any pollutants on sections of your river?
- Are there known sources of nutrient deposition or areas with problematic stormwater runoff? LAC members can do an erosion assessment by paddling or walking the river and nearby public lands to see where there are identifiable areas of bank sloughing, erosion channels, or other visual indicators of problematic runoff. This assessment would also be useful for your fluvial geomorphology section.
- Are there known sources of contaminants like PFAS, PCBs, DDT, micro-plastics, pharmaceuticals, or industrial pollutants in the watershed? The [NHDES OneStop Data Mapper](#) has a map of known local potential contamination sources. To access, click on “I want to...,” select “View map layers,” then click on “Monitoring and Protection,” then “Local Potential Contamination Sources.” Local potential contamination sources are “human activities or operations upon the land surface that pose a reasonably foreseeable risk of introducing regulated substances into the environment in such quantities as to degrade the natural groundwater quality” (RSA 485-C:7). You can also look at the map of NHDES [PFAS sampling sites](#) to see available information on PFAS occurrences throughout the state.

- Are adequate monitoring data available to track threats and changes in water quality over time? You should describe existing monitoring efforts by the LAC, your local Volunteer River Assessment Program (VRAP) group, and the state, along with the data that have resulted. For what stretches of the river or water quality parameters might additional data collection be needed?

In addition to discussing water quality, your plan should discuss water quantity. Instream flow levels affect water quality parameters such as temperature and dissolved oxygen, which in turn affect the species using the river and the riparian buffer. All designated rivers will be subject to the Instream Flow Program. The [Instream Flow Program website](#) provides information about whether protected instream flow criteria have been established for your river, as well as the prioritized order in which studies to establish those criteria are being conducted. If protected instream flow criteria have not yet been established for your river, what is the likely timeline for their establishment, and what might your LAC want to learn when they are conducted? If protected instream flows have already been established for your river, your management plan should briefly describe them and incorporate additional details by reference. The baseline data collected to develop protected instream flows includes some information about streamside vegetation and existing fish communities, which can be useful for the natural resources section ([Section 2.1.5.5](#)) of your management plan.

You will also want to describe what is already known about the seasonality of flows in your river and typical periods of high and low flows. Talk with Rivers Program staff to determine if there are staff gages already installed to measure water depth or if additional stations will be necessary to monitor flow. There is also some real-time and historical data on water levels available on the [Real-time Data and Information for Watersheds in New Hampshire](#) page of the NHDES website.

**Associated Statutory Required Elements:** None.

**Potential Information Sources:**

- ✧ 2020/2022 [NHDES Surface Water Quality Assessment Map](#). You can do a geographic search of this tool to find segments of your river and their status. Type your river name into the search bar, then click on the appropriate search result. Next, clicking on the right arrow in a search result takes you to the Watershed Report Card for that watershed, where you will find a section-by-section assessment of whether the river supports designated uses including aquatic life, primary contact recreation (i.e. swimming), and secondary contact recreation (i.e. boating), and the current condition for each use.
- ✧ [Volunteer River Assessment Program \(VRAP\) Annual Reports](#).
- ✧ NHDES [PFAS sampling sites](#).
- ✧ [NHDES OneStop Data Mapper](#): includes a map layer about known potential local contaminant sources. To access, click on “I want to...,” select “View map layers,” then click on “Monitoring and Protection,” then “Local Potential Contamination Sources.”
- ✧ [USGS Current Water Data for New Hampshire](#): Current and historical stream flow records for rivers in New Hampshire.
- ✧ [Real-time Data and Information for Watersheds in New Hampshire](#): provides some lake and river water level data.
- ✧ [Instream Flow Program](#): for Protected Instream Flow and Water Management Plan documents, if they exist, or for the prioritized list of rivers for implementation of the Instream Flow Program. The site also includes real-time data from stream gages on some of the designated rivers.
- ✧ Talk with Rivers Program staff about water level information.

**2.1.5.4 Water Resources Management**

A variety of existing water resource uses affect water quality and/or quantity, including drinking water intakes, irrigation, stormwater discharge infrastructure, industrial or wastewater discharge points, hydropower facilities, and other infrastructure. Each use should be described with relevant details, such as the amount of water

extracted or the size of and operations curve for dams used for hydropower. Statute requires consideration of permitted non-recreational uses; the “permitted” part of this category means you will need to review existing and proposed ordinances, guidance documents, and permits from the municipalities along the river to understand the conditions of operation and duration of any permitted activity.

*Water Withdrawals:* Major water withdrawals (>20,000 gallons per day) can affect water quality in addition to quantity. Water users also represent an important interest group for your LAC to engage with. They will be subject to the requirements of management to maintain instream flows. In addition, most have a stake in maintaining clean water and may be interested in supporting your LAC’s efforts. Some large water users such as drinking water suppliers may already have their own water quality monitoring programs and be willing to collaborate with your LAC’s efforts. Rivers Program staff can assist with identifying major water users and where their intakes are, or you can refer to the NHDES [Water Use Registration and Reporting](#) site. Information about the requirements for other types of water users is also available on that page.

*Discharge Points:* Discharges vary in type and impact. For instance, an industrial discharge may affect water temperature while a wastewater treatment plant may change the river’s bacterial community. The federally maintained list of [National Pollution Discharge Elimination System \(NPDES\) permits](#) is a starting point for identifying what point-source discharges exist into your river. You should describe the types of discharge along the river, its treatment prior to exiting a plant, and the implications for water quality. Discuss any location that has a known or likely risk of contaminated sediments due to historic discharges from industry or other uses. The [NHDES OneStop Data Mapper](#) has a map of known local potential contamination sources. To access, click on “I want to...,” select “View map layers,” then click on “Monitoring and Protection,” followed by “Local Potential Contamination Sources.” Local potential contamination sources are “human activities or operations upon the land surface that pose a reasonably foreseeable risk of introducing regulated substances into the environment in such quantities as to degrade the natural groundwater quality” (RSA 485-C:7). You also may wish to include emerging research about PFAS, pharmaceutical byproducts and other contaminants that are not currently completely filtered during wastewater treatment. The map of NHDES [PFAS sampling sites](#) shows available information on PFAS occurrences throughout the state. You should mention any known combined sewer overflows (CSOs) along the river or its tributaries, including their location and a description of how frequently discharges of untreated waste overflow into the river. If pursuing a climate change grant to fund your plan, this section would be a good place to describe any projected change in the frequency or severity of CSO overflow events due to changing precipitation patterns. Contact Rivers Program staff for information about the location of CSOs.

*Dams and Hydropower:* Dams have major effects on most river resources, from recreational attributes to the species present in the area. You will want to provide an inventory of dams up- and down-stream of the designated river, along with a description of their intended purpose, how they are managed, their repair state, and how they affect river resources. For example:

- Where are dams located along the river, and how do they affect flow rates throughout the year?
- Has a lake level investigation been conducted for an upstream dam? What did public comments during that process suggest about stakeholders’ relationship to the river?
- Who manages the dams along the river?
- Are any dams used for hydropower? Are they licensed? How much power is produced?
- Are there dams that are no longer in use? What is their condition?



Most of this information was collected for the river’s nomination, but it may need updating. A GIS map of dams is available through the [Dam Inventory in NH GRANIT](#), which includes whether the dam is state owned or privately operated. Talk with Rivers Program staff to be connected with people in the Dam Bureau for more



information about the management of any state-owned dam, including whether it has been subject to a lake level investigation. The Granite State Hydropower Association maintains a [map of small active hydroelectric facilities](#) in the state. For larger active and pending FERC projects, FERC maintains a [project directory](#).

Consider the way that dams interact with the other resources included in your inventory. For instance, is there a public access site that is associated with the dam? How do winter drawdowns and spring lake refills affect instream flow or the survival of aquatic organisms? What implications does the dam have for flooding patterns and for aquatic connectivity? Some of these items may also be appropriate to discuss in the threats section of your management plan.

*Bridges, Culverts and Other Infrastructure:* Infrastructure in the river can affect the movement of water, sediment, woody material and aquatic organisms. For instance, bridge abutments narrow the channel, which can create bank scour downstream. Improperly sized culverts can impede fish movement and increase sedimentation and flooding risk (see the [aquatic connectivity section, Section 1.](#)). Therefore, it is important to identify structures in the river and what their impacts are.



- Where are bridges located along the river, and how does that compare to the location of floodplains or sensitive habitats?
- Where are there culverts along the river or tributaries? What sort of condition are they in?
- Where are there stream gages to measure flow, and who owns/maintains them?
- Is there widespread use of seasonal docks, platforms, decks, floats or buoys in the river? If so, how do they affect aquatic organisms, sediments or recreation?

A map can be a useful way to show information about water infrastructure. Water infrastructure and uses will affect the geomorphology of the river (see geomorphology, [Section 2.1.5.8](#)). The water uses section is an alternative place to discuss geomorphology, particularly if you have a drinking water grant. Water infrastructure can also affect aquatic connectivity (see aquatic connectivity, [Section 2.1.5.9](#)) and fish communities (see plants, fish and wildlife, [Section 2.1.5.5](#)), such as by undersized culverts or dams without adequate fish passage structures. NHDES provides information about [stream crossing assessments](#), and bridges and culverts are mapped statewide, including basic information about their condition, in the [Aquatic Restoration Mapper](#). Bridge and stream crossings are also visible through the satellite view on [Google Maps](#) or [Google Earth](#).

*Stormwater Management:* Stormwater carries sediment and pollutants from throughout the watershed into the river. As storms change in frequency and become more severe, stormwater runoff is becoming an increasingly impactful source of nonpoint source pollution. Consider how municipalities and private landowners handle stormwater.

- Do municipal policies promote the retention of permeable surfaces and natural vegetation? Are there examples of green infrastructure on municipal land or beside roads in the rights-of-way?
- Is stormwater in any of the municipalities in the river corridor permitted under the [EPA's MS4 program](#) (more detail below)?
- Are there educational efforts to promote the use of rain gardens, vegetated swales and other green infrastructure to increase water infiltration into the ground and decrease runoff? The NHDES program [Soak Up The Rain](#) and the [LakeSmart](#) program run by NH LAKES both provide technical assistance to landowners about these types of projects; the latter focuses on properties near lakes.
- Is there an existing watershed-based plan in place for a lake or pond that is a tributary to the river? The NHDES Document Library includes a list of [existing watershed management plans](#).

Polluted stormwater runoff is often transported to municipal separate storm sewer systems (MS4s) and ultimately discharged into local rivers and streams without treatment. The Environmental Protection Agency (EPA) established an MS4 stormwater management program that is intended to reduce the quantity of pollutants that stormwater picks up and carries into storm sewer systems during storm events. With some exceptions, most small MS4s are in urbanized areas (as defined by the U.S. Census Bureau) and must receive a permit from EPA. You can check [EPA's list of MS4 communities](#) to see if municipalities along your river are included in the program.

All owners and operators of regulated small MS4s within New Hampshire must follow the requirements outlined in the New Hampshire Small MS4 General Permit. That permit contains six program elements known as minimum control measures (MCM): Public Education and Outreach (MCM 1), Public Participation/Involvement (MCM 2), Illicit Discharge Detection and Elimination (MCM 3), Construction Site Stormwater Runoff Control (MCM 4), Post-Construction Stormwater Runoff Control (MCM 5), and Pollution Prevention/Good Housekeeping (MCM 6). Each of the MCMs have requirements that the Small MS4 owners and operators must meet on an annual basis to assist with the reduction of stormwater discharges to local waterbodies. If municipalities in the river corridor are subject to the MS4 permit, your management plan may want to describe how they implement the MCMs. Contact River Program staff to be connected with the person who administers the MS4 program for New Hampshire.

Water resources management is at the core of why the Rivers Management and Protection Program was created. Consequently, this is one of the most important sections of your management plan and is likely to be one of the longer sections. Carefully considering of each use of your river's water and how different uses interact will help you identify a number of threats and river management conflicts that you will want to consider in the threats section of your management plan.

**Associated Statutory Required Elements:**

- ✓ Permitted non-recreational uses and activities.
- ✓ Dams, bridges, and other water structures.
- ✓ Aquatic connectivity (potentially).
- ✓ Fluvial geomorphology (potentially).

**Potential Information Sources:**

- ✧ NHDES [Water Use Registration and Reporting](#).
- ✧ [NHDES Water Use](#): provides an overview of requirements for different types of water users.
- ✧ [NHDES OneStop Data Mapper](#).
- ✧ [PFAS sampling sites](#).
- ✧ [GRANIT Dam Inventory](#).
- ✧ [FERC Project Directory](#).
- ✧ [NHDES stream crossing assessments](#).
- ✧ [Aquatic Restoration Mapper](#): Map of assessed stream crossings (culverts/bridges) in New Hampshire.
- ✧ List of [National Pollution Discharge Elimination System \(NPDES\) permits](#) and [NPDES tools](#): These permits are issued to point sources of pollution, such as wastewater or industrial discharge points. The permit includes limits on what a source can discharge, monitoring and reporting requirements, and other provisions needed to protect water quality or public health.
- ✧ [Google Maps](#) or [Google Earth](#).
- ✧ NHDES [PFAS sampling](#) sites: a map showing sites where water samples have been assessed for PFOA, PFOS, PFHXS, PFNA, and total PFAS. Clicking on a data point shows the concentrations of each compound that were detected in the sample.
- ✧ [Soak Up the Rain](#): a program run by NHDES to design and install green infrastructure to minimize stormwater runoff and associated erosion and pollution.

- ✧ [LakeSmart](#): a free, non-regulatory, voluntary program run by NH LAKES to help homeowners identify actions they can take on their property to minimize their impacts to lakes.
- ✧ [EPA's list of MS4 communities](#).
- ✧ For additional information about the MS4 program, talk to Rivers Program staff.
- ✧ List of [existing watershed management plans](#).
- ✧ For information about projects awarded Section 319 Watershed Assistance Grants, talk to Rivers Program staff.
- ✧ For information about the location of Combined Sewer Overflows (CSOs), contact Rivers Program staff.

#### 2.1.5.5 *Plants, Fish and Wildlife Resources*

The plants, fish and wildlife resources section encompasses three pieces: 1) describing the habitat and plant communities in your river corridor, 2) describing the plants, animals and fish species that use the habitat, and 3) assessing the degree of protection of those species and habitats, particularly those that are rare, threatened or endangered. Your discussion of habitat will interact with information from other sections, such as land use, water resources management, fluvial geomorphology and aquatic connectivity. Elements to consider include:

- What conservation lands (fee title protection or conservation easements) exist within the river corridor? Are they public or private? What land is enrolled in current use? How does the location of conservation lands compare to places where there are resources the LAC is interested in protecting? Contact Rivers Program staff for access to a map of conservation and state-owned lands. Town tax maps will show land enrolled in current use.
- Are there state Wildlife Management Areas (WMAs) in the river corridor? For what attributes are the WMAs managed?
- Are natural habitats like wetlands largely intact or fragmented by impervious surfaces? Are there areas you would want to prioritize for protection when reviewing permits? GIS-based land cover maps available through [NH GRANIT](#) show different types of habitats or surfaces. You will need to work with someone who has GIS expertise to calculate the percentages associated with each land cover type.
- Do the riverbanks have mostly native vegetation, or are invasive species threatening habitat for species of conservation concern? Which invasive species are present and what is their distribution and abundance along the river corridor? NHDES maintains a list of [waterbodies where aquatic invasive species have been found](#), but this does not include upland and wetland invasive species. LAC volunteers can paddle or walk the river to assess the prevalence of invasives along the shoreline. Also consider if your LAC has reviewed any pesticide application permits for areas like powerline corridors where vegetation is actively managed. You can reference the [New Hampshire Guide to Upland Invasive Species](#) for more information about identifying non-aquatic invasive species.
- Does the river corridor include any [Highest Ranked Habitat by Ecological Condition](#) as defined by Fish and Game's Wildlife Action Plan that you would want to protect while reviewing permits? This map combines data about rare species' locations, landscape setting and human influences affecting habitat suitability. It allows an assessment of habitat quality, even in areas of the state that have not been surveyed for the presence of rare species.
- What ecologically significant natural plant communities are present along the river? You may wish to group these by habitat type, as described by [Fish and Game habitat types](#) or the [Natural Heritage Bureau's natural communities](#). The [NHDES Wetlands Permit Planning Tool](#) can be used to find prime wetlands, peatlands, areas in shoreland jurisdiction, and other habitat information. Click on "I want to"



then “Change visible map layers” to see available data options. Some types of wetlands are available through [GRANIT View](#) with a similar process to see map layers. The [National Wetlands Inventory Wetland Mapper](#) is another good source of information about wetland locations and characteristics.

- What are the [target fish communities](#) for your river? Do the current species closely resemble the target? What actions need to be taken to protect or restore fish communities? Target fish communities are developed as part of the [Instream Flow Program](#). As part of that program’s long-term monitoring efforts, electrofishing data are collected and used to determine fish community; talk with Rivers Program staff to learn more. The Fish and Game Department also collects fish data on some rivers and lakes. Rivers Program staff can suggest who to contact at Fish and Game to learn more. You can also talk with local fishing clubs, if there are any.
- Is the river stocked with any fish species? The Fish and Game Department is responsible for stocking efforts and maintains a list of [fish stocking reports](#) by location. Clicking on a location name in the list takes you to a map with information about how many fish were stocked and the target number of fish per mile.
- What wildlife inventories have been conducted along the river or river corridor, and what do they suggest about areas of ecological value along the river? Local conservation organizations sometimes



maintain lists of birds, mammals, fish, and plants observed in a given area. Talk with groups like land trusts, watershed associations, bird watching groups, or fishing clubs to see what information may be available. The Land Trust Alliance provides a tool to find a list of [local land trusts](#); for best results, type in a town rather than doing a statewide search. You can also look at citizen science databases such as [eBird](#) or [iNaturalist](#).

- Are any threatened or endangered species or species of special concern present in the river corridor? How much is known about their distribution and abundance? Are threats to their habitat stable, increasing, or changing? Are there areas where additional data about threatened and endangered species would be useful to have during your LAC’s review of permits? The New Hampshire Fish and Game Department maintains a list of state [endangered and threatened animal species](#) as well as their habitat types. In order to find which species may be found in your river corridor, submit a Natural Heritage Bureau Data Request. Alternatively, contact Rivers Program staff for a 2016 list of threatened and endangered species by town for each designated river. For federally listed species, the US Fish and Wildlife Service’s (USFWS) [endangered species and project planning tool](#) allows you to select a geographic area of interest and then see the federally listed species that USFWS considers to have the potential to occur in that area.
- Is the river corridor important for the movement of wildlife between large areas of habitat? Fish and Game has a [NH Wildlife Corridors Report](#) that can assist you in thinking about where movement areas may be in your watershed.

You may wish to consider including maps that show information like soil types, vegetative communities or land ownership patterns. The rivers statute requires that management plans consider the “protection of flood plains, meander belts, wetlands, wildlife and fish habitat, and other significant open space and natural areas,” so include discussion of these specific habitat types here, with fluvial geomorphology, or in the land use section. GIS maps with this kind of information are available through [NH GRANIT](#), but your LAC may wish to work with someone with GIS expertise to parse available data in ways that are informative for the management plan.

**Associated Statutory Required Elements:**

- Protection of:
  - ✓ wetlands.

- ✓ wildlife and fish habitat.
- ✓ other significant open space and natural areas.

**Potential Information Sources:**

- ✧ [Natural Heritage Bureau](#) data on threatened and endangered species.
- ✧ Land cover maps, available from planning commissions or [NH GRANIT](#).
- ✧ Conservation lands map, available from Rivers Program staff or [NH GRANIT](#).
- ✧ Maps of private land in current use: see municipal tax maps.
- ✧ NHDES Instream Flow Program’s [Target Fish Community](#) reports.
- ✧ Biological survey data from a [local land trust](#) or town Natural Resource Inventory.
- ✧ [Ebird](#): citizen science records of bird occurrences.
- ✧ [iNaturalist](#): citizen science records of a variety of species.
- ✧ NHDES [Wetlands Permit Planning Tool](#).
- ✧ [GRANIT View](#) for stream and wetland maps.
- ✧ [National Wetlands Inventory](#) maps.
- ✧ New Hampshire Fish and Game’s Wildlife Action Plan [Highest Ranked Habitat by Ecological Condition](#).
- ✧ New Hampshire state [list of threatened and endangered species](#).
- ✧ U.S. Fish and Wildlife Service’s [endangered species and project planning tool](#).
- ✧ [NH Wildlife Corridors Report](#).
- ✧ [Fish and Game habitat types](#).
- ✧ [Natural Heritage Bureau’s natural communities](#).
- ✧ Fish and Game [fish stocking reports](#). Clicking on a location name in the list takes you to a map with information about how many fish were stocked and the target number of fish per mile.

**2.1.5.6 Recreational Resources**

Recreation affects the river both directly and indirectly through impacts like erosion at parking areas, introduction of invasive species from boats or cars, or changes in the fish community due to stocking. Recreation also affects the cultural importance and economic draw of the river, which can be important in motivating people to take actions to conserve and protect the river. Recreational uses that you may wish to consider in your management plan include motorized and nonmotorized boating, whitewater recreation, swimming, fishing, waterfowl hunting, birding and wildlife viewing, hiking in the river corridor or river viewshed, and scenic driving routes along the river. You will want to describe common uses, patterns of use by geography or season, and changing patterns of public use. Answering many of these questions will depend on the local knowledge of LAC members. For instance:



- Is recreational use increasing, decreasing or staying consistent, and how is that affecting other resources? Consider anecdotal observations, as well as talking with outfitters or marinas in your watershed.
- Is the river stocked for fishing? Are natural fish populations affected by fishing pressure? Check the [list of fish stocking locations](#) for sites along your river; clicking on a location name in the list takes you to a map with information about how many fish were stocked and the target number of fish per mile. Talk with a local fishing club or angling store for information about angler use of the river. Rivers Program staff can suggest someone at New Hampshire Fish and Game to ask about what fish population data are

available. On some rivers, Instream Flow staff may also have information about fish populations.

- What impacts does recreation have on the natural resources of the river?
- Are there problem sites for trash, pollution, invasive species or erosion due to recreational uses?
- How are changing precipitation patterns or dam management affecting boating or kayaking on the river?
- Are there conflicts among different recreational uses, or recreational and non-recreational uses?
- What sections of the river are most used for recreation?

Although you likely described dams in the water management section, it would be appropriate to describe recreational opportunities affected by dam management in the recreational resources section. For instance, how does dam management affect downstream fishing or upstream boating opportunities? Is dam management affecting the location or timing of whitewater rapids for kayaking? Different patterns of water management can affect recreational opportunities differently. Your management plan is one tool for helping communities decide how to manage for multiple uses.

Public access points affect the ease of recreating on the river and can lead to their own management challenges such as litter, trespass and stormwater runoff. Your management plan should consider public access and its implications for recreation and for other river resources.

- What types of public access exist, are needed, or are currently used, and for what type of activities? The state maintains a [map of formal water access sites](#) like boat ramps, including both state and municipal sites. LAC members and outfitters will know commonly used informal access sites, like a pull-off area by a bridge or road. Paddling guides such as the [AMC River Guide](#) are an additional source of information.
- Are the types of access appropriate for the recreational uses of the river (e.g. boat ramps, cartop boat access, trailhead parking, etc.)?
- Is there sufficient parking at popular public access points?
- Are public access points appropriately sloped and maintained so as to minimize the likelihood of runoff into the river?
- Are there places where access points are unsafe?
- Are there access points accessible to people with mobility impairments?
- Are access points well signed?
- Are there landowner issues resulting from public access, such as trespass or encroachment?

If recreation is a focus for your LAC, make sure to discuss both official access points and informal ones like a pull-off area in the right-of-way for a bridge or road, and how access sites relate to patterns of recreation and resource use on the river.

**Associated Statutory Required Elements:**

- ✓ Permitted recreational uses and activities.
- ✓ Dams, bridges, and other water structures.
- ✓ Access by foot and vehicles.

**Potential Information Sources:**

- ✧ [AMC River Guide: New Hampshire and Vermont.](#)
- ✧ Local outfitters – information about access and changing patterns of recreation.
- ✧ Conversation with abutting landowners.
- ✧ Site visits to popular access points.
- ✧ Instream Flow program staff, for fish community information.
- ✧ Fish and Game [fish stocking reports.](#)
- ✧ Fish and Game [boating and fishing public access map.](#)

### 2.1.5.7 Historical and Cultural Resources

It is likely that the historical and cultural resources section of your corridor plan will closely resemble the corresponding section in your nomination document. Start by considering what elements have changed since nomination. For example, have additional areas been surveyed for archeological resources or new historical sites designated? What areas have not been surveyed but may have a high potential for archeological or cultural resources? Items that have not changed since nomination can be incorporated by reference.

Historical and cultural resources include:

- Historical buildings, dams, bridges, ferry crossings, and other structures and sites that are listed or eligible for state or federal listing. See the list of [State Parks Historic Sites](#), the [State Register of Historic Places](#), the list from [Visit New Hampshire Historic Homes and Sites](#), and the [National Historic Landmarks list by state](#).
- Historical districts, which are included in the list of [National Register of Historic Places in New Hampshire](#).
- Stone walls, if these are significant in the river corridor. The [Stone Wall Mapper](#) shows the result of LiDAR surveys of the state that suggest the location of walls. Locations may not have been verified.
- Native American cultural items or sites.
- Areas of archeological interest, some of which are included in the state's [Enhanced Mapping and Management Information Tool \(EMMIT\)](#).



The [New Hampshire Division of Historical Resources](#) is a good source for much of this information, including their [Enhanced Mapping and Management Information Tool \(EMMIT\)](#) that compiles a variety of information about state sites. Your management plan should include a description of where and what the resources are, as well as identify areas with resource potential that have not been surveyed. Some cultural resources are sensitive, and their exact location should not be disclosed. Staff at the New Hampshire Division of Historical Resources can provide guidance about when and how to limit disclosure.

In addition to identifying specific resources, your plan can discuss the present or historical significance of the river to the communities through which it flows. For instance:

- How did the river contribute to the historical development of riverfront towns?
- Are there community festivals or events that incorporate the river? These are a good opportunity for the LAC to recruit volunteers and educate the community about the river and its protection.
- Is the river important to town redevelopment efforts?



This may be a good place to integrate data from conversations with municipal chambers of commerce, historical societies, a tourism board, or community members. Changes such as increased turnout for river cleanup events or a river festival can indicate changing public interest in the cultural values associated with the river and should be mentioned in your plan.

Your management plan should assess possible interactions and conflicts between historic resources and other resources. A classic example is a dam (see the GIS [Dam Inventory in GRANIT](#)), where the dam itself may be considered a historic structure, but its presence also impairs water quality and fish passage. The role of the plan

is to make these potential conflicts apparent so that the LAC can develop goals and action items around finding the best compromise for each issue.

**Associated Statutory Required Elements:** None.

**Potential Information Sources:**

- ✧ [Stone wall mapper.](#)
- ✧ New Hampshire [Division of Historical Resources.](#)
- ✧ [National Register of Historic Places sites in New Hampshire.](#)
- ✧ [National Historic Landmarks list by state.](#)
- ✧ [State Register of Historic Places.](#)
- ✧ [State Parks Historic Sites.](#)
- ✧ [Visit New Hampshire Historic Homes and Sites.](#)
- ✧ [Enhanced Mapping and Management Information Tool \(EMMIT\).](#)
- ✧ [Dam Inventory in GRANIT.](#)
- ✧ Conversations with local chambers of commerce, historical societies, tourism board, etc.
- ✧ Summer event listings for towns in the river corridor.

**2.1.5.8 Fluvial Geomorphology**

Fluvial geomorphology is a statutorily required topic for management plans and is a technical subject for which



recruiting outside expertise is likely helpful. Fluvial geomorphology is the description of the processes that affect the formation and evolution of the river itself. The form (shape) of a stream’s channel is influenced by interrelated variables including slope, width, depth, velocity, discharge, boundary roughness, sediment size and sediment load. A change in any variable, whether naturally occurring or altered by humans, leads to adjustments in other variables and stream morphology as a whole. Changes to the river channel affect property protection, flood patterns, river navigation, habitat, and species distributions. Stream morphology data are frequently used to determine appropriate methods of restoring channel form and aquatic habitat. More information about fluvial geomorphology and

its implications for river dynamics and river restoration is available in the NHDES [River Restoration and Fluvial Geomorphology White Paper.](#)

Geomorphic stream assessments provide an objective way of measuring stream characteristics and conditions. A river corridor management plan does not need to incorporate a complete fluvial geomorphological assessment, but it does need to identify flood-prone areas and include a basic description of the river’s topography similar to what was included in the river’s nomination. For example, you would want to characterize where your river is steep and relatively straight with a rocky bottom, versus where it has little slope and meanders back and forth across sandy floodplains. Examples of questions to consider relative to fluvial geomorphology include:

- What processes affect sediment transport along the river?
- Where are the areas of scouring or erosion and where are the areas of deposition?
- Are banks in their natural state, so as to allow the river to meander and change course over time? Have banks been stabilized, so scour and erosion are more likely?
- Does the river channel follow a natural course or has it been straightened?
- Are there reservoirs upstream that affect the timing and quantity of stream flow?
- Where are flood-prone areas along the river corridor? What contributes to the risk of floods at these



locations?

- Are there areas of the river with a history of ice jams?

The section of your plan in which you place information about geomorphology depends on the emphasis of your plan. For instance, if your plan focuses on drinking water quality, you may wish to consider fluvial geomorphology in the water resources section because of its impacts to drinking water quantity and quality. If your plan focuses on climate change and changing flood risks, you may wish to have a section dedicated just to fluvial geomorphology, floodplains and flood risk. Geomorphology could also be paired with discussion of geology (not a required element).

The corridor plan should reference any existing geomorphological assessments already conducted in the watershed or identify river segments where one may be needed. Remember that collecting more information is a valid item to include in your action plan. Ways to determine where a more detailed assessment might be needed include:

- Paddling the river and noting places of obvious riverbank erosion.
- Collecting boater's reports of where trees have fallen into the river.
- Examining the stream crossing geomorphological compatibility data in your corridor, available in the [Aquatic Restoration Mapper](#).
- Using desktop tools like USGS maps and [Google Earth](#) to determine where the river channel may have moved in the past or may still be shifting during large storms.
- Using maps and aerial photos to identify constrictions in the river due to bridges and development that may result in stream bank erosion downstream.
- Compiling locations that LAC members know as prone to both erosion and flooding.
- Identifying areas prone to erosion or flooding using flood hazard maps. Several flood hazard maps have been combined into the [New Hampshire Flood Hazards Viewer](#).

An example of why fluvial geomorphology can be important for understanding many other river characteristics is channel straightening. Channel straightening is a common example of human-induced change in river morphology. Straightening results in a steeper channel slope, which in turn increases water velocity and channel shear stress, which in turn increase the amount of sediment transported by the river. Bank erosion and lateral channel migration often ensue (channel widening, increased sediment load, and decreased boundary roughness), as the straightened river attempts to recreate meandering. This chain-reaction of adjustments can result in degradation of aquatic and riparian habitats, adverse water quality impacts, and threats to public health and safety. In this scenario, bank erosion would likely be the most obvious sign of instability. Hard bank armoring is often prescribed, but this treats only a symptom of the problem, not the cause, and does little to improve aquatic and riparian habitats. A stream morphology assessment, which may be an appropriate goal in your management plan, would identify the root of the problem (slope) which is key to restoring the appropriate stream morphology and therefore function.



**Associated Statutory Required Elements:**

- ✓ Fluvial geomorphology and risk reduction.
- Protection of:
  - ✓ flood plains.
  - ✓ meander belts.

✓ wetlands.

**Potential Information Sources:**

- ✧ [River Restoration and Fluvial Geomorphology White Paper](#).
- ✧ [Aquatic Restoration Mapper](#).
- ✧ Generic Quality Assurance Project Plan (QAPP) for Fluvial Morphology Data Collection – The QAPP describes standardized practices for conducting a fluvial geomorphology assessment. Reach out to Rivers Program staff for a copy.
- ✧ [New Hampshire Flood Hazards Viewer](#).
- ✧ [New Hampshire Floodplain Management Program Story Map](#): Includes a map of municipalities with restrictions to reduce flooding risk beyond the requirements of the National Flood Insurance Program.
- ✧ [Google Earth](#).

**2.1.5.9 Aquatic Connectivity**

Aquatic connectivity refers to the ability of water to move from the river into the floodplain (“lateral connectivity”) and up- and down-stream (“longitudinal connectivity”). Connectivity affects the movement of sediment, nutrients, pollutants and carbon from one part of the river or floodplain to another. Aquatic connectivity also refers to the ability of aquatic organisms such as fish to move freely from one part of the river to another. Because of its connection to other topics, aquatic connectivity could be discussed in its own section or in conjunction with the natural resources, land use, water management and/or geomorphology sections.

Connectivity to the floodplain allows high flows to spread across the landscape, thereby providing flood control. As water slows by spreading, it also deposits sediment and nutrients into the floodplain, thereby nourishing soils and rebuilding river features like sand bars. Floodplains in turn provide essential habitat for many species of birds and amphibians, as well as characteristic plants like sycamore trees.

Connectivity up- and down-stream is also important for the survival and reproduction of many species. For instance, many species of fish seek out upstream headwaters to spawn before heading downstream to grow. Other species rely on the water being a certain temperature and may move to find cooler areas in summer and warmer ones in winter. Impeding connectivity can result in increased predation, increased competition, decreased growth and survival or an inability to breed. Barriers to connectivity can also split populations in ways that decrease a population’s genetic diversity and therefore decrease the species’ resilience to environmental changes.

Connectivity can be impaired by low flows, crumbling infrastructure, improperly installed or undersized culverts, and dams. The likelihood and degree of impediment depends on the size and location of the infrastructure, local flow regimes, and the needs of local species. Questions to consider about connectivity include:

- Are there any culverts that act as a barrier to flow in perennial streams? An improperly installed or inappropriately sized culvert can result in times when a perennial stream has low or no flow through the culvert.
- Is there enough flow through culverts to allow fish passage, even during droughts and low-flow times of year?
- Are all culverts sufficiently large to accommodate flood-stage flows?
- Are culverts adequately maintained, or are there places where sedimentation or erosion are impeding fish passage?
- Do dams along the designated river segment or downstream of it have functioning fish ladders?
- Are flow levels sufficient to prevent isolated pools or inappropriate drying of habitat?
- Are riverbanks steeply incised or washed out?
- Is there rip rap or shoreline stabilization that prevents floodplain formation?

- Are there healthy wetlands adjacent to stretches of the river?
- What are the natural flow characteristics of the river? When are periods of peak flow? How much variability is there in flow? What is typical average rainfall in the watershed?

Some culverts have been assessed as part of the NHDES [Stream Crossings Program](#). Data from that program about culverts throughout the state and their implications for connectivity are included in the NHDES [Aquatic Restoration Mapper](#). Walking along the river allows observation of flow characteristics, riprap and bank conditions. Because flows vary seasonally, it is important to think about how infrastructure affects the stream throughout the year. Since extreme weather events are becoming more common with climate change, you may also wish to consider how drought/flood patterns are likely to change, and how that compares to the design standards for the infrastructure along your river. Assessing connectivity can be challenging and may be an area where your LAC wants to recruit professional support or seek training for LAC members. In this case, your resource assessment might describe currently available information, and your action plan could include seeking training or conducting surveys in targeted areas.

**Associated Statutory Required Elements:**

- ✓ Aquatic connectivity.
- Protection of:
  - ✓ flood plains.
  - ✓ wetlands.
  - ✓ wildlife and fish habitat.

**Potential Information Sources:**

- ✧ [NHDES Stream Crossings Program](#).
- ✧ [Aquatic Restoration Mapper](#).
- ✧ Rivers Program staff, for assistance reaching NHDES staff in the Wetlands Bureau or New Hampshire Geological Survey.

*2.1.5.10 Other River Corridor and Watershed Work*

This section is an opportunity to describe other activities or conservation work occurring in the watershed. Consider input that your LAC has heard during stakeholder outreach and that is not adequately covered by other sections of the resource assessment.

- Are there environmental education, research and outreach efforts in the watershed, such as school programs along the river or adjacent conserved lands?
- Do local or statewide conservation organizations have parcels along the river that they are targeting as strategic priorities for acquisition?
- What are the priorities of the conservation commissions in the corridor?
- What climate change mitigation or adaptation efforts are planned or underway in the watershed?
- Does the river flow through one or more [MS4 communities](#), and what are those communities doing to comply with their MS4 permit? See the water resource management section ([Section 2.1.5.4](#)) for more information about MS4 permits.
- Are there other planning or outreach efforts underway in the watershed that might overlap with LAC efforts, such as preparation of a Section 319 Clean Water Act watershed plan or a lake management plan? Rivers Program staff can provide this information.

This is a great place to highlight the work of partners in the watershed and build bridges between the work the LAC does and the work of other organizations. The more your efforts can dovetail, the easier it will be to leverage resources and create enthusiasm for your shared goals for the river. As with other sections of your management plan, the goal is not an exhaustive inventory, but rather enough information to allow your LAC to

make well-informed decisions when reviewing permits or considering where to focus additional LAC activity.

**Associated Statutory Required Elements:** Depends on the particulars of your river corridor.

**Potential Information Sources:**

- ✧ [Local land trusts](#).
- ✧ Municipal or regional sea level rise planning documents.
- ✧ [NH Coastal Viewer](#): a mapping tool with spatial information about the state’s coastal watersheds.
- ✧ Environmental education organizations doing work in your watershed.
- ✧ Watershed associations.
- ✧ Conservation commissions: see this list of [New Hampshire conservation commissions](#) to find yours.
- ✧ Other local conservation partners.

## 2.2 Identify Threats to Your River’s Resources

In order to protect the resources that you identify and describe in the resource assessment, you will need to determine what conditions and circumstances in the river corridor could damage, degrade or destroy these resources. Thus, the parallel activity to assessing and describing your river’s unique resources is to identify the threats to them.

Consider specific concerns or likely threats for each resource you identified in the resource assessment. This list of specific concerns and threats will later become a source for your goals, objectives and action items. For example, drinking water (resource) may be impaired by water quantity, poor erosion control, sedimentation and point and non-point source pollution (threats). Surface water quality (resource) can be threatened by a concentration of faulty septic systems, leaking underground storage tanks, existing or potential large-scale development, or industries in violation of their discharge permits (threats). Each threat should be clearly identified and described, including with spatially explicit information where available.

To develop your description of concerns and likely threats, consider:

- What factor(s) have already contributed to the changes seen in resource quality since the river was designated or the previous management plan was written?
- What changes are happening regionally or within the towns in the river corridor that may affect the resources associated with the river?
- How are broader trends in demography, economic conditions, housing availability or development patterns likely to affect the river’s resources?
- What are the existing and likely near-future impacts of increased droughts, floods, temperature changes and other symptoms of climate change within the corridor of your designated river?

Although some threats like climate change are regional, statewide or even global in nature, the discussion of them in your management plan should focus on the local effects within the designated river corridor of what has happened, is happening or is reasonably likely to happen in the near future. For instance, discussion of climate-related threats could focus on the way that an upstream dam is managed during drought, changes in ice dynamics in your river, climate-related migration of fish species in your river, local infrastructure’s ability to handle increased flooding, and so forth. The LAC can elect to pull in information from undesignated tributaries and other areas in the watershed where it supports the analysis of effects to the river and its associated resources. However, keeping discussion narrowly focused on the local effects of larger threats ensures that you will develop action items that are feasible and pertain specifically to areas that your LAC can influence.

The information sources available to assist with threat description are similar to those available for the resource assessment. Your initial conversation within the LAC can draw on members’ individual observations, recent permits evaluated by the LAC, knowledge of matters being considered by town planning boards and similar

informal sources. Discuss any concerns about the river that community members have shared with you. If there is a specific threat or set of threats of potential concern to your LAC or about which members wish to learn more, a landowner survey may be a useful tool for doing so. Talk with Rivers Program staff for guidance about conducting a survey.

Your LAC should also plan on having detailed conversations with stakeholders to capture what others see as current or likely changes within the river corridor or watershed. For example, town managers or planning boards are likely to have thoughts about major projects that may be on the horizon within the corridor. Discussing such projects with stakeholders now increases the likelihood that municipalities or partners will want to adopt the finished management plan (see the adoption section, [Section 4.1](#)) and be part of its implementation.

Since some threats will affect multiple resources and because your funding source may affect the emphasis you place on different threats, it may ease writing to consider early in your process how you wish to present the threats assessment. Because goals and action items tend to focus on addressing threats, it will often make most sense to describe individual threats as they pertain to multiple resources. You could have a chapter focused on each threat, with discussion of all of the resources potentially affected by it. For instance, you could have a section focused on development pressure and describe how it affects wildlife habitat, water quality, recreational demand and public access.



Similar to the resource assessment, it will often be easiest to draft information about threats as you collect it and then update it iteratively as you gain a sense of how the threats interrelate. Also similar to the resource assessment, it may be useful for you to develop maps that show the spatial extent and precise locations of particular threats. For instance, maps would be a great way to show combined sewer overflow discharge points, the location of logging or agricultural operations, or the extent of impervious surfaces.

### 2.3 Establish Goals and Objectives

By the time you have completed your resource assessment and threats description, you should have a firm grasp on why your river is important and where it may need additional protection. Now, conversation about goals, objectives and action items will help you decide what kinds of activities are needed to provide that protection.

Establishing goals, objectives and action items is what will turn your management plan from a static document collecting dust on a shelf to a living document guiding measurable actions. Developing them requires you to turn your focus from the present to articulate your vision for the future. The action items and implementation methods that you identify should be designed to correct existing problems or alleviate potential threats. For each unique resource you identified, consider the most likely threats, then decide how to alleviate the threat most effectively. That will guide your goals, objectives and action plan.

Goals, objectives and action items each guide you towards future outcomes but differ from one another in their scale.

- **Goals** are general guidelines that explain what you want to achieve. They are your overlying aims of managing and protecting the river and reflect the long-term sum of multiple specific accomplishments.
- **Objectives** define strategies to attain your goals. They are specific outcomes you wish to achieve on the way to reaching your goals.
- **Action Items** are discreet tasks that can be accomplished by a single individual or small group. They are specific, measurable and have a defined completion date. We recommend grouping action items into an action plan presented as an appendix so you can easily update it on a more regular interval than the rest of the management plan. See the action plan section [\(Section 3.4\)](#) for more details.

Goals may emerge early in the process, such as when a specific threat prompts you to pursue management plan development or revision. Alternatively, goals may only become apparent after you have learned more about

particular threats or gathered more information about the status of resources associated with the designated river. Example goals include aims such as improving water quality in the river, protecting the river’s biodiversity, increasing the river’s resilience to the effects of climate change, or addressing contamination of the river.

Objectives narrow the focus of your goals. There may be multiple objectives associated with each goal, or just one. For instance, if one of your goals is to maintain or improve water quality, you might have objectives associated with pH, sedimentation and flow. Or you might choose to have an objective to improve water quality in a specific stretch of the river. Like the overall organization of the plan, how you choose to organize your goals and objectives is up to you. However, they should clearly relate to each other and conform to the differences in purpose between goals and objectives.

Because management plans are nonbinding unless adopted by the municipalities, the action items included in the plan should focus on items that can be done by LAC members or are within the direct control of the LAC. However, many of the LAC’s goals and objectives may be appropriate for larger group efforts. When discussing goals and objectives think about if other parties may be interested in participating. Consider for instance:

- Is there an existing individual or group already performing the same or a similar action? Can your LAC partner with them?
- Are there other volunteer citizens who would be willing to help achieve an objective or goal?
- Can nonprofit organizations or municipal, state or federal agencies provide technical assistance, staff, funding or other support?

Outreach to existing or potential partners can be an action item for the LAC; the product of the group effort usually will be best suited as an objective.

Like all parts of plan preparation, the development of goals and objectives is iterative. You may find that you may relabel items from goals to objectives or objectives to goals over the course of preparing your plan. That is fine! Your goals and objectives should reflect the information you learn and conversations you have over the course of writing your plan. However, you should be careful to ensure that goals are big-picture statements of your aims, objectives state a specific area you are working on, and action items list the specific things you will do to get that area to where you want it. Examples of the distinctions between and relationships among goals, objectives and action items are provided in Table 12.

**Table 2: Examples of Goals, Objectives and Action Items**

<p>Goal 1: Ensure the river stretch from A to B meets water quality standards.</p> <p style="padding-left: 40px;">Objective 1: Establish baseline conditions for the water quality.</p> <p style="padding-left: 80px;">Action Item 1: Partner with NHDES to join the Volunteer River Assessment Program.</p> <p style="padding-left: 80px;">Action Item 2: Recruit six volunteers from the local college, local landowners, or local businesses to take weekly stream samples at the Riverbend Water Gauge.</p> <p style="padding-left: 80px;">Etc.</p> <p style="padding-left: 40px;">Objective 2: Decrease phosphorous loading from surrounding lands.</p> <p style="padding-left: 80px;">Action Item 1: Develop a flier of best management practices and distribute to landowners on River Road.</p> <p style="padding-left: 80px;">Action Item 2: Partner with Local Landscapes LLC to get a booth at the August Harvest Festival to promote the benefits of river-friendly landscaping.</p> <p style="padding-left: 80px;">Action Item 3: Meet with the town’s landscape/maintenance staff to decrease fertilizer use at the soccer field by River Edge Properties.</p> <p>Goal 2: Re-establish healthy fish populations</p> <p style="padding-left: 40px;">Objective 1: Remove barriers to fish migration</p> <p style="padding-left: 80px;">Action Item 1: Meet with the Connecticut River Conservancy and The Nature Conservancy to discuss plans for removing the dam at mile 12 on Route ####.</p> <p style="padding-left: 80px;">Action Item 2: Work with [name] Town Select Board to reserve funding to install a larger culvert at the [Name] Road crossing when the road is repaved in 2026.</p>
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Objective 2: Ensure adequate summer flow for wild brook trout populations.

Action Item 1: Meet with selectmen to discuss implementing water conservation requirements for new development permits in the town of [name].

Action Item 2: Meet with Flora's Flower Farm to discuss implementing water-saving irrigation methods during droughts.

Action Item 3: Work with NHDES' Instream Flow Program staff to establish and maintain a stream gage on the upper reach of the river.

*The examples provided here are for illustrative purposes only. An objective may have only a few action items or have dozens. Action items may relate to one goal or to multiple goals, in which case they can be listed multiple times. Completion of one action item or objective may suggest what your next action items should be, which is why action plans are living documents and should be reviewed regularly.*

If your LAC is working with an RPC or consultant to develop the plan, the goals and objectives section of the plan will require significant interaction between the consultant and the LAC, because ultimately it will be the LAC that is working to accomplish these goals. LAC members also will have a better feel for how their communities may react to a given set of recommendations.

## 2.4 Develop an Action Plan

### 2.4.1 Characteristics of Good Action Items

Action items are specific actions that are within the control of your LAC. A well-crafted action item is SMART: **S**pecific, **M**easurable, **A**chievable, **R**elevant and **T**ime-bound.

**A GOOD ACTION ITEM IS:**  
**Specific**  
**Measurable**  
**Achievable**  
**Relevant**  
**Time-bound**  
And updated regularly

Assessing whether an action item meets these criteria can reveal if that item is feasible and furthers your goals. If an action item does not meet these criteria, it may need revision to become more specific or it may reveal cases where your priorities are out of sync with your resources. For instance, if you have an action item to remove an old dam, but you do not have the funding and partnerships built to do so, that action is not yet achievable. In this case, it might be better to have dam removal as an objective, and list action items like building partnerships with local water users and conservation organizations, creating a plan for how dam removal would proceed, or researching funding options to support dam removal.

Similarly, action items should focus on actions that are within the power of the LAC to implement. For instance, your LAC may have an objective to reduce stormwater runoff into the river. While private landowner action may be necessary to accomplish that objective, the LAC itself cannot require landowners to change their erosion practices, and so that would not be an appropriate action item. However, your LAC could take actions such as conducting outreach to private landowners to educate them about best practices to reduce runoff, lobbying municipalities to change their zoning or planning requirements about shoreline development, or conducting monitoring to identify key areas of concern as sources of runoff. These would be the type of activities to list as action items.

Adopted management plans have included a wide variety of types of actions. Action items should be tailored to the specific needs of the individual river, but might be things like:

- Targeted door to door outreach to private landowners about best practices to reduce runoff.
- Partnering with, or writing a letter of support for, a local land trust to acquire land, access or development rights for a particular parcel.
- Advocating for a town to join the Green Snow Pro program to reduce winter road salt use and associated chloride pollution.



- Installing a rain garden or other green infrastructure to reduce stormwater runoff at specific locations.
- Hosting river cleanup events in partnership with other community groups.
- Recruiting new LAC members from a town with a major upcoming development project.
- Initiating a water quality monitoring program focused on specific elements of water quality.
- Developing partnerships with local outfitters to increase awareness of a particular feature of the river.
- Installing signage to reduce public infringement on a property with sensitive resources.

For guidance on the relationship between action items and goals and objectives, see Table 12.

The action plan is intended to be dynamic. You should set it up so as to be easy to update regularly as your LAC finishes key projects. You can present action items however you like. [Appendix B](#) provides two sample “Goal, Objective and Action Item” templates your LAC may consider using. Regardless of format, action items should relate to the goals and objectives, but be understandable without reviewing the rest of the management plan.

To be easy to use, your action plan should identify specific actions to accomplish, who will help accomplish them, and in what timeframe. You should also describe the resources needed to accomplish each task, and, if needed, what steps must be taken to attain additional resources. The process of deciding task leaders and resource needs will also help you prioritize your actions and assign timeframes to them.

### 2.4.2 Identify Who Will Lead on Implementation

After identifying action items associated with your goals and objectives, you need to **identify task leaders** to implement them. Determine who within your LAC is capable and willing to be responsible for each action item in your plan:

- Who will lead and who will assist?
- Will one LAC member lead, or will a group work together on the task?
- Will your LAC have a contractor working on certain actions?
- Where an action requires the involvement of one or more partners, who within the LAC will recruit the partners or serve as their point of contact?



When assigning task leaders, consider who on your LAC already has the interest, skills, resources or connections to best contribute to each action. If reaching out to a partner, is there an LAC member who already knows someone at the other organization? If working on a specific resource, do any LAC members have professional or personal experience that makes them well-suited to lead on a task in that area? If talking with



municipalities, which LAC members live in, and were appointed by, that municipality?

Because the management plan is not binding on towns, action items focus on tasks within the power of the LAC to implement. Consequently, task leaders generally should be limited to members of your LAC, LAC staff or LAC contractors. However, building relationships and participating in actions with outside partners may help you reach your LAC's goals. Developing partnerships to preserve and protect the river and surrounding lands could be an objective associated with more specific action items.

Regardless of whether there are enough people on your LAC to cover all of your proposed action items, it is always a good idea to continuously recruit volunteers to join your LAC or assist with action items. Doing so helps keep LAC members from becoming overloaded and keeps your LAC and its valuable work in the public eye. Your action plan can also be a good recruitment tool for you to connect with new potential members.

### 2.4.3 Identify Costs and Funding Sources

In addition to identifying task leaders to implement your action items, **estimate the cost** of each action item, if feasible. Money, or lack thereof, is a big obstacle for many volunteer groups and its availability may influence the prioritization of your action items. However, there are a number of ways to get things done with little or no money. You will need to decide questions such as whether smaller action items can be implemented via funds from your LAC's budget, if you have one, and if the LAC will seek donations of money or in-kind contributions of time, labor, and/or knowledge. By state law, LACs are considered tax-exempt organizations and are authorized to receive money from any source to carry out their responsibilities. If seeking funding sources, be sure to consider:

- Donations from volunteers, other organizations, or businesses.
- Funding that is part of a municipality's budget or continual improvement process (CIP) funds.
- State funding such as clean water state revolving fund (CWSRF) loans or drinking water state revolving fund (DWSRF) grants.
- Grant opportunities, such as those listed in [Appendix C](#).

Remember, your management plan is also a great tool for helping make your case for implementation funding. It shows that your proposed actions are well thought through and directly relate to desired outcomes for your river and its resources.

### 2.4.4 Prioritize Your Actions

It is important to **determine a timeframe** for implementation of each action item. Think about when you may start implementing an action item and when it may be completed. What do you want to achieve in any given time period? What can you achieve in the short-term? What is better suited or more realistic to achieve in the long-term? Your action plan is likely to include actions for the next two to five years, with potentially more detail for those in the near term and others to which you will add detail as precursor steps are completed.



To **prioritize** your action items, evaluate each in terms of the following:

- 1) importance.
- 2) complexity/feasibility.
- 3) resources.
- 4) cost.

While some action items may be considered “low-hanging fruit” and will be easier and more realistic to implement, others may be considerably more difficult or require other actions to precede them. Prioritize your action items to establish a work plan and then use your work plan to determine what tasks the LAC will focus on for the next year.

Overall, your action plan should be specific enough to suggest clear next steps. It is a powerful tool for your LAC's strategic growth and for protecting the river resources that inspire your members and communities.

Regularly revisiting your action plan will ensure that your LAC is doing its best to achieve its goals, and checking items off the list helps you document and celebrate your accomplishments.

## 2.5 Put It All Together and Write the Plan

Writing is an iterative process, and you can freely incorporate material from previous documents. For instance, material from a grant application may form the basis of a good introduction because it describes your LAC's broad goals in undertaking plan preparation. Notes or initial drafts from research about the rivers' resources can become that section of the plan. If you have kept accurate records of your progress and have drafted sections of your river corridor management plan as you have proceeded through steps one through four, you should be able to pull these pieces together and write a cohesive river corridor management plan.



Discussion with other LAC members and getting feedback from partners should be part of your writing process, and work on one section will inform work on others. For instance, the person who drafts the resource assessment may wish to suggest threats and opportunities for your LAC to discuss ahead of preparing the threats and goals sections. Or one person could draft the resource assessment and threats sections before the whole LAC reviews and discusses potential goals and objectives. Review of early drafts by the whole LAC is an opportunity to identify areas that need more explanation or analysis, connections across different resource areas or ways that different threats interact with and compound each other. It is also important to discuss how potential goals and objectives relate to the resources and threats. After feedback is incorporated, the LAC as a whole can use a near-complete draft to refine your objectives and begin developing action items. At that point, towns and other partners could provide feedback to help the draft meet the needs of all parties and increase the likelihood of municipalities adopting the plan. These examples show the ways that research, writing and coordination interrelate to create the iterative process of plan development.

**Figure 1: Illustration of the iterative process of creating your management plan**



While each LAC's river corridor management plan will differ to reflect the specific needs of each river, there are some similar components across plans. A list of adopted river management protection plans can be found on the [Rivers Program website](#) should you wish to review other plans for ideas. A suggested outline can be found below; note that it follows the steps described in each section of this guidance. The outline below is provided as an example and your LAC can change it as needed to meet your needs.

## 2.5.1 Sample Outline of a River Corridor Management Plan

### I. Executive Summary

Summarize the main points of the plan: the primary threats to the river, your overarching goals, a few of the more critical objectives and, possibly, those action items which the LAC plans to tackle in the short term. Note that this section should be no more than a couple pages long and written to stand alone without the rest of the document. It can be reproduced and distributed at meetings or be used to guide conversation with stakeholders.

### II. Introduction

Identify and describe the river and its corridor, explain the necessity and purpose of the management plan and detail the scope (land area and included resources) of the plan.

### III. Resource Assessment

Identify and describe the river's resources and how the river is used. Identify and evaluate the present and likely future land uses in the river corridor. See the statutorily required elements of a resource assessment (Section 2.1.2) and a suggested outline for the assessment (Section 2.1.4).

### IV. Threats

Identify and assess specific threats to your river's unique resources. Threats can include existing problems that have already been acknowledged, or anticipated threats predicted based on local trends (e.g. development) or broader trends (e.g. climate change).

### V. Goals and Objectives

Identify and describe each goal and objective and explain how each relates to your river's resources. If you are working with an RPC or consultant to develop the plan, creating this part of the plan will require significant interaction between the consultant and the LAC. Goals and objectives reflect the future conditions that your LAC will work to achieve.

### VI. Action Plan

List specifically what your LAC will do to work towards achieving your objectives and goals. Identify an LAC member responsible for overseeing each action item. Describe how you will prioritize work on your varying goals, objectives and action items. Explain how each action item will be implemented and monitored. This section can be amended regularly to reflect completed actions or new projects, without the need to update the rest of the plan. It is like a to-do list for your LAC.

You may want to have a separate Acknowledgements page to list the parties involved in funding and writing the plan. This page should be placed after the title page and before the Executive Summary. You also may wish to have appendices at the end of the document to include maps and additional sources of information about the river and its corridor.

## 2.5.2 Mapping the River Corridor

Maps are a simple way to display a large amount of information about zoning, existing land uses, the river's resources, and threats to them. RPCs can be very helpful with developing maps. Your base map should display features such as a north arrow, roads, municipal boundaries, major waterbodies, river corridor boundary (with or without river classification segments identified), and potentially the watershed boundary. Existing land uses, zoning, and the distribution of wetlands, NHFG Wildlife Action Plan habitats, and conservation lands may be best shown by maps. Your river corridor management plan should contain a brief narrative which corresponds to the maps.

### 2.5.3 Writing Tips

Many of the steps of developing a management plan are iterative. Thus, conversation about a given resource area will guide research into that resource, which guides writing an initial draft, which informs conversation about threats or other variables of interest, which in turn guides additional research and writing (Figure 1). We recommend drafting sections as information becomes available and having frequent conversations within the LAC or between the LAC and your consultant. Doing so produces a plan that is a good tool for your LAC, municipalities and outside stakeholders, and that guides actionable steps to further protect future enjoyment and productivity of the river corridor.

Once you have a complete first draft, or as appropriate through the drafting process, share your drafts with the stakeholders that assisted in gathering information or other phases of your work. Ensure that all LAC members have a chance to provide comments and suggested revisions. By providing Rivers Program staff with a copy of your draft, we can check that it meets statutory requirements and provide guidance that will help your plan be specific, clear, useful and relevant to your future work.

Here are a few things to remember when drafting your management plan:

- ✓ What were your reasons for initiating the plan revision or creation of a new plan? Does the current document make clear why the plan is needed and how it will be used?
- ✓ If applicable, have you presented information in a way that is consistent with the grant application you submitted to get funding for the plan? For instance, if you received a drinking water improvement grant, have you emphasized threats to drinking water and how they might be remediated?
- ✓ Have you presented information in a way that will be useful to your LAC as it plans future activities?
- ✓ Have you discussed what can be done to promote the health of the river and the needs of its users in a manner that is clear enough to guide future actions?
- ✓ Have you focused on elements that are changing or are likely to change in the lifespan of the plan?
- ✓ Do your priority actions address your most important goals and objectives?
- ✓ Is your action plan realistic and feasible, given the people and resources likely available to you?
- ✓ Have you edited for clarity, spelling, punctuation, etc.? See [Appendix D](#) for formatting requirements.

A management plan is most effective when it is simple and clear. It should be a resource for action, including enough supporting information to help you justify future actions. Although statutorily required, at its heart a good management plan should be helpful to you in your work to protect the river.

- |                  |
|------------------|
| ✓ <b>Draft</b>   |
| ✓ <b>Share</b>   |
| ✓ <b>Discuss</b> |
| ✓ <b>Revise</b>  |

## 2.6 Finalize Your Management Plan

Once your LAC agrees on the content of the management plan, you or your contractor will need to review the document for formatting. Minimum requirements can be found in [Appendix D](#). The final version of your plan is required to pass minimum Americans with Disabilities Act (ADA)/civil rights requirements and meet NHDES publication guidelines in order for NHDES to post it on our website. Contracts with RPCs or consultants that are funded by NHDES-administered grant will have compliance with NHDES publication guidelines as a contract requirement. Rivers Program staff can provide you with a copy of the publication guidelines. Once you have a clean final draft of the plan, share it with the Rivers Program. Staff will ensure the document meets NHDES requirements and is assigned a document number.

After your LAC is satisfied that the management plan meets your needs and formatting has been approved by staff, the LAC should vote to approve the management plan. Once approved, submit the final plan to the Rivers Program for publication on the NHDES website and submission to FERC.



### 3 Implement, Monitor and Update the Management Plan

Congratulations! You have now drafted a river corridor management plan that demonstrates your hard work, time and commitment. Not only does the management plan outline your goals, objectives and action plan, it is also the blueprint for the next steps you will take in the process: implementing, monitoring and updating it.

We encourage you to reach out to municipalities to see if they will adopt the management plan as part of municipal master plans. Not all municipalities will be willing to do so, but having included them in discussion during plan preparation lays the groundwork for adoption. Seeking adoption of the management plan by river municipalities may not necessarily occur prior to implementation. In some instances, adoption and implementation are simultaneous. In other cases, part of the plan is implemented as an example of its potential value and importance in order to gain the support from local officials for the entire plan. How your LAC proceeds will depend on your local situation. Regardless of if you decide to seek municipal adoption of the management plan, it is worth presenting your work to the select board, conservation committee, planning board and other stakeholders to raise awareness about the river's values and your efforts to protect them.

#### 3.1 Seek Municipal Adoption of the Management Plan

Relative to management plans, RSA 483:8-a(III)I stat"s "The local planning board, or in the absence of a planning board, the local governing body, may adopt such plans pursuant to RSA 675:6 as an adjunct to the local master plan adopted under 674:4. No such plan shall have any regulatory effect unless implemented through properly adopted ordinances." This is one reason why it is important to coordinate with municipalities, conservation commissions, planning boards, zoning boards and other stakeholders early in the process of plan development or revision, and obtain their endorsement of the plan. The degree of municipal involvement in both plan preparation and plan implementation will vary by river and by town. In some cases, you will want to involve the municipality in data collection for the plan, share drafts with municipal officials or otherwise solicit feedback long before finalizing your plan.

Once final, consider presenting your final management plan to the municipal conservation commissions, planning boards and zoning boards for their approval. If you win their approval, then consider presenting your final management plan to municipal town councils or selectboards at either an annual town meeting or a regularly-scheduled meeting. If written to stand alone, your plan's executive summary can be a useful handout when meeting with municipal stakeholders.

It is not a requirement for LACs to seek municipal adoption of the management plan. However, having your management plan approved by municipal bodies will lend official weight to it and, ideally, may lead to it becoming adopted as part of municipal master plans. Adopting the management plan in municipal master plans gives it the "teeth" needed to apply for and accept municipal or grant funds. Adoption also potentially leads to municipal requirements that river resources be considered prior to development or other activities. You will be more likely to get the management plan adopted if you have already built broad community support and given municipal officials a voice in the process, such that there are no major or controversial issues to resolve after the plan has been fully drafted.

Another route your LAC may want to consider is implementing selected action items of your management plan *prior* to approaching municipalities about the possibility of formally adopting the plan. This will let you use your successful outcomes and experiences to persuade local officials to adopt the plan. In other cases, it will be appropriate to wait until the municipality begins their next master plan update to start discussing adoption. Determining when to coordinate with municipalities will depend on local circumstances and the reasons that motivate your LAC to create or revise the management plan.

When reaching out to municipalities about potentially adopting your management plan, be prepared to present reasons that it benefits the municipality to do so. For instance, your plan's proposed actions to reduce stormwater runoff may contribute to decreased culvert maintenance costs and a lower likelihood of road damage due to flooding. Be prepared to discuss the connection between water quality and property values (and

therefore municipal revenues), tourism, or local businesses that rely on the river. Similarly, the LAC's prioritization of culverts that need repair or replacement can be included in the town's list of priority projects for Aquatic Resource Mitigation funds that become available in the municipality or watershed. Your regional planning commission may have perspective on tactics that have been successful in the past with municipalities in your river corridor. Remember that it is always most effective for town officials to hear from their constituents, so visits to the conservation commission or select board should include LAC members who live in that town. Not all municipalities will be open to adopting the management plan into a master plan, but doing so supports funding opportunities and promotes your LAC's work.

### 3.2 Implement the Management Plan

Implementation ultimately is the primary goal for creating the management plan. The plan's identified action items, task leaders and timeframes are now available for you to reference as you begin implementing your management plan. Implementation is a long-term process, but should be easy to understand and prioritize based on your action plan.

Once your management plan is complete, have as an action item to contact key people and entities and determine if they are willing to support and assist with one or more of your other action items. If your action items fit into a partner's area of expertise, it may naturally fit into their work program help your LAC. If not, ask if they would consider dedicating staff time or volunteering to help with specific projects or action items. The task leaders specified in your action plan should be the ones to follow up with existing and potential partners.

At this point in the process, you have spent a lot of time educating and informing people about your management plan. To succeed at implementation, you also need to get them excited and interested in taking an active role. To effectively recruit people to participate, you should find out what people are interested in and



capable of doing and appeal to those interests. Keep sign in sheets from events and follow up with people about similar activities. Notice what types of activities seem to attract the most interest and public participation, and use those events to promote the goals and objectives your LAC has elected to focus on. Other ideas to create a volunteer network are to promote your LAC's activities and place a call for volunteers on Facebook. Collaborate with towns along the river corridor to post about your meetings or events on their websites, include LAC events in an emailed municipal newsletter or post them on community bulletin boards. Contact local colleges that have environmental or planning courses, as they might have an intern program or student

groups willing to take on a project or two. Local churches or schools are other possibilities for volunteers and members. Consider devoting part of an LAC meeting to workshopping several versions of an "elevator speech," the one to four sentence pitch that describes what the LAC is, why it is important, and what it is up to right now. Encourage LAC members to talk about LAC projects and activities with people in their networks. There are many opportunities to make connections with people willing to give their time to your river.

One way to gain both financial and popular support is to implement a high-profile demonstration project. For example, the Upper Merrimack River LAC created the [Upper Merrimack Monitoring Program](#) as part of their management plan. Its success is due to enthusiastic volunteers ranging from high school students to retired citizens. Community support helps turn your LAC's vision into reality.

### 3.3 Track Implementation of the Management Plan

Tracking your progress as you implement your action plan allows you to capitalize on the work you have done so far and maintain focus and momentum. A good way to ensure you stay on track is to create a schedule for assessing your progress implementing your action plan. Consider appointing a member to report on progress every six months or having a review of your action plan as an annual agenda item.

Tracking the implementation your management plan will also benefit your LAC by easing the process of reporting your accomplishments. Each year, LACs are required to submit an annual report to each municipality along the designated river highlighting the LAC's major activities and accomplishments that year. Consider highlighting your success implementing action items in your management plan, particularly if the plan has been adopted by the town or is likely to be considered for municipal adoption. Similarly, LACs are also required to report biennially to the Rivers Management Advisory Committee and NHDES Commissioner on their accomplishments. You can view the most recent [biennial report form](#) on the Rivers Program webpage. Tracking progress on your action plan will make that reporting easier.

In addition to tracking which action items have been completed, you may wish to monitor the effects of your actions on the objectives that you set in the management plan. Monitoring the outcomes of your efforts is important in order to assess successes, learn from struggles, adjust implementation as needed, communicate accomplishments to partners, and secure future funding. It can be difficult to track the precise effects of particular actions the LAC may take. However, for some goals it is feasible to measure changes over time, such as tracking if specific measures of water quality improve after the interventions your LAC implements. Monitoring specific indicators of change in the resources about which your LAC cares is also an appropriate action item.



### 3.4 Update Your Action Plan

Your LAC should establish specific timeframes it will follow to consider updating the **goals, objectives and action items** in your management plan. For instance, you may wish to check off action items as part of a review of your action plan every six months and consider revising or adding action items every year or two. Because objectives and goals are larger plans that reflect the sum of multiple action items, they need to be revisited less frequently than action items. For instance, you may wish to revisit objectives every two years or so, and goals every five. If it seems appropriate to change the goals specified in your management plan, it is likely time for a larger plan update, since your goals reflect the status of resources and threats.

Updating your action plan on a yearly or more frequent basis should be relatively straightforward to do if you included this as an appendix that can be easily updated or used as a stand-alone document. When updating your action plan, consider the following:

- What action items have been completed, and which are currently in progress?
- What action items have been delayed? Are they still feasible to implement?
- What are the next steps to continue progress towards your objectives?
- What action items might you now want to include that originally were not?

In addition, your LAC should consider revising the **entire management plan** every 10 years or so. This includes reassessing the plan's scope, the condition of resources, and threats to them. You would also evaluate your goals, objectives and action plan during revision. Consider revisiting the municipalities in your river corridor to help keep the management plan current with their needs. When thinking about whether to update the management plan, consider the following types of questions:

- Are the components of your management plan still relevant?
- Is your management plan helping you achieve your goals?
- Have any significant new threats to the river arisen?
- What modifications does your management plan need, if any?



## Concluding Thoughts

Think of your action plan as a work always in progress, reflecting the changing needs and conditions of your river. An important element in all of this is to remain flexible. As rivers perpetually change their courses, so should river corridor management plans change to best reflect the river's conditions. Rivers Program staff are available throughout your process to provide support. Remember, periodic review and revision of your management plan will keep your LAC and its actions fresh and relevant, and keep the management plan a useful tool for your work to protect the special resources of your river!

# Appendix A: Detailed Sample Work Plan

This work plan is provided as an example of the type of exercise your LAC should undertake to determine your timeframe for completing the management plan and deliverables along the way. This example covers the first three meetings when an LAC is getting organized to start work on a plan. Steps for these three meetings will likely be similar across all LACs. Steps for meetings later in the process will vary to reflect your LAC's specific circumstances such as member skills, meeting frequency, and who will be responsible for different parts of preparing the plan. However, it is useful to have a similar plan of objectives, assignments for members, and deliverables from members or contractors. You may need to develop multiple types of work plans for different purposes, such as keeping your internal steps on track (like this example), establishing deliverables for an RPC or other contractor working on the plan, or applying for funding. See the work plan section ([Section 1.6](#)) for more details about the different functions of a work plan.

## Get Organized

### Meeting 1 (include date):

- Homework before the meeting, all members:
  - (Re)read the existing management plan (if one exists) and/or the nomination document.
  - Highlight items that you know have changed (e.g. a public access point that was closed).
  - Note resources that are clearly missing (e.g. discussion of water quality monitoring data).
- Desired meeting outcomes:
  - Identify the reasons for creating or revising a plan and write them down.
  - Discuss the preliminary scope of your plan to decide if funding will be needed.
  - Name initial task leaders and decide how to organize your LAC's effort.
- Homework after the meeting:
  - Chair contacts NHDES Rivers Program staff to discuss the process of developing a plan and potential funding sources.

### Meeting 2 (include date):

- Homework before the meeting:
  - LAC chair, secretary or management plan subcommittee chair: consolidate comments from Meeting 1 and distribute them to the LAC.
  - Relevant members of the LAC (e.g. officers, plan subcommittee members): read "A Guide to River Corridor Management Plans."
- Desired meeting outcomes:
  - Consider what land area the management plan might consider.
  - Determine the resources on which the management plan will focus.
  - Decide if the plan will be developed internally by members or contracted to an RPC or consultant, or if the work will be split between members and a contractor.

### Meeting 3 (include date):

- Homework before the meeting:
  - For LACs seeking funding: Relevant members (e.g. chair, treasurer) research potential funding sources including eligible applicants, deadlines, grant amount, and program focus. Contact RPC or contractors if you will seek assistance writing the grant application.
- Desired meeting outcomes:
  - For LACs seeking funding: determine which funding opportunities the LAC should pursue.
  - List potential partners or stakeholders within the local community with whom you are interested in coordinating. Determine which LAC members have existing relationships with each potential partner. Create a plan for seeking their support or involvement.

- Create a rough work plan of topic areas that need to be addressed and who will research and write about them. This work plan can guide the LAC or provide the basis of the scope of work for a grant application.

**At this point, activities of an LAC seeking funding and one that is going to work on the plan internally will diverge.** We suggest creating a similar meeting by meeting plan for subsequent meetings that will reflect your LAC's specific approach to creating or updating the plan. If you would like help more specifically outlining when to do what, contact Rivers Program staff. The stages of work and types of activities you may wish to consider are:

### **Identify Unique River Resources and Threats**

- ✓ Review existing resource assessments for conditions that the LAC knows have changed.
- ✓ Meet with town officials and stakeholders to gather information and recruit help.
- ✓ Gather data about areas of the resources assessment likely to have changed.
- ✓ Discuss and evaluate information.
- ✓ Draft or revise the resource assessment.

### **Establish Management Plan Goals and Objectives**

- ✓ Identify concerns that you might want to address.
- ✓ Identify positive attributes that you might want to protect.
- ✓ Discuss potential goals, objectives and action items.
- ✓ Develop draft goals and objectives.
- ✓ Get feedback from town officials and partners with a stake in the work.

### **Create the Management Plan**

- ✓ Compile materials drafted about resources, threats and goals.
- ✓ Discuss, revise and approve goals and objectives.
- ✓ Create a first draft of the whole plan.
- ✓ Circulate draft to key individuals (LAC members, Rivers Program staff, etc.) for comments and suggestions.
- ✓ Discuss and revise first draft based on comments and suggestions.
- ✓ Brainstorm potential action items.
- ✓ Discuss and organize action items.
- ✓ Draft an action plan, with action items for the next 2-5 years.
- ✓ Draft implementation methods for action items.
- ✓ Present second draft of the management plan, including the action plan, at stakeholder and municipal meetings for comments and suggestions.
- ✓ Write final draft based on all input.
- ✓ Discuss and approve final draft, including the action plan for the first few years.
- ✓ Present final plan at public meeting(s) such as of select boards, conservation commissions, and planning boards.
- ✓ Distribute final plan, such as through the LAC, town and Rivers Program websites.

### **Implement, Monitor, and Revise the Management Plan (*ongoing*)**

- ✓ Seek municipal adoption of the plan.
- ✓ Coordinate implementation of the plan.
- ✓ Regularly monitor LAC progress completing action items. Celebrate successes and learn from mistakes.
- ✓ Update or revise the action plan as appropriate.

## Appendix B: Potential Planning Funding Sources

See [Section 1.5.3](#) for more information about finding funding and crafting a good grant application. It can be challenging to find grants for planning efforts, so your funding options may be limited. Below is a list of a few funding opportunities for which river corridor management plans can be a good fit. Other options may be available beyond those mentioned here, so do not feel constrained by this list. Some grants may be available only in your watershed, in your town or county, or just for a particular type of resource (e.g. fish passage, eel grass protection, or environmental education), so remain open to other possibilities. Rivers Program staff can provide contact information for grants administered by NHDES. Note that these grants require pre-proposal consultation with NHDES, so reach out to staff early and often. Also keep in mind that **most grants have an annual funding cycle, meaning that applications are due by a particular date and can only be submitted once per year.**

**604(b) Planning Grants:** These highly competitive grants, administered by NHDES, are intended for planning projects that improve water quality, particularly through addressing nonpoint sources of pollution such as stormwater runoff. Money from these grants can now be awarded directly to LACs or to partners like RPCs. Applications should focus on water quality impairments, threats to water quality from nonpoint sources, and how the management plan would guide work to address them.

**Local Source Water Protection Grants:** NHDES administers these grants, which focus on efforts to protect drinking water sources from a variety of threats. These grants can only be obtained for rivers that are used as public drinking water sources. Money can be awarded to LACs, RPCs, municipalities or water suppliers. Applications should focus on how the plan will assist in protecting the quality and quantity of water available to be used as drinking water.


**Clean Water State Revolving Fund Stormwater Planning Loans:** This is a low-interest loan with a principal forgiveness program available to municipalities for planning projects to protect water quality. Because it is a loan and not a grant, administration is more complex and requires commitment from one municipality to take on the loan and pay the interest even when the loan principal is forgiven. The loan program is available through NHDES. Your application should reflect how plan implementation would reduce stormwater's negative impacts to water quality.

**Land and Climate Catalyst Planning Grants:** These grants support the creation of management plans that build resilience to the likely effects of climate change. Specifically, they are interested in habitat resilience, forest carbon storage, and flood hazard mitigation. Your application can discuss aquatic and terrestrial habitats. The granting organization has guidance documents on their website that summarize the available science on various impacts of climate change; your LAC should describe in your grant application how you could adapt the management best practices contained in those guidance documents. The grantor additionally offers workshops and trainings for local organizations.

# Appendix C: Goals, Objectives and Actions Templates

Note: Either template can be copied and used for subsequent goals. Each goal can have one or more objectives, and each objective can have one action or many. See [Section 3.3](#) for more information.

## Example Template 1:

<b>Goal #_____:</b>										
<b>Objective 1:</b>										
<b>Action 1:</b>	<b>Calendar Year and Action</b>									
										
	20__	20__	20__	20__	20__	20__	20__	20__	20__	20__
<b>Action 2:</b>										
<b>Calendar Year and Action</b>										
202__	20__	20__	20__	20__	20__	20__	20__	20__	20__	20__
<b>Action 3:</b>										
<b>Calendar Year and Action</b>										
202__	20__	20__	20__	20__	20__	20__	20__	20__	20__	20__
<b>Objective 2:</b>										
<b>Action 1:</b>	<b>Calendar Year and Action</b>									
	20__	20__	20__	20__	20__	20__	20__	20__	20__	20__
<b>Action 2:</b>	<b>Calendar Year and Action</b>									
	20__	20__	20__	20__	20__	20__	20__	20__	20__	20__
<b>Action 3:</b>	<b>Calendar Year and Action</b>									
	20__	20__	20__	20__	20__	20__	20__	20__	20__	20__
<b>Objective 3:</b>										
<b>Action 1:</b>	<b>Calendar Year and Action</b>									
	20__	20__	20__	20__	20__	20__	20__	20__	20__	20__
<b>Action 2:</b>	<b>Calendar Year and Action</b>									
	20__	20__	20__	20__	20__	20__	20__	20__	20__	20__
<b>Action 3:</b>	<b>Calendar Year and Action</b>									
	20__	20__	20__	20__	20__	20__	20__	20__	20__	20__

**Example Template 2:**

<b>Goal # _____:</b>			
<b>Objective #1:</b>			
Action Item(s)	Implementation Method		
	Responsible Party / Parties	Estimated Cost	Timeframe Anticipated Year of Completion
1.		\$	
2.		\$	
3.		\$	
<b>Objective #2:</b>			
Action Item(s)	Implementation Method		
	Responsible Party / Parties	Estimated Cost	Timeframe Anticipated Year of Completion
1.		\$	
2.		\$	
3.		\$	
<b>Objective #3:</b>			
Action Item(s)	Implementation Method		
	Responsible Party / Parties	Estimated Cost	Timeframe Anticipated Year of Completion
1.		\$	
2.		\$	
3.		\$	

## Appendix D: Document Requirements for Non-NHDES Publications

Documents that are not owned by NHDES are not required to contain NHDES-branding elements. However, they do need to pass minimum Americans with Disabilities Act (ADA) and civil rights requirements in order for us to post them on our website. These minimum requirements are as follows:

- Sans serif font, such as Calibri.
- Linked Table of Contents, where clicking on the item in the Table of Contents will bring you to that page.
- Descriptive hyperlinks (e.g. “[Rivers Program](#) page”, or “the [NHDES](#) website”). Do **not** spell out links (e.g. <https://www.des.nh.gov/water/rivers-and-lakes/>).
- Alt text included with all logos, photographs, diagrams, graphs, charts and other graphics.
- Left-justification of text.
- Appropriate color contrast.
- No text boxes.
- Plain writing, meaning approximately an eighth-grade reading level, and avoiding scientific jargon.
- Gender-neutral language.
- Standard labelling requirements for charts, graphs and maps.
- Maps should include a north arrow, scale and key or legend.

See the NHDES [publication guide](#) for additional detail on these and other requirements.

## Appendix E: Potential Implementation Funding Sources

The following funding resources were documented by the NHDES Watershed Assistance Section staff for watershed assistance grantees and their partners. Some include match requirements; carefully read the eligibility and guidance documents provided by the funding organization. This is only a short list of funding sources that may be available for water quality related projects and is by no means a comprehensive list of resources. Please note that funding programs, organizations and grants are subject to change and that grant opportunities are offered as guidance only. **The majority of these grants do not support planning projects, but may be available to implement your plan.** See Appendix B for grant programs that support planning projects.

Additional state grant and loan opportunities are available on the [NHDES funding opportunities](#) page.

### [Aquatic Resource Mitigation Fund Program](#)

Funder: NHDES / Category: State

An ideal ARM Fund grant project would provide wetland resource restoration within the context of a proposed conservation proposal. NHDES encourages projects that provide connectivity to other protected resources or are in close proximity to the wetland impacts. Opportunities to provide benefit to rare resources are also looked upon favorably.

### [American Rivers - NOAA Community-Based Restoration Program Partnership](#)

Funder: American Rivers and NOAA / Category: Federal

Grant funding provided for stream barrier removal projects that help restore riverine ecosystems, enhance public safety and community resilience, and have clear and identifiable benefits to diadromous fish populations.

### [Conservation Grant Program \(Moose Plate\)](#)

Funder: New Hampshire State Conservation Committee / Category: State

These funds focus on water quantity and quality, wildlife habitat, soil conservation, flood mitigation, installation of BMPs for agriculture, forestry, or stormwater management, and permanent land protection.

### [Davis Conservation Foundation](#)

Funder: Davis Conservation Foundation / Category: Private

The Foundation supports organizations whose areas of interest include projects and activities related to wildlife, wildlife habitat, environmental protection, or outdoor recreation. Projects which strengthen volunteer activity and outreach/community involvement in the above categories are of particular interest.

### [EPA Environmental Education Grant](#)

Funder: EPA / Category: Federal

This grant program provides financial support for projects that design, demonstrate, and/or disseminate environmental education practices, methods, or techniques.

### [Fields Pond Foundation](#)

Funder: Fields Pond Foundation / Category: Private

Funds trail making and other enhancement of public access to conservation lands, land acquisitions for conservation, and establishing funds for stewardship.

### [Gulf of Maine Council on the Marine Environment Habitat Restoration Grants Program](#)



Funder: Gulf of Maine Council and NOAA / Category: Federal

The Gulf of Maine Council on the Marine Environment (GOMC) mission is to maintain and enhance environmental quality in the Gulf of Maine to allow for sustainable resource use by present and future generations.

**Land and Community Heritage Investment Program**

Funder: LCHIP / Category: State

The New Hampshire Land and Community Heritage Investment Program (LCHIP) is an independent state authority that makes matching grants to NH communities and non-profits to conserve and preserve New Hampshire's most important natural, cultural and historic resources.

**Five Star and Urban Waters Restoration Program**

Funder: National Fish and Wildlife Foundation / Category: Federal

The Five Star/Urban Waters Restoration Program seeks to develop community capacity to sustain local natural resources for future generations by providing modest financial assistance to diverse local partnerships for wetland, forest, riparian and coastal habitat restoration, with a particular focus on urban waters and watersheds.

**National Park Service – Rivers, Trails, and Conservation Assistance Program**

Funder: NPS / Category: Federal

Funds projects focused on protection of natural resources and enhancement of outdoor recreational opportunities.

**Natural Resource Conservation Service (NRCS)**

Funder: NRCS / Category: Federal

NRCS offers voluntary programs to eligible landowners and agricultural producers to provide financial and technical assistance to help manage natural resources in a sustainable manner. Through these programs the agency approves contracts to provide financial assistance to help plan and implement conservation practices that address natural resource concerns or opportunities to help save energy, improve soil, water, plant, air, animal and related resources on agricultural lands and non-industrial private forest land.

**New England Grassroots Environmental Fund**

Funder: New England Grassroots Environmental Fund / Category: Private

Funds projects that are doing community-based environmental work.

**New England Forests and Rivers Fund**

Funder: The National Fish and Wildlife Foundation / Category: Federal

The New England Forests and Rivers Fund is dedicated to restoring and sustaining healthy forests and rivers that provide habitat for diverse native bird and freshwater fish populations in the six New England states.

**New England Water Environment Association**

Funder: New England Water Environment Association / Category: Private

Funding available to watershed associations and non-profits for small-scale project designed to protect surface waters in New England.

**[North American Wetlands Conservation Act \(NAWCA\) U.S. Standard Grants Program](#)**

Funder: U.S. Fish & Wildlife Service Division of Bird Habitat Conservation / Category: Federal

The U.S. Standard Grants Program is a competitive, matching grants program that supports public-private partnerships carrying out projects in the United States that further the goals of the North American Wetlands Conservation Act. These projects must involve long-term protection, restoration, and/or enhancement of wetlands and associated uplands habitats for the benefit of all wetlands-associated migratory birds.

**[North American Wetlands Conservation Act \(NAWCA\) U.S. Small Grants Program](#)**

Funder: U.S. Fish & Wildlife Service Division of Bird Habitat Conservation / Category: Federal

The U.S. Small Grants Program is a competitive, matching grants program that supports public-private partnerships carrying out projects in the United States that further the goals of the North American Wetlands Conservation Act. These projects must involve long-term protection, restoration, and/or enhancement of wetlands and associated uplands habitats for the benefit of all wetlands-associated migratory birds.

**[Partners for New Hampshire’s Fish and Wildlife](#)**

Funder: Eversource and The National Fish and Wildlife Foundation Category: Federal

Partners for New Hampshire’s Fish and Wildlife is a partnership between Eversource and the National Fish and Wildlife Foundation (NFWF) dedicated to restoring and sustaining healthy forests and rivers in New Hampshire. The partnership invests in on-the-ground restoration projects and applied science.

**[Profits for the Planet](#)**

Funder: Stonyfield Farm / Category: Private

Profits for the Planet supports efforts that help protect and restore the environment and generate measurable results.

**[Shared Earth Foundation](#)**

Funder: Shared Earth Foundation / Category: Private

Funds projects that promote protection and restoration of habitat for the broadest possible biodiversity.

**[Tom’s of Maine- Giving for Goodness](#)**

Funder: Tom’s of Maine / Category: Private

Funds projects focused on protection and conservation of natural resources, wildlife and wildlife habitat.

**[Trout Unlimited Embrace-A-Stream Grant Program](#)**

Funder: Trout Unlimited / Category: Private

Trout Unlimited accepts grant applications for eligible coldwater fisheries conservation projects that best address the needs of native and wild trout following their protect, reconnect, and restore and sustain conservation model.

**[Upper Connecticut River Mitigation and Enhancement Fund](#)**

Funder: New Hampshire Charitable Foundation / Category: Private

This fund supports restoration, protection and enhancement of the Connecticut River, its wetlands, and shorelands in the Connecticut River watershed upstream of the confluence of the White River and the Connecticut River at White River Junction, VT and West Lebanon, NH.

**USDA Water and Waste Disposal Loan and Grant Program**

Funder: USDA / Category: Federal

This program provides funding for clean and reliable drinking water systems, sanitary sewage disposal, sanitary solid waste disposal, and storm water drainage to households and businesses in eligible rural areas.

**Watershed Assistance Grants**

Funder: New Hampshire Department of Environmental Services (NHDES) / Category: Federal

NHDES provides funding appropriated through the US Environmental Protection Agency under Section 319 of the Clean Water Act to support local initiatives to restore impaired waters or protect high quality waters. Grant funds are targeted toward implementation of completed watershed-based plans, Nitrogen reducing best management practices (BMPs) especially in the Great Bay watershed, and projects dealing with impairments caused by hydro-modification that are likely to achieve a de-listing of the impairment.