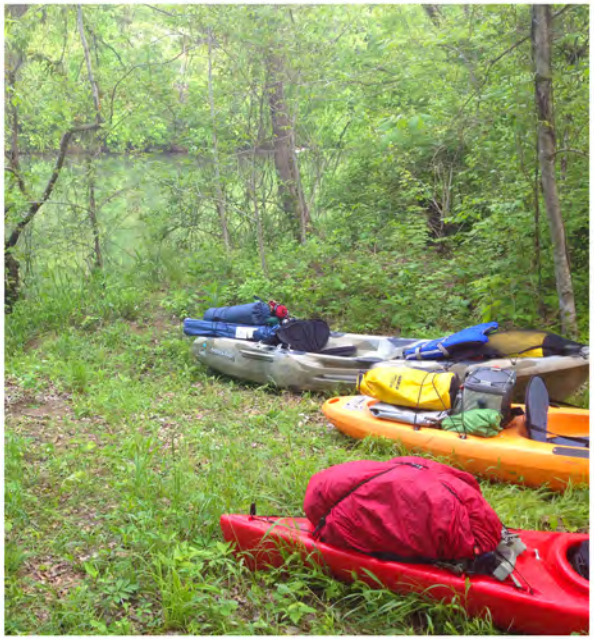
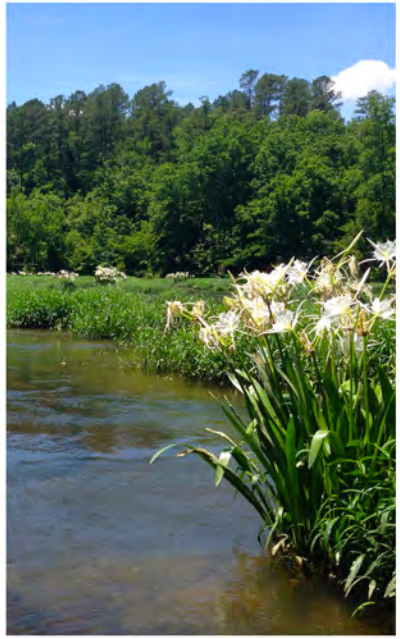
BEST PRACTICES GUIDE FOR CAHABA RIVER ACCESS POINTS

a tool for all stakeholders interested in creating their own access point along the Cahaba River





Third Edition - Summer 2017

Through the generosity of The Community Foundation of Greater Birmingham, this guide was prepared as a resource for the development of river access points for the Cahaba River.

Special thanks is extended to those who contributed time, energy, and expertise towards compiling the many, many resources available regarding river access.

This guide was prepared under the direction and guidance of:

The Nature Conservancy
Protecting nature. Preserving life.®

Cahaba River Society

ALABAMA INNOVATION ENGINE

NATIONAL PARK SERVICE
RIVERS, TRAILS, AND CONSERVATION ASSISTANCE PROGRAM

UA Center for Economic Development
THE UNIVERSITY OF ALABAMA®

Originally prepared by **Macknally Land Design, PC** . 2014. Subsequent revisions coordinataed by Brian Rushing
Photo Credits: (Cover) Cahaba River Society, Whit Macknally

BEST PRACTICES GUIDE FOR CAHABA RIVER ACCESS POINTS

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Photo Credit: Cahaba River Society

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OVER 20,000 PEOPLE PER YEAR VISIT THE CAHABA RIVER NATIONAL WILDLIFE REFUGE. –
U. S. Fish and Wildlife Service

Photo Credit: Cahaba River Society

Photo Credit: Beth Stewart

0 INTRODUCTION

0 INTRODUCTION

.00 THE CAHABA RIVER'S OUTSTANDING VALUES

As one of North America's most biologically diverse and beautiful streams, the ***Cahaba River*** is an outstanding natural resource that courses through the heart of Alabama. While providing a critical refuge for a variety of imperiled fishes, mussels, snails, and other aquatic wildife, the river is the principal drinking water source for Birmingham. The river also provides important fishing and paddling opportunities along its entire length from Trussville to Old Cahawba.

- 191 miles long from its headwaters to where it joins with the Alabama River. It drains 1,800 square miles in 8 counties.
- Longest free-flowing river in Alabama.
- 131 species of fish, more than any other river its length in North America (18 species found nowhere else in the world.)
- 40 species of mussels.
- 35 species of snails (13 species found nowhere else in the world).
- 69 rare and emperiled species.
- Recognized by The Nature Conservancy as one of only eight "Hotspots of Biodiversity" in North America.
- Recognized by the Sierra Club as one of the "52 Most important paces to Protect in the next 10 Years."
- Home to the world's largest stand of Cahaba lilies (shoals spider lily) at *Hargrove Shoals* in the Cahaba River National Wildlife Refuge.

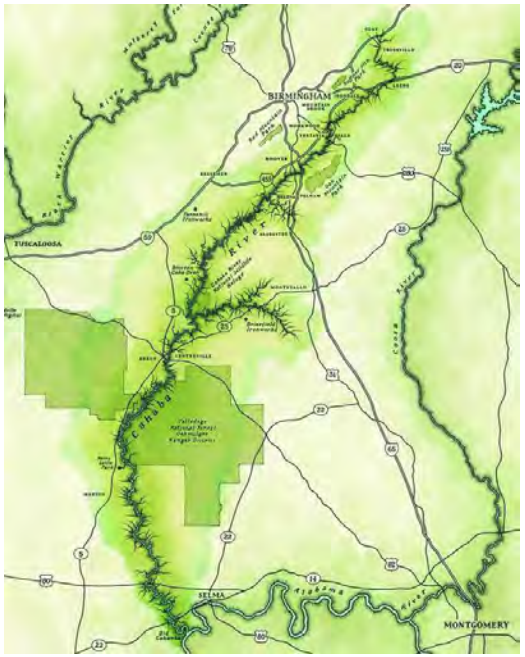


Illustration Credit: Doug Barrett

Cahaba lilies at Hargrove Shoals, Cahaba River NWR. *Photo Credit: Cahaba River Society*

.01 THE CAHABA RIVER AS AN ECONOMIC DEVELOPMENT OPPORTUNITY

While the ***Cahaba River's*** biological richness and beauty make it an outstanding natural asset, it is only marginally developed for public use and enjoyment. Very few locations on the river have infrastructure that provides safe public access, and there is very little information available to the public about how to get to the river ("way-finding") and what to expect while on the water. As a consequence, fewer people experience the remarkable waterway than otherwise would. However, through modest investment in access infrastructure and public information, the ***Cahaba River*** has tremendous potential to become a nationally recognized destination that will attract nature-based tourists who will support the economies of nearby communities through their purchases of food, fuel, gear, lodging, and outfitter services. By developing the ***Cahaba River*** for public enjoyment in a thoughtful and sustainable manner, we will also enhance the river as a quality-of-life asset that will attract people to communities along the river to live, work, and play.

The Cahaba River National Wildlife Refuge *Photo Credit: Brian Rushing*

.02 WHAT IS THE BEST PRACTICES GUIDE?

The Best Practices Guide is intended to provide communities along the ***Cahaba River*** and its tributaries with the tools and resources necessary to evaluate, plan, and develop recreational access points along the river that provide safety and ease-of-use for visitors, optimize durability of improvements, and enable cost-effective maintenance while protecting the outstanding natural values of this nationally-significant waterway. The guide pulls together the latest water access standards from a variety of sources as a reference for creating recreational access points that are low-impact, safe, and durable

From its rocky, mountainous headwaters to its wide, meandering lower reaches, the ***Cahaba River*** presents a variety of conditions along its 191-mile journey to its confluence with the Alabama River. As such, every potential recreational access site presents unique conditions that must be carefully evaluated. This guide presents general options that may be employed for adapting to these various site conditions along with important considerations for how to approach the design of safe, sustainable, and durable access points in each location.

Photo Credit: Paul Freeman

THE CAHABA BLUEWAY

The *Cahaba Blueway* initiative utilizes these guidelines as standards of for creating quality access points that can be formally designated as part of the *Cahaba Blueway* system. Establishing the *Cahaba Blueway as a formal water trail will enhance quality of life and economic development for communities along the Cahaba River*. See Appendix C for information about the Cahaba Blueway initiative.

CAHABA BLUEWAY

.03 WHO IS THIS GUIDE FOR?

This guide is for YOU!

This guide is intended for local, state, and federal government agencies, private landowners, businesses, non-profit organizations, landscape architects, planners, engineers, and any other individuals and organizations that are interested in developing or improving recreational access to the ***Cahaba River***.

Photo Credit: Brian Rushing

HOW TO USE THIS DOCUMENT

This document presents guidelines for how to develop high-quality recreational access improvements along the ***Cahaba River*** in a manner that sustainably protects the river's outstanding natural values while making it more accessible for local citizens and recreation tourists. The guidelines are intended to serve a reference for the design and construction of ***safe, environmentally sustainable, and durable*** infrastructure that will provide a consistent user experience along the river's length. The infrastructure examples presented are intended to be representative of how access points should be designed and built. However, application of these examples may vary from site to site since every access point is unique.

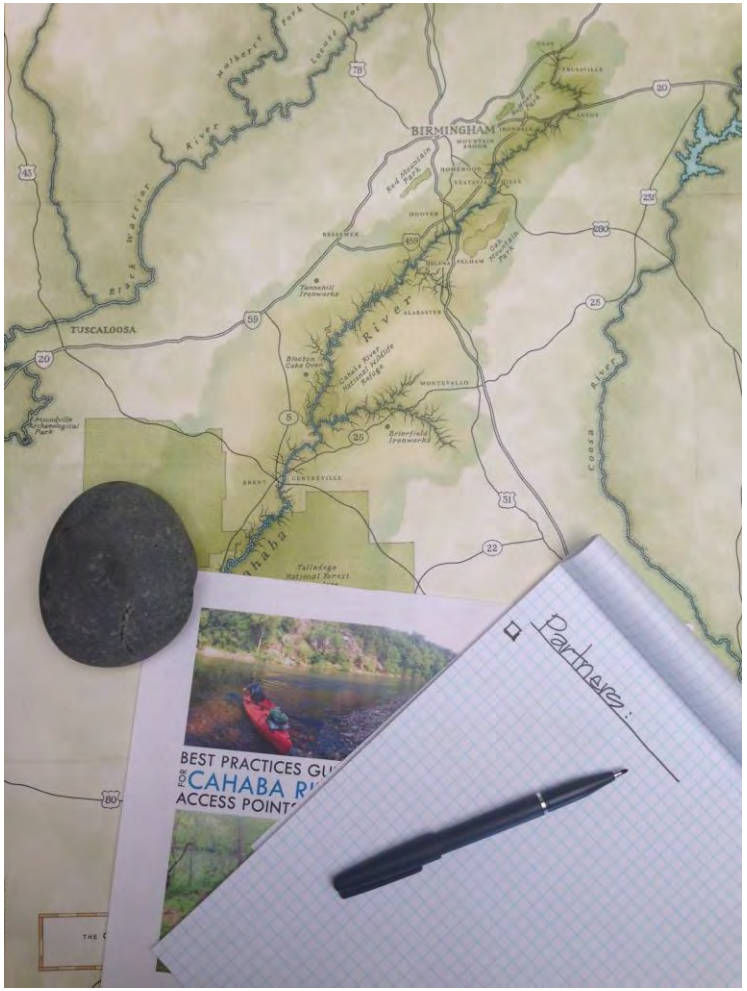
The guide is to be used in conjunction with all goverining municiple and federal requirements.

.04 GENERAL PRINCIPLES

The following principles were used in the development of this guide and should be used when planning and designing access improvements.

- Protect and maintain the river's outstanding **natural character** and the river corridor's **ecological function** through thoughtful recreational access site design and management that **preserve critical forested buffers and minimize stormwater runoff, erosion, and other adverse impacts.**
- **Restore** degraded site and/or stream bank conditions wherever practicable.
- Create a strong link between **communities** and the river, reinforcing the river as a **critical asset.**
- Provide access points along the ***Cahaba River's*** main stem and major tributaries that facilitate **safe** enjoyment and **quality of life** enhancement for local residents.
- Provide consistent and informative "user friendly" facilities that encourage non-residents to visit the river and nearby communities to support local **economic development.**
- **Optimize** site access for people with varying physical abilities where existing topography is conducive to minimizing impacts to the natural qualities of the site and to the river.
- Enhance the qualities that make each access site **distinctive.**

THE WORD 'CAHABA' IS OF CHOCTAW ORIGIN, MEANING "WATER FROM ABOVE" OR "THE RIVER FROM ABOVE."



1 PROJECT ORGANIZATION & PROCESS

1 PROJECT ORGANIZATION AND PROCESS

.00 OVERVIEW

The process of creating quality recreationl access sites (safe, sustainable, and durable) along the ***Cahaba River*** involves a number of key considerations, as shown in the illustration below. Each of these project organization components is important. In this section, we present key considerations for site selection, developing partnerships, identifying and engaging uesers, planning site development, identifying and securing funding, implementing the project, and managing the operations of a site. Chapters 2 and 3 present a more detailed examination of site design and management practices, which due to their technical complexity and importance in minimizing adverse impacts on the ***Cahaba River***, warrant more attention.

1 PROJECT ORGANIZATION AND PROCESS

.01 SITE SELECTION

Access points on the ***Cahaba River*** should be safe, environmentally sustainable, and durable while being cost effective to build and maintain. As you consider prospective sites, you should seek to identify those that fulfill as many of the following criteria as possible:

ATTRACTIVE FOR USERS

- There are activities and features of the site that can offer a special experience for the user.
- There are other attractions / points of interest nearby (community services, businesses, natural or cultural sites, etc.)

PHYSICAL CONDITIONS

- Approach to the water access from the prospective parking area is relatively level..
- River bank is stable and well vegetated and less than 12% slope.
- Distance from prospective parking to water access os relatively close - ideally less than 100 yds.
- There are no features immediately upstream or downstream of the water access that would create a safety or navigation hazard.
- River bottom is gently sloping for at least 8 feet out from the river bank at the water access.

LAND OWNERSHIP

- Whether owned publicly or privately, the site is available for public use.

RELATIVE LOCATION

- Adjacent access points on the river are no more than 10 river miles away. **Consider developing two adjacent sites in tandem to create a complete river trip.**
- Location is as close as practicable to other community tourism assets such as other parks/recreational infrastructure, historical/cultural sites, shopping areas, etc..

OPERATION

- In a location where a governmental or non-governmental organization is willing and able to operate and maintain site.

ACCESSIBILITY

- Area is reasonably accessible for maintenance, law enforcement, and emergency response.
- Access to the parking area from a public road is feasible and safe, especially considering sight distances along the road.

1 PROJECT ORGANIZATION AND PROCESS

.01 SITE SELECTION

Locating a proper site for water access is critical for ensuring the long-term stability of the improvements, minimizing the need for maintenance, and providing the easiest path to the water for the public.

The red X's below locate the "cut banks" along a meandering stream where erosion naturally takes place and where the bank is steepest and most unstable. **It is important to <u>avoid</u> these areas when developing water accesses.**

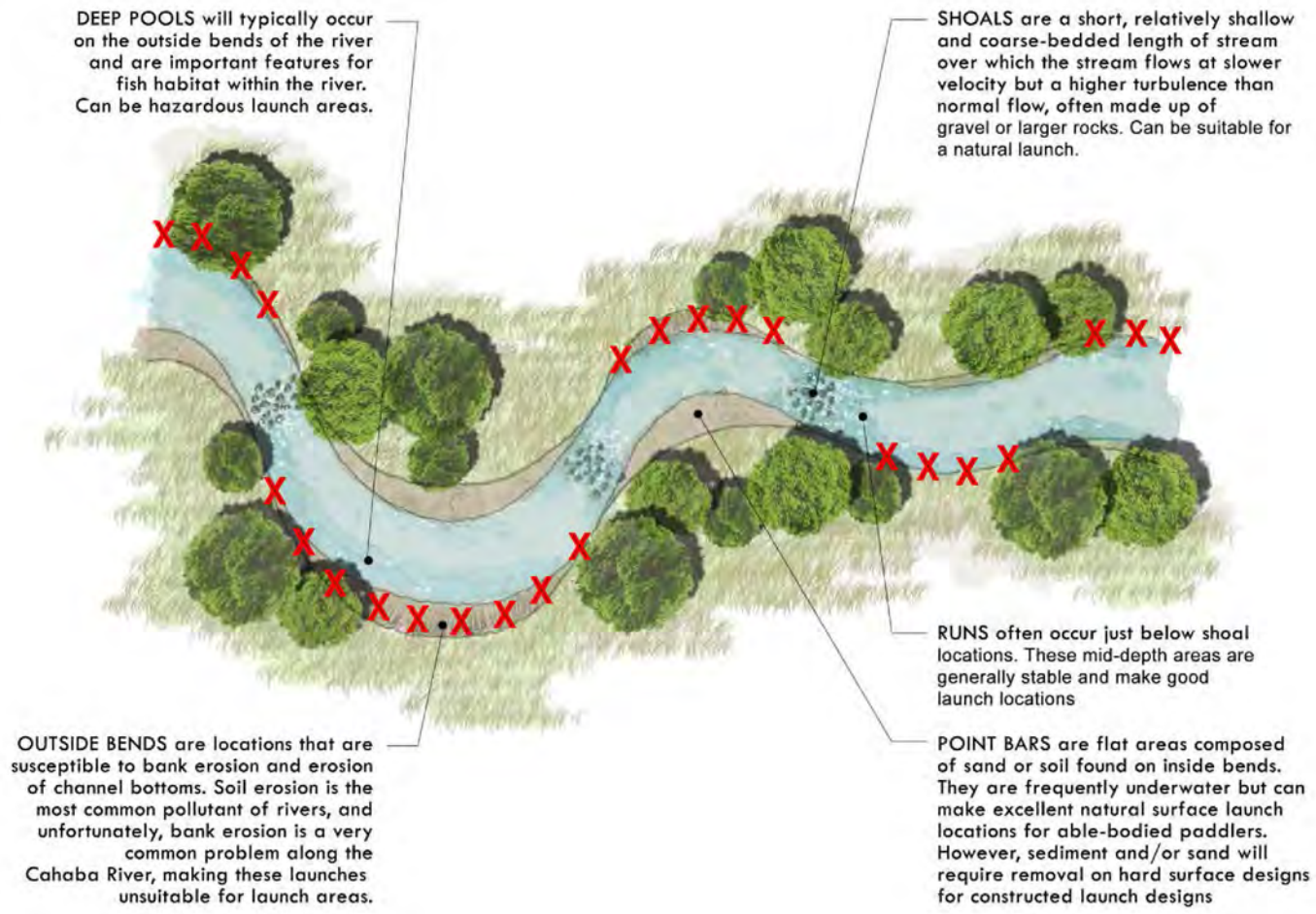


Figure 2-1 River Dynamics

.02 PARTNERSHIPS

Partnerships are essential to bringing together the resources necessary to build and operate quality recreational access facilities along the ***Cahaba River***. These resources and their likely providers include:

- ***Technical expertise*** – project managers, planners, designers, engineers, non-profit river organizations
- ***Funding*** – public funding agencies, private foundations, individual private donors, and corporate sponsors
- ***Donations of materials and services*** – local governments and businesses
- ***Regulatory approval*** – state and federal regulatory agencies
- ***Operation and maintenance*** – local governments and volunteer groups
- ***Programming*** – outfitters, guides, and non-profit river organizations

Successul projects identify and engage critical partners **early in the planning process.** In most cases, establishing a steering or advisory committee made up of such partners is an effective way to move the project forward in an efficient and focused manner. All partners should have a shared interest in creating recreational access points, they should consider themselves to be stakeholder in the project, and they should be willing to dedicate their unique resources to advancing the project, be it funding or in-kind support.

Federal funding programs such as the **Land & Water Conservation Fund** and the **Recreation Trails Program** are important sources of funding to build river access facilities. However, using such funding sources brings along with it the requirement to comply with regulations related to **access for disabled persons, environmental protection, and historic preservation.** Early consultation with the federal and state agencies that oversee such compliance is a great way to make sure your project will avoid potential delays and added costs further along in the process. **It is also a great idea to invite these agencies to serve on the project steering or advisory committee.**

*See **Appendix A** for a list of regulatory agencies and nonprofit river organizations that will be important to engage early in the process.*

Photo Credit: Matt Leavell

1 PROJECT ORGANIZATION AND PROCESS

.03 IDENTIFY & ENGAGE USERS

There are a variety of uses that recreational access points can accommodate along the ***Cahaba River*** such as paddling, swimming, wildlife watching, picnicing, and hiking. However, there may be other activities and amenities that the public would like to have available. Therefore, it is important to give the public an opportunity to provide input early in the site master planning process and provide several opportunities during the course of planning and design for the public to see what is being proposed and to give feedback. Doing so will give the public a sense of **ownership** in the project, help secure their **buy-in**, and will often reveal **ideas** that will help your project to **better serve the public**.

HOW TO GET INPUT FROM YOUR COMMUNITY:

- Find out what amenities are needed in your community by **ENGAGING** with local stakeholder groups such as paddlers, hikers, bird watchers, homeowners, as well as municipal park & recreation departments and the general public.
- Hold open public engagement meetings to solicit input from local residents about what they would like to see at your access site.
- Consider administering a survey via social media of people outside of your community to find out what amenities would attract tourists to your area.
- Based on public feedback, site conditions, funding, and maintenance considerations, create a list of potential elements you would like the access point to accommodate (launch type, trails, picnic area, etc.). This is called a "**site program.**"
- Consider engaging landscape architects, design professionals, and planners to help facilitate public engagement as part of the planning process.

Photo Credit: Hunter Nichols

1 PROJECT ORGANIZATION AND PROCESS

.04 DEVELOPMENT PLANNING

Development planning is the process of creating detailed plans for access point infrastructure improvement. Elements in this process include but are not limited to the following:

- **Know what permits will be required!**
  Once you have a general concept of the types of features you want to include in your site development, consult with all applicable local, state, and federal regulatory agencies to determine what permits may be required. Early consultation can help with achieving a successful site design. See ***Appendix A*** for a list of regulatory agencies.

- **Consider hiring a design professional.**
  A professional that is experienced in municipal coordination and low-impact development can be a valuable benefit to the project that can avoid costly delays and inappropriate/ineffective construction methods.

- **Designs of launches, parking areas, signage plans, and trails between parking and water access, as well as portage trails.**
  Design all improvements to be safe, sustainable, and durable, to protect sensitive streamside vegetation, and to incorporate streambank restoration and re-vegetation where needed to improve the environmental benefit of the site. **Refer to Chapters 2 and 3 for more information and guidance.**

- **Incorporate Universal Access, where feasible.**
  While many sites on the ***Cahaba River*** have steep terrain or other features that preclude water access for people with disabilities, design amenities to accommodate as many users of varying abilities as the site makes feasible and as will not alter the natural character of the site.

- **Include habitat-improvement practices in launch design.**
  Partnerships with non-profit groups may lead to funding and volunteer opportunities to design and install such enhancements. Examples include angler and birding organizations and foundations or other nonprofit organizations interested in habitat enhancement.

- **Develop proactive strategies for dealing with potential law-enforcement issues (e.g., public intoxication, littering, belligerent behavior).** Plan access to the site in the event of an emergency. This includes working with law enforcement agencies, emergency service providers, and adjacent private property owners to plan how emergency responders can access the site.

- **Identify the potential for incremental development, or phasing.**

*Suggestions incorporated in part from Iowa DNR Water Trails Toolkit.
http://www.iowadnr.gov/Recreation/CanoeingKayaking/WaterTrailDevelopmentTools/WaterTrailsToolkit.aspx

1 PROJECT ORGANIZATION AND PROCESS

.05 FUNDING & IN-KIND SOURCES

There are a variety of funding options to design and implement infrastructure access to the ***Cahaba River*** that include state and federal governmental agencies, local tax or bond revenue, private foundations, and corporate and individual contributions. Local governments, businesses, and non-profit organizations can often provide in-kind materials and/or services to help support a project. The most suddessful projects take advantage of a combination of multiple funding and in-kind sources. **In certain cases, you can implement a project entirely with donated materials and volunteer labor.** Seeking out and engaging partners that can provide fuding and in-kind support early is important in creating a successful project that leverages available resources.

IN 2016, OUTDOOR RECREATION GENERATED $887 BILLION DOLLARS IN CONSUMER SPENDING IN THE UNITED STATES.

-Outdoor Industry Association

Important Considerations:

- Who are my partners?
- What special amenities will this access point provide?
- What sources of funding should I pursue?
- What are specific requirements of funding that will impact the project?
- Are there opportunities for in-kind donations of materials and labor?
- What is my timeframe?
- Who will maintain the site long-term?

See Appendix A for more information and potential funding sources.

1 PROJECT ORGANIZATION AND PROCESS

.06 IMPLEMENTATION & MANAGEMENT

Implementation includes the construction/installation of all designed improvements such as the water access (launch), trails, signage, parking areas, and other desired and site-appropriate amenities. Use established safety standards during construction. **Developing and implementing a robust stormwater management plan to prevent erosion during construction is just as important as the design of improvements that prevent long-term stormwater impacts. It is also a reglatory requirement.**

You should give special consideration to the development and execution of management and maintenance plans throughout the process. A successful site is one that incorporates a maintenance strategy, addresses security, and continues to welcome users long-term. ***Chapter 3 of this guide provides more detailed information on aspects of management practices.***

At all times during construction and maintenance operations, it is important to have someone knowledgable about low-impact construction and maintenance for river protection overseeing activities on-site. The nonprofit river organizations listed in *Appendix A* are excellent sources of such expertise, and can often provide volunteer skilled labor for many construction and maintenance tasks, which can help you control costs.

Photo Credit: Rick Berry

2 SITE DESIGN

.00 PRESERVING THE CAHABA'S NATURAL CHARACTER

The ***Cahaba River's*** outstanding natural values is what makes it unique and attractive to nature-based and recreational tourists. The development of accesses along the river to preserve this natural character as much as possible.

Understanding characteristics of a prospective access site is ..... in both preserving natural character and creating a usable and enjoyable place that people will want to visit repeatedly.

GOOD DESIGN WILL PRESERVE AND CELEBRATE THE RIVER'S NATURAL CHARACTER.

Plan for a site analysis to identify your assets and challenges. Key Considerations should include the following:

- Location -What are interesting places nearby? Where are the users coming from?
- Connectivity – How will visitors access the site? Are there trails or bike paths nearby? Where are the companion sites (closest water accesses upstream and downstream?
- Topography – What are the slopes on the site? Is the site possibly in a wetland?
- Vegetation – Does the existing vegetation stabilize the river bank? Are there invasive plant species you should remove?
- Unique Features – What is unique about this site? This can be the location, a rock outcrop, a type of unique plant or animal, or an important event happened here.
- Infrastructure - What utilities or public services are available for the site?
- Sun Angles – Where is the best shade on the site?
- Geology – What type of soils are on the site?
- Hydrology – What are the patterns of water flow?
- Intrusive Elements – What aspects of the site hinder the experience? Views, noise, etc.

Cahaba lilies. *Photo Credit: Brian Rushing*

2 SITE DESIGN

.01 CHARACTERISTICS OF AN IDEAL ACCESS SITE

- **Environmentally Sustainable:**
  - Improvements do not adversely impact the river
  - Natural site character and vegetation (particularly along river bank) are preserved as much as possible
  - Launch infrastructure sits within the natural river bank profile
- **Safe:**
  - Access site and water entry are free from significant hazards
  - Sight lines along public road allow for safe entry and exit to parking area
- **Accessible:**
  - Near a public road
  - Relatively level site and easy approach to water's edge at varying water levels; the ideal bank slope is less than 12%
  - Provides as much ADA accessibility as topography and resource protection enable
  - Parking area is sufficient to accommodate normal parking demand
  - Accessible to law enforcement, emergency services, and maintenance personnel
- **Informative & Recognizable:**
  - Signs tell visitor where they are and what is nearby
  - Signs/markers along public road and along river make the access location easy to identify
- **Easy to Maintain:**
  - Well-designed infrastructure is stable and requires little maintenance

See also The National Park Service River Management Society 'Prepare to Launch' Toolkit at: http://www.river-management.org/prepare-to-launch-

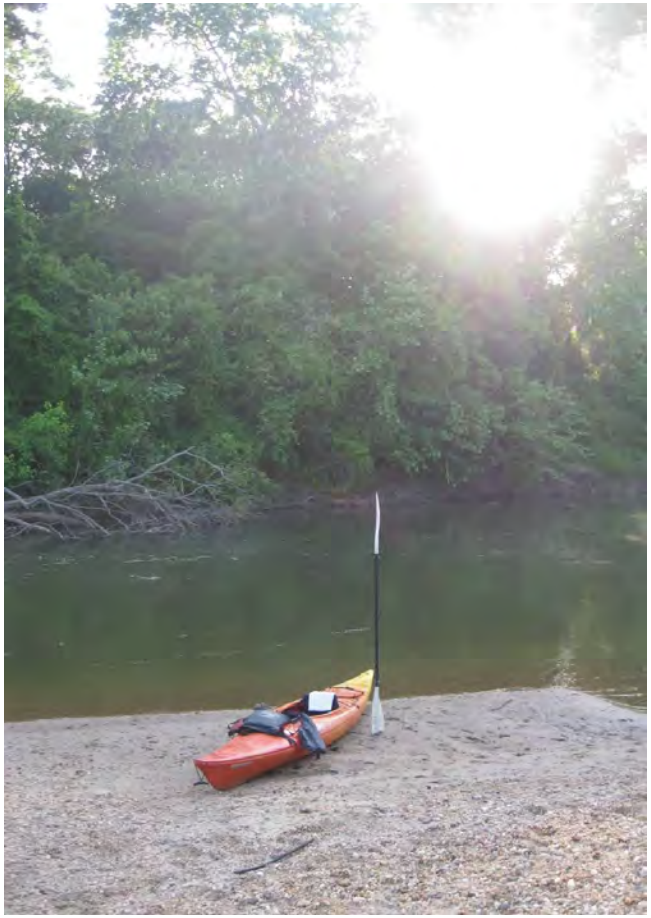


Photo Credit: Whit Macknally

.02 CHARACTERISTICS OF AN INADEQUATE ACCESS SITE

Undesirable characteristics of launch areas that can reduce the accessibility, safety, enjoyment, and environmental sustainability of recreating on the ***Cahaba River*** can include:

- Steep slopes
- Unstable and/or eroding river bank
- Safety hazards created by poor sight lines from public road, obstacles in water near launch area, and deep water at the launch point, etc.
- Rugged and/or unstable terrain, such as rip-rap that creates difficulty in maneuvering to and from the water
- Extensive infrastructure that creates a large and unnecessary site impact
- Poor maintenance / difficult to maintain
- Little or no native vegetation and/or extensive invasive exotic plant species
- Little or no signage / way-finding information
- Extensive infrastructure that creates a large and unnecessary site impact

Photo Credit: (Top) Unknown; (Bottom) Dr. Randall Haddock

Poor Launch Design: Steep, rugged slopes and soft soils each present challenges to accessing the river

.03 CONSIDERATIONS FOR GOOD LAUNCH DESIGN

You should design the water access to minimize short and long- term impacts to the stream bank and river, while accommodating the anticipated visitors (providing ADA accessibility where the landscape naturally allows), with reasonable capital cost and long-term maintenance demands.

Below are goals for creating and/or enhancing launches:

- Minimize the footprint of the developed area to reduce the potential for erosion.
- **Maintain natural profile of the river bank;** infrastructure sits neither "too high" or "too low" within the bank; steps, terraces, and/or a ramp that protrude too high from the bank will cause bank erosion and those recessed too deeply into the bank will accumulate sediment.
- Give preference to using natural and native materials (e.g., native stone) and stable permeable surface materials.
- Consider concrete infrastructure where there is no practical alternative in createing ADA accessibility, and only on sites where the natural slope and site conditions make it feasible.
- Consider a hard surface (concrete or stone) launch only where you anticipate a high frequency of use that otherwise would damage the site.

Good launch designs will minimize or eliminate impacts to the river and last longer with less maintenance while creating places that people will enjoy and visit repeatedly.

Native stone steps at Grants Mill access that sit within the natural river bank profile. *Photo Credit: Brian Rushing*

Stabilized natural surface access using Turfstone at Lewis and Clark National Historical Park, Washington. *Photo Credit: Brian Rushing*

.04 CHOOSING THE APPROPRIATE LAUNCH

While there are many choices for creating water access along the ***Cahaba River***, the unique characteristics of each site will inform the best solution. River bank conditions, the user needs you are seeking to serve, and minimizing impact to the site and river are the driving factors in determining the best launch type for a given site. Below are the two most common general launch types that we anticipate on the ***Cahaba River***.

RAMP

Perfect for gradually sloped banks. Various materials such as natural surface, stabilized natural surface, and porous and non-porous concrete are used depending on the access desired and characteristics of your site. **This will generally be the most appropriate access form for sites *downstream* of the Fall Line at Centreville.**

STAIRS / TERRACES

Use where banks are too steep to access by a ramp. **This will generally be the most appropriate access form for sites *upstream* of the Fall Line at Centreville.**

Figure 2-1 General Launch Types

.04 CHOOSING THE APPROPRIATE LAUNCH

SITE CONDITIONS	ANTICIPATED USE: HIGH TRAFFIC	LOW TRAFFIC	UNIVERSAL ACCESS DESIRED
SAND / GRAVEL POINT BARS	NS	NS	X
STABLE BANK <12% SLOPE	CR, ST	NS, SNS	CR, NS, SNS
STABLE BANK 12% - 18% SLOPE	CR, ST	NS, SNS	X
STABLE BANK 18% - 50%	ST	ST	X

RECOMMENDED LAUNCH

NS = NATURAL SURFACE LAUNCH
CR = CONCRETE RAMP
X = USUALLY NOT FEASIBLE
SNS = STABILIZED NATURAL SURFACE
ST = STAIRS / TERRACES

Figure 2-2 Launch Selection Criteria

CHOOSING THE RIGHT LAUNCH FOR YOUR SECTION OF THE RIVER:

- A NATURAL SURFACE LAUNCH is likely to be more common in the lower Cahaba watershed.
- A STAIR-STEP LAUNCH will be more common in the upper Cahaba watershed due to steeper slopes.
- Since conditions vary along the river, it is important to evaluate all the opportunities and challenges of **your site**!

.04 CHOOSING THE APPROPRIATE LAUNCH

COST CONSIDERATIONS

When selecting the best option for your site's river access remember:

Natural surface launch that is least costly to develop. *Photo credit: Unknown*

Concrete boat ramp that is more expensive. *Photo Credit: Brian Rushing*

NATURAL SURFACE LAUNCHES - $

STAIRS / TERRACES LAUNCHES - $$

CONCRETE RAMP LAUNCHES - $$$

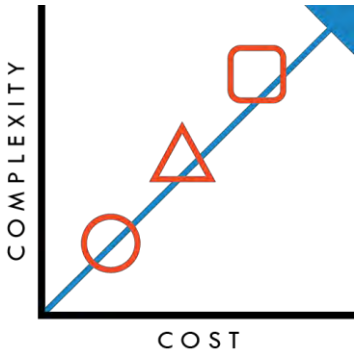


Figure 2-3 Courtesy of The National Park Service River Management Society 'Prepare to Launch Toolkit'

2 SITE DESIGN

.05 LAUNCH DESIGN

TYPICAL RAMP INFRASTRUCTURE ELEMENTS

- **Armoring:**
  - Protect the edges of a launch to minimize scouring and erosion by changing river currents and conditions.
  - Use specific rock sizes and native vegetation to soften the transition between native river bank and the improved ramp surface. **See Section 2.08 for more information on vegetative restoration.**
  - Use the **minimum** amount of rock necessary to minimize cost and impact on river function, and use native rock where feasible.
- **Launch Slope:**
  - Slopes should be as close to 8% as possible. The slope is the change in elevation from the top to the bottom of the launch divided by the length of the launch.
  - All slopes should have a roughened surface to provide traction for users.
- **Transition Zone:**
  - Launch section that is transitioning from dry to submerged.
  - The slope can be steeper, typically between 14%to 16%.
- **Push-in Section:**
  - This is the bottom-most section of the transition zone.
  - Can be steeper at 14% to 18% slope
- **Alignment Along River**
  - Ideal angle for most river applications is for the launch edge to be between 30 to 45 degrees downstream from perpendicular to river.
  - This minimizes maintenance and creates a more manageable launching eddy.
- **Launch Elevation**
  - Identify your baseflow, or low elevation. This information can be calculated using local stream gauge data.
  - Know your bankfull elevation. You can visually determine bankfull elevation by identifying where permanent vegetation begins to grow. Bankfull elevation is technically identified as the 1.5 year storm event elevation. You can also use local stream gauge data to calculate the average.
  - The Transition Zone for the launch should ideally fall between these elevations to minimize future maintenance. Hard surface of ramps and armoring (if either is necessary) are typically location between these elevation and do not extend below the baseflow.
  - Construct launches during periods of low flow, typically late summer and early fall.

2 SITE DESIGN

.05 LAUNCH DESIGN

TYPICAL RAMP INFRASTRUCTURE ELEMENTS

(Not to be considered as a typical launch for Cahaba River access.)

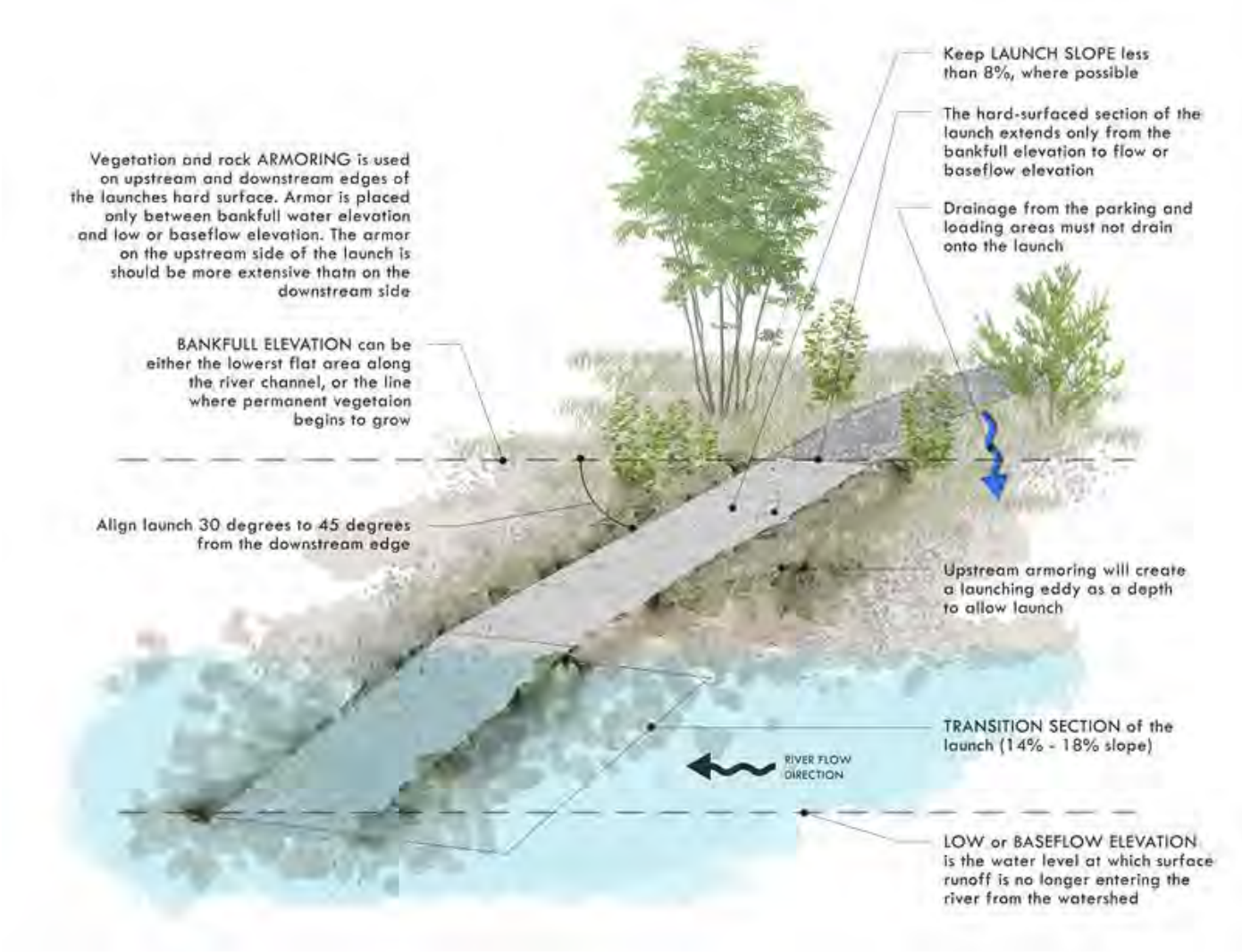


Figure 2-4 Typical Launch Design Components

.05 LAUNCH DESIGN

NATURAL SURFACE LAUNCH DESIGN - $

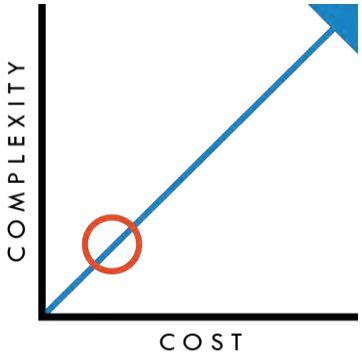


Photo Credit: Paul Freeman

Natural launches work with existing topography and materials as much as possible. Rock outcroppings are logical launch locations that naturally create slower eddies for easy access.

Ideal for volunteer based efforts. However, these efforts should always have some type of professional guidance.

Natural surface launches can range from a completely unimproved site (one that is suitable without added infrastructure) to sites where a formal path and/or a prepared launch surface are established that are permeable and maintain the natural character of the site. Ideally, these sites should have an existing firm and stable river bank and bottom. However, if improvement is necessary, the path and/or launch surface may consist of crushed stone, which can be stabilized with any number of concrete or synthetic cellular mats that are anchored in place and backfilled with materials. This is called a "stabilized natural surface."

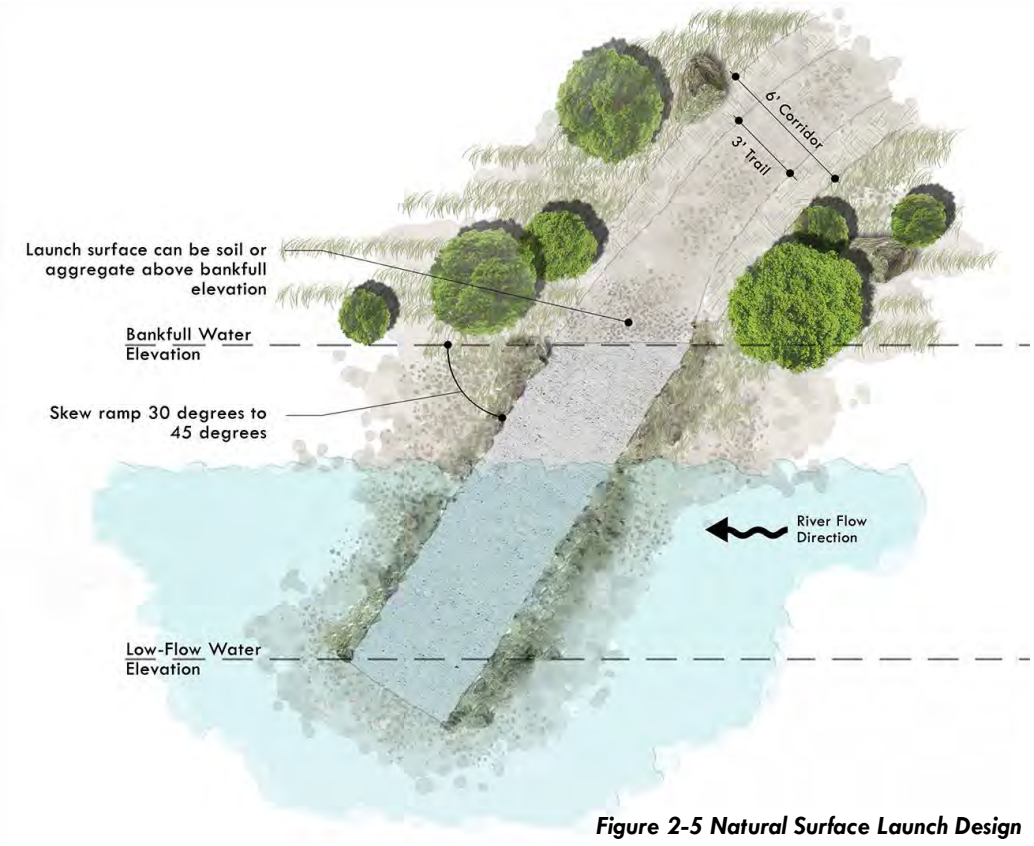


Figure 2-5 Natural Surface Launch Design

.05 LAUNCH DESIGN

NATURAL SURFACE LAUNCH DESIGN EXAMPLES

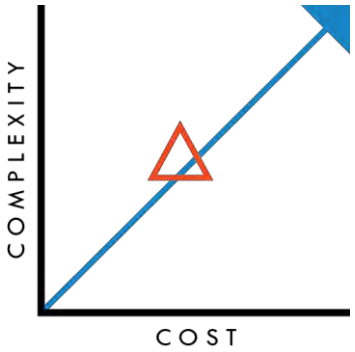
The Lewis and Clark River canoe launch at the Lewis and Clark National Historical Site in Washington State (right) is an excellent example of a stabilized natural surface launch. It utilizes *Turfstone* pervious pavers to stabilize crushed gravel and topsoil, which fill the voids.

The "Canoe Beach" access at the Cahaba River National Wildlife Refuge (below) is less firm, but a very accessible sandy beach setting for a natural surface canoe launch that is popular with ***Cahaba River*** paddlers.

Photo Credits: Brian Rushing

.05 LAUNCH DESIGN

STAIRS / TERRACES LAUNCH DESIGN - $$



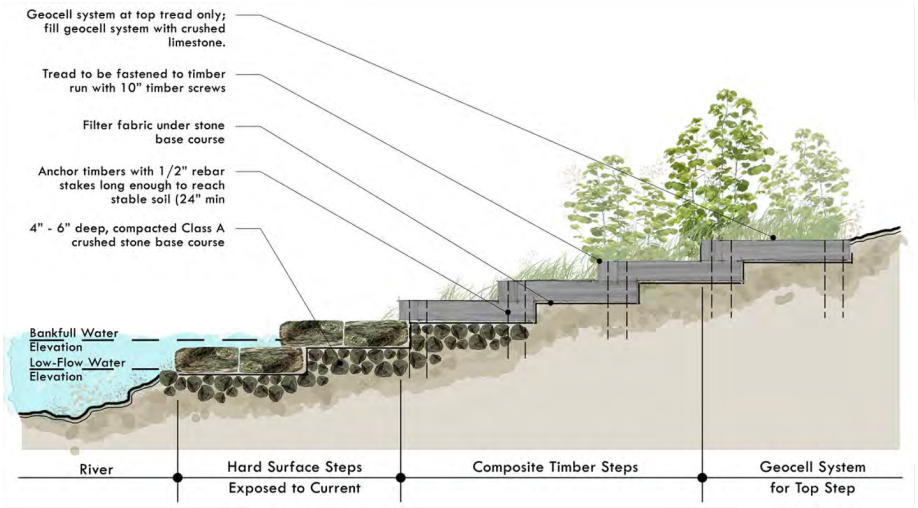


Figure 2-7 Stair-Step Launch Section

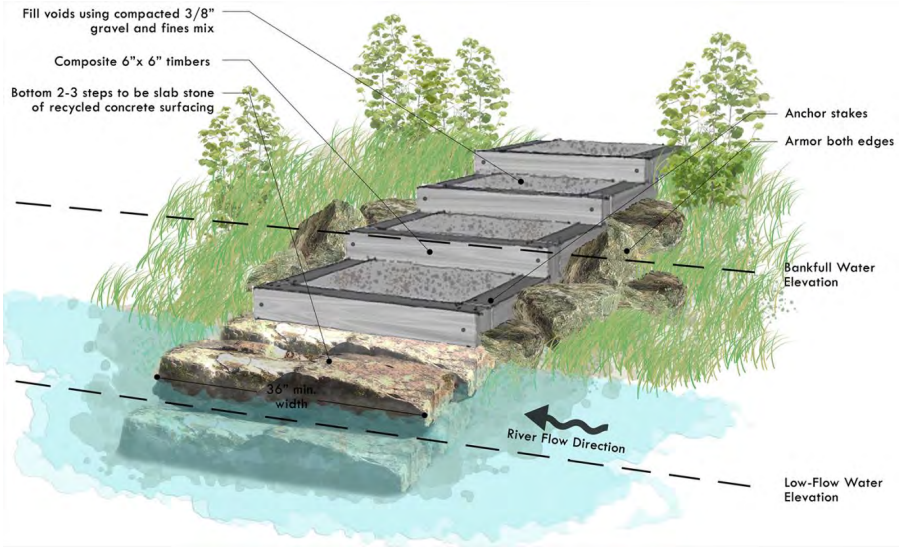


Figure 2-6 Stair-Step Launch Perspective

The Stairs/Terraces design is most commonly used in moderate to steep streambank situations. The challenge in this access type is users must be able to maneuver steps and possibly steep climbs. Care should be taken to utilize stable stream banks with the least elevation change.

Equal steps and tread are desireable, but it is most important to minimize bank disturbance and potential for erosion.

Using native stone for stair treads creates a natural and attractive look while maximizing durability. Adding handrails and canoe slides can improve accessibility and ease of use. However, these features should be placed well above the typical flood elevation.

When placing such steps into the river bank it is **critical to mimic the natural bank profile**. Using hand-placed native stone along the stair / terrace sides will soften hard edges that can often cause erosion due to water turbulence.

.05 LAUNCH DESIGN

STAIRS / TERRACES LAUNCH DESIGN EXAMPLES

The accesses at Mountain Brook Cahaba Riverwalk (right) and Cahaba Irondale Riverwalk (below) utilize designs that incorporate native stone steps and take advantage of pre-existing bedrock at the water's edge to provide safe, sustainable, and durable water access on the ***Cahaba River***. In both cases, the launch infrastructure preserves the natural river bank profile, minimizing the risk of erosion and costly maintenance. **These sites protect and celebrate the natural character of each location and create enjoyable places for people to visit again and again.**

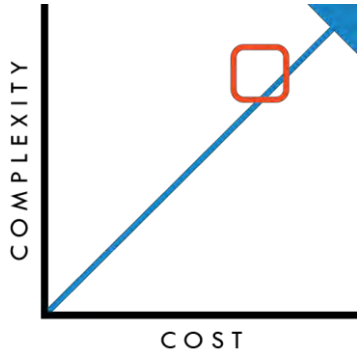
Due to topography and river bank conditions, accesses like these will be most common along the ***Cahaba River*** **upstream of the Fall Line at Centreville.**

Photo Credits: Brian Rushing

.05 LAUNCH DESIGN

Traditional cast-in-place concrete launches are typically the most disruptive type of launch installation and the least natural. They are impermeable and often create significant water quality issues and impacts on stream biology around where they are located. Where hard ramps are needed, a more environmentally sustainable alternative is the use of permeable articulated concrete mat systems (see next page).

CONCRETE RAMP LAUNCH DESIGN - $$$



The advantages of concrete ramp launches are easier sediment removal (especially if the launch is installed at the proper 30% to 45% angle to flow), durability, and ease of access to the water's edge.

Concrete ramp launches should match existing slopes as much as possible while maintaining a target 8% slope. Plan for slope stabilization on disturbed areas.

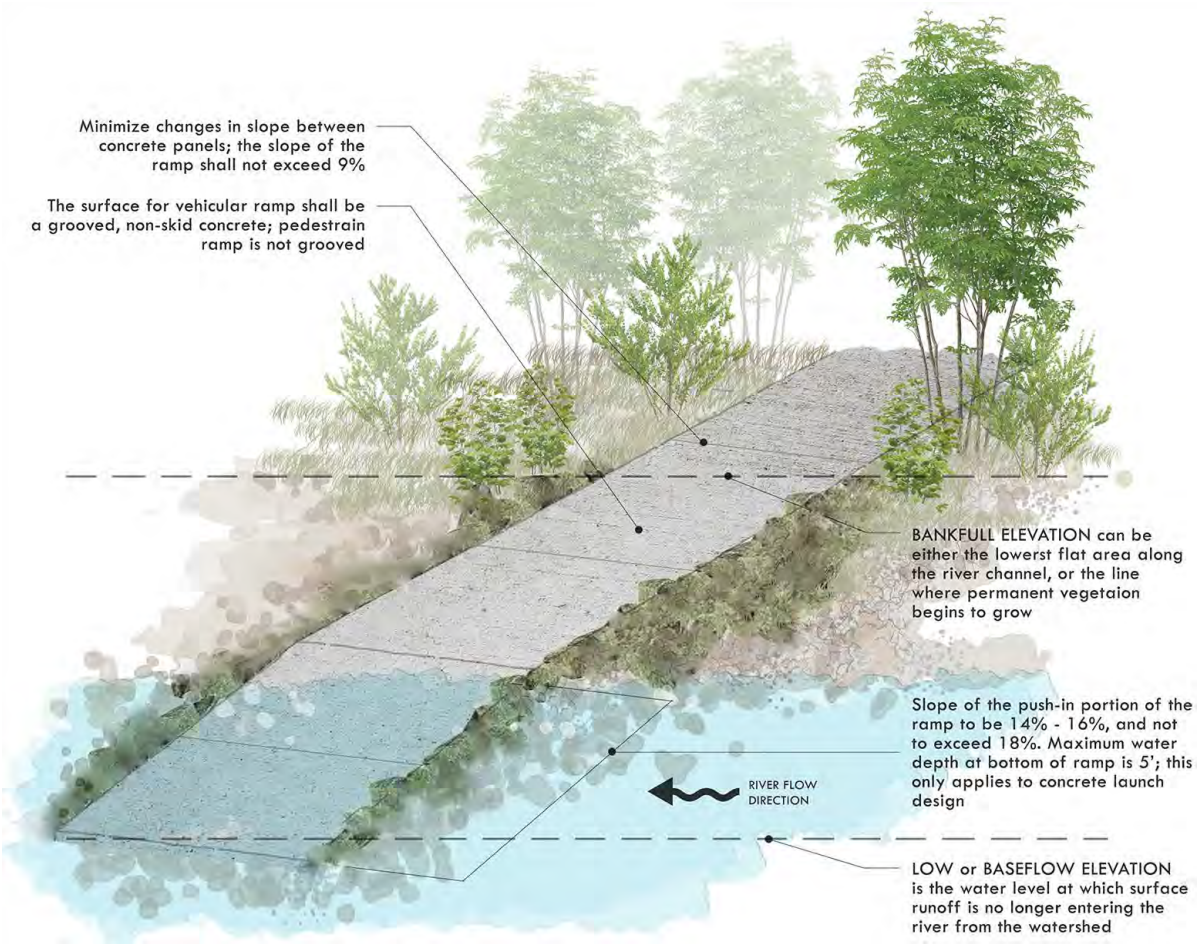


Figure 2-8 Concrete Launch Perspective

2 SITE DESIGN

.05 LAUNCH DESIGN

Photo Credit: Brian Rushing

PERMEABLE CONCRETE RAMP LAUNCH EXAMPLES

Articulated concrete mat systems like the ones used by the West Virginia Department of Conservation (below) and the Tate Access at Living River on the ***Cahaba River*** (right) are permeable and are a **more environmentally sustainable alternative** to traditional cast-in-place concrete ramps that can create significant adverse impacts on the river environment.

Due to topography and riverbank conditions, accesses like these will be most common along the ***Cahaba River*** **downstream of the Fall Line at Centreville.**

Photo Credit: wchstv.com

2 SITE DESIGN

.05 LAUNCH DESIGN

USER ACCESSIBILITY

- Accessibility to the ***Cahaba River*** for people of all abilities is an important goal. However, due to the river's characteristics, many access locations will be difficult to design for full accessibility to the water's edge without significant cost and impact to the river's natural qualities. Achieving "universal access" will first require identifying sites that are **naturally conducive** to such development. These will be ones that are relatively level with a river bank that has a shallow slope and where the river waters are calm.
- At sites where universal water acess is not feasible, consider opportunities for people with disabilities to enjoy other aspects of the site like a viewing area or upper-level trail. **This is an important consideration when using federal funds, which require compliance with the Americans with Disabilities Act.**
- **Refer to Chapter 10, Section 17 of the *Architectural Barriers Act Standards* for information on how to make your recreation site ADA compliant.**

An ideal launch environment for most users. *Photo Credit: Janet Zeller, USDA Forest Service*

UNIVERSAL WATER ACCESS DESIGN ELEMENTS

You should develop sites that are naturally conducive to universal water access with the following goals in mind:

- Firm and stable surfaces to support paddler movements.
- Paddlers must be able to stabilize watercraft during transition.
- Slope should be as close to 5% as possible at water's edge. Stay below 8.33% whenever possible.
- Launch surface should be as close as practical to water level.
- Allow for a walking / staging area of at least 5' width alongside watercraft. Ideal conditions are between 6'-12' width for the length of the watercraft.

See more information in Iowa DNR Water Trails Toolkit: http://www.iowadnr.gov/portals/idnr/uploads/riverprograms/chap3.pdf?amp;tabid=875

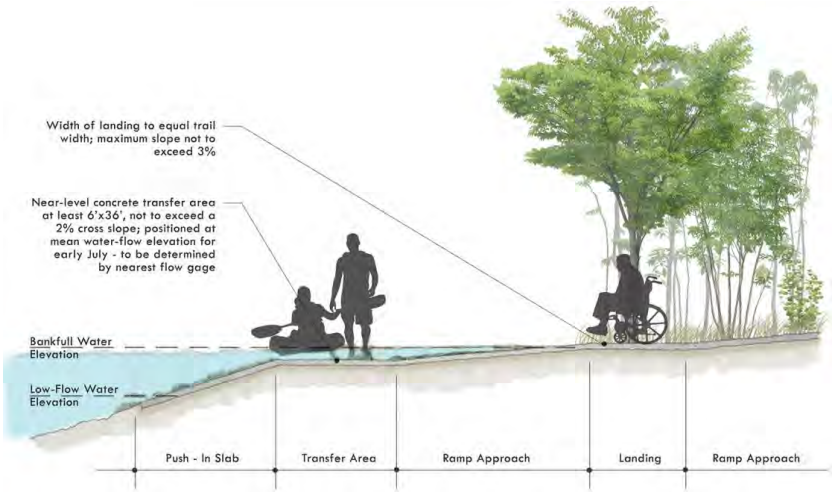


Figure 2-9 Example Paved Universal Launch Cross-Section

.06 PARKING AREA DESIGN

Off-road parking is a must for a quality, accessible launch. Parking on the shoulder of the road is unsafe for users and passers-by. Parking areas should be designed to minimize land disturbance and river impact while accommodating users.

To create paddler-friendly parking areas, designers should:

- Consider including loading lanes.
- Allow adequate parking stalls to ease movement between vehicles and water.
- Place staging areas either adjacent to parking or in upper flood bench to minimize cleared area near the water's edge. These areas are used to assemble gear and put on personal flotation devices.
- Route walking trails between parking areas and launches that make it easy to carry gear and boats. Minimize carry distance.
- Explore options for off-site parking.
- Consider installing in-ground locking stations for boats while paddlers shuttle to and from the take-out.

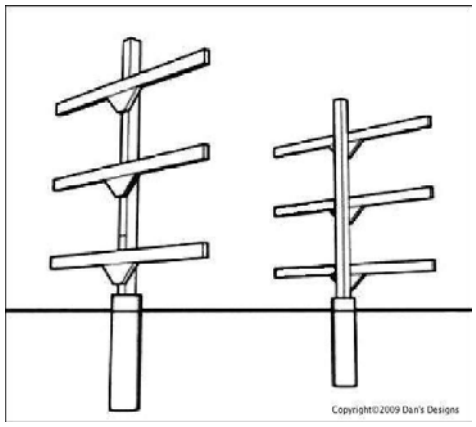


Figure 2-10 Example in-ground locking station. Credit: Dan's Designs

Avoid this situation! Plan for adequate parking and unloading. *Photo Credit: Unknown*

Keep trees for shaded parking. Porous parking areas on flatter surfaces will help to reduce stormw water runoff and impacts to the river. *Photo Credit: Beth Stewart*

.06 PARKING AREA DESIGN

SELECTING PARKING SITES

- Choose a site that is not prone to frequent flooding.
- **Maintain a buffer of at least 50 feet** from top of riverbank whenever possible.
- Minimize vegetation removal and earthwork.
- Aim for a slope between 2 percent and 5 percent across parking areas. Look for areas whose natural grade is close to this range.
- Avoid wetland areas!

LAYING OUT PARKING AND DRIVES

- Drainage is a primary factor to consider when laying out the parking areas. Use low-impact development practices to address stormwater.
- Water from the site should not drain across the parking and launch areas.
- Water from parking should be directed away from the launch area.
- Stormwater runoff should be properly treated to improve water quality before it reaches the river. *See Stormwater Management Best Practices further in this section.*
- Clearly delineate limits of parking areas. Natural materials such as stone and wood are a softer way of defining areas.
- Use wheel stops and other edging that disperse water rather than concentrating flow. Avoid curb and gutter systems and piping.
- Plan for an adequate number of accessible parking spaces.

Figure 2-10 Stormwater Flow Near Parking Area

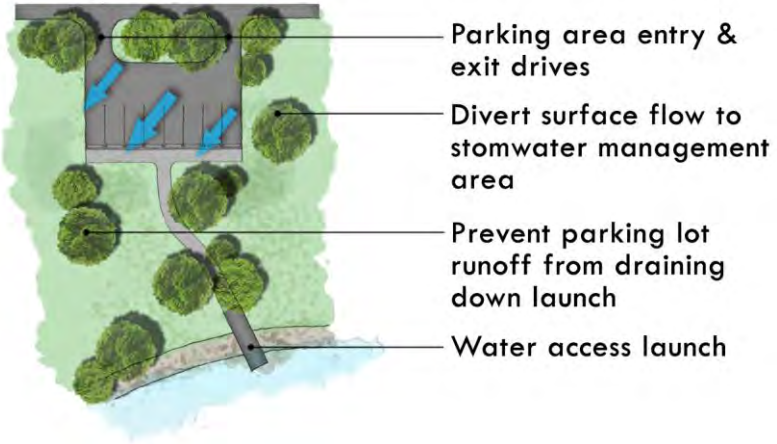


Figure 2-11 Stormwater Flow From Parking Area

.07 LOW IMPACT STRATEGIES

The materials and design of an access site should complement its location. Always consider cost-effective, low-impact strategies. Below are several opportunities to implement these methods:

MINIMIZE SITE CLEARING

- Work with existing topography to minimize necessary grading.
- **Preserve as much existing vegetation on the site as possible, especially trees and shrubs within 50 feet of the river bank!** This will prevent erosion, keep the river bank stable, and help to maintain the tree canopy that can provide shade for picnic and parking areas.

USE PERVIOUS SURFACES

- Pervious surfaces such as crushed stone, resin bound crushed stone, cellular grid pavers, and porous conrete help to provide solid surfacing where needed for pedestrian and vehicular paving while still providing a porous surface that slows stormwater and allows it to percolate into the ground on-site. Types of pervious paving should be selected for particular use areas (pedestrian/vehicular, high/low volume).

USE LOCAL CONSTRUCTION MATERIALS

- Use local materials, such as sandstone, etc. These materials are typically more cost efficient, readily available and complement the existing character of the site. **Avoid use of rip rap, which does not complement natural site character and is an uneven, unsafe surface for users.**

UTILIZE RESPONSIBLE CONSTRUCTION PRACTICES

- Proper construction methods and oversight can assist in avoiding unnecessary delays, regulatory issues and environmental damage.
- Consider the time of year and river conditions when determining construction times. **August-October is best to avoid delays and impacts due to high water and rain.**
- Secure all necessary approvals and permits.
- Standard sediment fences and erosion control Best Management Practices are often insufficient to protect the ***Cahaba River*** from muddy runoff. Develop, implement, and maintain a robust quality sedimentation and erosion control plan that incorporates added protections like double sediment fences with staked hay bales in between and mulch socks. These protections should be located outside of the floodway and monitored daily and repaired immediately. Implement erosion control program prior to earthwork or clearing and maintain it until the site is revegetated and stabilized. Remove all erosion control materials as soon as the site is stable.
- Install permanent vegetation, erosion control mats, etc. and as soon as construction is completed in an area.
- Phase work so that grading occurs in small sections with construction and stabilization achieved quickly.

SEDIMENT CONTROL IS CRITICAL !!!
The #1 threat to water quality in the *Cahaba River* is *sediment pollution, which is a cumlulative problem. One single poorly-controlled construction site can have a significant impact.*

2 SITE DESIGN

.08 VEGETATIVE RESTORATION

- Plan for and restore any disturbed areas to mitigate stormwater runoff and provide habitat.
- The best plant material is that which is naturally occurring within the access site. Native plant material is better adapted to the site conditions, which is better for long term considerations of maintenance. Look for harvesting programs, such as Birmingham Botanical Gardens, that collect seed from on-site for revegetation projects.
- Plant material should be chosen based on the appropriate site specific use (i.e. slope stabilization, parking area, stormwater management area).
- Alabama Cooperative Extension Service provides a list of predominant and often commercially available native trees, plants and grasses that are found along the ***Cahaba River***.

Alabama Cooperative Extension Service Recommended Vegetation:
http://www.aces.edu/waterquality/streams/general.htm#veg

Embankment & Stream Restoration at Shades Creek – A Tributary of the Cahaba River

Hardwood Reforestation

Photo Credits: (Top-Bottom) AL Cooperative Extension Service; Unknown.

.09 STORMWATER MANAGEMENT BEST PRACTICES

Managing the natural rainfall on-site is one of the best practices we can implement for our river. There are many ways of addressing stormwater so that the quantity of stormwater moving off-site is reduced and of better quality.

Some things to consider when addressing stormwater:

- Protect existing drainage patterns in the launch site.
    - Alter swales only to the extent required to slow runoff and reduce erosion.
- Avoid piped stormwater emptying into river, across paths and launches, or close to the bank.
- Aim to capture, infiltrate and treat water from parking areas during 1" storm events before it reaches the river to the greatest extent possible.

Following are a few of the most common and easily implemented methods. Several great resources exist for designing and engineering integrated stormwater design, such as Alabama Cooperative Extension Service.

See Appendix B References.

VEGETATED FILTER STRIPS

- Appropriate to use in areas with a seasonal high water table or areas that flood frequently.
- Can also be used in areas that have significant slope (>15%)
- Preserve existing forest to the greatest extent possible as the most effective filter.

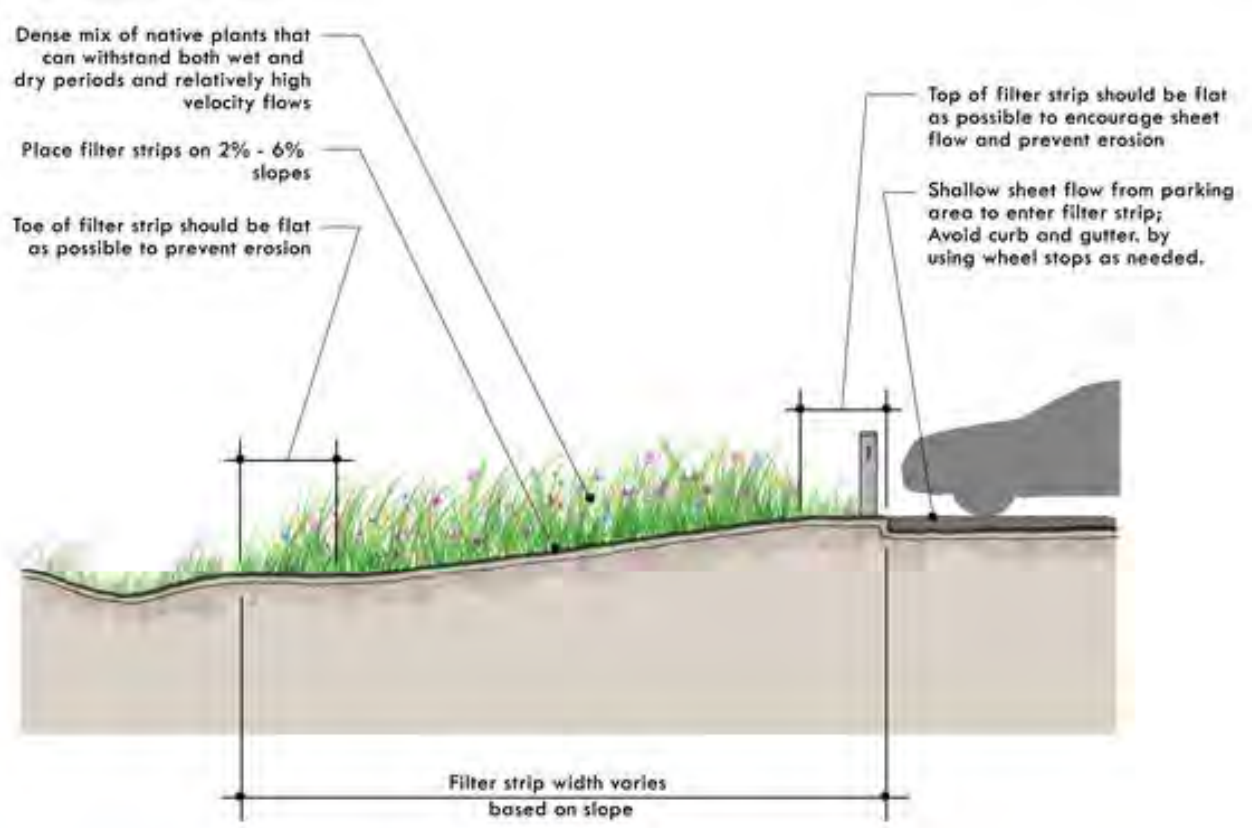


Figure 2-12 Vegetated Filter Strip

.09 STORMWATER MANAGEMENT BEST PRACTICES

INFILTRATION TRENCH

- Typically a stone basin to engineer to allow for storage and infiltration.
- Appropriate to use in areas without a high water table and where flooding is not frequent.
- Should be used in area where slope is <15%.

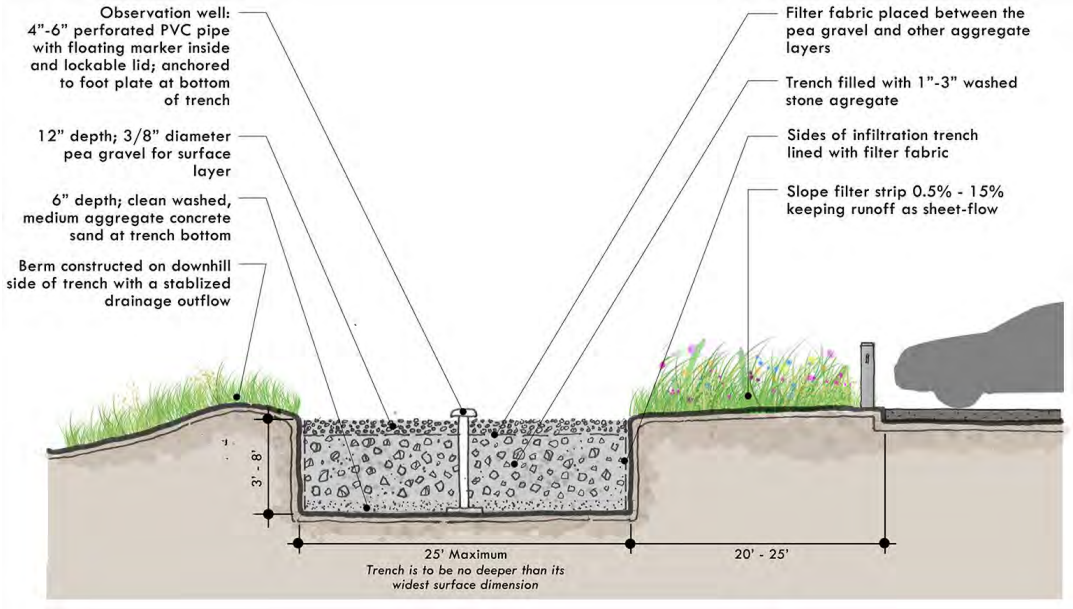


Figure 2-13 Infiltration Trench

BIORETENTION AREAS

- These are vegetated depressions engineered for storage and filtration.
- Appropriate to use in areas without a high water table and where flooding is not frequent.
- Should be used in area where slope is <15%

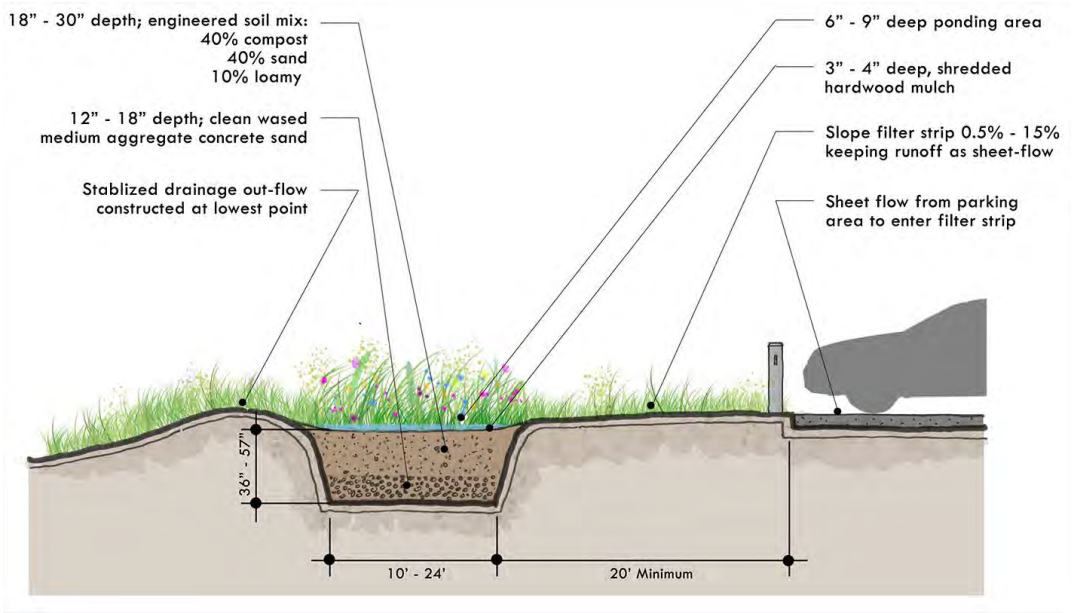


Figure 2-13 Bioretention Areas

2 SITE DESIGN

.10 CONNECTOR TRAIL DESIGN

A good *Cahaba River* access site provides convenient parking for vehicles and connectivity to the launch as well as other amenities nearby while preserving the natural values of the site, protecting the river from sediment and other pollutants, and keeping costs low.

- Trail surfaces should be selected from low-impact, permeable, and durable materials, with hard-surfaces limited only to heavy pedestrian use areas.
- Paved trails generally parallel to the river should be set back at least 50 feet where possible and should be sited to preserve as many trees as practicable.
- Trails closer to the river should be soft-surface paths that wind through existing trees, minimizing the need for vegetation removal.
- Limit tree and shrub removal and pruning to within 3-4 feet of the trail.
- Find ways to build trails that minimize need for heavy equipment.
- Limit removal of vegetation to enhance the view of the river only to invasive exotic species like Chinese privet and mimosa, and only do so if there is native vegetation that will keep the river bank stable or as part of a planned vegetation restoration project.
- Consider connecting to nearby existing trails, parks, playgrounds, etc.
- Refer to **Chapter 10, Section 17** of the ***Architectural Barriers Act Standards*** at for information on how to make your trails ADA compliant.
- Trail maximum slope should be 10 % to the extent possible
- Portage trail maximum slope should be 12.5 % to the extent possible
- Maximum trail cross-slope should be 2 percent to the extent possible.
- Minimize areas where water must traverse the trail slope.
- Trails should be a minimum of 3 feet wide to accommodate foot traffic in a single direction. 5-6 feet allows for side-by-side passing and walking.

Photo Credit: Brian Rushing

2 SITE DESIGN

.11 SITE AMENITIES

Consider additional amenities on a site-by-site basis based upon public input, available resources, and preservation of natural site character. These features can include restrooms, changing facilities, water fountains, picnic areas, camping areas, and trash collection.

OPEN-AIR STRUCTURES:

- Locate structures to capture natural views and work with existing site conditions.
- Use locally available or reclaimed materials.
- Materials should be selected to complement the character of the site, maximize durability, and minimize maintenance needs.
- Paddler camping areas (by permit from a local police department) can make long-distance trips on the ***Cahaba River*** very popular.
- Build outside of the floodway.

Changing room example. *Photo Credit: Timothy Hursley*

Paddler camping shelter along the Little Miami River, Milford, OH.
Photo Credit: Brian Rushing

Picnic and event pavilion, Perry Lakes Park, Perry Co., AL.
Photo Credit: Lea Ann Macknally.

2 SITE DESIGN

.11 SITE AMENITIES

Example pre-fabricated pit toilet, Dayton, OH. *Photo Credit: Brian Rushing*

CLOSED STRUCTURES:

- Select materials to complement the character of the site, maximize durability, and minimize maintenance needs.
- Consider the use of low-flow or composting toilets in coordination with local governing authority.

  Can involve significant added cost, but will make sites attractive for the public to use.
- Build outside of the floodway.
- Always properly maintain restroom facilities, if provided.

Example canoe / kayak storage and rental facility. *Photo Credit: TYIN Architects*

2 SITE DESIGN

.11 SITE AMENITIES

WATER SERVICES:

- Access to potable drinking water is an asset for all visitors to ***Cahaba River*** access points.
- You can provide water without providing a large structure. Water fountains or water stations require small service lines. Providing access to drinking water can ultimately reduce litter by reducing bottled water needs!

PICINIC AREAS:

- Clearly defined picnic areas help to organize the uses of the access site.
- Arrange secured tables adjacent to accessible walking surfaces and out of areas prone to frequent flooding.

Photo Credits: Not Available

2 SITE DESIGN

.11 SITE AMENITIES

TRASH COLLECTION:

- Clearly defined and easily accessed trash receptacles and collection areas encourage users to properly dispose of litter.
- Identify early in the planning process **WHO** will be responsible for trash collection from the site. Coordinate with local municipalities.
- Identify the target number of users to adequately size the trash collection services needed.
- Trash collection can also be a site policy decision. No trash cans and a policy of pack-in / pack-out may be better than poor service. /Signage should adequately inform users of trach policies.

Avoid this!

Photo Credits: Not Available

2 SITE DESIGN

.12 WAYFINDING

Wayfinding signage is important for public awareness of access points, communicating river safety information, and promoting appropriate use of access points. Consider coordinating directional and identification signage early in the planning process.

The Cahaba Blueway initiative has developed the ***Cahaba Blueway Wayfinding Guidelines*** as a reference for developing wayfinding signage that is consistent, recognizable, and informative. For information on how to access these guidelines, contact The University of Alabama Center for Economic Development, the Cahaba River Society, or The Nature Conservancy of Alabama.

Figure 2-14 Example Cahaba Blueway wayfinding sign.

Photo Credit: Beth Stewart

3 MANAGEMENT PRACTICES

.00 USER EXPERIENCE

Each potential access point will have its own challenges, opportunities, and unique character. Identifying these early on in the development of an access point will help to define what the long-term needs are for keeping a site at a quality level that will attract socially-conscious users and promote personal investment in the river.

Investment into the long-term management of access points will encourage positive usage and promote additional economic development opportunitie nearby.

Photo Credit: Brian Rushing

.01 PUBLIC SAFETY

An attractive access point is one that has a sense of safety, particularly for small groups and families. A plan must be in place to provide oversight of the location. Below are basic safety considerations to incorporate into your launch site.

- Outreach to local emergency service providers is essential so that they will be familiar with each site and know who is providing what services. **Law enforecment should patrol the access site on a frequent and regular basis!!!**
- Signage displaying local emergency service telephone numbers is highly recommended at each site.
- The American Canoe Association has great resources for general paddling safety guidelines. http://www.americancanoe.org/?page=Resources
- Clear sight lines to parking areas from public road, provided that native vegetation is preserved.
- Post hours of use! Generally, sunrise to sunset is recommended unless camping is permitted.
- Maintain the facilities!

.02 GENERAL MAINTENANCE

Thoughtful maintenance of an access site is critical to promoting consistent public use, maintaining the natural character of the site, and preserving the ***Cahaba River***. You should develop a maintanence plan during the master planning phas of your project that identifies tasks, when they should take place, and by whom. Consider engaging volunteers through establising a friends group to reduce costs of maintenance and enhance local pride in the site. Routine maintenance tasks include the following:

- Trash Collection
  - If waste receptacles are provided, make sure they are located outside of the river's floodway and are regularly emptied.
  - Regularly remove all trash from the public use area

- Routine Inspection
  - Regularly inspect all infrastructure (parking area, trails , launch, and associted facilities), signs, etc. to make sure they are in good working order and that no erosion is occuring.
  - Promptly correct (stabilize, revegetate, etc.) erosion that occurs and repair/replace infrastructure and signs promptly as needed. If erosion issues are significant, seek guidance from the ***Cahaba Blueway Partners*** on how best to correct the issue.

- Vegetation Management

[See following page]

.02 GENERAL MAINTENANCE

- Vegetation Management

  - Develop and adopt a **vegetation management plan** that preserves all native trees and shrubs on the site to the greatest extent possible, especially within 50 feet of the river bank.

  - Designate **one person** to be in charge of implementing the plan and training and supervising employees and volunteers who work on the site.

  - Limit removal of trailside vegetation to 3-4 feet from the edge of the trail to maintain a clear walking path.

  - Limit native tree removal to only those trees that pose a threat to human safety or infrastructure. Leave standing dead trees that do not pose a risk to safety or infrastructure in place - they provide valuable wildlife habitat!

  - Minimize the removal of vegetation to enhance views of the river or to create sight lines from the road. **Wide buffers of native trees and shrubs keep the river bank stable and act as a filter for pollutants carried by stormwater. Preserve these buffers to the greatest extent possible and at least.**

  - minimize mowing and weed-eating as much as possible.

  - Avoid the use of pesticides and herbicides. If herbicides must be used, do so in limited spot applications in areas away from the river and drainages that lead to the river. Consider pulling Chinese privet out by the roots near the river and triburtaries with a "weed wrench" instead of herbiciding.

  - Be aware of special planting areas such as bioswales, sensitive plant species that may exist on your site, and vegetation restoration areas, and include a conservation and management procedures for these features in the vegetation management plan.

Removal of invasive exotic Chinese privet with a weed wrench.
Photo Credit: wildsouth.org

.03 CULTURAL SITE MANAGEMENT

Many potential access sites along the ***Cahaba River*** have significant cultural resources whose history or value can contribute to the overall user experience of the site. You should identify cultural resoruce information during the early project planning phases so that you can adequately plan for the conservation and interpretation of the resource for the public benefit.

Cultural sites also offer distinctive opportunities for a particular access point. These opportunities can provide for an enhanced user experience and numerous partnerships. Look for potential private and public partnerships, such as 'friends' groups or Alabama State Historical Commission to develop a plan to preserve and maintain cultural amenities.

St. Luke's Episcopal Church at Old Cahawba Archaeological Park in Dallas Co. *Photo Credit: www.ruralSWAlabama.org*

Historic railroad trestle. *Photo Credit: Whit Macknally*

.04 RISK MANAGEMENT

Appropriate knowledge of design, construction, and legal responsibilities is important to managing risk when providing a public amenity. Below are some general suggested practices:

- Partner with local municipal resources.
- Provide signage with recommended state-recognized language of risk.
- Develop a long-term management plan.
- Implement and maintain plan.

.05 LONG-TERM MANGEMENT PLAN

A long-term management plan establishes a program that will be managed after performance standards have been achieved to ensure the long-term sustainability of the resource, including long-term financing mechanisms and the party or parties responsible for long-term management. Below are general items that you should clearly identified in the plan.

- Identify the party or parties responsible for ownership and all long-term management of the access site.
- Outline any shared responsibilities, particularly those between public and private partners.
- Detailed description of long-term management needs, such as trash removal, vegetation management, act of nature clean-up, life-cycle replacement for any materials or elements.
- Annual cost estimates for these needs, based on life-cycle replacement costs.
- Identify funding mechanisms used to meet those needs.

In the case that more than one party is partnering for the development of an access point, provide a copy of the plan to each entity. These may include:

- Private landowners
- Local municipality
- Non-profit group
- State and/or Federal agency

Photo Credit: Matt Leavell

APPENDIX A
RESOURCES

.00 FUNDING

- Community Foundation of Greater Birmingham - http://www.foundationbirmingham.org/
- Alabama Department of Conservation and Natural Resources - http://www.outdooralabama.com/
- Alabama Department of Economic and Community Affairs - http://adeca.alabama.gov/Pages/default.aspx
- Regional Planning Commission of Greater Birmingham - http://www.rpcgb.org/
- Alabama-Tombigbee Regional Commission - http://www.atrcregion6.com/
- West Alabama Regional Commission - http://warc.info/
- Ala-Tom RC & D - http://ala-tomrcd.org
- Tombigbee RC & D - http://www.tombigbeercd.com/wp/

.01 MANAGEMENT

- City & County Public Works Departments
- Alabama Cooperative Extension Service - http://www.aces.edu/main/
- Cahaba River Society (***Cahaba Blueway Partner***) - http://www.cahabariversociety.org/
- The Nature Conservancy (***Cahaba Blueway Partner***)- http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/alabama/

.02 PUBLIC SAFETY

- Local Emergency Services
  - Police services
  - Paramedic services
  - Fire & Rescue services
- Utility Services
  - Alabama Power
  - Alagasco
  - AT&T

.03 MARKETING

- Alabama Department of Tourism - http://alabama.travel/
- Alabama Cooperative Extension Service - http://www.aces.edu/main/

.04 REGULATORY AGENCIES

- Municiple governments
- County governments
- Alabama Historical Commission - http://www.preserveala.org
- Alabama Department of Conservation and Natural Resources - http://www.outdooralabama.com/
- Alabama Department of Environmental Management - http://adem.alabama.gov/inside/contact.cnt
- Alabama Department of Transportation - https://www.dot.state.al.us/
- U. S. Army Corps of Engineers, Mobile District- http://www.sam.usace.army.mil/
- U. S. Fish & Wildlife Service, Daphne Field Office - http://www.fws.gov/daphne/es/abm/abm-hcp-steps.html

.05 NONPROFIT ORGANIZATIONS WORKING ALONG THE CAHABA RIVER

- Cahaba River Society (***Cahaba Blueway Partner***)
- The Nature Conservancy (***Cahaba Blueway Partner***)
- Cahaba Riverkeeper (***Cahaba Blueway Partner***)
- Freshwater Land Trust (***Cahaba Blueway Partner***)
- Alabama Rivers Alliance
- Friends of the Cahaba River National Wildlife Refuge
- Friends of Shades Creek
- Judson College

Photo Credit: Beth Stewart

APPENDIX B
REFERENCESSS

.00 EXISTING CONDITIONS

The existing conditions along the Cahaba River vary greatly from the upper watershed down to its meeting with the Alabama River. Below are some character pictures of the existing conditions along the length of the river. These are images are meant to illustrate the wide variety of river conditions.

GRANTS MILL ROAD ACCESS: ***Location of a 2015 pathway and water access improvement demonstration project for access development best practices.*** **Additional site improvements are planned.**

BOOTH'S FORD: ***Easy slope access; erosion at cast-in-place concrete access. Natural rock outcropping makes for easy transition point for paddlers.***

HEIBERGER ACCESS IN PERRY COUNTY: An ideal site for a stabilized natural surface launch to prevent erosion.

HIGHWAY 80 / MARION JUNCTION: ***Rip-rap and steep bank make for a difficult access***

OLD CAHAWBA: ***Stair-step access to river; Level area provides for staging.***

RADFORD ROAD ACCESS IN PERRY COUNTY:
Stair-step access to river on steep slope.

AL HWY 22 IN DALLAS COUNTY:
Active sand deposition along this point bar predisposes this site to natural launch development, but there is opportunity for path development from the parking are to this site.

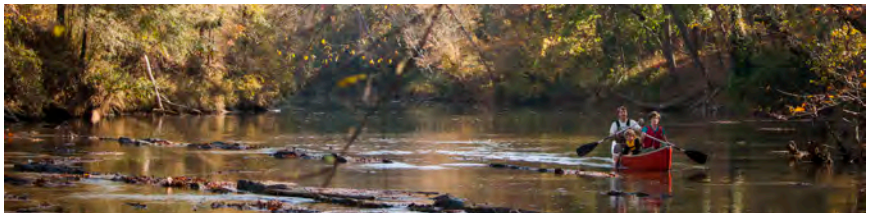
APPENDIX B REFERENCES

.01 CASE STUDIES

The development of quality access points to rivers is not a new topic. Below are links to a few cases studies for reference, many of which have been referenced in the above information.

Information within these case studies provides similar evaluation of funding, design, construction, management, as well as the overall economic impact seen when quality river access points are provided.

- **Iowa Water Trails Toolkit**
  http://www.iowadnr.gov/Recreation/CanoeingKayaking/WaterTrailDevelopmentTools/WaterTrailsToolkit.aspx
- **National Park Service Rivers, Trails, and conservation Assistance Program & River Management Society –**
  Prepare to Launch Toolkit http://www.river-management.org/prepare-to-launch-
- **Florida Fish and Wildlife – Guidelines for Creating Paddling Trails**
  http://myfwc.com/boating/waterway/paddling-trails/
- **Chesapeake Bay Gateways Network**
  http://www.baygateways.net/watertrailtools.cfm



CAHABA BLUEWAY

APPENDIX C
CAHABA BLUEWAY INFORMATION

PROJECT BACKGROUND

The Cahaba River flows for 191 miles through the heart of Alabama, connecting some of our state's most populated and wealthy communities with some of our most rural and economically undeveloped areas. The Cahaba is an incredibly rich natural asset, recognized as one of the most biologically diverse and beautiful rivers in North America. Currently, the Cahaba River is only marginally developed for public recreation. However, through modest investment in infrastructure and public information, it has tremendous potential to become a broadly valued local and national recreational destination that will support economic development and quality of life in Cahaba Blueway Communities.

The University of Alabama Center for Economic Development (UACED) is working in partnership with the Cahaba River Society, The Nature Conservancy, and the Freshwater Land Trust to realize the Cahaba's potential through the Cahaba Blueway initiative.

This initiative will create a formal "water trail" on the Cahaba by providing the infrastructure and information that will make accessing the river easier and the branding that will make the trail marketable. Similar water trails elsewhere in the Southeast and across the country have expanded opportunities for hospitality and retail business while making nearby communities more livable and attractive to prospective residents

PROGRAM DEVELOPMENT

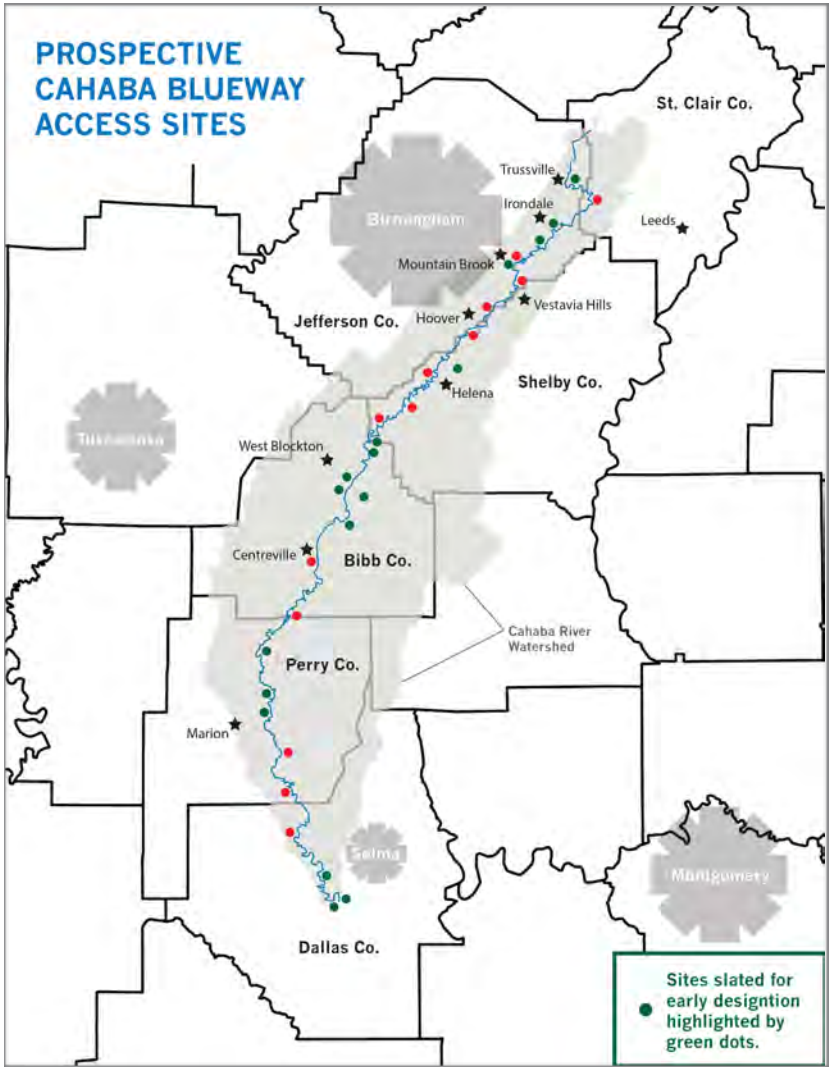
Working with multiple public and private organizations and with input from the general public, the Cahaba Blueway partnership has developed a distinctive brand for the Cahaba Blueway and guidelines for standardized way-finding signage that communities can use when developing their own access points along the river. The brand will be recognizable and marketable, and the signs will provide important and easy-to-understand location and safety information that will enable visitors to have an enjoyable experience in the river. We have also created guidelines for developing river access infrastructure that communities can use to design and construct accesses that are safe, environmentally sustainable, and durable. A pilot project completed in December 2015 at the Grants Mill Access in Irondale demonstrates the successful application of these practices.

Best practices demonstration site at the Grants Mill Access

Way-finding sign example

LAUNCHING THE CAHABA BLUEWAY

As the Cahaba Blueway partnership has developed these programmatic resources, we have been conducting outreach in communities up and down the river to educate local leadership about the initiative and to begin work on local projects to develop the Blueway. Through this process, we have identified a total of 30 prospective Cahaba Blueway access sites from Trussville to Old Cahawba, and all of these lie within lands that are currently publicly accessible. Of these sites, 17 have sufficient infrastructure (or will in the near future) that will meet Cahaba Blueway standards, while the remaining 13 sites are in need of infrastructure improvements. **The existence of 17 sites with sufficient infrastructure will enable the establishment of a working recreational water trail system in an initial implementation phase prior to the development of all sites.** We are currently raising funds from public and private sources to create a website, way-finding mobile app, public awareness campaign, and sign sets for 10 remaining sites that will enable a Cahaba Blueway debut in spring 2018.



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