SMALLER LAKE ACCOTINK

Preservation Feasibility Study

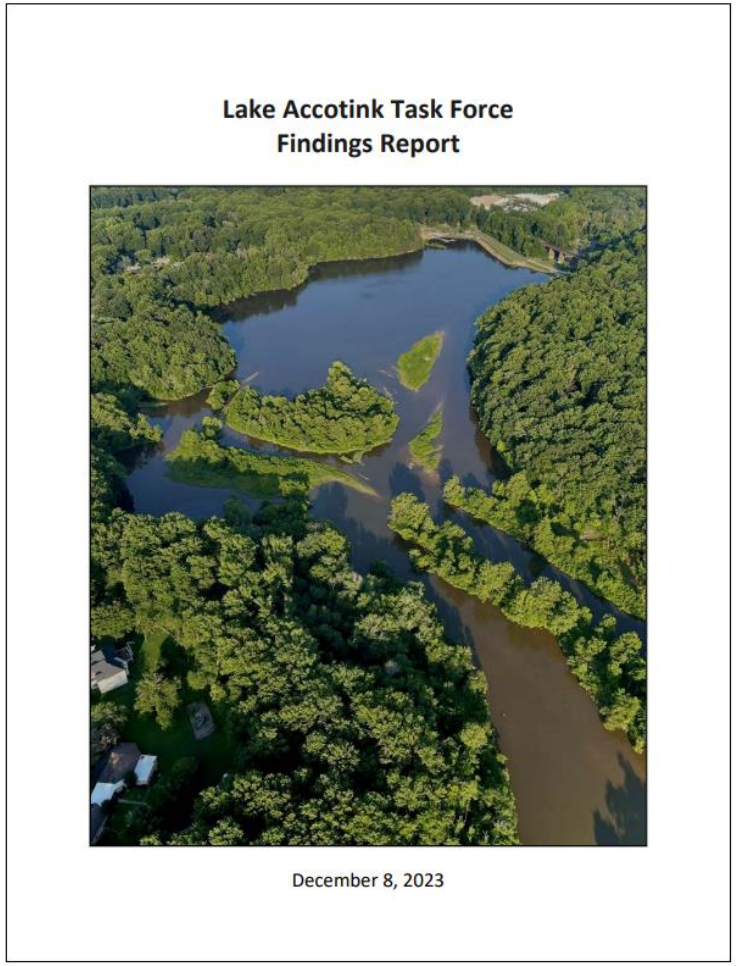
Lake Accotink Preservation Feasibility Study

Update

March 2025

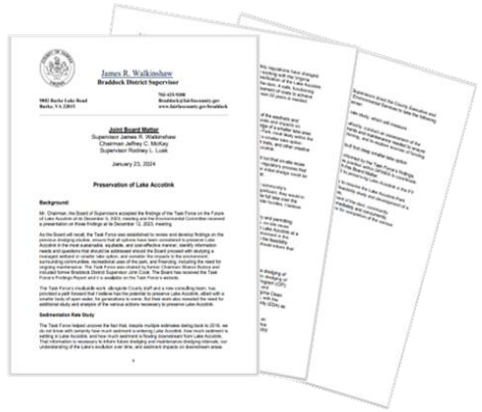
Fairfax County, Virginia

Lake Accotink Task Force



- Task Force finds that:
  - A smaller lake:
    - 20 to 40 acres
    - Regular maintenance
  - Could include:
    - A managed wetland
    - A grassland
  - ***Can preserve a significant open water feature***

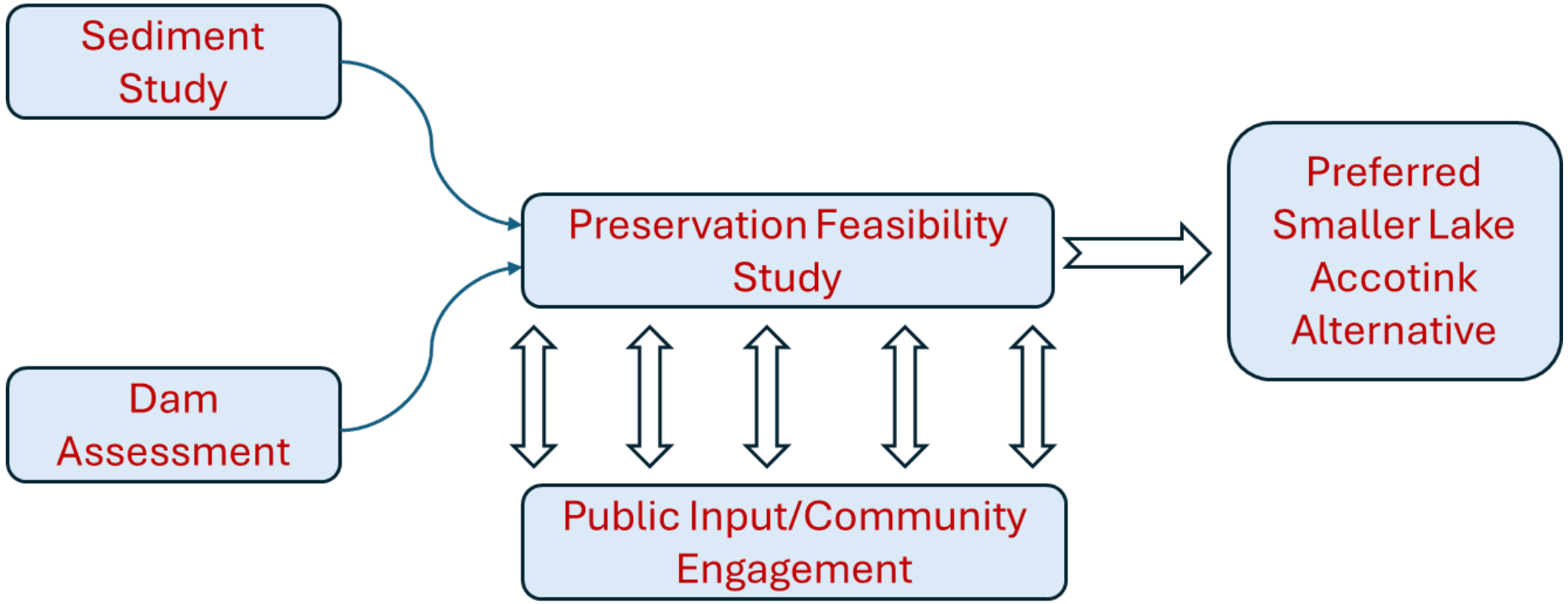
Joint Board Matter - January 23, 2024



- Sedimentation Rate Study (3-yr period)
- Dam assessment study
- Feasibility study
- A robust community engagement plan

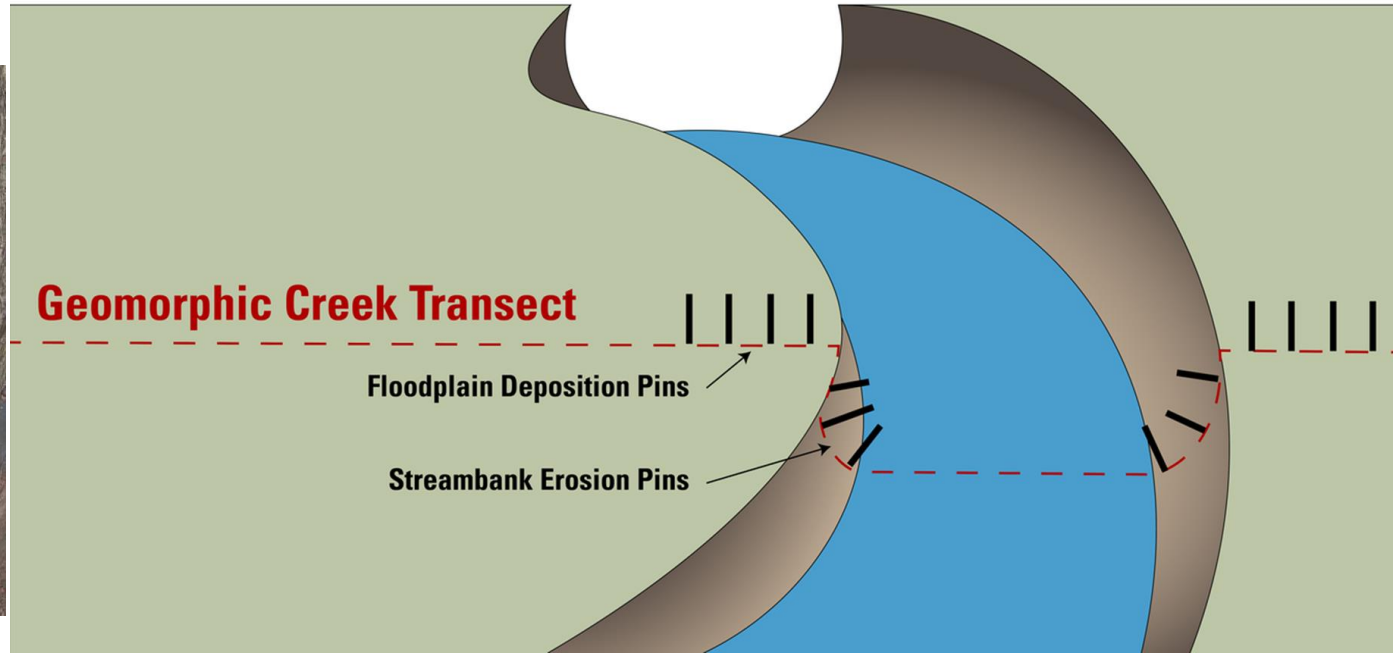
- Studies and community engagement to proceed concurrently

Feasibility Study Elements

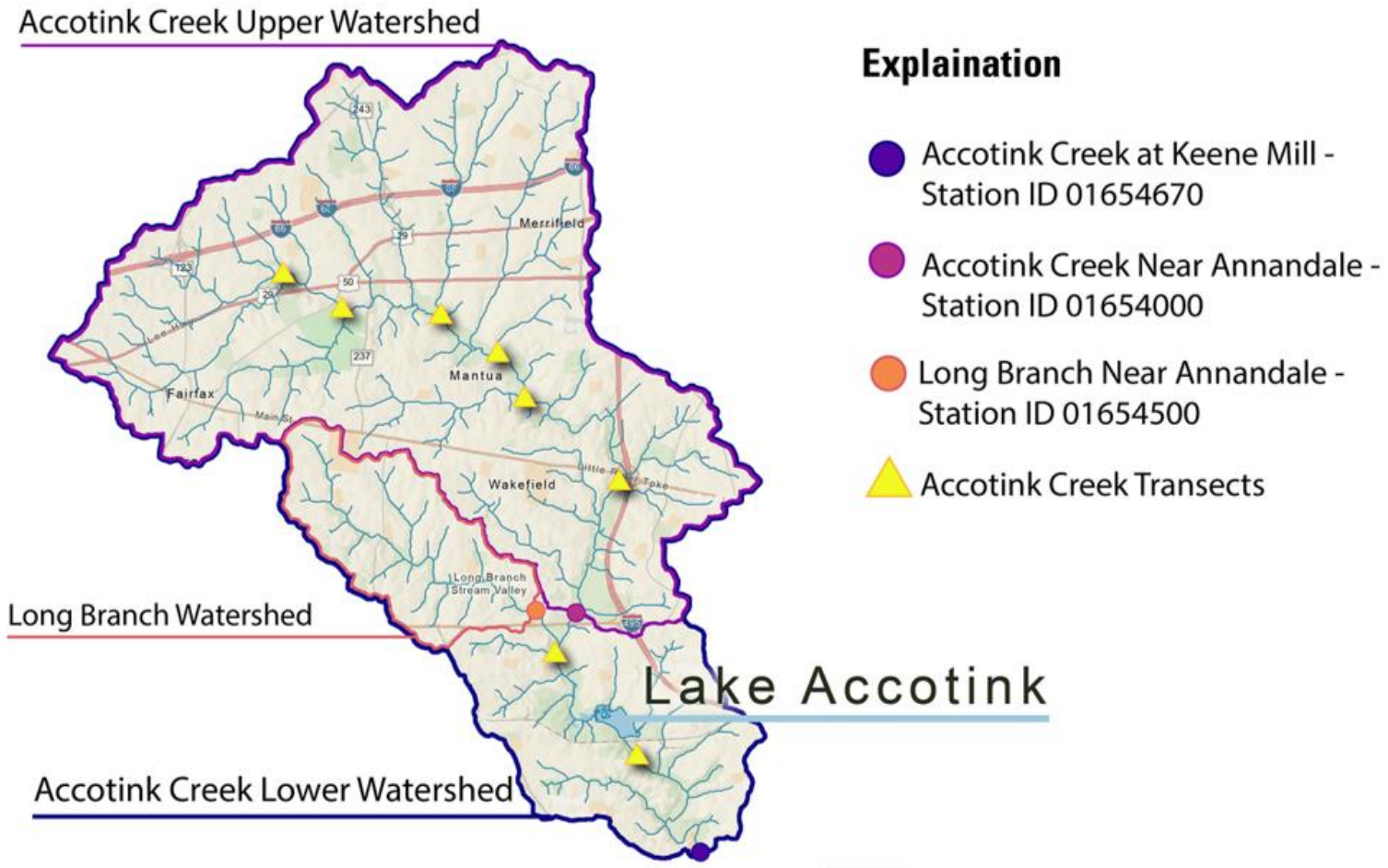


Update – Sedimentation Study (USGS)

- New stream gage installed & operational
- Bank and floodplain pins are installed

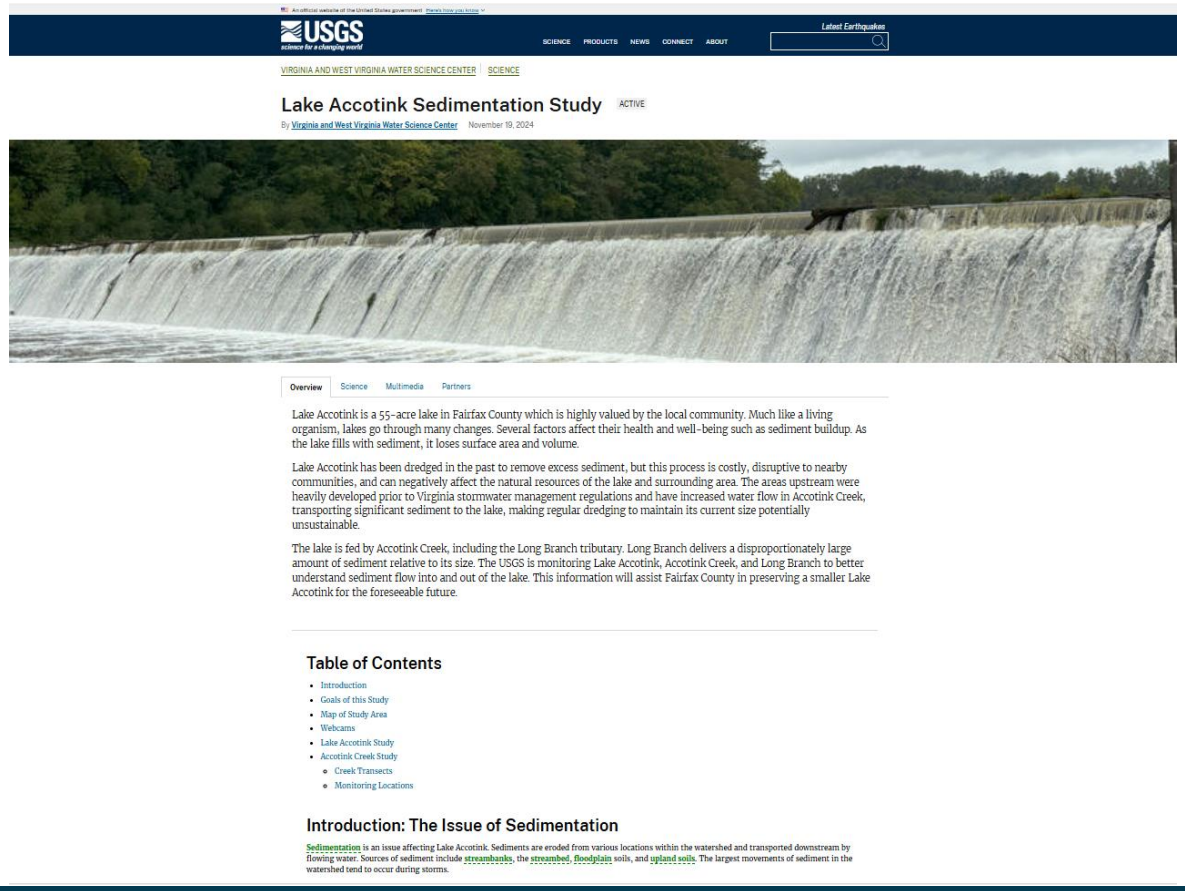


Update – Sedimentation Study (USGS)



Update – Sedimentation Study (USGS)

https://www.usgs.gov/centers/virginia-and-west-virginia-water-science-center/science/lake-accotink-sedimentation-study



USGS science for a changing world

SCIENCE PRODUCTS NEWS CONNECT ABOUT Latest Earthquakes

VIRGINIA AND WEST VIRGINIA WATER SCIENCE CENTER | SCIENCE

Lake Accotink Sedimentation Study ACTIVE

By Virginia and West Virginia Water Science Center November 19, 2024

Overview Science Multimedia Partners

Lake Accotink is a 55-acre lake in Fairfax County which is highly valued by the local community. Much like a living organism, lakes go through many changes. Several factors affect their health and well-being such as sediment buildup. As the lake fills with sediment, it loses surface area and volume.

Lake Accotink has been dredged in the past to remove excess sediment, but this process is costly, disruptive to nearby communities, and can negatively affect the natural resources of the lake and surrounding area. The areas upstream were heavily developed prior to Virginia stormwater management regulations and have increased water flow in Accotink Creek, transporting significant sediment to the lake, making regular dredging to maintain its current size potentially unsustainable.

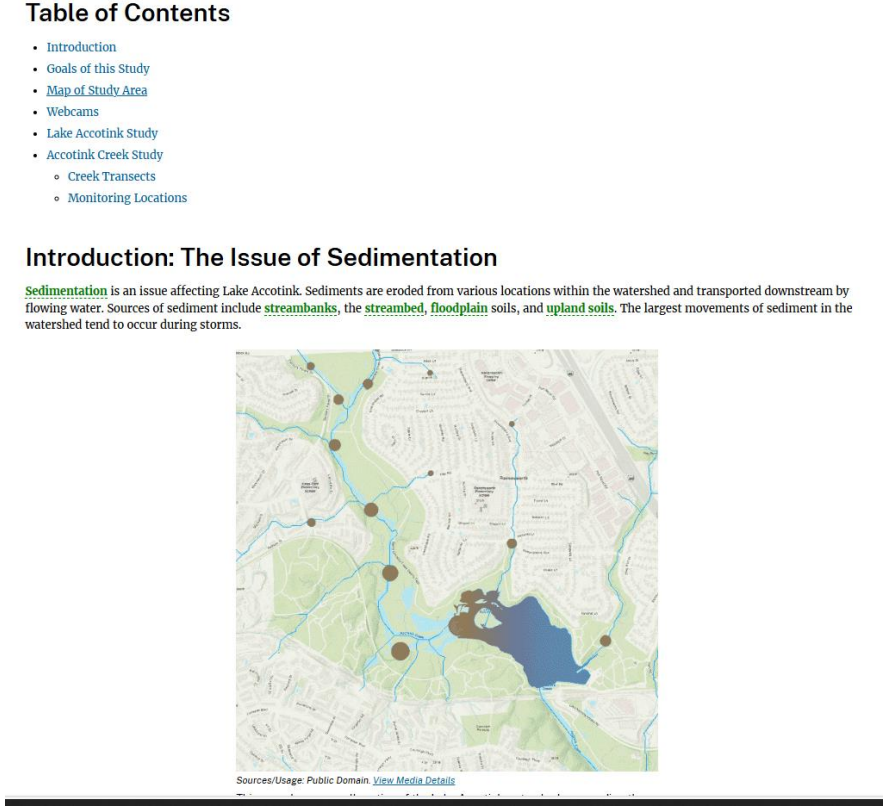
The lake is fed by Accotink Creek, including the Long Branch tributary. Long Branch delivers a disproportionately large amount of sediment relative to its size. The USGS is monitoring Lake Accotink, Accotink Creek, and Long Branch to better understand sediment flow into and out of the lake. This information will assist Fairfax County in preserving a smaller Lake Accotink for the foreseeable future.

Table of Contents

- Introduction
- Goals of this Study
- Map of Study Area
- Webcams
- Lake Accotink Study
- Accotink Creek Study
  - Creek Transects
  - Monitoring Locations

Introduction: The Issue of Sedimentation

Sedimentation is an issue affecting Lake Accotink. Sediments are eroded from various locations within the watershed and transported downstream by flowing water. Sources of sediment include streambanks, the streambed, floodplain soils, and upland soils. The largest movements of sediment in the watershed tend to occur during storms.



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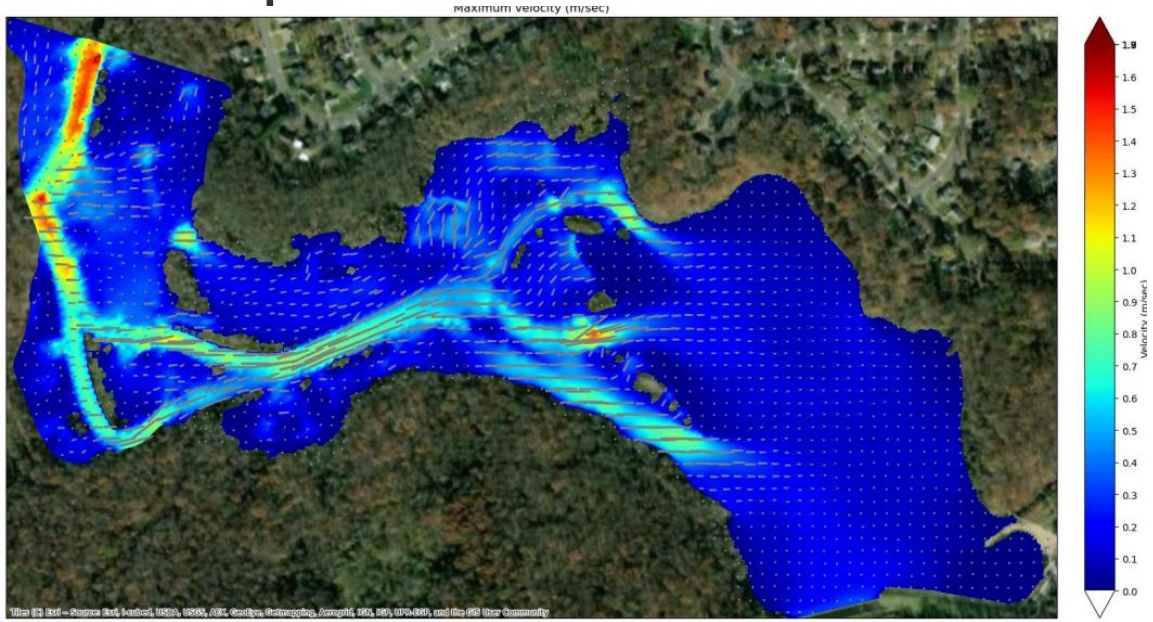
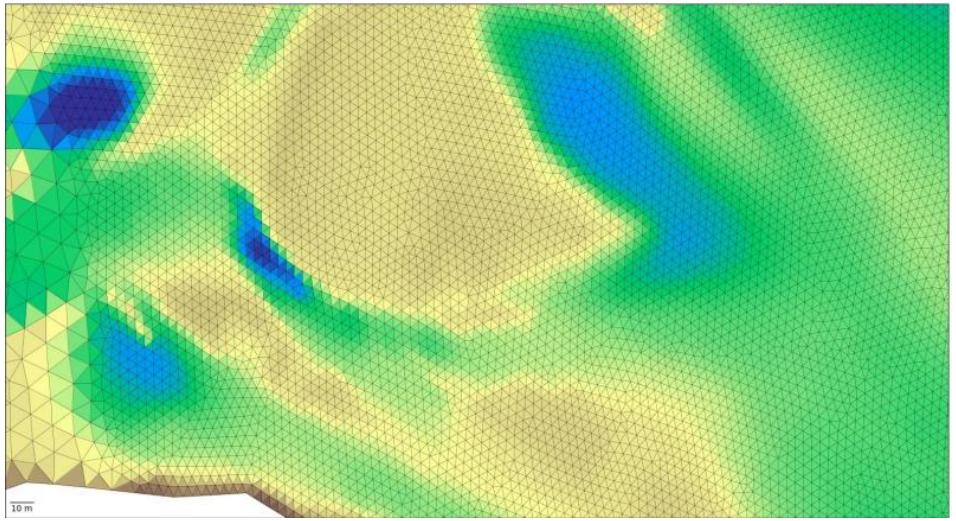
Sources/Usage: Public Domain. View Media Details

Update – Sedimentation Study (LimnoTech)

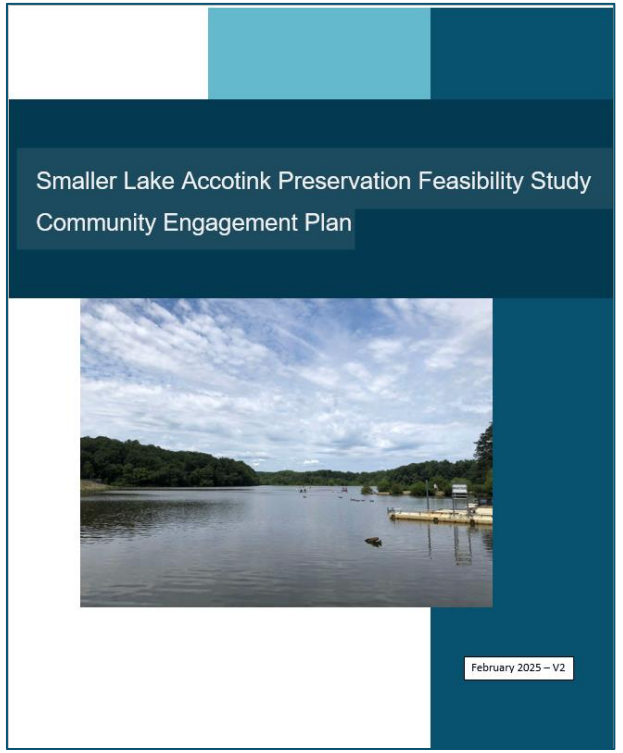
- Bedload sediment samples collected & sent for analysis
- Updated tributary sediment model
- Developed Lake Accotink model





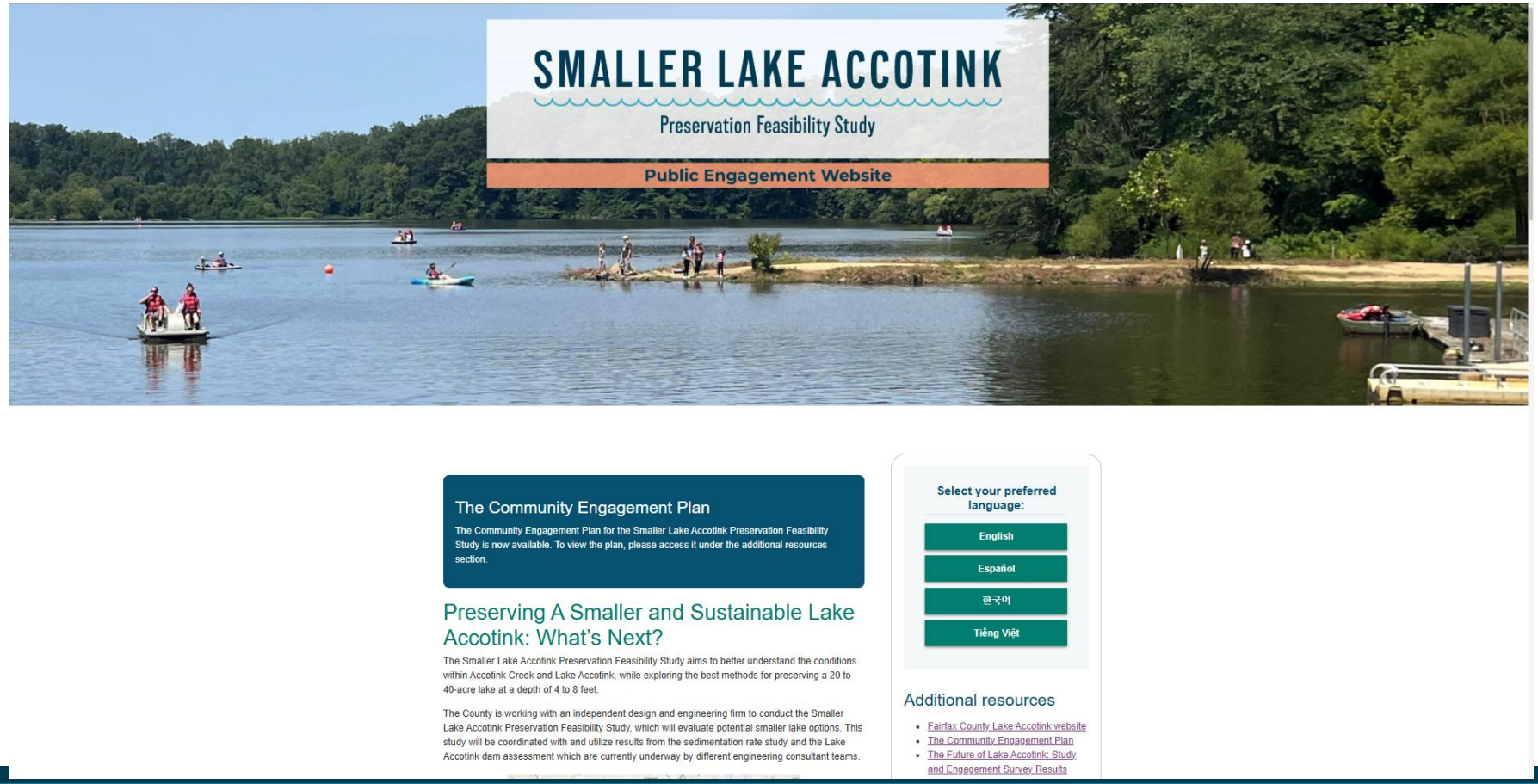
Update – Outreach & Community Engagement

- Online survey – September 19 – October 30, 2024
- Community Engagement Plan
- New community engagement website



Update – Outreach & Community Engagement

https://publicinput.com/lake-accotink-preservation



SMALLER
LAKE ACCOTINK
Preservation Feasibility Study

The Future of Lake Accotink: Study and Engagement Survey

December, 2024

Fairfax County, Virginia

Public Survey Overview

Survey Fielding:

September 19 – October 30, 2024

Survey Responses:

1,503 total responses

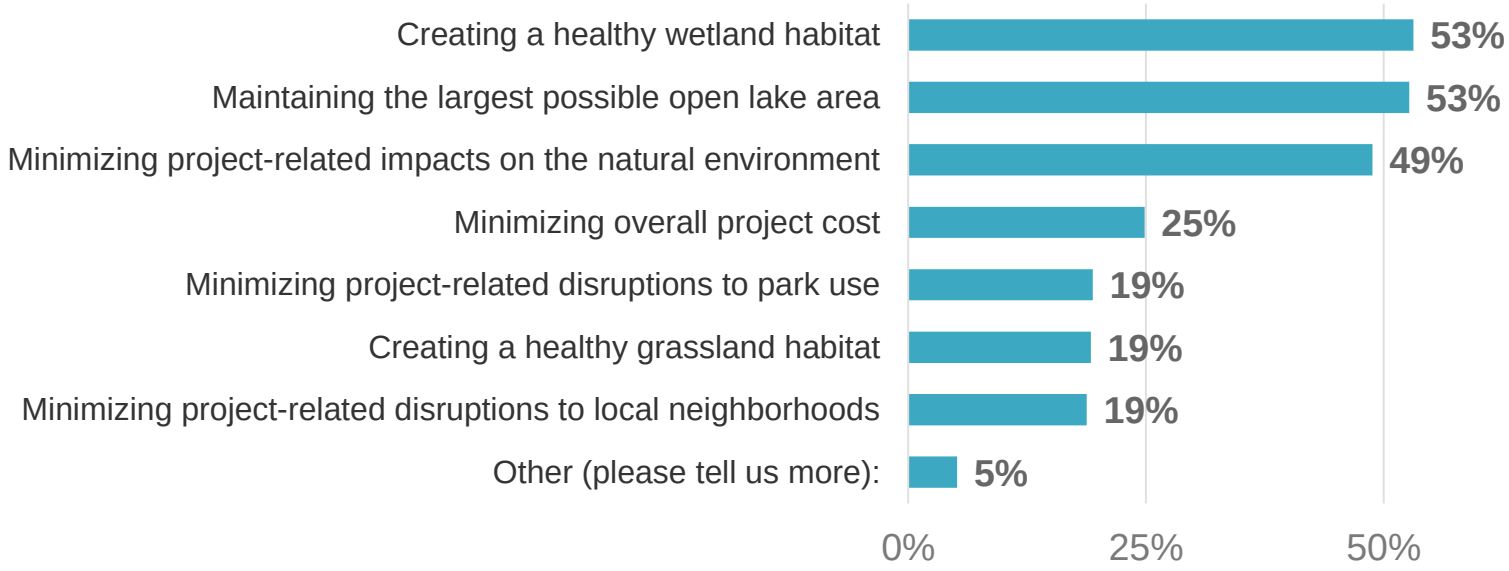
Two primary goals of the survey:

1. Gather input on the proposed Smaller Lake Accotink Preservation Feasibility Study scope of work.
2. Determine public preferences for outreach, information-sharing and gathering feedback as the study progresses.

Creating a healthy wetland, maintaining the largest possible lake area, and minimizing environmental impacts are important considerations for most.

Which of these factors are most important to you when analyzing and evaluating the alternatives (potential projects)?

Please select up to three. (n = 1,395)

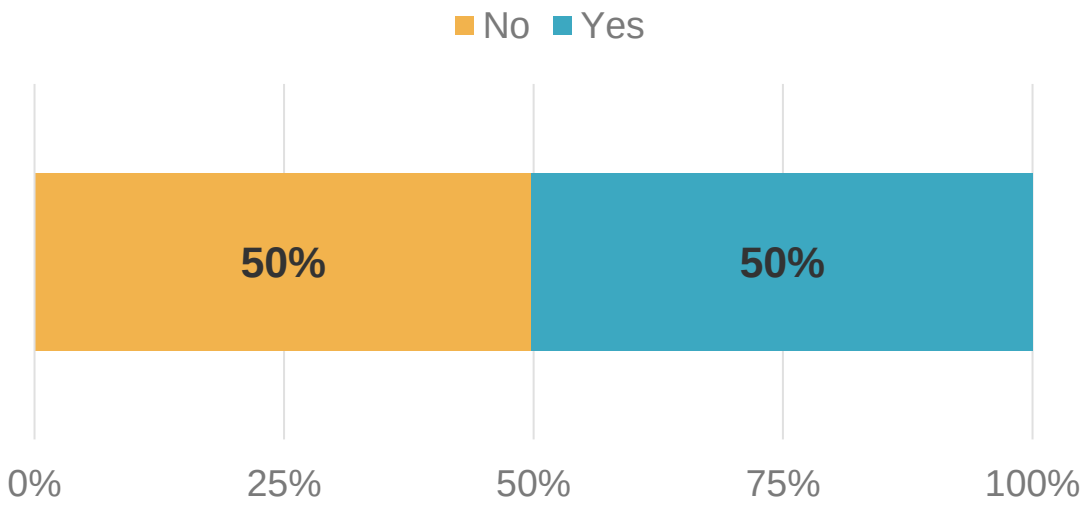


Other responses include supporting the overall ecosystem and watershed, preventing development, minimizing maintenance costs, and maintaining accessible water views.

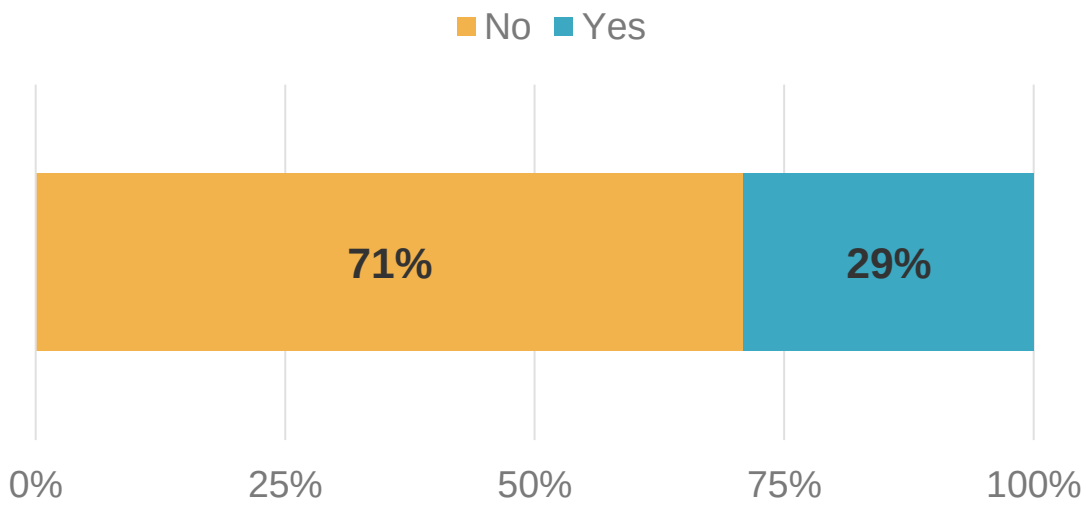
Detailed Findings:
Scope of Work

Half of respondents read the study scope; 29% chose to offer comments.

Have you read the proposed scope of work for the Smaller Lake Accotink Preservation Feasibility Study?
(n = 1,369)



Would you like to comment or provide feedback on the proposed scope of work?
(n = 1,321)



Scope of work feedback.

The survey included the opportunity to review the proposed scope of work document and offer feedback on the following three questions:

- Do you have any comments or feedback on the current content of the study scope of work? (116 responses).
- Are there any questions or considerations that you would like to see included in the study that are currently missing from the scope of work? (154 responses).
- Is there anything else you would like to tell us about the scope of work? (120 responses).

In total, 209 respondents provided comments for some or all questions. Comments were read and each point was sorted as one of the following:

- **Scope addition or edit** - direct suggestions for edits or additional considerations in the scope of work.
- **Study comments or questions** – input or questions about the study or study process, other than the scope content.
- **General comments or questions** – general feedback on Lake Accotink, preferences for its future, questions or comments about the park, or other considerations not directly linked to the study or scope.

These comments were then coded as part of a **thematic analysis** summaries of which are included in the following slides.

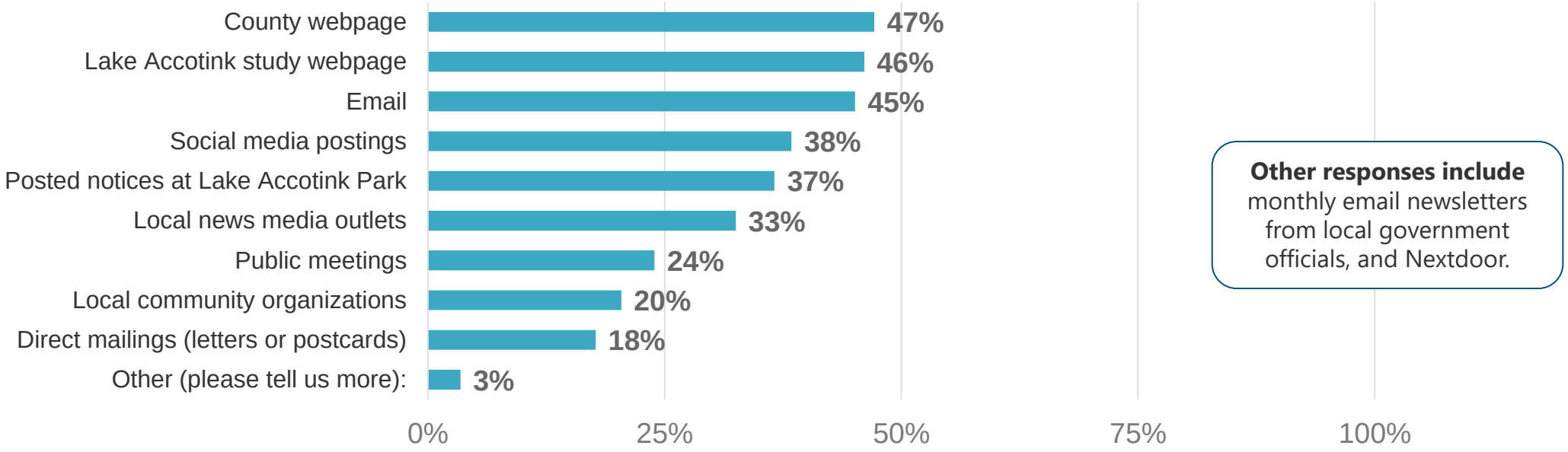
*Responses such as “n/a,” “none,” “see above” etc. were not included in these counts.

Detailed Findings:
Engagement and Communication

Nearly half of respondents would like to receive info from county and project websites, or email.

How would you like to receive future updates on progress or opportunities to be involved with the study?

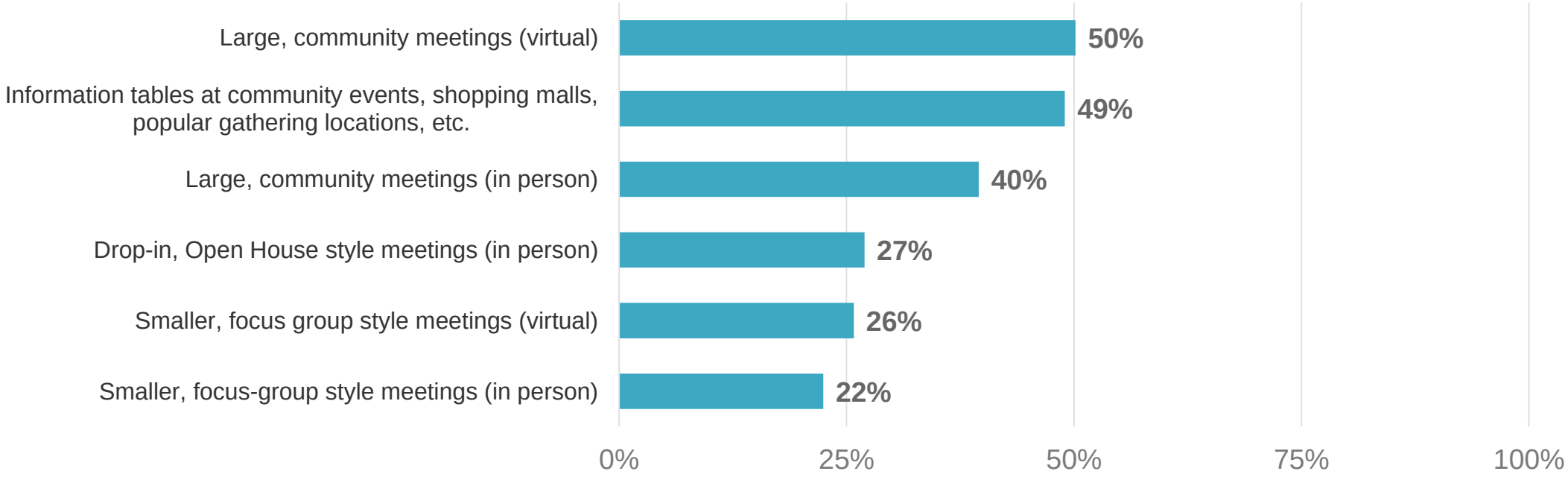
Select all that apply. (n = 1,224)



Other responses include monthly email newsletters from local government officials, and Nextdoor.

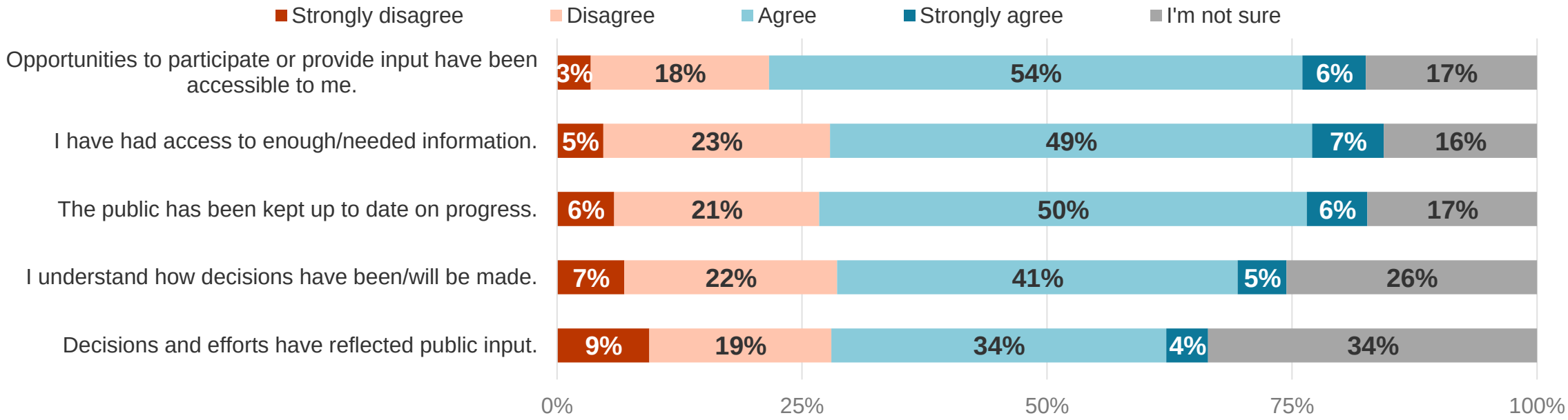
Many feel community meetings and informational tables are most effective for ensuring input.

What forms of engagement do you feel would be most effective for ensuring community input into the study and future progress?
Select up to three. (n = 1,194)

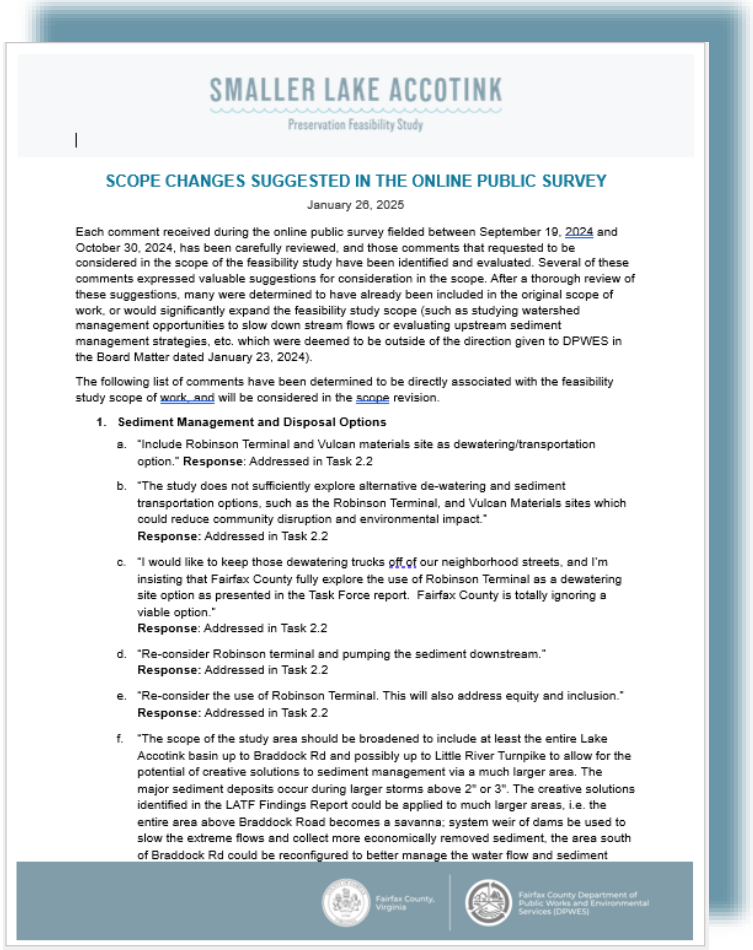


Most agree they've had opportunities to participate and access to information; fewer understand decision-making and the role of public input.

Please tell us how much you agree or disagree with each of the following statements about engagement about Lake Accotink up to this point.
(n = 1,168)



Scope Changes Addressed in Scope



SMALLER LAKE ACCOTINK
Preservation Feasibility Study

SCOPE CHANGES SUGGESTED IN THE ONLINE PUBLIC SURVEY

January 26, 2025

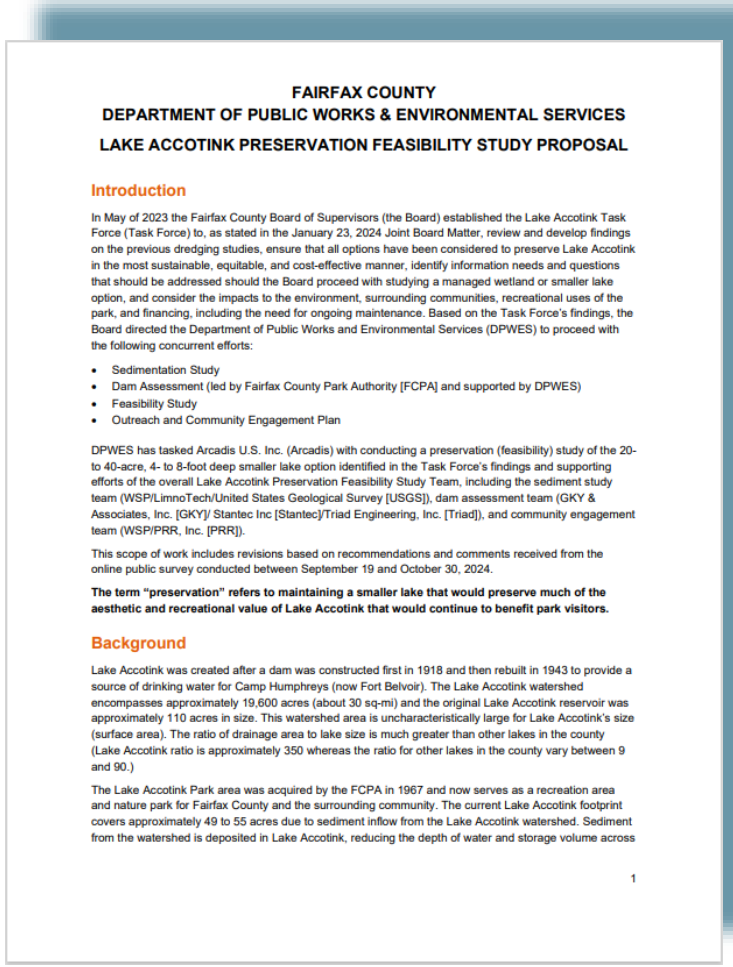
Each comment received during the online public survey fielded between September 19, 2024 and October 30, 2024, has been carefully reviewed, and those comments that requested to be considered in the scope of the feasibility study have been identified and evaluated. Several of these comments expressed valuable suggestions for consideration in the scope. After a thorough review of these suggestions, many were determined to have already been included in the original scope of work, or would significantly expand the feasibility study scope (such as studying watershed management opportunities to slow down stream flows or evaluating upstream sediment management strategies, etc. which were deemed to be outside of the direction given to DPWES in the Board Matter dated January 23, 2024).

The following list of comments have been determined to be directly associated with the feasibility study scope of work, and will be considered in the scope revision.

1. **Sediment Management and Disposal Options**
   a. "Include Robinson Terminal and Vulcan materials site as dewatering/transportation option." **Response**: Addressed in Task 2.2
   b. "The study does not sufficiently explore alternative de-watering and sediment transportation options, such as the Robinson Terminal, and Vulcan Materials sites which could reduce community disruption and environmental impact." **Response**: Addressed in Task 2.2
   c. "I would like to keep those dewatering trucks off of our neighborhood streets, and I'm insisting that Fairfax County fully explore the use of Robinson Terminal as a dewatering site option as presented in the Task Force report. Fairfax County is totally ignoring a viable option." **Response**: Addressed in Task 2.2
   d. "Re-consider Robinson terminal and pumping the sediment downstream." **Response**: Addressed in Task 2.2
   e. "Re-consider the use of Robinson Terminal. This will also address equity and inclusion." **Response**: Addressed in Task 2.2
   f. "The scope of the study area should be broadened to include at least the entire Lake Accotink basin up to Braddock Rd and possibly up to Little River Turnpike to allow for the potential of creative solutions to sediment management via a much larger area. The major sediment deposits occur during larger storms above 2" or 3". The creative solutions identified in the LATF Findings Report could be applied to much larger areas, i.e. the entire area above Braddock Road becomes a savanna; system weir of dams be used to slow the extreme flows and collect more economically removed sediment, the area south of Braddock Rd could be reconfigured to better manage the water flow and sediment

Fairfax County, Virginia | Fairfax County Department of Public Works and Environmental Services (DPWES)

Updated Feasibility Study Scope



FAIRFAX COUNTY
DEPARTMENT OF PUBLIC WORKS & ENVIRONMENTAL SERVICES
LAKE ACCOTINK PRESERVATION FEASIBILITY STUDY PROPOSAL

Introduction

In May of 2023 the Fairfax County Board of Supervisors (the Board) established the Lake Accotink Task Force (Task Force) to, as stated in the January 23, 2024 Joint Board Matter, review and develop findings on the previous dredging studies, ensure that all options have been considered to preserve Lake Accotink in the most sustainable, equitable, and cost-effective manner, identify information needs and questions that should be addressed should the Board proceed with studying a managed wetland or smaller lake option, and consider the impacts to the environment, surrounding communities, recreational uses of the park, and financing, including the need for ongoing maintenance. Based on the Task Force's findings, the Board directed the Department of Public Works and Environmental Services (DPWES) to proceed with the following concurrent efforts:

- Sedimentation Study
- Dam Assessment (led by Fairfax County Park Authority [FCPA] and supported by DPWES)
- Feasibility Study
- Outreach and Community Engagement Plan

DPWES has tasked Arcadis U.S. Inc. (Arcadis) with conducting a preservation (feasibility) study of the 20- to 40-acre, 4- to 8-foot deep smaller lake option identified in the Task Force's findings and supporting efforts of the overall Lake Accotink Preservation Feasibility Study Team, including the sediment study team (WSP/LimnoTech/United States Geological Survey [USGS]), dam assessment team (GKY & Associates, Inc. [GKY]/ Stantec Inc [Stantec]/Triad Engineering, Inc. [Triad]), and community engagement team (WSP/PRR, Inc. [PRR]).

This scope of work includes revisions based on recommendations and comments received from the online public survey conducted between September 19 and October 30, 2024.

The term "preservation" refers to maintaining a smaller lake that would preserve much of the aesthetic and recreational value of Lake Accotink that would continue to benefit park visitors.

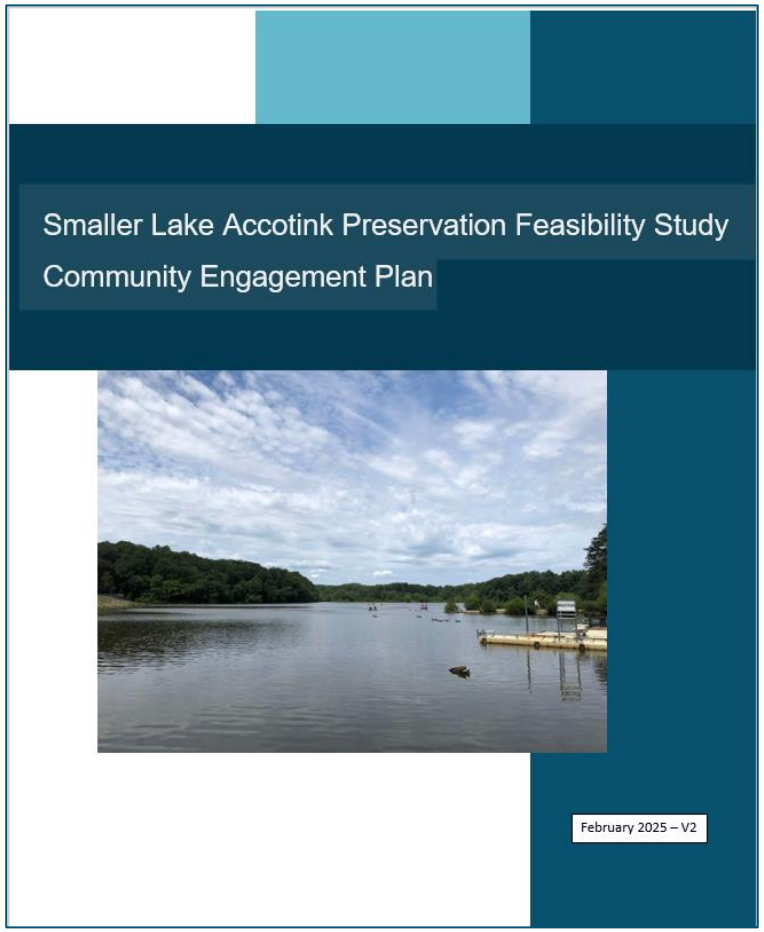
Background

Lake Accotink was created after a dam was constructed first in 1918 and then rebuilt in 1943 to provide a source of drinking water for Camp Humphreys (now Fort Belvoir). The Lake Accotink watershed encompasses approximately 19,600 acres (about 30 sq-mi) and the original Lake Accotink reservoir was approximately 110 acres in size. This watershed area is uncharacteristically large for Lake Accotink's size (surface area). The ratio of drainage area to lake size is much greater than other lakes in the county (Lake Accotink ratio is approximately 350 whereas the ratio for other lakes in the county vary between 9 and 90.)

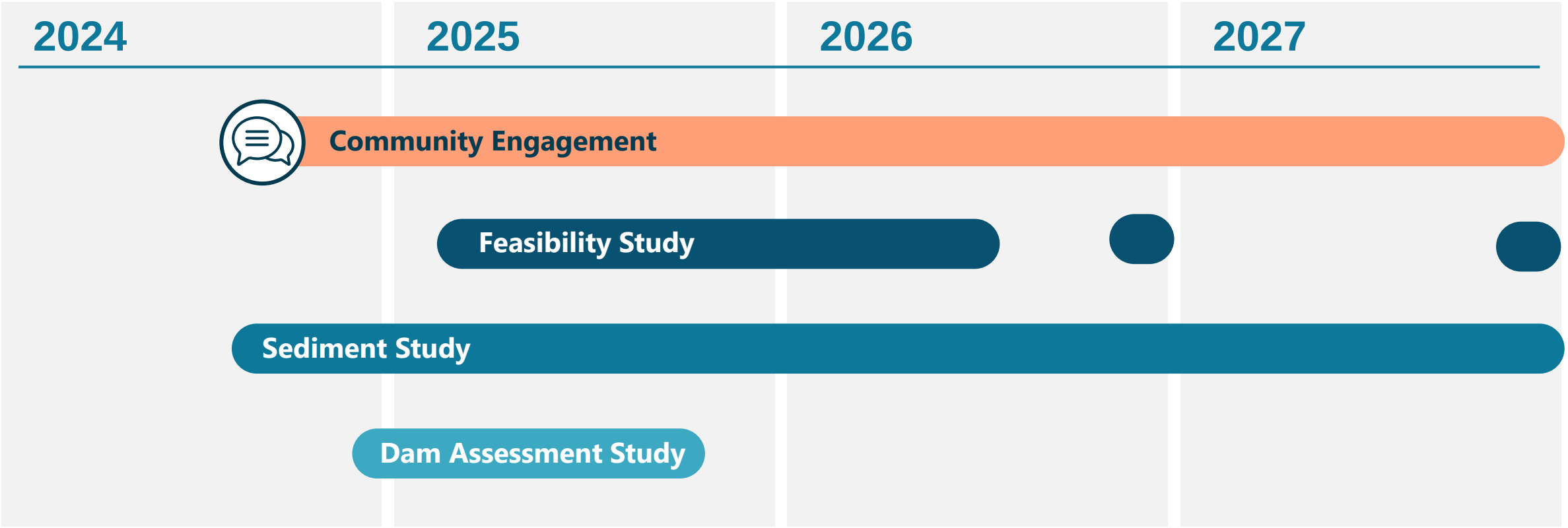
The Lake Accotink Park area was acquired by the FCPA in 1967 and now serves as a recreation area and nature park for Fairfax County and the surrounding community. The current Lake Accotink footprint covers approximately 49 to 55 acres due to sediment inflow from the Lake Accotink watershed. Sediment from the watershed is deposited in Lake Accotink, reducing the depth of water and storage volume across

1

Updated Community Engagement Plan



Timeline

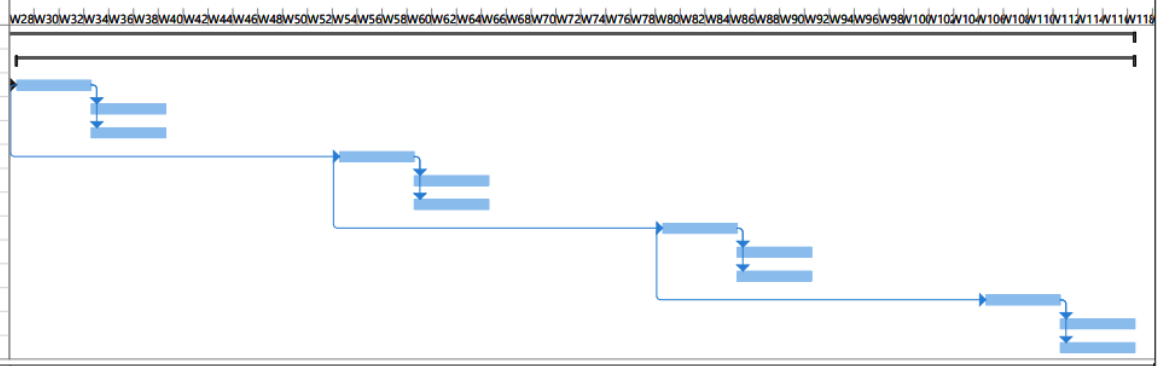

2024
2025
2026
2027
Community Engagement
Feasibility Study
Sediment Study
Dam Assessment Study

Sample Detailed Timeline

LAKE ACCOTINK PRESERVATION FEASIBILITY STUDY SCHEDULE

NOTE: DURATIONS SHOWN ARE BEST ESTIMATES BASED ON THE SCOPE OF WORK DESCRIBED IN THE PROPOSAL AND ARE SUBJECT TO CHANGE BASED ON FIELD CONDITIONS AND/OR CHANGES IN SCOPE.

ID	Task Name	Duration
37	**Task 3 - Data Collection**	**565 days**
38	**Task 3.1 Bathymetric Survey**	**450 days**
39	Fall Survey #1	30 days
40	Deliverable: Bathymetry Data Report	30 days
41	Deliverable: Bathymetric Survey Drawing Files for Fall Survey #1	30 days
42	Spring Survey #1	30 days
43	Deliverable: Bathymetry Data Report (Update 1)	30 days
44	Deliverable: Bathymetric Survey Drawing Files for Spring Survey #1	30 days
45	Fall Survey #2	30 days
46	Deliverable: Bathymetry Data Report (Update 2)	30 days
47	Deliverable: Bathymetric Survey Drawing Files for Fall Survey #2	30 days
48	Spring Survey #2	30 days
49	Deliverable: Bathymetry Data Report (Update 3)	30 days
50	Deliverable: Bathymetric Survey Drawing Files for Spring Survey #2	30 days



ID	Task Name	Duration
51	**Task 3.2 In-Lake Sediment Sampling**	**85 days**
52	Coordination with Sedimentation Team	15 days
53	Deliverable: In-Lake Sediment Sampling Work Plan	30 days
54	Field Collection	5 days
55	Laboratory Analysis	15 days
56	Deliverable: Sediment Data Report	20 days
57	Deliverable: Lab Electronic Data	20 days
58	**Task 4 Development of Concept Designs and Preservation Study Report**	**859 days**
59	**Task 4.1 Concept Design/Mass Balance Analysis**	**151 days**
60	Develop Concept Designs	15 days
61	Mass Balance Analysis and Sediment/Cost Curve Development	20 days
62	Deliverable: Draft Concept Designs	10 days
63	Meeting: Arcadis and the County to Review Preliminary Concept Designs	3 days
64	Public Review: Draft Concept Designs	10 days
65	Meeting: Arcadis and the County to Review Public Comments on Concept Designs	10 days
66	Deliverable: Final Concept Designs	10 days