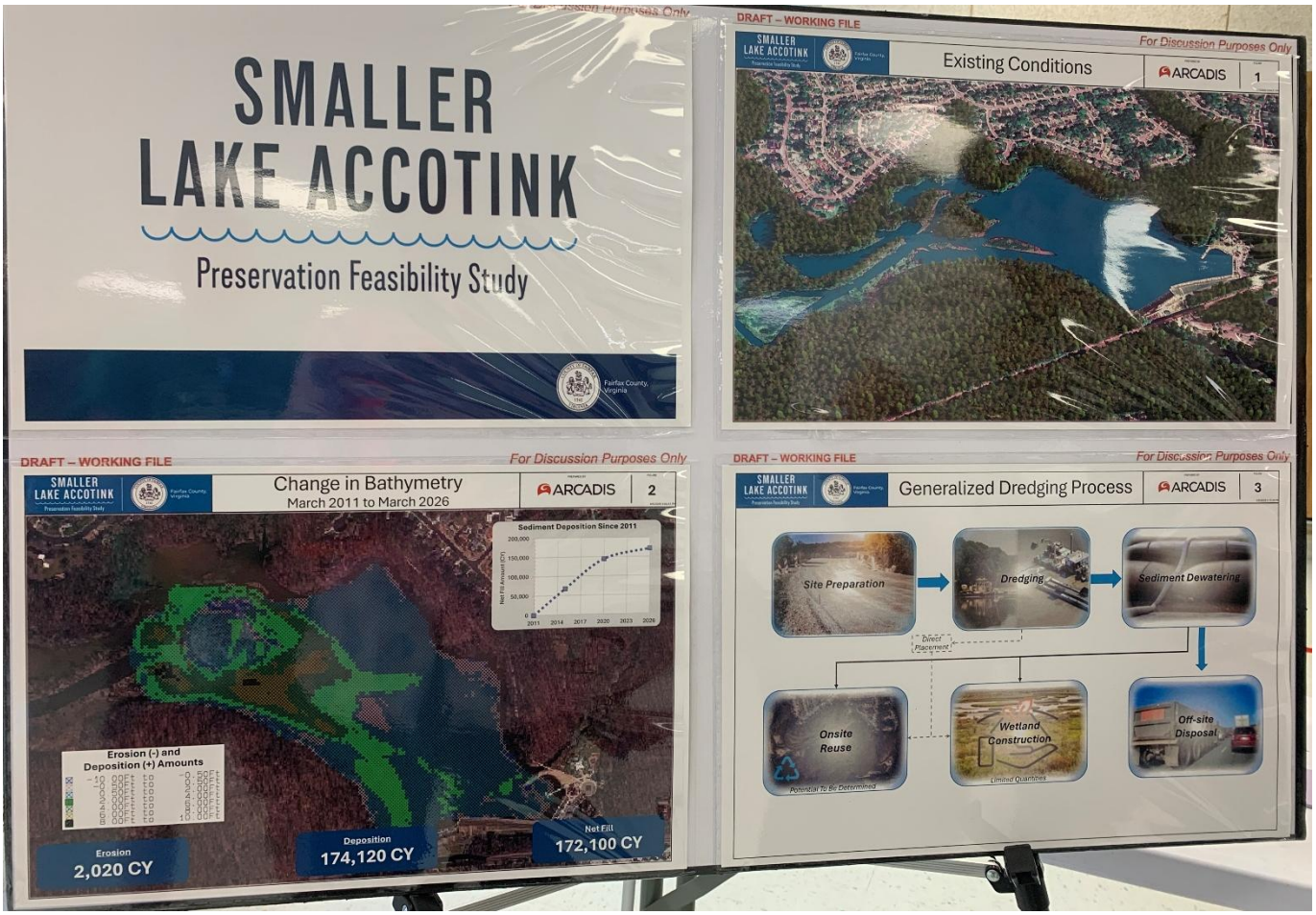
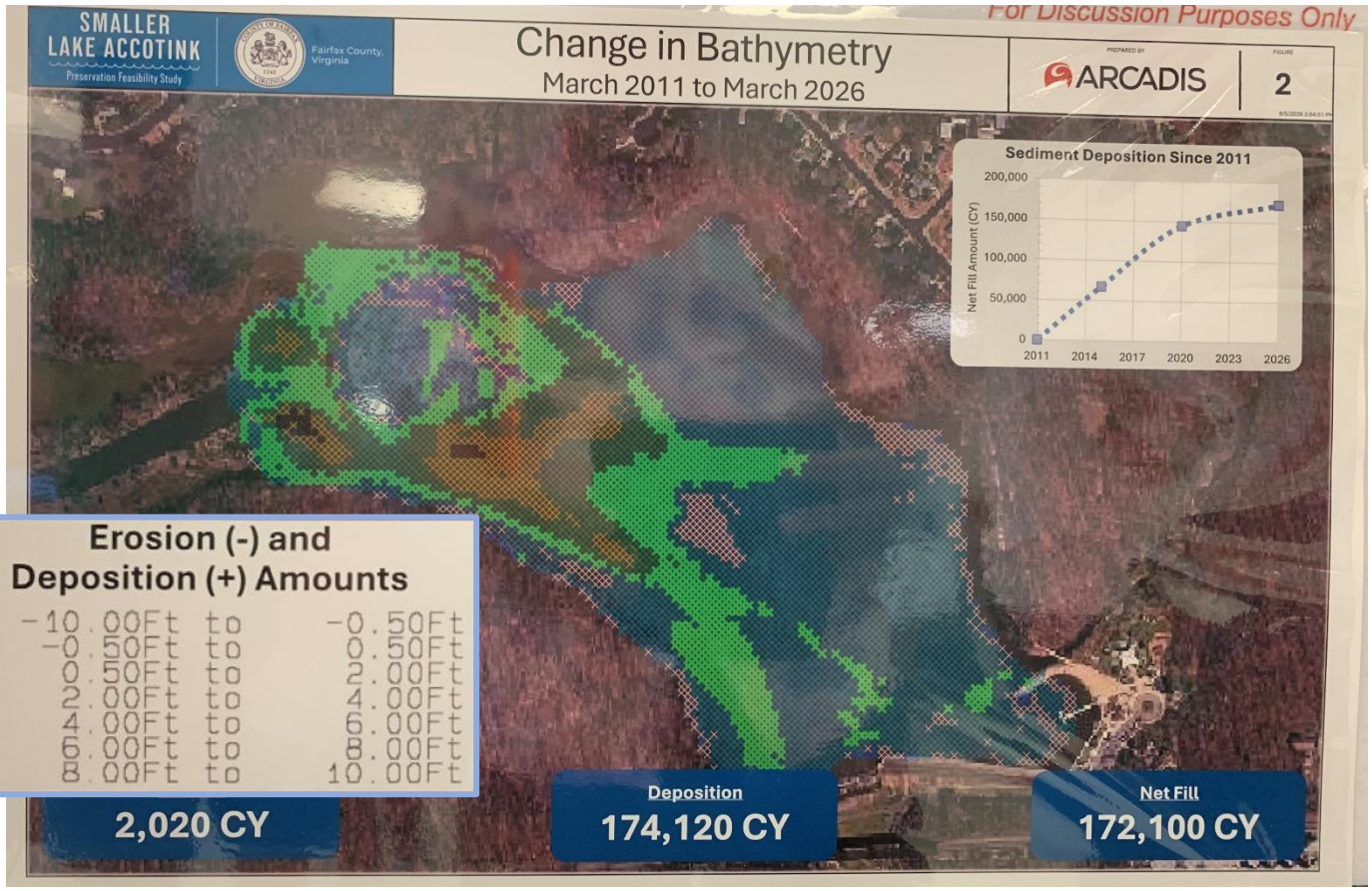
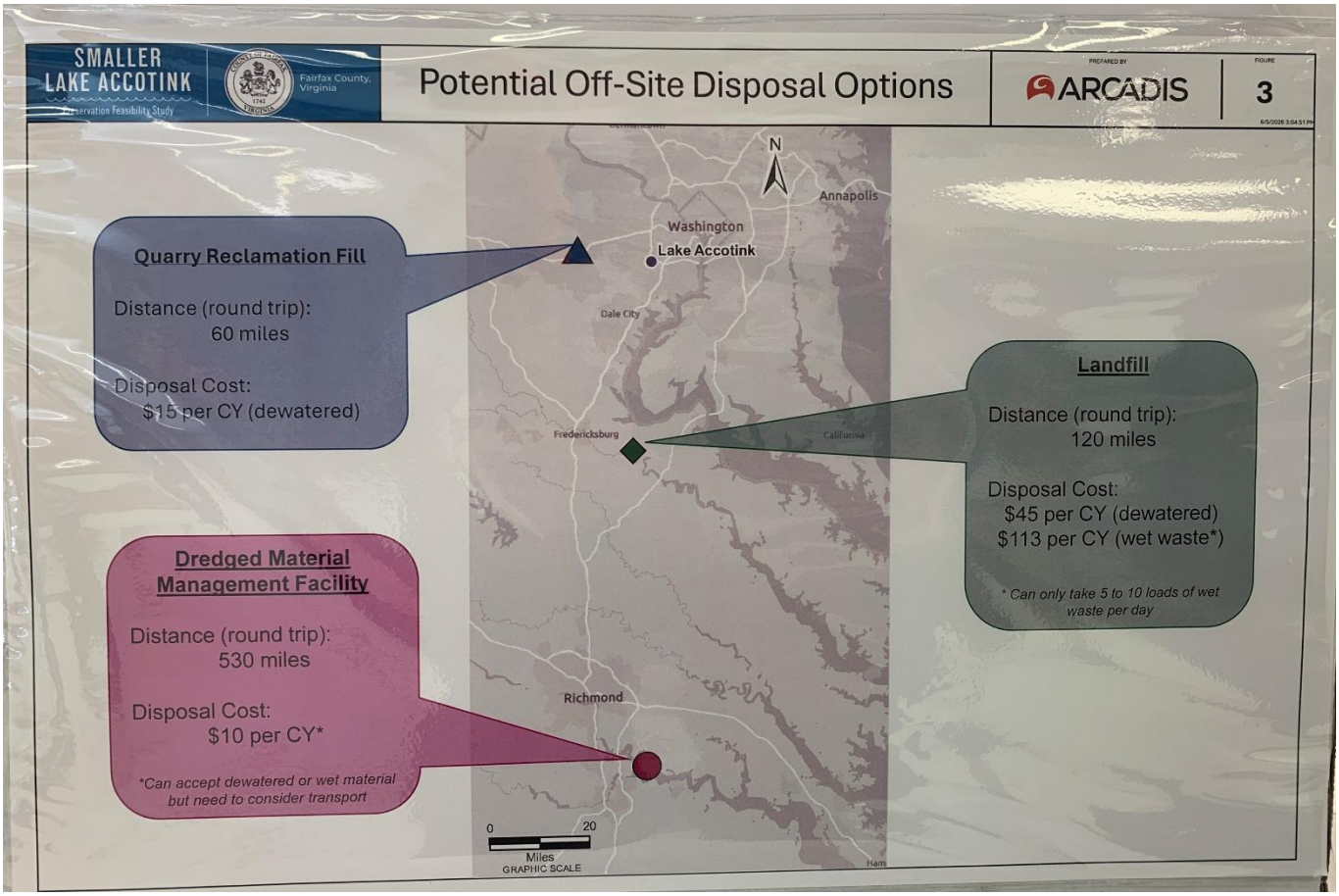
Open House - Lake Accotink Smaller Lake Feasibility Study 20260606
Photo documentation of display graphics



Overview



Loss of lake depth since 2011



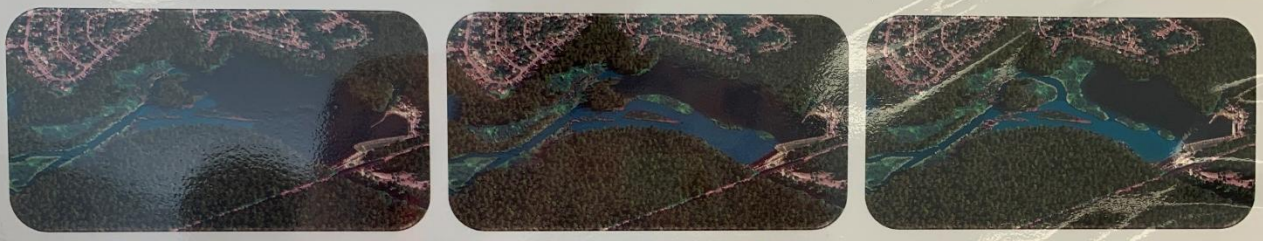
Three viable final spoils disposal options

Three lake configuration options – 40 acres, 30 acres, 20 acres

SMALLER LAKE ACCOTINK
Preservation Feasibility Study
Fairfax County, Virginia

Preliminary Quantity Estimates

PREPARED BY ARCADIS | FIGURE 7



40-acre± Deep Area

Open Water Area [A]	In-Lake Wetlands	On-site Reuse [B]
40 acres	0 acres	22,000 CY

Dredge & Disposal Volumes by Target Water Depth in Deep Area

	Dredge	Disposal
4 ft	89,000 CY	67,000 CY
6 ft	205,000 CY	183,000 CY
8 ft	324,000 CY	302,000 CY

30-acre± Deep Area

Open Water Area [A]	In-Lake Wetlands	On-site Reuse [B]
38 acres	2 acres	45,000 CY

Dredge & Disposal Volumes by Target Water Depth in Deep Area

	Dredge	Disposal
4 ft	86,000 CY	41,000 CY
6 ft	168,000 CY	123,000 CY
8 ft	250,000 CY	205,000 CY

20-acre± Deep Area

Open Water Area [A]	In-Lake Wetlands	On-site Reuse [B]
32 acres	8 acres	94,000 CY

Dredge & Disposal Volumes by Target Water Depth in Deep Area

	Dredge	Disposal
4 ft	77,000 CY	0 CY
6 ft	131,000 CY	37,000 CY
8 ft	189,000 CY	95,000 CY

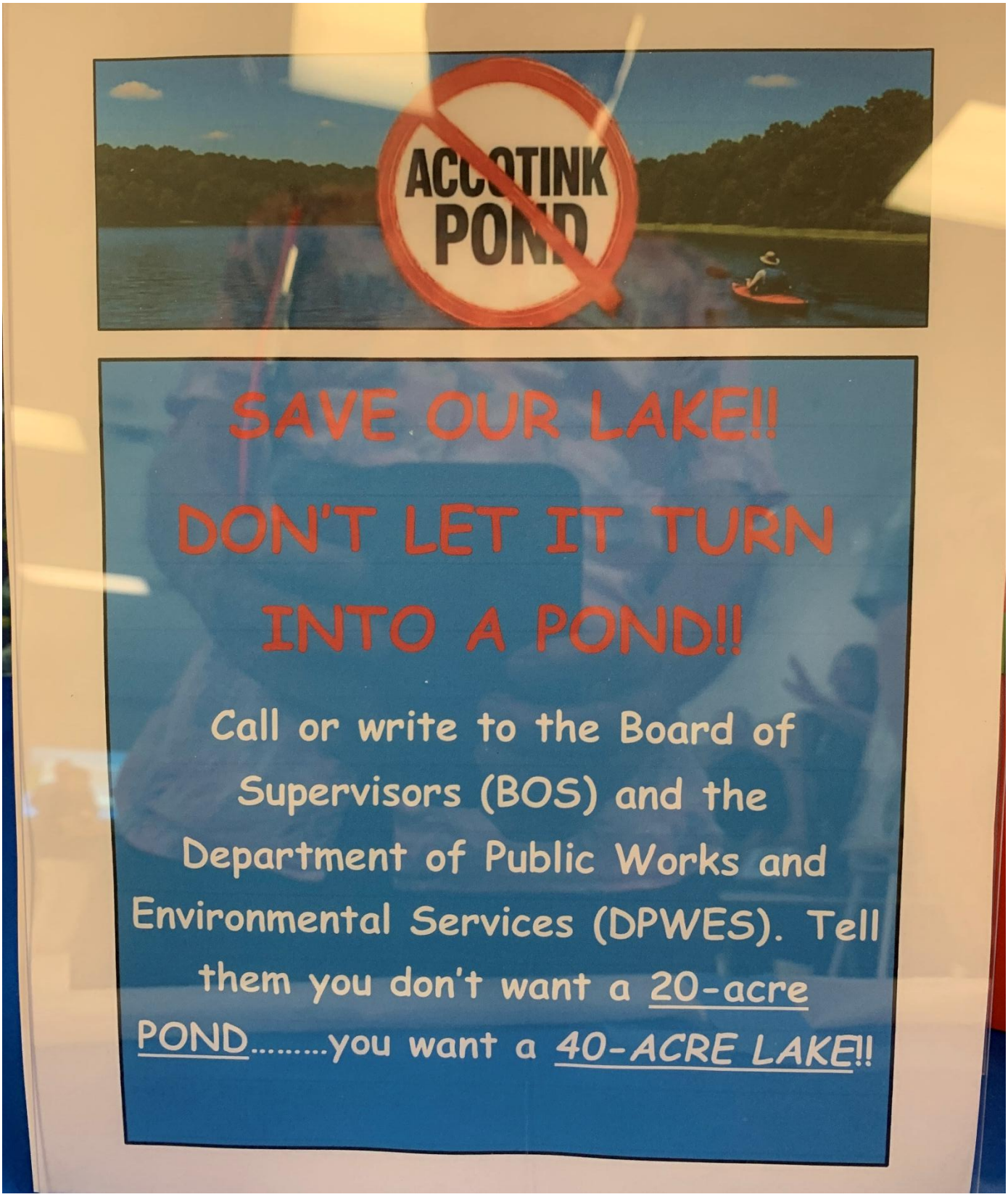
CY = cubic yards
ft = feet

Notes:
Quantities are approximate based on preliminary take off measurements and subject to change. Quantities include a 3-inch overdredge allowance and are rounded to 1,000 cy.

[A] **Open Water Area** is the combination of the deep area and channel area. Area is calculated by taking the existing contiguous open-water area in Lake Accotink (40 acres) and subtracting the area of proposed in-lake wetlands (i.e., island features). Channel area dredging assumes approximate 4 ft of water depth.

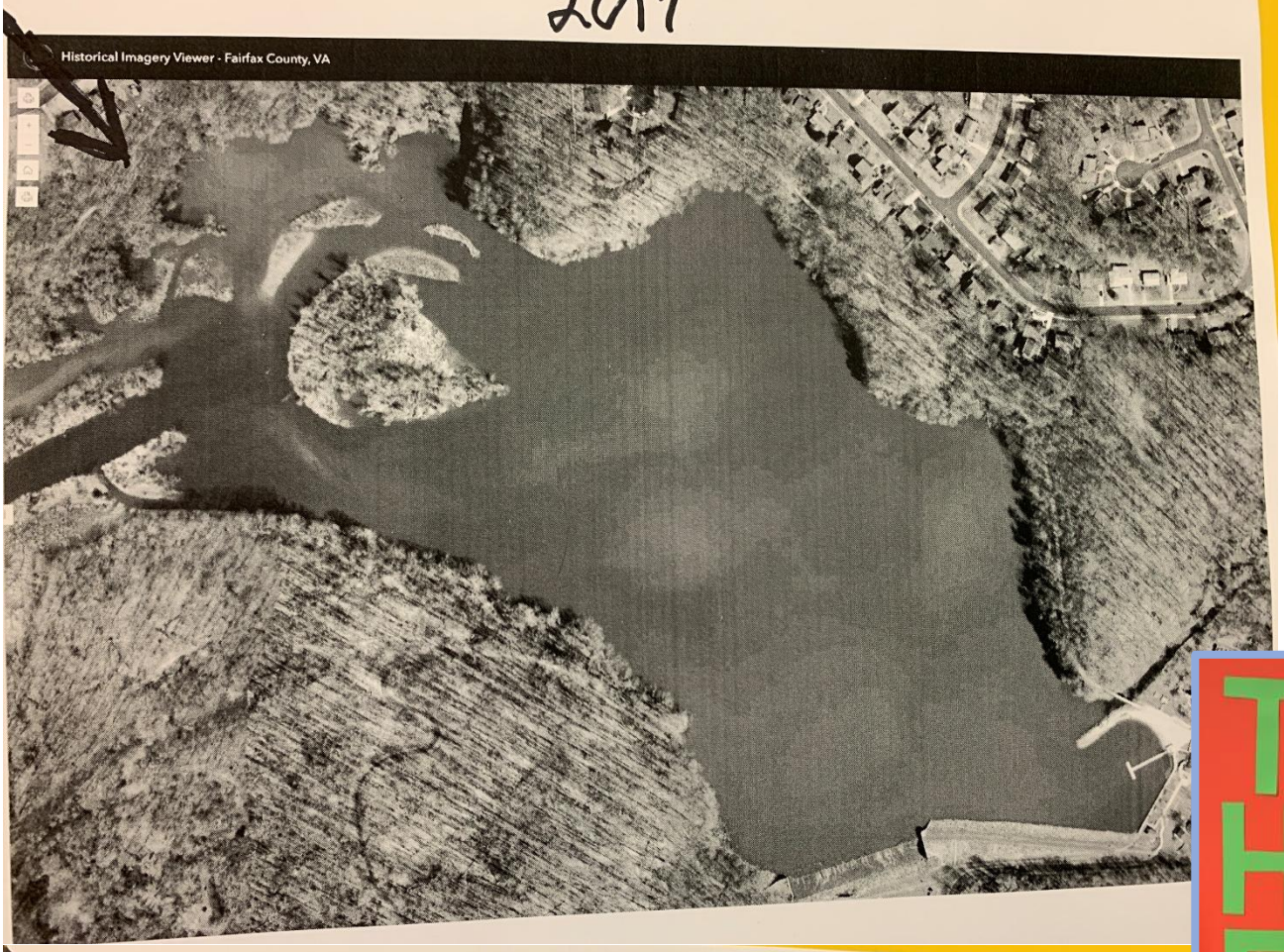
[B] **Reuse** assumes material used in wetland creation (including behind existing island and new in-lake islands constructed around the deep area) is dredged material removed from deep area.

Quantities of sediment to be dredged

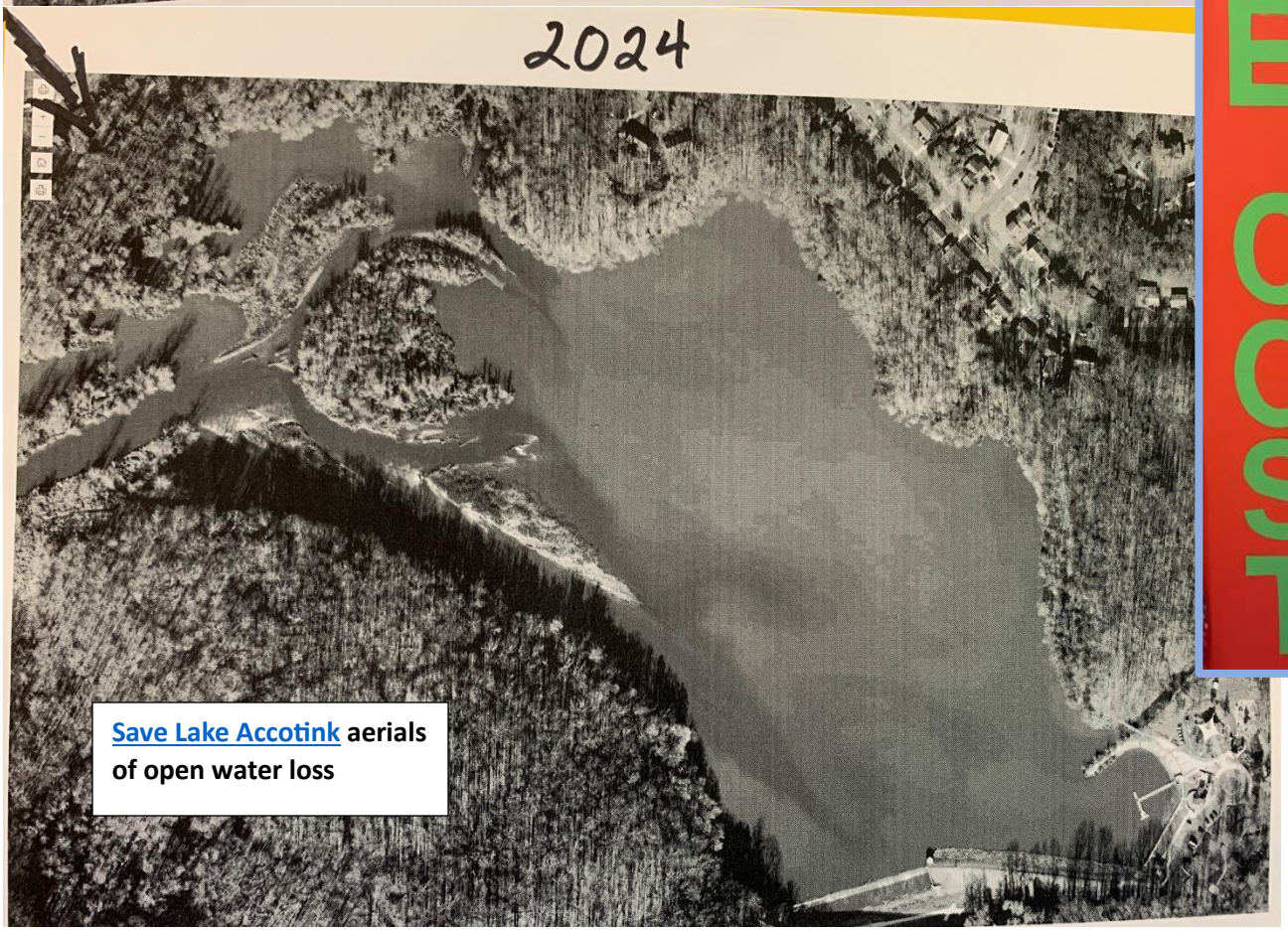


Save Lake Accotink display

2017

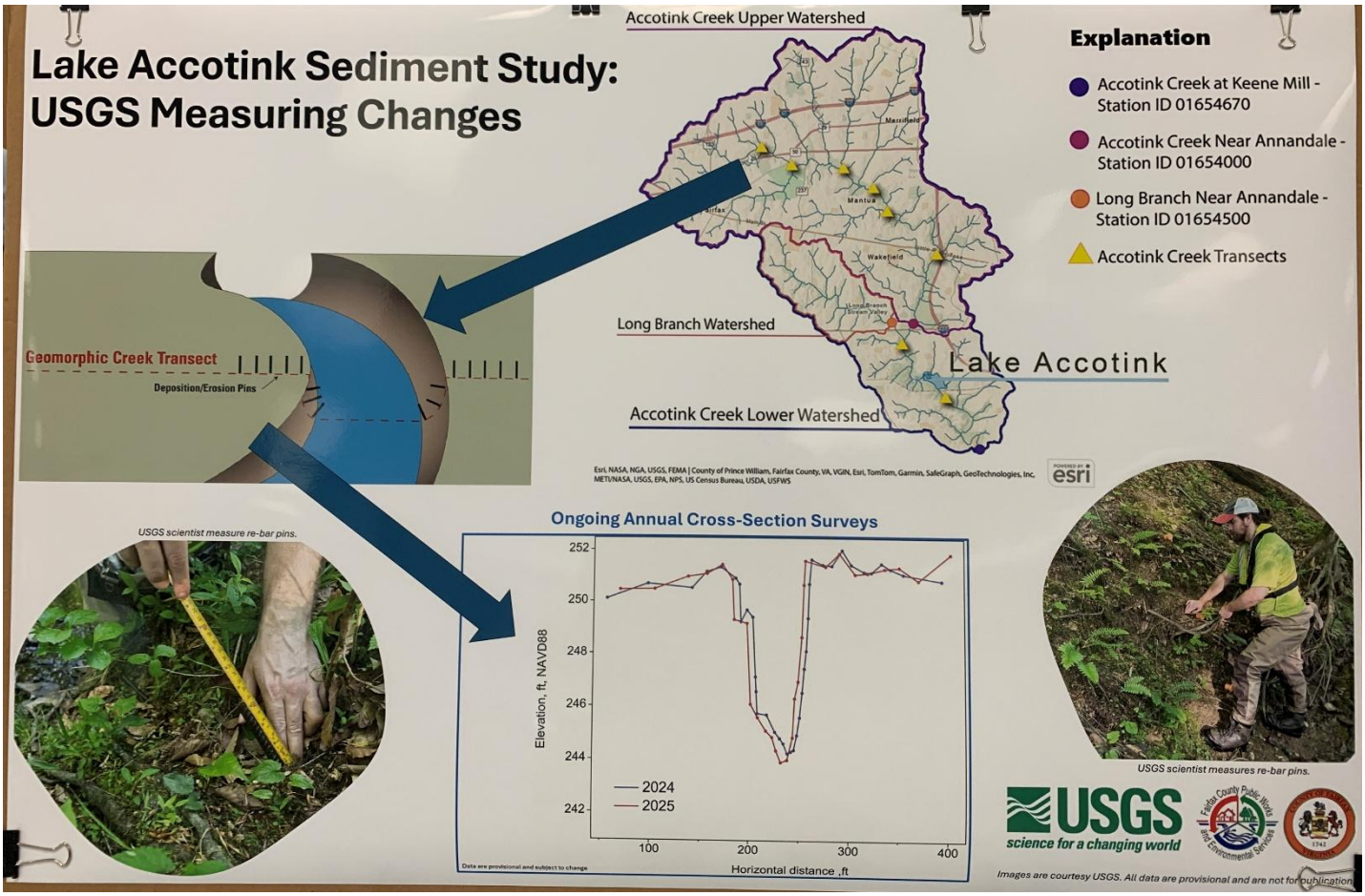


2024

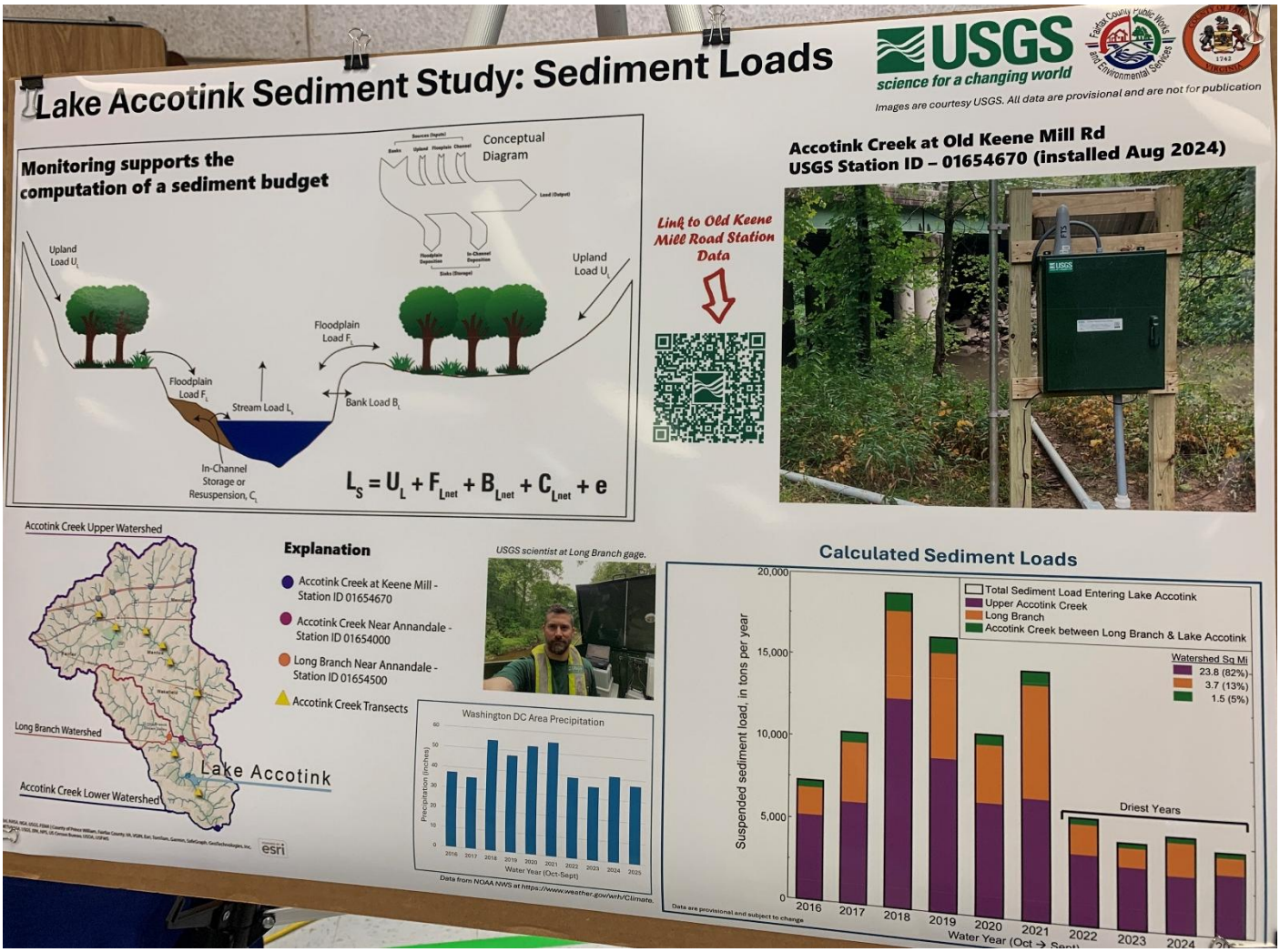


THE COST OF DELAY

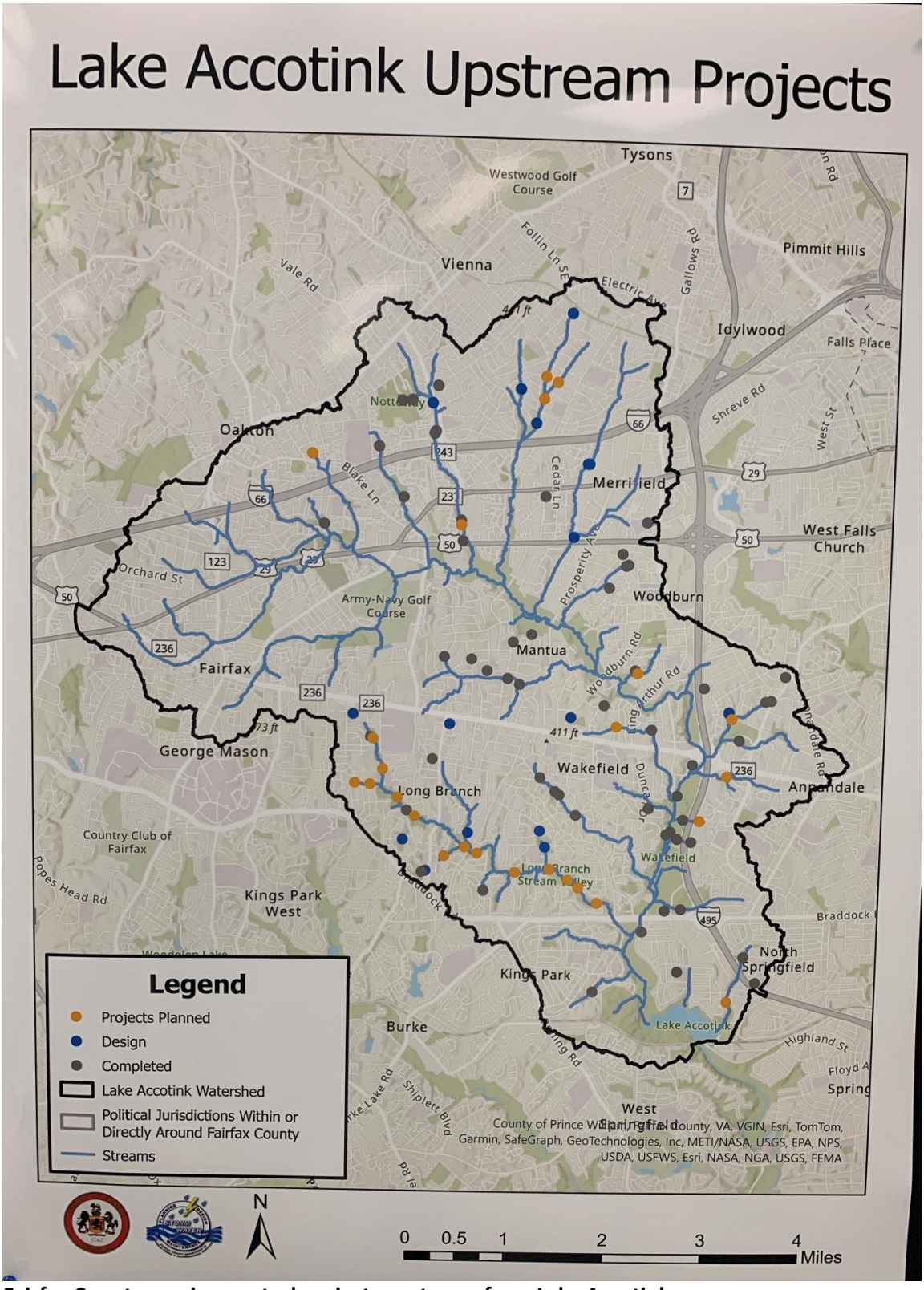
[Save Lake Accotink](#) aerials of open water loss



USGS measures stream channel erosion



USGS computation of sediment entering Lake Accotink

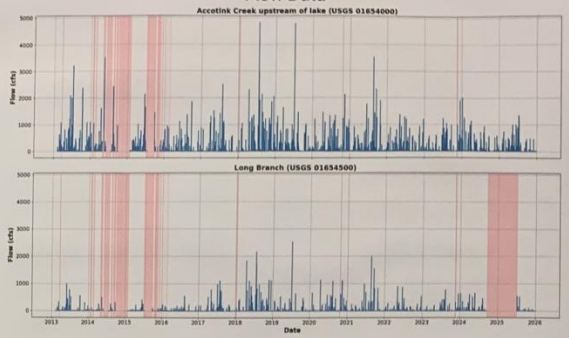


Fairfax County erosion control projects upstream from Lake Accotink

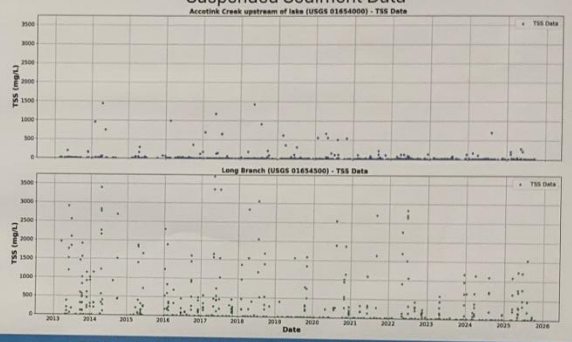
Smaller Lake Accotink Preservation Feasibility Study:
Upstream Watershed Sediment Reduction Strategies

ACCOTINK CREEK AND LONG BRANCH FLOW AND SEDIMENT DATA FROM USGS GAGES

Flow Data

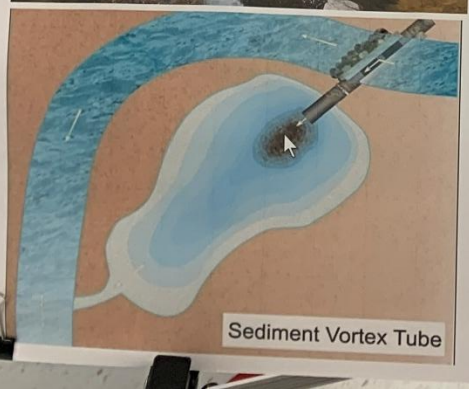


Suspended Sediment Data



EXAMPLE OF BEDLOAD SEDIMENT REDUCTION THROUGH A "SEDIMENT VORTEX TUBE"

Example of a sediment vortex tub in the Blanco River, CO. Bedload sediment, which is heavy, falls into the slotted vortex tub and is carried into a cleanout bay where it is deposited. Image courtesy of Wildland Hydrology. https://wildlandhydrology.com/restoration/Blanco%20River/93/

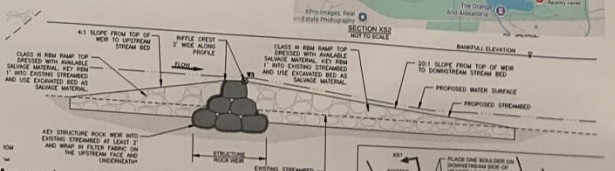


EXAMPLE OF SUSPENDED SEDIMENT REDUCTION THROUGH "RIFFLES"

"Riffles" are rock and gravel structures that are formed across a stream channel, creating areas of shallow water (over the riffle) and deeper water (downstream of the riffle).

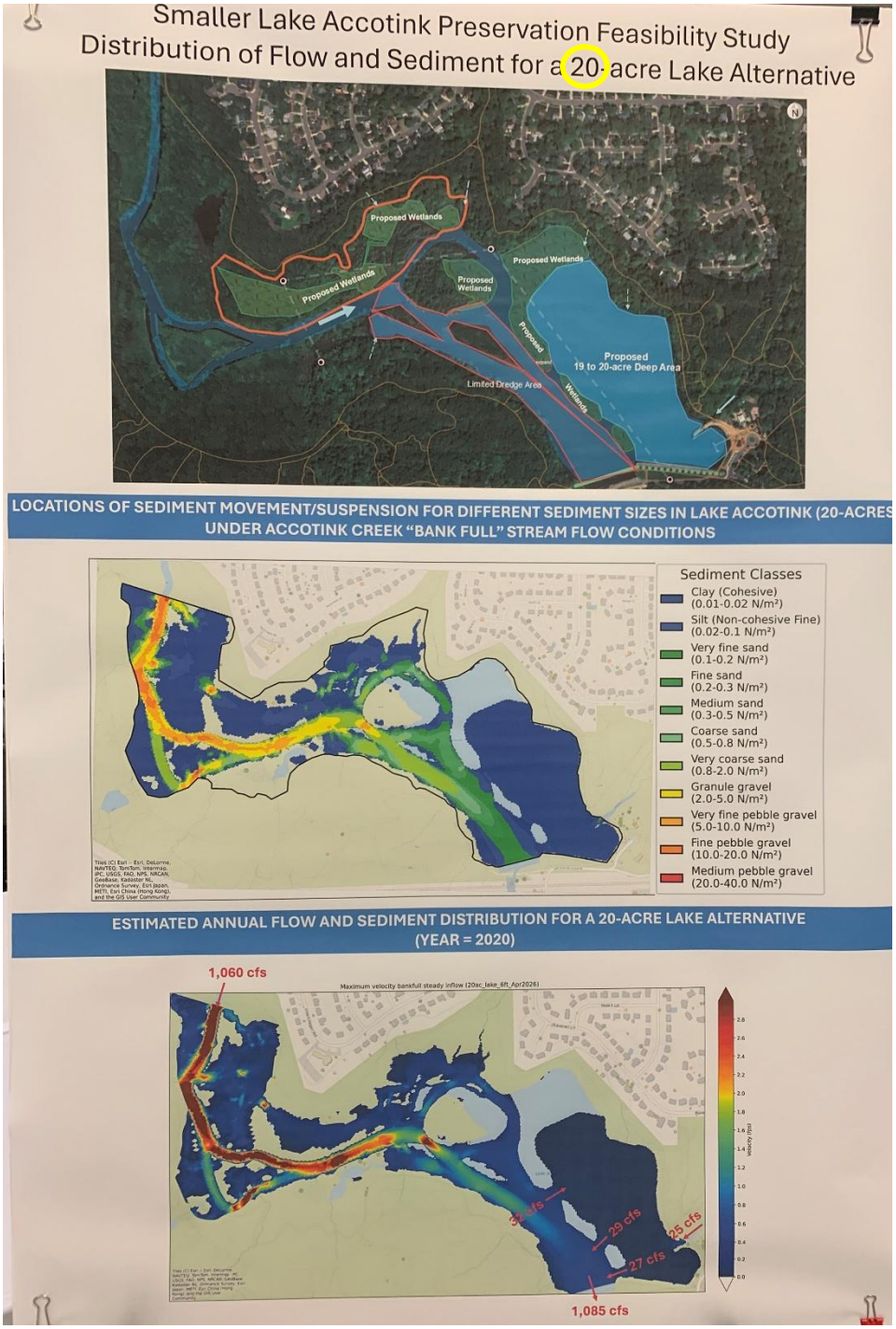
As water and sediment moves over the riffle, sediment settles out and deposits in the deeper water sections of the riffle. Riffles also slow the velocity of water, which helps prevent erosion of the stream banks.

The county installed man-made riffles in Wakefield Park in 2021 to reduce the sediment load of Accotink Creek (see purple lines on map). Additional riffles could be constructed along Accotink Creek to further reduce the sediment load (see orange lines).

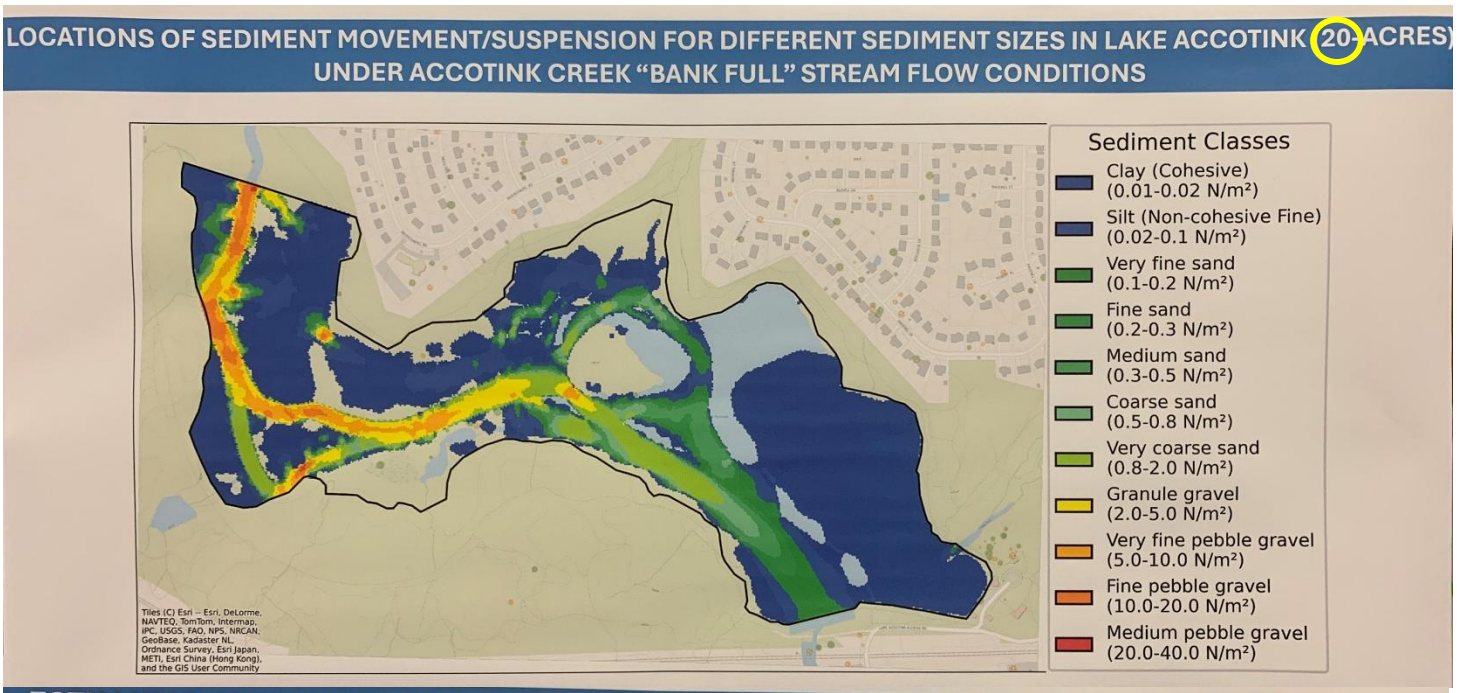


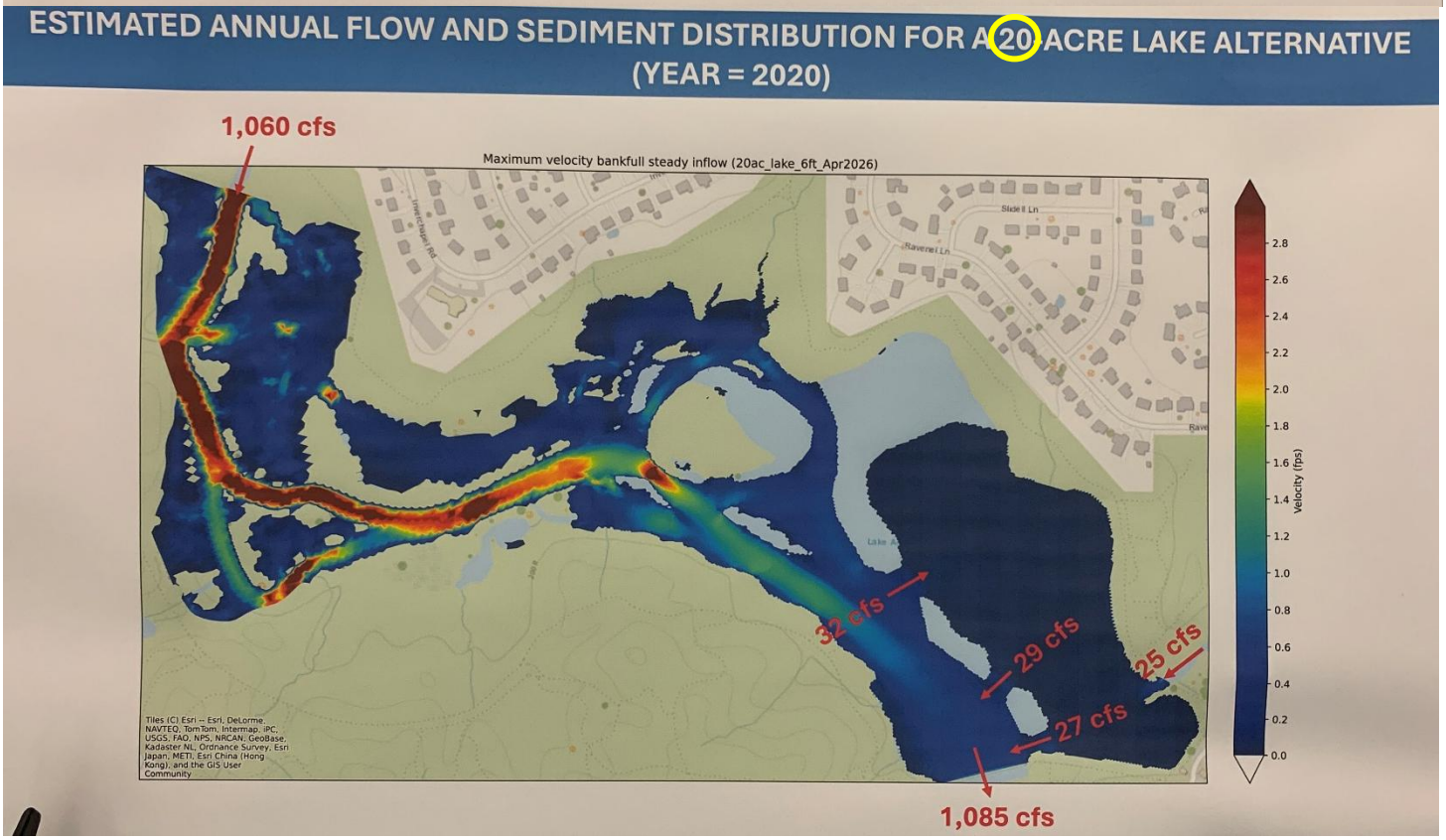
An engineering design drawing of a typical riffle, courtesy of Fairfax Co.

Glimpse of some sediment reduction strategies in use

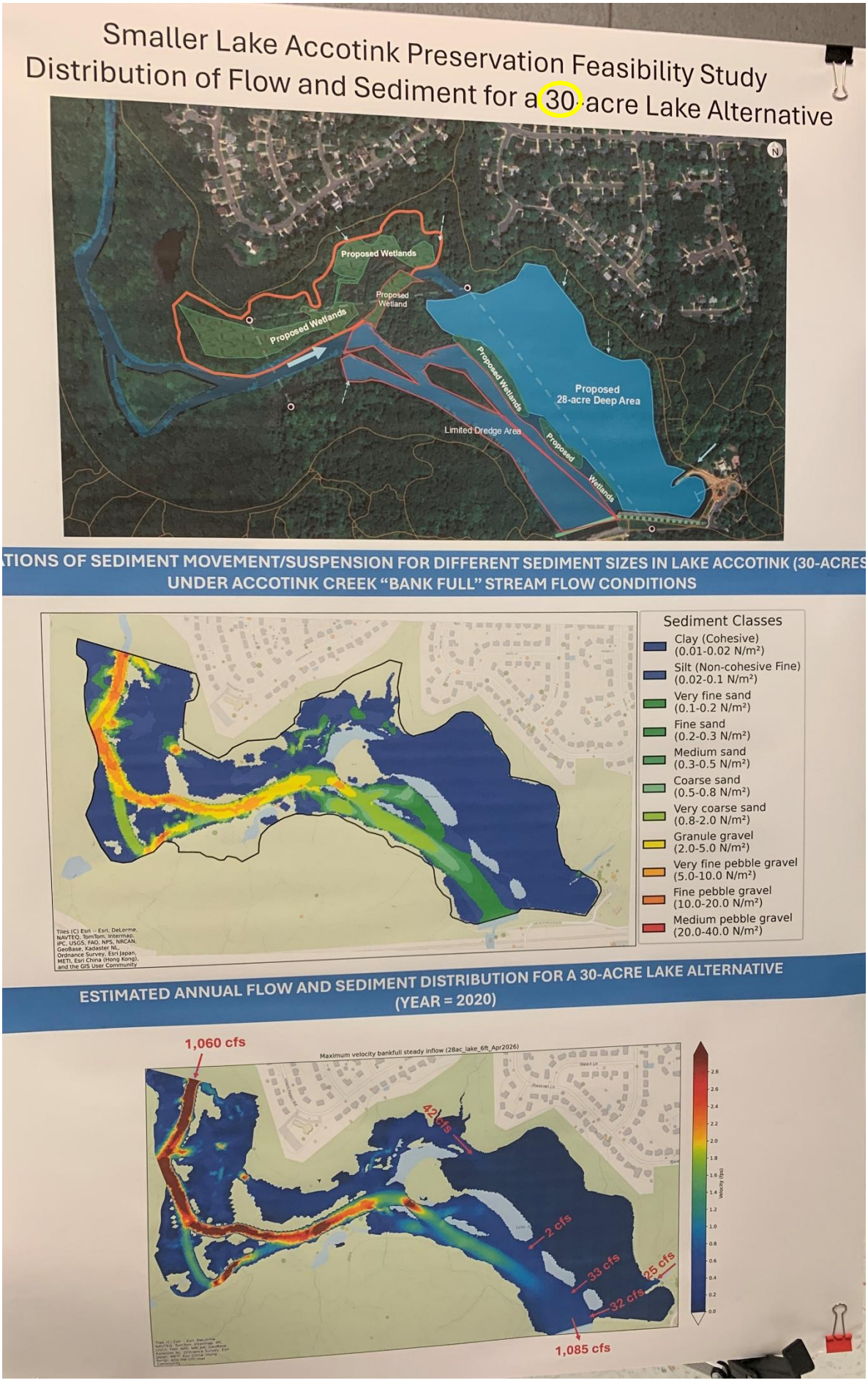


20-acre configuration – how sediment moves into and through the lake

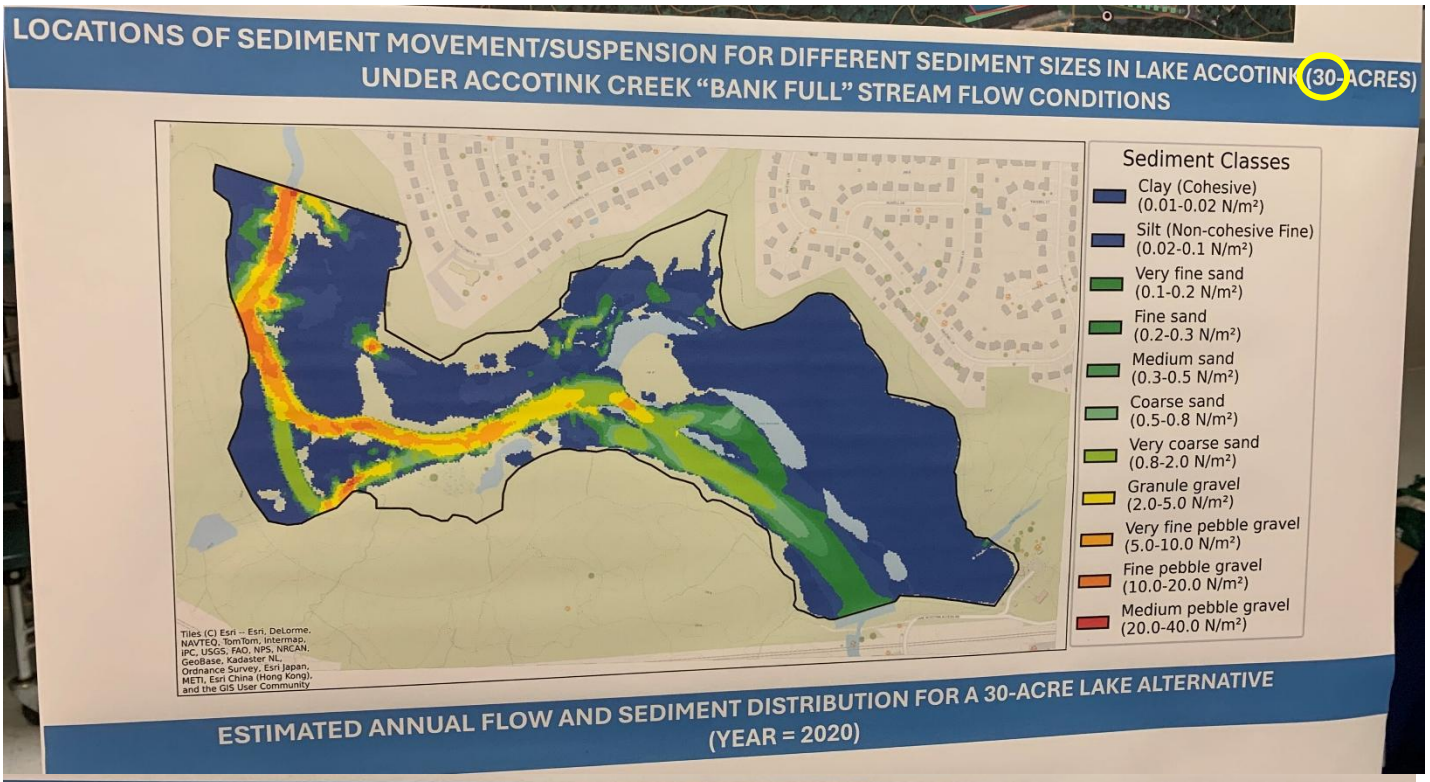


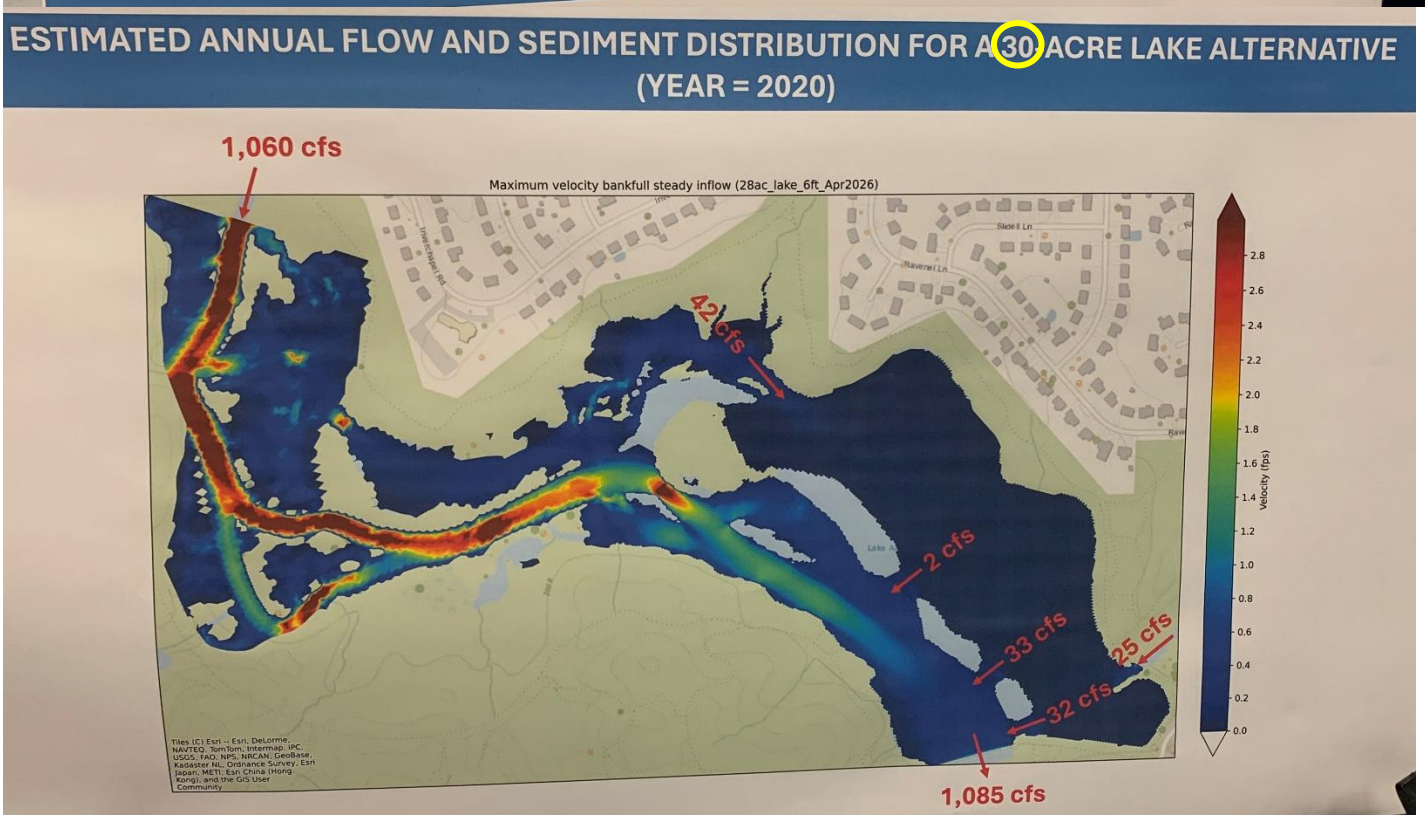


20-acre configuration – how sediment moves into and through the lake

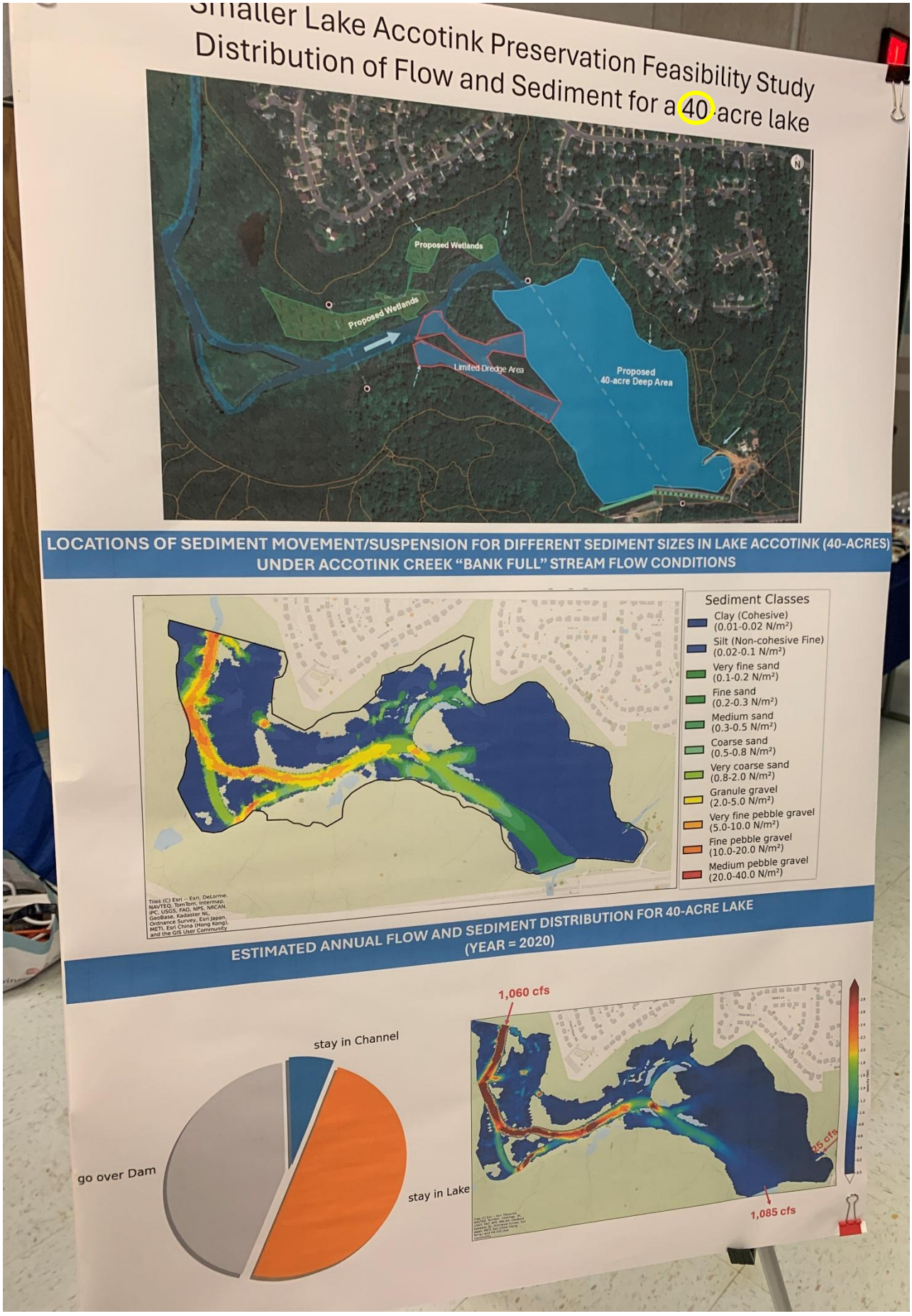


30-acre configuration – how sediment moves into and through the lake

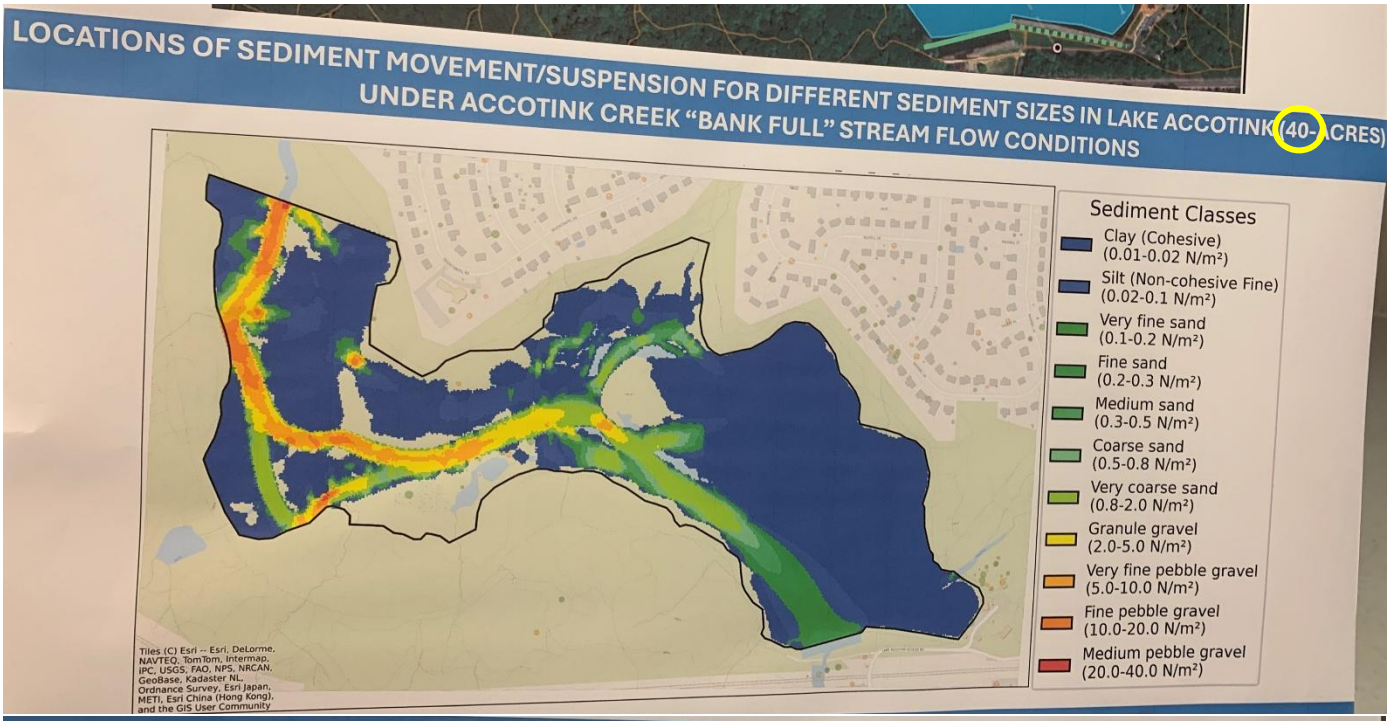


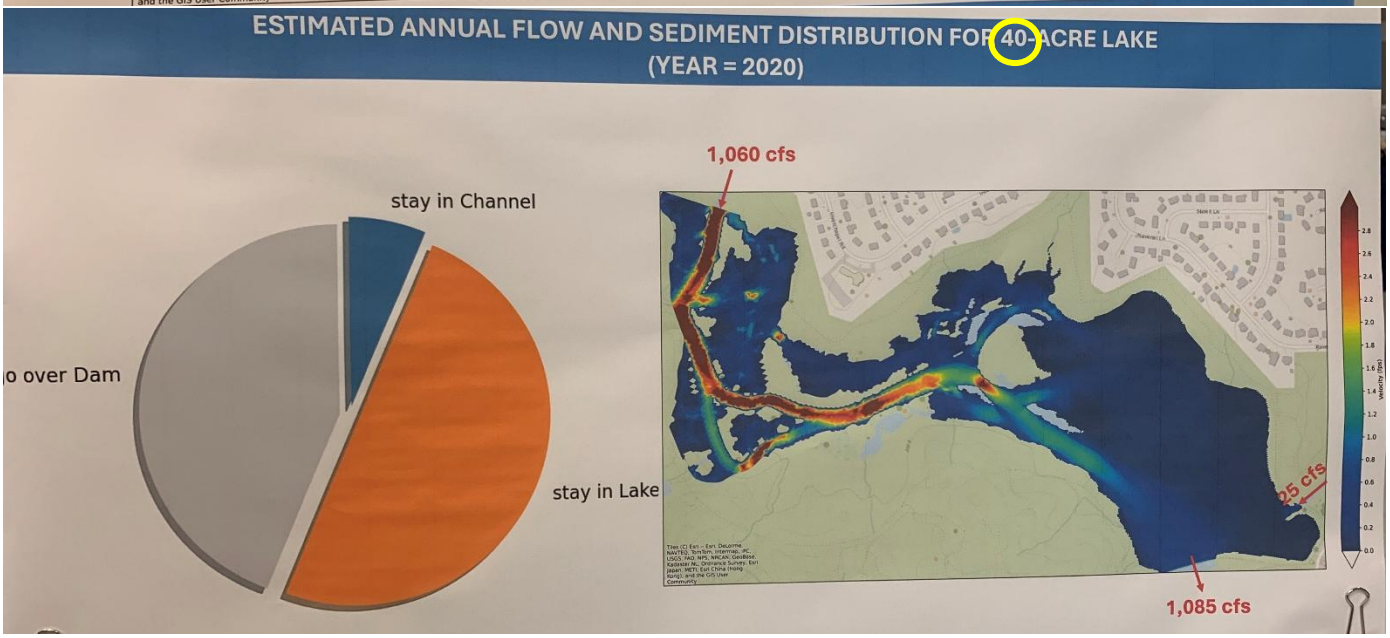


30-acre configuration – how sediment moves into and through the lake

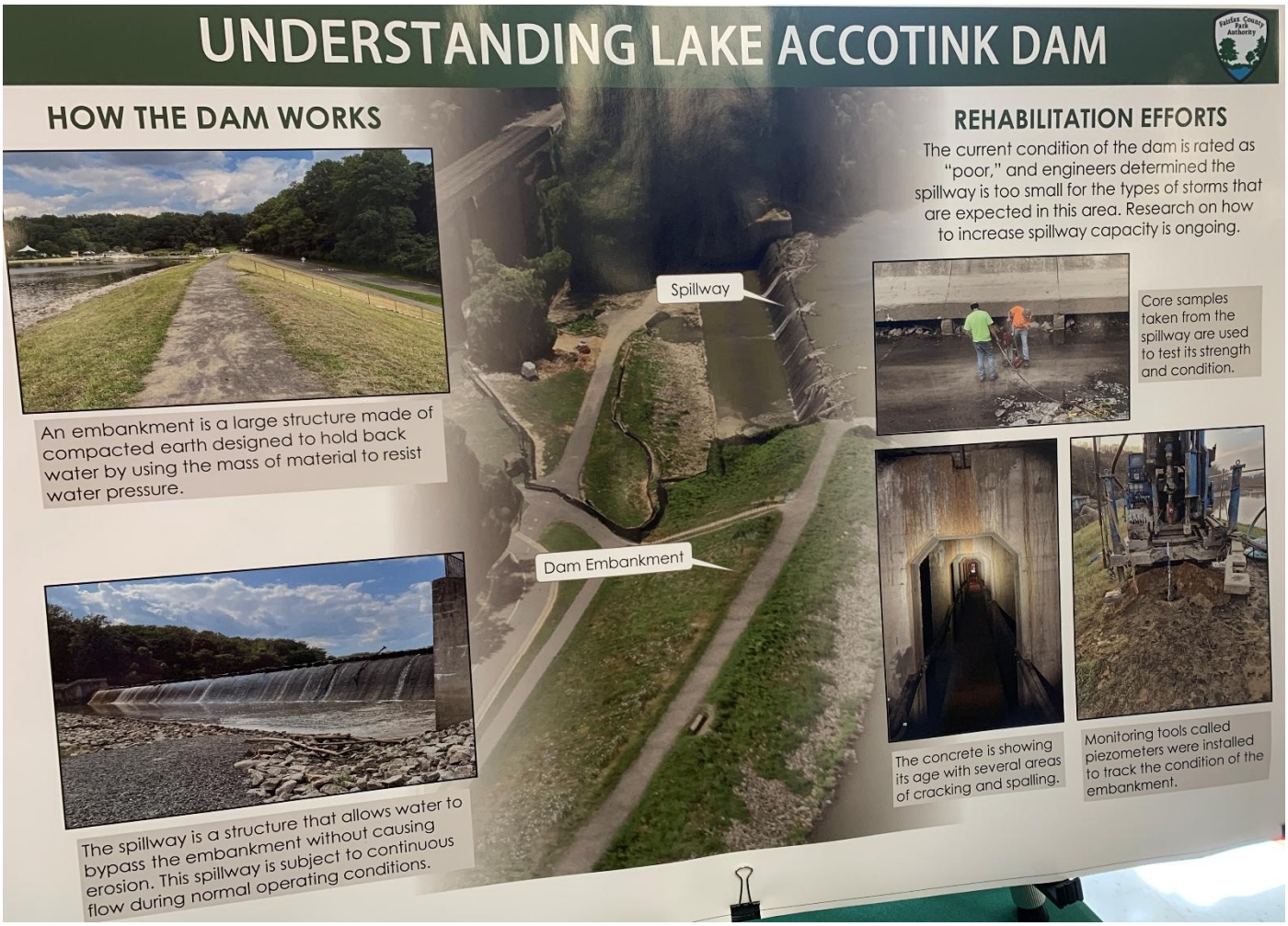


40-acre configuration – how sediment moves into and through the lake

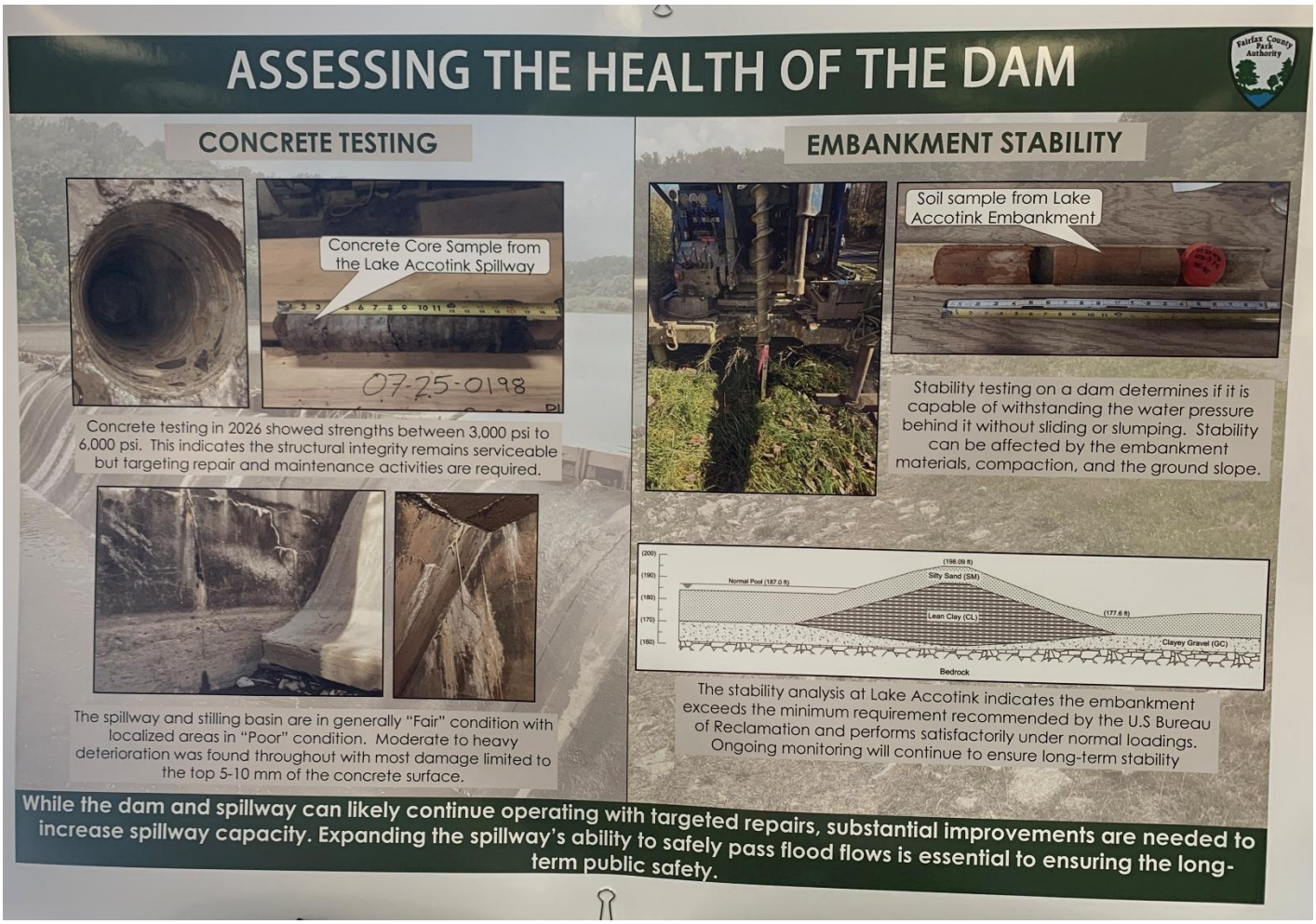




40-acre configuration – how sediment moves into and through the lake



Explanation of dam functions and their evaluation



Dam condition will not directly affect the lake dredging plans