

Lake Accotink Management Option "A" NO DIRECT MANAGEMENT

Description

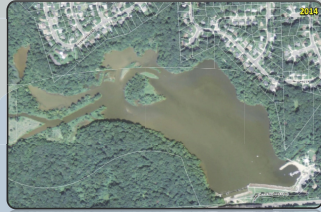
- No specific action taken to address the influx of silt within the lake (although Stormwater Planning will continue to work to improve upstream conditions)
- Allow lake to continue to fill with silt
- Existing dam structure would remain in place

Result

- Estimated loss of recreational value by 2025 or so
- Continued infill with vegetation, similar to upstream condition
- Possible extension of trail network into newly created wetland areas; however, this would be in the long term as infill would be slow and incremental

Primary Cost Elements

- Existing dam structure would require yearly maintenance and repair
- Existing dam structure would likely require significant repair and upgrades on an estimated 30-year cycle



Lake Accotink Management Option "B" CONTINUE CURRENT DREDGING METHOD

Description

- This approach would continue to provide major dredging of the main body of the lake at roughly 15-year intervals
- Sediment removed from the lake would need to be hauled from the park, requiring approx. 35,000 truck trips routed through adjacent neighborhoods
- The existing dam structure would remain in place

Result

- Recreational value of the lake would be retained, maintaining opportunities for boating
- Dredging operations would interrupt usage of the lake and aesthetics of the park for approximately 2 years during each dredging operation

Primary Cost Elements

- Removal of approx. 350,000 cubic yards of sediment with each dredge
- Trucking of dredge material offsite for disposal
- Existing dam structure would require yearly maintenance and repair
- Existing dam structure would likely require significant repair and upgrades on an estimated 30-year cycle



Aerial Image after the 2007-2008 dredging operation, indicating the previous dredging pattern

Lake Accotink Management Option "C" ANNUAL DREDGING WITH SEDIMENT FOREBAY

Description

- This approach would initially provide a major dredge of the lake, removing 350,000 cubic yards of sediment, plus an additional 150,000 cubic yards of sediment to create a forebay at the upper end of the lake
- All 500,000 cubic yards of sediment removed from the lake would need to be hauled from the park, requiring approx. 50,000 truck trips routed through adjacent neighborhoods
- After the initial dredge and forebay construction, smaller dredges would remove approx. 12,000 cubic yards of sediment from the forebay every year or two, routing an additional 1,200 truck trips through the community
- The existing dam structure would remain in place

Result

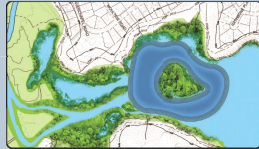
- Recreational value of the lake would be retained, maintaining opportunities for boating
- Initial dredging operations would interrupt usage of the lake and aesthetics of the park for approximately 2 years during each dredging operation
- Annual dredging operations would have a much lower impact on usage of the lake and park aesthetics

Primary Cost Elements

- Removal of approx. 500,000 cubic yards of sediment with the initial dredging operation
- Annual removal of approx. 1,200 cubic yards of sediment material
- Trucking of all dredge material offsite for disposal
- Existing dam structure would require yearly maintenance and repair
- Existing dam structure would likely require significant repair and upgrades on an estimated 30-year cycle



Potential location of upstream sediment forebay



Potential location of in-lake sediment forebay

Lake Accotink Management Option "D" INSTALLATION OF UPSTREAM "BEAVER DAMS"

Description

- Installation of sheet pile "walls" within the channel to encourage sediment deposition.
- Will convert the existing forested wetland areas to "beaver swamps" over time
- These features are not accessible for maintenance

Result

- This approach provides only short-term benefit to sediment reduction and, within the limited context of Lake Accotink Park, does not serve to resolve the overall condition of Lake Accotink (although it may remain a valid strategy within a larger, watershed management approach)
- This approach would entail significant disturbance of relatively stable upstream areas.

Cost Elements

- Installation of "beaver dam" structures
- Mitigation of wetland impacts



Conceptual image of "Beaver Dam" Installation

Although included in the study, this option has been removed from consideration due to the extent of impacts with only limited, short-term benefits.

Lake Accotink Management Option "E" SINGLE THREAD CHANNEL, RECLAIMED LAND

Description

- This management approach would seek to restore Accotink Creek to a condition reflective of the original water channel that existed prior to the stream being dammed.
- The recreated stream channel would be sized to accommodate future storm flows
- Surrounding land area would be reforested to create wetland habitat to support area wildlife and increase biodiversity

Result

- Recreational value of the lake would be eliminated; however, opportunities for trails and nature observation areas would be increased
- Eliminates concern for dam safety and potential downstream impacts if the dam were to be breached.

Primary Cost Elements

- The primary cost factor is the initial establishment of the management plan (revision to the dam structure, "sculpting" of sediment to establish the stream channel, reforestation)
- Annual maintenance would focus on insuring the vegetation is established well and addressing any invasive species that seek to infill. This cost would reduce some over the years as the vegetation becomes better established.



Conceptual Alignment of Single Thread Channel

Lake Accotink Management Option "F" SINGLE THREAD CHANNEL WITH SMALLER LAKE

Description

- Similar to Option E, this management approach would modify the existing dam to allow creation of a single thread stream channel through "sculpting" of the existing sediment.
- Sediment would be sculpted to create a rise on the north side of the stream channel, creating a space to retain a smaller lake for recreational purposes.
- Reclaimed land area would be revegetated, creating new habitat areas
- Trails might be expanded into the vegetated area for nature observation

Result

- Recreational value of the lake would be retained but within a reduced footprint (Approximately 20 acres, about 8 feet deep)
- Smaller lake will be off-line from the main flow of water. Flag Run, the primary tributary of the smaller lake, is being restored, minimizing the influx of sediment to the new, smaller lake
- Eliminates concern for dam safety and potential downstream impacts if the dam were to be breached.

Primary Cost Elements

- The primary cost factor is the initial establishment of the management plan (revision to the dam structure, "sculpting" of sediment to establish the stream channel, reforestation)
- Annual maintenance would focus on insuring the vegetation is established well and addressing any invasive species that seek to infill. This cost would reduce some over the years as the vegetation becomes better established.



Conceptual Alignment of Single Thread Channel with Smaller, Off-line Lake

For more information visit:

savelakeaccotink.org

<https://www.fairfaxcounty.gov/parks/planning-development/lakeaccotink>