

Sylvan Lake Joint Commission

Borough of Bradley Beach

July 2025

Borough of Avon-By-The-Sea

Sylvan Lake Restoration Program

Background: Sylvan Lake is a coastal lake situated on the southern border of Bradley Beach where it is shared by the Borough of Bradley Beach and the Borough of Avon-By-The-Sea (Avon) and served through a joint lake commission. This lake is a community asset for residents recreationally and a wildlife habitat, but, importantly, serves as a stormwater flood control measure as multiple (freshwater) stormwater outfalls discharge into the lake. The drainage area of these outfalls extends through Bradley Beach and Avon into Neptune Township, Neptune City, and Ocean Township, with a discharge from Alberta Lake. The lake outlets through a control gate structure and outfall pipe to the Atlantic Ocean.

Need: The health of the lake is in jeopardy resulting from years of siltation (soil build-up), poor stormwater runoff management, lack of biological water quality practices and failing aged infrastructure, including collapsing bulkheads, malfunctioning outlet control gate, and antiquated outfall pipes. Immediate and long-term repairs are necessary to protect flooding of the surrounding community, prevent breach and draining of the lake threatening habitat, and institute management practices to improve water quality sustaining living habitat for fish and wildlife.

Issues:

- Collapsed ocean outfall pipe, failing outlet control gate
- Bulkhead retaining wall failure along Bradley Blvd between Evergreen and Madison Ave.
- Siltation up to (7) feet, reducing water storage capacity, impacting water quality and aquatic habitat
- Disposition and potential beneficial use of lake silt
- Poor water quality - untreated roadway runoff and outfall discharges, siltation, lack of oxygen, excessive nitrogen, overheated water body (from direct roadway runoff, shallow depth)
- Lack of lake access for recreation
- Need to narrow Bradley Blvd to improve water storage and quality by providing a living northern shoreline, wider greenway, pedestrian pervious walkway and traffic calming.

Approach: A series of complimentary strategies across multiple projects to ensure the health and safety of the lake and surrounding community will be implemented. Multiple strategies are necessary to gain the synergistic combined benefit. Simply repairing the failing infrastructure and maintaining the status quo of poor water quality will not reverse the degenerative unhealthy lake condition. The projects will complement the on-going implementation of the living shoreline along the Avon side of the lake. Reducing Bradley Blvd by 6 ft, provides additional water storage, space for a wider greenway with a living shoreline below the retaining wall, maintaining aesthetic views, adding a walking path along the lake while providing ample space for traffic flow, parking and biking. Coordination with Monmouth County on stormwater flooding and quality issues in the upstream drainage basin. Utilize multiple funding sources through grants, low interest loans and bonding to accomplish restoration.

Completed Projects: Avon by the Sea Living Shoreline (Phases 1 and 2 southern border)

Projects Underway :

- Ocean Outfall Replacement: NJDEP replacement pipe under dunes due to collapse. Construction - fall/winter 2025
- Bradley Blvd Bulkhead Replacement: NJDOT-funded retaining wall replacement; Design on-going, permits - fall 2025. Construction - spring 2026
- Bradley Beach Promenade Extension Phases 1 and 2: NJDCA-funded Boardwalk Preservation fund; Phase 1 Design on-going (3rd Ave to 2nd Ave). Construction - fall 2026

Future Projects: Additional funding is being pursued through various sources including: the Department of Defense and New Jersey Department of Environment. The proposed projects include:

Sylvan Lake Outlet Control Gate Replacement - In 2023, the water level of Sylvan Lake began to drop, indicating that there was a failure at the outfall gate that discharges to the Atlantic Ocean. Emergency repairs were performed to stop the leak, however, the outfall gate continues to leak and malfunction, jeopardizing the health of the lake's habitat and posing a risk of flooding. This project will replace the entirety of the outlet control gate along with the bulkhead adjacent to the gate.

Bradley Beach Stormwater System Improvements - Pipe outfalls into the lake from the north and west currently receive minimal water quality treatment and the lake has been plagued by increased sediment buildup and water quality issues. To mitigate these issues, this project will consist of repairs to existing water quality measures and stormwater infrastructure, outfall repairs, cleaning and repair of connecting infrastructure, the construction of GI measures, and the installation of a new gray MTD. Coordination with Monmouth County to address upstream flooding and water quality issues on adjacent projects is necessary.

Sylvan Lake Shoreline Improvements - Sylvan Lake is plagued by sediment accumulation, water quality and dissolved oxygen issues, rising water temperature, algae blooms, odors, and invasive aquatic plant species. Contaminants from adjacent impervious areas enter the lake without treatment, along with pet and waterfowl waste. This project will create a living shoreline with peninsulas that will treat stormwater runoff from the outfall pipes through filtration and phytoremediation. Plants will increase dissolved oxygen, provide an aquatic habitat for target species, and deter waterfowl from the immediate shoreline. Avon has previously undertaken Phase 1 and 2 of a living shoreline on the southern side and will complete phase 3. Implementation of a northern living shoreline along Bradley Blvd will expand this strategy to provide an overall benefit to the water quality of the lake. Reducing the width of Bradley Blvd by 6 ft of impervious coverage, accommodates the living shoreline, improving water quality, reducing runoff temperature, lake access and pedestrian safety with a walkway, and provides roadway traffic calming. Selection and planting location to maintain residential aesthetic view sheds of the lake, where practical, is necessary.

Sylvan Lake dredging and Channel Improvements - As a result of a lack of treatment entering the lake, coupled with severe storm run-offs, it is estimated that up to 100,000 CY of sediment has accumulated in the lake, significantly impairing water quality. Rather than excavating all this material, the Borough proposes to create a water quality improvement channel in the lake to increase the water depth near its center and provide a conveyance channel to the existing outfall. This will significantly improve water quality and serve as a flood mitigation measure. Areas of excavated sediment will be sampled for contaminants and potentially repurposed on-site or on adjacent projects as fill and grading material.