

V. Natural Resources

In virtually all conversations about the Wellesley West Gateway, protection and enhancement of natural resources was discussed. The study area is rich in natural resources that include brooks and streams, a significant pond, protected open space, and a trail system.

Environmental Constraints within the Study Area – Figure N 1



Morses Pond, a 103-acre, shallow eutrophic pond, is located within the study area and is one of Wellesley’s most visible natural resources. Wellesley derives most of its public drinking water from seven municipal wells. Three of the seven wells are located on Morses Pond. For more than seventy-five years, Morses Pond has been available to Wellesley residents for aquatic activities. Today, Morses Pond serves as a recreational resource for swimming, boating, a park and picnic area. In recent years, recreational use of the pond has been limited due to excessive algal blooms.

-  Limited Access Highway
-  Multi-lane Hwy, not limited access
-  Other Numbered Highway
-  Major Road
-  Major Streams
- DEP Wetlands**
-  Reservoir
-  Marsh
-  Wooded Swamp
-  Cranberry Bog
-  Salt Marsh
-  Open Water
-  Tidal Flat/Rocky Shore

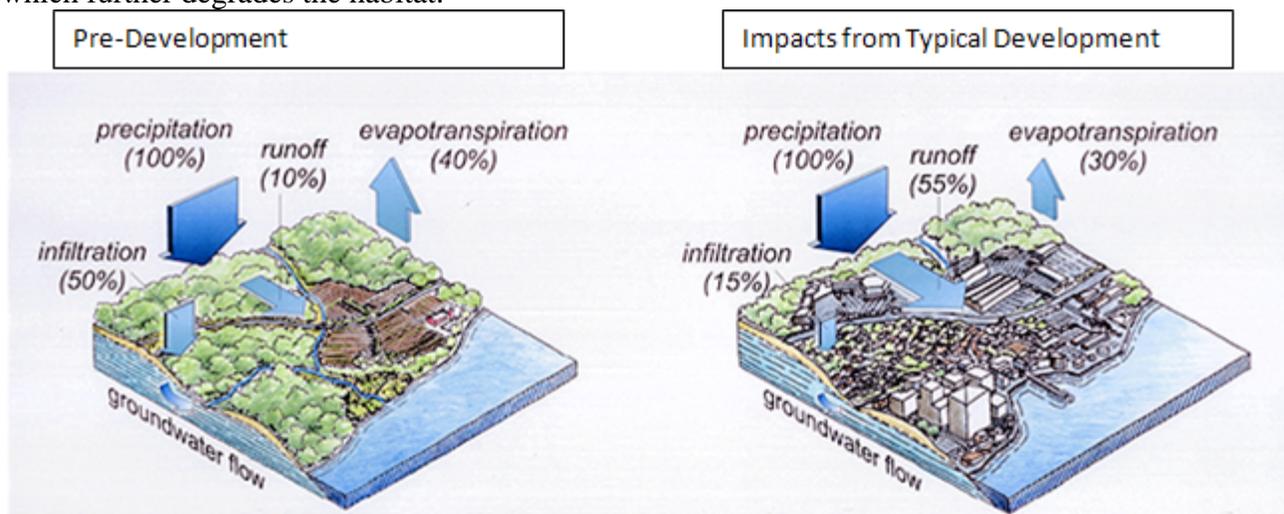
Morses Pond is currently under stress and is saturated by weeds that are so thick at times they cover a good portion of pond surface.

The dense urban environment along Route 9 and adjacent to Morses Pond poses a threat to the health of the pond, and is likely a major contributor to the eutrophication of the pond. Eutrophication is a process whereby water bodies, such as lakes, ponds, or slow-moving streams receive excess nutrients that stimulate excessive plant growth. This enhanced plant growth reduces dissolved oxygen in the water when dead plant material decomposes and can cause other organisms to die.

Eutrophication decreases the resource value of rivers, lakes, and ponds such that recreation, and aesthetic enjoyment are hindered. Human activities can accelerate the rate at which nutrients enter ecosystems. Runoff from development, pollution from septic systems, and other human-related activities increase both inorganic nutrients and organic substances in aquatic ecosystems.

The predevelopment illustration below explains what happens to rainfall after it hits the ground, otherwise known as a depiction of the water budget. Under natural conditions in the Northeast, about 75% of the water from each rainfall event is either returned to the atmosphere by evaporation from vegetation or trapped on the forest floor, where it slowly soaks, or infiltrates, into the ground. There is very little surface runoff. The water that infiltrates is critical to maintaining the base flows of streams for fish and other aquatic life as well as ground water reserves for public & private water supplies.

When land is developed as illustrated in the “Impacts from Typical Development” figure shown below, the frequency, volume and rate of flow of surface runoff increases dramatically. This is because increased impervious areas, such as roads, driveways and buildings reduce evaporation and infiltration. The reduction of vegetation from development also decreases the amount of rainfall returning to the atmosphere through evapotranspiration and the amount that infiltrates to the ground. This increased volume of runoff and reduction in groundwater recharge destabilizes stream channels and in-stream habitat. The amount of sediments and pollutants also increases, which further degrades the habitat.



Typical Impacts from Development - Figure N2

Numerous studies throughout the United States have shown the adverse effects of urbanization on the health of streams and wildlife habitat. This study from the University of Washington shows the relationship between watershed urbanization and biological integrity of streams. The graph shows how streams and biological health, measured by a tool called “Benthic Index of Biotic Integrity”, generally declines as a watershed is covered by impervious surfaces. (See the University of Washington Center for Urban Water Resources Management’s web site for more information on this and other studies.) All studies regarding water quality and the amount of impervious area say the same thing: the higher percentage of impervious area, the lower the water quality.

Effects of Urbanization on a Watershed – Figure N3

A goal contained within the Town of Wellesley Comprehensive Plan Update, Section 7, is to, “Restore, preserve, and enhance open space and sensitive natural resources for protection of water resources, wildlife habitat, biodiversity, and enrichment of community character.” Wellesley has undertaken a concerted effort to restore Morses Pond.

Since the mid 1960's, the Town has performed various in-lake management efforts. Despite continued efforts over decades, the health of the pond and its environment has been in rapid decline. In FY05, the town used Community Preservation Act (CPA) funds to develop a Morses Pond Restoration Feasibility Study. In FY07, the DPW completed landscape renovations to the Morses Pond Beach pathway area, and five miles of trails were mapped near the pond. At the 2008 annual town meeting, the Wellesley Natural Resources Commission was successful in requesting and securing \$969,500 in funding from the Advisory Committee, the Community Preservation Committee, Town Meeting and Town Voters to implement the Morses Pond Comprehensive Management Plan. \$650,000 was approved in a debt exclusion vote for funding

the design, permitting, construction and monitoring for the dredging of the northern portion of Morses Pond.

In addition to Morses Pond, Boulder Brook and the Overbrook Reservation are located within the study area. At the public forums held during the planning process, neighbors expressed concern about the deterioration of the Overbrook Reservation. They reported that trash is being dumped in the Reservation, and that the trail system has become overgrown due to lack on on-going maintenance.

Overbrook Reservation and Boulder Brook - Figure N 4



In 2005, the Wellesley Trails Committee proposed a new woodland trail through the Overbrook Reservation. The trail would start at the Overbrook Reservation sign on Weston Road and loop around land on the north side of Boulder Brook. The only access to this open space is along a short section of Weston Road at the ramp up to Route 9 and along Route 9. The committee is considering whether it should try to obtain a trail easement from landowners on Shirley or Livingston Road to improve neighborhood access to the trail.

The project includes the construction of steps down from the Weston Road sidewalk, construction of a footbridge over Boulder Brook, construction of some bridges to cross over wet spots between Weston Road and the proposed footbridge, and development of a loop trail on the high ground north of brook.