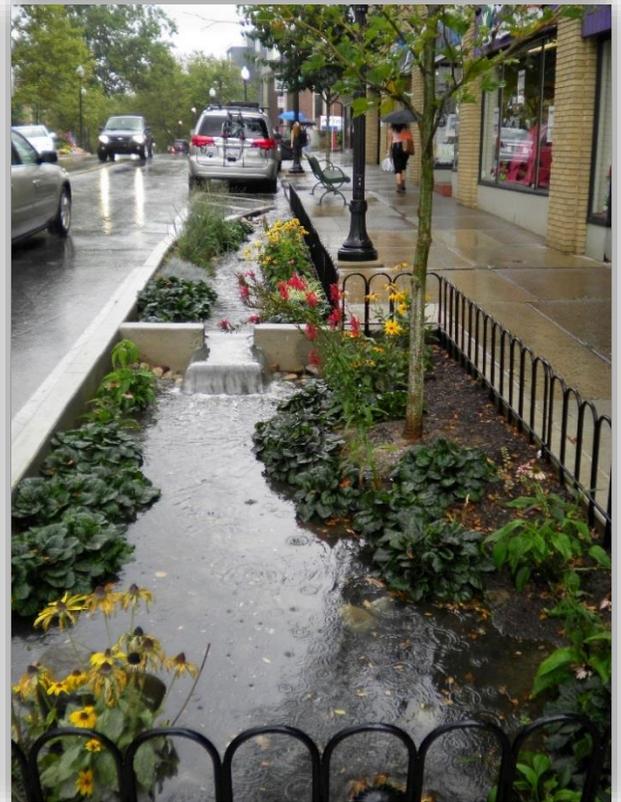


# REVIVING A DOWNTOWN: ARMORY VILLAGE GREEN INFRASTRUCTURE PROJECT

MILLBURY  
MASSACHUSETTS

## What is Green Infrastructure?

A cost-effective, resilient approach to managing storm water that restores and mimics the absorption and filtering capability of natural, undeveloped areas like meadows and forests. When it rains in an urban area like Armory Village, impervious surfaces like roads, parking lots, sidewalks and rooftops don't allow water to absorb into the ground. Instead, thousands of gallons flow from these surfaces into storm drains and then into rivers, ponds and lakes. Green infrastructure uses plants, soils, mulch, and gravel to soak up, store and cleanse water where it falls. Section 502 of the Clean Water Act defines green infrastructure as "...the range of measures that use plant or soil systems, permeable pavement or other permeable surfaces or substrates, stormwater harvest and reuse, or landscaping to store, infiltrate, or evapotranspire stormwater and reduce flows to sewer systems or to surface waters."



## Why Change Now?

Because the engineered drainage features (catch basin-pipe-manhole-outfall) that Armory Village has in place today are designed to quickly convey water from the urban environment to the Blackstone River, it cannot always handle the increasing volume of precipitation common during this era of climate change. Multiple large storms occurring in quick succession and extreme intensity storms result in flooding and private property damage with greater regularity than in the past. In 2005, 2010 and 2018, the Blackstone River and its contributing streams overtopped roads and flooded homes.

Another challenge facing the Blackstone River is non-point source pollution or polluted runoff. Under existing conditions in Armory Village, pollutants such as trash, oil, gasoline, salt, sand, and pesticides are picked up by rain and carried directly into the Blackstone River. According to the "Massachusetts Year 2014 Integrated List of Waters", the Blackstone River in Millbury is classified as a Category 5 Water due to up to 17 causes of impairment. Many are caused by polluted runoff. If the goal of a fishable, swimmable Blackstone River is

ever to become a reality, we have to devise more innovative strategies for addressing non-point source pollution. Green infrastructure is one key strategy in the Town's toolbox.

## Armory Village Project's Green Infrastructure Features

- ▶ 21 new street trees
- ▶ 4 rain gardens & bioswales
- ▶ 1 flow-through planter
- ▶ Porous pavement walkways
- ▶ Pedestrian plazas & decorative sidewalk edging with pervious pavers
- ▶ Expanded sidewalks featuring planting beds, street trees and outdoor seating
- ▶ Bioretention bumpouts at crosswalk locations

## Green Infrastructure Benefits

- ▶ Welcoming public spaces attract business, investment & patrons!!!
- ▶ Street trees filter out harmful air/noise pollution and provide beauty, habitat & cooling shade;
- ▶ Porous pavers, pervious pavement, rain gardens, bioswales, and flow-through planters reduce flooding by allowing storm water to slowly infiltrate the ground where it falls and improve the Blackstone River by filtering out contaminants;
- ▶ Bioretention bumpouts cleanse & absorb storm water, but they also shorten crosswalks, incorporate ADA-accessible ramps, and calm traffic for improved pedestrian safety;
- ▶ Wider sidewalks & pedestrian plazas incorporating colorful landscaping reduce impervious cover while providing beautiful places for people to congregate;
- ▶ Attractive public spaces, bike facilities & an accessible downtown encourage people to walk or ride from place-to-place instead of drive. This reduces air pollution.

