Urban Rain Gardens At Work

Worcester Senior Center

Rain gardens reduce the heat island effect by absorbing summer heat! They also create a more comfortable and nicer-looking place for city residents and habitat for birds and pollinators.

Rainfall from occasional, heavy storms is captured by storm drains, flows into the rain gardens on site, and eventually into underground perforated chambers.

Rainfall from frequent light rainstorms is absorbed by rain gardens on site

witch hazel tree

red chokebush

steeplebush

hop sedge

riverbank wild rye

1

2

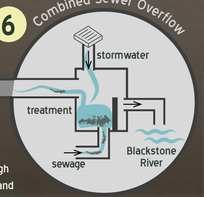
2

3

4

5

6 Combined Sewer Overflow



Under normal conditions, only clean water flows to waterways. During heavy rains, stormwater in Worcester's historic city core can combine with wastewater, overwhelming the system and causing polluted water to overflow. These perforated chambers provide extra room in the system, helping to avoid overflow events, keeping our rivers clean!

UNDERGROUND AQUIFER

How can low impact make a big difference?

When it's low impact development! Also known as "LID", **low impact development** refers to the practice of managing stormwater in ways that mimic nature. Instead of capturing water in pipes and moving it quickly to streams, rivers, sewer systems, or treatment plants, LID systems (also called green infrastructure) allow water to move naturally.

Rainwater is captured, slowed, and kept on site, allowing it to soak into the ground and remain part of the natural hydrological cycle. LID doesn't just act like nature, it engages nature in its work! Trees, plants, and soil are incredible filters—they work together to absorb stormwater and remove toxins from the urban environment. In the summer, they also absorb heat and make things look good too! Most of the stormwater runoff generated by the site's impervious surfaces is treated on-site. That's a big innovation from traditional stormwater management.

PROJECT HISTORY

As a result of Worcester's commitment to climate change resiliency, a regular parking lot renovation project at the Worcester Senior Center was revised to include rain gardens along the site's edges. At this 75% impervious urban site, a combination of green infrastructure (rain gardens) and grey infrastructure (underground perforated water chambers) is used to manage water.

Under the pavement and hidden from view, stormwater infrastructure catches rain garden overflow and works to keep your streams and rivers healthy! The blue tubes in these photos are perforated chambers that capture and hold the stormwater, allowing it to seep slowly into the ground. Each of the 4 perforated chambers shown holds as much as 3,000 gallons! This keeps excess water out of the sewer system, preventing it from being overwhelmed.

WHAT'S HAPPENING HERE?

1. Rainwater falls onto roofs, parking lots, streets, and sidewalks, picking up toxins and pollutants.
2. This stormwater runoff carries pollutants into rain gardens to be treated.
3. Rain gardens contain special plants that hold water, and "digest" pollutants.
4. Rain garden soil cleans water as it infiltrates into the ground and eventually soaks into the aquifer below.
5. During heavy rain events, excess stormwater not absorbed by the rain gardens is directed to the underground perforated chambers that hold and slowly release water into the aquifer.
6. If the underground chambers also fill up, excess stormwater is released through an overflow pipe into the city's network of combined sewer pipes, eventually exiting into the Blackstone River.

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www.worcesterma.gov/greenworcester

MVP
Municipal Vulnerability Preparedness

MASSWORKS Infrastructure Program