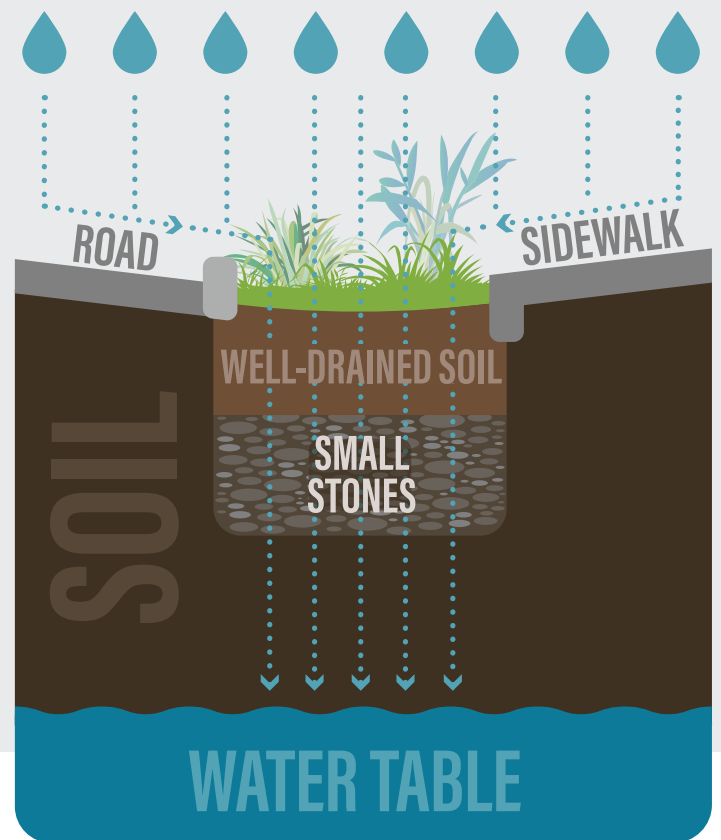




What is Green Infrastructure?

Green infrastructure is an approach to stormwater management that helps to reduce untreated stormwater that flows from the City's storm sewer system and discharges into lakes, rivers, and ponds.

In a standard stormwater system, runoff drains from streets to a pipe system that eventually drains into lakes and streams. Green infrastructure slows and cleans stormwater. This makes the water cycle in an urban environment become closer to the natural water cycle, where water infiltrates into the ground and stormwater is available for plants. Green infrastructure can also provide water quality treatment by removing some of the pollutants common in an urban environment such as trash, oil, dirt, leaf litter, nitrogen, and phosphorus.



Green infrastructure can be installed above or below the ground.

EXAMPLES OF GREEN INFRASTRUCTURE:

Above Ground

- Grass Boulevards** – Grass area between the sidewalk and the road can slow the flow of runoff into the road and stormwater system and decrease the total runoff generated
- Infiltration Basins/Swales** – Depressions within planted areas designed to store stormwater and allow it to soak into the ground
- Rain Gardens** – Depressed areas with plantings and other features designed to maximize infiltration or filtration and use by plants
- Tree Trenches** – Deeper depressions (often with vertical walls) designed to incorporate trees along with other plantings and features to maximize infiltration and pollutant removal

Underground

- Underground Storage Chambers (Concrete or Plastic)** – Underground structures designed to infiltrate as well as hold stormwater runoff and release it slowly
- Infiltration Trenches/French Drains** – Perforated pipe in an underground gravel trench designed to store stormwater runoff and allow it to infiltrate into the ground

Photo courtesy of Minnesota Stormwater Manual

WHAT ARE THE PROS AND CONS OF ABOVE-GROUND VS. UNDERGROUND GREEN INFRASTRUCTURE?

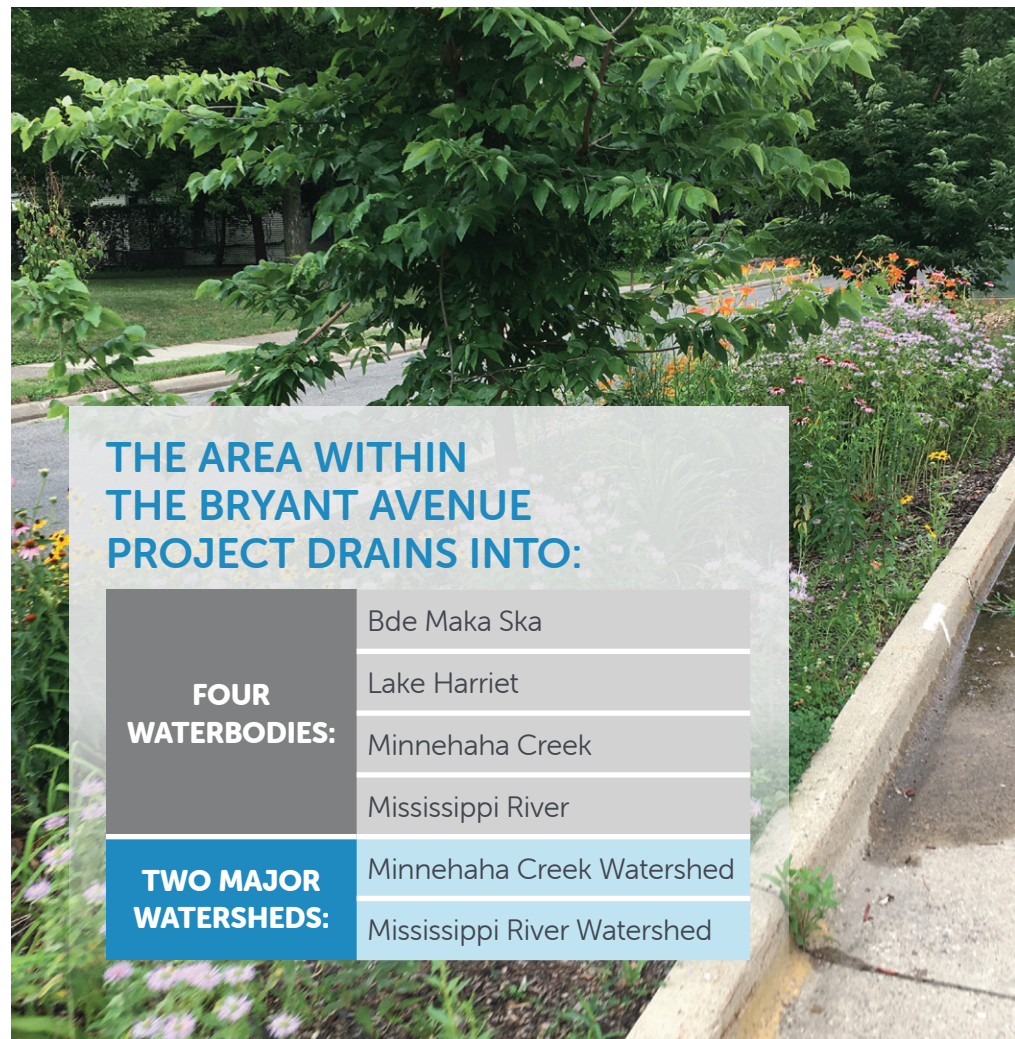
Above-ground green infrastructure can be easier to install, maintain, repair, and identify repair or maintenance needs than underground stormwater management. It provides a natural habitat for bees and other pollinators and can beautify the street. Above-ground green infrastructure can also provide comfort and safety for pedestrians, bicyclists, and motorists when used between these different modes of transportation.

Underground green infrastructure provides similar water quality treatment to above-ground green infrastructure, but it can be placed under impervious areas such as parking bays, sidewalks, and bicycle trails. If the underground conditions allow, underground green infrastructure can provide more treatment and storage within the same footprint by increasing the depth. However, underground green infrastructure does not provide the aesthetic, environmental, or health benefits of plants when built under impervious surfaces. As noted above, it can also be harder to build, repair, and maintain.

Green infrastructure opportunities on Bryant Avenue

A goal of the Bryant Ave Reconstruction project is to use green infrastructure to collect and treat stormwater runoff. The first step towards meeting this goal is identifying the locations along the corridor where the City can implement green infrastructure as well as the locations where implementing green infrastructure would have the highest positive impact. High impact locations include:

- Locations that collect runoff from large areas
 - A drainage area is the total land area draining to a low point or an inlet in the street. The map below shows the drainage areas along Bryant Ave.
 - Since large drainage areas collect more runoff than smaller drainage areas, placing green infrastructure within large drainage areas means more runoff will be treated and more pollutants will be removed
- Large, connected areas of green space such as a long strip of boulevard
- Locations spread out along the corridor, ideally at the bottom of hills or steep grades and closer to the collection or low point of the drainage area
- Locations where there are high ratios of impervious surface in drainage areas



THE AREA WITHIN THE BRYANT AVENUE PROJECT DRAINS INTO:

FOUR WATERBODIES:	Bde Maka Ska
	Lake Harriet
	Minnehaha Creek
	Mississippi River
TWO MAJOR WATERSHEDS:	Minnehaha Creek Watershed
	Mississippi River Watershed

Bryant Avenue Drainage Areas

50TH STREET - 46TH STREET



45TH STREET - 41ST STREET




40TH STREET - 36TH STREET





35TH STREET - LAKE STREET



DRAINAGE DISTRICTS

 BRYANT AVE DRAINAGE AREA, THE TOTAL LAND AREA THAT DRAINS TO THE EXISTING STORMWATER SYSTEM ON BRYANT AVE

WATERSHEDS
The green and yellow shading show which watershed each drainage area flows to.

-  MINNEHAHA CREEK
-  MISSISSIPPI RIVER