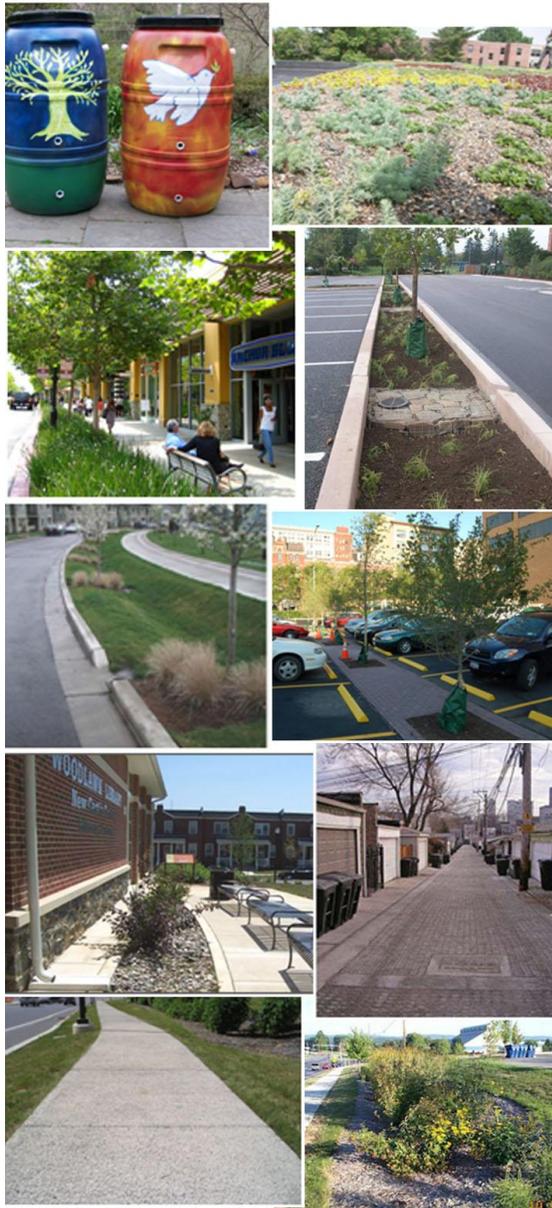


## FACT SHEET: Overview of Green Infrastructure



Examples of Green Infrastructure (GI) techniques, including several from Lancaster City

### DESCRIPTION

**What is Green Infrastructure?** Green infrastructure (GI) refers to a decentralized network of site-specific stormwater management techniques (see below for examples). GI techniques are implemented to reduce the volume of stormwater runoff entering the sewer system while also restoring the natural hydrologic cycle. As opposed to gray infrastructure - the traditional network of costly large scale conveyance and treatment systems - green infrastructure manages stormwater through a variety of small, cost-effective landscape features located on-site.

Green infrastructure is particularly important in urban areas with combined sewers, where during wet weather events, combined sewer overflows (CSOs) result in untreated combined sewage being discharged directly into water bodies. (See diagram on page 2). These CSO events can significantly impact downstream water quality. As cities are increasingly required by legislation to reduce the frequency and volume of CSO events, greater emphasis is being placed on implementing alternative ways of managing urban stormwater runoff using GI techniques.

**How does Green Infrastructure work?** Green infrastructure employs the following processes to design a hydrologically functional site that mimics predevelopment conditions:

- Infiltration (allowing water to slowly sink into the soil)
- Evaporation/transpiration using native vegetation
- Rainwater capture and re-use (storing runoff to water plants, flush toilets, etc.)

### Common Green Infrastructure Techniques

- Downspout Disconnection
- Cisterns/Rain Barrels
- Bioretention (Rain Gardens)
- Vegetated ("Green") Roofs
- Stormwater Planter Boxes
- Infiltration Practices (Basins, Trenches, Dry Wells)
- Pervious Pavement with Infiltration
- Green Streets/Green Alleys
- Vegetated Swales
- Tree Trenches
- Vegetated Curb Extensions

## BENEFITS OF GREEN INFRASTRUCTURE

### *Environmental Benefits*

- Recharges and improves quality of ground and surface waters
- Provides natural stormwater management
- Improves energy efficiency
- Reduces urban heat island effect
- Improves aquatic and wildlife habitat

### *Social Benefits*

- Improves aesthetics and livability of urban communities
- Increases recreational opportunities
- Improves water and air quality
- Fosters environmental education opportunities

### *Economic Benefits*

- Reduces existing and potential future costs of gray infrastructure
- Increases property values
- Reduces energy consumption costs



Image Source: [artfulrainwaterdesign.net](http://artfulrainwaterdesign.net)

## GREEN INFRASTRUCTURE CAN REDUCE THE FREQUENCY AND VOLUME OF CSO EVENTS

### COMBINED SYSTEM

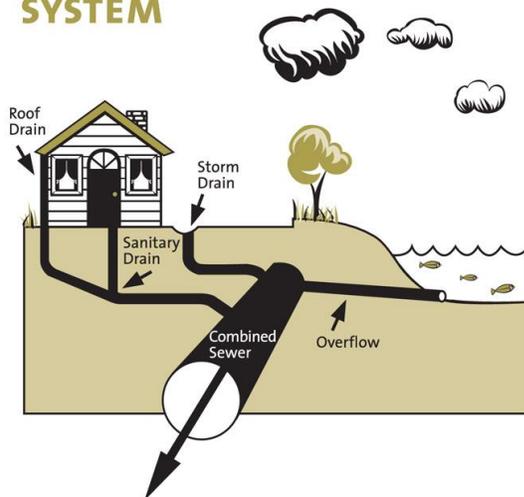


Diagram of combined sewer system  
Source: [EcoJustice.ca](http://EcoJustice.ca)

## ADDITIONAL CONSIDERATIONS

### *Maintenance of Green Infrastructure*

Similar to conventional gray infrastructure, green infrastructure does require some level of maintenance to ensure optimal performance:

- Many GI techniques require regular maintenance, whether related to vegetation (weeding, pruning, mulching) or operational maintenance/repair (cleaning pervious pavement)
- The life cycle of the technology or vegetation used in the GI technique must be taken into account when preparing a maintenance plan

### *Cost of Green Infrastructure*

- Costs for green infrastructure vary widely depending on specific site conditions and the type of GI techniques being used
- Often the cost of GI projects is competitive with or less than comparable gray infrastructure projects