

## FACT SHEET

# Cistern / Rain Barrel

### DESCRIPTION

Cisterns and rain barrels are structures designed to intercept and store runoff from rooftops to allow for its reuse, reducing volume and overall water quality impairment. Stormwater is contained in the cistern or rain barrel structure and typically reused for irrigation or other water needs. This GI technology reduces potable water needs while also reducing stormwater discharges.

**Rain Barrel** – Rooftop downspouts are directed to an above-ground (typically) structure that collects rainwater and stores it until needed for a specific use, such as landscape irrigation.

**Cistern** – Underground (typically) container or tank with a larger storage capacity than a rain barrel, and typically used to supplement greywater needs (i.e. toilet flushing) in a building, as well as irrigation.

Cisterns and rain barrels can be used in urbanized areas where the need for supplemental onsite irrigation or other high water uses is especially apparent.



Rain barrel in use in the City of Lancaster

### Potential Limitations

- Manages only relatively small storm events which requires additional management and use for the stored water
- Typically requires additional management of runoff
- Requires a use for the stored water (immigration, gray water, etc.)



Rain barrels in use in the City of Lancaster



Cistern

### BENEFITS

- Provides supplemental water supply
- Wide applicability
- Reduces potable water use
- Related cost savings and environmental benefits
- Reduced stormwater runoff impacts

### Potential Applications

Residential	Yes
Commercial	Yes
Ultra Urban	Yes
Industrial	Yes
Retrofit	Yes
Highway / Road	No
Recreational	Yes
Public / Private	Yes / Yes

Stormwater Quality Functions		Stormwater Quality Functions		Additional Considerations	
Volume	Low / Medium	Total Suspended Solids	Medium	Capital Cost	Low / Medium
Groundwater Recharge	Low	Total Phosphorus	Medium	Maintenance	Medium
Peak Rate	Low	Total Nitrogen	Medium	Winter Performance	Medium
Erosion Reduction	Low	Temperature	Medium	Fast Track Potential	Medium / High
Flood Protection	Low / Medium	-	-	Aesthetics	Low / Medium

## VARIATIONS

- Rain barrels
- Cisterns, both underground and above ground
- Tanks
- Storage beneath a surface using manufactured products
- Various sizes, materials, shapes, etc.

## KEY DESIGN FEATURES

- Various sizes, materials, shapes, etc.
- Provide overflow for large storm events
- Discharge water before next storm event
- Consider site topography, placing structure upgradient of planting (if applicable) in order to eliminate pumping needs

## SITE FACTORS

- Water table to bedrock depth – N/A (although must be considered for subsurface systems)
- Soils – N/A
- Slope – N/A
- Potential Hotspots – yes with treatment
- Maximum drainage area – N/A



Rain barrel prototype example

## MAINTENANCE

- Discharge before next storm event
- Clean annually and check for loose valves, etc.
- May require flow bypass valves during the winter

## COST

- Rain barrels range from \$100 to \$300
- Cisterns typically range from \$500 to \$5000



For more information about the Green Infrastructure program please contact:

Fritz Schroeder  
Fritz@livegreenlancaster.org  
(717) 392-7891 ext. 207



the city of **Lancaster**  
*a city authentic*