# CISTERNS

Solutions Toolbox Factsheet

A cistern is a large above ground container that captures and stores rain from a roof or other hard surfaces helping to reduce flooding and sewer overflows. The water collected in the cistern can be slowly released into a yard or sewer. This lets water slowly trickle out to make room for rain from the next storm. In the late spring, they can be used for storing rain for summer watering. With proper treatment, water from cisterns can also be used for various non-potable purposes such as laundry and toilet flushing. Cisterns are commonly installed on residential private property but can also be installed on larger public and commercial buildings. In Seattle, many cisterns are installed through the RainWise program.

## EXAMPLE

Cisterns can capture rain from roofs for summer watering.
Image credit: https://700milliongallons.org/

## TOOL OVERVIEW

### PRIMARY DRAINAGE & WASTEWATER BENEFITS

- **System capacity**: reduce the amount of water entering the conveyance system during storms
- **Water quality**: reduce pollutants released to natural water bodies, when used in areas connected to the combined system that overflows
- **Climate adaptation & resilience**: reduce flooding, sewer backups, and combined sewer overflows

### DESIGN CONSIDERATIONS

- Size based on contributing roof area
- Avoid collecting runoff from roofing materials that contain copper, zinc, or other contaminants
- Design low-flow valve to slowly release flow to lawn or side sewer
- Include overflow mechanism to manage flows when the cistern is full

### MAINTENANCE CONSIDERATIONS

- Remove debris bi-annually from roof, gutter, screen, and bottom of cistern
- Clean valve monthly or after large events

## CASE STUDY

### St. Lukes Episcopal Church - Seattle, WA

Six rainwater cisterns capture runoff from the 16,600 square foot roof to provide irrigation. This project keeps approximately 84,000 gallons of stormwater out of the combined sewer system to reduce combined sewer system overflows into Lake Union and the Ship Canal.

For more information about this case study, visit www.ShapeOurWater.org/Solutions.

## TOOL CO-BENEFITS

| | |
|---|---|
| open/green space & habitat | |
| air quality | |
| water supply & conservation | ● |
| environmental sustainability | ● |
| hazard & climate resilience | ● |
| economic resilience | ● |
| align with other investments | |
| equity opportunity | ● |
| community collaboration & ownership opportunity | ● |
| multi-benefit community amenity | |
| public education opportunity | ● |
| public health & safety | ● |
| minimal construction impacts | ● |

## IMPLEMENTATION CONSIDERATIONS

### APPLICATION

- **Scale**: site, neighborhood
- **Where & when**: parcel, public ROW/street, new development, redevelopment, retrofit
- **Compatibility with other tools**: green roofs, non-potable reuse

### SPU ROLES

- Build partnerships
- Design guidance
- Incentives for private projects
- Inspection, monitoring & evaluation
- Program development, non-capital

### POTENTIAL PARTNERS

- Developers
- Communities
- King County (KCWTD)
- Private property owners
- Schools