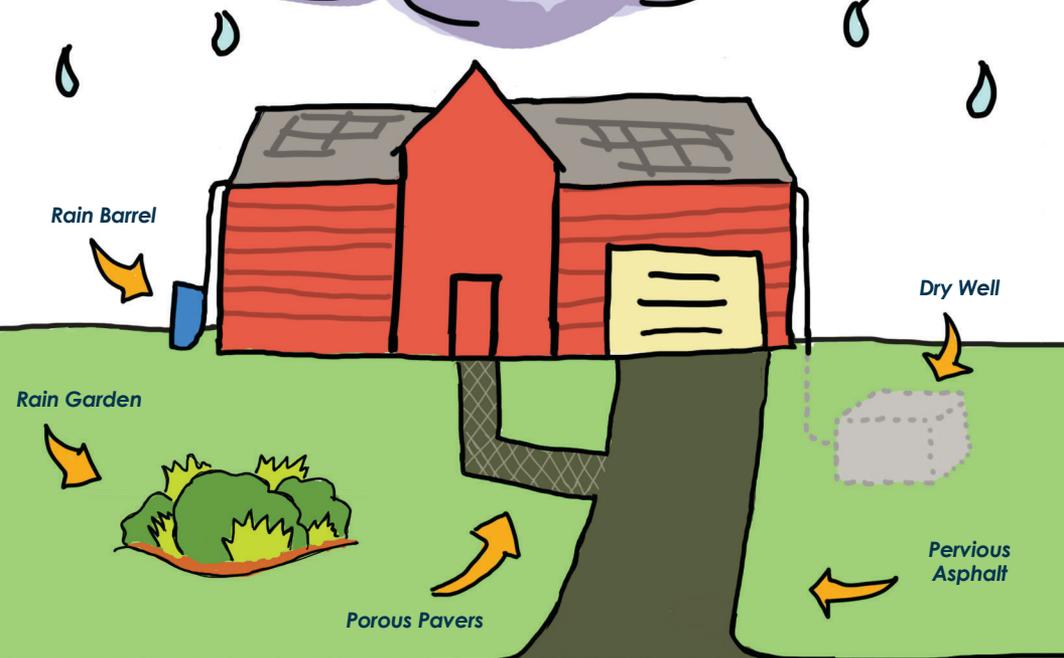


Homeowners Guide to Stormwater BMP Maintenance

What You Need to Know to Take Care of Your Property



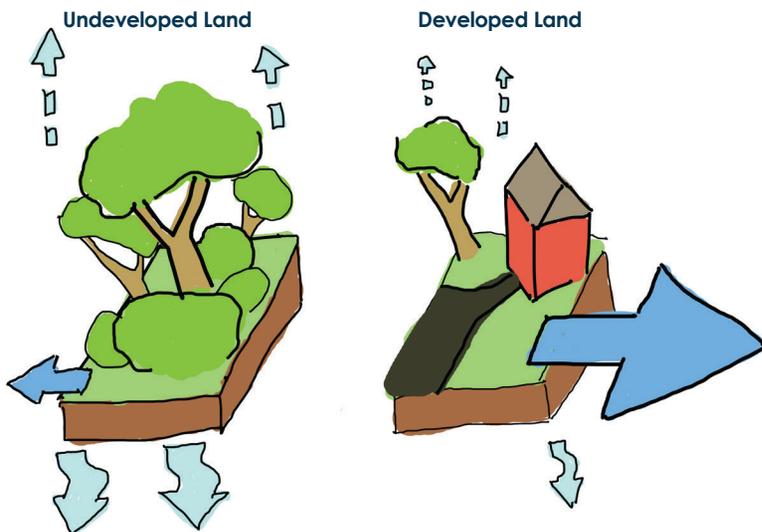
City of El Monte
Stormwater BMP Management
Homeowners Guide



What is Stormwater?

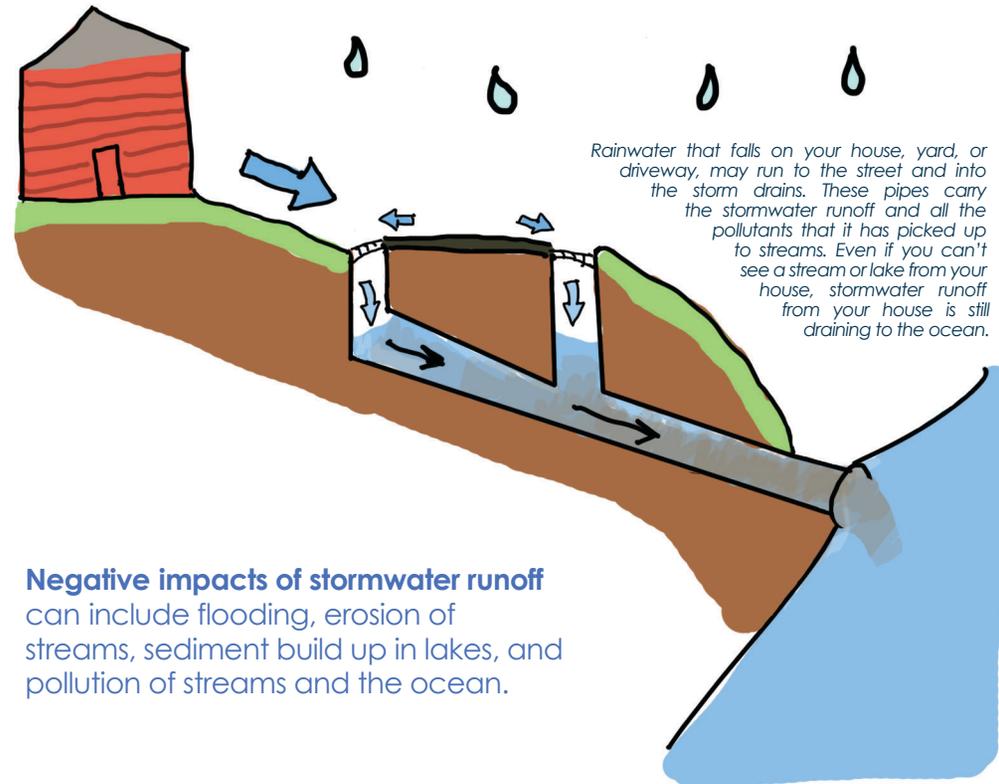
El Monte has two drainage systems – the sewers and the storm drains. The sewer system takes waste from homes and businesses to a treatment plant before discharging to the ocean. The storm drain system is designed to prevent flooding by carrying excess rainwater away from city streets out to the ocean.

Pollutants are not being disposed of properly. These pollutants are entering our storm drains, flowing into our creeks, rivers, and ultimately our ocean, and contaminating our water resources. It is the State of California and the City of El Monte's goal to ensure our water resources are healthy and free from contaminants. To do so, clean oceans can only be a result of healthy creeks, rivers, and beaches. Which means, creeks, rivers and beaches can only be healthy through pollution prevention activities.



When it rains on an undeveloped piece of property, much of the rainwater infiltrates into the soil or is evapotranspired back into the atmosphere. When vegetation is replaced with streets, driveways, sidewalks, houses, and lawns, less rainwater is able to infiltrate or return to the atmosphere, and more of the rain turns into runoff.

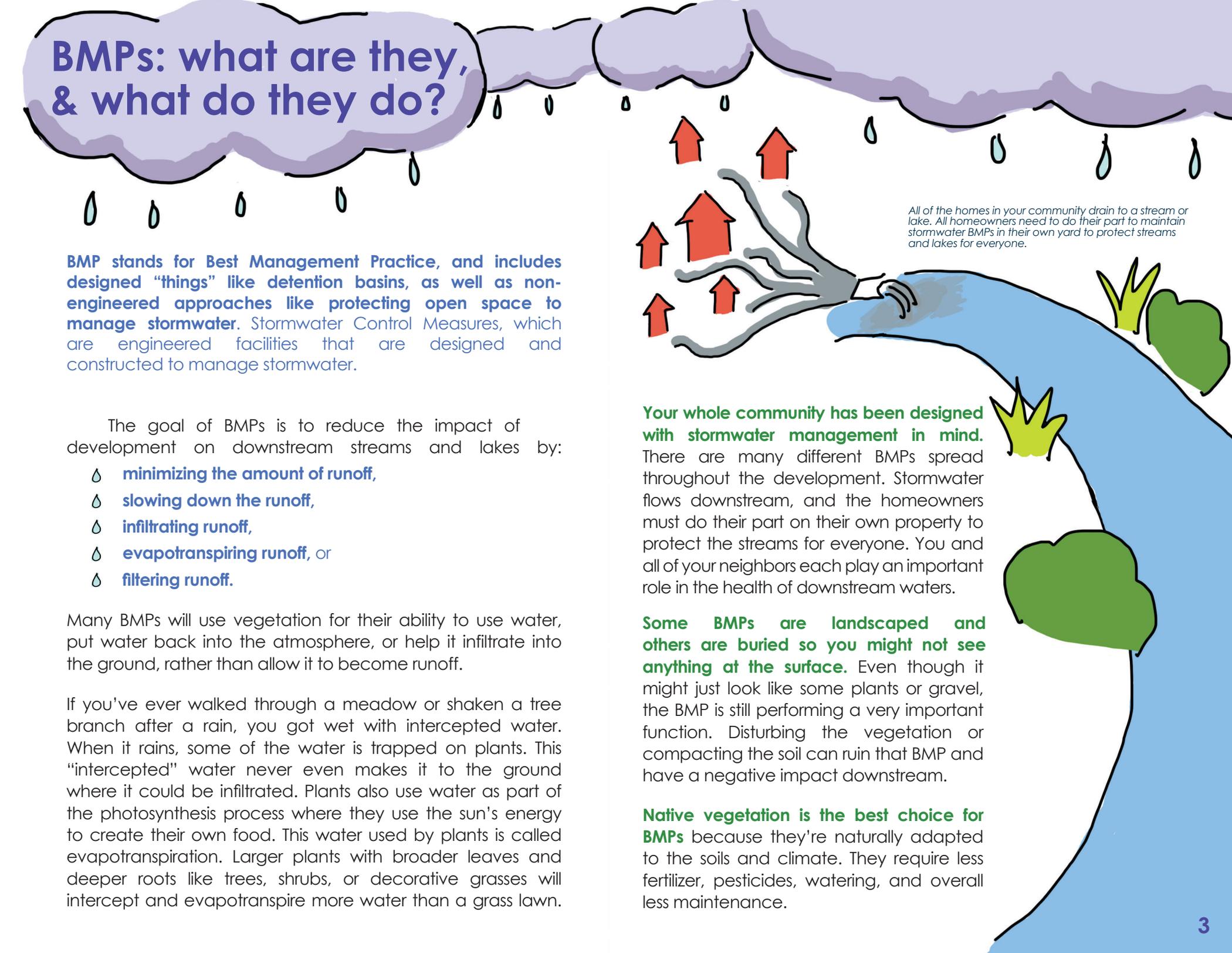
Why should you care about Stormwater Management?



Negative impacts of stormwater runoff can include flooding, erosion of streams, sediment build up in lakes, and pollution of streams and the ocean.

Rain water mixed with urban pollutants may create stormwater pollution. Urban runoff pollution may also flow to the ocean through the storm drain system. The pollutants include: oil and other automotive fluids, paint and construction debris, yard and pet wastes, pesticides and litter. Stormwater decreases natural habitat for fish and other animals that live in streams and the ocean. Urban runoff pollution contaminates the ocean, closes beaches, harms aquatic life and increased the risk of inland flooding by clogging gutters and catch basins.

BMPs: what are they, & what do they do?



BMP stands for **Best Management Practice**, and includes designed “things” like detention basins, as well as non-engineered approaches like protecting open space to manage stormwater. Stormwater Control Measures, which are engineered facilities that are designed and constructed to manage stormwater.

The goal of BMPs is to reduce the impact of development on downstream streams and lakes by:

- △ **minimizing the amount of runoff,**
- △ **slowing down the runoff,**
- △ **infiltrating runoff,**
- △ **evapotranspiring runoff, or**
- △ **filtering runoff.**

Many BMPs will use vegetation for their ability to use water, put water back into the atmosphere, or help it infiltrate into the ground, rather than allow it to become runoff.

If you've ever walked through a meadow or shaken a tree branch after a rain, you got wet with intercepted water. When it rains, some of the water is trapped on plants. This “intercepted” water never even makes it to the ground where it could be infiltrated. Plants also use water as part of the photosynthesis process where they use the sun's energy to create their own food. This water used by plants is called evapotranspiration. Larger plants with broader leaves and deeper roots like trees, shrubs, or decorative grasses will intercept and evapotranspire more water than a grass lawn.

All of the homes in your community drain to a stream or lake. All homeowners need to do their part to maintain stormwater BMPs in their own yard to protect streams and lakes for everyone.

Your whole community has been designed with stormwater management in mind.

There are many different BMPs spread throughout the development. Stormwater flows downstream, and the homeowners must do their part on their own property to protect the streams for everyone. You and all of your neighbors each play an important role in the health of downstream waters.

Some BMPs are landscaped and others are buried so you might not see anything at the surface.

Even though it might just look like some plants or gravel, the BMP is still performing a very important function. Disturbing the vegetation or compacting the soil can ruin that BMP and have a negative impact downstream.

Native vegetation is the best choice for BMPs

because they're naturally adapted to the soils and climate. They require less fertilizer, pesticides, watering, and overall less maintenance.

Downspout Disconnection

What is it?

Traditionally, roof gutter downspouts were connected directly to underground storm drain pipes. Disconnecting the downspout allows the roof runoff to be managed right on your property, not allowing it to pick up any pollutants to carry downstream. Roof runoff can be directed to grassy lawn areas, to rain barrels and cisterns for reuse, or to an underground sump for infiltration.

Rain barrels and sumps are discussed separately. This section describes maintenance of roof runoff to a lawn area.

How does it work?

When the gutter downspout is turned and allowed to drain into the yard, the stormwater can be filtered by the grass and infiltrated into the soil. Downspout disconnection reduces stormwater volume by allowing it to be used by plants (evapotranspiration) or infiltrated into the soil.

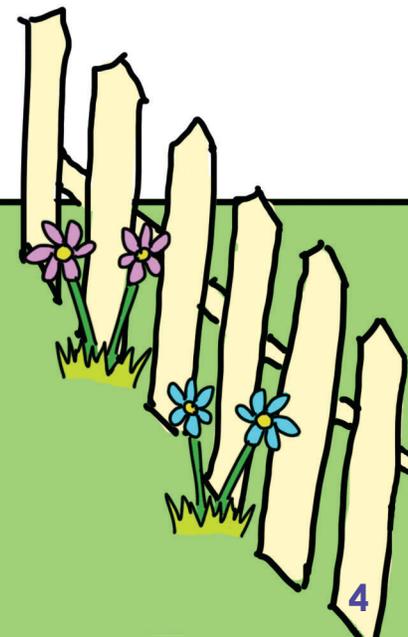
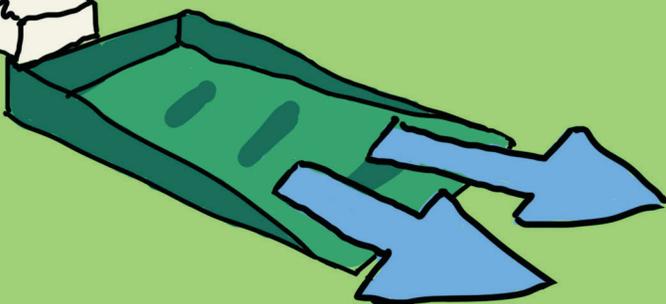
How does a Homeowner maintain it?

Regularly:

- Maintenance for a downspout draining to a lawn area is generally part of the typical yard maintenance.
- Mow the lawn in this area at the same time interval that the rest of the yard is mowed.
- Check for bare spots and reseed if needed.

Additional Information:

- △ A splash guard or small pile of rocks may be needed at the location where the water leaves the drain to slow the water down and prevent erosion.



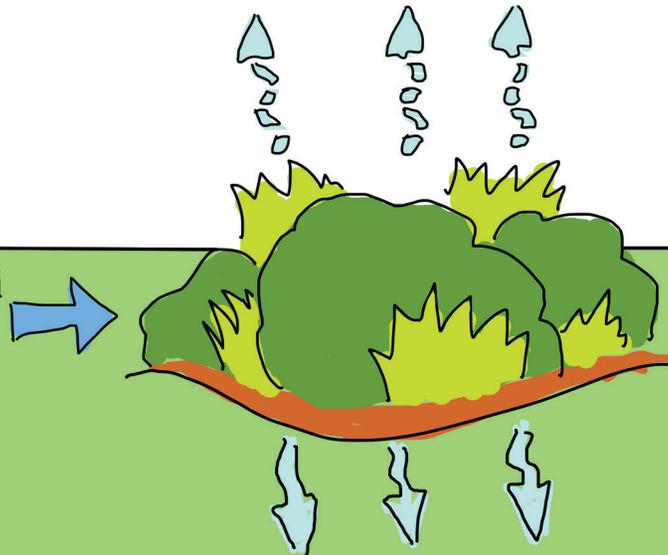
Rain Gardens & Small Bioretention

What is it?

A rain garden or bioretention area is a shallow depression that will hold runoff. It is planted with specially selected native vegetation that will filter and use runoff, as well as increase infiltration.

How does it work?

Rain gardens reduce the amount of runoff and remove pollutants. As the water pools in the depression, it can infiltrate deeper into the soil, or be used by the vegetation through evapotranspiration. The deep and dense root system of perennial vegetation increases the amount of water that infiltrate as compared to the shallow roots of lawn grasses. Even in a larger event during which the rain garden may overflow, runoff is still filtered through the vegetation removing pollutants.



How does a Homeowner maintain it?

Twice a year:

- Vegetation needs to be checked to make sure that it's healthy. Any bare spots need to be replanted.
- Check the inflow area to make sure that there isn't any sediment building up. Remove any accumulated sediment.
- Mulch should be re-spread when erosion is evident and be replenished as needed.

Annually:

- Perennial plants should be cut back if needed by species type and any dead vegetation should be removed at the end of the growing season.

Every Three Years:

- Apply mulch in the spring as needed to cover soil. Mulch should be 1-3 inches deep. Do not use mulch to "fill-in" the depression of the rain garden. That depression area is needed for stormwater management.

Additional Information:

- 💧 While vegetation is being established in the first few years, weeding may be required.
- 💧 If any plants die, they need to be replaced. Refer to the Post-Construction Stormwater Management Plan for what types of plants to use.
- 💧 During periods of extended drought, bioretention areas may require watering.
- 💧 Rain gardens should be checked after large rain storms to make sure that they are draining within 72 hours.

Rain Barrels & Cisterns

What is it?

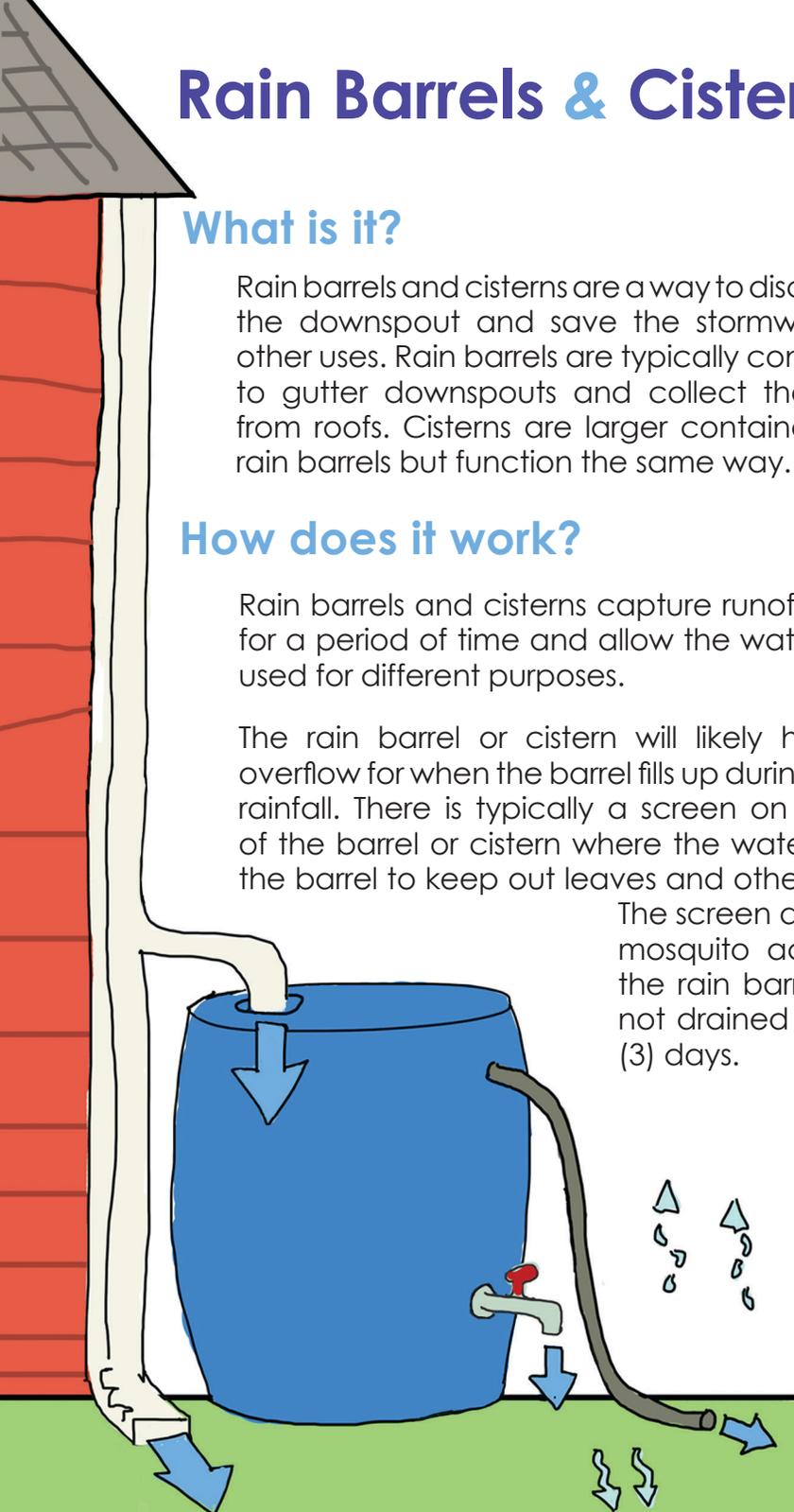
Rain barrels and cisterns are a way to disconnect the downspout and save the stormwater for other uses. Rain barrels are typically connected to gutter downspouts and collect the runoff from roofs. Cisterns are larger containers than rain barrels but function the same way.

How does it work?

Rain barrels and cisterns capture runoff, hold it for a period of time and allow the water to be used for different purposes.

The rain barrel or cistern will likely have an overflow for when the barrel fills up during heavy rainfall. There is typically a screen on the top of the barrel or cistern where the water enters the barrel to keep out leaves and other debris.

The screen also limits mosquito activity in the rain barrel if it is not drained in three (3) days.



How does a Homeowner maintain it?

After Rain Events:

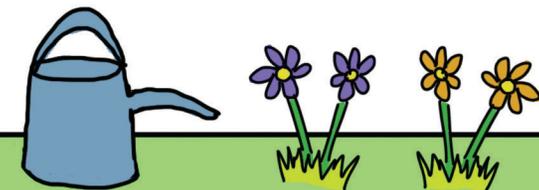
- Clean the screen by removing any leaves that could block the flow of water into the barrel/cistern.
- Use the water in the barrel/cistern so that it's empty and ready to collect runoff from the next rain.

Annually:

- Clean gutters to remove leaf debris that could clog the barrel/cistern.

Additional Information:

Rain barrels and cisterns are great (and economical!) water sources for watering plants. The spigot can fill a watering can or be connected to a standard garden or irrigation hose.



Dry Well

What is it?

Roof runoff can be directed through the gutter downspout to an underground dry well to be infiltrated without taking up any surface yard space. Dry wells are also sometimes called sumped downspouts.

How does it work?

Dry wells reduce stormwater volume by allowing it to be infiltrated into the soil. The water is held in the underground storage facility and then can drain slowly into the surrounding soil. The runoff drains from the gutter into either a gravel filled pit or a prefabricated plastic or concrete tank. There may be a sump, or smaller chamber, located before the gravel pit or tank. This sump collects leaves and other debris to prevent clogging of the dry well.

How does a Homeowner maintain it?

After storms with larger than 1 inch of rain:

- There is typically a screen where the downspout enters the dry well. Clean the screen by removing any leaves that could block the flow of water into the dry well.
- Inspect the sump for accumulation of sediment, trash, or any other material. Remove any material that is in the sump to prevent it from clogging the dry well.

Quarterly:

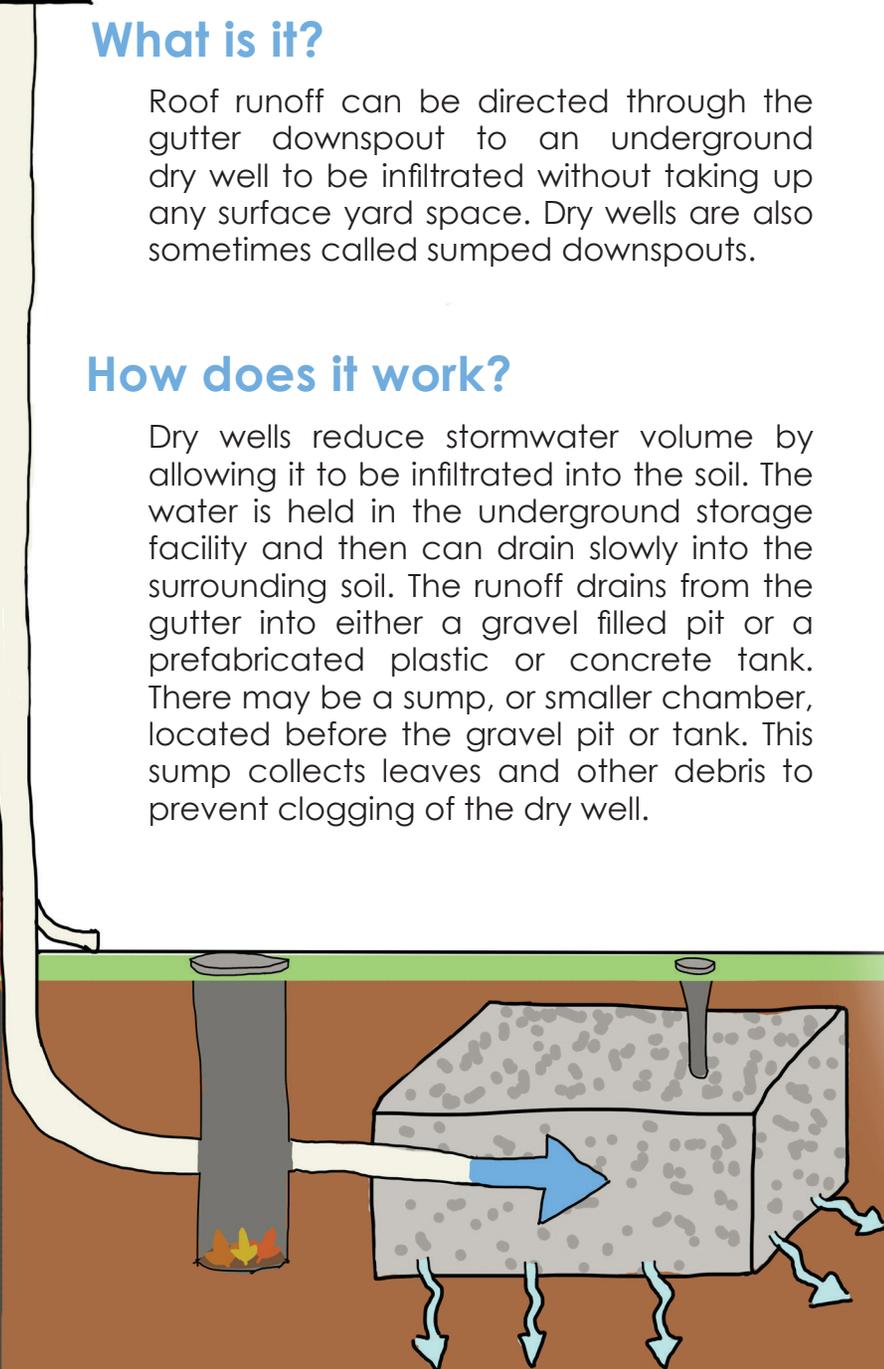
- There should be an above ground cap that allows access to the dry well. Four times a year, view down the access pipe to make sure that the dry well is not accumulating sediment, trash, or other material. Over time the accumulation of sediment or trash may be vacuumed or may require excavation.

Annually:

- Clean gutters to keep leaf debris out of the sump and dry well.

Additional Information:

- △ After large rain events, check the access pipe to ensure that the dry well is draining within 72 hours. If the drain times are more than 72 hours, the dry well may need to be cleaned out or replaced.



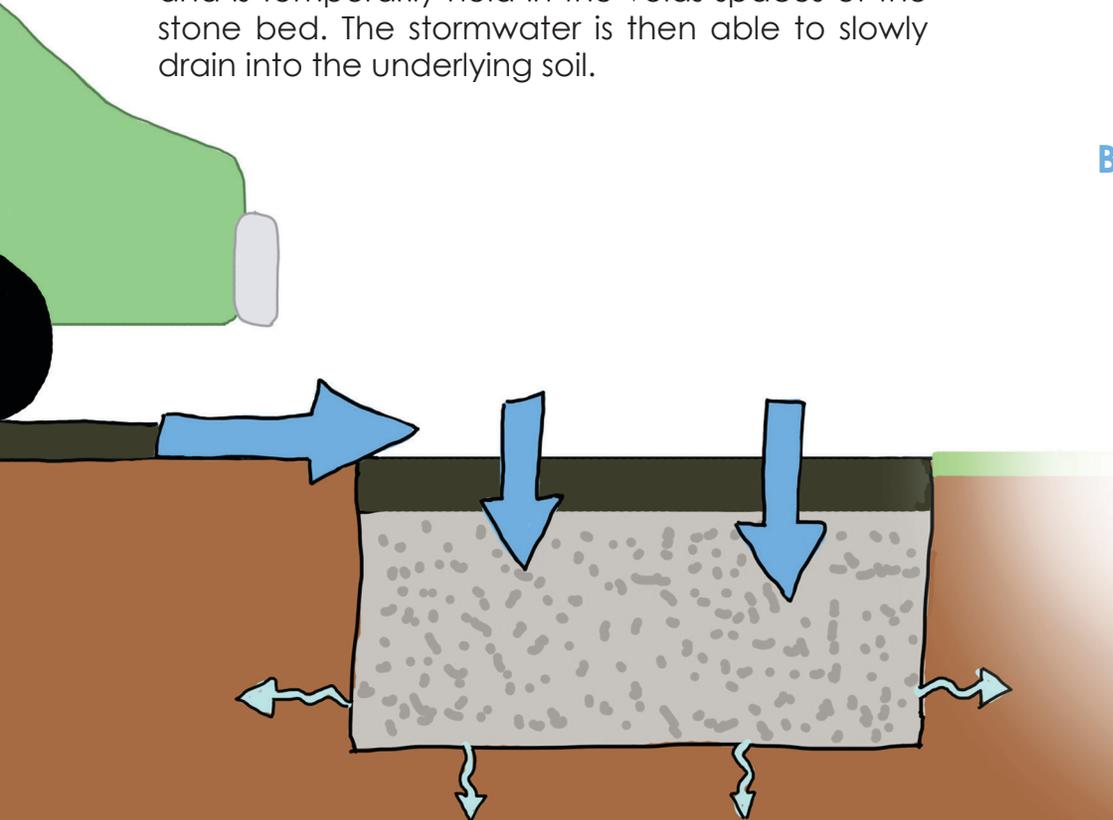
Pervious Pavements

What is it?

Pervious pavements are a modification to typical pavement that allow water to drain through the surface rather than run off it. Pervious pavements include porous asphalt or porous concrete which are poured over a gravel bed, or porous pavers on uncompacted soil.

How does it work?

Stormwater drains through the pervious surface and is temporarily held in the voids spaces of the stone bed. The stormwater is then able to slowly drain into the underlying soil.



How does a Homeowner maintain it?

Protection:

- The key to maintaining pervious pavements is to prevent the surface from getting clogged.
- Planted areas near the pervious pavement should be well maintained to prevent soil from washing into the pavement. If you see a bare spot or eroded area, it should be replanted to prevent soil wash off.
- If soil does wash onto the pavement, it should be immediately cleaned off before it gets ground into the surface.
- It is very important to never apply a sealing coat. A sealing coat over a pervious asphalt driveway or walkway will clog all the openings and prevent water from draining through it.

Biannually:

- The surface needs to be vacuumed twice a year with a commercial cleaning unit to remove fine particles from the surface.

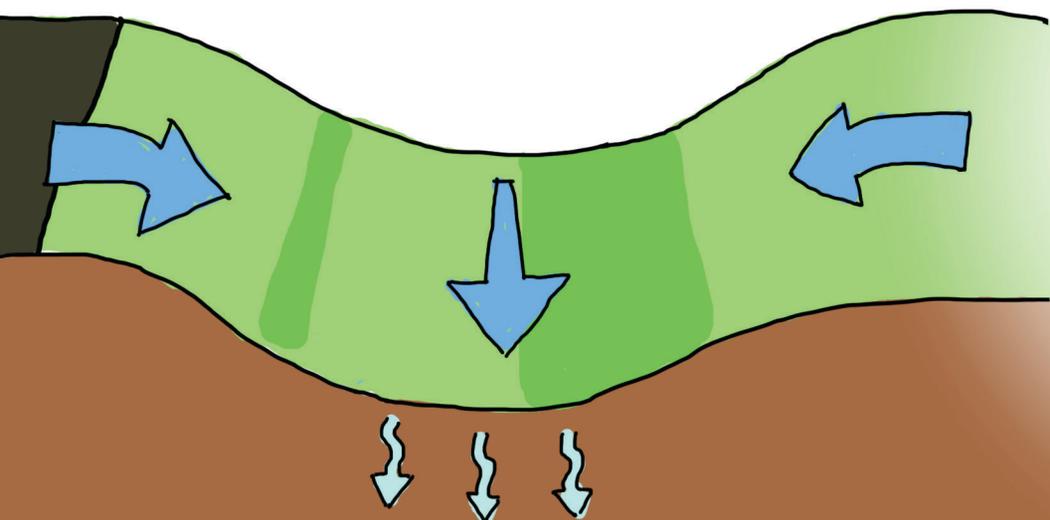
Vegetated Swale

What is it?

A vegetated swale is a wide, shallow channel, planted with grass or shrubs. A swale conveys runoff like a ditch, but a swale is much shallower and wider than a typical drainage ditch. If the swale is located on a steeper slope, rocks may be used to prevent erosion.

How does it work?

The wide, shallow design of swales allows runoff to flow more slowly than it would in a narrow, deep ditch or in a pipe. Vegetated swales slow runoff, promote infiltration, and filter pollutants and sediment in the process of conveying runoff. They can be used instead of conventional curb and gutter.



How does a Homeowner maintain it?

Regularly:

- If the vegetation in the swale is turf grass, mow the swale when mowing the rest of the yard. Mow only when swale is dry to avoid rutting.
- After rain events look for erosion, damage to vegetation, or sediment accumulation. Reseed bare areas and remove sediment.

Twice a Year:

- If the vegetation in the swale is larger perennial shrubs and bushes, check to make sure that it's healthy. Any bare spots need to be replanted.
- Look for any sediment build-up. Remove any accumulated sediment.

Annually:

- Perennial plants should be cut back if needed by species type, and any dead vegetation should be removed at the end of the growing season.

Additional Information:

- While vegetation is being established in the first few years, weeding may be required.
- Watering may be necessary during dry periods.