



# PLANTER BOXES

## STORMWATER MANAGEMENT

### What are Planter Boxes?

Planter boxes are structures or containers with open bottoms to allow stormwater, primarily rooftop runoff, to temporarily hold and filter stormwater. They contain a layer of gravel, soil, and vegetation. Stormwater runoff temporarily pools on top of the soil, and then slowly infiltrates through the planter into the ground, or an existing drainage system. Pollution reduction is achieved as the stormwater filters through the soil. Planter boxes come in many sizes and shapes, and are made of stone, concrete, brick, plastic, or wood.

### Purpose of Planter Boxes

To reduce stormwater runoff flow rate, volume, temperature, pollutants, and recharging groundwater.

### Types of Planter Boxes:

#### Infiltration planters

Passive design, stormwater collects in planter box (with soil and vegetation) and naturally infiltrates into the ground, ideal for well-drained soil types.

#### Flow-through

Active design, excess water is piped into existing storm drain system, ideal for poorer soil types.

### Design Considerations

#### Location

- Infiltration planter boxes should be located greater than 10 feet from a building (or closer if engineered to protect the foundation of the building) and are only applicable on well-drained soil types (Type A and B soils).
- Flow-through planter boxes may be located within 10-feet of a building and must be designed as a contained system and lined for watertightness with an outlet pipe.

- Additional irrigation is optional as required to ensure plant viability.
- Locate planter boxes at least 5 feet away from property lines

### Sizing

Typical planter boxes are approximately 3.5-feet deep and may vary in length and width.

- The minimum width shall be 30-inches.
- The length x width shall be designed to equal 1/12 of the impervious area desired for stormwater treatment with the planter box.



Planter Box in Ashland, OR.

# PLANTER BOXES

## Materials List

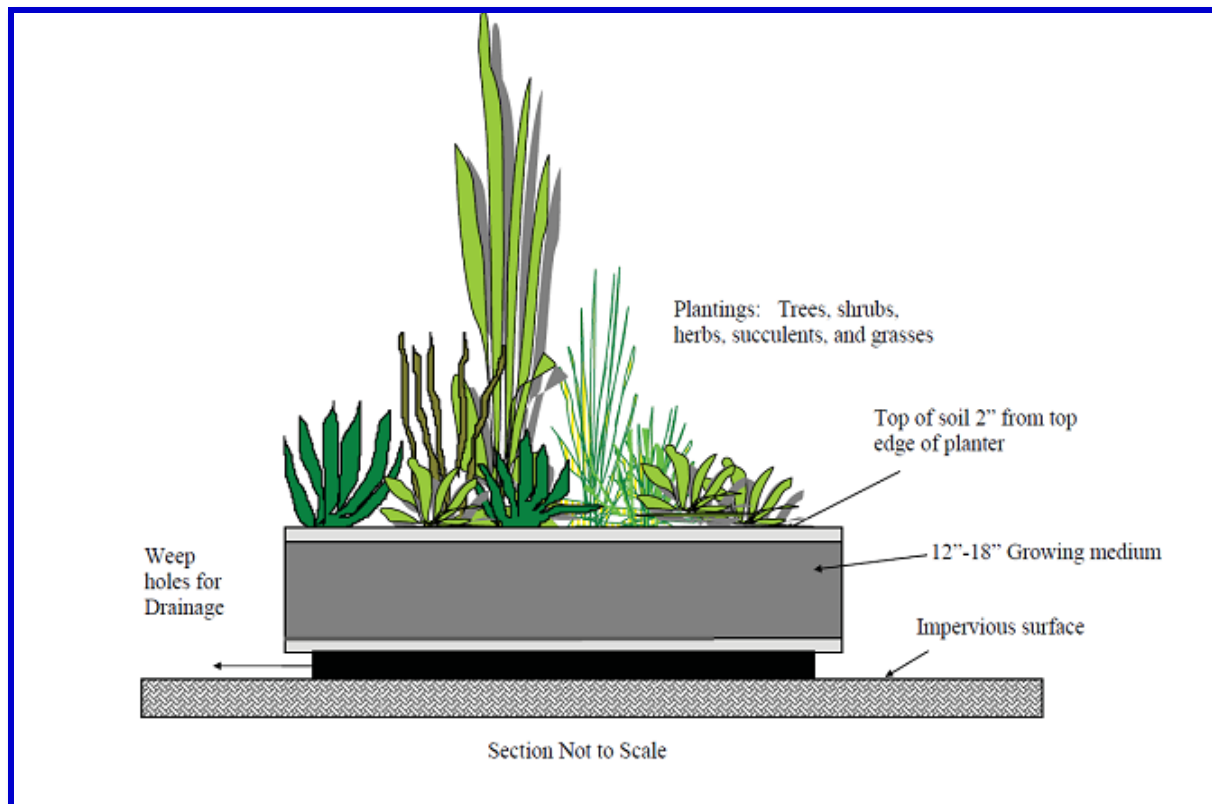
- Structures** can be made of brick, stone, plastic, or pressure treated wood (lined to prevent leaching). Structures should be constructed water-tight if used within 10-feet of a building. If used directly adjacent to a building, a waterproof membrane is required in addition to the structural material.
- Soil** that is amended for ample infiltration
- Plants** that love stormwater, refer to the plant list attached.
- Gravel rock** below the soil shall have a maximum size of 3/4-inch.
- Flow-through planter boxes are required to provide **filtration fabric** between the soil and gravel layers.
- Overflow pipe** shall be a reverse bend trap installed as shown on the diagram

## Vegetation

A variety of shrubs and small trees can be used for infiltration planters. Plants must be suitable for seasonally moist and dry soil conditions. Avoid permanent irrigation if possible. Planters are likely to need watering and weeding in the first one to three years (*City of Portland*).

Planter Boxes shall include the following per 25 square feet:

- 1 - large shrubs/small trees (3-gallon container or equivalent)
- 3 - shrubs/large grasses (1-gallon container or equivalent)
- Ground cover placed 24-inches on center (to achieve a minimum of 50% ground cover when planted).



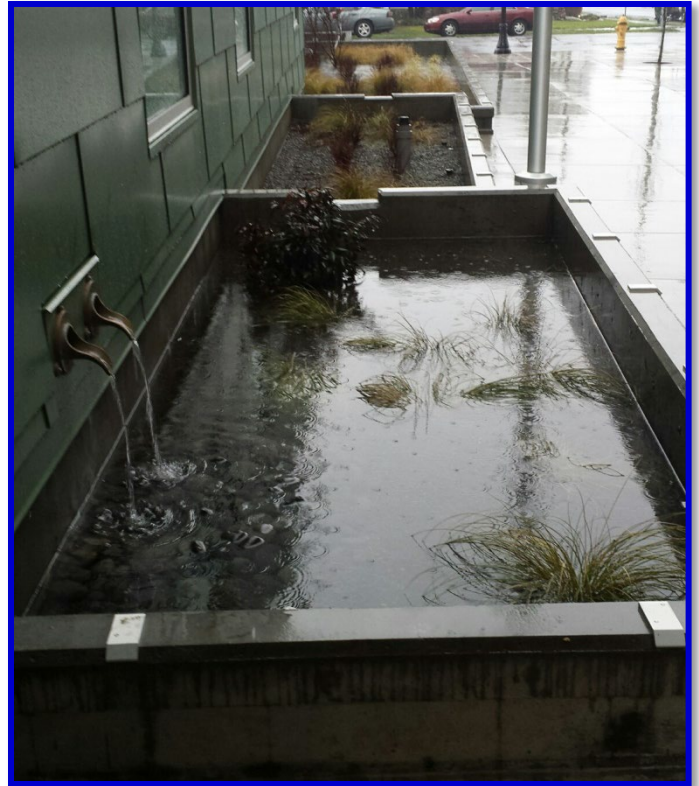
**Infiltration Planter**

Source: Rogue Valley Stormwater Design Manual

# PLANTER BOXES

## Operations and Maintenance:

- Splash guards for the downspouts shall be inspected and modified as needed to reduce erosion of the filter/media soil
- Planter Boxes shall be inspected after major storm events to ensure water standing in the reservoir is drained between 3-4 hours after the storm event. If adequate drainage does not occur, the topsoil may need to be amended with sand. Holes that provide a direct route from the surface to the drain rock shall be filled in with soil.
- Remove litter or debris.
- The structure shall be inspected for any cracks or leaks and repaired accordingly.
- Vegetation shall be irrigated and mulched as needed to maintain healthy plants with a density that prevents soil erosion. Fallen leaves and debris shall be removed. Invasive plants shall be removed.



**Planter Box in Portland, OR.**

## References

City of Portland

JSWCD “Planter Box Plants” plant list

Rogue Valley Stormwater Design Manual