Green Stormwater Infrastructure Facility

Bioretention Areas

Bioretention areas are shallow vegetated depressions that provide storage and encourage infiltration through retention. Bioretention areas remove pollutants by filtering stormwater through plants adapted to the local climate and soil conditions. Further, the infiltration process promotes the adsorption of pollutants into the underlying soils. Bioretention can be included in many right-of-way features including planting strips, stormwater planters, bulb-outs, medians, and chicanes.

COMMUNITY

Enhances roadway aesthetics

Improves road safety

Requires minimal space

CLEAN WATER

Removes pollutants

Reduces runoff volume

Alleviates flooding

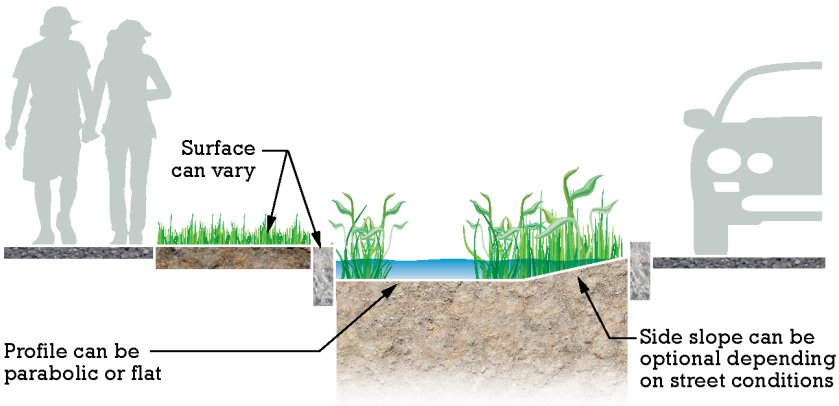
Decreases runoff temperature

Uptakes nutrients

Existing curb retained while installing a bioretention along a neighborhood collector street. *Source: Kevin Robert Perry/City of Portland*

Accessible pedestrian ramps can also be integrated into the design.
Source: Dave Elkin/City of Portland

Typical Bioretention Profile



Potential Applications/Retrofits

- Method to manage runoff volume and mitigate peak discharge rates
- Provides medium to biodegrade petroleum-based solvents and hydrocarbons
- Traffic-calming device in commercial and residential settings

Residential	Yes
Commercial	Yes
Arterials	Limited
Alleys	No

ADDITIONAL CONSIDERATIONS

Capital Cost	Medium
Maintenance	Medium
Summer/Winter Performance	Medium
Community Benefit	High

Bioretention areas can be designed as any size or shape needed to meet space limitations while providing stormwater treatment.

Limitations

- Designed to capture small storm events
- Not suitable for locations where the seasonally high groundwater table is near the surface
- Must consider existing on-street parking conditions, street width, and vehicle turning radii when using the bulb-outs
- Additional maintenance required to establish vegetation
- Requires careful selection of plants and soil mix for optimum performance (tolerate summer drought/low rainfall, ponding fluctuations and saturated soil conditions for lengths of time)
- May require third party agreement for maintenance

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