

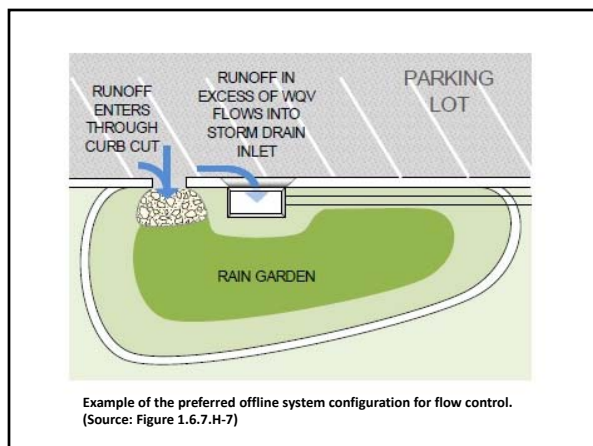
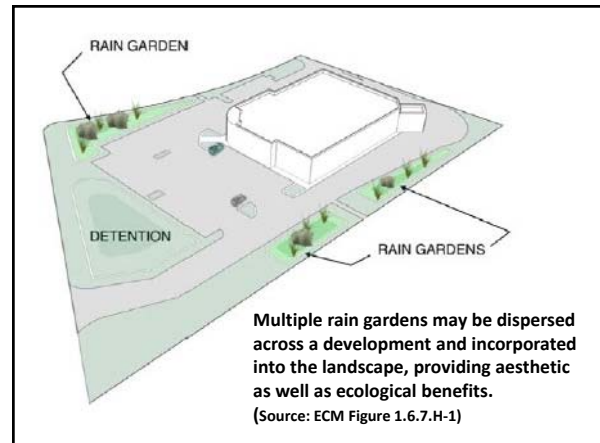


## Agenda

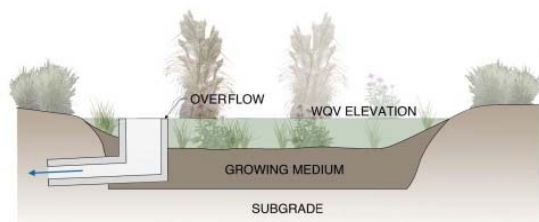
- Brief overview of what rain gardens are
- Rain Garden examples
- But I thought the City liked (and promoted!) rain gardens?
- Draft Proposal for Rain Gardens (RGs) for water quality credit on single-family residential properties
- Discussion
- Wrap-up/Next meetings

## What is a Rain Garden?

- Vegetated, depressed landscape area designed to capture and infiltrate and/or filter stormwater runoff
- Has growing medium: native soil or biofiltration media
- Provides removal of pollutants in stormwater runoff similar to other treatment systems (e.g., sand filters)
- Have small drainage areas (2 acres max.) & shallow ponding depths (1 ft. max.)
  - Results in larger surface area than other controls
  - Infiltration, evapotranspiration, and biological uptake mechanisms may be more significant than other controls
- Three different types in Environmental Criteria Manual (ECM):
  - Full infiltration (no underdrain); **TODAY'S FOCUS**
  - Partial infiltration (filtration system with raised outlet or partial underdrain)
  - Filtration system with no infiltration



## Full Infiltration Rain Garden





Shoal Creek: Burnet Rd. at Cullen Ln.



Shoal Creek: Burnet Rd. at Cullen Ln.



Shoal Creek: Burnet Rd. at Cullen Ln.



Shoal Creek: Madison & Woodrow



Shoal Creek: Reese & Grover



Shoal Creek: Reese & Grover

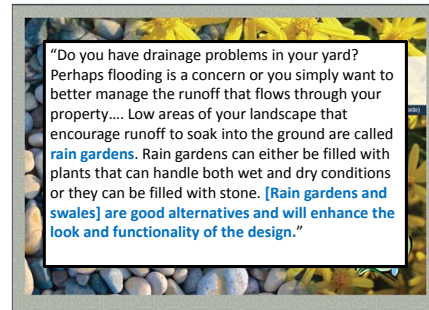


## But I thought the City liked (and promoted!) rain gardens?



[http://www.austintexas.gov/sites/default/files/files/Watershed/growgreen/raingarden\\_factsheet.pdf](http://www.austintexas.gov/sites/default/files/files/Watershed/growgreen/raingarden_factsheet.pdf)

## But I thought the City liked (and promoted!) rain gardens?



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## But I thought the City liked (and promoted!) rain gardens?



## Draft Proposal: Restrictions on Rain Gardens for Single-Family Residential

1. Must treat clusters of single-family residences (i.e., not individual lots)
2. Must be located in the right of way, dedicated common area, or within a drainage easement that is accessible by standard maintenance equipment from the right of way
3. Cannot be located in backyards or fenced in yards
4. Not allowed in the Barton Spring Zone per the Edwards Aquifer Protection Program rules
5. The City of Austin will provide functional maintenance. Homeowners may add additional native landscaping

➤ Note: Current ECM prohibits use of rain gardens for single-family residential water quality credit. The above proposal is for stakeholder discussion purposes only and has not yet been presented for Environmental Criteria Manual review.

## Concerns about Rain Gardens on Individual Single-Family Properties

1. Larger number of ponds/workload to review, inspect & track (in design, construction & post construction)
2. More complex communication and coordination for inspections and enforcement with homeowners
3. No professional/consistently reliable maintenance (and some rain gardens may be removed entirely)
4. Inaccessibility to inspect (fencing, guard dogs, hostile or absent homeowners, etc.)
5. Difficulty to compel compliance in municipal court
6. City may be asked by owners in future to assume maintenance responsibility

## Explanation of Draft Proposal

### Treat clusters of single-family residences.

- Addresses proliferation of numbers of controls to a more manageable level
- Rain gardens still small compared to most subdivision ponds (e.g., four houses instead of twenty or fifty, etc.; rain gardens have a max. drainage area of 2 acres vs. up to 50 for a sand filter, etc.)
- Still gets the advantages of a rain garden (large pond-area-to-volume ratio due to shallow depth; increased retention and infiltration, aesthetic amenity, compatibility with home scale, etc.)

### Explanation of Draft Proposal

Located in right-of-way, dedicated easement accessible from ROW, or dedicated common lot.

- Addresses concerns about inability to gain safe, adequate, efficient access for inspection and maintenance
- Formal location (ROW, easement, own lot) gives permanent status (as opposed to someone's yard and subject to being considered "optional" and subject to removal by the homeowner)

### Explanation of Draft Proposal

City to assume maintenance responsibility. Can arrange for residents to provide more frequent mowing, landscaping, etc.

- Addresses concerns about having to coordinate with multitudinous individual owners, compel maintenance compliance, or have these revert back to the City under poor circumstances anyway (inaccessible, destroyed, etc.)
- Proposal stakes out middle position where residents have heavy maintenance assured by the City but understand that they can contribute themselves (since many will want more frequent attention, specialized plants, etc.)

### Explanation of Draft Proposal

City to assume maintenance responsibility. Can arrange for residents to provide more frequent mowing, landscaping, etc.

(Discussion continued)

- Rain gardens need maintenance. They don't usually need heavy equipment (like bigger filter and wet ponds) but will not function properly unless they receive modest attention on a routine basis to clear blocked inflow structures, remove trash, etc.

### WPO Phase 2 Schedule, 2014

Phase 2 Kickoff	Jan. 22
Perviousness: Introduction	Feb. 21
Perviousness: Porous Pavement (part 1)	Mar.07
Porous Pavement (part 2), Artificial Turf & Rainwater Harvesting	Mar.21
<ul style="list-style-type: none"> <li>• Porous pavement: conclusion</li> <li>• Rainwater harvesting options (conservation storage, green roofs, etc.)</li> </ul>	
Rain Gardens for Single-Family Residential	Apr. 04
Beneficial Use of Stormwater: Potential Policy Approaches	
Introduction/National Examples	Apr. 18
Conclusion	May 02
Next Steps	TBD

### Contact Information

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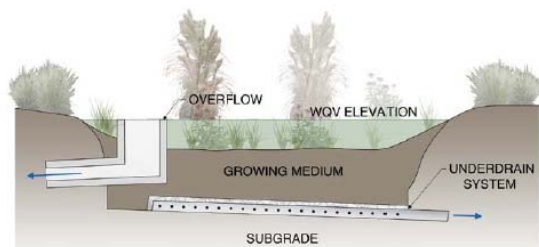
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<http://austintexas.gov/departments/watershed-protection-ordinance>

### Full Filtration Rain Garden



Full filtration rain gardens are sized to capture and convey runoff through a bio-filtration bed underlain by an underdrain system. (Source: ECM Figure 1.6.7.H-4)

