Low Impact Development
Jessi Bloom
Intro:
A wetland plant nerd’s background

Jessi Bloom’s brief background:
- Environmental Horticulture Degree (LWTC) 1997
- Wetland Science and Management Program (UW) 2000
- King Conservation District – Wetland Plant Coop/co-author of the Wetland Handbook
- N.W. Bloom - EcoLogical Landscapes 2000-Present
Low Impact Development (LID)

- What is LID
- Stormwater
- Regulations and Changes
- LID features / BMPs
- Opportunities
Low Impact Development (LID)

Is a planning, engineering, design and management approach to stormwater

- **LID includes:**
  - Site Planning to retain native soils
  - Rain gardens
  - Bioretention
  - Permeable pavement
  - Vegetated Roofs
  - Rainwater harvesting
Stormwater

- Impervious Surfaces
  - Roads
  - Roof tops
  - Lawns and landscapes
- Pollutants
  - Oil
  - Heavy metals
  - Phosphorous
  - Silts
- Affected Natural Areas
  - Wetlands
  - Streams
  - Water bodies
Stormwater Runoff Can Lead To:

- Erosion
- Pollution of Soils and Water Bodies
- Sedimentation to Water Bodies
- Combined Sewage Overflows
- Loss of Wildlife Habitat
Stormwater is Regulated

- Clean Water Act
- National Pollution Discharge Elimination System (NPDES)
- Washington State Department of Ecology
- Municipal permits
Regulatory Changes are Coming

- Western Washington - LID will be required in new development and re-development
- Eastern Washington - LID allowed
- Timeline depends on population size
  - Earliest: June 2015 (Seattle and surrounding cities)
  - Latest: June 2018
The first rebate raingarden project
LID principles

- **Conserve**
  - trees
  - plants
  - healthy soils

- **Minimize**
  - impervious surfaces
  - site disturbance
  - native vegetation loss
  - stormwater runoff
LID Benefits

- Reduces and slows stormwater runoff
- Protects water quality
- Restores ecosystem services
  - Water infiltration
  - Groundwater recharge
  - Pollution interception & filtration
  - CO2 sequestration
  - Restoration of habitat for beneficial wildlife
Rain Gardens

- Planted depressions designed to mimic forest floors
- Amended soils or designed soil mix with high organic matter content (35-40%) to increase water infiltration
- Native plantings, suited to their environmental conditions
- Allows water infiltration into native soils providing treatment of stormwater
Bioretention

Engineered facility with specific design, sizing and modeling to store and treat stormwater by passing it through a designed soil mix often with under drains and control structures.
Permeable Pavement

Pervious concrete, porous asphalt and permeable pavers allow passage of water through the pavement and into the ground reducing and filtering stormwater. Stormwater is filtered when passed through the pavement into a subgrade of appropriate native soils or an engineered treatment layer.
Vegetated Roofs

Roofs layered with waterproofing materials, growing medium and vegetation designed to slow stormwater.
Rain Water Harvesting

The accumulation of rain water for re-use, stored in cisterns or barrels above or below ground.
Opportunities in the Green Industry

As new development and redevelopment occur an increasing amount of LID will be used.

Opportunities will exist on:
- Commercial property
- Public land
- Right of ways
- Private property

Good for designers, contractors and nurseries to include:
- Raingardens/Bioretenion
- Water Harvesting
- Permeable Paving
- Green Roofs/Walls
When design/analysis steps are skipped ...
To the biggest residential raingarden in Kirkland
Raingardens fit in the site and style...
Pathways or driveways...
Can’t replace an entire driveway?
Direct overflow to spread into landscape, or to a rain garden....

South Seattle Community College
Interesting wraps!
Drainage improves over time
Same raingarden
One year later...

Again, two years later...
What to grow?

- Are edibles appropriate?
- What about aggressive plants?
- How to grow stock?
Plant Selection Criteria for Rain Gardens

- Right Plant, Right Place
- Low maintenance – Plants reach a mature height of 2 1/2’ with minimal pruning in lower zone
- Wildlife Habitat Potential – Berries, nuts and flowers
- *Mix of evergreen* and deciduous plants
- Flowers
- NW Natives
- Availability (Easy to find and/or replace)
- Tough and hardy in our climate and growing conditions
Questions?

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N.W. Bloom Ecological Landscapes
Chicken Gardens
Practical Permaculture Design