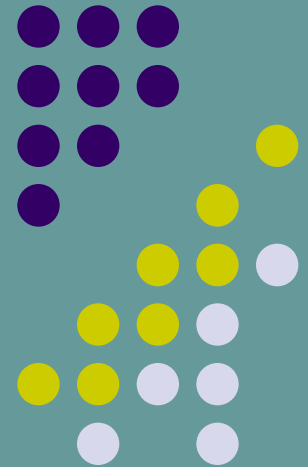


# Low Impact Development Strategies for Communities





# LID Strategies for Communities

- Water Resource Issues Facing Communities
- Low Impact Development Strategies
- Apply LID to Your Community



# What are the Water Resource Issues in Your Town?



- Flooding
- Water Quality (high quality or water quality problems)
- Drinking Water
- Stream Alterations
- Wildlife Habitat
- Anything else?



# Development Pressure



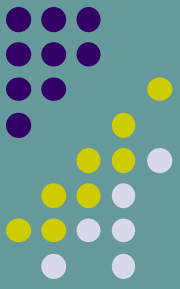
# Development & Water Resources

- More Impervious Surface
- Altered Stream Course
- Confined Stream Channel
- Polluted Runoff
- Fragment or lost riparian areas
- Flash Flooding



GoldenStateImages.com  
(C) Randy Morse

Just a little bit of bed load



# Low Impact Development

- An innovative stormwater management approach with a basic principle that is modeled after nature: manage rainfall at the source using uniformly distributed decentralized micro-scale controls.



Roof Garden

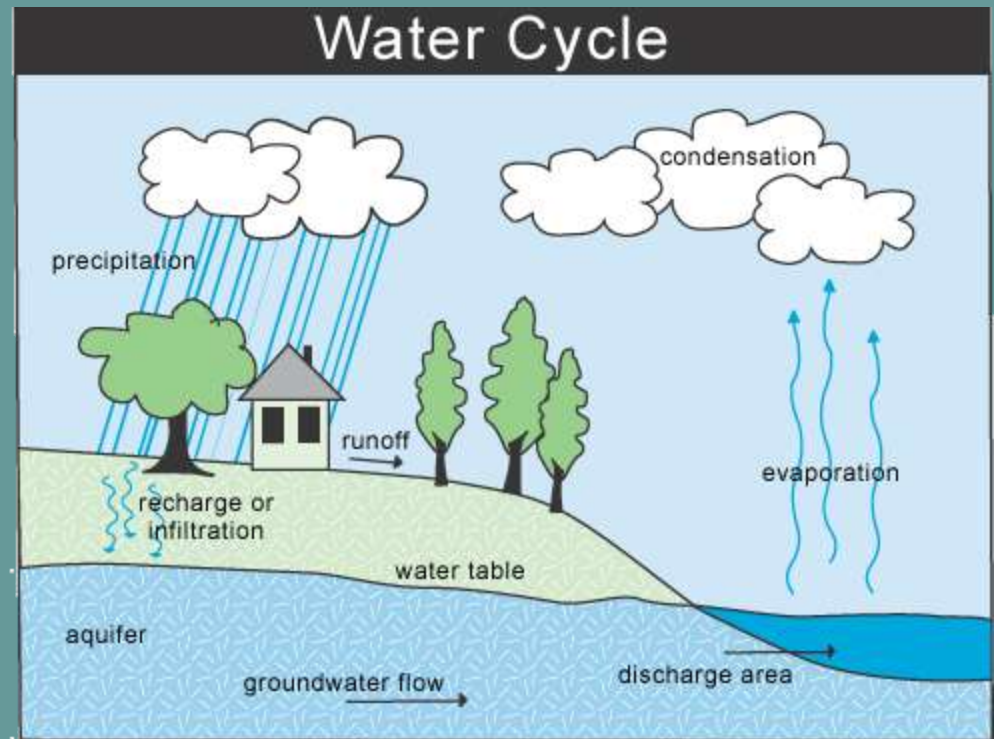
Pervious Surfaces

Reduced Impervious Surface - Increased vegetation

# Low Impact Development



- LID's goal is to mimic a site's *predevelopment hydrology* by using design techniques that **infiltrate**, **filter**, **store**, **evaporate**, and **detain runoff** *close to its source*.



# Low Impact Development



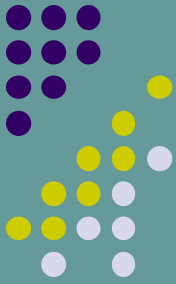
- Techniques are based on the premise that stormwater management should not be seen as stormwater disposal.



- LID addresses stormwater through small, cost-effective landscape features located at the lot level.  
(from the Low Impact Development Center)

# Benefits of LID

- To prevent degradation of water quality and natural resources,
- To manage storm water more efficiently and cost effectively,
- To protect groundwater and drinking water supplies, and
- To help communities grow more attractively.





# LID Planning Strategies

- Sensitive Area Assessment
- Maintaining Natural Drainage Courses
- Preserving Natural Resources and Ecosystems
- Minimizing Grading and Clearing
- Conservation Development Design



# LID Practices

- Bio-retention and Rain Gardens
- Rain Barrels or Cisterns
- Green Roofs
- Reducing Impervious Surfaces
  - Permeable Pavement
  - Reduced road width and driveway length
- Reducing the Use of Pipes



# Bio-retention or Rain Gardens



- Landscaped area with a depressed planting bed which rain water is directed to
- Designed to store, infiltrate, filter stormwater and recharge groundwater
- Soils, plants and microbes remove the pollutants as the water absorbs into the ground

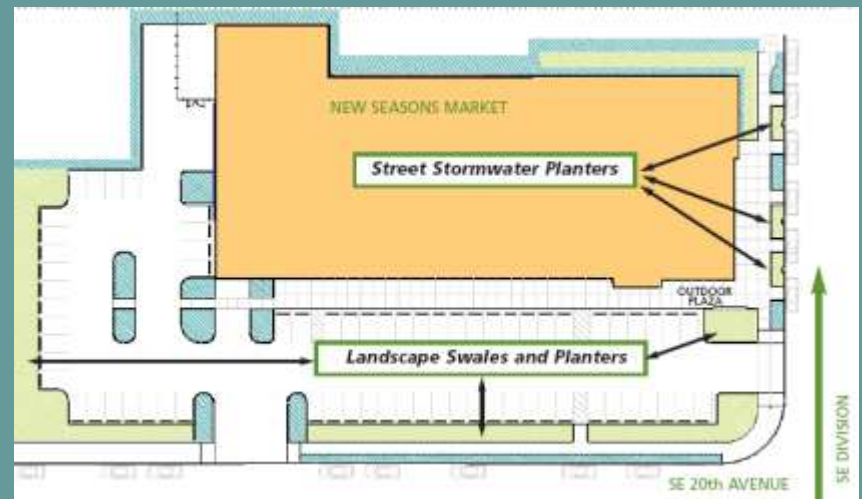


# Rain Garden Locations

- These gardens can be used in most all development situations including
  - Redevelopment (parking lots, buildings etc)
  - New subdivisions
  - Parking lots
  - Along municipal roadways, (local and highway)
  - Retrofitted in urban, suburban and at lake front properties
- Can be designed for all soil types



# Examples



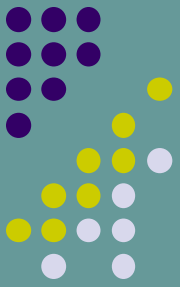
# Rain Barrels and Cisterns



- Water harvesting from roofs of building
- Reduces stress on treated public water supply during summer month
- Can be used for gardening, car washing, equipment cleaning and other non-potable use
- Easy to install and maintain
- Variable sizes
- Can be installed under ground or disconnected in winter month



# Reducing Impervious Surfaces & Encourage Permeable Pavement



- Alternative materials for use in shoulders
- Permeable pavement can be used in parking lots, driveways and sidewalks instead of traditional pavement
- Narrowing streets can cause traffic calming



# Incorporating LID in Your Town



- Encourage developers to review LID possibilities for all new projects through
  - Construction standards
  - Landscaping requirements
  - Development review process
- Encourage LID practices in redevelopment through
  - Requiring a review of stormwater management on property



# Incorporating LID in Your Town



- Requiring setback for streams, lakes and wetlands
- Setbacks or buffers can vary depending on stream size, sensitivity or wildlife importance



Good riparian buffer



No riparian Buffer

# Incorporating LID in Your Town



- Reducing Impervious Surfaces
  - Reducing setback requirements
  - Reducing road width requirements (new ITE standards)
  - Reducing parking spot requirements



# Reducing Road Width



- Consider allowing widths of 24 feet or less for these streets (18-22 feet may be a reasonable standard for low-volume streets). For a good discussion of both street width and design, see [http://www.metrocouncil.org/Environment/Watershed/BMP/CH3\\_RPPImpStreet.pdf](http://www.metrocouncil.org/Environment/Watershed/BMP/CH3_RPPImpStreet.pdf)



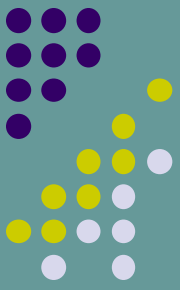
# Incorporating LID in Your Town



- Require landscaping in parking areas, in traffic circles, roadway medians and divides



# Example: Town of Colchester



## 10.01 Off Street Parking, Loading, and Circulation

### C. Layout Requirements for Parking Spaces, Aisles, and Circulation

#### 1. Internal Landscaping of Parking Areas.

Except for parking spaces accessory to a one-family or two-family dwelling, all off-street parking areas subject to review by the Development Review Board, shall be landscaped with appropriate trees, shrubs, and other plants including ground covers, as approved by the Development Review Board.

2. Islands should be constructed that promote stormwater treatment or a stormwater management plan.

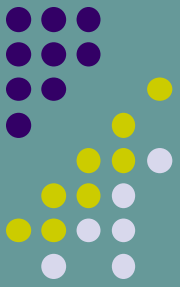
# Encouraging LID in your town through education



- Brochures explaining concept for developers and home owners
- Educational workshop for town boards
- Demonstration projects
  - Winooski Rain Garden Project
  - Mid-Winooski Urban Restoration and Outreach Project



# LID and Your Town



Making your streets and parking lots green not your lakes!





# Contact Information

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