

# Stormwater Introduction

Rain falling on forests is either intercepted by vegetation or soaks into the ground (replenishing groundwater), with a little running off the surface into nearby streams.

When land is developed, pervious soils, (soils that absorb water), are replaced with impervious surfaces, such as parking lots, rooftops, driveways, and sidewalks.

Rain, or stormwater, runs off impervious surfaces into storm drains or ditches which then direct run-off to nearby streams.

Stormwater run-off impacts include:

- (1) pollutants in our waterways (sediment, oil, fertilizers, pesticides, pet waste and others)
- (2) eroding land and stream banks
- (3) increased risk of floods and landslides
- (4) higher drinking water treatment costs and water bills
- (5) higher stream temperatures that trout cannot tolerate
- (6) a decrease in property value.

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Using *low impact development (LID)* principles can reduce stormwater runoff impacts .

LID includes:

- identifying natural areas that can protect communities,
- locating development in areas that capitalize on protecting natural areas,
- reducing impervious surfaces,
- treating runoff, and
- allowing stormwater interception (by plants) and infiltration (into the ground) during and after construction.

LID uses multiple small-scale best management practices (BMPs) such as raingardens (bioretention), stormwater wetlands, pervious pavement, cisterns, and vegetated road ditches to reduce stormwater flow and pollution.



Raingardens and other BMPs collect runoff from parking lots at Bethel Elementary School

## Getting Ready for Growth in Haywood County



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# Applying principles of greener growth in Haywood County

*Economically-viable, yet environmentally-friendly development practices can help protect water quality, decrease infrastructure and construction costs and enhance quality of life.*

Haywood County is experiencing growth and development at an unprecedented scale. As a result, the community faces pressure on land, air, and water. A diverse group of community members including local government, realty, homebuilding, conservation, and citizen interests decided to collaboratively and proactively address these issues. These community leaders participated in a Roundtable to discuss how to encourage growth and development that is sensitive to both natural resources and quality of life.

Through a series of workshops in 2007, Roundtable participants considered growth and development issues and developed recommendations to enable more sensitive site placement, design, and construction. The Center for Watershed Protection's *Better Site Design* principles were used to frame the discussion. The following Roundtable recommendations are participants' suggestions for implementing these principles.

## **BUILD** knowledge and ability for greener design & construction

Participate in and support demonstration projects such as the *Resource Assessment for Mountainside Development* project and training workshops for professionals and citizens.

## Identify important natural resources **KEEP the trees, please**

regionally and onsite to plan better for development projects. Conserve as much streamside and headwater forest as possible to take advantage of their low-cost water conservation and cleansing services. Conserve farmlands for environmental, aesthetic, and cultural benefits.

**REDUCE runoff** Encourage shared parking, setting maximum, instead of minimum parking ratios, relaxing building setbacks and providing flexible lot shapes and sizes. Reducing impervious surface through innovative but easy techniques means less costly infrastructure and fewer negative impacts to water resources.

Let stormwater **LET IT SOAK IN or USE IT** soak into the ground by using Best Management Practices (BMPs) such as rain gardens, wetlands, & vegetated swales to treat rooftop, driveway, parking lot, and road runoff. Collect stormwater with rain barrels and cisterns and use it for watering plants.

Conduct geologic analysis of a development site **ACT slope smart** planned on or below slopes. Watch where you build and how you build - learn and educate about best practices for protecting human health, property, and natural resources.

**REVISE the rules** Change codes and ordinances to make it easier for developers to design and submit plans that reduce impacts on natural resources. Offer incentives such as faster review of plans, and public recognition for designing and building greener developments.

Learn how greener **LET'S LEARN together** development and home maintenance practices can benefit water quality, wildlife, family outdoor activities, and your quality of life. Share the news!

*Learn more about the detailed Growth Readiness Recommendations online at [www.ncsu.edu/WECO/Haywood](http://www.ncsu.edu/WECO/Haywood)*

