

Transylvania County Low Impact Development Roundtable #2 Summary



WATERSHED EDUCATION FOR COMMUNITIES AND OFFICIALS

May 2007

Low Impact Development ~ can it work in Transylvania County?

On April 5th, the community discussion about low impact development continued at the Transylvania County Library.

Laura Szpir of the NCSU Water Quality Group presented an overview of LID. David Tuch of Equinox Environmental in Asheville, presented examples of LID in the NC mountains. Patrick Beggs of NC Cooperative Extension presented the mapping results from the first roundtable discussion on growth in Transylvania County. This was followed by a brief discussion on the pros and cons of using LID in Transylvania County. At our next meeting, June 7th, 6:30 PM, we hope to continue this conversation, giving everyone a chance to weigh in with their thoughts and ideas.

The goals of the Roundtable workshops are to discuss how development impacts water quality and determine recommen-

dations for future development which can allow for economic growth and natural beauty to exist side by side. By involving many different stakeholders, more well rounded ideas will evolve from the discussions.

This newsletter briefly summarizes information presented at the April 5th workshop. Many pictures were presented and they are best viewed at the WECO website, where the presentations can be found in Adobe Acrobat pdf format.

www.ncsu.edu/weco

Please contact WECO if you are unable to view the presentations.

**We will plan the 3rd Roundtable
for late summer/early fall.**

Survey Results from first workshop, in January

24 people filled out the survey. This included: 11 residents; 3 non profit groups; 8 government staff; 4 elected officials; 2 recreation businesses; 3 site design/ development businesses; 2 education.

88% of people said it was likely or somewhat likely that land development and natural resource protection can both occur? This is a very positive response.

Respondents were asked who is responsible for ensuring land development benefits the community and natural resources? All levels of government (fed, state, local - elected and

staff) as well as citizens were listed as the most responsible, although no one group came out very far ahead of the others, which included, advocacy groups and developers.

Other comments from the survey include:

- Development will happen. The imperative is to ensure it happens in such a manner as to preserve the natural beauty and tranquility of our environment here in Transylvania County.
- We can develop wisely, but it will take efforts by all of the stakeholders
- Education remains the critical goal to developing while conserving natural resources
- I am excited about the concept of LID

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Growth projection exercise

At the first roundtable, we engaged everyone in a mapping exercise to get people talking about growth, to present some growth predictions, and to get local input on local growth issues. The data used for the population maps was obtained from the US Census Bureau. Participants were asked to share where they thought growth would occur and whether the Census information was accurate for Transylvania County. The maps for this exercise are on the WECO website.

Transylvania County Population Change

The census showed a 15% increase in population from 1990 (25,520) to 2000 (29,334).

The census predicts a 14% increase in population from 2000 to 2030 (33,449).

Local data from the [Transylvania County Comprehensive Plan](#) predicts a range of 20-40% increase by the year 2020 (35,000-42,000). The Comprehensive Plan is a source for much of the data here.

<http://econdev.transylvaniacounty.org> >Planning >Comprehensive Plan

Roundtable participants predicted a 23% increase by the year 2030 (36,167)

It is important to note the population surges over 50% in the summer. For 2000, the population increased ~14,000, from 29,000 to 45,000.

Another important point to note when considering population and the housing and services required, which impact water resources, is that over 50% of the homes in Transylvania County are not occupied by their owners. This includes rental homes, both permanent and vacation, and also second residences.

Participants were asked to make assumptions and raise concerns about growth. These can be found in the Roundtable 1 newsletter. Many of the issues raised are being addressed locally. The County Comprehensive Plan lists 7 goals, a number of which are supportive of LID and the ideas raised at the roundtable. A paraphrased list of these goals follows.

1. Preserve distinctive character, heritage, natural environment, and ambiance while promoting planning and economic growth
2. Conserve the valuable natural resources of the county for present and future generations
3. Provide the best possible roads and promote alternative transportation (w/DOT)
4. Promote affordable , safe and adequate housing for all residents
5. Plan for and provide public facilities/services
6. Promote the best use of land while protecting citizens' property rights
7. Supply safe reliable water, sewer and solid waste collection/disposal (w/Brevard and Rosman)

Note, goal #2 has eleven objectives, 4 of which are very supportive of LID:

- develop strategies to promote development with minimal damage to the environment.
- encourage well-designed and thought-out developments with access to services, while minimizing impacts.
- develop recommendation to encourage preservation of views and green spaces
- work with landowners to develop riparian conservation.

Both the County and Brevard have a number of policies in place relating to the issues raised at Roundtable #1. The County Comprehensive Plan lists some tools it has already implemented, such as the Farmland Preservation Ordinance, Flood Damage Control Ordinance, Subdivision Regulations, and the formation of Transylvania Natural Resources

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TRANSYLVANIA
COUNTY'S
POPULATION
INCREASES OVER 50%
DURING SUMMER.

NCSU IS DEVELOPING
A LOW IMPACT
DEVELOPMENT
MANUAL WHICH WILL
BE AVAILABLE IN
WINTER 2008.

Growth projection exercise

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Council. This latter led to obtaining this LID grant from the US EPA. Potential tools which the County lists in its Comprehensive Plan include an Environmental Policy Ordinance which identifies impacts of proposed development; a local Erosion Control program, and Stormwater Control Measures.

Some Town of Brevard efforts that relate to issues raised at Roundtable #1 include the Unified Development Ordinance; Floodplain regulations; Stormwater regulations; and recent grants for stormwater/floodplain planning.

Transylvania County and its municipalities are in a good position to discuss low impact development. The timing seems to be right for citizens, government, and private industry to sit down together, learn about advances in development, and discuss their possibilities in Transylvania County.

What is LID?

Laura Szpir, of the NCSU Water Quality Group presented an overview of LID.

Low impact development is an approach to site design and stormwater management that incorporates the natural environment. Conventional site design removes stormwater from the property, onto neighboring properties and waterways as quickly as possible. Resulting stormwater runoff causes economic and environmental concerns including: flooding, eroded streambanks, impaired drinking water supplies, impaired aquatic habitat, and impaired quality of life.

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Stormwater flowing off this parking lot in Brevard is slowed and filtered by a grass swale before heading into a nearby stream



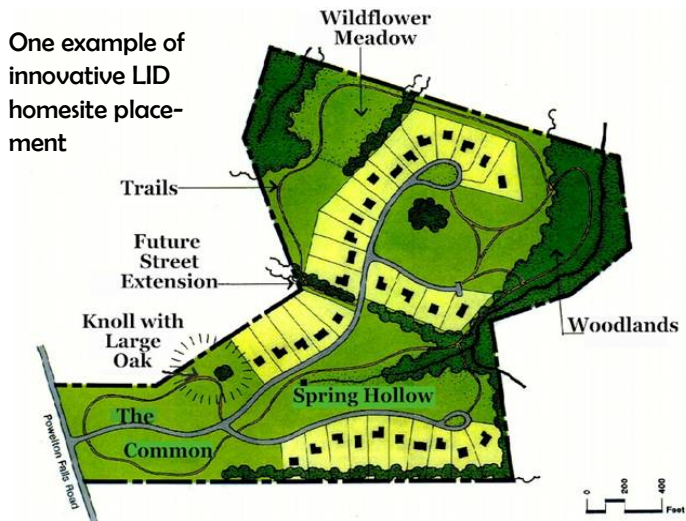
Key Strategies of LID for maintaining on-site hydrology

1. Conserve natural areas
 - Identify natural areas, set aside for conservation
2. Minimize development impacts through design and techniques
 - Reduce erosion
 - Reduce impervious surface
 - Save certain soils
 - Reforestation
 - Landscaping using native plants
 - Reduce pipes, curbs, gutters
3. Maintain time of water concentration
 - Use vegetative swales and green space to handle stormwater
4. Storage, detention and filtration BMPs
 - Small scales controls throughout a site to reduce runoff and remove pollution
5. Pollution prevention and education
 - To maintain practices and reduce pollution from household practices

What is LID?

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In addition, conventional site design and stormwater management has many limitations. These include: the construction costs of infrastructure, such as pipe and ponds; safety issues; inefficient pollutant removal; unattractiveness; taking up valuable land; increasing downstream flooding; no recharge to aquifers and streams; and it is not ecologically or economically sustainable.



The objectives of LID are to:

- Mimic a site's pre-development hydrologic conditions (runoff and infiltration after a storm)
- Manage precipitation as close to where it hits the ground as possible.
- Work with nature, rather than against it - replicate natural water balance.

All LID practices together, including site assessment, design, BMPs, education and maintenance, constitute a toolbox for developers to choose from for treating stormwater onsite, using it as an amenity rather than sending it quickly downstream or into a detention pond.

There is not any one LID feature, or BMP, that will solve all problems!

Examples of Low Impact Development in NC mountains

David Tuch of Equinox Environmental, a consultation and design firm in Asheville, presented some of the projects Equinox has been working on, giving us great local examples of the beauty and profit of LID. The presentation, with all its great photos, can be seen in pdf format on the WECO website.

David started his presentation with a few statistics: Statistics of interest:

- 84% of land in the Southern Appalachians is in private ownership
- The rate at which regional forest and farmland is being developed has increased ~16 % from 1982 to 1997.
- Poorly planned residential developments can cause environmental problems and loss of character of a community.
- Mountain lands are more sensitive to construction compared with adjacent regions.

An array of development options was presented, including: Conservation Subdivisions, Traditional, Infill, Cluster, and Commercial & Institutional developments. Each of these examples of LID involved careful consideration of the site to protect, maintain, or re-

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NCSU is developing a Low Impact Development manual which will be available in Winter 2008.

Examples of Low Impact Development in NC mountains

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store the natural hydrology of a property. Again, please see David's great photos at our website and visit www.equinoxenvironmental.com for more information.

To develop in an ecologically sensitive manner, the significant natural resources on the site need to be identified. This may include steep slopes. On one property, Drover's Preserve, the homesites and roads were kept off the slopes and buffers were placed along streams, further protecting the area and increasing its desirability to home buyers.

David noted some challenges to LID: Getting developers to try something new - Presenting successful projects in the region to developers - Taking the time for education - Perception of the public & others - Understanding the costs - Understanding the process and the "Nature" of LID - Maintaining the stormwater BMPs

April Participants speak up

After learning about low impact development, audience members were asked to participate. We asked what they thought about LID? What is going on locally that could help implement LID? And what might hinder the implementation of LID here in Transylvania county?

Participants had lots of feedback, but one of the most important things mentioned was that more people need to see this information and be a part of this discussion. So, we will continue this community discussion at the June 7 roundtable.

The comments from April were categorized and the general categories are listed here. After the June 7th meeting, we will put all the comments together and report back to everyone about all of them in the next newsletter.

What are some positive aspects that could help LID get implemented?

- ◆ The beauty of the area is worth preserving:
- ◆ LID site and BMP project examples on the ground:
- ◆ Educational opportunities in place:
- ◆ Availability of Resources:
- ◆ City and County interest

What might hinder the implementation of LID?

- ◆ Need more examples
- ◆ Lack of education/training
- ◆ Outside interests may not share local interesting preserving beauty
- ◆ Resistance to change
- ◆ Disconnect of various government regulations
- ◆ Lack of resources

LID HOMESITES
HAVE SOLD FOR
20-40% ABOVE
THE PRICE OF
TRADITIONAL
DEVELOPMENT -
DUE TO THE
AESTHETIC BEAUTY.



Please contact Patrick Beggs or Christy Perrin for information.

You can learn about the project and view Roundtable presentations and newsletter at www.ncsu.edu/weco > Transylvania County

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To speak with the project's local representative, please contact Eric Caldwell, Director-Transylvania County Cooperative Extension: 828-884-3109

Special thanks to the Tennessee Valley Authority, the Southeast Watershed Forum, and Land of Sky Council of Governments, NC Department of Environment and Natural Resources, the US EPA, and the Transylvania County and City of Brevard Planning departments for their support and expertise.

BMPs - best management practices

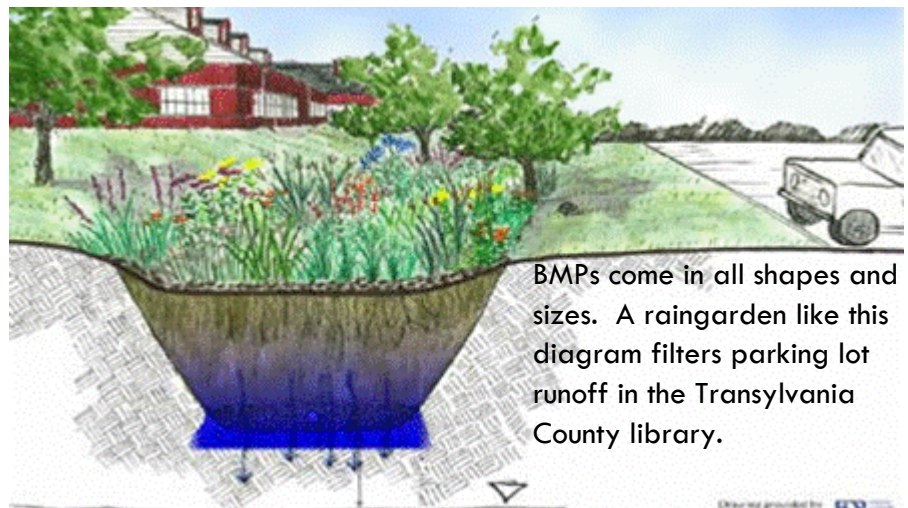
Stormwater Best Management Practices (BMPs) are behavioral or structural practices that reduce pollution flowing into our creeks by slowing runoff, increasing evaporation and filtering pollutants. LID uses many small scale BMPs to manage stormwater onsite.

Both Laura Szpir and David Tuch explained the use of BMPs to protect water resources, manage stormwater, and increase the attractiveness of a property. They showed many examples, which can be viewed on the WECO website. Eric Caldwell, Cooperative Extension director for Transylvania County, showed some local examples of BMPs. One of them is a raingarden that handles the stormwater from the County Library parking lot. Other raingardens in Brevard can be found in parking lots along North Broad St and Asheville Highway. Brevard College manages some of its stormwater with a constructed wetland.

There are many types of structural BMPs, such as:

Bioretention (raingardens), Grassy Swales, Porous Pavement, Cisterns and Rain Barrels, Green Roofs, Planter Boxes, Soil Amendments, Level Spreaders, Riparian Buffers, Planted Filter Strips, Stormwater Wetlands, and Appropriate Road Design.

The NC Arboretum in Asheville is home to the French Broad River Watershed Education Training Center. Staff and faculty at the center include a number of partners on the Transylvania County LID education grant. The Arboretum is a showcase of over 20 stormwater BMPs, nestled into the terrain of the watersheds at the the Arboretum. Tours are available and we would like to set one up especially for the Transylvania Roundtable participants. Please let us know if you are interested.



BMPs come in all shapes and sizes. A raingarden like this diagram filters parking lot runoff in the Transylvania County library.