# Incorporating Green Infrastructure and LID practices and techniques into the Town of Front Royal subdivision and land development regulations.

**What is Green Infrastructure?**

"A set of techniques, technologies, approaches and practices - collectively referred to as "green infrastructure" - can be used to eliminate or reuse the amount of water and pollutants that run off a site and ultimately are discharged into adjacent water bodies." (U.S. EPA)

**What is LID?**

"The low impact development approach combines a hydrologically functional site design with pollution prevention measures to compensate for land development impacts on hydrology and water quality". (PG County, Md., LID, June 1999).

"We all live downstream."

Respectfully Submitted, July 7th, 2010. Dave Vazzana, FRLP.

## Why Green Infrastructure and LID? Discussion Points.

I. Economic: It can reduce initial infrastructure costs and long-term infrastructure maintanance costs for the Town and future homeowners... BUT not always the cheapest. It can also increase costs for SWM techniques (additional plantings, rain gardens etc.).

II. Environmental: It's the right thing to do for the environment. The river, Chesapeake Bay Act(s), Local groundwater, Town Comp. Plan, etc.

III. Community creation. If we can do it better lets not do it the same old way. Put the 'community' back into land development and encourage innovation and housing stock diversity and affordability.

## Key Concepts: Minimize Impervious Surfaces and Improve SWM techniques.

I. Conventional approaches to circulation and design. (4.2)
   - Rights of Way
   - Streets
   - Intersections
   - Cul-de-sacs
   - Parking

II. Consider alternative approaches to circulation and design. (4.3)
   - Alternative Design Considerations
   - Alternative Street Types
   - Shared Driveways
   - Sidewalks and Paths

Source: The Practice of Low Impact Development, US Department of Housing and Urban Development, Page 79-92.

## Specific Suggestions to consider that would incorporate and allow LID and Green Infrastructure techniques and practices in the Town of Front Royal Subdivision and Land Development Ordinance:

### 148-16 Optional Open Space Subdivision

Open space is key to preserving our watershed and quality of life. Larger lots still compact all of the soil on the lot and over the long term the amount of fertilizer, CO2 from lawn mower emissions, and water usage all contribute negatively to the developments environmental impact versus small lot development.

Suggestions to improve the current ordinance include:

- Improve Open Space overlay district to make it easier to calculate base density – its never been used.
- Expand to allow all types of Residential development to use this section (I.e. R-S, R-E, R-1A...)
- Reduce set-backs (to facilitate shorter driveways)
- Reduce minimum lot sizes to encourage more housing diversity and affordability
- Reduce minimum lot sizes to encourage the creation of more open space.
- Consider also adding a 'traditional housing' overlay type district that would reduce lot sizes to 4000 sq. ft., and reduce front, side, and rear set-backs to encourage more open space and more affordable housing types.
- Administratively approved as opposed to a special-use permit which subjects the applicant to risks. If a special use permit is required then some will not bother taking the risk (i.e. the last 20 years).

FOR EXAMPLE:

FRLP can currently build 320 7,000 sq. ft. lots which would use 51.42 acres of land. Say we built half of our lots at 5000 square feet and half at 7000 we would consume 44 acres of land. A savings of over 7 acres of open space.

The savings is multiplied many times over with larger lots. Say Millenium Lotus could build 60 1-acre lots on its 70+ acre property – consuming and

compacting the soil on every foot of its property. If it utilized an open space ordinance that resulted in average lot sizes of 7000 square feet that same development would consume 9.6 acres with the remaining acreage as undisturbed open space.

**148-26 Streets – See 4.2, 4.3.**

- Reduce ROW widths to only what is necessary.
- Reduce Street pavement base and widths.
    - 16-18 with no parking for cul-de-sac and local streets
    - 24 feet with parking on one side for cul-de-sac, local, and collector streets
    - 28 feet with parking on both sides
- Alleys should be no wider than 12 feet.
- Cul-de-sac streets – permit reduced turn-around areas and innovative T turnaround etc.
- Driveways should be no wider than 9 feet. Permit shared driveways/ flexibility in materials for driveways.

For reference the state of Va. has also revised its standards to 15' (one-way, no- parking), 18' (no parking), 24' (parking on one side), and 29' (parking on both sides). See Handout.

**148-29 Lots**

- Minimize lot frontage on a public street. Require no frontage for lots accessed by private shared driveways.
- Allow lots to abut private streets (for pipe stem type lots/ cul-de-sacs)

**148-36 Utility Easements**

- Allow utilities to be placed within roadways. Utilities interfere with root growth and make it difficult to plant appropriate landscaping adjacent to roads.

**148-40 Curbs and Gutters**

- Delete this section. It prevents the use of LID development techniques. The applicant should have administrative approvals if SWM is mitigated with or without curb and gutter.
- If the town wants curb than only require it on public streets with lot frontages less than 50 feet AND with on-street parking on both sides.

- Gutter should always be optional.

All sites are different but having the flexibility to use a hybrid of traditional SWM BMP's and LID techniques should be encouraged in any way that it can – not prohibited.

**148-41 Sidewalks**

- No sidewalk required for local and cul-de-sac streets
- Require sidewalks on at least one side of all collector and arterial streets.
- Consider increasing size of sidewalks to 5 feet. This is more expensive and more impervious but it can improve quality of life.

**148-50 Variances**

- Give Council the ability to grant variances to any section of the subdivision ordinance in the future. Flexibility is key to enabling future flexibility as innovation in SWM and green land development techniques continues.
- The Development Community needs design flexibility and certainty in the process or it will simply take the path of least resistance.

**Conclusion:** Thank you for your consideration of these important concepts and for the opportunity to discuss these ideas with you!

**Handouts:**

The Practice of Low Impact Development, US Department of Housing and Urban Development, Section 4, Page 79-92.

Minimizing Impervious Surfaces. LID Site Planning, PG County Md., 1999, Chapter 2, page 11-13.

V-DOT, Revised Road Standard Guidelines, 2009.

**Additional Resources:**

Neighborhood Street Design Guidelines: An Oregon Guide for Reducing Street Widths. November, 2000. Page 17-20 and Appendix B.

Addressing Imperviousness in Plans, Site Design and Land Use Regulations. Nonpoint Education for Municipal Officials (NEMO), Technical Paper, Number 1.

The Clipping Point: Turf Cover Estimates for the Chesapeake Bay Watershed and Management Implications. Chesapeake Stormwater Network (CSN) Technical Bulletin No. 8.

Protecting Water Resources with Higher-Density Development. U.S. EPA.