Introduction to Long-Term Hydrologic Impact Assessment Low Impact Development (L-THIA LID) Model

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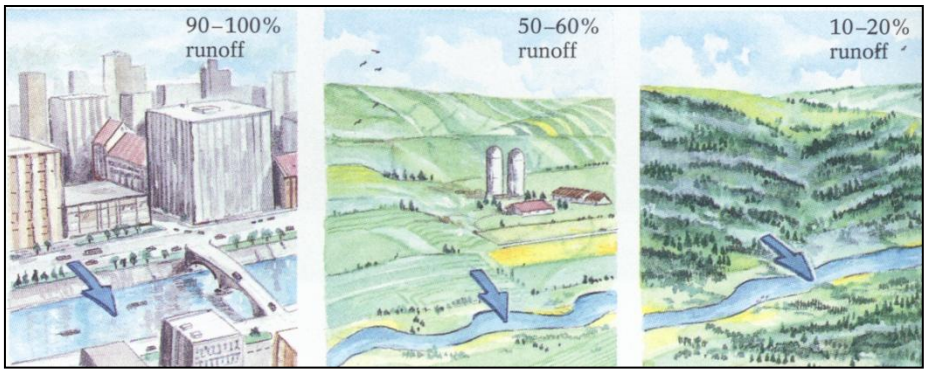
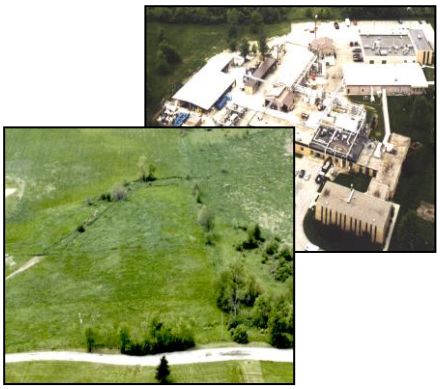
https://engineering.purdue.edu/~lthia/LID

Difference in relative runoff due to land use differences.



L-THIA provides relative estimates of change of runoff and nonpoint source pollutants due to land use change.



The L-THIA LID model consists of two screening levels for the LID approach. **Basic** screening allows the users to adjust the percent of imperviousness for particular landuses. **Lot-level** screening consists of a suite of LID practices such as bio-retention (rain gardens), porous pavement, narrowing impervious surfaces (streets, sidewalks and driveways) and vegetated rooftops. These practices intercept, redirect, and slow the movement of runoff and pollutants moving through a watershed.

- A Low-Impact Development web-based Spreadsheet version of LTHIA is available at https://engineering.purdue.edu/~lthia/LID.

Purpose: Low Impact Development (LID) practices aim to reduce the impacts of stormwater and pollutants from land development. The goal of LID is to maintain, as closely as possible, the predevelopment hydrologic regime for new developments or move toward the original hydrologic regime in existing urban areas.

L-THIA LID is an easy to use screening tool that evaluates the benefits of LID practices. The Long-Term Hydrologic Impact Assessment (L-THIA) model estimates the average annual runoff and pollutant loads for land use configurations based on more than 30 years of daily precipitation data combined with soils and land use data for an area.

It estimates long-term average annual runoff for land use and soil combinations, based on actual long-term climate data for that area. By using many years of climate data in the analysis, L-THIA focuses on the average impact, rather than an extreme year or storm.

The model produces runoff depth and volume along with nonpoint source pollution loading of the area.

Key Features:

- All versions model runoff and 14 nonpoint source pollution types in surface waters.
- An overview/screening model. Identifies need for more detailed modeling.
- Does not require detailed data input.
- Provides “what if” alternatives evaluation scenarios.
- Provides description of runoff and pollutant loads in tabular form, as well as graphical representations.

Significance: As a quick and easy-to-use approach, L-THIA's results can be used to generate community awareness of potential long-term problems and to support planning aimed at minimizing disturbance of critical areas. L-THIA is an ideal tool to assist in the evaluation of potential effects of land use change and to identify the best location of a particular land use so as to have minimum impact on a community's natural environment.

FOR FURTHER READING:

Tutorials and references:

https://engineering.purdue.edu/~lthia/LID/tutorial

Link: **https://engineering.purdue.edu/~lthia/LID**