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Greening Development to Protect Watersheds

Does New Urbanism Make a Difference?

Authors: Philip R. Berke (Texas A&M University), Joe MacDonald, Nancy White, Michael Holmes, Dan Line, Kat Oury, Rhonda Ryznar
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ABOUT NEW URBANISM

“A broad range of housing types and price levels can bring people of diverse ages, races, and incomes into daily interaction, strengthening personal and civic bonds essential to an authentic community.”

-Congress of the New Urbanism, 2001

New urbanism (neo-traditional development) derives from the dense, pedestrian-scale towns of the 19th century. New urban developments feature high-density, mixed-use land with homes, retail, schools, offices, and parks. Development is concentrated, which increases walkability, reduces impervious cover, and allows for more open space.

New urbanism holds implications for reducing impervious cover. Since peak parking demand for different uses occurs at different times of day or week (e.g., evening for movie theaters and daytime for offices), allowing joint use of the same parking spaces reduces the number of spaces needed and can encourage multipurpose trips. Reduced impervious cover ultimately results in more open spaces.

Land use and site design are important strategies for watershed management, but new urban developments may not be taking full advantage of opportunities to protect sensitive areas. Researchers including Philip Berke from Texas A&M University conducted a study comparing 50 pairs of new urban and conventional developments in Georgia, Maryland, North Carolina, South Carolina, and Virginia to determine which type of development was more likely to use low-impact techniques for watershed protection. The developments were further categorized according to whether they were built on greenfield or infill sites.

New urbanism holds promise for reducing environmental degradation from development

Low-impact design was measured by the following techniques:

1. protection of hydrologically sensitive areas
2. reduction of impervious surfaces
3. best management practices to detain and filter stormwater

FINDINGS

For the same amount of development, conventional development consumed eight times more land and generated 43% more runoff than new urban design. Type of development is therefore critical in maintaining the water quality of watersheds. Use of the three low-impact techniques are outlined below.

Technique 1: Overall, new urban developments more effectively incorporated watershed protection techniques. However, there was a greater emphasis on protecting sensitive areas in new urban greenfields than in new urban infill sites, likely due to the difficulty of establishing open space networks in built-up infill areas.



Sample New Urban Street Section Retrieved from usa.streetsblog.org

Technique 2: Impervious cover in open spaces was the only factor for which new urban developments did not protect sensitive areas as extensively as conventional developments. New urban developments are designed to facilitate non-auto modes of transportation that promote paving of open spaces for bike and walking paths.

Technique 3: New urban greenfield developments utilized best management practices to treat stormwater runoff at substantially higher levels than did corresponding conventional greenfield developments, while new urban infill developments implemented BMPs at a similar rate to conventional infill developments.

STRATEGIES AND IMPLICATIONS

Results indicate that new urban developments are neither a “deep green ideal” nor an intensively paved version of sprawl. Even if new urban developments are located in greenfields, they do more than conventional developments to protect watersheds by protecting more sensitive areas and using more BMPs. Moreover, new urban developments substantially reduce the amount of land consumed for each dwelling unit.

Connecting new urban developments to developed infill areas is more desirable than paving spaces in pristine watersheds. This suggests the need for more attention to infill and redevelopment sites. Potential infill strategies are outlined below.

1. New urban developments built in urban core areas could more effectively account for watershed impacts.
2. Emphasis should be given to building more new urban projects in infill sites; this could be accomplished by:
 - Neighborhood-conservation overlay zoning districts and zoning changes allowing mixed uses on vacant urban lots
 - Pioneering brownfield programs that encourage reuse of old industrial sites by limiting liability for past environmental problems
 - Municipal service districts to finance inner-city revitalization, state and federal tax credits for renovation of historic structures, and eliminating federal housing and highway subsidies that make it cheaper to build in greenfields

3. More research should focus on institutional and political factors influencing environmental protection in new urban developments.

Despite its high densities, new urbanism holds considerable promise for reducing environmental degradation caused by development. Low-impact design techniques for protecting sensitive open spaces, reducing impervious cover, and infiltrating polluted runoff may allow new urban developments to become a more sustainable alternative to sprawl. New urban developments offer laboratories for testing the best ways to integrate low-impact alternatives into urban form. Planning practitioners and researchers can evaluate these experiments as they progress and educate the public, developers, and decision makers about how to advance sustainable development.

TECHNICAL DEFINITIONS

watershed - an area or region drained by a river, river system, or other body of water

greenfield - previously undeveloped sites for commercial development

infill - the construction of new buildings between existing structures

(From oxforddictionaries.com)

Philip Berke



Professor, Department of Landscape Architecture & Urban Planning

Director, Institute for Sustainable Coastal Communities

Hazard Reduction & Recovery Center

Editor: Amy Albright

Contact: TTC Program Coordinator Jaimie Masterson at jmasterson@arch.tamu.edu