



THE LAND USE TRACKER

INSIDE THIS ISSUE:

An Innovative Tool for Managing Rural Residential Development: A Look at Conservation Subdivisions Cover

What's New at the Center 2

Wisconsin Supreme Court Ruling: Agricultural Use Value Assessment 5

Court of Appeals Upholds Rules for Private Onsite Wastewater Treatment 5

Impervious Surface—an Environmental Indicator 8

Submissions 10



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An Innovative Tool for Managing Rural Residential Development: A Look at Conservation Subdivisions

by Anna Haines, Ph.D.

This is the second of two articles addressing rural residential development. The previous article provided a definition of four related management tools (large minimum lot size, purchase of and transfer of development rights, and conservation subdivisions), and explained briefly how each tool worked, its potential benefits and limitations, and provided a list of references. In this article, I will provide a more in-depth look at conservation subdivisions.

The comprehensive planning law (or “Smart Growth” law) specifies nine elements that must be in the comprehensive plan. Among them is the implementation element that needs to outline the types of plan implementation tools a community will use to implement its plan. One primary goal of many communities is to balance residential development with agricultural needs, open space, and natural resources while trying to retain a sense of place. This kind of goal can make an important link between the housing, and agriculture, cultural and natural resources element of the comprehensive plan. Consideration of the goals and objectives within the comprehensive plan is necessary as the community considers the types of tools it will use to achieve its plan. One potentially useful tool to achieve the above goal is to describe conservation subdivisions as a *floating zoning district* or a conditional use in residential districts in the local zoning or land division code.

A model conservation subdivision ordinance was prepared by UW Extension. Local governments are not required to adopt this ordinance (see Ohm 2000), but may find it useful in crafting their own conservation subdivision ordinance.

Conservation Subdivisions: A Definition

Conservation subdivisions are characterized by common open space and clustered compact lots. The purpose of a conservation subdivision is to protect farmland and/or natural resources while allowing for the maximum number of residences under current community zoning and subdivision regulations. In some cases a greater density (density bonus) may be offered in the local ordinance to encourage this approach to residential development planning. Generally, this tool is used for parcels 40 acres and larger.

Development Density

One interesting feature of conservation subdivisions is that they are density neutral

(Continued on page 3)

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What's New at the Center

On the web: click on "What's New at the Center" on our homepage.

Plan Commission Handbook published —

The final version of the handbook is published and released. Copies were mailed to each person that attended any of the Plan Commission Workshops from December 2001 thru June 2002. If you attended a workshop and did not receive the final version in the mail, please call the Center and provide a mailing address so that we may get it out to you. If you did not attend a workshop, copies are available at \$4.00 each from the Center. Call 715-346-3783 to request copies.

Follow-up Workshop Scheduled for Vernon County Area —

A follow-up workshop has been scheduled for July 23 in Viroqua. The topics scheduled are the planning process and property rights. The workshop will begin at 1:00 p.m. Registration begins at 12:30.

Educator Resource Page Added to the Center Web Site —

A resource page has been added to the Center web site with links to various web resources for educators and others. These resources cover a variety of topics, including land use, planning, zoning and natural resources.

WAPA 2002 Workshop Scheduled —

Wisconsin Chapter of the American Planning Association (WAPA) 2002 workshop, "Sustaining Great Communities," is to be held on Thursday, September 26, in Madison, at the Exhibition Hall, Alliant Energy Center. 8:30-9:00 registration, 9-5 workshop, 5-6 reception. Check our web site or contact WAPA for more information.

Include Planning Internships in Your 2003 Budget!

Local officials interested in hiring an intern should plan for necessary funding in this year's budget cycle and contact Anna Haines at 715-346-2386. Examples of intern projects include: assembling and analyzing data for the required comprehensive planning elements such as issues and opportunities and the agricultural and natural resources element, preparing educational pieces or helping with enforcement and inspection of zoning and other ordinances.

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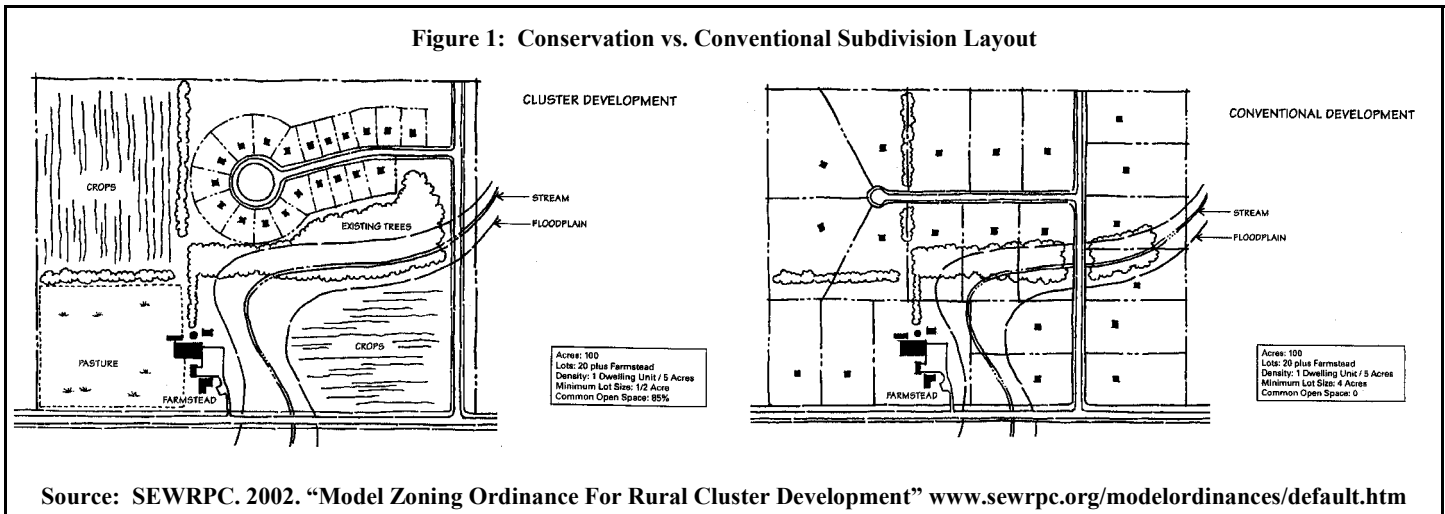
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(except where a density bonus is offered). What does density neutral mean? Many people assume that a conservation subdivision automatically implies a reduction in the number of lots allowed on a parcel of land. Actually, the same numbers of lots are built in a conservation subdivision as would be built in a conventional subdivision. Thus, a conservation subdivision maintains the same level of density as a conventional subdivision. Conventional lot-by-lot subdivisions spread development evenly throughout a parcel without consideration to environmental or cultural features (Ohm 2000). The primary difference between conservation subdivisions and conventional ones involves the location of the homes on one part of the parcel, i.e., the homes are clustered. Other changes involve management and ownership of the land that has been left for preservation.



Open Space Design, Use and Ownership Options

Conservation subdivision ordinances generally require permanent dedication of 40% or more of the total development parcel as open space. Open space design requirements often include contiguity and connection to other open space or conservation areas. Open space uses may include agriculture, forestry or outdoor recreation and in some cases has included use for waste water disposal or sports facilities in urbanizing areas. There are a variety of ownership choices for the open space (individual residential lots are owned as in conventional subdivisions): The original landowner can retain ownership of the land and continue to use it as a farm, for example (usually agricultural use is limited; a confined animal feed lot is an inappropriate use, while a vegetable farm is appropriate); a homeowner's association could manage it, it can be held as individual outlots for each of the building lots, or a local government or a land trust can manage the property for conservation purposes or outdoor recreation.

Consolidated infrastructure and reduced development costs

Clustering homes reduces the amount of infrastructure. For example, the linear miles of road are reduced; thus, the associated costs of construction, operations and maintenance are also reduced. As well it is possible to share wells and septic systems in these clustered developments. However, placement of wells and septic systems must be carefully designed to prevent unwanted uptake of wastewater into private wells.

Marketing amenities

Conservation subdivisions are desirable from a developer/realtor perspective. They appeal to potential homeowners who want easy access to open space for the views and/or for a range of outdoor activities, i.e., a "golf course" development without the golf course.

How it works

One of the more popular methods is advocated by Randall Arendt who has outlined a four step process. The process begins with the community identifying the cultural and natural resources that are valued on a specific parcel earmarked for development. This communication results in (i) identifying primary and secondary conservation areas, (ii) designing open space to protect them, (iii) arranging houses outside of those protected areas, and (iv) finally laying out streets, lots and infrastructure. Often between 40% to 80% of the site is permanently set aside for open space (Arndt 1992, Minnesota Land Trust 2000, Natural Lands Trust).

Potential Benefits

Conservation development or subdivisions **potentially** can benefit a community in a variety of ways:

- ❖ Achieves a community goal of preserving open space at the same density standard as is outlined in current ordinances.
- ❖ Establishes an open space network, if done within the context of a comprehensive plan and these types of developments/subdivisions are purposefully linked together. Continuous open space (farmland, forest or other natural resources) allows for greater benefits for the environment, i.e., habitat preservation for wildlife, and for a local economy if dependent on agriculture and/or tourism. This open space network also can extend and join recreational trails.
- ❖ None of the land is taken for public use unless the developer/owners want it to be.
- ❖ Does not require public expenditure of funds.
- ❖ Does not depend on landowner charity.
- ❖ Does not involve complicated regulations for shifting rights to other parcels.
- ❖ Does not depend upon the cooperation of two or more adjoining landowners to make it work.
- ❖ Provides a quality residential and recreational environment.

Source: Better Designs for Development in Michigan and Minnesota Land Trust and University of Minnesota 2001.

Limitations

While conservation subdivisions can achieve a variety of benefits, there are a number of limitations to consider:

- ❖ Conservation subdivisions are not a panacea. Used alone they cannot fully accomplish goals related to establishing and preserving open space or managing residential development.
- ❖ These subdivisions should connect to a broader network of conservation areas, if not a community will have a chopped up landscape.
- ❖ Conservation subdivisions not attached to already developed areas and not connected to services can result in poor land use practices.
- ❖ If one goal of your community is to create affordable housing, conservation subdivisions may not provide this housing option. Many conservation subdivisions are expensive, and are marketed to “high end consumers.” On the other hand, there is no reason why these types of subdivisions cannot include more affordable housing.
- ❖ If a goal of the community is to promote development that is less dependent on the automobile, conservation subdivisions may not help.
- ❖ Technical assistance is important. Poorly designed conservation subdivisions may not achieve open space goals of the community.

Guidelines for conservation subdivision development and design

- ❖ Conservation design is not a panacea
- ❖ Setting goals in the community’s planning framework is critical
- ❖ It is important to have good resource information
- ❖ Think big and plan for a large open space network
- ❖ Ordinances should create incentives and reduce barriers
- ❖ Open space should be diligently designed, not just set aside
- ❖ Water quality and quantity is paramount
- ❖ The management of the protected areas is critical
- ❖ Conservation development must be profitable
- ❖ Many of the barriers to change are not technical, but institutional

Source: Minnesota Land Trust, 2000.

Is This Tool “Right” for Our Community?

Each community should decide on the types of land management tools they want to use. Recognize that your community should choose a number of tools rather than rely on one exclusively. The reason to choose a group of tools is to bring strength where one tool is weak and to send consistent signals to the development community and property owners regarding appropriate and planned uses for particular parcels. It is reasonable, for example, to have a purchase of development rights program in place along with overlay zones and a conservation subdivision ordinance. Below is a list of criteria to consider when choosing plan implementation tools, including conservation subdivisions:

(continued on page 7)

Wisconsin Supreme Court Ruling: Agricultural Use Value Assessment Mallo and Mallo v. Wisconsin Department of Revenue

The Wisconsin Supreme Court on June 25, 2002 decided that the agricultural use value assessment statute was unambiguous and gives the DOR authority to promulgate this rule. They concluded that the rule was consistent with the plain language of § 70.32. They affirmed the decision of the circuit court granting summary judgment in favor of the DOR and dismissed the action.

The issue they addressed was whether the Department of Revenue (DOR) exceeded its authority under Wis. Stat. § 70.32(2r), when it promulgated Wis. Admin. Code § TAX 18.08 (current through Wis. Admin. Register No. 535, July 2000), providing for the valuation of agricultural land for taxation purposes based on its use-value, effective January 1, 2000.

Prior to January 1, 1996, agricultural land was assessed the same as all real property, at its fair market value based on its highest and best use. In 1995, the legislature enacted Wis. Stat. § 70.32(2r), to change the manner of value assessment of agricultural land for taxation purposes from market-value assessment to use-value assessment. Under use-value assessment, agricultural land is valued "according to the income that could be generated from its rental for agricultural use." Wis. Stat. § 70.32(2r)(c).

Source: Wisconsin Supreme Court. www.courts.state.wi.us/html/sc/00/00-3252.htm

Court of Appeals Upholds Rules for Private Onsite Wastewater Treatment Systems

by Lynn Markham

In a decision issued May 9, 2002,¹ the Wisconsin Court of Appeals upheld the Department of Commerce (DOC) revised rules for private onsite wastewater treatment systems (POWTS), known as Comm. 83. The controversial rules, which went into effect July 1, 2000, attempt to balance the protection of drinking water with interests in developing lands previously not suitable for POWTS by reducing the required depth of suitable soil for waste disposal and introducing new technologies. One result of the revised Comm. 83 is that POWTS are now allowed for some sites that previously required a holding tank.

Comm. 83 was challenged by the League of Wisconsin Municipalities, 1000 Friends of Wisconsin, Municipal Environmental Group, Citizens for a Better Environment, River Alliance of Wisconsin, Inc., and the Town of Caledonia. According to 1000 Friends of Wisconsin, the DOC and developers across the state lobbied for the revision of Comm. 83 that opens nine million acres – or 25% of the Wisconsin landscape – to increased development pressure.² Dan Thompson, executive director of the League of Wisconsin Municipalities observed “Land that wasn’t worth much because it didn’t test right for a conventional septic system under the old rule is worth a lot of money now because it’s buildable with one of the new systems. Our concern with the rule is strictly a land-use issue.”³ Caledonia Administrator Mark Luberdia said, “We learned from the suit that if we want to control zoning you need to use your zoning laws and not the plumbing code.”⁴

The court did not address the development and land use issues involved with Comm. 83. It did hold that the DOC has broad authority to grant variances from the rules in response to a petition if the provisions are determined to be “unjust or unreasonable” when approving new systems.⁵ The court also reaffirmed that POWTS are not required to comply with the groundwater standard for nitrates developed by the Department of Natural Resources, based on a statutory exemption.⁶

This decision was in spite of the fact that POWTS can contribute significant amounts of nitrate to groundwater and local drinking water wells. On a statewide basis, approximately 90% of the nitrate leached to groundwater comes

from agricultural sources, while 10% comes from POWTS⁷. However, this 10% contribution can be very important in local areas. Research in two Central Wisconsin subdivisions located on sandy soils found that 80% of the nitrate in shallow groundwater originated from POWTS, and 20% from lawns. Lot sizes of at least 1.5 acres were needed to prevent groundwater from exceeding the drinking water standard for nitrate.⁸ A 1994 study by the Wisconsin Geological and Natural History Survey and the Department of Health and Family Services estimated that 9 to 14% of private water wells in Wisconsin exceed the safe drinking water nitrate standard.⁹

On June 10, 2002 some of the parties in the case asked the Wisconsin Supreme Court to review the May 9, 2002 Court of Appeals decision to determine:

- whether the DOC can issue variances without proof that particular plumbing standards are unjust or unreasonable.
- whether the DOC's "cost-benefit" analysis was permissible as a basis for deciding to exempt nitrate discharges from Comm. 83.

Currently municipalities are not allowed to adopt additional standards to provide greater groundwater protection.¹⁰ However, municipalities retain flexibility in the following two areas:

- Local governments may prohibit or limit the installation and use of holding tanks, constructed wetlands and evapotranspiration beds.¹¹
- To allow time to plan for development in areas where it was economically impractical prior to the rule revision, local governments may, by ordinance, deny the issuance of POWTS permits for some technologies for new construction sites until January 1, 2003.¹² As described below, Portage County has taken this approach.

Portage County Comm. 83 Case Study

According to Mike Hansen, Portage County Senior Planner, the Natural Resources Conservation Service conducted a review of soil suitability for POWTS under Comm. 83. The review showed that enacting Comm. 83 in Portage County would increase the probability of siting a POWTS as follows:

- 58,000 acres would change from very low to moderate probability
- 3,400 acres would change from low to moderate probability
- 1,100 acres would change from low to high probability
- 95,000 acres would change from medium to high probability
- 368,000 acres would not change

Thus, 157,000 acres or 30% of the land in Portage County would have an increased probability of development if the Comm. 83 rules were in place without additional planning for land uses. In response to this information in 2000, the Portage County Board adopted a moratorium on issuing permits for some types of POWTS under Comm. 83 until Jan. 1, 2003 to allow towns time to develop new planning and zoning policies to prohibit building in locations with severe limitations. Since comprehensive plans in Portage County will not be finished by this date, interim rules for POWTS permitting in Portage County will be developed soon.

¹ *League of Wisconsin Municipalities v. Wisconsin Department of Commerce*. 01-1035 (Ct. App. 2002)

² <http://www.1kfriends.org/legislative/litigation.shtml>

³ Rinard, Amy. Appeals panel upholds septic system rule: Opponents say code will aggravate sprawl, spark boom. *Milwaukee Journal Sentinel*, May 9, 2002, <http://www.jsonline.com/news/wauk/may02/42088.asp>

⁴ Murphy, Kevin. Appeals court upholds controversial septic tank rules. *Racine Journal Times*, May 10, 2002, <http://www.journaltimes.com/archives/index.inn?loc=detail&doc=/2002/May/10-1638-772court.txt>

⁵ *League of Wisconsin Municipalities v. Wisconsin Department of Commerce*. 01-1035 (Ct. App. 2002)

⁶ Wis. Stat. § 160.255(3)

⁷ Shaw, Byron. Nitrogen Contamination Sources: A Look at Relative Contributions in *Conference Proceedings – Nitrate in Wisconsin's Groundwater: Strategies and Challenges*, 1994, p.23.

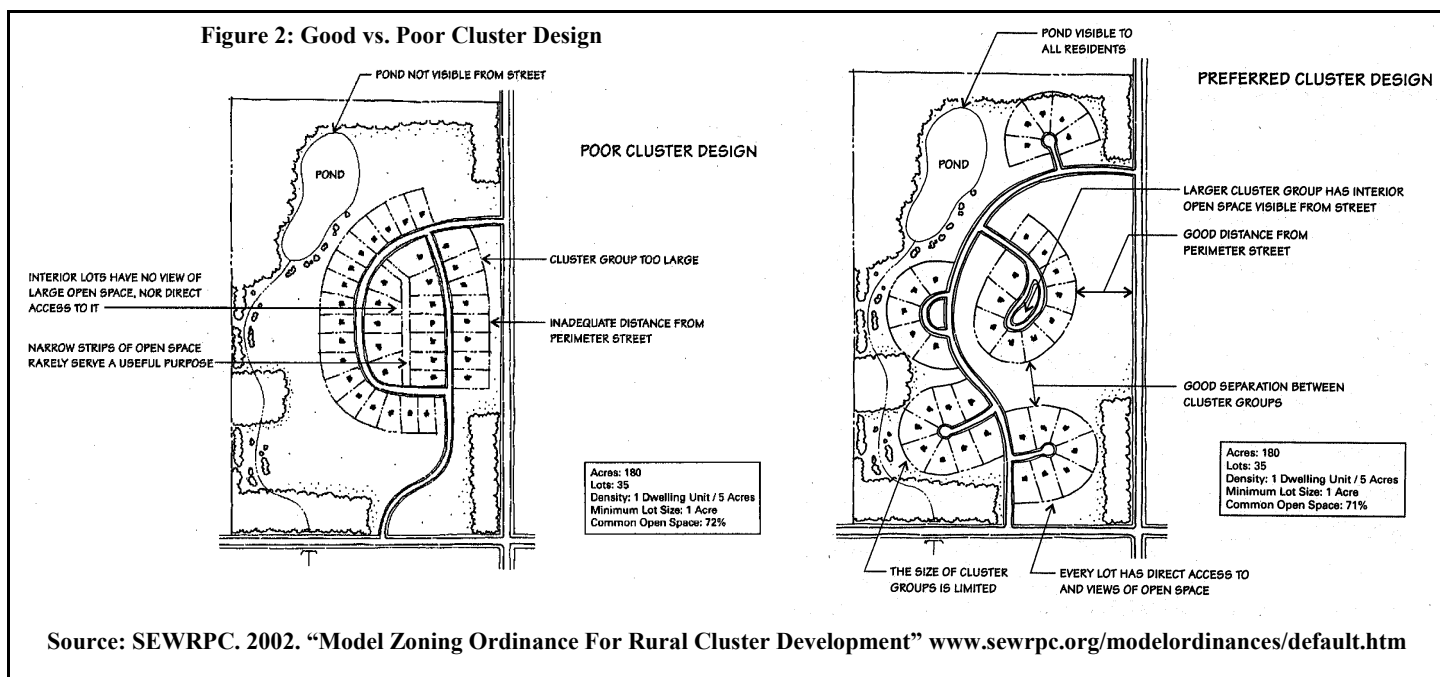
⁸ Shaw, Byron, Peter Arnsten and William VanRyswyk. Subdivision Impacts on Groundwater Quality. July 1993, pp. ii & 132.

⁹ Wisconsin Groundwater Coordinating Council Report to the Legislature, August 2001, p. 42.

¹⁰ Chapter Comm. 83.032(2)(b), <http://www.legis.state.wi.us/rsb/code/comm/comm083.pdf>

¹¹ Chapter Comm. 83.032(2)(a), <http://www.legis.state.wi.us/rsb/code/comm/comm083.pdf>

¹² Chapter Comm. 83.04(2), <http://www.legis.state.wi.us/rsb/code/comm/comm083.pdf>



- ❖ Does your community have an accepted plan that identifies rural residential development, open space, or sprawl as an issue?
- ❖ Does the plan specify goals and objectives that address how your community will contend with rural residential development?
- ❖ Will the tool accomplish any of your community's goals and objectives?
- ❖ Is the tool politically acceptable?
- ❖ Can the local government or some other organization administer the new tool given current personnel or is another position or committee necessary?
- ❖ Are there any enforcement issues local government personnel would need to contend with?
- ❖ To be effective, would the same tool need to be used by adjoining communities and/or is a cooperative effort possible?

Answering the above questions will give you a better idea which tools are appropriate to use in your community. Avoid choosing any plan implementation tool before you have done your homework. Understand how that tool works and the implications for administering and enforcing it.

Resources

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Alicia Acken contributed to an earlier draft of this article. DNR's Land Use Team, Michael Dresen, Gary Korb, Lynn Markham and Brian Ohm reviewed this article for form and content. Any errors, mistakes and omissions remain the responsibility of the author.

Impervious Surface – an Environmental Indicator

Part 2 of a series about impervious surfaces

By Glenn Bowles, AICP

Impervious surfaces are one result of community growth that can be directly measured. It is an important indicator -- an understandable measure of our surroundings. It is used to show changes in environmental conditions and to gauge the health of our natural resources. This article discusses the relationship between impervious surfaces and urban land uses.

Urban uses change the local water balance. As is illustrated in Figure 1, removal of natural land cover disrupts the water balance. Imperviousness changes the routing and timing for water to reach a lake or stream. Trees, shrubs and grasses are natural land covers. They shelter the soil surface from rain, wind and surface erosion, intercept precipitation, and filter rainwater. When rain reaches the ground, leaf litter and shallow roots are there to absorb it, as if they were a sponge, and recycle rainwater. Some rainwater strikes a surface, wets it, and some of the water eventually evaporates into the atmosphere. This absorption and recycling is called evapo-transpiration. Natural land covers encourage the lateral movement of shallow infiltrated precipitation into wetlands, lakes and streams. This movement of water is called

“interflow.” Natural covers also enhance the deeper water movement, or “base flow.” On the average Wisconsin receives about 32 inches of precipitation annually, this ranges from 29 inches at Spooner to 37 inches at Lake Geneva (Wisconsin State Climatology Office, 2002). At the latitude and climate of Wisconsin, the cumulative evapo-transpiration generally accounts for around 70% of the total amount of the annual precipitation. Another 13% becomes stream flow and 17% groundwater (Steuer and Hunt, 2001).

WATER BALANCE

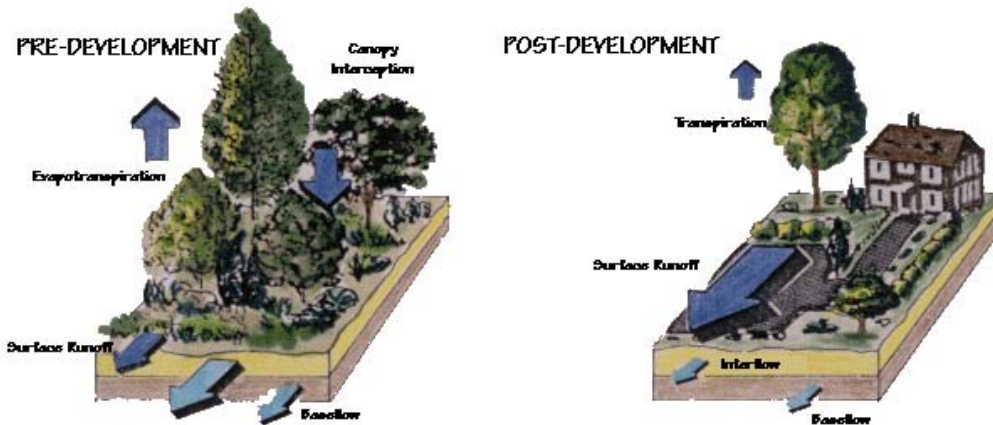


Figure 1: Water Balance Illustration.
Source: Center for Watershed Protection

Land use consists of many different land covers. Some are impervious to water while others are not. For example, impervious roof, driveway and sidewalk land covers along with pervious lawns, flower gardens, trees, and shrubs define residential land use. Compacted lawn and agricultural field soils are a middle ground between hard, impervious surface runoffs and spongy natural land covers. Where a parking lot may be 95% impervious, a residential lawn may be 40% impervious and natural land covers are nearly zero (Anacostia, 1991).

Table 1: Urban land uses and imperviousness

Land Use	Ultra Urban Connected Impervious Cover ¹	Chesapeake Bay Results ²
High Density (lots < 0.5ac.) Residential	41%	33%
Multiple Family Residential	49%	44%
High Rise Residential	64%	--
Schools	39%	34%
Industrial	69%	53%
Commercial (strip malls and office parks)	83%	72%
Shopping Center	92%	--
Downtown Commercial	96%	--

Several studies have estimated imperviousness for different urban land use categories. The table below summarizes two such studies. The percentages estimated in the studies are reflective of the general urban use category, but only define a percentage range. Each community should determine values that truly reflect their specific situation.

The unintended results of urban development attributed to imperviousness are:

- ◆ Removal of natural storage, retention, and recycling of precipitation
- ◆ Significant increases in overland runoff into surface waters
- ◆ Decreases in stream base flow and groundwater recharge
- ◆ Widening of stream channels
- ◆ Increases in floodwater velocities
- ◆ Increases in the magnitude and frequency of flooding
- ◆ Channel morphology changes because of the altered hydrology (Anacostia, 1991).

Urban development requires the removal of some natural land cover to create a reliable hard surface and to facilitate access to and from our homes, work, schools, commercial, and recreational opportunities. It is essential that a system be developed which quickly and efficiently drains water away from these human activity areas. Flooding or ponding, whether temporary or longer termed, are on acceptable.

In urbanizing communities, impervious surfaces have replaced roots, leaf litter, and forest canopies that were once available to absorb and recycle precipitation. Where precipitation was able to percolate into the ground and infiltrate to the watertable or contribute to stream and lake base flows, now most precipitation runs off directly into our wetlands, lakes, and streams. Natural processes are no longer available to absorb and recycle rainwater and snow melt. Under natural conditions, overland runoff is a relatively minor component of the water balance. Urbanization suddenly makes runoff a significant and probably the most visible component of the hydrologic cycle. The absolute change resulting from a single parking lot may not seem significant, but the cumulative impact of several parking lots, roof tops, roads, divided highways and the like are significant. More water is able to reach a stream or lake more quickly. Existing stream channels will likely not be able to effectively handle the added stormwaters. Waters flow over channel banks. What had been small rain showers, which often never reached the streams as overland flow, now result in bank full floods or worse.

Our neighbors to the west in the Minneapolis area have been witness to these problems. Since 1993 and the Mississippi River flooding, communities in the metropolitan region have experienced three 100-year floods. This is either a very unfortunate statistical aberration, or the imperviousness of the watersheds has indeed altered the frequency and magnitude of flood events. Costs amounted to several million dollars to cities which involved removing residences and installing storm water retention facilities.

Community Actions

- Adopt community planning policies to:
 - ✓ Identify surface water resources
 - ✓ Identify natural features associated with water resources, such as forested areas, steep slopes, and wetlands
 - ✓ Establish policy statements to create natural buffer zones around surface water bodies and wetlands
 - ✓ Establish policy statements to preserve and enhance natural features
 - ✓ Establish design policies to retain stormwater runoff and encourage inflow and base flow

- Adopt tools to implement a comprehensive plan that will address the unintended impacts of imperviousness:
 - ✓ Enact overlay zoning districts, which encourage no development or construction activities within all surface water riparian zones
 - ✓ Enact cluster options or Planned Unit Development amendments to existing zoning ordinances, which provide methods and priorities to protect sensitive natural features from development in exchange for possible design incentives to private developers
 - ✓ Include conservation easements with third-party oversight provisions in subdivision control ordinance requirements to permanently preserve and maintain sensitive natural features
 - ✓ Enact landscaping ordinances to require tree planting and landscaping standards for new and renovated parking lots, street rights-of-way, and new subdivisions

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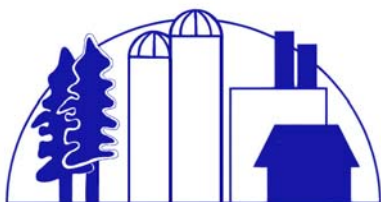
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