Community Environmental Assessment Fact Sheet Series

#9 – Support Resources

The ENVIRONMENTAL ASSESSMENT SERIES provides a set of questionnaires and worksheets that community members can use to consider natural and environmental resources in conjunction with other local management decisions. The fact sheets do not provide any automatic answers about how to manage local environmental resources, and cannot substitute for the work of a sophisticated planning firm or agency. But they can assist community leaders to develop their own set of questions and guidelines to share with planning professionals.

Factsheet #9 provides background information about several natural resource topics that may be considered through the community's assessment process.

Information is designed to enhance the task force's ability to complete the assessments suggested in *Factsheets #4 – 8*. Task force members may wish to consult these details as they go. Experts invited to assist the process may find these resources helpful as a quick introduction for task force members on relevant natural resource topics.

Content addresses the following topics:

Reformatted from the original files: ICOMNAS6, ICOMASFP, ICOMH20, ICOMSHOR, ICOMWEPA, 1995

COMMUNITY ASSESSMENT FACT SHEET SERIES

AIR QUALITY

Summarized from a presentation by Lynda Wiese, Southern Districts WDNR

Community Assessment Issues

Benefits from resource

- Communities may not see this, until it goes bad
- Business/industry moving to fringe counties to avoid air quality standards
- Preventing of significant deterioration-concept applies to large sources
- Turn to anti-benefits of dirty air e.g. Milwaukee--construction restrictions on large/middle sized VOC sources--find offsets
- Areas can find out information about local air quality from local DNR
- Large sources-set a baseline for whole area

Growth

- PSD Baseline areas: growth will consume increment especially in the non-attainment areas (?, from Lynda's notes). Indirect sources have an impact as well.
- If ozone nonattainment dates are not met, Wisconsin may have construction bans
- Facilities should schedule pre-meeting to see if development can take place with large sources
- Permitting of large shopping mall, parking lot air quality developments must do an air quality study

Growth tolerated?

Depends where you are, size of new growth. Not subjective - computer air dispersion models -- local officials are not going to be able to model PSD applicability, Baseline/Increment. Officials know if they have a baseline county non-attainment area (NAA). Community officials should be aware of status of area.

Indirect sources: may require change in access--developers look to cities for these services.

Management/protection strategies

- Treatment technology--clean up at source
- Prevent waste--pollution prevention
- Allocate the resource--divide the pie
- Allowances--market strategy--Calif., WI Reduction Credits
- Zoning strategies--keep residential and community/industry separate
- Restrictions on operations--hours of operation; lessen impacts on locals

Strategies available to study resource

- computer modeling, LMOS--photochemical model and strategies (?, Lynda's notes)

- GIS modeling for region
- transportation models to manage indirect sources
- land use plans

Community resource concerns-impact

- zoning
- land use planning

The DNR air management program overlaps with zoning concerns, fugitive dust, odors, land use planning, e.g. quarries/asphalt plants

Communities should be aware that AM does preclude too many possible air pollution sources from locating. DNR priorities are much different than local concerns. DNR looks at generic locations unless there are specific air concerns--we do not deal with local concerns (e.g. Ixonia, WI incinerator)

DNR priority-items which need permits

- DNR/EPA priority is non-attainment areas and major sources
- Smaller sources can often be managed by local issues

What about cumulative efforts of small sources?

- specific impacts of small sources
- burn barrel-check Cornell information

Transportation--is the major cause of ozone pollution--restrictions in SE Wisconsin.

Communities may want to require that large new projects also submit transportation plan--looking at alternative transportation--mass transit, carpooling, pedestrian/bike paths. DNR can only mandate in certain SE counties.

Redesign of intersections/interchanges

New projects should also look at:

- Water/WW/solid waste
- Noise--not regulated by DNR but we receive a lot of complaints.
- Energy production--increases could also need permitting-co-generation.

Siting should be priority of communities.

Laws, regulations and agency services:

Criteria Pollutants (pollutants of concern 1970 Clean Air Act)

- particulate matter (less than 10 mm in size)-gets into lungs
- SOx, NOx from coal burning mainly

- hydrocarbon total for ozone formation and toxics
- lead
- carbon monoxide
- auto and other sources of components-combine regionally to cause an ozone problem

Other pollutants of concern:

- lead--a criteria pollutant
- 437 toxics regulated
    - 437 toxics that DNR regulate (State law) - which do you emit? test for them compare their emission level with code level.
- heavy metals
- PCB
- dioxin

Regulate diff sizes of sources

- permits for gas stations to power plants:
- dry cleaning plant-federal, wood stoves-federal, manufacturing
- Wisconsin: coal forced plants, platers, painting, incinerators, wood working, printing, large parking areas (greater than 1000 spaces), malls, schools, etc.

Receive citizen complaints:

- residential vs farm-odor questions, odor regulation applications, quarry dust, toxics

Other concerns:

- people sensitivity to increased risk of any chemical
- incinerator vs community land use
- often, the public has poor understanding of risks
- permitting process may not assess overall or long term impacts of toxics, i.e. air deposition on surface waters

QUESTIONS

- the 1986 State Acid Rain Law
- Clean Air Act-allows tracking of SO2 & NO2 credits for over compliment
- Can NOx, SOx credits in nonattainment areas be exchanged throughout the country? Will be on the stock exchange
- Great Lakes toxics are being inventoried
- Wisconsin Toxics
    - Business/industry must define what they want
    - Measure what they omit through mass balance
    - Compare to statutory level

- Group formalized standards: generic lowest achievable, best available containment technology
    - municipal, hospitals incinerators-design/controls/stack testing
    - tank farms-benzene
    - gas stations-23 large gas stations, stage 2 vapor recovery formaldehyde control-asphalt plants
    - papermills-chloroform
- Nonpermitted but regulated:
    - small printer
    - wood burning stoves, fire places
    - operations causing odors
- Other environmental impacts-an EIS for large sources
- Question regarding businesses locating with respect to attainment/nonattainment areas

References

"Expanding Industry in Wisconsin"
"A guide to meeting air quality requirements"
PUBL-AM055

CULTURAL RESOURCES

Why Preserve Historical and Archeological Resources?

Local governments have found that preserving historic resources contributes to the quality of life in their communities. Historic resources include: historic buildings, structures and districts, architectural resources, engineering works, monuments and cultural resources. These resources are important because of their historical, architectural, engineering or cultural significance. Historic preservation involves identifying, preserving and enhancing historic resources and assimilating them into the community's plans. These resources shape the unique character of each community, creating civic pride about its past as well as its future. Moreover, historic assets are often important not only to the heritage of a single town but also to the history and architectural development of the state and the nation. Collectively, Wisconsin's historic resources tell how the state has grown and changed, about our sense of ourselves and about our faith in and hopes for the future. (Wagner, 1991)

Federal Programs and Responsibilities

Authorized by the National Preservation Act of 1966, the National Register of Historic Places is the nation's official list of cultural resources worthy of preservation. It is administered by the National Park Services under the Secretary of the Interior and is compiled through a broad-based partnership at the local and state levels. Resources listed in the National Register include districts, sites, buildings, structures and objects significant to American history, architecture, archeology, engineering and culture.

Listing a property in the National Register has several advantages:

- recognition of the property's value to the community, state and nation
- availability of federal tax incentives for the rehabilitation of certain properties
- consideration in planning for federal or federally assisted projects such as those funded by Community Development Block Grant monies.

Nominations for listing a property in the National Register may be initiated by anyone, although in practice most come from the State Historic Preservation Office, local preservation organizations or local governments. The criteria for listing a property in the National Register are designed to guide local and state governments, private nonprofit organizations and others about the significance of the property to the history and architectural heritage of the community, state or nation.

While listing a property in the National Register provides recognition and certain financial advantages if the property is rehabilitated, federal protection for inappropriate change or demolition is limited. Federally funded and permitted projects, such as the construction of highways and wastewater treatment plants are all subject to review under Section 106 of the National Historic Preservation Act of 1966. Section 106 requires the federal agency funding a project to identify any historic or prehistoric properties that may exist in the project area and to consult with the State Historic Preservation Officer to determine what effect, if any, the project may have on such properties. In some cases, the Advisory

Council on Historic Preservation, an independent federal agency created by the National Historic Preservation Act of 1966, will consult with the federal agency, the State Historic Preservation Officer, and any other interested parties, including local governments, to identify and agree upon ways to protect affected historic or prehistoric properties. Proposed alterations to a listed property must conform to design guidelines established by the Secretary of Interior and review by the Advisory Council on Historic Preservation. In such cases, the property is usually protected from demolition.

If federal money or permits are not involved, then protection of National Register property from demolition or inappropriate change depends on state enabling legislation and local landmarks and historic district ordinances. (Wagner, 1991 and Wisconsin Historic Preservation Program)

State Programs and Responsibilities

Established in 1989, Wisconsin's State Register of Historic Places lists state resources important because of their historical, architectural, archeological, or cultural significance. The list includes districts, buildings, structures, and objects that are significant on the national, state, or local level; it also serves as the "trigger" for state historical preservation benefits and protection. The criteria for listing are similar to those for the federal government's National Register of Historic Places. Wisconsin properties nominated for listing on Wisconsin's State Register of Historic Places are simultaneously nominated for listing on the National Register.

Similar to federal law, Wisconsin law requires state agencies to consider the potential effects of proposed state actions on historic properties. State actions include dispensing permits, licenses, and financial assistance for various purposes. If any adverse effects on historic properties appear likely to result from such actions, state agencies may have to negotiate with the State Historic Preservation Officer to reduce such effects. In addition, state agencies may deny or impose conditions on any permits, licenses, or financial assistance that will adversely affect historic properties.

State law also requires local governments to determine how their actions may affect properties listed in the State Register of Historic Places. They must consider historic properties when planning for the construction or demolition of properties or structures when taking any actions (including sale, lease, or rehabilitation) that might affect historic properties they own. Local governments must notify the State Historic Preservation Officer of such proposed actions, and negotiations may be required to mitigate or eliminate any adverse effects such actions inflict on historic properties. Also, local governments must notify the State Historical Society of Wisconsin thirty days prior to allowing the demolition of buildings listed on the Wisconsin Register of Historic Places. (Wisconsin Historic Preservation Program)

Local Government Responsibilities

Although the federal and state governments have acted positively to affirm the importance of preserving historic resources, the preservation of local historic and cultural resources is primarily a local

responsibility and will not happen unless local governments take the initiative. Only local regulations can prohibit the demolition of a privately owned historic resource.

One way local communities can protect historic resources is through the development and adoption of landmark or historic preservation ordinances. Preservation ordinances are management and planning tools that help communities identify, protect and enhance their valuable prehistoric and historic resources. Since 1931, preservation ordinances have evolved as legitimate government tools for protecting historic landmarks and neighborhoods. A model preservation ordinance is available from the State Historical Society.

A local historic preservation ordinance authorizes the creation of a local historic preservation commission that can be empowered to perform a variety of functions, depending upon the language of the ordinance that is enacted by the community. The commission may designate local historic properties directly or may recommend designation to the city council, or the village, town or county board which then makes the formal designation. The ordinance provides criteria to guide designation.

In addition, the commission may formulate a plan for the creation and maintenance of a state historic district, where specified distinguishing characteristics warrant designation of a district. Upon adoption of the plan in ordinance form by the city council, all property within the district is subject to architectural controls as specified.

Once designated, historic properties and properties within historic districts can be made subject to exterior architectural controls. A certificate of appropriateness must be issued by the commission before an owner alters historic property. Guidelines for determining whether a certificate should be issued are specified by the ordinance. Demolition of historic properties is prohibited unless the owner in conjunction with the commission is unable to find a purchaser or if the owner can prove an economic hardship due to the designation of the property.

Local historic properties and districts may also be listed in the State Register of Historic Places and the National Register of Historic Places. Both listings include sites, buildings, structures, objects and districts that are significant in national, state, or local history, architecture, archeology, engineering and culture. Listing a property in the registers does not impose restrictions on the private property owner. The private owner is free to sell, alter or demolish the property, unless federal or state funding or assistance is used.

Wisconsin regulations require cities and villages that have properties listed in the National Register of Historic Places or the State Register of Historic Places to enact historic preservation ordinances that regulate historic properties for the purpose of preserving them. [s. 62.23 (7)(em), Wis. Stats.]. Towns and counties are also explicitly authorized to create landmark or historic preservation ordinances [s. 60.64, 59.97(4)]. (Historic Preservation Ordinances in Wisconsin, 1994)

Resources for Local Governments

Division of Historic Preservation, State Historical Society of Wisconsin

Information on all areas of Wisconsin's historic preservation program including;

- Archeology program, including surveying, nominating and protecting archeological sites; tax exemptions for archeological sites; state archeology programs.
- Burial site preservation program including cataloging and protecting historic cemeteries, family plots and prehistoric burials; to report disturbances of burial sites.
- Compliance to state and federal law relating to protection of historic and prehistoric preservation.
- Local ordinances to protect historic properties including information about the Certified Local Government Program; information about placing official state historical markers.
- Nominations to the National Register of Historic Places and the State Register of Historic Places, including individual properties and historic districts.
- Surveys to identify and evaluate Wisconsin's historical and architectural resources; grants to conduct surveys; how to research properties to determine historical significance.
- Tax credits for rehabilitating historic buildings; architectural treatment and appropriate restoration techniques for historic buildings.
- Underwater archeology program, including identification and protection of underwater archeological resources.

National Trust for Historic Preservation

- Tech assistance and information on historic preservation
- Loan and grant programs for preservation projects.

National Alliance of Preservation Commissions

- Technical assistance and information on establishing and improving historic preservation commissions.

Conservation Foundation

- Information and tech assistance on conserving a community's natural resources and quality of life.
- Successful Communities Innovation Grants Program for innovative solutions to growth management issues.

Publications

White, B.J., and Roddewig, R.J., Preparing a Historic Preservation Plan. APA Planning Advisory Service Report Number 450. March 1994.

Local Historic Preservation Plans: A Selected Annotated Bibliography. U.S. Department of the Interior, National Park Service. June 1993

Historic Preservation Ordinances in Wisconsin: Protection of Historic Properties by Local Governments. State Historical Society of WI, Division of Historic Preservation. 1994. Includes a model historic preservation ordinance.

Wagner, R., 1991. Local Government and Historic Preservation. National Trust for Historic Preservation.

FLOODPLAIN PROTECTION

Why Protect Floodplains?

Rivers and streams and the flood prone lands adjacent to them (floodplains) contain some of Wisconsin's most important resources. Undeveloped floodplains provide economic, social, and environmental benefits, which are often overlooked when local land use decisions are made.

Undeveloped floodplain benefits include:

- helping to maintain good water quality
- helping to reduce flood levels, and in turn flood damage
- maintaining the quantity and quality of groundwater
- preserving natural wildlife habitat
- erosion control from floodplain vegetation
- preserving archaeological and historical sites
- recreational opportunities
- protecting aesthetic values

Federal and state floodplain protection programs are focused to achieve the following specific public objectives:

- Protect life, health and property
- Minimize costs for flood control projects
- Reduce tax dollars spent for rescue, relief and repair of flood damage
- Shorten business interruptions caused by flooding
- Prevent future flood blight areas
- Discourage victimization of unwary land and home buyers
- Prevent increased flood levels that can be caused by unwise floodplain development

Federal Regulations and Responsibilities

Federal standards for floodplain zoning have been established in connection with the National Flood Insurance Program (NFIP). Local governments that wish to have National Flood Insurance available to local property owners, must first adopt a set of federally approved regulations on floodplain development. Moreover, flood insurance for properties in floodplain areas is required as a condition for receiving direct federal financial assistance or loans, as well as loans from federally insured, regulated or supervised private lending institutions. Locally adopted regulations must meet the minimum requirements established by the federal government, or established state floodplain regulations whichever are more restrictive.

The NFIP has set the 100-year flood level as the standard for protecting new buildings and substantial improvements to existing structures in floodplains. As long as a community requires that new buildings

are constructed using design standards acceptable under the NFIP, flood insurance will continue to be available in the community at affordable rates, as will disaster assistance following a flood and federally subsidized loans and federal projects.

Conversely, state or local governments can request denial of flood insurance coverage for structures built in violation of issued permits or local or state regulations, and can also request federal purchase of structures in floodplains destroyed by floods so that they are not rebuilt.

State Regulations

Since waterways are not confined by municipal boundaries, and because impacts of actions in one place extend beyond those boundaries, it is understandable that regulatory standards that apply to land adjacent to waterways are uniform throughout the state. Statewide minimum floodplain zoning standards provide that uniformity.

Counties, cities and villages are required under NR 116 to adopt ordinances which conform to minimum state standards for floodplain zoning. The WDNR may also impose such an ordinance on a community if its existing ordinance does not comply with the state's minimum standards. Floodplain ordinances must regulate the type of land use, site design, and structural design of buildings and other major features of development.

Standardized study methods and mapping determine what lands are subject to the regional flood. These maps become the basis for describing a floodplain zoning district and for regulating future floodplain development. Where only approximate data exists, ordinances may require developers to conduct a detailed engineering analysis for individual sites.

Different land uses are allowed in different zoning districts based on the projected degree of flood hazard. The districts established by the WDNR model ordinance are described below.

Regional Flood
The regional flood is a large flood that has a 1% chance of occurring or being exceeded in any year. You may also hear it described as the 100-year flood, as there is one chance in 100 that a flood of this size or larger will happen in any given year. It does not mean that such a flood will happen only once in 100 years. The odds remain the same even if the regional flood happened the year before.

Floodway
This is the most dangerous part of the floodplain and is the area covered by deep, fast moving waters. It includes both the channel of the river or stream, and the adjacent floodplain lands required to carry off excess water from the regional flood. Ideally, development in the floodway should be restricted to open space uses that do not interrupt the natural flow of water.

Anything unnatural that prevents the water from quickly moving downstream prolongs flood problems and jeopardizes lives and property.

Examples of uses allowed by permit in the floodway include:

- agriculture (pasture, grazing, etc.)
- golf courses, tennis courts, parks
- boat launching ramps, marinas, docks

Uses not permitted in the floodway are those which might threaten human lives, health, or property, and those which would displace a significant volume of water, and therefore contribute to a worsening of flooding conditions. Prohibited uses include:

- structures designed for human habitation
- storage of buoyant or dangerous materials
- water wells used for human consumption
- septic tanks
- solid waste disposal

Flood fringe
The flood fringe is the remaining portion of the floodplain, lying outside of the floodway, which is needed to store flood water. Although this area is less hazardous than the floodway, damage to property in the flood fringe can be significant. Most types of development are allowed in the flood fringe, as long as that development is properly protected from flooding. Land use permits require that structures be protected from the regional flood by being elevated on fill at least two feet above the regional flood level.

General floodplain
The general floodplain contains both floodway and flood fringe lands where detailed data is not available to distinguish between them. All uses require a permit and case by case determination of whether the site is in the floodway or the flood fringe. The general floodplain as a whole is designated as an A Zone on flood insurance maps.

Local Government Options

Counties, cities and villages have broad authority to zone lands to promote public health, safety, convenience and general welfare, to protect property and achieve other public purposes. This local responsibility and authority includes the designation and zoning of floodplains. All municipalities are required by state law (NR 116) to adopt and administer floodplain zoning ordinances. Local ordinances must meet or exceed federal and state standards for maps and data used, types of land uses permitted,

site and structural design of buildings and other features of development. If floodplain ordinances are re-delineated or re zoned, the DNR must approve.

Town approval of county floodplain zoning provisions is not required. However, town governments do have authority to adopt floodplain regulations that are at least as restrictive as the county zoning regulations.

Local adoption of more restrictive floodplain zoning may be appropriate to address resource or development problems that are unique in a locale. For example, communities may establish specialized floodplain zoning districts that protect against unique flooding conditions in coastal, lake, and flood storage areas.

Information Sources:

Association of State Floodplain Managers
P.O. Box 2051
Madison, WI 53701

U.S. Army Corps of Engineers

Federal Emergency Management Agency

Publications

Model Floodplain and Shoreland Wetland Zoning Ordinance for Cities and Villages. WDNR

Flood Affect Your Property! Wisconsin Department of Natural Resources. Publication 14 3500(84)

Conserving Your Valuable Floodplain Resources. Tennessee Valley Authority. Publication TVA/WR/WRO 90/5

Kusler, J.A. and Rutherford, H.P. Common Legal Question Pertaining to the Use of Floodplains and Wetlands. The Association of State Floodplain Managers.

Why are Protect Groundwater?

"Groundwater is a valuable resource in Wisconsin -- it supplies approximately 94 percent of Wisconsin cities and villages and almost all the rural population with drinking water, and is vital to the state's agricultural, industrial, and business enterprises.

Unfortunately, certain land uses can result in pollution of groundwater; this has already occurred in some areas of the state. Cleaning polluted groundwater can be costly and, in some cases, almost impossible." (Born, et al, 1987) Once groundwater contamination occurs, pollutants may persist for many years, decades, or even generations, making the resource virtually unusable and a threat to public health. Therefore, many observers agree that the emphasis of regulations should be on the prevention of groundwater contamination, rather than on monitoring and cleaning-up pollutants once contamination has occurred.

Federal Responsibilities and Programs

"Currently, the federal government and many state and local governments have regulations which directly or indirectly protect groundwater quality; some activities and facilities affecting groundwater quality are extensively regulated while others are only partially regulated or are not regulated at all. While numerous federal laws exist to deal with selected aspects of groundwater contamination, many commentators have long recognized that these programs "do not create a complete or consistent federal approach" to groundwater protection.

In an attempt to coordinate federal and state regulatory efforts, the Environmental Protection Agency (EPA) developed a Ground-Water Protection Strategy. An important aspect of the strategy is the EPA's emphasis on the role of both state and local governments in groundwater protection. The EPA stated that: "states, with local governments, have the principal role in groundwater protection and management. States are best suited to undertake direct implementation and enforcement of groundwater protection programs."

The increasing emphasis on state and local government regulation of groundwater is well-placed since state and local governments are, in many respects, better suited to regulate for this purpose than the federal government. Fundamentally, state and local governments are often more acutely aware of the nature of state and local resources and the real as well as potential threats to those resources. Because groundwater quality is, in most areas, highly dependent upon local land use activities, local governments can play a significant role in protecting this resource by regulating where land use activities may be located and how these activities may be conducted." (Yanggen and Amrhein, 1989)

State Responsibilities and Programs

Wisconsin's groundwater management program includes a broad-ranging state regulatory program as well as specific authorization to local governments to zone and protect groundwater. Wisconsin has been granted primary authority to implement the major federal environmental statues and administrative rules dealing with groundwater quality.

State regulations that affect groundwater directly or indirectly include programs in waste disposal, agriculture, hazardous materials and waste in addition to well standards and groundwater standards. Several state regulatory programs that local governments should be aware of when considering management options are shown in Table 1.

The Wisconsin groundwater law (1983 WI Act 410) establishes a two-tiered set of numeric standards for substances that could contaminate groundwater. These standards "will become criteria for the protection of public health and welfare to be achieved in groundwater regulatory programs ..." (WI Stat. Section 160). Since all of Wisconsin's aquifers are used for drinking water, the Wisconsin legislature has adopted groundwater protection standards that apply uniformly to all groundwater within the state.

Table 1. State Regulatory Controls of Groundwater Pollution Sources

(Source: Born, et al, 1987)

Activity	Regulator	Code	Focus of Regulation
Private Wastewater Systems	DILHR	ILHR 83 & 85	Regulation of siting, design, installation, and inspection of systems and licensing of installers and evaluators. State inspection system (vs. local) is required for large-scale systems
	DNR	NR 113	DNR can prohibit sewage holding tanks in areas where they could cause a water quality problem.
Well construction	DNR	NR 112/111	DNR licenses well drillers and pump installers, specifies well design and construction, sets minimum separating distances between wells and potential pollution sources
		NR 145	DNR can authorize counties to administer NR 112 at one of four delegation levels.
Drinking water standard	DNR	NR 109	DNR sets drinking water standards and public water supply monitoring requirements.

Table 1. State Regulatory Controls of Groundwater Pollution Sources

(Source: Born, et al, 1987)

Activity	Regulator	Code	Focus of Regulation
Groundwater standards	DNR	NR 140	Sets up a two-tiered system of numerical standards for polluting substances enforced by DNR and establishes groundwater quality standards for harmful substances.

Local Government Responsibilities (excerpted from Yanggen and Amrhein, 1989)

"The Wisconsin legislature has delegated various regulatory powers to its local units of government that can be used to protect groundwater. These include statutory home rule authority, zoning and subdivision statutes, as well as a specific statute dealing with groundwater quality. Local governments exercise these powers via a variety of regulatory techniques to focus, for example, on the regulation of: (1) hazardous materials or potentially contaminating activities; (2) wellhead protection areas within the cone of depression of a municipal well or its recharge area; (3) vulnerable areas where soils, subsoils or bedrock permit easy access of contaminants to the groundwater; (4) aquifer recharge areas; or (5) areas 'down flow' from known or suspected sources of contamination.

When the Wisconsin legislature authorized zoning to 'encourage the protection of groundwater resources,' it acknowledged the important relationship between land use, typically controlled by local zoning, and groundwater quality, typically protected by state regulations. Local land use controls can address important aspects of groundwater quality which are not adequately covered by state regulations." (Yanggen and Amrhein, 1989)

The Wisconsin groundwater law specifically authorizes cities, towns, villages and counties to adopt zoning to protect groundwater.

Local regulations that control the location of land uses, specify the types of permitted activities, and regulate the density of use can play an important role in groundwater protection. Zoning and subdivision controls may prohibit uses that have the potential to cause serious contamination, permit other uses only under certain conditions, limit the density of development, and regulate the locations within which the various uses are permitted. Zoning and subdivision controls such as conventional zoning, flexible zoning devices, subdivision regulations and extraterritorial controls are all measures which can require that new land uses are undertaken in a way to protect groundwater quality.

"Although the specific provisions of zoning ordinances and subdivision regulations will vary from situation to situation, the basic regulatory strategies which local governments might employ to protect groundwater quality include:

- prohibiting uses with a potential to seriously contaminate groundwater;

- requiring the developer to provide detailed information about proposed conditional uses, their plan of operations and the physical characteristics of the proposed site;
- setting conditions under which activities may be permitted through the use of design standards, performance standards and operational controls;
- limiting density by specifying minimum lot size, percentage of lot coverage and minimum separating distances; and
- using overlay districts to designate special management areas such as aquifer recharge areas; well protection districts and other locations particularly susceptible to groundwater contamination." (Yanggen and Amrhein, 1989)

Counties:
The broad geographic coverage of county governments puts them in a key position to coordinate the groundwater management activities of the state and other local governments. Wisconsin counties have specific groundwater-related regulatory authority under Section 59.067, Wis. Statutes to adopt and enforce county well code ordinances (covering construction and abandonment), zoning, and land disposal of septage. Well code ordinances apply within cities, villages, and towns. A county well-code ordinance may require a permit before constructing or reconstructing a private well or installing a pump. Well codes must strictly conform to DNR rules (NR 112, WI Admin. Code), and the DNR may revoke county authority if the code is improperly enforced or not in compliance with the administrative rules.

Cities and Villages:
Cities and villages are specifically authorized to use their zoning and subdivision powers to protect groundwater. These zoning regulations are important to cities and villages because county zoning authority does not extend inside municipal corporate limits. County well code ordinances do apply within cities and villages.

Cities and villages can also use their broad statutory home rule power to supplement state statutes and administrative rules where necessary to protect groundwater quality.

Towns:
Towns are specifically authorized to use their zoning and subdivision powers to protect groundwater quality. Similar to cities and villages, towns with village powers may also exercise home-rule powers, except those "which conflict with statues relating to towns and town boards."

Table 2 summarizes local regulations that relate to groundwater protection.

Table 2. Local Regulations Related to Groundwater Protection

(Source: Born, et al, 1987)

Activity	Regulator	Authority (WI Statute/Admin. Code)	Focus of Regulation
Land use (zoning)	County	59.97	Regulation of new land use locations, special areas and Town activities, and plans of operations for conditional uses.
	City & Village	61.35 & 62.23(7)	
	Town	60.61 & 60.62	
Land division	County City & Village Town	236.45	New parcel creation (subdivision)
Well construction	County (only)	59.067 (NR 112 & 145)	Regulation of well construction and/or pump installation and location of new facilities.

References

Born, S.M., Yanggen, D.A., and Zaporozec, A., 1987. A Guide to Groundwater Quality Planning and Management for Local Governments: Wisconsin Geological and Natural History Survey.

Yanggen, D.A., and Amrhein, L.L., 1989. Groundwater Quality Regulation: Existing Governmental Authority and Recommended Roles: Columbia Journal of Environmental Law.

Morandi, L., 1990. State Groundwater Protection Legislation. A Proposed Comprehensive Policy Framework.

SHORELANDS AND WETLANDS REGULATIONS

Why Protect Wetlands and Shorelands?

Lakes, rivers and streams mirror the health of their watersheds. Uses of lands that drain to waterway affect all aspects of its physical environment and its biological community. Because land uses in a watershed directly affect the quality of a waterbody, special protection is needed for these lands.

Shorelands provide a natural buffer area adjacent to lakes, rivers and streams, so regulating the use of these areas is important to protect water quality, fish and wildlife habitat, natural scenic beauty and public rights. Shorelands provide this buffer by:

- Intercepting runoff and allowing it to percolate through the soil removing many nutrients and pollutants before they enter the water;
- Providing a habitat corridor for birds and wildlife and overhanging cover and food for fishes;
- Anchoring soils against sheet erosion and the impact of raindrops;
- Their natural vegetation which is adapted to the temperature, moisture and light conditions of each individual site and provides a major component of the shore's natural beauty.

Wetlands are literally "the land and water connection." Until recently wetlands were often viewed as wastelands, useful only when drained for agriculture or filled for development. But now many of us recognize the importance of wetlands. Wetlands contribute to the social, economic and environmental health of our nation in many ways:

- By filtering pollutants, nutrients, and sediments; wetlands help to protect water quality in our lakes, rivers, streams and wells;
- By storing runoff from heavy rains and snow melts, wetlands reduce flood damage;
- By providing essential habitat for fish, waterfowl, and a variety of other animals, wetlands provide for recreational opportunities for state residents and visitors;
- By acting as a shoreline buffer, wetlands protect against erosion from waves and current;
- By providing beautiful open spaces, wetlands enhance quality of life, property values, and tourism.

Wisconsin once had approximately 10 million acres of wetlands. Now approximately half remain (many of them altered or degraded) and the consequences have been severe.

Activities that are Regulated in Wetlands and Shorelands

Wetlands are regulated by the U.S. Army Corps of Engineers, the Wisconsin Department of Natural Resources and by local counties, cities and villages.

Regulated activities include:

- excavating or placement of any material in low areas or wetlands

- significant adverse impacts on wetland functions and values
- significant degradation of the water quality

Federal Regulations and Responsibilities (excerpted from DeWitt, Porter, et al, University of Wisconsin)

Wetlands are subject to a more intertwined set of federal, state and local requirements than any other resource. Each level of government has its own set of requirements for wetlands and each has substantive input in the decision-making process of the other jurisdictions. Moreover, because wetland regulation inevitably results in land use issues, few areas of environmental regulation generate as much continuing controversy.

Section 404 of the Clean Water Act is the primary federal law protecting wetlands. Section 404 is administered by the U.S. Army Corps of Engineers, with guidance and oversight provided by the Environmental Protection Agency (EPA).

Under section 404, the Corps is authorized to issue or deny individual permits for the discharge of dredged or fill material into "water of the United States," including wetlands. The regulations also apply to other activities that may damage wetlands such as draining, excavation, flooding and burning, if these activities may result in conversion of a wetland to another use. The Corps may also issue general permits on a nationwide, state or regional basis under this section of the Clean Water Act.

The Corps receives approximately 15,000 individual permit applications per year, of which 67 percent are issued, 30 percent are withdrawn and 3 percent are denied. Standards for granting an individual permit are issued by both the EPA and by the Corps.

The initial criteria utilized by the Corps focus on a public interest review which weighs the relative costs and benefits of a project. These criteria include concerns related to aesthetics, wetlands, historic values, fish and wildlife, flood hazards, navigation, shore erosion, recreation, water supply, water quality and other factors.

The Corps' criteria also incorporate criteria adopted by EPA. The EPA criteria provides that "no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences." Also under these guidelines, the project must be water dependent -- that is, it must require access or proximity to the water to fulfill its basic purpose.

EPA also prohibits any discharge which contributes to "significant degradation of the water of the United States." Such degradation includes significant impacts that:

- cause violations of state water quality standards;
- violate toxic effluent standards;
- jeopardize federally listed endangered or threatened species;
- adversely affect municipal water supplies, plankton, fish, shellfish, wildlife and

- special aquatic sites (i.e. wetlands);
- adversely affect the capacity of a wetland to assimilate nutrients, purify water, or
- reduce wave energy;
- significantly reduce recreational, aesthetic and economic values.

Another issue involved in the granting of a permit is mitigation. Mitigation means the creation elsewhere or replacement of wetlands taken by a project. Mitigation of development in wetlands is allowed under Corps and EPA guidelines, but is subject to a three-step approach: (1) potential impacts must be avoided to the maximum extent possible, (2) remaining unavoidable impacts must be mitigated to the extent appropriate and practicable, and (3) compensatory mitigation will be required for impacts that cannot be minimized.

Several activities are exempt from permitting requirements. These activities include farming, forestry and ranching activities if these practices do not convert wetlands to uplands; maintenance of dams, ponds, dikes and levees; and similar activities. In addition, the nationwide and regional permit programs authorize other types of activities to occur without an individual permit. Approximately 70,000 minor activities are authorized each year through nationwide or regional permits.

One of the most important of these activities is nationwide permit (NWP) 26. NWP 26 permits the filling of wetlands between one and ten acres where the wetland is either above the headwater (i.e., with a flow of less than 5 cfs) or is an isolated wetland. Filling wetlands less than one acre is automatically permitted.

Section 401 of the CWA authorizes states to certify whether a proposed project complies with state water quality laws. The Corps cannot issue a wetland fill permit if a state has determined that a proposed project would violate the state's water quality standards for wetlands (NR 103 in Wisconsin) or its federally approved coastal zone management plan. In Wisconsin, water quality certification procedures and general standards are specified in NR 299. This provision is an effective state veto over Corps wetland permit decisions.

Under the National Environmental Policy Act (NEPA) the Corps must consider the impacts of proposed projects on the human and natural environment. NEPA requires that an environmental impact statement be prepared for any major federal action, including the issuance of the Section 404 permit, if it would have a significant effect on the quality of the human environment. In most cases, "a finding of no significant impact" (FONSI) is issued by the Corps after preparation of an environmental assessment or if a project is categorically excluded from requiring either an environmental assessment or an environmental impact statement.

State Regulations and Responsibilities (excerpted from DeWitt, Porter, et al, University of Wisconsin)

In 1991, the WDNR established water quality standards for wetlands in NR 103. NR 103 is applicable to all WDNR regulatory, planning, management, liaison and financial aid determinations which may impact

the quality and uses of wetlands. Here, projects that have a significant adverse impact on wetland functional values cannot be approved.

When projects are subject to NR 103, all wetlands are covered by its standards. The water quality standards in NR 103 are related to functional values rather than numeric criteria. The rule uses a two-step analysis:

- Functional values of wetlands are defined; and
- Criteria are then provided to assure that functional values are not adversely impacted within a "range of natural variation."

  Functional values include stormwater storage; filtration; shoreline protection; habitat for aquatic organisms; habitat for wildlife; and recreational, cultural, scientific and aesthetic values.

If the project is not water-dependent, and practicable alternatives exist, then the values are not met and the project will not be approved. If the project is water-dependent or is not-water-dependent but no practicable alternatives exist, then the DNR will base project approval on whether significant adverse impacts on the designated functional values would occur.

NR 103 also gives special consideration to wetlands associated with areas of "special natural resource interest," such as:

- trout streams and lakes
- Lake Michigan and Superior and the Mississippi River
- state and federal designated wild and scenic rivers
- calcareous fens
- habitat used by threatened or endangered species
- state parks, forests, and recreational trails.

Local Government Responsibilities

Recognizing the need to protect water quality, fish and wildlife habitat, natural scenic beauty and public rights in our navigable waters, the state also indirectly regulates surface water and wetlands by mandating the enactment of certain local zoning restrictions applicable to shorelands and wetlands within shorelands. Chapters NR 115 and NR 117 (WI Administrative Code) require local units of government to adopt, administer and enforce general shoreland development standards and wetland protection standards in shorelands. These standards are shown in Tables 1 and 2 below. These standards do not apply to wetlands located outside of shoreland areas - but local governments are encouraged to include all wetlands in their wetland protection standards.

All three zoning regulations share a common statutory scheme. Local units of government must enact certain zoning regulations which comply with minimum standards established by the DNR. If the local unit of government does not enact such a zoning ordinance, the DNR has the authority to adopt a conforming ordinance for the local unit of government, and that ordinance will then govern land use in

that area. The zoning requirements imposed under these types of regulations are usually very restrictive. Indeed, most development activities are severely restricted, if not prohibited, in the affected areas.

The DNR is authorized to use several mechanisms to encourage compliance in protecting and maintaining shoreland and wetland-shoreland areas:

- Model ordinances - Prepared by DNR as a guide for local government.
- Ordinance review - DNR is required to certify or approve that local ordinances meet the standards.
- Hearing notice and decision review - Requires communities to notify DNR of hearings, and DNR to review local decisions on variances, conditional uses, appeals and amendments.
- Program review - DNR to periodically review local zoning programs.
- Enforcement - Authorizes DNR to take corrective action when other measures to resolve a problem fail.

Counties: Counties are required to adopt, administer and enforce both general shoreland development standards which regulate most construction activities and wetland protection standards in shorelands (NR 115). The DNR oversees administration and enforcement of these ordinances and may appeal decisions to the local board of adjustment or circuit court.

Cities and Villages: Cities and villages must adopt regulations for the protection of wetlands located in shorelands which are almost identical to those required for counties. They are not required to adopt the general development standards required of counties. However, many municipalities choose to adopt similar regulations related to shoreline setbacks, lot size, restricting construction activities and the removal of shoreline vegetation. Shorelands which are annexed by a city or village must continue to comply with the county shoreland and wetland zoning regulations which were in effect on the date of annexation.

All local governments are encouraged to adopt more restrictive shoreland zoning ordinances (general development and wetland protection) than mandated by state law whether to protect the pristine waters of Northern Wisconsin or to reduce the conflicts in shorelands subject to greater development pressure in the southeastern part of the state. This includes adoption of regulations on wetlands less than five acres in size or outside of the shoreland area.

Local zoning administrators have Wisconsin Wetland Inventory maps, determine wetland boundaries, and determine whether proposed uses or activities (including development) are permitted. Zoning allows a variety of uses and the zoning administrator and locally appointed board members make many wetland use decisions.

An important point to remember is that if a use is not listed as permitted in the zoning ordinance, it is prohibited unless the zoning is changed (rezoned). Generally, draining, dredging, filling, or flooding aren't permitted in shoreland wetlands. An area cannot be rezoned if it would result in significant harm to wetland functional values.

Table 1. County Regulation of Proposed Shorelands Development (NR 115)

Minimum statewide standards:

Lot sizes - 100 ft. minimum average width and 20,000 square ft. for lots with no sewer; 65 ft. minimum average and 10,000 square ft. for sewered lots.

Building setbacks -- 75 ft. from the OHWM for all structures except piers, boat hoists and boathouses. Decks, gazebos, screen porches and other accessory structures must be set back as well.

Vegetation removal -- may not be clear cut in the 35-foot strip adjacent to the OHWM, and no more than 30 ft. in any 100 ft. in other shoreland areas.

Filling and grading -- permits are required to avoid erosion and adverse effects on habitat and water quality.

Sanitary codes -- permits and compliance are required for construction and operation of private septic systems and wastewater disposal systems.

Subdivision of land -- review of plans required for public roads, utilities, stormwater drainage, erosion control, etc. to manage the environmental effects of residential development.

Table 2. Standards for Wetland Protection in Shorelands (NR 115 & 117)

(Similar but not identical for counties, cities and villages)

Regulations apply to all mapped wetlands included in the Wisconsin Wetlands Inventory of five acres or greater in size which are in shorelands. (Local governments may choose to regulate additional wetlands.)

Permitted uses of wetlands include:

- recreation such as hunting, fishing, trapping and hiking.
- forestry, including limited water level manipulation
- harvesting wild crops.
- pier, dock and walkway construction.
- limited road construction for farming and forestry
- pasturing livestock, including fence construction
- agricultural cultivation including maintenance of existing drainage systems
- limited construction of small buildings needed to support open space or wetland preservation.
- pier, dock and walkway construction
- development of parks, recreation areas, and fish and wildlife habitat improvement projects.
- limited utility construction
- limited railroad construction.
- Some additional uses are allowed in cities and villages.

Table 2. Standards for Wetland Protection in Shorelands (NR 115 & 117)

(Similar but not identical for counties, cities and villages)

All other uses of shoreland-wetlands are prohibited unless an area is rezoned by amending the local wetland zoning map to remove it from a wetland zoning district.

Wetlands which provide important, natural functions (outlined in the local ordinance) may not be rezoned to allow development.

Glossary of Terms

Shorelands: Shorelands serve as a regulated buffer area adjacent to all navigable waters. Shorelands adjacent to navigable lakes, ponds and flowages include lands within 1000 feet of the ordinary high water mark (OHWM). Shorelands adjacent to navigable rivers and streams extend 300 feet from the OHWM or to the landward edge of the floodplain if that is greater [s. 59.971(1)].

Wetlands: One of the most controversial issues in wetlands regulation is what constitutes a "wetland". We know wetlands by their common names: bogs, fens, swamps and marshes. Other wetlands are less obvious; water may be just below the surface or flooding may be relatively frequent, but not long lasting. Some forests and meadows are wetlands even though they may appear dry on a summer afternoon. These drier wetlands provide important functions and are equally protected by law.

> Wetlands are defined as areas where water is at or near the ground surface long enough during the growing season to determine the types of plants that grow and influence the soils that form there [s. 23.32(1), Stats.]. A Federal Wetland Delineation Manual (1987 and 1989 revisions) produced by the U.S. Army Corps of Engineers provides a consistent, scientific basis for wetland identification and boundary determinations based on soil types, vegetation and hydrology (wetness).

Wisconsin Wetland Inventory: As part of the state's efforts to protect wetlands, the legislature established the Wisconsin Wetland Inventory in 1978. Wetlands of 2 acres and larger are outlined and classified on Inventory maps. The Inventory classifies wetlands according to vegetative type, hydrology, human influence, and other wetland characteristics.

Shoreland Zone: The shoreland zone is located within 1,000 feet of the ordinary high water mark (OHWM) of a "navigable" lake, pond or flowage or within 300 feet of the OHWM of a "navigable" stream or river or to the landward side of the floodplain, which ever distance is greater.

Ordinary High Water Mark (OHWM): The ordinary high water mark is the boundary between upland and lake or riverbed. It is the point on the bank or shore up to which the presence and action of the water is so continuous as to leave a distinct mark either by erosion, destruction of terrestrial vegetation, or other easily recognized characteristics.

"Navigable": Generally, a waterway is navigable if it has a bed and banks and can float a canoe at some time each year - even if only during spring floods. Even small intermittent streams that are seasonally

dry may meet the test for navigability. Navigable lakes and streams are public waterways protected by law for all citizens.

Resources for Local Government

Local Zoning Office
Contact your local zoning office for general guidance and information, application forms for local zoning programs, review of wetland maps, assistance with wetland boundary determinations, and explanation of permitted uses.

Wisconsin Department of Natural Resources
Contact Water Management Specialists for general guidance and information, application forms, and review of wetland maps. DNR also makes wetland boundary, ordinary high water mark (OHWM), and navigable water determinations for state programs.

Army Corps of Engineers
Contact the district office in St. Paul or one of the Corps field offices for information about federal regulations. Permit applications for Corps regulated activities can be obtained from area DNR offices.

Publications

Dresen, M.D. and Kozak, R.M. 1995. Law of the Land - A Citizen's Guide. Influencing Local Land Use Decisions that Affect Water Quality. University of Wisconsin - Extension and Wisconsin Department of Natural Resources.

Shoreland Zoning. What the Landowner Needs to Know - WDNR WZ-009(88)

Protecting Wetlands Through Local Zoning - WDNR WZ-001 93 REV

Model Floodplain and Shoreland-Wetland Zoning Ordinance for Cities and Villages - WDNR

Model Shoreland-Wetland Zoning Ordinance for Cities and Villages - WDNR

Water Quality Standards for Wisconsin's Wetlands: The NR 103 Decision Process - WDNR WZ-025 92

Building Near Wetlands: The Dry Facts - WDNR WZ-WZ021 91

THE WISCONSIN ENVIRONMENTAL POLICY ACT (WEPA)

What is the Wisconsin Environmental Policy Act?

The Wisconsin Environmental Policy Act (WEPA) is a state law designed to encourage environmentally sensitive decision-making by state agencies. It spells out the state's environmental policy and requires state agencies to consider the environmental impact of their actions. It also establishes a role for broad citizen participation in environmental decision making.

WEPA was signed into law in 1972. It is patterned after the National Environmental Policy Act (NEPA) approved in 1970.

The broadly stated policy of WEPA is to "encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; and to enrich the understanding of the important ecological systems and natural resources."

State Responsibilities

WEPA requires state agencies to gather relevant environmental information and use it in their planning and decision-making. They must also look at appropriate alternatives to the particular course of action they are proposing. If the action is a "major action significantly affecting the quality of the human environment," the law requires agencies to consult with other agencies about possible environmental impacts, prepare and circulate an environmental impact statement (EIS), and hold a public hearing. Case law further directs agencies to "consider" in their decision -making the information they developed in their EIS.

WEPA's method for achieving environmental goals is two pronged - Improved agency procedures plus citizen oversight and participation. For important projects, the EIS establishes a dialogue: a report on the project, its impacts, and alternatives must be prepared by the proposing agency and distributed to other agencies and the interested public; comments about the project and additional data are then sent back to the agency from other agencies and citizens are incorporated into agency files.

An EIS is a statement of foreseeable environmental, social, and economic impacts of a proposed project, action, policy or plan that might otherwise be overlooked. Its purpose is to outline choices for decision-makers and the public and to help them understand the consequences of going ahead.

WEPA requires state agencies to prepare an EIS for "every recommendation or report on proposals for legislation and other major actions significantly affecting the quality of the human environment." EIS's are also required under the National Environmental Policy Act (NEPA) from the leading federal agency on major federal actions. When an adequate federal EIS is prepared and a public hearing is held, a separate state EIS is usually not required.

An "action" is any project or activity that might affect the environment. "Actions" include, but are not limited to:

- development of physical facilities, like buildings and highways
- financial assistance
- promulgation of administrative rules and standards
- regulation, review, and permit issuance
- policy recommendations
- maintenance operations
- formal long and short-range plans

Even research projects and budget and legislative proposals by state agencies have been included in the definition of "actions."

Perhaps the most important function of environmental impact statements is to force agencies and citizens to consider, describe, and discuss "alternatives to the proposed action" - that is, other ways of solving the problem, especially those that might be less harmful to the environment, or that have substantially different impacts. This includes not only alternative ways to structure the proposed project, but other means to accomplish the same goal. Alternatives that fall outside of the agency's jurisdiction must still be explored. Each alternative must be studied carefully enough to allow a fair comparison with the proposed action.

The Limitations of WEPA

In reality, WEPA provides an informational process - EISs disclose impacts and lood at alternatives. They don't stop projects; they don't approve projects; they don't modify projects. The influence this informational function has in state agency decisions is directly related to the amount of discretion the agency has in making that decision.

To quote from a recent court case, "WEPA does not mandate particular results or particular decisions in individual cases but simply exists to ensure that adverse environmental effects of a particular project are identified and evaluated during the planning stages. The act does not prohibit unwise decisions, only uninformed ones."

An important result of the lack of stage agency discretion (e.g. the Wisconsin Department of Natural Resources) in making decisions on environmental permits is this: The Department does not have the legal authority to direct a project proponent to a site or to assure that the "best" site is selected for a project. This lack of authority applies to landfills, incinerators, shopping malls, residential development, factories and most other types of human development.

Local Government Responsibilities

WEPA's requirement to study, describe and consider environmental impacts applies only to state actions. It does not apply to local governments or private parties unless their actions involve the state, as many of them do, via funding, regulation, or issuance of a permit. A local government could, however, enact its own "environmental policy act" which could require environmental considerations of county, municipal or private actions.

Local governments have the principal role in many facility siting and related land use issues. Fundamentally, local governments are more often acutely aware of the nature of local resources and the real as well as the potential threats to those resources. By exercising traditionally local functions, local governments are able to reflect in their regulations unique local characteristics which higher levels of government are often unable to consider because of the need to generalize regulations across greater geographic areas.