

# Relationship of Environmental Regulations to Land Use in Michigan

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## ISSUE

Environmental regulation affects the use of land by: (1) restricting activities on land having certain characteristics, (2) governing where and under what circumstances certain activities may occur, (3) regulating functions associated with land use, (4) affecting infrastructure decisions, and (5) in some cases, directly affecting the real and perceived quality of the environment in a particular area, thereby potentially affecting numerous decisions by others. This paper explores how the environmental programs administered by the Department of Environmental Quality (DEQ) in each of these categories directly and indirectly impact the use of land by affecting the choices individuals make.

## BACKGROUND

The DEQ is primarily responsible for administering the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). It also administers some provisions of the Public Health Code, 1978 PA 368, as amended. While these statutes codify essentially all laws directly regulating activities affecting the environment, those laws were initially enacted over a span of decades since the Sewage Disposal and Waterworks Systems Act was first adopted in 1913. Other early legislation includes the Water Resources Commission Act, 1929 PA 245, adopted in 1929. As a result, the various component laws were created and amended piecemeal, in response to different real and perceived threats to the environment, based on different levels of understanding of scientific, social, and economic issues, and in different political contexts. A related issue is whether or not a particular regulatory framework was developed in response to, and must still meet certain minimal requirements of, a federal regulatory program such as those governing protection of surface water, air quality, and waste management.

Despite this variation in pedigree, the component parts of the NREPA, the Public Health Code, and some ancillary statutes comprise a more or less comprehensive (although some notable exceptions exist) and coherent body of law. This body of law establishes the framework by which the government authorizes, encourages, prevents, or restricts private and public activities that could positively or negatively affect the environment, including, to some extent, how land is used. This power is exercised through five general categories of actions:

1. Authorizing an activity through a permit, license, registration, approval, or other similar instrument. The ability to authorize an activity necessarily includes the ability to impose restrictions on how the activity is conducted.

2. Imposing sanctions on illegal activities through enforcement. With few exceptions, this requires the involvement of the judicial branch.
3. Providing incentives, usually financial, to undertake or forego certain activities.
4. Undertaking activities that directly affect the environment. This includes, for example, government funded remediation of contaminated properties and funding infrastructure for drinking water supply and sewage disposal.
5. Providing information to facilitate decision-making.

## **DISCUSSION**

With few exceptions, and by design, the DEQ does not directly make land use decisions. In fact, Michigan is a strong home rule state where most land use decisions are made by local government. Nonetheless, DEQ decisions affect the range and attractiveness of choices available to others. From a land use perspective, the most significant of these interactions occur in the following contexts.

## **SENSITIVE LANDS**

The most direct way in which the DEQ affects land use is by implementing statutorily imposed restrictions on activities that can occur on land having certain characteristics. Building or conducting other disruptive activities is prohibited or restricted on certain land such as wetlands, floodplains, sand dunes, high-risk erosion areas, and riparian lands. These features are protected for a variety of social, economic, and environmental benefits and comprise significant areas of the state: an estimated 5 million acres are regulated as wetlands; over 8,000 individual parcels on about 10 percent of Michigan's 3,000 miles of Great Lake shoreline are regulated as high risk erosion areas; certain activities below the ordinary high water mark of over 10,000 inland lakes larger than 5 acres and over 36,000 miles of streams are restricted; and hundreds of thousands of acres are regulated as floodplains (DEQ data). The restriction of development of these areas not only protects the concerned parcels but also transfers development potential to nonprotected parcels.

## **EXTERNALITIES**

Regulating the location and operation of activities with potential off-site impacts affects both specific parcels of land and the surrounding communities. Off-site impacts are usually associated with real or perceived environmental threats, public safety issues, and nuisance conditions. Involved facilities include the relatively rare (solid and hazardous waste landfills, large manufacturing facilities, and wastewater treatment plants) and the ubiquitous (gas stations). The direct land use implications of the latter are generally limited to requisite setback of storage tanks from property lines and drinking water wells. However, operations with the potential for more significant off-site impacts can have correspondingly significant land use implications.

Authorizing the construction of a solid waste landfill essentially dedicates the use of the involved parcel to a limited range of uses in perpetuity. A restrictive covenant is required for these facilities to prevent incompatible future uses that might cause the release of

contaminants. Anything that would disturb the impervious cap (such as excavation of a building foundation) is prohibited. Beyond that limited site-specific impact, however, a landfill creates a potential for contamination and nuisance conditions (such as odor and noise) that can discourage particular types of adjacent uses and, arguably, reduce property values.

From a programmatic perspective, the localized externalities of offending operations must be weighed against the societal need to provide the services offered (e.g., waste disposal). Accordingly, the NREPA establishes specific mechanisms designed to balance these interests when siting decisions are made. In the case of solid waste, for example, each county is required to provide for the siting of landfills sufficient to provide for the disposal needs of its communities. When evaluating a new permit, the DEQ's role is limited to determining whether a specific landfill proposal is consistent with the county's plan, meets statewide location restrictions (e.g., setback from drinking water wells), and meets design criteria.

## **DRINKING WATER SUPPLY AND SANITARY SEWAGE TREATMENT**

One of the most significant ways in which environmental regulation affects the use of land is governing whether certain required services are provided through on-site or centralized means. Primary among these are drinking water supply and sewage disposal.

### ***On-Site Systems***

An on-site sewage disposal system and a private drinking water supply are common in many areas of Michigan. A variety of laws govern the suitability of a site for the development of a private drinking water well and on-site sewage disposal and the relative roles of the DEQ and local units of government in developing and applying standards:

- Permits to construct water wells and the evaluation of well drilling sites are required by local health departments as authorized under local ordinances and in the state well construction code. Approximately 30,000 water wells are drilled annually in Michigan. (This and other data in this section are from DEQ program data.)
- Site suitability approvals are necessary for on-site water supplies and on-site sewage disposal systems for proposed subdivisions, site condominiums, and metes and bounds parcels smaller than one acre. In 2002 local health departments approved plans for more than 5,000 lots on 7,000 acres.
- Local health departments have been delegated the authority to issue permits for new and replacement on-site wastewater treatment systems serving individual homes and businesses with flows of up to 10,000 gallons per day. About 35,000 on-site permits are issued by local health departments annually, two-thirds of which are estimated to be for new construction. Michigan does not have uniform statewide regulation of on-site systems but relies on separate regulations established by the 44 local health department jurisdictions. The DEQ does accredit local health departments for this regulatory activity.

The administration of these programs can affect land use patterns in several ways. First, the setbacks associated with private wells and the technology of on-site sewage systems (primarily septic tank and tile fields) dictate a minimum lot size, and this, in turn, leads to low density development. Minimum lot size has increased significantly in recent years where soils are not adequate for a “standard” septic system and an “engineered” system and replacement field are required. In many communities this has had the effect of doubling the effective minimum lot size required for a septic system.

Second, site suitability criteria for both well construction and on-site sewage disposal limit where dispersed development can occur. Thus, in those areas of the state where groundwater wells are difficult to develop (or where suitable groundwater supplies are not available), or where land suitable for a septic tank and tile field system has been already largely developed, further development is constrained by the availability of centralized systems.

### ***Centralized Systems***

Centralized systems should be considered at two levels. The first relates to nonmunicipal small community systems. Where site conditions preclude on-site water supply and/or sewage disposal, more sophisticated and expensive centralized systems may be the only option. The costs associated with these centralized systems encourage a higher density development, such as a manufactured housing community. While the DEQ is not involved in local zoning approvals for such developments, it does oversee the design of water supply, wastewater disposal, and storm water utilities for them. There are 1,170 existing manufactured housing communities in Michigan.

Public systems operated by municipalities are the most common centralized systems. These systems are governed by a variety of state laws regulating the requisite quality of drinking water, design requirements for waterworks, and design and performance requirements for wastewater disposal. These systems are often large, expensive public works projects that are financed by municipal bonds.

The availability of sewer and water service usually has significant impact on land use decisions. By offering service to new areas, system extensions have significant impacts on the development potential of adjacent properties. Thus, the factors that encourage or discourage extensions of these systems are important for land use development patterns.

### ***State Financial Assistance***

The DEQ administers three financial assistance programs that may have the unintended affect of encouraging the extension of public infrastructure, with related growth impacts. The Drinking Water Revolving Fund (DWRF) provides low interest loans for upgrading and expanding existing public drinking water systems or constructing new systems where on-site water supply systems are failing. These projects include source, treatment, transmission, and distribution. Eighty-four such loans totaling \$219 million have been provided since the program started in 1998. The State Revolving Fund (SRF) provides low interest loans to local units of government for the construction of wastewater collection and treatment facilities and storm water treatment facilities. The SRF has made 212 loans totaling \$1.8 billion, all for wastewater collection and treatment. Both funds are

aimed at improving inadequate systems, which, depending on the circumstances, might involve the extension of water or sewer lines. Under a third program, the DEQ provides alternative water supplies to private well owners impacted by groundwater contamination. This, too, could involve the extension of a public water supply.

Paradoxically, while DWRF and SRF loans are for projects to address existing problems, both programs require designs adequate to serve 20-year growth projections. Also, the design preference for water supply systems is to loop the supply system allowing it to be pressurized from two directions. This design criterion tends to increase the coverage area for public water supply extensions.

Unintended impacts on land use and development patterns are not directly controlled by the DWRF and the SRF. However, under both programs, these impacts are to be considered in the project planning and environmental reviews, and an environmental impact statement may be required if a project is expected to have a significant adverse impact on the pattern and type of land use or growth and distribution of the population. Under the DWRF, a loan is not allowed for a project that is primarily for growth.

### **Regulation**

The DEQ regulates the construction of sewerage and waterworks systems through reviewing plans and specifications and the issuance of construction permits under Part 41, Sewerage Systems, of the NREPA and the Safe Drinking Water Act, 1976 PA 399, as amended. The focus of the permit review is to ensure that the proposed systems provide adequate drinking water quality and sufficient capacity to transport and treat the wastewater. Impacts on land use and growth are not considered in the issuance of the construction permit, but permit decisions can have land use impacts. Public water supply systems are required to prepare water supply studies that include a minimum of ten-year growth projections with attention to zoning for land use and population density. The study must address specific firm capacity requirements, which is defined as meeting the system's maximum daily demand with the largest supply source (e.g., well) out of service. The DEQ may deny a permit for a water supply expansion when the water system is unable to meet its maximum daily demands. Permits to expand sewer systems may be denied when the public wastewater treatment system is unable to meet effluent quality requirements or when it does not have sufficient reserve capacity for the area to be served by the extension.

### **DESIGNATIONS**

In a variety of circumstances, specific parcels or areas can be given a regulatory designation with land use implications. These designations typically qualify the affected property for benefits or impose obligations. At the simplest level, a designation may offer nothing more than a stigma that could discourage ownership. However, a designation could have profound impacts for individual parcels and entire regions.

The U.S. Environmental Protection Agency (EPA) sets National Ambient Air Quality Standards, considered to be protective of public health, welfare, and the environment, for six criteria pollutants that are regulated under federal law. The EPA designates as "nonattainment" those areas where air monitors measure pollution concentrations

exceeding national standards. States are responsible for designing a State Implementation Plan that contains, among other things, control measures and regulations to reduce air pollution to a level that will ensure that the nonattainment area meets the standards. The presumptive nonattainment area boundary for pollutants considered to be regional in nature is the entire metropolitan statistical area (MSA), as defined by the U.S. Census Bureau. Thus, nonattainment areas can include many counties even though only a limited number of monitors in the area show air quality exceeding the standards.

Nonattainment areas are required to have to pollution controls beyond those required of other areas, thereby increasing costs for businesses and residents. These costs discourage economic activity in the nonattainment area thereby encouraging it outside the area. Since most nonattainment areas are located around cities that suffer higher air pollutant emissions due to larger populations and industrial activity, the effect is to encourage additional economic activity in less developed regions.

All of Michigan is currently designated as attainment for all criteria pollutants. However, the EPA has promulgated two new national ambient air quality standards that could significantly impact the state. Thirteen counties currently have monitors violating the new eight-hour ozone standard. When MSAs are considered, as many as 18 counties could be designated as nonattainment for ozone. In addition, preliminary monitoring for the new fine particulate standard shows violations in Wayne and Monroe Counties. However, the potential nonattainment area includes the entire ten-county Detroit–Ann Arbor–Flint MSA.

## **CONTAMINATED PROPERTY**

Although many environmental programs seek to prevent harm to the environment, practices have caused site-specific and area-wide contamination above levels considered protective of public health and the environment. The DEQ addresses environmental contamination through a variety of programs that require responsible parties to remediate contamination, encourages nonresponsible parties to appropriately reuse contaminated property, and directly undertakes actions to remedy the effects of contamination.

The primary foundation for these programs is the land use–based cleanup criteria framework of Part 201, Environmental Response, of the NREPA. This tool allows a range of responses to contamination based on the future use of the land, largely at the option of the landowner. Remedial actions are designed to protect public health, safety, and welfare and the environment, but may be based on land or resource use restrictions to accomplish those goals. In all cases where the cleanup is insufficient to allow unrestricted use of the land, restrictions must be imposed. Common examples include: (1) restriction of land to industrial uses based on cleanup criteria that reflect only limited duration exposures and exclude children; (2) restriction of groundwater for drinking or other use; and (3) restrictions to ensure the integrity of exposure barriers to prevent contact with contaminated soil.

The land use–based approach to remediation facilitates cleanup and reuse of contaminated property by minimizing remediation costs. However, where restrictions on land use are necessary, those restrictions run with the land and continue to apply regardless of any zoning changes by local authorities. As a result, areas where zoning is

changed may have imbedded properties with cleanup-related restrictions. This may make it difficult for the community to accomplish land use changes unless the property owners are willing to voluntarily increase the protectiveness of the remedy. An additional concern is for the imposition of groundwater use restrictions in areas that depend on groundwater for drinking water supplies. Especially in rural areas that are not currently developed, the imposition of groundwater use restrictions often will make development impossible unless a public water supply is constructed to serve the restricted area.

Michigan encourages the reuse of contaminated land through liability provisions that protect a new owner of contaminated property. By appropriately completing a Baseline Environmental Assessment and exercising statutorily defined “due care” responsibilities, a new owner is exempted from liability for contamination existing at the time of acquisition. However, federal law does not provide analogous protections.

In order to further encourage the appropriate reuse of contaminated land, the DEQ administers the Clean Michigan Initiative Brownfield Redevelopment Program (Program). This Program consists of a number of grant and loan programs that can be used along with other state incentives such as tax credits, tax increment financing, and liability protection to encourage reuse of contaminated property. By targeting assistance to urban properties, this Program attempts to equalize the cost of brownfield and greenfield developments for communities and developers. Since 1990, DEQ data indicates that this Program has authorized 198 grants and loans for a total over \$57 million leveraging an estimated \$1.9 billion in private investment.

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