

SECTION 3

NATURAL RESOURCES

The natural environment plays a large role in planning for future development. Environmental conditions, such as topography, wetlands, floodplains, and water bodies, can often pose constraints that limit development. Open space preservation can help protect these natural resources and aid in the protection of valuable functions and benefits they provide, such as storm water management, water quality, recreational opportunities, and aesthetic beauty. The location, timing, and management of development and redevelopment can have dramatic impacts on the environment. These impacts should be minimized and mitigated whenever possible. This Section of the Plan provides an overview of Wadsworth Township's natural resources with the intent of ensuring that environmental considerations are incorporated into future land use planning.

EXISTING CONDITIONS

SURFACE WATER

Wadsworth Township is located in the northern portion of the Ohio River watershed, slightly south of the Continental Divide, which runs through Medina County. The Township is divided by the northern portion of the River Styx watershed and the northwestern portion of the Wolf Creek watershed, both of which contain headwater streams. The western two-thirds of the Township is contained within the River Styx watershed and the eastern third is contained within the Wolf Creek watershed.

Four waterways run through portions of the Township and consist of the River Styx, Silver Creek, Mill Creek, and Hudson Run. The River Styx flows to the south from the northwest corner of the Township, south of where the Township border intersects with Blake Road, to the Medina and Wayne County border. Silver Creek flows northward parallel to and to the east of Homestead Drive and crosses Johnson Road into the City of Wadsworth, flowing to the southeast back across Johnson Road to the Summit County border. Mill Creek flows to the southwest and crosses Rischel Road and the Wayne County border. Hudson Run flows to the southeast from the northeast corner of the Township across Reimer Road and the Summit County border. The locations of waterways in Wadsworth Township and portions of the surrounding communities are shown on *Map 2 Natural Features*.

Development can negatively impact water quality in downstream communities. The main causes of river impairment identified by the Ohio Environmental Protection Agency (OEPA) are nutrient enrichment, contaminated sediments, industrial point source pollution, and urban stormwater runoff. Many causes of stream impairment such as stormwater runoff, habitat alteration, and channelization, are the result of development activities. As development occurs, natural waterways are often impaired as:

- The volume and rate of stormwater runoff flowing into streams increases;
- Ground water recharge decreases, lowering stream water levels;
- Natural stream channels are altered and covered;
- Vegetation along stream banks is removed; and
- Pollution from roads, rooftops, and sidewalks reaches streams.

Negative impacts from development can be mitigated through successful stormwater management. In an effort to mitigate the negative effects of stormwater, Medina County adopted their Stormwater Management and Sediment Control Regulations (1980). These regulations are enforced by the Medina County Highway Engineer as part of the development permitting process in Wadsworth Township and apply to all non-agriculture projects that disturb more than 5,000 square feet of soil. These regulations are being updated to address current pre- and post-construction water quality regulations required by the OEPA.

Other surface water issues are stream bank erosion and flooding, which occur on public and private property throughout the Township. The Township should consider formulating a policy to address

erosion control and stream bank restoration on public and private property within the Township. The Township should also consider working with adjacent communities to develop a cooperative framework, whereby areas proposed to be developed adjacent to the Township that could have potentially negative impacts on water quality could be addressed by both communities simultaneously to develop the most environmentally sensitive approach to development.

Surface water quality can also be improved by minimizing the amount of pavement and other impervious surfaces on development sites, limiting development on steep slopes, and establishing setbacks to preserve riparian corridor areas i.e., areas adjacent to streams. Establishing setbacks along streams to preserve riparian corridors, where natural vegetation and hydrology are present, is crucial to ensuring long-term water quality. Vegetated areas surrounding streams act as biological filters that remove sediments and pollutants from surface runoff. They also reduce erosion, decrease flooding, regulate stream temperatures, provide wildlife habitat and migration pathways, and offer opportunities for recreational path systems.

FLOOD HAZARD AREAS

Floodplains are areas adjacent to streams or other water features that experience regular or periodic flooding. *Map 2 Natural Features* depicts the area of 100 year floodplains. A storm with the intensity to flood the 100-year floodplain has a one in 100 chance of occurring in any given year. 100 year floodplains within Wadsworth Township are found along the River Styx, in the western portion of the Township. The Medina County Flood Damage Reduction Regulations are administered by the Medina County Highway Engineer and are applicable in Wadsworth Township. These regulations exceed the minimum level of regulation required for participation in the National Flood Insurance Program.

Map 2 Natural Features

Wadsworth Township,
Medina County, Ohio

Water Features

-  Flood Plain Area
-  Ground Water Pollution Potential
-  River/ Stream/ Creek

Wetland Features

-  Wetlands
-  Soils with Slopes Greater than 12%
-  Roads
-  County Boundary
-  Township/ Village/ City Boundary
-  Surrounding Area

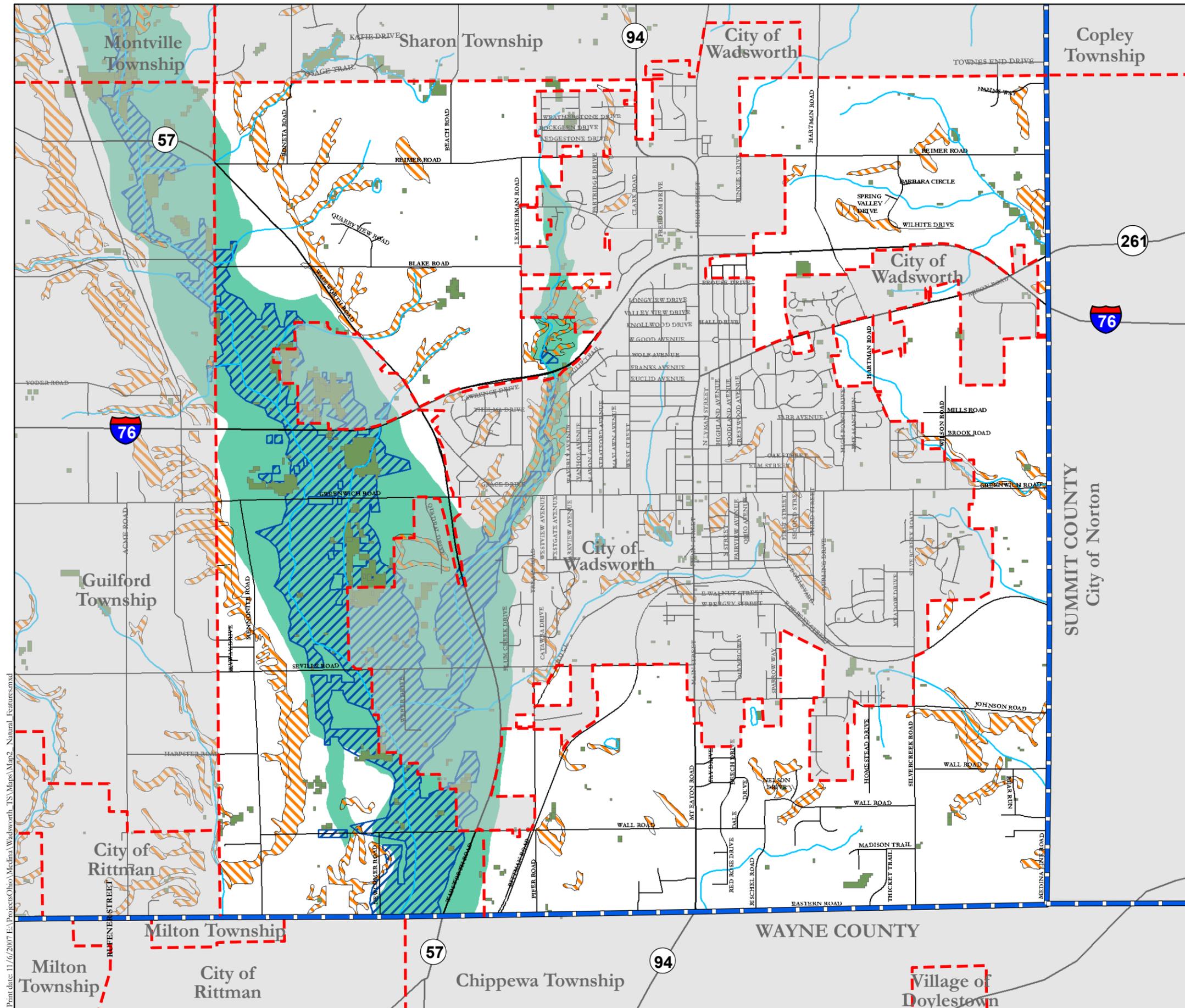
Base Map Source: Medina County GIS, 10/04/2006
 Data Source: Ohio Department of Natural Resources
 Federal Emergency Management Agency
 Medina County GIS
 Medina County Soil Survey, 1977



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GROUND WATER

Geologic formations that are capable of yielding enough water to support a spring or well are called aquifers. The ability of an aquifer to transmit and store water is influenced by the materials that make up the formation, such as gravel, sand, or bedrock. The Ground Water Resources Map of Medina County, produced by the Ohio Department of Natural Resources (ODNR), identifies ground water resources in Wadsworth Township. Township ground water resources located north of Harpster Road can be obtained from deposits of sand and gravel beneath thick clay and/or silt and fine sand. Farm and domestic water supplies may be available from wells less than 90 feet deep. More productive deposits are known to exist at depths ranging from 180 to 430, or more, feet. Wells tapping these deposits may supply satisfactory requirements for small subdivisions with up to 100 homes. Township ground water resources located south of Harpster Road are found in permeable sand and gravel deposits. Sustainable yields of 100 to 500 gallons per minute from these deposits are possible. Domestic supplies for private dwellings are available at depths of less than 100 feet. According to information provided by the Medina County Health Department, there are 1,039 registered and permitted water systems in Wadsworth Township (1,037 wells, one pond system, and one cistern system).

Since a large portion of the Township derives potable water from wells and a relatively large number of on-site septic systems are utilized, the potential for ground water pollution should be considered very real. According to the Medina County Health Department, there are 1,161 registered and permitted on-site sewage systems in the Township (506 aeration systems, 642 septic systems, and 13 septic/aeration combination systems). In determining the potential for ground water pollution, the OEPA considers seven factors: depth to the water table, net recharge, aquifer media, soil media, topography, the impact of the vadose zone media, and the hydraulic conductivity of the aquifer. These factors are combined and weighted to produce a composite index that measures the relative susceptibility of an area to ground water pollution. Using this system, ODNR has produced Ground Water Pollution Potential maps that show areas vulnerable to ground water pollution. *Map 2 Natural Features* delineates areas where aquifers are most vulnerable to pollution.

TOPOGRAPHY

Wadsworth Township is located in the Erie/Ontario Drift and Lake Plain ecoregion which is characterized by glacial plains interspersed with higher remnant beach ridges, drumlins, glacial till ridges, till plains, and outwash terraces. These geological formations and the changes they have experienced over time contribute to the present day topography of Wadsworth Township. Topography can cause limitations for development. Generally, development should be discouraged on slopes greater than 12 percent. Areas with soils with slopes greater 12 percent are shown on *Map 2 Natural Features*.

SOIL ASSOCIATIONS

The United States Department of Agriculture (USDA) Soil Conservation Service identified 38 different soil series present in the Township. These series can be grouped together into associations, which have distinctive soil patterns, drainage, and relief. Descriptions of the four soil associations

and their approximate locations in Wadsworth Township are contained in the 1977 Soil Survey of Medina County (Soil Survey).

The soil associations and series present in an area play an integral role in determining the practical development potential of residential and nonresidential land uses. Permeability, strength, depth to seasonal water table, erosion potential, seasonal wetness, and shrink-swell potential of soils are some of the variables which impact the suitability of land for development and should be analyzed on a site-specific basis prior to making land use decisions. The Soil Survey contains useful information regarding the land use capability of soils as it relates to a number of different land uses including dwellings without basements, dwellings with basements, commercial and/or light industrial buildings, septic tank absorption fields, local roads, and underground utilities. Land use regulations should require that applicants perform site-specific land use capability studies that evaluate specific soil characteristics and limitations as part of the development review process. Applicants should be encouraged to consult the Soil Survey and/or a certified soil scientist to ensure that limitations to development are considered prior to making land use decisions. It should be noted that a majority of the soil associations in the Township contain a restrictive subsoil layer (fragipan) that can be problematic for the installation of on-site septic systems.

For reference, the Medina County Health Department (Health Department) does not require a minimum lot size for single and two family residential septic systems. The Health Department determines the area required for residential septic tank leach fields by evaluating soil characteristics and the number of bedrooms present in residential structures. In general, and assuming suitable soil characteristics, approximately 300 square feet of leach field area should be provided per bedroom. It should be noted that a State-mandated update to current septic tank regulations became effective January 1, 2007, per Ohio Administrative Code § 3701-29.

Unlike residential septic system permitting, which falls under the jurisdiction of the Health Department, commercial and industrial septic systems are regulated by the OEPA. According to OEPA officials, there is not currently a required minimum lot size for commercial or industrial septic system leach fields. The OEPA determines the area required for commercial/industrial leach fields by evaluating the number of employees working at a site as well as the presence or absence of water intensive processes utilized on a particular site. The number of employees and intensity of water usage are then used to determine an average water usage, which provides the information necessary to develop the proper size and type of septic system necessary to sustain the proposed use. Regardless of the intensity of land use proposed, applicants should be encouraged to consult with Medina County Health Department and OEPA personnel prior to making land use decisions.

WETLANDS

Wetlands are generally defined as areas that are inundated or saturated with water throughout the year, or during a significant portion of the year. This presence of water is the defining factor that produces the types of soils, plants, and animal communities typical of wetlands. For the purposes of regulation, the United States Army Corps of Engineers (USACE) identifies wetlands based on three criteria: the presence of water, the presence of soils that form under flooded or saturated conditions (hydric soils), and the presence of plants adapted to hydric soils.

Wetlands provide many important functions that are critical to the health of ecosystems and local communities. Wetlands improve water quality by removing pollutants, sediments, and excess nutrients; they control flooding and recharge aquifers; they provide crucial habitat for many plant and animal species; and they provide recreational opportunities such as bird watching and hunting. *Map 2 Natural Features* shows the locations of wetland (all types) present in Wadsworth Township identified through the Ohio Wetland Inventory (OWI) prepared by ODNR. The ODNR's OWI maps the probable location of wetlands using satellite imagery. The imagery is quantified and classified by 30 meter by 30 meter pixels (squares) based on measurements of their electromagnetic reflectance which is indicative of the location's land use or land cover: for the purposes of this document, the wetland land covers are utilized. The majority of wetlands found in the Township are classified as woods on hydric soils. Woods on hydric soil are located primarily within floodplain areas surrounding the River Styx and its tributaries.

Federal law regulates the discharge of dredged and fill material into navigable waters and adjacent wetlands. If a developer wishes to alter a wetland over half an acre in size, they must first obtain a Clean Water Act Section 404 permit from the USACE and a Section 401 water quality certification from the OEPA. When wetlands are destroyed, the loss is mitigated through the creation of new wetlands. The amount of mitigation required varies with the type of wetland being destroyed, but developers in Ohio generally have to provide one and one half to three acres of new wetlands for every acre of wetland lost. As of 2001, isolated wetlands that are not connected to navigable waters are no longer under the jurisdiction of the Federal government, and alteration or destruction of these wetlands does not require a 404 permit or a 401 certification. To fill this regulatory gap, the State of Ohio created an isolated wetlands permitting process administered by the OEPA.

The first step that communities should take to protect wetlands and ensure that developers obtain the proper permits is to require a wetland delineation on all development sites. Once wetlands are identified, local communities can provide additional protection by requiring a 50-foot setback from all wetlands. In addition, wetlands can be preserved by encouraging open space design subdivisions that channel development away from on-site wetlands and areas with hydric soils. To address wetlands and other critical natural features, the Township should establish wetland and riparian corridor setbacks, which would require a natural undisturbed buffer to be placed between proposed development sites and such critical natural features.