

Chapter 2

Existing Land Use

Agriculture

Newton Township has a large amount of land used for agriculture. Most of the land is in crop production, growing mainly corn, soybeans and wheat. However cattle and hog operations also exist, but livestock operations of an industrial magnitude (having thousands of animals), for example, have not been established within the Township. Most of the Township's livestock operations have less than 100 animals. Because of the variety of soils present in the Township, the quality of the soil for farming also varies. Large parcel sizes have been maintained in those areas with the best soil, because economics have not forced farmers to divide and sell off parcels of land to cover losses, as has occurred on poorer soils. From aerial photography it is easy to identify those areas with the best soil, because large undivided tracts of land generally equate to prime agricultural soil.

Residential

The greatest amount of residential activity has occurred in the Township's northwest corner, along 6 Mile Road and 6½ Mile Road west of Charles Binder Park and along 8 Mile Road. This is not surprising due to its proximity to the City of Battle Creek. Two subdivisions and the Township's only manufactured housing community have been developed west of Binder Park totaling over 400 units. Historically the area around the intersection of D Drive South and 8 Mile Road (near Stanley Corners) has experienced some residential development, resulting in significant lot split activity along 8 Mile Road. Lee Lake in the southern half of the Township is the only body of open water that has experienced significant residential development along its shoreline.

Commercial

Commercial development in Newton Township has been minimal. The principal commercial developments are Binder Park Zoo and the Binder Park Golf Course. There is a considerable amount of commercial development immediately north of the Township along B Drive North near 6 Mile Road. Which consists primarily of large-scale strip mall developments (often called "big box" stores, because of their scale and configuration). There are also gas stations and fast food establishments along the same corridor. The only barriers to this development spreading south into Newton Township via 6 Mile Road and 6½ Mile Road are a few final parcels of agricultural land in the vicinity of B Drive North.

Industrial

Due to a lack of industrial infrastructure at the time of the publishing of this Master Plan, Newton Township has no industrial development.

Lot-Split Activity

Because agriculture is still the predominant land use in the Township, lot split activity has been kept to a minimum. As previously discussed in the Agricultural Land Use section, harsh farm economics have resulted in smaller-sized farm parcels where less-than-prime soil is present. A moderate amount of lot split activity is occurring throughout the Township to accommodate new rural residential development.

Transportation Network, Utility Corridors and Towers

The Township's road network is essentially an irregular grid of one-mile roads. The Calhoun County Road Commission maintains 21.46 miles of primary roads in Newton Township and 44.34 miles of secondary roads. The 11 Mile Road (State Road 311) is maintained by the State of Michigan. The 8 Mile and 11 Mile Roads serve as the Township's major north-south roads. B Drive South is the Township's primary east-west route. Because of increased traffic from development to the north along B Drive North, as well as increased traffic caused by Binder Park Golf Course, it is expected that B Drive South may be widened in the near future.

The 30" Vector Pipeline installed across Michigan, runs diagonally (northeast to southwest) across Newton Township approximately 35,88 linear feet. The installation of the new pipeline required the removal of all vegetation within the 110 foot easement. This included wooded areas, brush and cropland. Cropland has now been planted along the pipeline's cleared right-of-way. A pumping station for the pipeline is located in Township Section 21 south of G Drive South.

The Township does not currently contain any cellular or other forms of telecommunication towers. The Township does, however, have a limited number of radio towers.

Development Pressure / Build-out Analysis

As indicated previously in this document, Newton Township remains predominately rural in character. However, Census data from the early to mid-1990's indicated that the Township grew in population at a faster rate than any of the other 11 Townships within Calhoun County. Between 1990 and 1996 the percent change in Newton Township was a 9.5% increase in population. In actual numbers the population increased by nearly 200 individuals from 2,025 to 2,218.

Much of Newton Township remains sparsely settled when compared to nearby population centers in the City of Marshall and the City of Battle Creek (see Map 1). Population density in Newton Township averages less than 100 individuals per square mile as compared to these much larger cities with population densities that average from 200 to more than 800 people per square mile.

Existing development in the Township is primarily residential with several small pockets of commercial use. Residential development is concentrated along primary access roads, particularly in the northwestern portion of the Township. These concentrations are mostly along 6 Mile Road and 8 Mile Road that runs north-south through the Township and B Drive South and D Drive South that runs east-west.

Calhoun County has prepared a build out analysis of Newton Township based on existing zoning and land use data. Total acreage in each zoning class within the Township included: 17,004 agricultural acres; 1,074 low density residential acres; 1,564 rural residential acres; 135 acres of residential lake acreage; and 3,244 acres of open space conservation acreage. These acreages illustrate the predominance of agriculture within the Township. In its build out analysis the County assumed the percentage of non-buildable land in each zoning class to be 25%.

To determine the Township's total build out population potential, the County assumed 2.54 persons per household based on 1990 U.S. Census data. Based upon its zoning and land use data the County has estimated a total build out population for Newton Township of 13,721 people or approximately 6.8 times the Township's actual 1990 population of 2,025 people.

Presently, Newton Township is receiving development pressure alongside its borders to the north with Emmett Township, to the east with Fredonia Township, and to the west with Leroy Township. In Fredonia and Leroy Townships, this pressure is coming in the form of new or proposed residential subdivisions. In Emmett Township, large scale commercial and retail development has occurred just north of Newton Township's northwest corner. Emmett Township is also seeing potential development in the form of a new Casino near 11 Mile Road and I-94. Emmett Township has developed public water and sewer systems which will also focus new development north of Newton Township.

In Newton Township recent residential development has also occurred in the northwest corner at the Binder Park Hills subdivisions between 6 Mile Road and 6½ Mile Road just west of Charles Binder Park. Recent pressure in this part of the Township is spillover type residential development moving south and east from the City of Battle Creek and Emmett Township primarily along 6 Mile Road, 6½ Mile Road, 8 Mile Road, and both B Drive South and D Drive South. At the present time there is little commercial development pressure within the Township and there appears to be no development pressure from large scale intensive forms of corporate style agriculture and industrial development.

Much of Newton Township's future rural residential growth concerns center around severe soil limitations for septic drain fields. These severe limitations are due to high water tables, surface wetness and ponding. Steep slope and poor filtration characteristics of many of the soil types are also found within the Township. Such limitations on development create a potential conflict in land use policies. The concept of large lot zoning is to allow for development and construction of septic systems on large lots in areas with soil constraints, may have negative consequences for the Township's natural resource base by causing potential fragmentation and disruption of the area's wetlands and woodlands.

At the present time the Township has a two (2) acre restriction on residential development in large lot zoning districts in recognition of these soil constraints on septic systems. However, this potential conflict in policies must be addressed by the Township as development pressure continues. The Township must also recognize that as new development occurs, land use policies must balance that development with the protection of prime farmland. (See Map 2).

Chapter 3

Natural Resources Inventory

An extensive and comprehensive inventory of natural resources has been compiled by McKenna Associates, Inc. for the final report of the Nottawa Creek Watershed Project for Newton Township. The following contains a brief summary of that information. When issues of natural resources are involved in planning and development, The McKenna Natural Resources Inventory and Analysis prepared for Newton Township should be consulted for more in-depth information. The natural resources identified below are shown in Map 3.

Surface Water Resources

Open water (including lakes and ponds), riparian corridors (rivers, streams, and drains), and a variety of wetland types comprise the landscape's lowland and surface water drainage network. One of the primary functions of this network is the drainage and collection of run-off from storm water and snow melt. Wetlands play a particularly important role in the management of storm water. When run-off exceeds the capacity of the natural drainage system, it collects in the floodplain, which is the lowland area that flanks this drainage network and becomes inundated during a flood-stage event. Because of this periodic flooding, the floodplain is included in this category for discussion and is generally considered a sensitive natural feature.

Habitat for aquatic species is another primary function of this surface water network. While some species may utilize only one aquatic habitat type (i.e., open water, riparian, wetland), many benefit from and may require more than one. For example, some species may inhabit open water as an adult, but as a juvenile may require wetland habitat. Wetland habitat may provide cover from predators, or may provide a particular food source. Some aquatic species depend on a riparian corridor to connect them to a particular spawning area. The interrelatedness of the landscape's various aquatic resources is undeniable.

The upland areas surrounding this network of water bodies and wetlands are important for ecosystem health, too. With the appropriate vegetation, these upland buffers can intercept and filter run-off, extracting particulates and other pollutants, slowing shoreline erosion, and preventing dramatic temperature changes as run-off enters an aquatic system. These areas also serve as the connection between aquatic and terrestrial habitats. In addition to a source of drinking water, some terrestrial species look to these areas for their main source of food.

Woodlands

Although much of Michigan was once covered in dense forest, logging through the 1800's and agricultural cultivation has left only fragments of woodland. Many of these areas have maintained their forest cover because they are found in wetlands or on steep slopes and were not suitable for agriculture and/or development or were too difficult to harvest.

The downfall of prime woodland is the fact that the soil that supports the highest quality trees (e.g., American Basswood, Black Cherry, Black Walnut, Northern Red Oak, Sugar Maple, White Oak, Yellow Birch, and Yellow Poplar) is also the most suitable for development and often agriculture. The remaining acreage of healthy woodland provides crucial habitat for a myriad of species, while also playing a role in air purification.

The quality and variety of trees found throughout the Township depends heavily on the soil types on which they are found. Without a thorough field investigation, soil types obtained from the Calhoun County Soil Survey may be the best measure of forest composition.

Well-drained soils, such as Boyer, Hillsdale, Kalamazoo, Oshtemo, Riddles and Spinks, typically support species such as Red Maple, American Beech, Northern Red Oak, Black Cherry, Quaking Aspen, Big Tooth Aspen, and White Ash. Moderately well-drained and somewhat poorly drained soils, representing the typical mesic woodland community commonly support such species as Sugar Maple, American Beech, Northern Red Oak, Basswood, and Red Maple. These soil types include Blount, Brady, Bronson, and Matherton. Poorly drained and very poorly drained soils, such as Adrian, Gilford, Houghton, Palms, and Sebewa, support such trees as Green Ash, American Elm, Silver Maple, Swamp White Oak, and Basswood. Much of the American Elm population in the area has succumbed to Dutch Elm disease. Refer to the Calhoun County Soil Survey for the location of the soil types mentioned above.

Early Successional Land

Fallow farmland, open meadows and other open or scrub/shrub areas provide an important terrestrial habitat. Some species rely solely on this type of habitat, while others, such as the white-tailed deer, thrive on the combination of woodland and open meadow. Although this habitat type is of a much earlier successional stage than, for instance, woodlands, their ecological significance is undeniable. Because these areas are often very attractive for development, they warrant further attention.

These areas can be found throughout the Township, particularly in those areas where the soil is significantly suitable for agricultural uses.

Wildlife Habitat

Habitat for wildlife can come in nearly any form. Open water, rivers, wetlands, fields and forest each support their own ecological communities. As mentioned above, the entire habitat for many species encompasses a number of land cover types.

Regardless of the type of habitat, there are a number of factors that affect the relative quality of habitat that a particular area provides. Generally, larger areas of habitat can support larger populations and more diverse flora and fauna, which tend to create healthier ecosystems. Small animal populations that are isolated from others of their kind typically suffer from the detrimental effects caused by inbreeding. Without access to a broader gene pool, these populations are less viable.

Habitat is also of a higher quality when it is contiguous and has not been infiltrated by human interaction/development. Those areas on the fringe, or “edge” of a habitat tend to offer lower quality habitat than the core, which is insulated from other habitats and the presence of human beings. As development and the presence of mankind infiltrates a natural area, this “edge effect” follows, reducing habitat viability.

As implied above, connectivity of a habitat with other areas of similar composition increases the viability of those species found there. Access to a larger area of habitat and linkage to a broader gene pool increases the viability of a species’ population. In addition to obvious strands of habitat that can knit areas together, features such as streams and hedgerows, given the right circumstances, can also enhance habitat connectivity.

Diversity of plant communities and terrain also enhances an area’s ability to provide habitat. The greater diversity of vegetation and terrain types present, the more niches there are for wildlife to fill. The presence of exotic species often has a negative impact in this regard, replacing diverse plant communities with homogenous vegetative cover.

The Calhoun County Soil Survey discusses wildlife living in the County in some detail. Wooded areas in the county are home to White-tailed Deer and Eastern Wild Turkey, as well as raccoons, skunks, tree squirrels, Cardinals, Wrens, woodpeckers, and mice. Farmland and early successional areas are often inhabited by pheasants, quail, Cottontail Rabbit, woodchucks, Red Fox, Gray Fox, opossum, hawk, owls, and numerous songbirds. The County’s wooded streams and various wetlands support Blue Herons, Green Herons, Sandhill Cranes, Belted Kingfishers, Woodcock, Marsh Hawks, muskrats, and mink. Streams and lakes support populations of Sunfish, Perch, Largemouth Bass, Smallmouth Bass, Northern Pike, and Bullhead.

Although the U.S. Fish and Wildlife Service did not identify any nationally recognized threatened or endangered species within the Township’s boundaries, the MDNR Michigan Natural Features Inventory (MNFI) indicated that three state-recognized species of special concern (Wild Rice, the Spotted Turtle, and the Eastern Massasauga), and the endangered prairie fen habitat type can be found in Newton Township. As expressed above, the precise location of these species and habitat types cannot be determined without detailed field investigation.

Soils / Slopes

Soils play an important role in the quality of the natural environment. Some soils are particularly sensitive, either because of their association with an important landform, like alluvial soils in the floodplain, or because they possess a particularly sensitive characteristic, such as the concern for erosion that soils on steep slopes create. Some soil, prime agricultural soil in particular, carry important economic value that cannot be overlooked.

Protection of prime farmland soils is nonetheless critical, as these soil types generally lend themselves to development, and a reserve of this type of soil may be needed in the future. There has been a recent trend in some parts of Calhoun County towards a loss of prime farmland to urban development and industrial uses. The loss of prime farmland to other forms of land use creates additional pressure on more marginal types of land that may be susceptible to erosion, drainage problems or are less cultivatable. Prime farmland is defined as land that is best suited for the production of food, feed, forage, fiber and oil seed crops. Prime farmland may be actively cultivated land, pasture, woodland or other land that is not urban or developed (USDA 1997).

The Oshtemo-Kalamazoo association is located throughout the Township, generally in the north, northeast and south. These soils are found on broad flats, on knolls and ridges. While their slopes range from 0-40%, they are usually 0-12%. This soil is generally well-suited to agriculture, woodland, and development applications, however, the poor filtering capability of Kalamazoo soil may limit septic use.

The Houghton-Oshtemo-Coloma association is located generally in the central and southeastern portions of the Township, following the Nottawa Creek drain and surrounding Lee Lake. Not surprisingly, these soils can be associated with floodplains, but are also found on broad flats, on knolls and ridges. The slopes of these soils range from 0-40%, but are usually 0-12%. The Oshtemo and Coloma soils of this association are generally well-suited to building site development. Oshtemo soils are also well-suited for use as cropland. The Houghton and Coloma Soils are limited for septic tank absorption fields due to ponding and poor filtering characteristics, respectively.

The Houghton-Sebewa-Matherton association is found in isolated areas to the Township's north and northeast. Slopes in this association are generally level, only 0-3%. Although wetness is a concern for these soils, they are generally well-suited for use a cropland (if drained) and pasture. The wetness and poor filtering capacity of these soils make them generally unsuited to septic tank absorption fields.

The Oshtemo-Spinks association is only found in the northwestern most corner of the Township. These soils are generally found on side slopes, knolls and ridges, and therefore have slopes measuring from 6-40%. Erosion and slope-instability concerns make these soils limited for use as cropland and for building site development and septic tank absorption fields. These concerns are lessened in areas with more gradual slopes.

The Bronson-Sebewa-Houghton association is found only in isolated areas in the east part of the Township. The Bronson soils in this association are generally on broad flats and low knolls and ridges, while the Sebewa and Houghton soils are typically associated with lowland areas. These soils are flat to gently rolling, with slopes of only 0-6%. These soils are moderately well-drained to very poorly drained. While the Bronson soils are generally suited to building site development, none of the soils are suitable for septic systems.

The soil characteristics discussed in this document are: hydric, alluvial, steeply sloped, prime agricultural and those with severe potential for nitrate and pesticide leaching. These characteristics affect the types of natural habitats related with each soil map unit, and also have a direct bearing on the quality and quantity of both surface and subsurface water resources. Soils with severe leaching potential are discussed further below. The Soil Characteristics Map and the Prime Farmland Map, Maps 4 and 2 respectively, display the distribution of these soil characteristics throughout the Township.

Potential Groundwater Recharge Areas

Groundwater

Groundwater, contained in porous materials below the Earth's surface, can be found in some quantity and at some depth in most parts of Calhoun County. It can be found saturating the ground between the ground's surface and a confining layer below, forming what is termed a perched water table aquifer. This aquifer's upper limit is the water table. Open water and wetlands can be found where the topography of an area drops below the water table. Groundwater can also be found in artesian aquifers held between confining layers farther below.

The quantity and quality of this resource is critical for a number of reasons, both social and ecological. The social value (i.e., drinking water) is clear, particularly in areas not served by a municipal water connection. The contamination of a community's groundwater can pose a serious health threat to its residents. Also, once an aquifer has been depleted, it can often take decades, if not longer, to replenish itself.

Groundwater also plays an important ecological role. The level of the water table often determines lake levels and the hydrologic state of wetlands. Low water tables can affect stream flow, causing a regularly-flowing stream to be reduced to intermittent flow, at best posing potential negative impacts on aquatic species, both plant and animal. Aquifers serve as subsurface links between ecosystems in the landscape, and consequently, conduits for contamination by pollutants.

Groundwater Recharge Areas

Areas where groundwater recharge is possible are significant for two related reasons. First, as wells deplete an aquifer, the supply must be replenished at an equal rate in order for the aquifer to remain a sustainable source of drinking water. This is also necessary to prevent the negative ecological effects that could be caused by a drawn-down water table as discussed above.

Secondly (and most important for the purposes of this document), these recharge areas not only allow run-off to enter an aquifer, they are also the point-of-entry for pollutants (often contained in run-off) entering the groundwater supply. This document uses the pesticide and nitrate leaching potential of the Township's soil types to address and characterize these concerns.

Uncontrolled land use development threatens groundwater resources in a number of ways. It often creates unreasonable demands on local aquifers, drawing them down much faster than they can be replenished, while impervious surface in the form of rooftops, roads, and parking lots prevent them from being replenished at all. Also, urban run-off carrying a variety of pollutants that is allowed to percolate directly into the ground without being filtered increases the potential for groundwater pollution.

Chapter 4

Property Use Groups

Conservation

These areas include those described as wetlands and floodplains, areas with hydric soil conditions, recognized wellhead protection areas, or other areas where development potential should be restricted based upon the presence of similar conditions. In addition, conservation areas may include lands set aside for recreational purposes, including parks or linear trails supporting long-term public benefit. Often, such facilities incorporate waterways such as river frontage, which may include both floodplain and passive recreational use. Public or private facilities that promote or encourage outdoor recreation, including golf courses or zoo may also be designated as conservation. Some of this open space area may be suitable (or presently utilized) for agricultural purposes, likely where drainage improvements have been made or where periodic inundation is acceptable. The characteristics of this designation are summarized as follows:

- *Wetlands and Floodplains*
- *Other Areas with Hydric Soil Conditions*
- *Designated wellhead protection areas, where applicable*
- *Public and Private Recreational Facilities*
- *Woodlots and Wildlife Habitat*

Agricultural

An analysis of soils that define where prime farmland exists and areas where large tracts of land have historically been utilized as farmland provide the foundation for the *Agricultural* designation. This designation may serve as the basis for farmland preservation efforts or may define limitations on development through growth boundaries. Such areas support economic-based agricultural activities oriented toward food production for human consumption or animal feed, including the raising of livestock. Some of this area may also include vacant acreage once farmed or used as pasture or may be enrolled in programs limiting development options. Residential development should be directed toward simple divisions of land that seek to preserve the character of such areas while limiting conflict with agricultural activities. Ideally, residential development in such areas should be scattered site with limited agricultural conflict.

- *Prime farmland*
- *Contiguous large tracts*
- *Limited residential development*
- *Lowest infrastructure investment*

Residential (Rural, Low and High Density)

Residential development is supported through a determination of density and presented within a series or range of designations, from *Rural Residential and Low Density (1-3 units per acre)* to *High Density (5 or more units per acre)* categories. These are intended to be broad in scope and general in nature and are not intended to create conflict with local plans that are more specific in their application. Full build-out of these areas is also not intended unless or until public facilities and infrastructure (roads and utilities) are in place or within a scheduled capital improvement program.

It is the intent of this plan to support residential development that is most compatible with surrounding land use, often through a natural transition from very low density in rural areas to the highest density in the northwest portion of the township where municipal facilities may be more available.

- *Areas within growth boundary*
- *Current or planned extension of public utilities*

Commercial

Areas designated *Commercial* are intended to support either a regional market or in support of local services adjoining residential areas. Local areas may include one or two existing businesses and are not intended to expand beyond the rate of growth for a given neighborhood. The commercial area should be adequately served by public utilities and be a focus area for infrastructure investment.

Industrial

Areas designated *Industrial* are based upon support for growth of our local economy through the provision of service or employment opportunities. It is critical that these areas be given highest priority for public investment based upon the broad implication and competition associated with attracting high quality private investment within the community. Ideally, related infrastructure improvements and coordinated development projects bring the greatest return on both public and private investment.

