

BLENDON TOWNSHIP MASTER PLAN

OTTAWA COUNTY SMART GROWTH PROGRAM

Adopted February 7, 2002
Amended March 5, 2009



Whereas, the Planning Commission held a public hearing on the proposed Blendon Township Master Plan on March 5, 2009, after the required publication of notice and the Planning Commission now desires to adopt the Master Plan, for the use, development, preservation and betterment of the lands within Blendon Township.

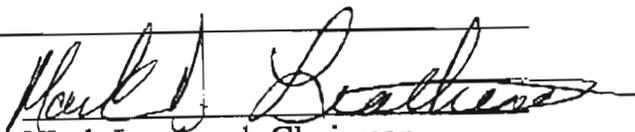
THEREFORE IT IS RESOLVED:

1. The Blendon Township Planning Commission hereby approves and adopts the Blendon Township Master Plan (2009).
2. The Blendon Township Master Plan replaces in its entirety the previous Blendon Township Master Plan.
3. The Purpose of the Blendon Township Master Plan, among other things, to promote the public health, safety and welfare; encourage the appropriate use of resources; avoid the overcrowding of lands; lessen the congestion on roads and streets; facilitate public services, including streets, water supply, sewage disposal and other public improvements; provide recreational opportunities; encourage the preservation of lands; and preserve and enhance the nature and character of the Township, as reflected in its current and projected land uses.
4. The Blendon Township Master Plan includes a future land use map and various other exhibits and data pertaining to land uses, natural features, infrastructure, utilities, populations, housing patterns, citizen opinion, public services, land use regulations, stated goals and objectives for future land use, implementation and other matters.

Roll Call: Yes: Paul Potter, Dale Brown, Jim Vander Veen, Mark Leathead
Ron Wind, Paul Blauwkamp, Rick Lamer

No: _____

The resolution is declared to be adopted.


Mark Leathead, Chairman

I hereby certify that the foregoing is a true and complete copy of the resolution adopted by the Planning Commission of Blendon Township at a meeting held on March 5, 2009. I further certify that public notice of such meeting was given as provided by law.

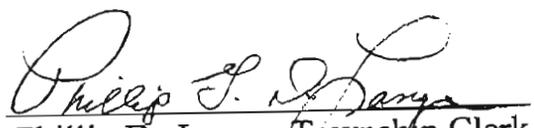

Phillip De Lange, Township Clerk

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INTRODUCTION

WHAT IS A MASTER PLAN?

This master plan for Blendon Township is a vision for how the township will grow and develop over the next fifteen to twenty years. The plan is a rational document, developed through investigation of the facts, demographic and land use trends and the vision local citizens have for their community; a document developed with community involvement. The plan's underlying purpose is the regulation of the intensity and the arrangement of development in a manner that supports smart and sustainable growth.

A thorough master plan helps ensure that Blendon Township remains a highly desirable community which retains its rural character. A plan allows residents, business owners and developers to make investments with a reasonable expectation of what will happen in the future. In essence, the plan represents a balance between the sometimes competing interests of the environment, individual land owners, businesses and the community overall.

The master plan consists of several elements, including public participation, community goals, environmental conditions, existing land use, utilities, future land use and transportation. Each section includes smart growth strategies that work towards achieving the desired community character for Blendon Township.

- Public input is an essential component to the master plan process. It is critical to understand what community members think of the issues and what they want.
- The existing land use survey evaluates the current land use and land cover in the township.
- Goals, objectives and policies define how the township will deal with identified concerns and how to protect its community character.
- The future land use section describes what limited types of new development the township believes would be most appropriate in the community, and suitable locations for such development.
- The future land use map is an illustration of the long-range land use pattern proposed for the township.
- Specific strategies are provided for smart growth to ensure that as development occurs the elements that define rural character, such as environmental quality, natural aesthetics, open space, farmland, minimal traffic congestion and safe traffic conditions are retained.

When the above elements are combined, a picture of Blendon Township twenty years from now can be created that will serve as a guide for the township as it faces important decisions. These decisions may include policy changes, budget allocations and even more common issues such as site plans, special land uses and rezonings.

The Michigan Planning Enabling Act requires that communities review their Master Plan every five years. The Blendon Township Master Plan was prepared in 2002 with Ottawa

County as a smart growth demonstration project. In 2008, Blendon Township began the process to review and update its Master Plan. Since the 2002 plan was based on the most up-to-date demographic data, the Planning Commission determined that updating, as opposed to rewriting the 2002 Master Plan, was necessary.

For the 2009 amendment, the Planning Commission considered the following planning implications when modifying the future land use plan:

- Changes in development patterns and growth in the Township and County as a whole
- Student housing demands due to enrollment increases at Grand Valley State University
- Plans for a US-31 bypass
- Water and sewer utilities in portions of the Township
- Land use transitions
- Land available for industrial uses

A summary of the 2009 Amendments follows:

Chapter/Map	Amendment Summary	Justification
Chapter 5, Existing Land Use	Added new information about water distribution in the Township and options for utility extensions	Conducted 2008 Geotechnical and Water Study
Chapter 6, Future Land Use	Revised land use designations to be consistent with Ottawa County standardized names. Added Office/Service land use designation as a transition from commercial to residential uses.	Changes in County policy. Anticipate growth at north east quadrant of Township due to proximity to Grand Valley State University.
Chapter 7, Transportation	Updated road commission classifications for Port Sheldon and New Holland roadways. Added text about planned US-31 bypass.	New, relevant information
Chapter 8, Greenways	Added paragraph about connecting trails with Kent Trails and Macatawa Greenways.	Desire for collaboration with adjacent Townships and increased recreational opportunities in Township

Map 12, Water Distribution System	Added new water lines along 48 th and in the Borculo area.	Map was out of date.
Map 13, Future Land Use	Revised land use descriptions, added Office-Service land use, increased amount of neighborhood commercial and residential uses along 48 th Avenue.	Changes in County policy. Anticipate growth at north east quadrant of Township due to proximity to Grand Valley State University.

All other portions of the 2002 Master Plan remain unchanged. For elected and appointed officials, residents, developers, and others utilizing the Master Plan for the purpose of making short and long term land use decisions, both the 2002 Master Plan and the 2009 Amendments should be considered.

The planning commission and township board should continuously strive to ensure effective use of this document. Although not always abundantly clear, many decisions can be guided by the recommendations outlined in this plan. The following are methods that will ensure consistent reference to its various components.

Refer To The Master Plan In All Zoning Decisions

One of the principal benefits of having an adopted master plan is the foundation it provides for sound zoning decisions. Just as the plan is the policy guide for land use, zoning is the principal legal enforcement tool. The two should work together to support controversial decisions and assist in providing protection from potential litigation.

Encourage Other Decision Making Bodies To Use the Master Plan

The master plan should help guide every-day decisions, from the capacity of improved roads to new schools. Working with other parties that can affect land use patterns in the township, such as the Ottawa County Road Commission, school districts, and adjacent communities, can help Blendon Township in the implementation of the master plan.

Keep The Plan Current

The vision outlined in the plan will not occur overnight -- the master plan is a vision for the future that guides the present. Understanding this, the plan should not be rigidly administered; changing conditions that can affect the original intentions of the master plan should be acknowledged.

An outdated plan that is not referred to on a continual basis can weaken township decisions. The planning commission should conduct an annual review of the plan to ensure that the plan is kept current. Any amendments to the plan can be done at that time to keep it up to date and consistent with township philosophies.

Over time, several goals in the community may be achieved and new ones may need to be established, or, several zoning decisions may have changed the direction of development in a certain part of the township.

Where uses have been approved contrary to the plan, the plan should be amended to reflect these changes. By routinely following this procedure, the master plan will continue to be an up-to-date, reliable planning tool.

This plan is being prepared as a demonstration project for the Ottawa County Smart Growth Program, sponsored by the Ottawa County Planning Commission. This program sets forth smart growth planning techniques that accommodate development while preserving rural character. These techniques can be applied in such a manner that they are equitable to the landowner, developer, homeowner and community.

The program first identifies the most important features that convey rural character, relative to growth and development. These include environmental quality, aesthetic features and minimal traffic congestion. These are expressed by the following three goals and objectives:

Goal One: Protect Environmental Quality

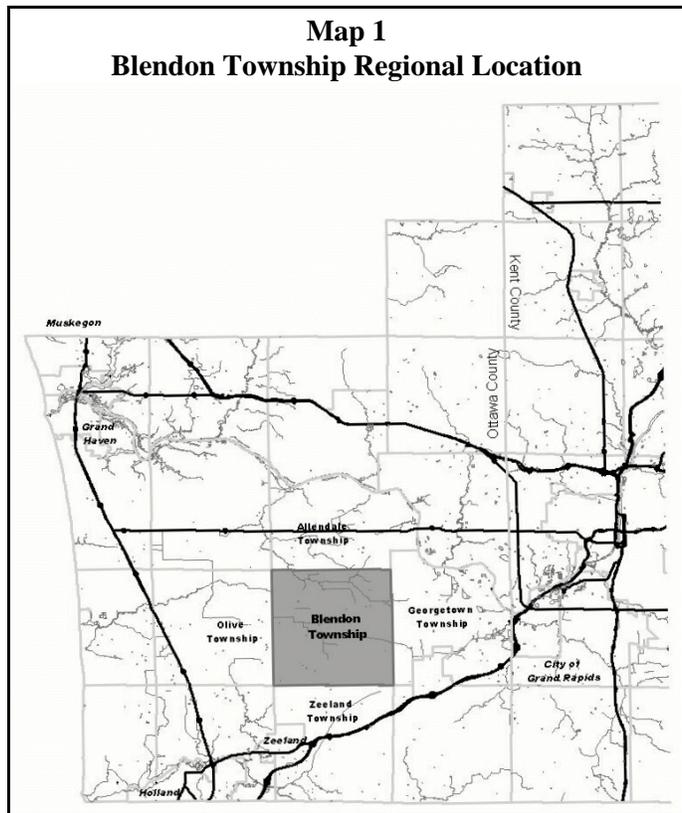
- Preserve integrity of surface and groundwater quality through controls over erosion, stormwater, sedimentation, nutrient loading
- Preserve beneficial natural features (critical dunes, wetlands, forests, unique soils)
- Preserve wildlife habitat

Goal Two: Preserve Aesthetic Features

- Preserve open space including unique panoramic, picturesque and scenic views
- Preserve and reestablish tree lined and canopy covered transportation corridors
- Preserve agricultural lands for open space value

Goal Three: Minimize Traffic Congestion

- Promote efficient and safe traffic flow
- Reduce traffic flow when feasible
- Encourage interconnected pedestrian trails and greenways as alternative means of transportation



A large measure of success of any master plan is the success of the public participation process. Efforts made by the township to involve the citizens of the community and all other interested included a visioning workshop, numerous meetings with the township planning commission, township officials, county planning staff and officials and a public hearing.

Visioning Workshop - A Summary

The visioning workshop had three main goals. The first goal was to use public participation as an opportunity to orient participants to the master plan process. This was accomplished by explaining the planning process, including how the process was coordinated with the county, the purpose of a master plan and the schedule for the plan preparation. The second goal was to ensure that residents had the opportunity to discuss issues that should be addressed in the plan and a vision for how the community should look in the future. The format of the visioning workshop allowed participants to ask questions and express any initial concerns. The third goal was to inform the public about the principles and techniques of the Ottawa County Smart Growth Program and any other key strategies being considered.

The visioning workshop was conducted on February 8, 2001 with township planning commissioners, elected officials, county planning staff, citizens and business owners of Blendon Township. Individual invitations were mailed to each household in the township. There were in excess of 100 residents in attendance. The goals of the visioning workshop were to gather citizen input on a variety of topics and encourage conceptualization of the desired future of the community.

Participants were led through a series of exercises which helped to develop a vision for the future of Blendon Township. First, participants were divided into small groups and asked to describe Blendon as it is today and describe the positive attributes of the community. Next, participants were asked to describe what they would like Blendon to become in 20 years. Each issue was discussed in more detail in order to fully understand the concerns expressed. Time was then spent generating strategies which would help accomplish this vision, or resolve the problem.

The prevalent themes which came out of the workshop were the pace of development and preserving the agricultural operations within the community as well as its rural residential character. The overall results of this visioning session are summarized below.

Smart Growth Demonstration Project: The participants of the workshop were exposed to the principles and techniques of the County's Smart Growth Program. This included strategies for protecting environmental quality, preserving aesthetic features that define the rural community character and minimizing traffic congestion. Once separated into smaller groups, they were asked what their initial questions and thoughts were on the material presented. The majority of the participants were supportive of the concepts. Many were very open to the new ideas and felt that the program might resolve many concerns related to preserving the character of the township and encouraging responsible development and growth in the township and county as a whole. The residents were very supportive of utilizing clustering to preserve open views, woodlands, and other natural features and were supportive of implementing this type of smart growth planning. Much of the discussion focused on residential cluster open space development with a few concerns expressed.

Agricultural Preservation: There were a number of farmers who participated that had every intention of continuing their agricultural operations and wanted to see farmland protected. First and foremost, many participants wanted the plan and its subsequent implementation to support agricultural operations and businesses that have thrived in the township for generations. They also wanted to minimize the extent of growth and provide transition buffers in order to prevent land use conflicts with agriculture.

Rural Character/Natural Environment: Those qualities identified in the workshop that contribute to Blendon Township's rural character included woodlands, wetlands, waterways and farmland. Nearly every workshop participant indicated that the serene rural setting, large tracts of open space and bountiful fields of cultivated land were important factors in determining whether to remain in or move to Blendon Township. Maintaining the integrity of these resources received overwhelming support from the participants and long-time residents of the community. Preserving natural features such as woodlands and wetlands was also identified as important.

Future Land Use and Development: township residents have shown significant interest in the preservation of rural character, yet they recognize that there will be a demand for new development, most of which is likely to be residential in nature. Residents also realized that the township must plan for land uses other than residential, such as commercial and office. In general, participants did not oppose new development in the township, as long as the growth is planned, environmentally sensitive, and does not adversely affect the township's rural character. Properly planned and managed growth was seen as a means of providing a sound tax base and supporting jobs and economic growth.



The other major issue that is directly related to growth is the township's ability to provide new development with utilities and the impacts the development may have on the high water table. Future land uses and development densities must carefully consider the limitations of the township to provide acceptable water and sanitary waste systems, as well as the other essential utilities such as natural gas. Many homes are not served by public natural gas or cable.

The input at the public meetings revealed that limits on the extent of new commercial/office development in the township should be established, and that such development should not be allowed to locate haphazardly. The most suitable locations for new development must be carefully considered to avoid or minimize any potential negative affects upon natural features and farmland. Participants further specified that higher intensity uses such as commercial and multiple family should be concentrated together where services are provided and have convenient access to major roadways.

There were specific land uses that concerned residents, such as manufactured home parks, wireless communication towers, adult regulated uses and liquor stores. These uses should be handled carefully to ensure they are properly located and designed to minimize negative impacts on the character of the community.

Transportation/Road Improvements: The input at the public workshop revealed strong support for improving the overall quality of the road system in Blendon Township to better disperse traffic. An influx of new residential development will likely affect resident's perception of traffic when they begin to notice more cars and other vehicles along the major roadways. Residents are already exploring the possibility of paving some gravel roads.

Another traffic issue discussed was creating a hierarchy for road use and character. For example, the public would like to see “neighborhood roads” designated that would be designed to promote slow, residential traffic and direct truck and business traffic to other routes. Discussions with the public further revealed that road improvements should also address expansion and provision of off-road bike and equestrian paths.

Community Facilities and Services: As a rural township, a large variety of facilities and services, such as a library and educational and recreation programming, will not likely be available in the next 10 years. Residents were generally satisfied with existing police protection services. They did feel that the number of deputies assigned to the township should be increased as the population increases. Attention should be given to fire protection which needs to be re-established by the township due to a recent change in the current structure. Quality schools were identified as one of the key assets to the community.

As mentioned in the discussion regarding the pace of growth, there is a real concern regarding the ability to offer utilities to new development. The township has a high water table, which creates constraints in developing septic systems. In addition, there is a segment of the community that is not served by any public utilities, even natural gas and cable. The residents feel that this infrastructure should be planned and be in place prior to development. There were concerns expressed with the siting of wireless communication towers and the need for proper planning and management of these facilities.



The need to provide and accommodate recreational facilities was discussed. Popular activities among residents included a variety of year-round activities. For example, hunting, mountain biking, organized sports, snowmobiling, golf and access to water sports were noted as important activities. The residents suggested planning for public recreation and, at a minimum, accommodating private operations that offer these activities. There are a significant number of active adults as well as children, so the needs of both groups must be addressed.

GOALS, OBJECTIVES & POLICIES

A community vision was formulated by the township and summarizes the aspirations of its residents for Blendon Township’s future. This section breaks this vision down into categories and provides more detailed descriptions its implementation. For each category, a goal statement is provided, followed by specific objectives. For each objective there is a list of action policies that will assist in accomplishing the objectives, and ultimately the goal. The following set of goals, objectives and policies give the master plan the philosophical guidance it needs to address the present issues and advance the plan and community into the future.

Protect the rural community character, natural aesthetics and environmental quality that contribute to the high quality of life in Blendon Township.

- **Preserve open space that contributes to the rural community character.**

Provide zoning options that provide incentives for clustered development and preservation of open space for aesthetic, recreational and environmental purposes.

Provide zoning options for land divisions that allow smaller lot splits in exchange for preserving larger tracts of parent parcels for agriculture and open space preservation.

Consider programs such as transfer, purchase or donation of development rights, and conservation easements.

Develop greenways through coordinating the connection of open space, natural areas and recreational lands.

- **Preserve and reestablish woodlands that provide a natural community setting.**

Require woodland greenbelts along thoroughfare frontages with all development, which includes preservation of existing woodlands and/or new landscape plantings to establish new woodlands along thoroughfares.

Provide zoning options that encourage clustered development that preserves woodlands.

Provide land division standards that encourage clustering of lots and sharing of access to preserve wooded areas and wooded road frontages.

Adopt woodland preservation regulations that require the preservation of key woodlands and provide incentives for limiting the amount of woodland clearing.

Work with Ottawa County Road Commission to allow for flexibility in roadway design standards to minimize the need for grading and limit the impact on woodlands.

Direct commercial development to areas away from woodlands and scenic corridors.

**RURAL COMMUNITY CHARACTER,
NATURAL AESTHETICS AND
ENVIRONMENTAL QUALITY**

Require street tree plantings along roads or within the front yard of lots with all new developments.

Implement a tree planting program along roadway thoroughfares.

- **Preserve surface and groundwater quality vital to the health of the community.**

Limit the amount of impermeable surface with all new development to minimize surface runoff and maintain infiltration by:

- Placing limits on the amount of a site that can be covered by impermeable surfaces.
- Encouraging clustered residential development that minimizes the amount of impermeable surface.
- Reviewing roadway design standards to ensure that the amount of impermeable surface is minimized.

Review all proposed commercial and industrial uses to ensure that site plan design incorporates best management practices for storage and handling of hazardous materials and wastes.

Require development reviews to include information pertaining to the effects of the development on area groundwater sources.

Encourage the preservation and/or re-establishment of wetlands to improve water quality and groundwater infiltration.

- **Preserve wildlife habitat and natural features that contribute to the healthy ecology of the community.**

Preserve large areas of high-quality wildlife habitat through clustered development.

Maintain and create linkages between habitat areas to create corridors for wildlife to move through the township, particularly along stream corridors.

Maintain a mosaic of habitat types by protecting the edges between woodland, wetland and open prairie habitats.

Preserve and enhance buffers along streams and wetland areas to protect the quality and integrity of these ecosystems.

Provide for a balanced and sustainable set of land uses to support the population and economic growth of the township.

- **Support agriculture as a viable economic industry within the township and protect from encroachment by incompatible land uses.**

FUTURE LAND USE

Establish an exclusive agricultural zoning district that offers special standards and protection for agricultural operations.

Recognize the potential for conflicts between agricultural and residential uses and focus residential development away from major agriculture areas.

Protect agricultural uses from the impact of residential subdivisions by encouraging open space buffers between residential development and agricultural uses.

Consider programs such as transfer or purchase of development rights, conservation easements, P.A. 116, and the creation of a land trust.

- **Provide for residential development that is consistent with the desired rural community character and small-town environment.**

Encourage lot splits to be grouped together in areas most suitable for development so that large areas of undeveloped land remain open and uninterrupted for the purposes of agricultural production, the protection of views, and the preservation of wildlife habitat.

Maintain low density residential uses in areas not planned for utilities. Allow clustering of development where soils are most suitable for development or when alternative wastewater treatment alternatives are provided and highwater table limitations can be overcome.

Plan higher density residential development in areas that are adequately served by public utilities and roadways.

Ensure that all residences have access to open space for recreational purposes and that open space areas are well integrated into neighborhoods.

Preserve an historic, small-town character of Borculo and foster a similar environment in East Blendon by ensuring new residential development embodies traditional neighborhood characteristics and a walkable scale.

- **Provide for limited commercial services in definable nodes consistent with the rural character and small-town environment in locations that can be served by planned utility and public services.**

Limit commercial land uses to focused neighborhood commercial centers and prevent strip-commercial sprawl along roadway corridors.

Ensure the economic and social environment of the neighborhood commercial centers continues through a diversified mixture of complementary commercial and civic uses that are of a scale that is compatible with nearby residential.

Design new commercial development to reflect the rural character of the township, with uses necessary for the daily needs of township residents. Buildings and parking areas should be limited in size and have minimal impact beyond their site.

Develop modest yet effective design guidelines to encourage quality design and architecture consistent with the desired rural, small-town character.

Provide standards for site design elements such as parking lots, storm water detention, landscaping, waste receptacles, and equipment screening and lighting.

Promote the placement of parking behind or to the side of buildings to increase the dominance of the buildings and reduce the dominance of the parking lot as seen from the public road.

Ensure commercial uses are properly buffered from adjacent residential uses while still ensuring that these uses become integral parts of the neighborhood centers. Buffering should be provided through a combination of landscaped berms and screening walls, with provisions for long term maintenance of buffering.

Create a distinct image and pedestrian friendly environment for the neighborhood commercial centers through streetscape enhancements such as street trees, ornamental street lights, pedestrian walkways and open spaces for civic activities.

- **Allow limited industrial uses that will contribute to the economic growth of the community while having minimal impacts on natural features and residential land uses, and within the capacity of planned utilities.**

Ensure the environmental impacts of existing industrial uses are minimized and adequately monitored.

Designate areas for additional light industrial uses and evaluate them with respect to intensity, impacts on surrounding areas, the natural environment, accessibility, infrastructure needs, and the economic impact on the township.

Ensure new industrial sites are properly planned and designed through design standards that include requirements for landscaping, building design, parking and loading.

Develop standards which improve the visual appearance of outdoor storage, parking and loading areas and any outdoor operations with landscaping and screening.

Efficiently provide community services consistent with the planned future land uses and desired rural community character.

- **Protect groundwater quality as the predominant drinking water supply for the community.**

Implement the groundwater protection policies listed above under the environmental quality goal.

Work with the county health department in monitoring the quality of groundwater and notifying the health department of any development that has the potential to impact groundwater quality or the availability of groundwater resources.

- **Allow for the efficient provision of sewer and water to areas of the township planned for more intensive land uses.**

Explore innovative alternatives for wastewater treatment that will preserve the quality of the environment and promote continued rural residential development.

Provide and plan for adequate utilities and infrastructure to ensure managed and responsible growth within areas planned for more intense land uses.

Plan development in a manner that efficiently utilizes the public sewer and water services through focusing development to areas planned for these utilities.

Ensure development follows a logical pattern for utility expansion, provides connections between contiguous developments and allows properly timed/sequenced continuation of utilities to adjacent sites within defined utility service areas.

Develop a Capital Improvements Program that will systematically plan and budget future investment in utilities.

- **Provide public facilities to serve the community.**

Consider improvements to township hall as the township population grows and the demand for services increases.

Maintain adequate facilities and equipment for fire protection.

Establish a recreation commission/committee and/or work with the county recreation department to assess the needs of township residents and develop recommendations for future park development and recreation programming.

Acquire land and develop facilities to meet the future recreation needs of township residents.

Develop a Capital Improvements Program to provide a comprehensive method of prioritizing and funding community facility and infrastructure projects.

- **Work with area school districts in planning for the growing population of the community.**

Coordinate all planning efforts with the school district and notify the school district of all residential development proposals.

Assist school district in selection of new school sites, when demand arises.

Maintain an uncongested, safe, and efficient transportation system appropriate for a rural community.

- **Collaborate with the county road commission to plan for roadway improvements in consideration of traffic volumes, planned future land use the desire to preserve rural character.**

In cooperation with the county road commission, develop and maintain a priority review system for the paving of streets, considering such factors as resident desires, traffic volumes, roadway function, land use, and other appropriate elements.

Provide a road network based upon a functional hierarchy of roadways and coordinate the transportation and land use components of the master plan.

Provide for an interconnected road network between adjacent subdivisions to provide alternative routes for local travel and reserving the capacity of major roads for longer distance travel.

Design roads that reflect, not dominate, the character of the community. Develop design standards for new road development that promotes the goals of the community to retain rural character.

Allow for modifications to right-of-way widths where the township and the county road commission agree that it would be beneficial in preserving the character of the area.

Encourage the use of public roads while developing private road standards to allow for innovative development. Private roads should only be allowed where it can be clearly demonstrated that there will be an increase in natural features preservation and where long term maintenance guarantees are provided and where private roads will not disrupt the development of an interconnected road network.

- **Minimize traffic impacts through managing the number, proper location and spacing of driveways to arterial roadways.**

Minimize the number of access points for individual uses along arterial roadways by encouraging the development of shared driveways and the use of other access management techniques.

Promote shared service drives between adjacent commercial sites to minimize curb cuts along arterial roadways.

- **Manage transportation demand by planning land use intensities consistent with the capacity of existing and planned roadways.**

Determine the capacity of township roads and develop a road system that supports the future land use plan at build-out.

Place high traffic generating uses at locations with existing and planned roadway capacity to support these land uses.

Plan land use patterns with compact mixed use “villages” in the hamlet areas that place residents in close proximity to neighborhood commercial services to reduce trip lengths and make non-motorized transportation a viable option for local trips.

Require traffic impact studies for high traffic generating uses.

Institute right-of-way preservation methods such as deep front yard setbacks to better plan for road widening and infrastructure expansion that will minimize future impacts to property owners.

- **Provide for non-motorized transportation as an alternative means of local travel and recreation.**

Construct bike paths for use by pedestrians and bicyclists along key routes within the township.

Promote roadway and/or pedestrian connections between subdivisions to encourage alternatives for local movement between neighborhoods.

Consider establishing a network of inter-connected greenways throughout the township to connect neighborhoods, open space areas, recreation areas and neighborhood commercial centers.

Pursue state funding for the development of bike paths and greenways.

Coordinate planning and development related policies with county agencies, surrounding communities and developers.

- **Promote an interactive planning and development process with developers to allow for improved and more innovative forms of development.**

Provide an interactive planning process between the Township and developers to allow for mutually cooperative communication and flexibility in the development process where innovative developments can be created that provide benefits to both the developer and the community overall.

Encourage the use of visual simulations and parallel plans to assist in illustrating the benefits derived from clustered, open space development.

- **Promote an interactive planning process with adjacent townships to provide for consistent land use relationships and sharing of public utilities, facilities and services.**

**COORDINATED AND INTERACTIVE
PLANNING PROCESS**

Provide opportunities for Blendon Township and adjacent township planning commissioners to meet on a periodic basis to review respective plans and related land use planning issues.

Share long range growth and development strategies and plans with adjacent communities to achieve improved coordination and communication on land use issues.

Provide adjacent communities copies of major development proposals near boundaries to allow the opportunity to comment and encourage them to do the same.

- **Coordinate with county agencies on land use planning, transportation, infrastructure and environmental health issues.**

Coordinate all master plan and zoning ordinance amendments with the county planning department at a draft stage to allow for recommendations and revisions early in the process prior to conducting public hearings.

Coordinate with the county road commission on roadway maintenance programs, proposed new road development and driveway permitting.

Coordinate reviews with the county health department on developments that will utilize well and septic systems, and commercial and industrial uses that involve large quantities of hazardous materials.

Work with the county health department in reviewing innovative means of dealing with wastewater for residential developments within areas of the township not planned for sanitary sewer.

- **Coordinate with local school districts for the provision of facilities to support the growing population of the community.**

Collaborate with the school district on all planning efforts.

Notify the school district of all residential development proposals.

DEMOGRAPHICS

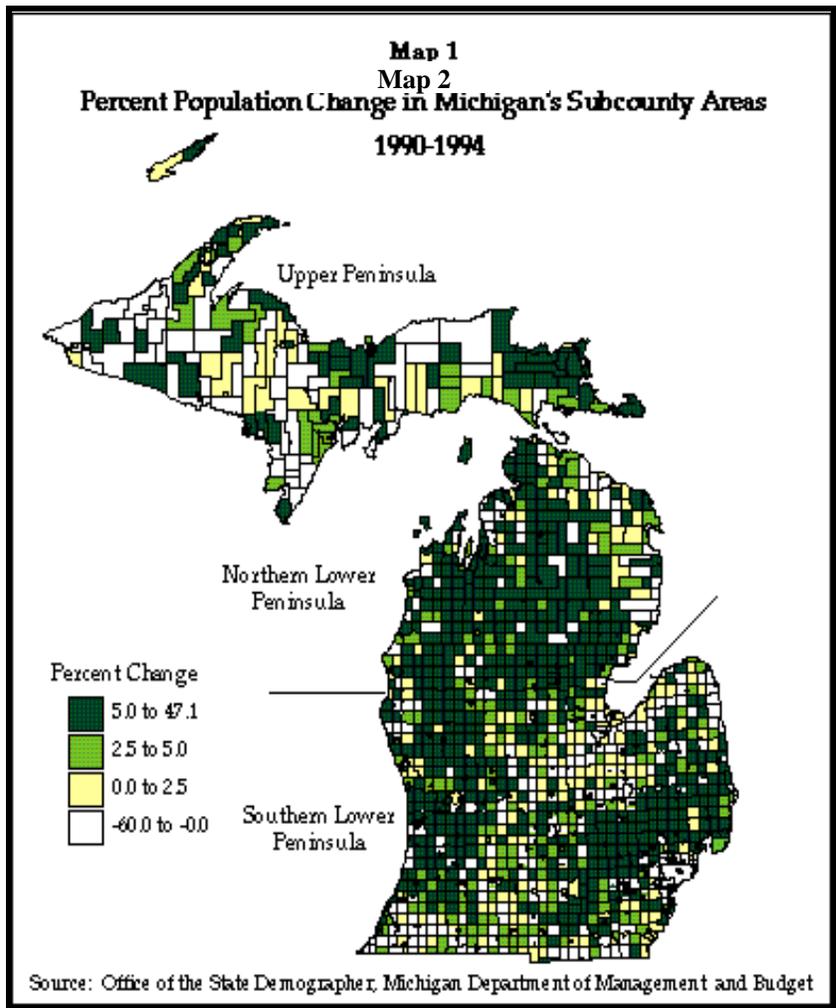
Demographic information aids decision makers in several ways. First, it provides current population information as well as facts such as age groups. Second, projections can be made based on past trends.

An overall look at the State of Michigan shows that communities in Ottawa County and other west Michigan communities are experiencing relatively high rates of growth.

Since at least 1960, Ottawa County has experienced relatively high rates of growth, in comparison to the State of Michigan. Between 1980 and 1990, Michigan's population declined, and then increased, but only slightly. The population barely managed to stay constant over the decade between 1980 and 1990. Since 1990, the State's population has increased by 643,147 - or 7%.

In comparison to the state, since 1990, Ottawa County experienced a 27% population increase from 187,768 in 1990 to 238,314 in 2000. The county has been experiencing this rate of growth for several decades. In fact, since 1960, the county's population nearly doubled, with about 30,000 new residents added each decade since 1960. Other area counties experienced substantial growth as well, although at a lower rate. Only Kent County had a higher numerical increase.

Blendon Township's rate of growth has exceeded that of the County and the State for several decades. During the 1970s, the township's population grew by approximately 46%, while neighboring communities experienced comparable growth rates of 48% (Georgetown Township) and 26% (Zeeland Township). During the 80s and 90s, neighboring communities again exceeded Blendon Township in population growth. Since 1990, the township has experienced a 20% increase, which is comparable to neighboring townships.



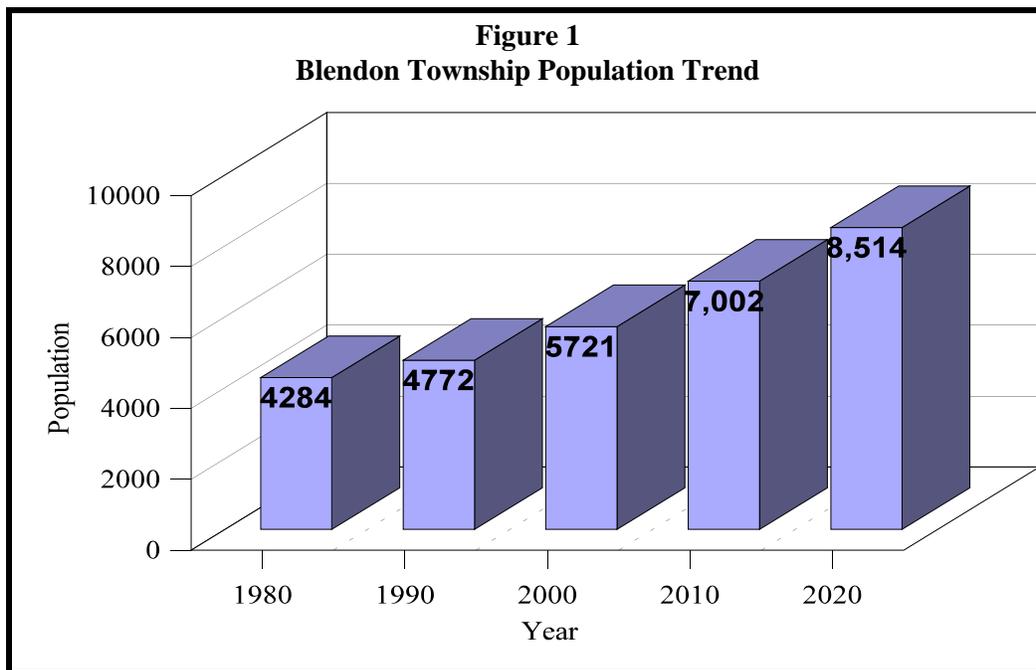
**Table 1
Historic Population Trends**

	Population				Percent Change		
	1970	1980	1990	2000	70-80	80-90	90-00
Blendon Twp.	2,927	4,284	4,772	5,721	46%	11%	20%
Allendale Twp.	3,554	6,080	8,022	13,042	71%	32%	63%
Georgetown Twp.	17,615	26,104	32,672	41,658	48%	25%	28%
Olive Twp.	2,072	2,449	2,866	4,691	18%	17%	64%
Zeeland Twp.	2,934	3,711	4,472	7,613	26%	21%	70%
Ottawa County	128,181	157,174	187,768	238,314	23%	19%	27%
Michigan	7,823,194	8,875,083	9,262,071	9,938,444	13%	4%	7%

Growth in Blendon Township is projected to continue at its current rate and even increase between 2000 and 2020. Projections for the township and county based upon projections by the West Michigan Regional Planning Commission are as follows. The projection was based upon an exponential growth trend for 1970-2000 population extrapolated to 2020. Actual population growth may deviate from this trend based upon changes in conditions that influence growth, such as large increases in the area of the township that are served by water and sewer.

**Table 2
Population Projections**

	Population			Percent Change		
	2000	2010	2020	00-10	01-20	00-20
Blendon Twp.	5,721	7,002	8,514	22%	22%	49%
Ottawa County	238,314	303,676	393,642	27%	30%	65%



Average income levels in Blendon Township grew by 59% between 1990 and 2000, from \$40,083 to \$63,886. This may reflect the growing economy and low unemployment rate experienced in Michigan over the past decade.



Average income levels are expected to grow by 24% over the next five years, to \$79,345, according to Claritas.

People are employed in various industries, primarily outside of the township. This is due to the limited number of commercial and industrial services in the township. Both Holland and Grand Rapids are within 20 minutes driving distance. As reported by Claritas, the average travel time to work for Blendon residents is 19 minutes.



- Employment categories include:**
- Manufacturing
 - durable and non-durable goods
 - Professional
 - executive, managerial, professional
 - specialty, administrative support
 - Sales
 - wholesale and retail
 - Agriculture, etc.
 - Farming, forestry and fisheries
 - Other
 - transportation, material moving,
 - machine operator, material moving,
 - technical support

ENVIRONMENTAL CONDITIONS

A natural features evaluation is a key component of determining the suitability of areas for development and identifying critical resources that need to be protected. Blendon Township contains a variety of natural features that need to be considered in the planning process. Natural features include soils, farmland, streams/drains, wetlands, open fields, wildlife habitat, hedgerows and woodlands. All of these features make an important contribution to the character and quality of life in the township.

Alterations to these natural resources need to be carefully considered to minimize impact. Where impacts cannot be avoided, proper mitigation must be provided. Not doing so will alter the natural system and possibly result in increased erosion and sedimentation, decreased ground water recharge, impaired water quality and increased surface runoff to the streams. To ensure that development is compatible with the natural features of the township, all new developments need to make every effort to maintain the functions of the natural systems.

The following is an overview of some of the major natural features that are prevalent throughout the township. Each description helps explain why these features are important to the natural systems of the township. It is further important to understand how natural features within the township affect the environment beyond its boundaries. For example, changes to drainage, streams and wetlands within the township will have an impact on the entire Grand River watershed.

This section explains the function of natural features and identifies the constraints and opportunities these features present to development. The general locations of woodlands, wetlands, and streams are identified on a series of maps. The master plan will later outline strategies for the township to implement in order to meet the overall goal of preserving natural features and the rural, natural character of Blendon Township.

Correlating the land use types and land use densities in the future land use plan with the natural resource capability will help promote preservation of natural amenities and minimize impact on agricultural land uses.

The master plan must address both the quality and the quantity of land use within the township. Protection of township resources requires the adoption of policies directed toward specific resource issues including drainage, and groundwater quality, natural topography and vegetation. Resource protection regulations can be incorporated in zoning, land division and special purpose regulations.

- | |
|--|
| <p>Environmental Conditions:</p> <ul style="list-style-type: none">• Geology• Topography• Soils• Surface Water/Drainage• Wetlands• Groundwater• Woodlands• Wildlife• Scenic Features• Farmland |
|--|

Understanding the composition of soils in Blendon Township is important for many reasons. Soils are critical when planning for all types of land uses, such as agricultural, residential, commercial, industrial, and recreational. Soil types must be studied to effectively manage storm water run-off and preserve water quality. Second, understanding soil types allows the township to prevent soil erosion and plan for sedimentation control.

The soils and geology in the township are characteristic of glacially formed landscapes consisting mainly of outwash plains, lake plains and till plains with some areas of dune sand. The surface geology of the township was formed 10,000 to 12,000 years ago when glacial activity deposited rock, soil and large blocks of ice. The glacial drift is a very thick layer of soil material that has been deposited by the advance and retreat of the Wisconsin glacier during the last ice age. The underlying bedrock and source of water for most of the wells is the Marshall Sandstone Formation.

Since the last ice age, the soils in Blendon Township have formed as a result of several factors. These include water drainage, wind, slopes, climate, biological activity and human activity. Basically, the majority of the township is flat and consists of sandy soils, which are poorly drained due to the flat topography and high water table. These soils can pose several restrictions to development.

The soils in Blendon Township vary, but can be put into general soil associations. A soil association consists of one or more major soils and some minor soils. A soil association is named for the major soils that are in it. The soils making up one soil association can occur in other associations, but in different patterns. These associations are general and are not for management purposes because slope, depth, drainage, and other characteristics are site specific and site surveys are needed for specific uses.

Blendon Township is comprised of 4 soil associations:

- Rubicon-Granby-Croswell-Au Gres;
- Granby-Au Gres-Saugatuck;
- Nester-Kawkawlin-Sims; and
- Sloan-Adrian-Houghton.

The Rubicon-Granby-Croswell-Au Gres association is made up of level and gently sloping, well-drained to very poorly drained, sandy soils of the lake plains and outwash plains.

The Granby-Au Gres-Saugatuck association is made up of nearly level and gently sloping, very poorly drained to somewhat poorly drained, sandy soils of the lake plains.

The Nester-Kawkawlin-Sims association is made up of gently sloping to rolling, well-drained to poorly drained, loamy soils of the uplands.

The Sloan-Adrian-Houghton association is made up of level, poorly-drained, bottom-land soils and organic soils.

Planning Considerations - Construction costs and risks to the environment can be minimized by developing areas with suitable soils. The three major soil characteristics considered in the analysis of soil conditions are drainage, foundation stability and septic suitability.

Building Suitability: Soil areas that do not provide stable foundations may lead to shifting building foundations, cracked walls and cracked pavement and roadways. Poorly drained soils are a major limitation in Blendon Township due to the high water table. Development on poorly drained soils increases development costs, maintenance costs, and can lead to sanitary problems. Development costs are increased due to additional foundation, road and septic preparation. Maintenance costs and potential problems can be associated with septic field failures, flooded basements and impact to roads from frost action.

Septic Suitability: The homes in Blendon Township rely on individual septic systems for wastewater disposal. Inspection and approval for use of a septic system is under Ottawa County's jurisdiction and the county is ultimately responsible for maintaining high standards of review to prevent system complications or failures. Septic field failures are often the result of poor soil permeability, high water table or excessive slope. Again the primary contributor to the poor suitability of soil conditions is the high water table, which needs to be overcome by costly engineered systems. Some alternative methods for dealing with soil limitations are discussed under the future land use section of this plan.

Topography is an important development consideration. The topography of Blendon Township varies from an elevation of 697 feet above sea level to 616 feet above sea level. While much of the Township has relatively flat topography, there are areas with rolling topography in the southeastern corner of the Township. There may also be locations along natural drainage ways with slopes.

Slopes require sensitive site planning prior to development. Disruption of the vegetative cover may cause significant erosion problems. Care should be taken to insure that extensive grading is minimized and natural features such as vegetation and top soil are protected. Two primary means the township can use to protect steeply sloped areas are :

- Maintain setback requirements from streams with steep banks
- Require existing vegetation along streams to be preserved
- Cluster the development away from steep slopes

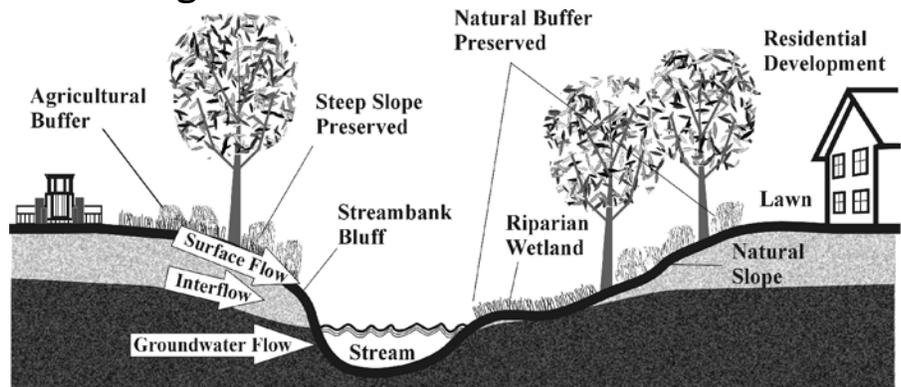
The importance of these concepts is further illustrated along drainage ways on the following page.

TOPOGRAPHY

Upland areas drain to the low lying wetlands, streams and drains that pass through the township, ultimately flowing into the Grand River and continuing to Lake Michigan. Alteration of the natural landscape for agricultural purposes has resulted in increased runoff through improved drainage systems. As areas of the township develop the amount of surface runoff will further increase. This will be caused by clearing of vegetation, addition of impervious material to the land (buildings and pavement) and improvements to storm drainage. These will have the cumulative effect of increasing the peak discharge to the area's drains and streams while reducing the amount of water infiltrating to ground water. Minimization of these impacts may involve protecting native vegetation, on-site storm water retention and clustered development to minimize impervious surfaces.

There are a number of drains and streams that flow through the township. Associated with the streams are corridors of adjacent wetlands. The streams and wetlands are important for surface drainage, groundwater recharge and wildlife habitat. Their alteration can contribute to poor water quality, decreased water supply and loss of valuable wildlife habitat. Alteration can also impact the quality of surface waters of the Grand River watershed.

Figure 4 Illustration of Stream Buffer



While much of the township contains hydric soils, there are only a few areas of natural wetlands remaining. These are located in the northwest corner of the township and consist mainly of lowland hardwood forest. Originally, much of the township consisted of wetlands that have been since drained for agricultural purposes.

Wetlands play a very important part in hydrological and ecological systems. In addition to providing fish and animal life habitat, wetlands maintain and stabilize groundwater supplies, reduce the dangers of flooding and improve water quality. Wetlands are transitional areas between the aquatic ecosystems and the surrounding upland areas. They are low areas which are intermittently covered with shallow water and underlined by saturated soils. Vegetation which has adapted to wet soil conditions, fluctuation in water levels and periodic flooding can be found in wetlands.

Wetlands serve a variety of important functions which benefit the natural environment and the community:

- Mitigate flooding by detaining surface runoff
- Control soil erosion and sedimentation loading in streams, rivers and lakes
- Provide links with groundwater

- Improve water quality which is degraded by nutrients, and chemicals from fertilizers, and pesticides, polluted run off from roads, and urban land uses and erosion, and sedimentation resulting from agricultural, and construction activities
- Function as highly productive ecosystems in terms of animal life habitat and vegetation
- Serve a variety of aesthetic and recreational functions

Future development in areas surrounding undisturbed wetlands can significantly impact wetland resources. During site plan review, developers and township officials should evaluate alternative designs to minimize potential impact. If some impact is unavoidable, effort should be made to mitigate them.

Any wetlands greater than five acres in size or contiguous with (within 500 feet) a waterway are regulated by the Michigan Department of Environmental Quality (MDEQ) through Part 303 of the Natural Resources and Environmental Protection Act (NREPA). Any activity which requires these regulated wetlands to be filled or drained requires a permit from the MDEQ. Permits will generally not be granted unless the issuance is in the public interest and necessary to realize the benefits derived from the activity. If a wetland fill permit is granted, mitigation, such as creating new wetlands within the same drainage way or enhancement of existing wetlands, is required.

There are significant areas within the township that contain hydric soils that have been drained for agricultural purposes. If residential development is proposed within these areas then portions of these wetlands could be restored and incorporated as part of the drainage and open space plan for the site.

Important factors in the evaluation of groundwater are the quantity and quality of the water. Because most of the residences in the Township rely on individual wells, water needs to be protected from contamination. Potential sources of groundwater contamination can result from all of the various land uses within Blendon Township. The level of threat of groundwater contamination will vary based on 1) the susceptibility of groundwater to contamination due to geologic features, 2) contamination loading rates based upon land use; and 3) the amount and type of hazardous materials utilized within the township. Major sources of potential groundwater contamination are.

- Agricultural fertilizers and pesticides
- Storm water run-off from buildings and paved areas
- Septic drain fields
- Spills and leakage of hazardous materials
- Buried wastes in landfills

While a majority of the woodland areas in the township were cleared many years ago as the community was settled for farming, there remain some significant areas of woodlands scattered throughout the township. Woodlands and hedgerows along property lines and roads provide a variety of benefits, which serve as a justification to consider their preservation as the township develops.

- **Quality of life:** Woodlands, like other ecosystems such as prairies, wetlands, stream corridors and open fields, contribute to the quality of life for township residents. The woodlands and hedgerows in the township contribute to the patchwork of agricultural fields that creates the peaceful rural character of the community. Additionally, the trees establish visual barriers between individual properties. Preserving large patches of woodlands is critical to providing habitat for indigenous animal life, which in turn enhances the quality of life and living for residents.
- **Influence on micro-climate:** Woodlands play an important role in moderating ground-level temperatures. Tree canopies shade the ground surface from the sun's heat and wind. Temperature extremes during winter months can also be moderated by the presence of trees.
- **Reduction in pollution:** Woodlands absorb carbon dioxide and return oxygen to the air. Certain tree leaves filter pollutants from the air, removing ozone, chlorine, hydrogen fluoride, sulfur dioxide and other pollutants. Large and dense stands of trees serve as a noise buffer as well. Trees also take up nitrogen that is present in soil.
- **Reduction in soil erosion:** Woodlands and under story vegetation stabilize soils and help prevent soil erosion. The vegetation absorbs the energy of falling rain and the web of roots of all plants help stabilize soil particles in place. Tree leaves can reduce the impact of raindrops on the soil surface and give soil a chance to absorb water. Fallen leaves minimize the loss of soil moisture, help prevent erosion and enrich the soil to support later plant growth. Wooded wetlands provide the additional benefit of trapping and holding storm water runoff. Dense vegetation can help slow flood surges and flows.
- **Animal life habitat:** Woodlands provide essential shelter and food for deer, raccoon, rabbits, pheasants and other birds and animals. The opportunity to observe wildlife in a natural setting has educational benefits for township residents.
- **Township's natural, rural character:** Woodlands or hedgerows along roadways contribute to a natural/rural atmosphere in a number of ways. The beneficial aspects of vegetation on the person traveling along the public right-of-way will be greater because of the close proximity of the vegetation and enclosure provided by the tree canopy.

The continued existence of animal life depends upon the maintenance of adequate habitat. While some species can adapt to the pressures of development, others cannot live in close proximity to humans. Essential elements for habitat areas are to provide food, shelter, and corridors for movement. It is important to maintain areas of sufficient size to be useful to animal life through either protection of existing habitat or creating new habitat. Reasonably continuous corridors must exist to provide for adequate movement of animal life and plant seeds between isolated areas.

Three major categories of wildlife habitat are identified and mapped. Woodlands provide habitat for birds and mammals that inhabit areas that have cover such as squirrels, ruffed grouse, woodcock, woodpeckers, warblers, nuthatches, deer, grey foxes and owls. Wetlands provide habitat for birds and mammals that inhabit ponds, marches and swamps such as muskrats, ducks, geese, herons, rails, kingfishers, mink, cranes and bitterns. Open fields provide habitat for birds and mammals that normally inhabit crop land, pastures, meadows and areas overgrown with grasses such as quail, pheasant, meadowlarks, field sparrows, red foxes, cottontail rabbits and woodchucks.

The open spaces, agricultural lands, woodlands and cultural resources are also components in the overall scenic attractiveness of the township. Scenic vistas are places which afford expansive views of township visual resources. These are often located along roadways, which are important visual corridors because they unfold a rapid sequence of vistas. Fields, homes, buildings and signs are common sites which are presented to the roadside viewer. The sections of densely vegetated areas along the roadway followed by areas of open fields provide departures and entrances to a sequence of changing viewsheds along the road.

Woodlands along roadways are a key element of preserving the rural character of the community. The impact of vegetation on a person traveling along the public right-of-way will be greater. The vegetation will be in close proximity to the motorist and other features outside of the public right-of-way, such as buildings, will have a less dominant impact on the streetscape because they are hidden from view. A greater mass of vegetation will be within the forward view of the person within the public right-of-way and the taller trees will provide a sense of enclosure, providing a well defined scenic space.

Cultural landmarks are another important visual resource. Historic farm homes and agricultural buildings lend an important character and identity to the township. The cultural or man built landmarks should be preserved and managed in a sensitive manner. New development should complement unique landmarks and should not detract from the scenic vistas of Blendon Township's open areas.

Agriculture is an important part of the local economy and is the most predominant land use within the township. The suitability of land for farming is very dependent on the physical characteristics of the land, namely soil conditions. Soil is perhaps the most significant influence on whether or not a parcel of land is capable of supporting agriculture.

The soil survey identifies soil types which are considered very well suited for farming. The U.S. Department of Agriculture identifies the characteristics of these prime agricultural soils being best suited to producing food, forage, fiber and oilseed crops. Such soils have properties that are favorable for the economic production of sustained high crop yields. The soils need to be treated and managed using acceptable farming methods. The moisture supply, of course, must be adequate, and the growing season has to be sufficiently long.

Prime farmland soils usually get an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable. The soils have few or no rocks and are permeable to water and air. They are not excessively erodible or saturated with water for long periods and are not frequently flooded during the growing season. The slope ranges mainly from 0 to 6 percent.

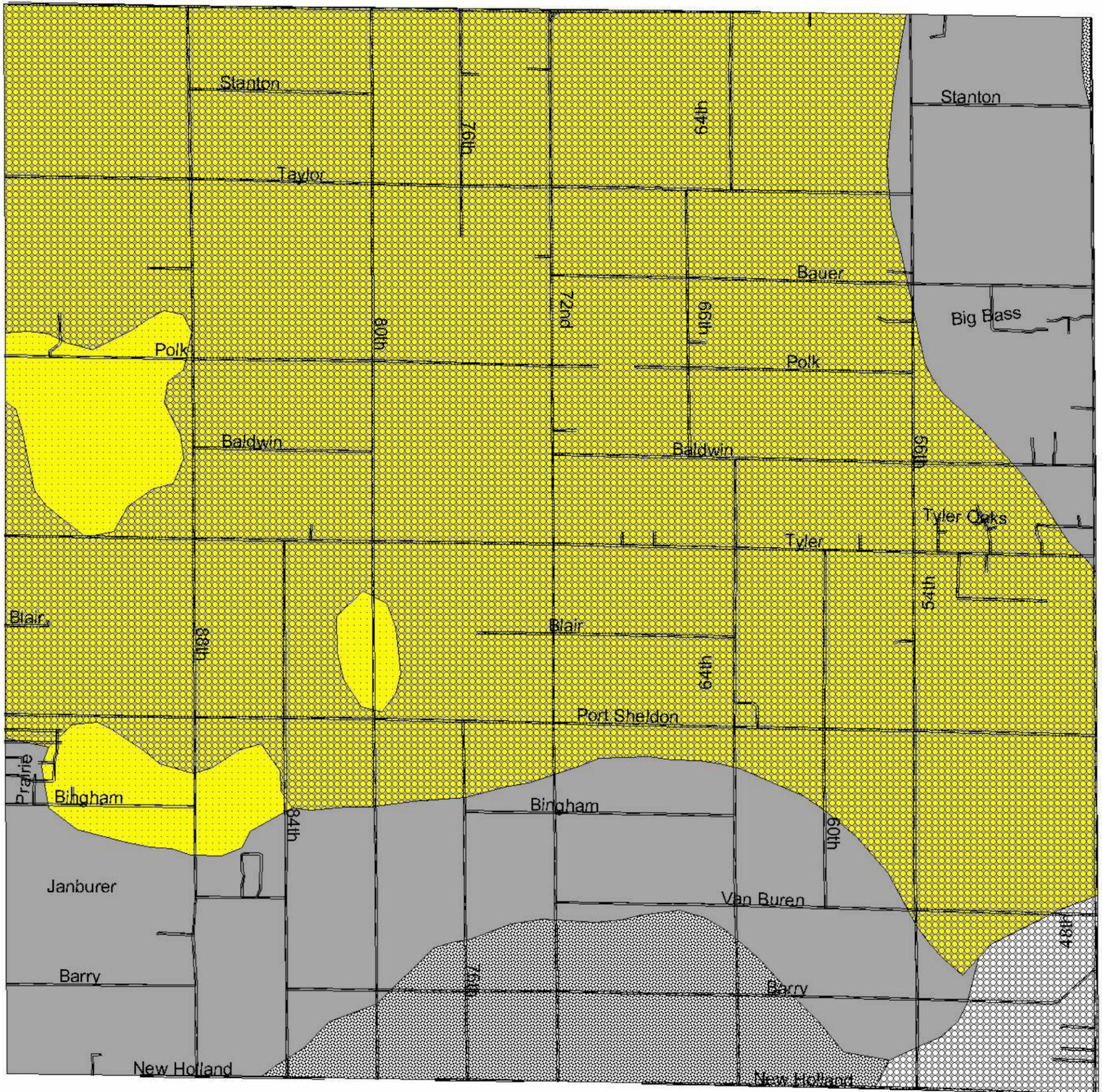
Soils that have limitations - high water table, subject to flooding, or drought - may qualify as prime farmland soils if the limitations can be overcome by such measures as drainage, flood control, or irrigation. This is the case for a majority of the township where the high watertable and poorly drained soil conditions have been overcome through drainage improvements.

Soil capabilities are an important factor when evaluating an area for large scale farming. Soils, however, should not be the only basis for a parcel to be labeled as prime agricultural land. Social and economic factors also have an influence on whether a parcel of land will be used for farming or if it will be converted to another land use.

Land that is currently being used for farming must be considered for the agricultural management recommendations of this plan to demonstrate the township's commitment to farming and to continue to usefulness of site specific improvements such as drainage and buildings made for farming purposes.

Parcel size and shape have an important influence on the viability of a given area for long term agricultural production. Large parcels with regular shapes lend themselves more readily to farming than smaller parcels that have been split up for non-agricultural purposes.

In 1974, the governor signed into law Public Act 116, the Farmland and Open Space Preservation Act. Act 116 enables a landowner to enter into a development rights agreement with the state. The landowner receives specific tax benefits in return for agreeing to maintain his land for either agricultural or open space purposes for a specified period of time (minimum ten years). In order to qualify, the farm must be 40 or more acres in size, have a gross annual income of \$200 or more per tillable acre, or be a designated specialty farm.



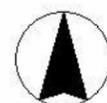
Geology

Blendon Township Ottawa County, Michigan

- Dune sand
- End moraines of fine-textured till
- Fine-textured glacial till
- Glacial outwash sand and gravel and postglacial alluvium
- Lacustrine sand and gravel

*Blendon Township primarily utilizes the Marshall Sandstone Formation Aquifer

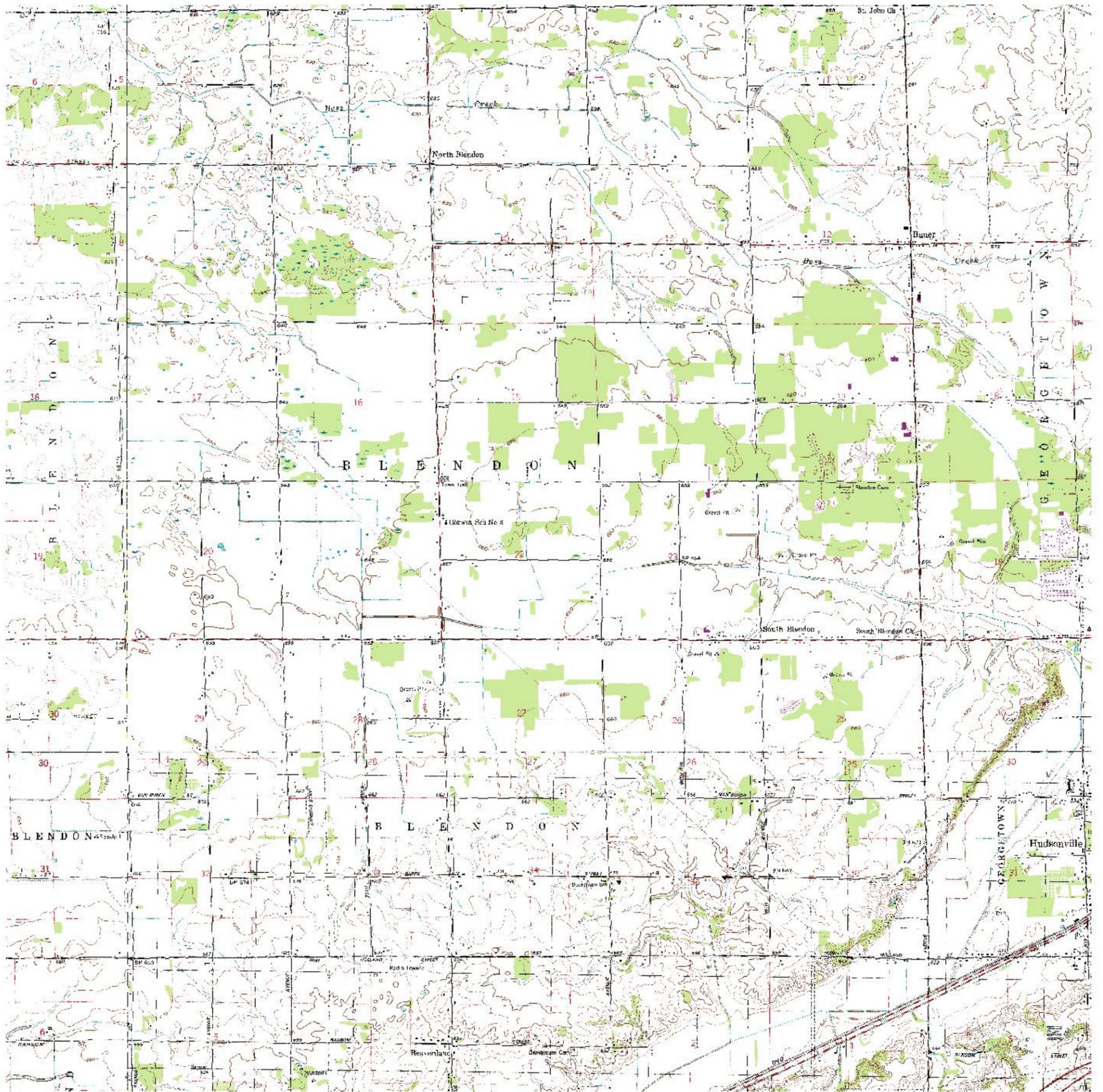
Data Sources: Quaternary Geology - MDNR MIRIS,
Base Information - County of Ottawa Geographic Information Systems



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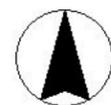


USGS Topographic Map

Blendon Township
Ottawa County, Michigan

Data Source: MDNR MIRIS Spatial Data Library

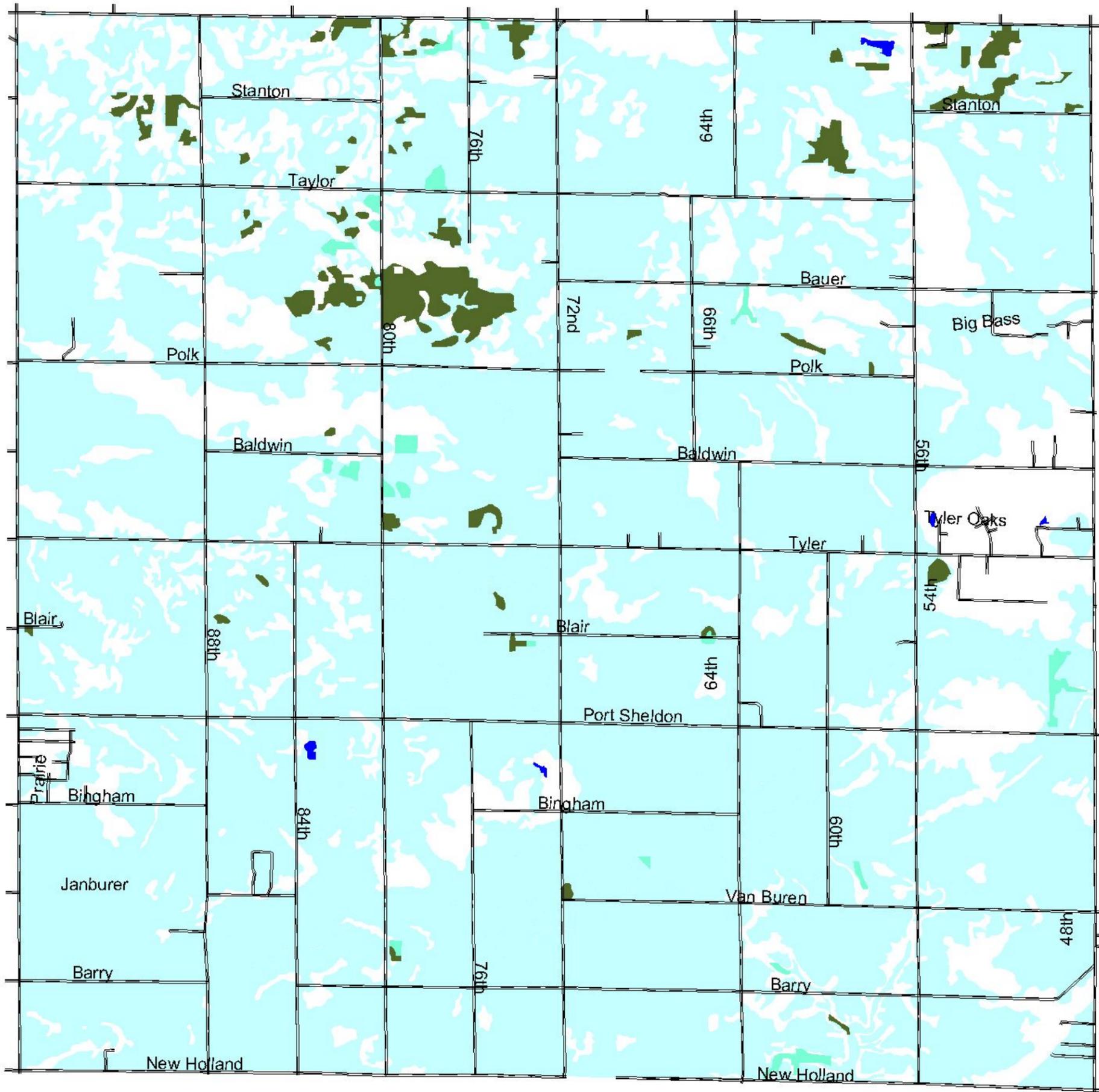
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ASSOCIATES, INC.



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Surface Water, Wetlands, Hydric Soils, & Lowland Hardwoods

Blendon Township
Ottawa County, Michigan

- Hydric Soils
- Wetlands
- Lowland Hardwoods

*Some of the soils shown may only be hydric in depressions.

Data Sources: Hydric Soils - USDA MDNR MIRIS Soils Information
Originally Taken from the Soil Survey of Ottawa County
Wetlands & Lowland Hardwoods - Land Use Update 2000 LSL Planning
Base Information - County of Ottawa Geographic Information Systems

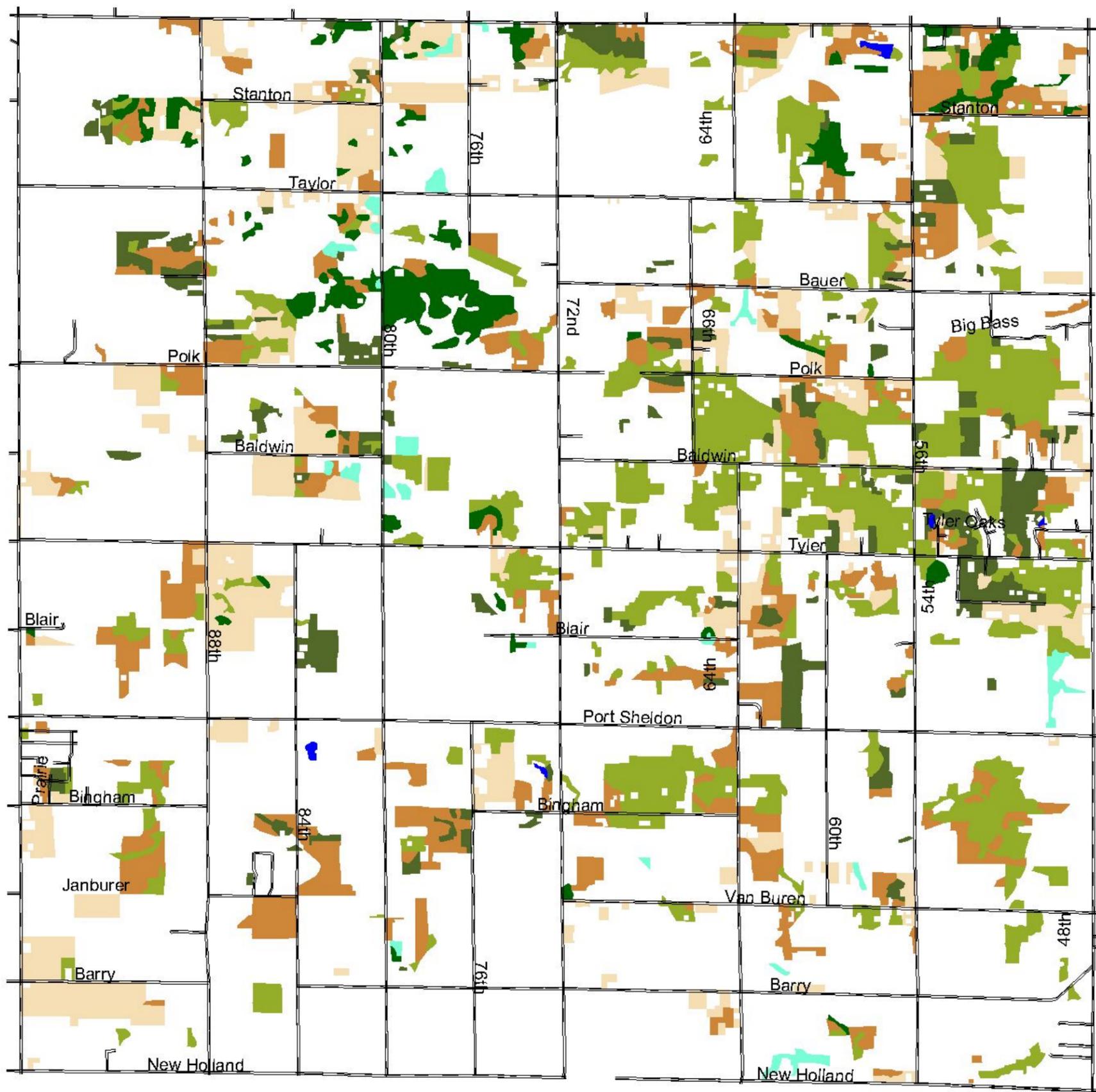
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Woodlands & Vegetative Cover

Blendon Township
Ottawa County, Michigan

-  Grasses
-  Shrubs & Low Woody Plants
-  Deciduous Trees
-  Lowland Hardwood Trees
-  Conifers

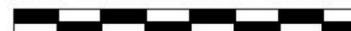
Data Sources: Woodlands and Vegetative Cover -
Land Use Update 2000 LSL Planning Based on 1992 Land Use Information
From GVSU-WRI and Orthophotography,
Base Information - County of Ottawa Geographic Information Systems

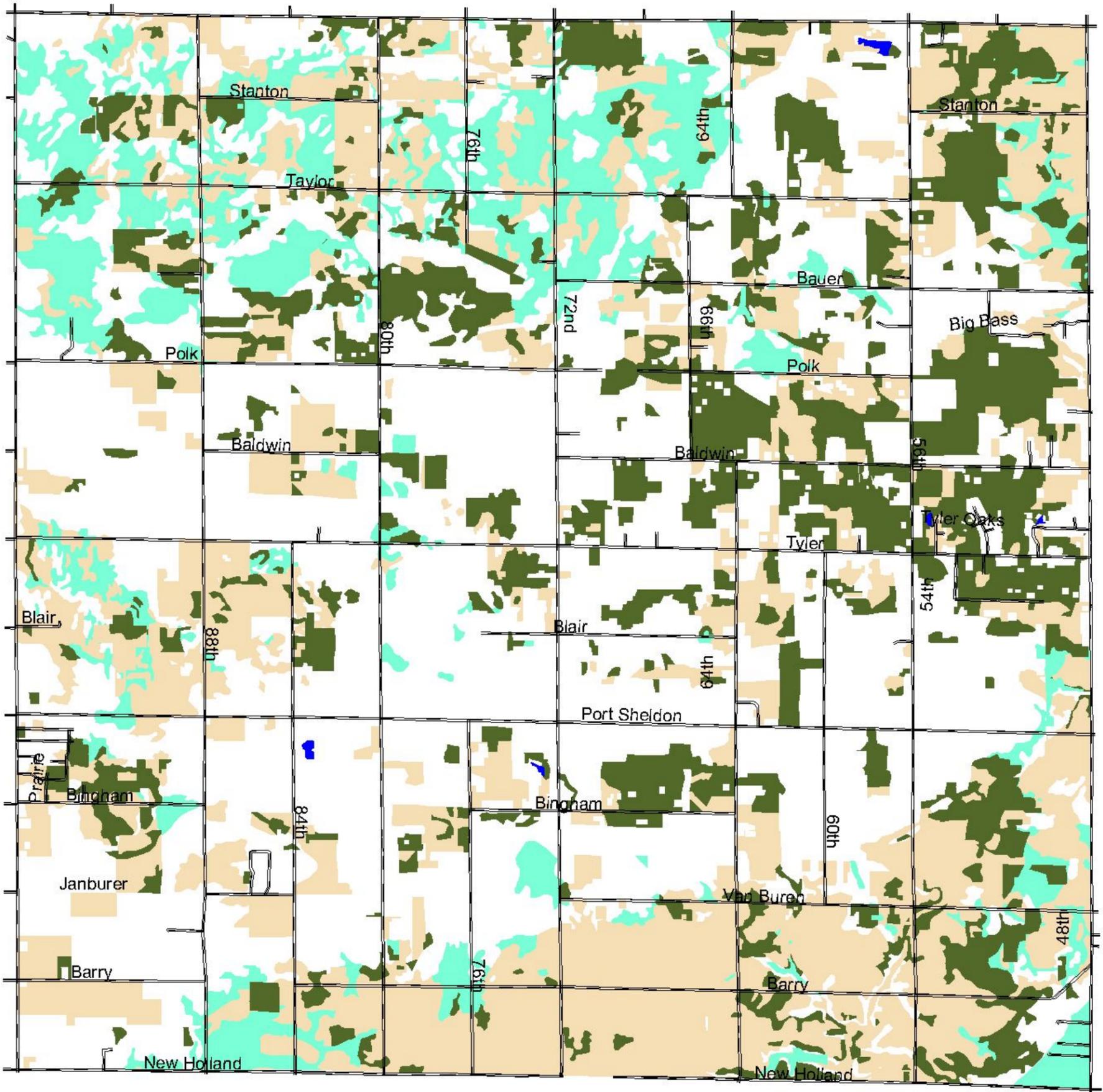
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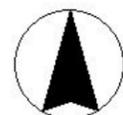


Wildlife Habitat Potential

Blendon Township

Ottawa County, Michigan

- Woodland Wildlife - birds and mammals that inhabit areas that have cover such as squirrels, ruffed grouse, woodcock, woodpeckers, warblers, nuthatches, deer, gray foxes, and owls
- Wetland Wildlife - birds and mammals that inhabit ponds, marshes, and swamps such as muskrats, ducks, geese, herons, rails, kingfishers, mink, cranes, and bitterns
- Openland Wildlife - birds and mammals that normally frequent cropland, pastures, meadows, and areas overgrown with grasses such as quail, pheasant, meadowlarks, field sparrows, red foxes, cottontail rabbits, woodchucks



January 2001

0 0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 Miles



Data Sources: Soils Habitat Classification -
 USDA MDNR
 MIRIS Soils Information Originally
 Taken from the Soil Survey of Ottawa County
 Base Information - County of Ottawa Geographic Information Systems

EXISTING LAND USE

The analysis of existing land use patterns helps predict future development trends. The positive and negative aspects of past land use decisions can be analyzed and used to avoid past mistakes and plan for desirable, orderly growth.

Land use patterns develop according to geographic location, land use and zoning policies, and environmental, economic, social and cultural influences. The location of a building, the routing of a street or highway, construction of sanitary sewers, and many other factors affect, and have an effect on, the shape of existing and future land use patterns.

Documenting existing land use and looking at how uses have changed over time in a community is an important part of the planning process. It helps to answer questions such as, “Is land devoted to residential use increasing? Where is development occurring?”

Existing land use for the township was mapped using the Ottawa County Geographic Information System (GIS). The Existing Land Use Map included in this section depicts single family, multiple family, commercial, industrial, public/quasi-public, and agricultural land uses. The map was generated from the following data sources:

- orthophotography (from Ottawa County’s GIS Department);
- 1991 digital land use information from Grand Valley State University’s Water Resources Institute; and
- a field survey

In addition to mapping existing land use, historical land use information was reviewed to determine trends. Historical land use information came from the State of Michigan and Grand Valley State University’s Water Resources Institute. The following table shows acreage comparisons for different land uses. The urban category includes single and multiple family residential, commercial, industrial and public/quasi-public land uses, as noted.

The following trends were based on this analysis.

- ✓ Residential land use has more than doubled in the township since 1978 (other uses included in the urban category did not significantly increase).
- ✓ Over 4,300 acres of farmland have been converted from agricultural use, primarily to residential or vacant use.
- ✓ The water category increased in the township, presumably from previous mining activities that created numerous small to medium sized ponds.

Land cover, or existing vegetation, was also mapped and depicted on the Woodlands & Vegetative Cover Map. It depicts the location of grassed or open field areas, shrubs and woody plants, deciduous, lowland hardwood and coniferous tree stands.

Table 3
Change in Land Use and Land Cover
Blendon Township

Land Use Categories	1978 Land Use (acres)	1991/92 Land Use (acres)	2000 Land Use (acres)	Difference 1978 and 1991/92 (acres)	% Change 1978- 1991/92	Annual Avg. Loss Or Gain (acres)	Difference 1991/92 and 2000 (acres)	% Change 1991-2000	Annual Avg. Loss Or Gain (acres)
Urban*	918	1,280	2,135	363	39%	26	855	67%	107
Agricultural	17,240	14,860	12,935	-2,380	-14%	-170	-1,925	-13%	-240
Land Cover Categories	1978 Land Cover (acres)	1991 Land Cover (acres)	2000 Land Cover (acres)	Difference 1978 and 199/92 (acres)	% Change 1978- 1991/92	Annual Avg. Loss Or Gain (acres)	Difference 1991/92 and 2000 (acres)	% Change 1991-2000	Annual Avg. Loss Or Gain (acres)
Forest	3,481	3,438	3,120	-58	-2%	4	-318	-9%	-40
Wetlands	145	145	106	0	0%	---	-39	-27%	-5
Water	3	3	14	0	0%	---	11	366%	1
Vacant Land/ Open Field	1,463	3,523	2,896	2,060	141%	147	-627	-18%	-78

* Includes single and multiple family residential, commercial, industrial, and public/quasi-public land uses.

The above land use areas are based upon land coverage. Individual parcels may include multiple coverage types.

Urban - Residential

Single family residential uses are found along all the roads in the township, both paved and unimproved.

Some of the highest concentrations of homes are found along the eastern edge of the community, aligned along 48th Avenue, centered around and south of Bauer and extending to south of Tyler. The character of this area is more suburban, especially with the presence of several subdivisions.

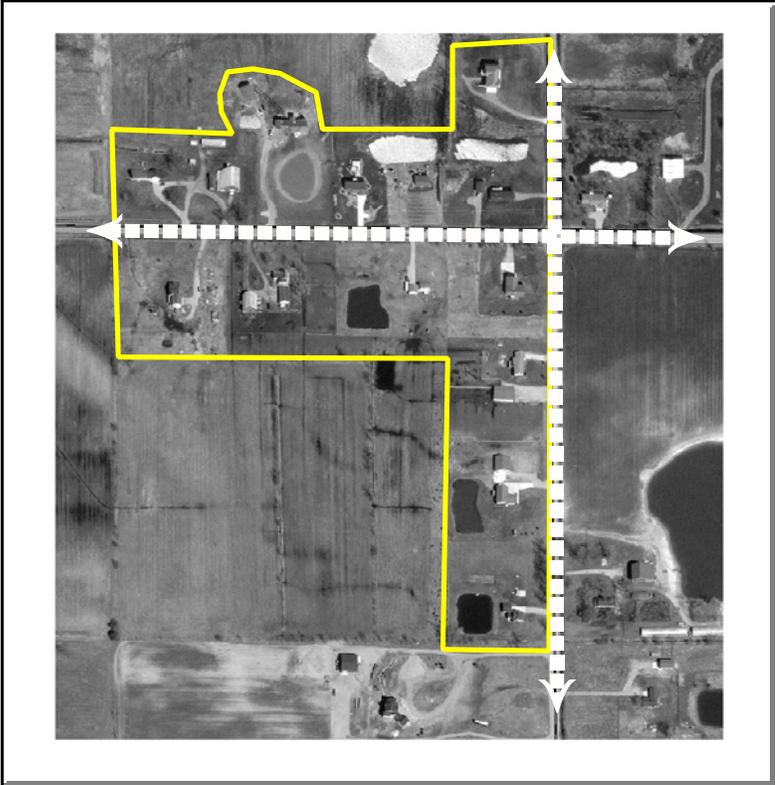
Along the western edge of the township, Borculo hosts a higher concentration of single family residential homes. Borculo, though unincorporated, has the character of a village.

The rest of the residential development in the township is less dense, single family homes aligned along section-line roads. It is this type of development that largely characterizes Blendon Township. This configuration of development affords many homeowners views of open space, which is largely farmland, except where homeowner's have chosen to build adjacent to the scattered forest stands in the township.

The lack of utilities in the township has, to some extent, limited the development of subdivisions or concentrations of housing. However, it has not limited the number of single family houses built on 10 and 5 acre parcels along major streets. The land use analysis on page 29 shows that urban land uses, which includes residential, has doubled since 1978. The increase in land devoted to residential use was the most significant increase in the urban category.

Multiple family dwellings, in the form of duplexes and small apartment buildings are found along 48th Avenue north of Baldwin and at the end of 68th Avenue at the northern edge of the township. Two apartment "complexes" are located at 56th and Fillmore, Country Air Apartments and Pine Tree Apartments.

Figure 5 Typical Residential Development Pattern



Urban - Commercial

There are several small commercial nodes in the township.

- ▶ Several service-oriented shops are located in Borculo.
- ▶ The Blossom Barn, largely floral, is located at Port Sheldon and 72nd Avenue.
- ▶ Offshore Upgrades, marine-oriented, is located north of Bauer on 56th Avenue.
- ▶ A Mobile gas station is located near the corner of 48th and Port Sheldon, with a small convenience store on the corner.



There are other businesses operated from homes, but for the most part, commercial entities are limited to the areas mentioned above. Many of these uses were created when commercial uses were allowed in any zone district in the township by special use under a previous zoning ordinance.

Urban - Industrial

Industrial uses are primarily located in Borculo, including such establishments as Borculo Polishing Inc. and Michigan Wood Fibres. There are several other such uses in that vicinity.

Urban - Public/Quasi-Public

Public land uses are scattered across the township, these include:

- ▶ Borculo Christian School located on 96th Avenue.
- ▶ North Blendon Reformed and Christian Reformed Churches are located at Tyler and 72nd Avenue.
- ▶ Beaverdam Christian School and Church are located at Barry and 64th Avenue.
- ▶ Blendon & Olive Township Fire Station and Community Center located in Borculo.
- ▶ Blendon Township Hall and Recreation Field located at Tyler and 72nd Avenue.



Agricultural

Blendon Township contributes to the specialty crop production in Ottawa County, especially nurseries and greenhouses. Some of the greenhouse operations in the township include:

- ▶ DeHaan
- ▶ Sawyer's
- ▶ Micandy Gardens
- ▶ T. Dykstra & Sons
- ▶ Dreyer's
- ▶ Holstege Farms West

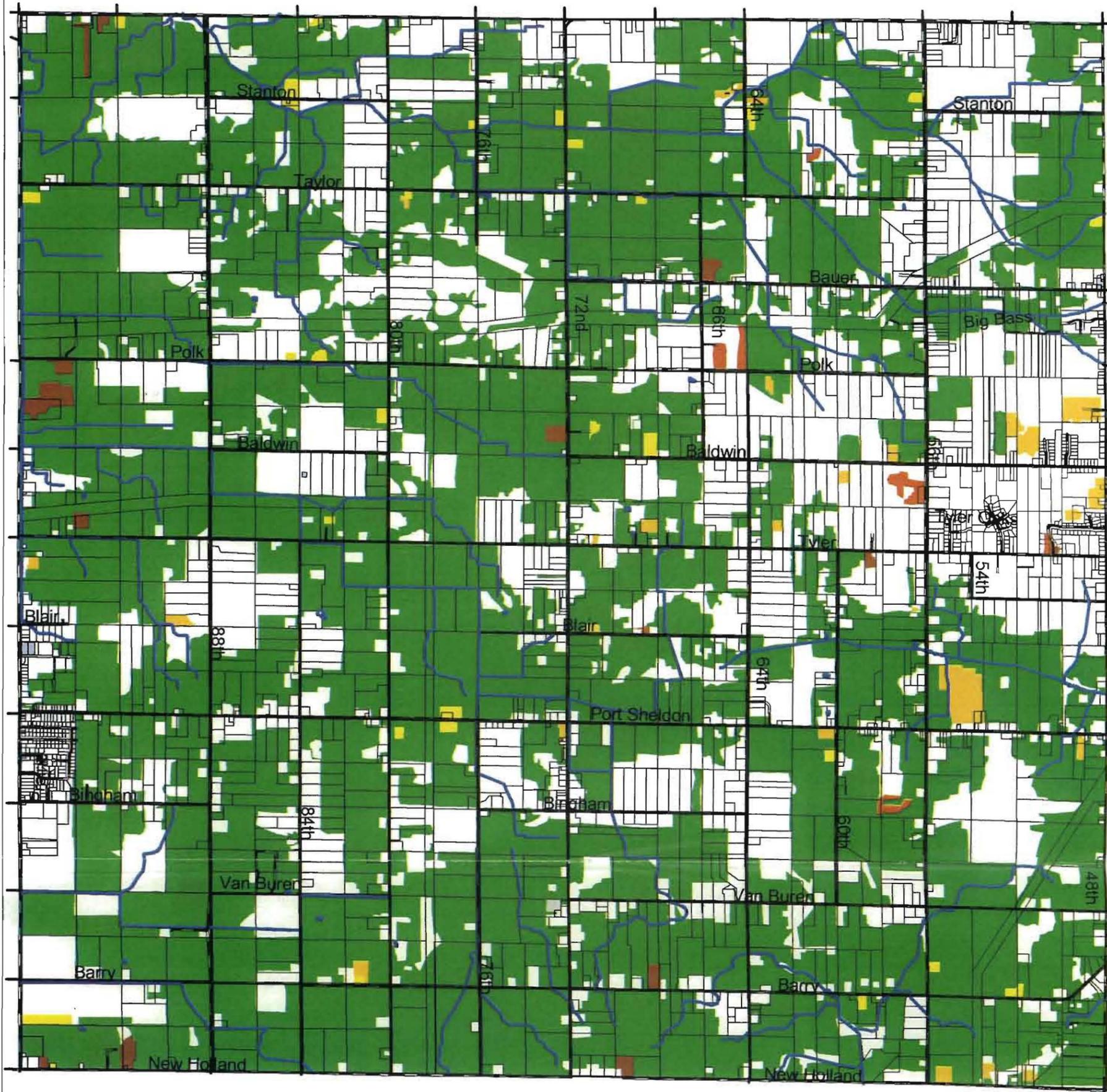
There are also several other specialty agricultural operations including Family Farm Market and Gernatt's Christmas Tree Farm located on 48th Avenue. The Double D Dairy is located on 72nd Avenue at Van Buren. These specialty operations contribute to the township and county economics. Ottawa County leads all other Michigan counties in the production of turkeys, ornamental nursery crops, blueberries and perennials. The township is also a large row crop producer.



The land use map, and analysis, shows that agricultural is the predominant land use in the township, covering over 12,000 acres. Over the past several decades, agricultural use of the land has continued to decline from over 17,000 acres of farmland in 1978. Much of the land has been converted to residential use or vacant, largely along county roads on the fringe .



Farmland currently extends across the entire township. It continues to be prolific on relatively large parcels and contiguous smaller parcels.



- Cropland, Horticulture & Nurseries
- Orchards, Bush-Fruits, Vineyards & Ornamental Horticulture Areas
- Confined Livestock Feeding Operations
- Permanent Pasture
- Farmsteads
- Greenhouses
- Other

Source: Ottawa County GIS Department

Map 9 Agricultural Land Uses

Blendon Township
Ottawa County, Michigan

LSL
LANGWORTHY
STRADER
LEBLANC &
ASSOCIATES, INC.



May 2001

2000

0

2000

4000

Feet



Map 10 Composite Analysis

Major Land Use and Land Cover Features

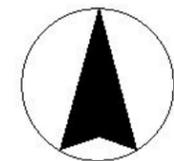
- Institutional
- Commercial
- Industrial
- Confined Livestock
- Greenhouses
- Woodlands
- Water
- Wetland

Source: Ottawa County GIS Department

Hudsonville & Georgetown Twp.

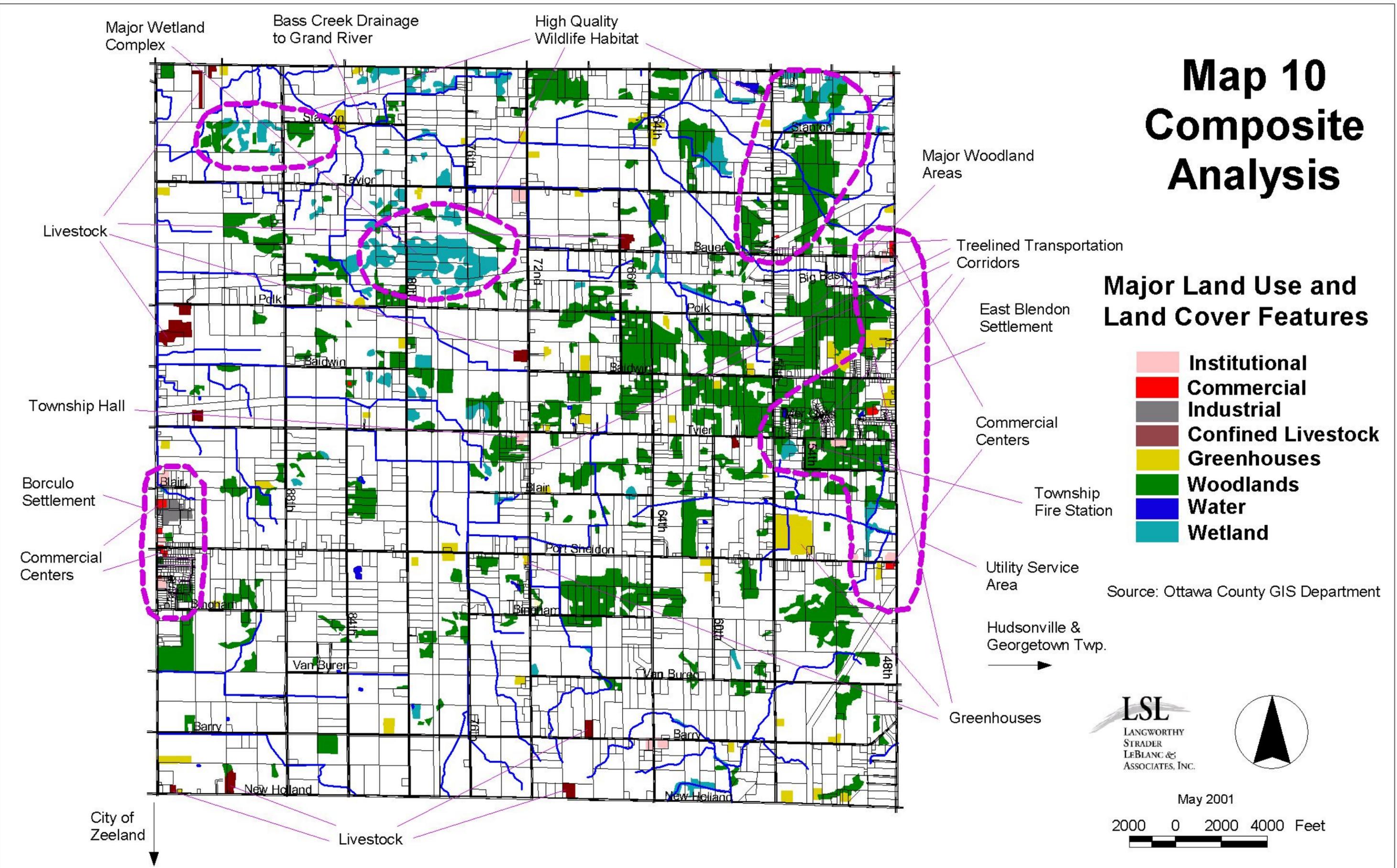


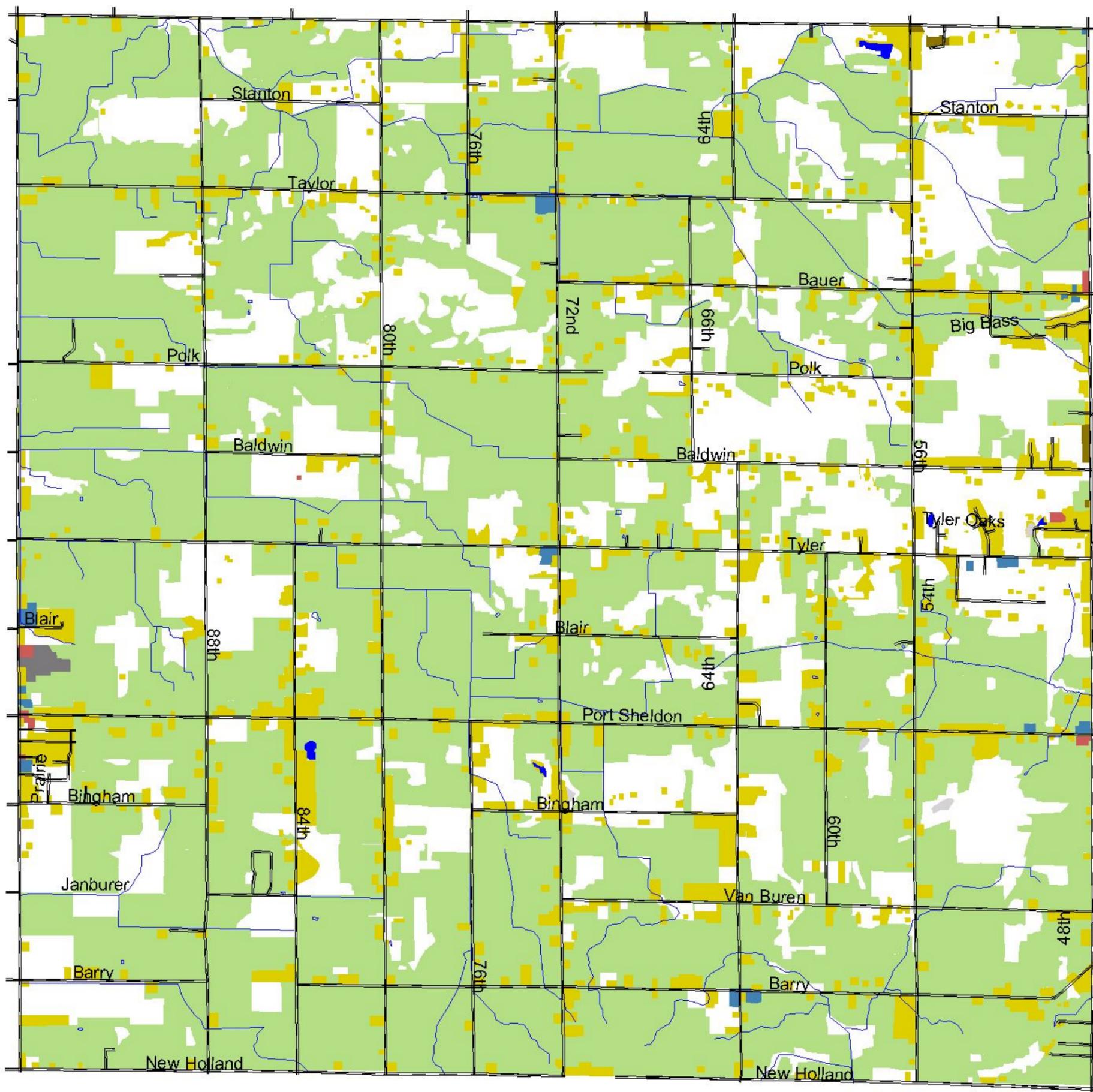
Greenhouses



May 2001

2000 0 2000 4000 Feet

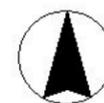




Existing Land Use
Blendon Township
Ottawa County, Michigan

- Single Family Residential
- Multiple Family Residential
- Commercial
- Industrial
- Public/Quasi Public
- Agricultural
- Water

Data Sources: Land Use - Land Use Update 2000
 LSL Planning Based on 1992 Land Use Information
 From GVSU-WRI and Orthophotography,
 Base Information - County of Ottawa Geographic Information Systems



January 2001

0 0.20.40.60.8 1 1.21.4 Miles



UTILITIES

A safe, secure, plentiful and reliable source of water is vital to a community's growth and development. Potable water for drinking, sanitation, fire suppression and industrial uses are the hallmarks of modern society. Many residents in Blendon Township have household wells for water supply. Shallow and deep aquifers are sufficient for the low density residential and non-residential growth patterns in the Township.

Existing Water Systems

Blendon Township lies directly between two major water supply lines. To the north, along Fillmore Street, is the City of Grand Rapids' 60 inch water line. To the south, along the Now Holland Street right-of-way is the City of Wyoming's 54 inch water line. These two city systems supply water to the adjacent communities including: Coopersville, Hudsonville, Jamestown, Allendale, and Zeeland.

There are currently two water systems in Blendon Township, Georgetown Township and the Olive-Blendon system. These water providers have defined service areas; no water can be supplied beyond these limits unless the service area is expanded. Below includes a map of the service area. Allendale has expressed its willingness to create a water service area and extend water service into Blendon.

The Olive-Blendon system is connected to the City of Wyoming water system. It operates at approximately 50 psi and has a defined service area. This system operates from line pressure on the 54 inch transmission line and includes an elevated tank. It was designed to serve a 2 million gallon per day (MGD) demand. In 2006, it served approximately 0.8 MGD on average.

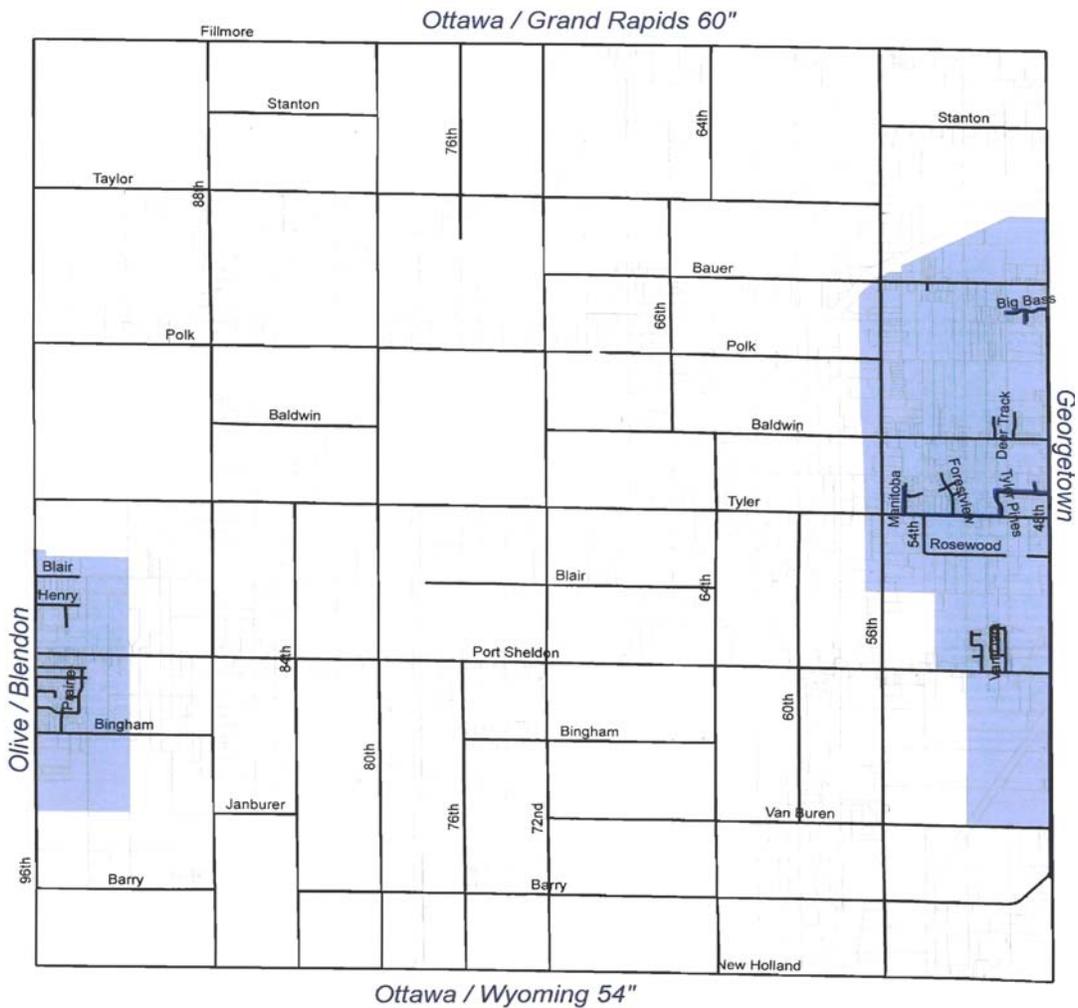
Ottawa County, through its Board of County Road Commissioners, established a utility department. The public utilities department serves as the Public Works Agent for Ottawa County and provides public works services, relative to water (and wastewater), to the County's governmental units. The Olive-Blendon water system serving a portion of Borculo is one such system.

The Grand Rapids and the Wyoming water systems have capacity available. Water is available on a first come-first served basis. From the Grand Rapids system, meters measure the water withdrawn and is then sold to Ottawa County. Wyoming also meters use but requires the County to estimate annual use.

In the future, Township could consider municipal water supplies by any of several means:

- Township develops and operates its own water utility, purchasing water through the County. Water is purchased from either the Grand Rapids or Wyoming systems.
- Township requests Ottawa County to construct and operate a water distribution system. (e.g. the Olive-Blendon System)
- Township requests an adjacent community to extend water into the Township. (The Georgetown Township System).

Sanitary sewer services are not currently available in the township. The existing contract between Ottawa County and Grandville is in the process of amendment to add sections



12, 13, 24 and 25 of Blendon Township to the service area for the Grandville Sewage Treatment Plant, as augmented with a sewer transmission line that transmits waste water to the Wyoming Treatment Plant.

As the township further investigates the feasibility of providing wastewater services to areas of the Township, the projected capital improvements should be included as part of the Capital Improvements Plan.

6. FUTURE LAND USE

The future land use plan establishes land use categories, illustrates the location of planned land uses and provides strategies for implementation. This section also provides a rationale for the placement of preferred land uses and the intensity of those uses. The plan serves as the primary policy guide for future land use decisions, investment in public improvements and coordination of public improvements and private development.

The plan presents an idealized future indicated by the growth patterns in the township. The plan, however, also provides the practical guidance local decision-makers need regarding today's issues. It is the intent of the plan to assist in the orderly development of the township, assist the community in maintaining and enhancing its pleasant rural environment and spark a vision for the future.

Blendon Township has a number of opportunities and limitations which will influence the future development of the township. A positive influence on growth is the existing rural and natural character of the township. The pleasant atmosphere of agricultural land, open space and woodlands and rural residential setting, portray a rural ambiance that will continue to lure new residents seeking refuge from urban life. A limitation on growth in the township is the poor soil suitability for septic systems. In some cases, this limitation may be overcome with innovative engineered septic systems or central sanitary sewers.

It is important to consider a number of factors when locating land uses. The future land use plan should guide the future development pattern of the community into a logical arrangement which maintains the character of the community, protects the environment and ensures adequate services and land for all types of land uses. These factors include:

- Consistency with existing land use patterns.
- Diminishing incompatible land use relationships.
- Preserving of natural features and consideration of the effects of development on the environment.
- Protecting of agricultural land uses and resources.
- Maintaining the aesthetic qualities that contribute to the rural community character.
- Positive incorporation of natural amenities.
- Existing land use planning and zoning policies.
- Availability of infrastructure including utilities, roads and community facilities.
- Market conditions for various land uses.

FACTORS CONSIDERED

- The goals and objectives of the plan that express the community character desired by residents.

In general, it was clear that the residents of the township desired a mix of land uses, with a clear emphasis on open space, agriculture, residential uses, and the protection of natural features and rural character. The future land use plan has been developed to accommodate the range of housing and commercial services needed, and to preserve the values held closely by township residents. Below is a brief overview of the future land use plan that is followed by a more detailed description of each of the categories.

General Framework

The land use plan can generally be described as having a few distinctive components that when viewed together form an overall vision for the township over the next 20 years. The plan identifies locations for neighborhood commercial areas. These locations serve as focal points for commercial services and community facilities. Surrounding these neighborhood centers are traditional residential neighborhoods. The higher density allowed by public utilities makes this area well suited for traditional neighborhood development. In addition, limited areas have been designated for high density residential. The combination of these areas are intended to evolve into traditional small-town environments.

The majority of the township is designated as rural/agricultural preservation, which is planned to be dominated by agricultural uses, open space and rural residential. As development occurs in these areas clustered open space development can be utilized to preserve farmland, open space and natural features.

In addition to these land use categories, there are overlays shown for woodland preservation and riparian corridors. The woodland preservation category identifies locations where there are large stands of woodlands and provides specific recommendations for clustering development to help minimize impact on key woodland resources. The riparian corridors generally follow drains, creeks, streams and wetlands. Specific management practices are recommended for protecting the ecological functions of these waterways.

Agriculture is discussed as part of the land use recommendations. The future land use map does not indicate a specific location for an “agricultural” land use designation, as agriculture is expected to be retained throughout much of the township. The intent of this plan is that these agricultural uses will remain to the extent that the physical and economic environment remains conducive for their continuation.

Each of these land use categories are described in detail on the following pages.

Agriculture

Agriculture is the primary industry within the township. The uses classified as agriculture generally includes fruit production, field crop production, forage and sod production,



livestock and poultry production, fiber crop production and greenhouse production. Agricultural uses are found throughout the township. The future land use map does not indicate an exclusive “agricultural” land use designation, as agriculture is expected to be retained within most areas of the township.

The following policies are recommended for maintaining an environment where agricultural uses can remain as a vibrant part of the local economy. It is important to understand that these provisions do not, by themselves, preserve farming; only the farmer can do that. Rather, these techniques are intended to permit larger blocks of land to be set aside for farm use and set up a system where agricultural uses may remain a viable and competitive option given changes in local market conditions.

- **Agricultural Security Zone:** An exclusive agricultural security zone can be an effective way to protect farmland from suburban encroachment. The purpose of an agricultural security zone may include the:
 - protecting of productive farms
 - avoiding conflicting land uses
 - create buffers between farms and surrounding residential
 - maintaining a viable agricultural economic base
 - preserving agricultural land for the production of food and fiber
 - maintaining open space/rural character

This zoning district would be designed to provide priority protection to agricultural uses. New non-farm residences would be very limited and special land use approval could be required. Standards for non-farm uses could include a maximum lot area, maximum lot to depth ratio, location standards to cluster away from agricultural operations and the provision of buffers from agricultural uses.

- **Limitations on Residential Density:** Areas of the township have been divided into two broad residential categories: residential hamlet and rural/agricultural preservation. Because the residential hamlet areas are planned to be served by utilities, these areas can support a higher density of development. Designating these areas for greater densities of residential use can assist in directing development to these areas and limiting growth in the rural/agricultural preservation area. This, in combination with other techniques listed below can assist in preserving farmland.
- **Clustered Open Space Development:** Utilizing clustered residential development can assist in the preservation of natural features, open space and agricultural lands. Clustered open space development is an alternative means of developing land that allows a developer to take the number of dwellings that could be placed on a parcel of land and clustering the units closer together to preserve a significant amount of the land as undeveloped open space. This form of development can be used to preserve farmland as the open space portion of the development or to create buffer zones between residences and nearby agricultural lands. The concept of clustered open space development is explained in more detail under the rural/agricultural preservation description.

- **Agricultural Buffers:** Agriculture contributes heavily to the image of rural character. Balancing the need to preserve rural character, continue agricultural practices, and the desire to develop land for non-agricultural purposes can be challenging. Residential and agricultural conflicts occur with greater frequency as more people are moving from urbanized to traditionally agricultural areas. The use of buffers between active agricultural areas and other land uses can aid in easing land use conflicts and improving the relationship of agricultural uses and new residents.

Buffers are generally imposed on adjacent residential developments, rather than on farming operations, principally because the farm is usually the first use in place. Buffers should be sufficiently wide to protect the farming operation from lawn fertilizers, playing children, and other conflicts.

Buffers are most effective if an area of natural vegetation is provided between residential properties and farmland. This requirement should be tied to subdivision, site condominium, planned unit development, or land division approval. It should also be required that the buffer be described in the property deed to alert potential buyers of the need to honor the no-disturb area. The buffer area should be landscaped with plant material to assist in filtering dust and other air-borne particulate matter commonly generated by farming.

- **Conservation Easements:** A conservation easement is the voluntary donation of land to a non-profit easement holder that is designed to benefit the landowner by assisting in keeping agricultural lands productive and protected from development. The terms of the easement must include restrictions placed on it for the protection of agriculture, open space, and natural resources. The landowner still owns the land and can use it for previously stipulated purposes that are outlined as part of the easement agreement.

The easement is considered a charitable contribution for which the landowner does not receive direct income benefits from the donation of their land. The landowner benefits from the donation through federal and state income tax deduction, lower property taxes, and reduction in estate taxes. The value of the conservation easement is the difference between the fair market value and the value of the land after restrictions have been imposed.

- **Purchase of Development Rights (PDR):** The purchase of development rights has similar advantages as conservation easements. The landowner voluntarily sells the development rights to his property to the governing agency, as compensation for not developing the land. The landowners still maintains ownership of the land to continue using the land for farming practices.

One fundamental concern that would limit a PDR program is funding the program. The funds may come from private agencies like the American Farmland Trust, state bond referendums, grants, donations, the P.A. 116 lien fund, or in other local funding sources.

- **Transfer of Development Rights (TDR):** Transfer of development rights is a voluntary preservation option that compensates the land owner for not developing their land by allowing the development rights to be transferred to a development district. For TDRs to work, two districts have been recommended. The “preservation district” would include the areas of the township designated as rural/agricultural preservation. The “receiving district” that uses the rights for higher development densities is the traditional residential neighborhoods.

The zoning ordinance would need to be amended to establish regulations for TDRs; this would likely be done through the Planned Unit Development (PUD) regulations. The transfer of density would be accomplished by zoning both the preservation site and the receiving site as PUD and recording the transfer through a PUD agreement and deed restrictions.

The following items would need to be addressed in the regulations:

- Criteria and suitability of preservation district and receiving district sites.
 - Limitations on the amount of density that may be transferred and ensuring that the receiving site is capable of supporting the additional density.
 - Uses allowed on the preservation site and means of recording restrictions in perpetuity to ensure that the preservation site remains in compliance with TDR regulations.
- **P.A. 116:** The Farmland and Open Space Preservation Act, P.A. 116, was established in the 1974 farm bill. P.A. 116 is a founding act for farmland and open space preservation programs which offered tax relief to landowners who enrolled farmland in the program for 10 years or more. Currently 45% of Michigan's farmland is in the P.A. 116 program. In 1996, amendments to P.A. 116 were passed to keep P.A. 116 a desirable program for landowners.

P.A. 116 provides the framework for temporary easement and permanent easement programs:

- 10-90 year Farmland Development Rights Agreements
- a parcel of 5-39 acres in size with at least 51% devoted to agricultural use and that earns at least \$200 per cleared and tillable acre
- a parcel 40 acres or larger with at least 51% devoted to agricultural use
- land may not be developed for any use other than agriculture
- landowner is eligible for a property tax credit and special assessment exemption

Under this act, base property is assessed at current land use, agriculture, not necessarily the highest or best possible use. The tax relief is figured using the landowner's household income multiplied by 7% to give the amount of tax credit that the landowner is allowed to receive. For example, if the landowner's household income is \$20,000 multiplied by 7% ,the total tax credit would be \$1,400. The yearly

tax credit will fluctuate under this program, as the household income of the landowner changes.

The land is required to be left in the P.A. 116 program for the number years stated in the agreement. However, if the landowners wish to convert or develop the farmland, the landowner must repay the past seven years of taxes based on the higher assessment.

Rural/Agricultural Preservation

The rural/agricultural preservation area will permit agriculture, single family residential and other public or institutional uses typically found in residential areas such as schools, churches, government facilities and recreational uses. The intent is for this area to remain rural in character with agriculture as the predominant land use, but allowing residential uses.

- **Density:** The soil limitations for septic systems is the primary limiting factor for residential development. As such, residential densities would need to be limited. To encourage the retention of farmland, open space, natural features, traffic safety, groundwater and rural character, clustered open space development should be utilized for residential development with an overall density of three acres per dwelling. Where clustered open space development is not being used, then parcel sizes should be maintained at 20 acres or more to preserve farmland, open space, natural features, traffic safety, groundwater and rural character.

The general development trend in Blendon Township and in most surrounding communities supports the concept of requiring larger agricultural parcels for the preservation of farmland, open space, natural features, traffic safety, groundwater and rural character. This practice should be extended into the future as it pertains to valuable, productive farmland. However, areas of the township where smaller residential lots are appropriate, currently exist, and are likely to remain the predominant development pattern in the future, should be planned for residential growth, as shown on the future land use map as Traditional Residential Neighborhoods and High Density Residential.

- **Wastewater Treatment:** As this area is not planned to be served by public water or sewer, all development will need to be served with on-site well and septic systems. For clustered developments, it may be possible to utilize innovative wastewater treatment systems to overcome soil limitations. As an alternative to conventional wastewater treatment systems, innovative wastewater treatment systems such as engineered sand filtration systems or constructed wetlands treatment systems could be utilized. Constructed wetlands treatment systems are engineered systems that have been designed and constructed to utilize the natural processes involving wetland vegetation, soils, and their associated microbial assemblages to assist in treating wastewater. They are designed to take advantage of many of the same processes that occur in natural wetlands, but do so within a more controlled environment. Some of these systems have been designed and operated with the sole purpose of treating wastewater, while others have been implemented with multiple-use objectives such

as using treated wastewater effluent as a water source for the creation and restoration of wetland habitat for wildlife use and environmental enhancement.

Constructed wetlands treatment systems generally fall into one of two general categories: Subsurface Flow Systems and Free Water Surface Systems. Subsurface Flow Systems are designed to create subsurface flow through a permeable medium, keeping the water being treated below the surface, thereby helping to avoid the development of odors and other nuisance problems. Free Water Surface Systems, on the other hand, are designed to simulate natural wetlands, with the water flowing over the soil surface at shallow depths. (Constructed Wetlands for Wastewater Treatment and Wildlife Habitat - U.S. EPA's Office of Wastewater Management, 1993).

These systems have been utilized in conjunction with municipal wastewater treatment facilities, such as Houghton Lake, MI, and have also been utilized on a smaller scale for residential applications such as in Crockery Township, Ottawa County. This type of system may be an option to the conventional septic field given the high water table conditions in Blendon Township.

- **Clustered Open Space Development:** Clustered open space development can be utilized where soils are most suitable or innovative wastewater treatment systems can be utilized. The clustered development would be maintained at an overall density consistent to what the zoning ordinance minimum lot size standard requires, however, flexibility in lot area, width and setback standards allow homes to be grouped into areas of the site most suitable for development. This flexibility allows for innovative development that is more cost effective for the developer and provides benefits to the community in terms of open space and natural features preservation.

The ordinance would need to outline the specific criteria and provide incentives to encourage preservation of key resources including the following:

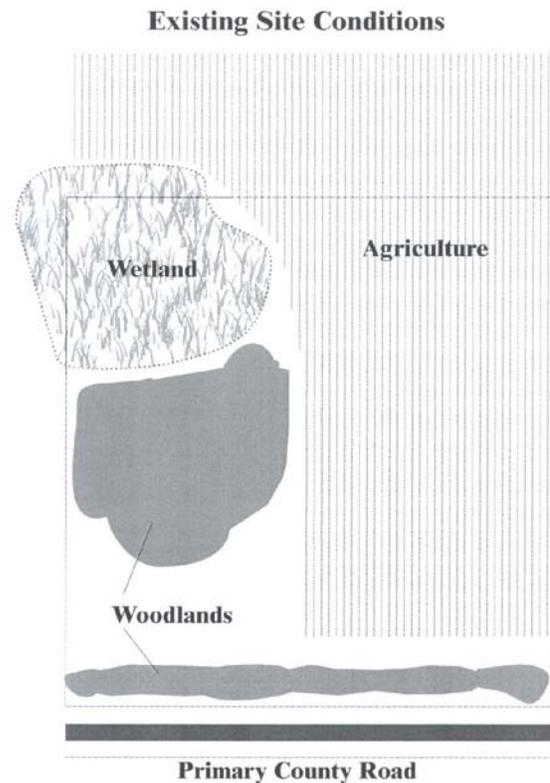
- Woodland stands may be preserved as a contiguous group.
- Individual landmark trees and the natural soil in the surrounding root zone can be protected.
- Woodlands along major roadways can be preserved to maintain the community character.
- Wetlands and surrounding upland edges can be protected.
- Other sensitive natural features such as wildlife habitat can be preserved.
- Open fields can be preserved for views, recreational use and wildlife.
- Passive or active recreational facilities can be developed.
- Neighborhood social spaces such as common greens can be provided.

- Agricultural use of a portion of the land can be continued with buffer zones provided between the farming activity and the residences.
- **Agricultural Buffers:** In most instances it is important to maintain buffers between residential and agriculture uses. This can be achieved through the clustered open space development. Where clustered development is not proposed, then the standards should require that some form of buffer be provided.

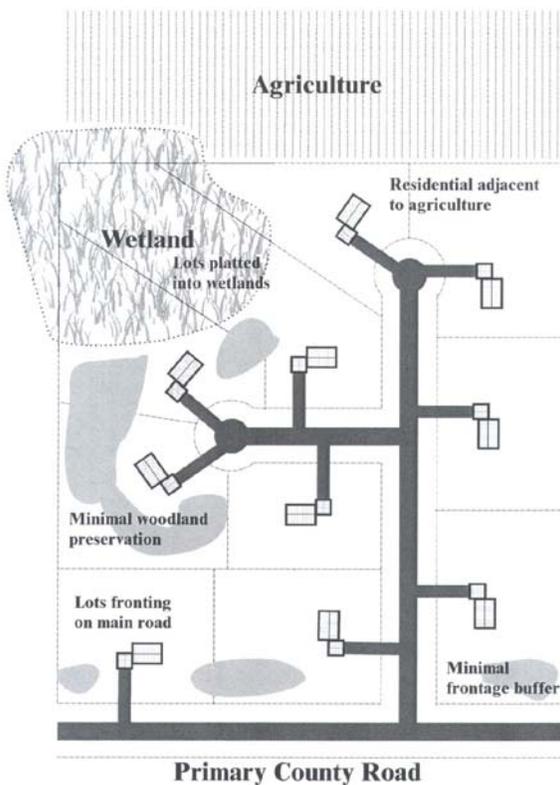
Figure 6 Clustered Open Space Development

The following example shows how clustered open space development can work. The existing site is shown to the right with farming, a wetland and woodlands. With the conventional large lot development below the entire parcel is subdivided. This increases the amount of woodland impact and the wetland area is included as part of individual lots.

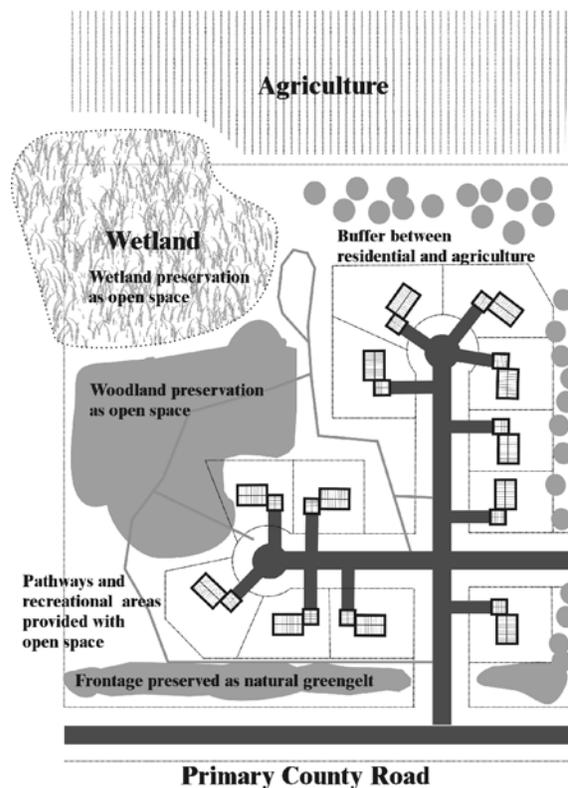
With the clustered open space development to the lower right there is more preservation of site features, even with a density bonus being granted. The homes are grouped together which increases the amount of woodlands being preserved. The wetland area is included as a common area with a protective buffer zone, protected by a homeowner’s association through deed restrictions. In addition the setback between the homes and the adjacent remaining farmland is increased allowing for an agricultural buffer. A natural woodland area is preserved along the main county roadway screening the homes. The clustered open space development has the added benefit of open space with nature trails for the recreational enjoyment of the residents.



Conventional Large Lot Subdivision



Clustered Open Space Development



Traditional Residential Neighborhoods

The areas designated for traditional residential neighborhoods should develop in a manner that is consistent with the traditional neighborhood character of a small-town. Residential will be the primary use in this area. Other uses may include agriculture, churches, schools, government facilities and recreational uses.

- **Density:** Because these areas are planned to be served by public utilities, a higher density development can be permitted. Residential densities served by public utilities should be allowed at three dwelling units per acre, with density bonuses for PUD's that achieve the neighborhood design and natural feature preservation objectives of this plan. Where public utilities are not available, densities need to be lower to accommodate on-site sewer and water systems.
- **Clustered Open Space Development:** If utilities become available in this portion of the township, clustered open space development as earlier discussed, can be utilized to a much higher degree. Density bonuses may be granted to encourage preservation of key resources and providing recreational facilities.
- **Traditional Neighborhood Design Standards:** With the potential of higher density of development it is important that residential areas be designed to include all of the elements essential to a quality traditional neighborhood. Neighborhoods consist of physical components such as streets, lots, blocks, homes and community facilities, such as parks, schools and churches. Within this physical environment there exists the social components of individuals, families, children, neighbors and social/community groups. Traditional neighborhood design standards include:
 - **Size, Scale and Walkability.** Neighborhoods need an integrated pedestrian circulation system which conveniently links them to adjacent neighborhoods, provides strong connections and are unified with public gathering places. The design and density of new residential developments should be at a walkable scale. All individual neighborhoods should be linked together by a sidewalk system.
 - **Blocks.** A key aspect of creating a human-scale walkable community is developing an interconnected series of streets and blocks. While new streets do not necessarily need to be a rigid grid pattern, maintaining street connections is vital to shortening driving and walking distances within the neighborhood. The use of cul-de-sacs in the residential hamlet should be avoided as they contribute to creating isolated neighborhoods and interruptions of traffic patterns. Currently, much of the newer residential development in the East Blendon area has been cul-de-sac subdivisions. Continuation of this development pattern will create significant traffic problems as the township becomes more developed.

- **Street Design.** A traditional street cross-section should be applied to all new residential developments. Because of the higher density residential planned in this area, streets need to be designed to accommodate on-street parking, but should not be excessively wide. Streets should be designed to keep speeds and volumes low. Methods to accomplish these goals include maintaining a narrow pavement width, creating short blocks and accommodating some curves in the road.



- **Streetscape Landscaping.** Design features within the streetscape such as street trees can also be used to alert a driver to a residential area and the need to slow down. Streetscape elements also establish the roadway as a design feature, not just an impervious surface for vehicles. Street trees, spaced at 40 foot intervals, should be provided within a curb lawn between the street and the sidewalk. One means of implementing this is by requiring all new residential developments to provide street trees installed following each home's construction.

- **Sidewalks and Bike Paths.** Neighborhoods need an integrated pedestrian circulation system which conveniently and safely links residents to other neighborhoods, public gathering places and other adjacent sidewalks systems. As new residential development is proposed, the Township should ensure that sidewalks are provided throughout the neighborhoods and bike paths provided to link residents with other neighborhoods, recreational and community destinations. Sidewalks and bike paths need to be wide enough to accommodate a wide variety of users. Sidewalks should be 5 feet wide and bike paths should be 8-10 feet wide.

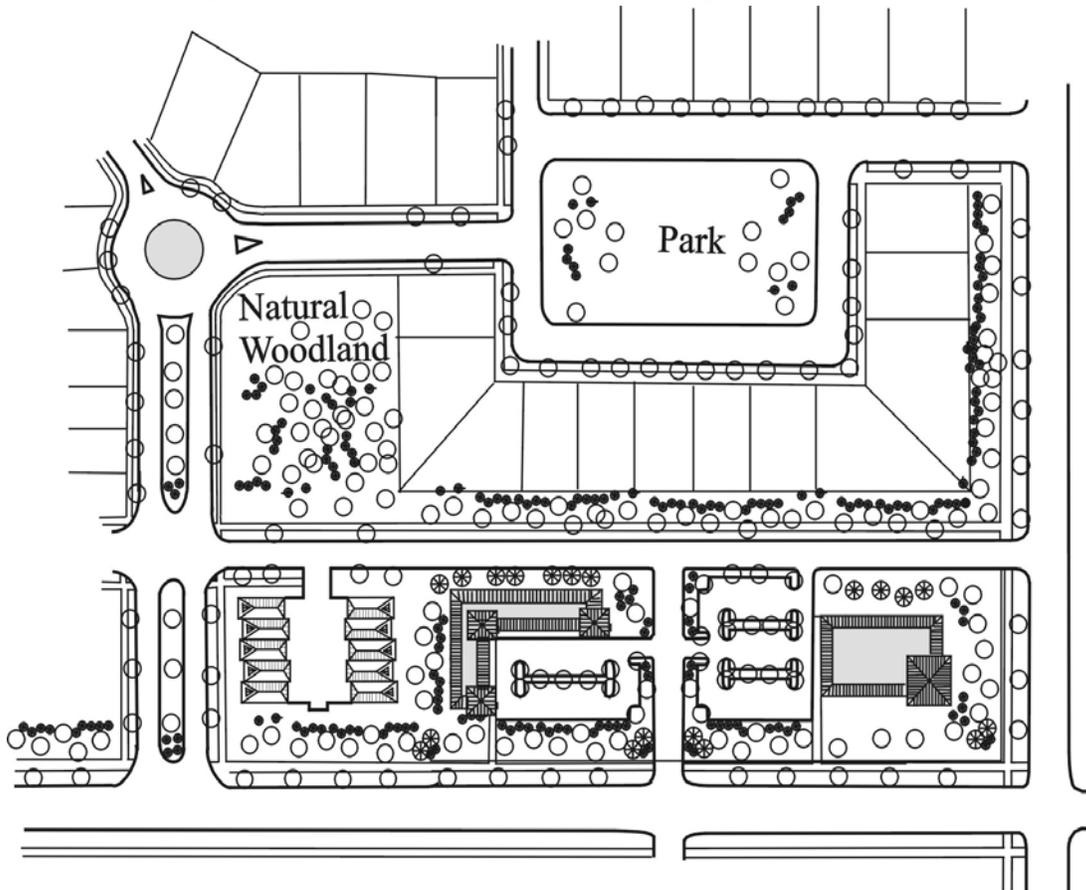


- **Residences.** The homes lining the street help define the public streetscape. The design of the homes is just as important as the streetscape elements in defining neighborhood character. New residential structures should have curb appeal that creates a friendly environment and promotes interaction between neighbors. New homes should be designed to have the living areas of the home and the front door as the dominant feature or point of emphasis when viewed from the street. Garages should be recessed, or set back from the front building line or should be side entry so that the doors are not directly visible from the street.

- **Neighborhood Parks.** Neighborhood parks are a key element to any quality neighborhood. These can take the form of a public park, a school playground or a common area held by a homeowner’s association. As new residential projects develop, particularly clustered open space developments, neighborhood park and open space areas should be planned to accommodate the increased demand created by the new residents.

High Density Residential

Figure 7 Illustration of Traditional Neighborhood Form



Two locations have been designated for High Density Residential. The first location was designated due to its location on Port Sheldon and 48th Avenue, proximity to the adjacent neighborhood commercial node, suitability of site conditions for more intense development and availability of public sanitary sewer and water. The second location along the east side of 56th Avenue south of Fillmore includes existing multiple family development along with area for expansion of additional high density residential. This location allows for future utilization of public utilities if extended from Allendale Township to the north.

- **Density and Housing Types:** The type of development that would be suited in this area would include various forms of residential at a higher density of up to eight

dwelling units per acre. The types of dwelling units could include apartments, attached town-homes, higher density single family. These locations provides an opportunity to develop additional affordable housing within the township. This could include a small lot subdivision within ether manufactured housing or modest sized, affordable site-built housing.

- **Traditional Neighborhood Design Standards:** While residential development in this area would be at a higher density, all of the traditional neighborhood design principals of the residential hamlet would apply including the desire for clustered development with neighborhood open space, sidewalks, street trees and traditional neighborhood form.

Neighborhood Commercial

Neighborhood Commercial areas are intended to serve the day-to-day convenience shopping needs of local residents. Commercial uses should be low intensity and small scale consistent with the desire to maintain the desired neighborhood commercial environment. The commercial nurseries are the only major shopping destination for persons living outside of the community. Therefore larger scale regional commercial uses are not anticipated in the township. Typical uses would include smaller general merchandising/retail establishments such as grocery stores, convenience stores, banks, dry cleaners, video rental shops, beauty/barber shops, restaurants and small retail centers. Other more intense uses such as automobile service stations can be allowed but their location and design should be strictly controlled through the special land use zoning process.



Neighborhood Commercial areas should act as focal points for surrounding neighborhoods. The intent is that these areas will develop in a manner consistent with the desired small-town environment defined by closely-knit neighborhoods surrounding a node of neighborhood commercial. To achieve this goal, careful consideration needs to be given to site design for these commercial uses.

- **Buildings:** Commercial architecture should contribute to the desired small-town character and architectural elements that deviate from conventional brand archetypes should be provided. Commercial developments need to front towards and relate to the street. Commercial structures need to have windows that relate to the street and provide interest. By developing commercial sites with high-quality architecture and moving parking to the side or rear, the building can be brought closer to the street and

create a strong, positive sense of place. Because many of the commercial buildings back toward residential neighborhoods, the appearance of the rear facades of buildings need to be considered in addition to the front facade.

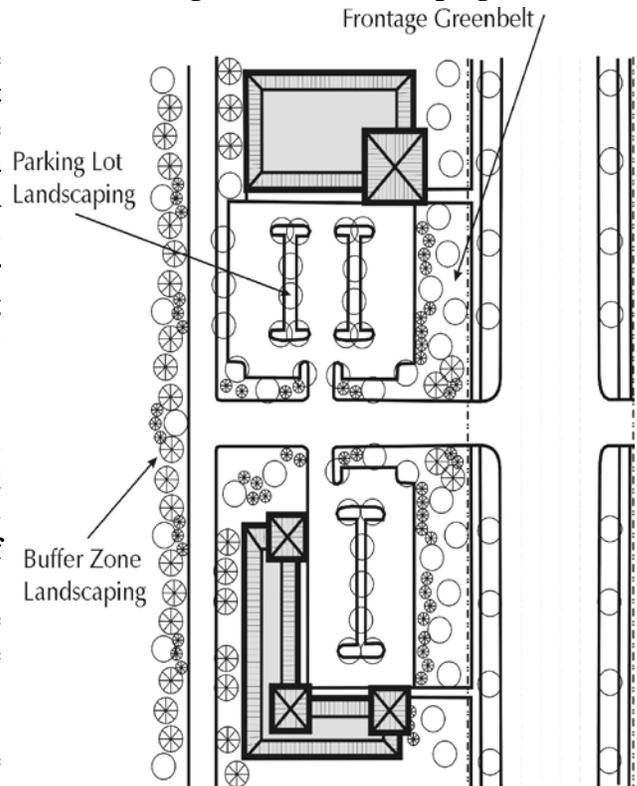


Commercial buildings should be constructed in a manner which will ensure longevity and reuse. Building materials should be durable and have an appearance of permanence and substance while being consistent with surrounding buildings. For instance, brick, split-faced block or similar materials are encouraged as the primary building material with limited use of metal, wood and dry-vit. Consistent with

the rural character of Blendon Township, buildings should incorporate peaked and varying roof lines.

- **Parking Lots:** Along with enhancements to the building, parking should be minimized within the front yard and relocated to the side or rear yard. In addition, the size of parking lots should be minimized to maintain a scale consistent with the desired small-town character and minimize impact on nearby uses. Larger parking lots should be broken up with greenspace through interior landscape islands and perimeter plantings. Where parking lots adjoin a residential site buffering and screening walls need to be provided between uses.
- **Frontage Greenbelts.** Frontage greenbelts should be provided to soften the appearance of commercial sites and provide a sense of enclosure along the public road. Frontage greenbelts should consist primarily of large deciduous trees such as maples, oaks, sycamores, beeches, lindens, ashes or hickories. In addition, hedge rows should be provided where a parking lot will be visible from the public road.
- **Pedestrian Integration.** In order to create

Figure 8 Site Landscaping



human scale-walkable neighborhood centers, pedestrian circulation needs to be considered with all site plans. A sidewalk or bike paths should be provided along all key roadways. The pedestrian circulation system should be planned to allow access from nearby neighborhoods.

- **Signs.** Signs are an aspect of site design that has a major effect on community character. While having adequate signs to advertise and draw customers is important for the viability of businesses, uncontrolled proliferation of large unattractive signs not only degrades the appearance of the community, but also distracts motorists.

Business should be encouraged to erect monument or ground signs, rather than pylon signs. Because they are at eye level to motorists, a monument sign can have a greater visual impact than a pylon sign. A monument sign also creates more of a sense of prestige than pylon signs. During site plan review considerations should be given to aesthetic improvements to tie the signs into the site design, such as utilizing a decorative brick base and landscaping.

- **Lighting.** To minimize site lighting conflicts for adjacent residential areas, special consideration needs to be given to site lighting. The overall impacts that site lighting has on the night sky also needs to be considered. Clusters of intensely lighted areas will create a "dome of light" which comprises the rural character. To minimize lighting impacts, standards should be developed for the following:
 - Height of fixture
 - Type of fixture
 - Shielding of light
 - Lighting intensity/foot candles

Office/Service

The office/service land use designation serves as a transition in land use from neighborhood commercial uses to traditional residential neighborhoods and high density residential. Office/service land uses are typically compatible with residential areas because the hours of operation are likely dawn to dusk, traffic generation is kept to a minimum. Site features such as signage, lighting, and outdoor storage blend with the surrounding residential character of the area.

Buildings: Office/service architecture should contribute to the desired small-town character and be similar to residential character. Buildings may either be set back from the street, or built towards the street in-line with any adjacent neighborhood commercial uses. Parking should be located to the side or rear of the building. As with buildings in the neighborhood commercial area, office service uses will likely back toward residential neighborhoods, therefore the appearance of the rear facades of buildings needs to be considered in addition to the front facade.

Office/service buildings should be constructed in a manner which will ensure longevity and reuse. Building materials should be durable and have an appearance of permanence and substance while being consistent with surrounding buildings. For instance, brick, split-faced block or similar materials are encouraged as the primary building material with limited use

of metal, wood and dry-vit. Consistent with the rural character of Blendon Township, buildings should incorporate peaked and varying roof lines.

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- **Pedestrian Integration.** In order to create human scale-walkable neighborhood centers, pedestrian circulation needs to be considered with all site plans. A sidewalk or bike paths should be provided along all key roadways. The pedestrian circulation system should be planned to allow access from nearby neighborhoods and adjacent neighborhood commercial areas.
- **Signs.** Monument signage should be encouraged, and multiple office/service uses within one office/service center should not be permitted separate signs. Instead, a larger sign should be provided along the right-of-way having space to advertise each tenant. Landscaping should be provided at the base of each monument sign. Lighting should be external and downward facing.
- **Buffering.** Office/service uses may abut residential development. Providing adequate buffering along these transition areas where property lines meet is important to maintain the integrity and stability of residential areas. Buffering along property lines where office service uses abut residential or agricultural uses may be in the form of landscaping, berming, fencing, or a combination of two or more buffering tools. An evergreen landscape buffer is most effective since it is green year around.
- **Mechanical Screening.** Rooftop and group level mechanical equipment should be screened from view using fencing, landscaping, or other materials compatible with the architectural style of the principal structure. Mechanical equipment should not be located in any required buffer area.

Light Industrial

Future light industrial development in Blendon Township will be limited to uses that can be supported by infrastructure and have minimal impacts on nearby residential areas and the natural environment. With any new light industrial development or redevelopment of existing sites the following enhancements should be encouraged.

- **Building Design.** The township should encourage the use of quality building design. Extensive buffering measures should be implemented to foster an attractive streetscape and to preclude obnoxious activity and unpleasant views from interfering with neighboring properties. Buildings should be designed with high-quality construction materials, such as stone, brick, and other natural materials; synthetic materials should be avoided, especially where visible from a public street or adjoining residential property. The administrative/office segment at the front of the building should be upgraded through utilizing quality architecture with variable building lines, peaked roofs, architectural accents, and masonry materials.

Architectural design and site development standards should be implemented to ensure functional, aesthetic and unobtrusive development in industrial areas. Criteria should include signage, landscaping and buffering, lighting, site utilization, and building design.

- **Outdoor Storage.** Many light industrial uses involve outside storage. Open storage should be located to the rear of the site and be properly screened from the right-of-way and any adjoining land uses. Light industrial properties should be clean and free of refuse, clutter and materials visible from rights-of-way and abutting non-industrial parcels. Enforcement of the township’s zoning and general law ordinances should continue to be conducted in a fair, efficient and consistent manner in support of the township’s policies. The township should expand information exchange to disseminate consistent and useful information on the township website and in the township hall relative to outdoor storage and screening standards.
- **Landscaping.** Light industrial sites can also be upgraded with site landscaping. Frontage greenbelts should be provided consisting of a mixture of large deciduous trees and evergreen trees. Where a light industrial site abuts a non-industrial site buffering and screening walls need to be provided between uses.

Sensitive Area Overlay-Woodland Preservation

Areas designated on the Future Land Use Map as woodland preservation serve as an overlay designation in addition to underlying land use categories described above. While all of the underlying designation such as rural residential or traditional residential neighborhoods would apply, additional recommendations are made for those areas that have been identified as having major woodland resources.

- **Woodland Preservation within Clustered Developments:** In these areas, the amount of woodland clearing can be limited through clustered open space development. Where there is a stand of trees on the site, residential units can be clustered on the open portion of the site away from the woodlands. On a completely wooded site, site design can be modified to minimize the amount of clearing needed.
- **Woodland Preservation Along Roadways:** One of the elements that contributes to the natural, rural character of the community is the trees that line main county roads. The rural character can be further maintained through maintaining greenbelt setbacks

along roads to preserve and enhance these tree lined roadways. Preserving tree lined streets is one of the most effective means of retaining and protecting Blendon Township's rural character. In addition, it conceals development and further retains the rural aesthetic character.

- **Woodland to be Preserved:** Where woodlands are expected to be affected by development, stands of trees should be preserved in major groupings to prevent wind damage to isolated trees. Existing tree rows along property lines and linkage strips should be preserved to maintain a buffer between properties. Existing woodlands or tree lines along roadways should be preserved.
- **Tree Protection During Construction:** To successfully implement woodland preservation, tree protection standards need to be considered with site plan and subdivision plat reviews. Woodlands to be preserved must be protected during construction with tree protection fencing located at the drip-line of the tree. Woodland protection measures need to be shown on the site plan and should be indicated on the site grading plan to ensure that grading avoids the woodland areas.

Sensitive Area Overlay-Riparian Corridors

Similar to woodland preservation areas, areas designated on the Future Land Use Map as riparian corridors serve as an overlay designation in addition to underlying land use category. These areas generally follow streams, creeks, drainage ways and wetlands. Special consideration needs to be given to these areas along surface drainage ways.

- **Natural Features Setback:** Setbacks should be maintained from streams, drains and wetlands. Development surrounding water features, particularly streams and wetlands, can impact the function of the water feature. Development immediately adjacent to a water feature may have the effect of increasing the disturbance to this natural ecosystem and reducing the water feature's ability to perform its natural function. In addition, waterways are natural open space corridors that cross the township.
- **Vegetation.** In addition to requiring setbacks from water features, natural vegetation needs to be preserved along the edge of the drainage way. Disruption of the vegetative cover may cause significant erosion problems and adversely affect stream ecology. Care should be taken to insure that extensive grading is minimized and natural features such as vegetation and top soil are protected.
- **Storm water Management.** Consideration also needs to be given to storm water discharge to these drainage ways. Increase in development activity will place additional burden on existing natural drainage systems unless preventive measures are adopted. The overtaxing of drainage systems could lead to localized flooding, environmental damage and costly storm drainage improvements. By prompting preservation of natural drainage ways and providing storm water retention basins, the impact of development on drainage systems can be minimized. A comprehensive approach to storm water management should encourage the preservation of existing

natural features that perform storm water management functions, minimization of impervious surface, direction of storm water discharge to open grassed areas and careful design of erosion control mechanisms. Wet ponds and storm water marsh systems should be used for detention. Storm water facilities should be landscaped with plantings adapted to hydric conditions to create a system that emulates the functions of natural wetlands and drainage ways both in terms of hydrology and natural habitat.

Providing housing options within the township is not only a constitutional obligation but is also a social obligation. This will ensure that workers can also live in the township, first time home buyers can gradually upgrade within the township and seniors can down-size and not have to leave the community. An evaluation was conducted on the affordability and the amount of affordable homes in the current township housing stock. Through this evaluation it has been determined that the township more than adequately provides a housing stock that is affordable for potential home buyers.

**Table 4
Housing Affordability Based on Median Income**

2000 Median HH Annual Income Ottawa County	\$54,777
2000 Median Monthly Income	\$ 4,565
Available income for Housing (30% of Monthly Income)	\$ 1,370
Affordable Mortgage	\$ 195,852
2000 Median Housing Value Blendon Township	\$110,830

AFFORDABLE HOUSING

There are two definitions that govern this discussion:

Affordable Housing: housing that costs not more than 30% of the household income, including utilities, property taxes and mortgage.

HUD-Affordable Housing: housing that is affordable for the “lower income bracket” (those earning 80-95% of the median household income).

The first step in this evaluation is to establish the median annual and median monthly income of the Township and the median housing value. Estimates of these figures were provided by Claritis, Inc., a demographic analysis company.

Those who are at the median annual income level have available approximately \$1,370 a month to spend on a mortgage payment. With this available spending; assuming a 30-year fixed rate mortgage, at 7.5% interest rate, and 5% down payment; the median

**Table 5
Housing Affordability Based on Median Lower Income**

2000 Median Lower Income Bracket (Annual) Ottawa County	\$ 43,822 to 52,038
2000 Median Lower Income Bracket (Monthly)	\$ 3,652 to 4,337
Available income for Housing (30% of Monthly Income)	\$ 1,096 to 1,301
Affordable Mortgage	\$ 156,681 to 186,059
2000 Median Housing Value Blendon Township	\$110,830

household can afford a \$206,000 home. Conservatively, the lower end should be considered more accurate to account for less of a down payment, other debt, utilities, insurance and taxes. According to Claritas, Inc. estimates of the housing values in the township, 96% of the owner occupied homes were valued in 2000 at \$200,000 or less and 84% were valued at \$150,000 or less. Meaning, 96% of the homes in the township are affordable to a household earning the median annual income for the county.

The next step is to factor what Housing and Urban Development (HUD) considers affordable for those in the lower income bracket. The lower income bracket is determined by HUD to be 80-95% of the median household income. Based on this bracket the figures are broken down for the township in the same manner as above.

From this it is established that those residents who are in the lower income bracket can afford to spend approximately \$1,096 to \$1,301 a month on housing. Again, assuming a 30-year fixed rate mortgage, a 7.5% interest rate, and 5% down payment; the lower income bracket in the township can afford a \$164,000 to \$195,000 home. Again, this figure would need to be adjusted down depending on other debt, utilities, insurance and taxes. In the township, according to 2000 estimates, 84% of the owner occupied homes are affordable to families making 80% of the county's median family income.

Manufactured Housing Developments. The township currently has 22 manufactured housing units. In addition, a rezoning was recently granted for a 130 unit manufactured housing park on Port Sheldon Road. When this park is developed, manufactured housing will comprise 8.5 % of the township's housing stock. In order to better evaluate whether more land should be planned for manufactured housing developments, a more regional evaluation was conducted. As outlined in the table below, 6.5% of the housing stock in Ottawa County is provided in licensed manufactured housing developments. Based on this percentage comparison, it is clear that the Township of Blendon will provide its fair share of this type of housing.

**Table 6
Manufactured Housing Percentage
Comparison**

Region	% of housing units that is manufactured housing
Township of Blendon	8.0%
Ottawa County	6.5%
Michigan	6.9%

Source: US Census

The table to the right shows the combined breakdown of housing units for the township.

Based on this information, the township has adequately met the demand in the area for manufactured housing developments. As the population continues to grow, there may arise a need for additional affordable housing. The plan has designated an additional 40 acres for high density residential. At the recommended density, this would allow for at least an additional 200 dwelling units depending on how the site was developed. This additional area in addition to the proposed manufactured housing park will constitute a significant portion of the 813 additional housing units projected to be developed between 2000 and 2020.

**Table 7
Township Housing Unit Breakdown,
2000**

Single Family	1,585	83%
Attached/Multiple Family/Duplex	170	9%
Manufactured Housing Development*	152	8%

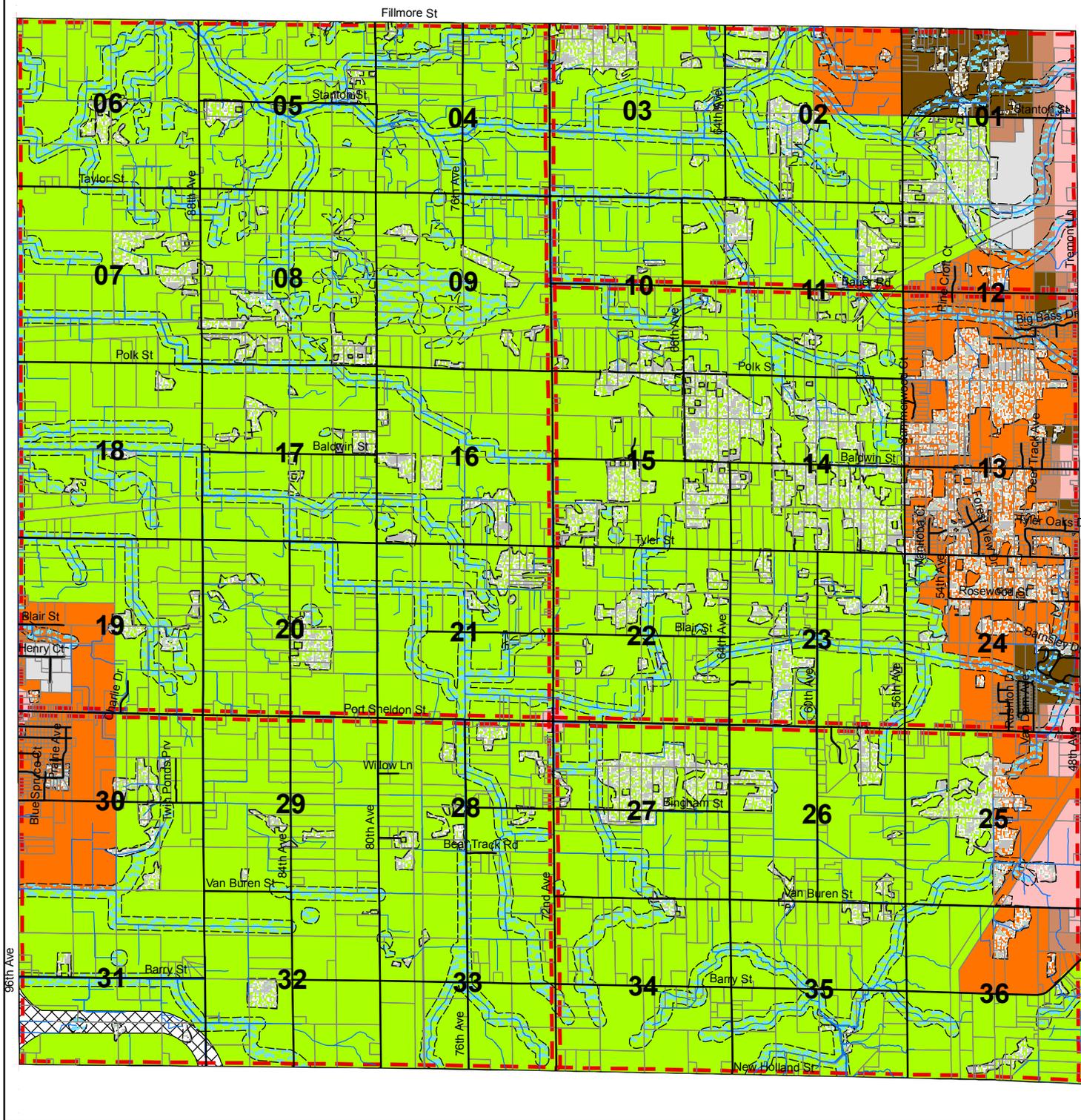
* Includes an approved 130 unit manufactured home park on Port Sheldon

Blendon Township

Future Land Use Map

Legend

-  Roads
-  Streams
-  Parcel
- 2008 Future Land Use**
-  Rural/Agricultural Preservation
-  Traditional Residential Neighborhoods
-  High Density Residential
-  Neighborhood Commercial
-  Office/Service
-  Light Industrial
-  Potential US-31 Bypass
-  Sensitive Area Overlay - Riparian
-  Sensitive Area Overlay - Woodland
-  Transportation Corridor Overlay



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Photography date: April, 2004

March 6, 2009



7. TRANSPORTATION

Traditionally, transportation planning focused on the problem of roadway congestion and building new roads. Transportation engineers and planners were trained to accommodate rising traffic demands and a desire to support a suburban development pattern by building new and wider roads. Over time, transportation planning has taken on a wider range of issues and strategies. Transportation facilities need to be considered in relation to traffic volumes and roadway congestion, safety, non-motorized transportation, land use relationship and intensities, impact on community character, environmental impacts, air quality, noise and fiscal constraints. Intermodal transportation, which is the use of varied transportation modes, also needs to be considered in transportation planning.

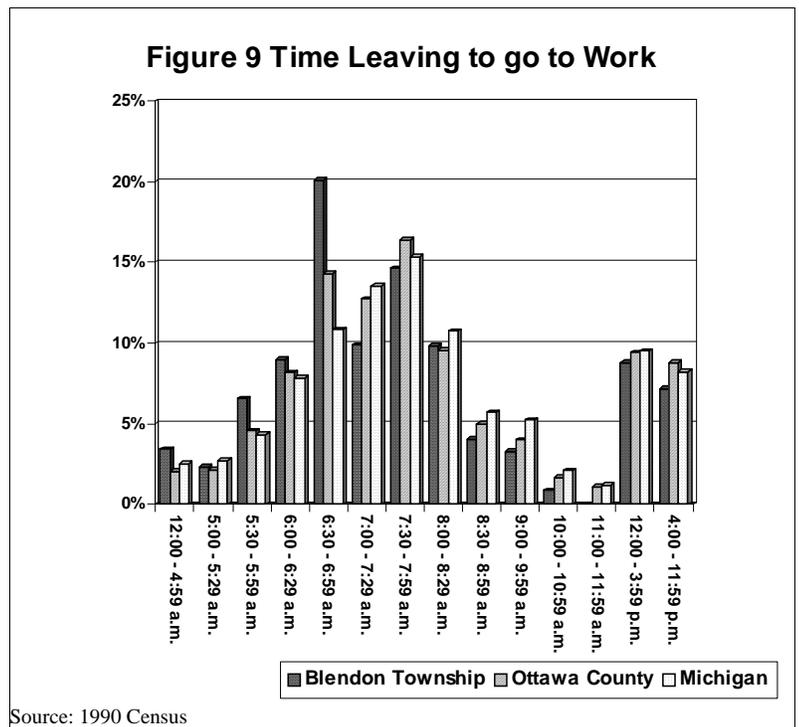
When addressing transportation issues, it is important to understand the characteristics of travel. The following provides a brief description of the characteristics of travel and traffic in Blendon Township.

- Blendon Township is predominantly a rural residential community. Therefore, much of the traffic in the township will be generated during the peak hours when residents are leaving for work and arriving home. The average time of departure from home to work in Blendon Township tends to be earlier than the average for Ottawa County and the state overall. This may be partially attributed to longer travel distances to work.

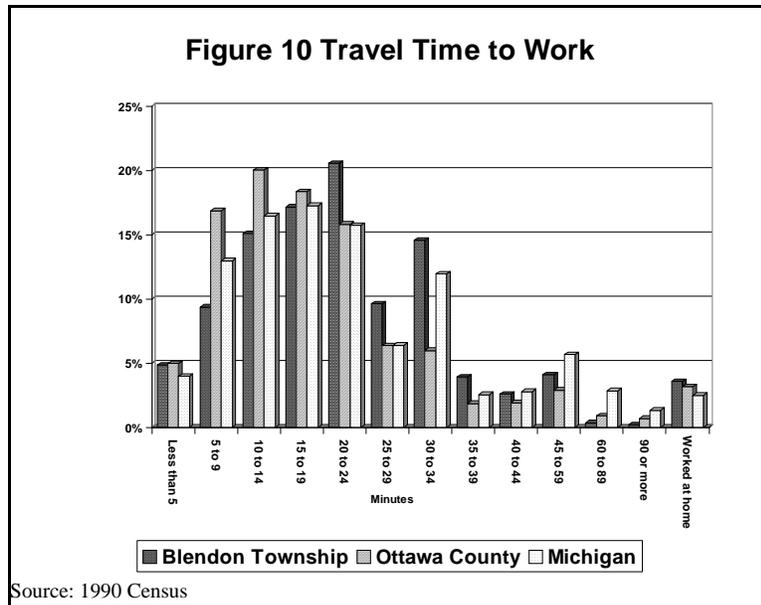
- Trip purpose is generally divided into two broad categories "work" and "non-work or other." Work trips are the largest group and because of their concentration at peak hour, contribute most to traffic congestion.

Non-work or other trips include trips for shopping, social or recreational purposes. Because the township is predominantly agricultural and residential, a majority of the trips generated by local residents for employment and shopping will be to destinations outside of the township.

- Modal distribution refers to the mode of travel, including automobile, bicycle, walking, rail, bus, and aircraft. Automobile travel is the most dominant form of transportation in Blendon Township as 93% of the workers commute by private automobile (86% driving alone and 7% car-pooling). This is comparable to the state average. The remaining 6 percent of residents walked or worked at home.



- Travel time to work is one important transportation factor. It is a key indicator of the relationship of land uses, principally the compactness of communities and the relationship between residences and places of work. Travel time to work tends to be greater for most Blendon Township residents than the overall county. This is partially due to the predominant rural residential composition of the community and lack of job opportunities within the township.



In addition to local traffic characteristics, traffic in Blendon Township will be influenced by the land use pattern of surrounding communities. Development of residential, shopping and employment in surrounding communities will affect travel patterns through the county. These regional influences will contribute pass-thru traffic to the volumes of certain roads such as Port Sheldon and 96th Avenue.

With this master plan a key goal has been the preservation of the township’s rural character and the quality of the natural environment. Natural features such as topography and drainageways can not only present constraints to new transportation facility development, but are also major elements in defining the spacial context of the transportation network. Most notably in Ottawa County is the Grand River, which is a key community defining features but also a constraint to north-south transportation through the township and eastern Ottawa County. This river influences travel in Blendon Township on roads such as 72nd Avenue.

Blendon Township is characterized by open farmland and woodlands with pockets of wetland areas. Many of the natural features make Blendon Township a desirable place for home buyers that are seeking a rural atmosphere. Blendon Township has been experiencing increased growth in recent years as development spreads westward from Georgetown Township. This will begin to influence the community character and transportation system.

In order to preserve rural character future road improvements should balance traffic needs with consideration of natural features. Road improvements should not be designed to address only peak hour traffic conditions alone, but should be sensitive to the 24 hour impacts of traffic in terms of the environment, community character and traffic conditions. Excessive road widths lead to increased traffic speeds and a more suburbanized appearance. With a desire to preserve the rural character, natural features, and tree lined roads, creative transportation planning techniques may need to be implemented as an alternative to major road improvements.

A well developed master plan must consider plans for land use in the context of transportation planning. In land use planning, decisions are made about where to locate residential developments, industrial employment centers and commercial areas. The intensity of land uses should, in-part, be considered in relationship to the suitability of the transportation system. More intense development will be directed towards the eastern portion of the township where traffic can be accommodated by existing or planned roadway improvements such as road paving, widening and intersection improvements, with lower densities preserved elsewhere where the transportation infrastructure is more limited. This has the added benefit of allowing the township and road commission to focus limited resources towards improvements to areas that are planned for greater intensity of development. Through this type of planning, there can be a more efficient provision of transportation, utility and public infrastructure improvements.

Future traffic patterns within the road network will be closely related to specific land use. Future traffic volumes will be dependant upon the amount, type and intensity of development. The following table provides the estimated traffic generated by various land uses. The figures represent averages and are given for the peak hour and a typical weekday. The peak hour represents the hour during the AM or PM where traffic is greatest (i.e. rush hour); typically from 7-8 AM and 5-6 PM. The fractional numbers represent an average (e.g. .75 of single family homes will have someone leaving during the AM peak hour).

**Table 8
Traffic Volumes
Comparison of Trip Generation Rates**

	Trips In Peak Hour	Trips In Weekday
Residential (per unit)		
Single Family	0.75 (AM)	9.57
Apartment	0.51 (AM)	6.63
Condominium	0.44 (AM)	5.86
Mobile Home	0.40 (AM)	4.81
Office (per 1,000 sq. ft. gross floor area)		
General Office Building	1.56 (AM)	11.01
Medical Office Building	2.43 (AM)	36.13
Commercial (per 1,000 sq. ft. gross floor area)		
Shopping Center	3.74 (PM)	42.92
Supermarket	11.51 (PM)	111.51
Quality Sit-down Restaurant	7.49 (PM)	89.95
Fast Food Restaurant (w/drive through)	33.48 (PM)	496.12
Service Station (per pump)	14.56 (PM)	168.56
Convenience Store	53.73 (PM)	737.99
Drive-in Bank	54.77 (PM)	265.21
Industrial (per 1,000 sq. ft. gross floor area)		
Light Industrial	0.92 (AM)	6.97
Heavy Industrial	0.51 (AM)	1.50
Warehousing	0.45 (AM)	4.96

Note: A trip is a one-way movement, 10 trips = 5 in, 5 out

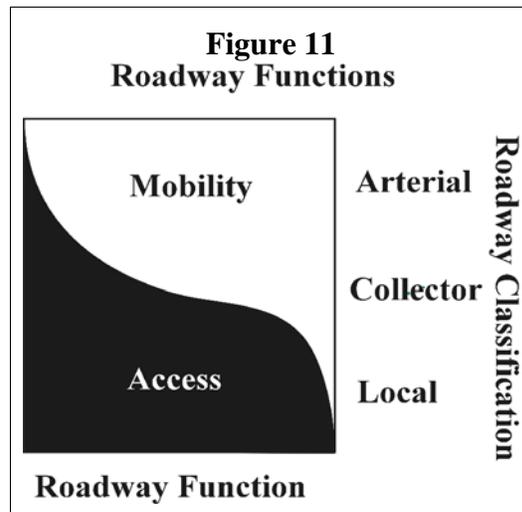
Source: Institute of Transportation Engineers, Trip Generation Manual, 6th Ed.

Function, efficiency and safety of roadway movement in Blendon Township can be improved through the establishment of a classification of roads and planning and designing these facilities for their specific purpose. A functional system or hierarchy of roads provides for movement of traffic as well as access to specific sites. This hierarchy will range from major arterials such as Port Sheldon, which primarily provides for travel to areas outside of the township, to local subdivision streets which serve to access individual homes.

This system defines the roles of each street, in terms of operational requirements; this is, in turn, translated into planning, management and physical design features. The relationship between functional classification and traffic mobility and land access is shown below, with the primary function of arterial roads being mobility and local roads primary function being access.

The functional classification system has a five element hierarchy in Blendon Township:

- Regional Arterials
- Arterials
- Collectors
- Section Line Collectors
- Local



Regional Arterials: Regional arterials are at the top of the hierarchical system. They serve mainly to carry long distance, through-travel movements across the county and to other areas within the region. They also provide access to important traffic generators, such as major employment centers or regional shopping centers. These roadways will often be designated as state trunklines and fall under the jurisdiction of MDOT. 48th Avenue has been designated as a regional arterial. Future improvements to this roadway would allow for a connection between M-21, Chicago Drive, to the south and M-45, Lake Michigan Drive.

Arterials: Arterials are similar in function to regional arterials, except they carry trips of shorter distance and to lesser traffic generators. There are a number of roadways which move traffic throughout the township and provide connections between adjacent communities. These roadways serve for longer trips within the county and the adjacent communities. The primary function of these roads is to move large volumes of traffic. Access to these roads must be properly managed in order to maintain safe and effective movement. The following roads are designated major arterials:

- Fillmore Road
- Port Sheldon Road
- Taylor Road
- Bauer Road
- 72nd Avenue
- 96th Avenue

Collectors: The collectors serve to gather traffic from local roads and subdivision streets of residential neighborhoods and deliver it to the arterial. Collectors will also serve to provide access to abutting properties. Collectors include 56th, Baldwin, Tyler and New Holland.

Section Line Collectors: Section line collectors will function more like local streets in the short term and will tend to carry less traffic than other collectors. As the township continues to develop over the life of this plan and further into the future, it is important to reserve additional right-of-way along these section line roads for long term planning. Examples of section line collectors within the township include:

- Polk Road
- Van Buren Road
- 64th Avenue
- 80th Avenue
- 88th Avenue

Local Streets: Local streets serve primarily to provide access to individual property and homes. These roadways are generally short, and provide connection to collector streets.

The typical minimum right-of-way in the county is 86 feet. A majority of subdivision streets and other county road widths have a 66 foot wide right of way. Major thoroughfares that are projected to carry higher traffic volumes will require a larger right-of-way to accommodate future roadway improvements. Road right-of-ways will vary as follows, based upon the roadway type and functional classification of roads:

**Table 9
Right-of-way Widths**

Functional Classification	Right-of-way Width
Regional Arterial roads	160 feet
Arterial roads	120 feet
Collector roads	100 feet
Section Line Collectors	86 feet
Local roads	66 feet*

* Right-of-ways for local streets may be reduced where natural features are preserved.

The Ottawa County Road Commission and the Ottawa County Planning Commission entered into a Letter of Understanding establishing the Road Right-of-way Pilot Demonstration Project. Under this program, reductions to right-of-way widths and other roadway components can be made for select residential developments as demonstration projects. The goal of this program is to evaluate the benefit that reduction in right-of-way widths, road widths and other design variations may have on preserving natural features, providing additional open space, improving storm water management, and increasing the walkability, livability and even sense of community with new subdivisions. This agreement should be implemented as part of the Smart Growth Program in Blendon Township.

RIGHT-OF-WAY

RIGHT-OF-WAY PRESERVATION

Many roadways in rural communities such as Blendon Township were originally designed for much lower traffic volumes than they will be expected to accommodate when the township becomes more developed. Improvements to the main arterials may be limited due to lack of right-of-way or by development lining the roadway.

The lack of an adequate right-of-way escalates costs and significantly delays improvement projects. One way to minimize these problems is through a cooperative effort to preserve right-of-ways. In some instances developers may willingly provide additional right-of-way widths in recognition of the benefits they could receive in the future.

The Michigan Department of Transportation has developed a process to help preserve right-of-way through public-private cooperation. The process provides the developer with incentives to preserve or dedicate needed additional right-of-way widths. For example, a community might allow a developer to transfer the development that could occur in the future right-of-way to another location on the site. Another means of preserving right-of-way is to require adequate setbacks and greenbelts from roadways to ensure that the future right-of-way is not developed with structures that would need to eventually be removed. Also, the nonconforming regulations of the zoning ordinance should account for any nonconformities created by the acquisition of additional right-of-way, such as where a front yard setback is reduced when additional land is taken for right-of-way.

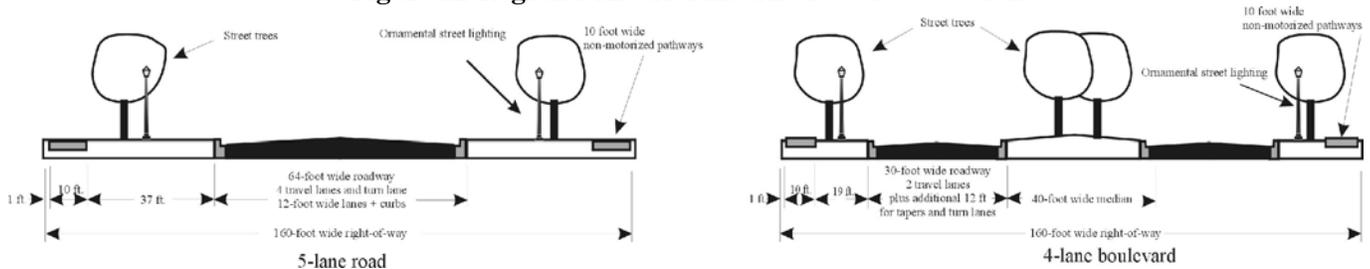
One challenge for the township is to manage growth and road improvements to provide a safe and efficient system without compromises to the natural features that give the township its character. As the township continues to develop, traffic levels will increase creating capacity deficiencies. Maintaining the capacity of the transportation network should be done through a comprehensive approach. Transportation management practices described later in this chapter, such as access management, can be used to maintain the efficiency of the transportation network and minimize the need for roadway widenings.

- In order to preserve the rural character of Blendon Township, any future road widening should balance traffic needs with consideration of natural features. Excessive road widening would lead to a more suburbanized appearance. Periodic congestion may be preferred over excessive widening for through traffic. Throughout most of the township, roads are expected to remain two lanes. Because road widening is not planned, other approaches such as intersection improvements will be needed to improve efficiency and safety.
- Selected intersection improvements should be made at locations which have experienced higher crash rates than other intersections. Improvements can include turn lanes, sight distance improvements, pavement improvements, signalization or roundabouts.
- The township should also request acceleration, and deceleration lanes along major roads for all developments and passing lanes, and right turn lanes for projects that will generate a high number of left turns.
- In terms of roadway pavement, many of the gravel roads located within the rural reserve areas of the township are planned to remain gravel. Pavement of gravel roads will primarily

be done to the collectors in the eastern portion of the township in and around the area designated residential hamlet. These would include:

- ✓ Baldwin between 56th Avenue and 72nd Avenue
- ✓ Tyler between 56th Avenue and 72nd Avenue
- ✓ 56th Avenue
- 48th Avenue has been designated as a future regional arterial with a planned right-of-way width of 160 feet. This right-of-way would allow for a 5-lane roadway with generous room for landscaping along the roadway, or a boulevard with a narrow median in the center. Typical cross sections of what these roads may look like are shown below. Future improvements to this roadway would allow for a connection between M-21, Chicago Drive, to the south and M-45, Lake Michigan Drive. This roadway would further enhance access to the area if a new interchange were developed with I-196. Major improvements to this roadway to function as a regional arterial would require detailed study and evaluation of environmental impacts and the implications of induced growth.

Figure 12 Regional Arterial Alternative Cross Sections



- **The Ottawa County Road Commission has plans to transform Port Sheldon Street and New Holland Street to regional thoroughfares. The Road Commission recommends that Blendon Township apply an Overlay District Ordinance to these roadways in anticipation of the proposed improvements, which include a right-of-way of 220 feet without a parallel bike path and 240 feet if a parallel bike path is desired within the right-of-way. The township should pursue bike paths adjacent to these two roadways, which would require the 240-foot wide right-of-way. This general concept is applied to the future land use map. The Road Commission suggests a front yard setback of 75 feet for agricultural and residential uses and a front yard setback of 110 feet for other land uses. Implementing this suggestion helps to minimize the number of structures that may require demolition or that may become nonconforming should the roads be improved as proposed.**
- **Similar to Port Sheldon and New Holland Streets, this Plan includes an overlay designation over the 96th Avenue, 72nd Avenue, and 48th Avenue corridors. This designation anticipates that these three roadways may see improvements in the future or may continue to see increased traffic.**
- **The latest proposed route of the US-31 Bypass traverses Section 31 of Blendon Township. The bypass would also travel through portions of Olive Township and Zeeland Charter**

Township. At the time this Plan was updated, both Olive Township and Zeeland Charter Township had no formal plans for more intense development along the proposed bypass route. In an effort toward regional planning and multi-jurisdictional land use compatibility, Blendon Township should not plan for intense land uses along the proposed US-31 Bypass at this time. This issue may be revisited in the future, with the conviction that any future development should be consistent with Blendon's small town and rural character.

With all roadway improvements consideration will need to be given to the design of the roadway to ensure it fits into the context of the community. As indicated above, major roadways within the East Blendon area should include bike paths, traditional street lighting and landscaping to maintain the desired human scale of these "traditional village" areas.

A roundabout can be used as an alternative to stop signs or traffic signals when considering methods to increase the capacity of intersection. With conventional types of traffic controls, only alternating streams of vehicles are permitted to proceed through the intersection at one time, causing a loss of capacity to occur when the intersection clears between phases. In contrast, the only restriction on entering a roundabout is the availability of gaps in the circulating flow. The slow speeds within the circle allow drivers to safely select a gap that is relatively small. By allowing vehicles to enter simultaneously from multiple approaches, an advantage in capacity can be achieved with a roundabout. This advantage becomes more predominant when the volumes of left or right turning-movements are relatively high.

Roundabouts could be used for the primary purpose of improving safety and operations at intersections. There are certain site conditions where roundabouts should be considered:

- Isolated intersections,
- Extended delays on minor roads,
- Intersection with more than four legs or unusual geometry,
- Where major roads intersect at "Y" or "T" junctions,
- At intersections where U-turns are desirable,
- Sites where traffic arrives randomly or continuously,
- Locations where crashes (especially left-turn) are a concern,
- Capacity and delay problem intersections,
- Four-way stops, and
- Intersection where traffic signal was requested but not warranted.



Example of roundabout

The county currently has standards in the Plan Development and Street Construction Specifications for development of local roads. These standards are applicable to local streets with a primary function to provide access to abutting residential land, and not to serve higher volumes of through traffic. The typical pavement width for local residential streets within a subdivision is 30 feet, back to back of curb. This width allows for two travel lanes with parking on one side of the road. At limited locations where there are two cars parked across the street from one another there will be a single lane in the center of the road requiring two on-coming cars to slow down and yield for one another. While helps to keep speeds low it should only be allowed on local residential streets where volumes are lowest.

For cul-de-sacs, the road commission allows the width of the roadway to be reduced to 26 feet wide back to back of curb. This provides a narrower roadway cross section and creates a more constrained area for on-street parking. For good neighborhood design and community planning, street connectivity is vital. The use of cul-de-sacs and other dead end streets should be minimized except in areas where natural features such as wetlands or existing adjacent development patterns precludes through streets. The use of cul-de-sacs should be discouraged in the residential hamlet areas shown on the plan. Cul-de-sacs may be more appropriate in the rural reserve area where residential densities are much lower. The Ottawa County Road Commission standards for subdivisions sets the maximum allowable cul-de-sac length at 800 feet.

Development within the higher density residential hamlet areas designated on the future land use plan should be required to tie into the street network on adjacent parcels. With a connected street system, motorists are provided with multiple routes, which helps to reduce driving distances and diffuse traffic. Providing road connections between adjacent subdivisions allows for the movement between adjacent neighborhoods without the need to access major roads. It also provides alternative means for residents within the subdivisions to access the major road network at locations that are most efficient for traveling to their destination, shortening trips and thereby minimizing traffic impacts to the major road network. Connected streets also provide continuous routes that enhance non-motorized transportation. With connected streets, special consideration needs to be given to network design to discourage use by through traffic that does not have an origin or destination within the local neighborhood.

Another source of new road development is with private roads. Much of the township is occupied by un-subdivided parcels. Development of future roads, whether public or private, needs to be well planned to ensure the establishment of a safe and efficient vehicular circulation system. Standards need to be adopted for private roads to ensure that they are properly designed and constructed. Special attention needs to be given to the planning and design of private roads to ensure that they promote the orderly development of land, access for future road extension, safe and efficient travel and ensure roads remain passable in all weather conditions and are adequate to provide safe, year-round access by fire, police and other public and emergency vehicles.

Private roads should follow the guidelines published by the American Association of State and Highway Transportation Officials (ASSHTO). Private roads should be paved with concrete curb and gutter and have a minimum width of 26 feet, measured back to back of curb. The private road standards may have provisions that allow the township to further reduce the design standards for

private roads such as widths, turn radius and maximum grade where it can be clearly shown that such modifications will preserve natural features.

The township may consider adopting a hierarchical system of access standards. With this, a limited number of residents may be accessed by a “shared driveway,” which would be permitted to have a narrower cross-section than other private roads that serve more units.

While the continued maintenance of private roads is the responsibility of the property owners served by the road, the township needs to have mechanisms in place to ensure that the roads are maintained in a condition suitable for travel and passable for emergency vehicles. As a condition of the township approving a private road the developer should establish a private road easement maintenance agreement, which would transfer to future homeowners. The agreement should outline a maintenance schedule and the method by which maintenance costs will be apportioned among the owners. The agreement should also stipulate that if the road is not properly maintained by the homeowners and becomes a public safety concern that the township may special assess the homeowners for needed road improvements.



Private road with preservation of woodlands

Historically, a primary goal of traffic engineering was to provide efficient and safe movement of traffic through the road network. As areas developed and traffic volumes increased, fast, and efficient roadway design in neighborhoods contributed to problems related to cut-through traffic, especially when the adjacent arterial streets became congested and motorists began seeking alternate routes. In order to prevent future traffic problems such as this, careful consideration needs to be given to the design and layout of residential developments. Where residential neighborhoods still result in high traffic speeds or cut-through traffic, traffic “calming” measures can be employed.

The Institute of Transportation Engineers defines traffic calming as “the combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behavior and improve conditions for non-motorized street users.” Traffic calming measures are regulatory features and/or design of a street that causes drivers to slow-down and be more attentive. Traffic calming is a way to visually and physically reduce speeding in residential areas. The physical change in the road parameters and the psychological change in the “feel” of the road reduces the speed of vehicles. The intent is to reduce crashes, air pollution, congestion levels and noise pollution, and generally improve the environment of the street. Some of the most common traffic calming devices are as follows:

- **Speed humps** are vertical constraints on vehicular speed and are designed according to a safe vehicle speeds (15 to 20 mph). They are raised areas that extend across the width of the pavement and range between 2-4 inches in height and 14-22 feet in length. Specifications on speed hump design are site specific and dimensions are unique to each location.
- **Speed tables** are vertical constraints, similar to speed humps, constructed with a table or flat portion in the center. They can create a street environment that is pedestrian friendly

when used in combination as a raised crosswalk. They provide visual enhancement, reduce vehicle speed and enhance the use of non-motorized transportation.

- **Street narrowing, slow points, or chokers** include curb modifications, channelization, and landscaping features that narrow the street to a minimum safe width. They are often installed at intersections to reduce speed and/or redirect traffic. They provide larger areas for landscaping, enhance the neighborhood, facilitate loading and unloading and optimize pedestrian crossing locations.
- **Angle points or chicanes** are curbed horizontal deflections in the path of vehicle travel. They are built along the edge of travel-way similar to street narrowing treatments. They use physical obstacles and parking bays, and are staggered so drivers must slow down in order to maneuver through the street. Trees are often used at the slow point to restrict driver vision and create a feeling of a “closed” street.
- **Median slow points or channelization** include center located islands that divide the opposing travel lanes at intersections or at mid-blocks, pedestrian refuge treatments and the other standard forms of intersection traffic control islands. These are aimed at reducing speeds while enhancing the pedestrian crossing points and safety.
- **Intersection diverters** are features that partially close an intersection to limit the allowable turning movements and divert traffic. They are used to convert an intersection into two unconnected streets, each making a sharp turn. This alters traffic flow patterns and limits the ability of vehicles to cut-through residential neighborhoods.
- **Roundabouts** are raised, center rotary islands that are used as a replacement for traffic signals and stop signs at intersections. While these can be used as an effective intersection control, they also have an added traffic-calming benefit by deflecting vehicles out of their normal path, slowing traffic, and reducing the number of conflict points. They also improve capacity and safety of the intersection and improve neighborhood aesthetics.
- **Getaways or perimeter treatments** are visual and physical treatments used to communicate a message to drivers entering a residential neighborhood. Traffic signs, intersection narrowing, medians, textured pavement surfaces such as brick and landscaping features are often used to create this effect. Entry treatments are used to increase driver awareness to changes in roadway environment.



Median slow point

Implementation of a traffic calming program should consider the following:

- Traffic calming measures should be looked at from an area-wide traffic calming perspective
- Traffic calming measures should be used as speed controls rather than volume controls to prevent the diversion of through-traffic to parallel residential streets.
- It is important to highlight the presence of traffic calming measures by landscaping and treating the street edges. These measures complement the engineering design by softening the appearance of speed humps and enhancing the appearance of more aesthetic measures such as chicanes and traffic circles. Also, landscaping measures can enhance engineering measures and make them more effective and safer by highlighting their presence for snow plowing and maintenance.
- Traffic calming devices should be designed in coordination with emergency services to ensure that safe emergency vehicle access is maintained to all areas. Details such as mountable curbs and gutters can often help resolve access problems.
- A risk management program should be implemented to minimize liability issues through proper location, design, signs, and lighting of traffic calming devices.

It is important to incorporate traffic calming measures during the planning and design phases of new residential areas. This greatly reduces future problems and will help maintain the value of the neighborhood. The cost of traffic calming measure when incorporated in the planning and design phases of the project is minimal. However retrofitting an existing intersection or residential roadway segment with traffic calming measures could be expensive.

As development pressures increase in the township, the intensity of land uses may begin to place a strain on the local road system. One procedure to help ensure that traffic impacts are properly evaluated during the development process is to require a traffic impact study. A traffic impact study allows for the evaluation of a development's potential impact on the local road system and the identification of roadway improvements needed to mitigate the traffic impact, such as adding additional turn lanes or re-timing a traffic signal.

The zoning ordinance should be amended to require traffic impact studies under certain conditions. This determination should be made by the township engineer or planner, based upon trip generation rates in the Institute of Transportation Engineers, Trip Generation Manual.

- A traffic assessment should be required to evaluate site access points for uses which are expected to generate 50-99 directional (one-way) trips in the peak hour or 500 trips in an average day. This would be about the amount of traffic generated by a typical 52-78 lot subdivision, a gas station with 4 pumps or a fast food restaurant.
- A more detailed traffic impact statement should be required which evaluates impacts at site access points and nearby intersections or driveways for uses which would be expected to generate over 100 peak hour directional trips or 750 or more trips on an average day. This

would be the amount of traffic generated by a typical 78 lot subdivision or large supermarket.

The traffic impact study should include the information and procedures recommended in the handbook “Evaluating Traffic Impact Studies” prepared by the Michigan Department of Transportation. The traffic impact study should address site access issues, such as the potential to share access or use service drives. The study should analyze options to mitigate traffic impacts, such as changes to access or improvements to the roadway.

Typically the approach to addressing high traffic volume is to widen a road to 3-5 lanes. However, road widenings can seriously disrupt the rural atmosphere of the township. Maintaining safety and smooth traffic flow can minimize the need to make costly, premature or even unnecessary widening. One technique to help preserve capacity and promote safety while delaying or avoiding the need for widening is access management.

The lack of controls over the number and placement of driveways increases potential for traffic congestion and crashes. Poor but heavily used access systems conflict with the traffic movement function of the township’s major roads. Access management involves a series of tools to reduce traffic conflict points, and thus preserve capacity and improve safety. Access management standards regulate the number, spacing and design of access points, and requires the use of shared access systems where practical.

Access management involves comprehensive controls over all aspects of roadway access to minimize conflict points and help preserve the roadway’s ability to carry traffic. Access management guidelines have two functions: 1) to protect the public investment in the roadway by minimizing congestion and crash potential, and 2) to provide property owners with reasonable, though not always direct, access. The goal of access management is to provide standards which will facilitate through traffic operations and improve public safety along major roads.

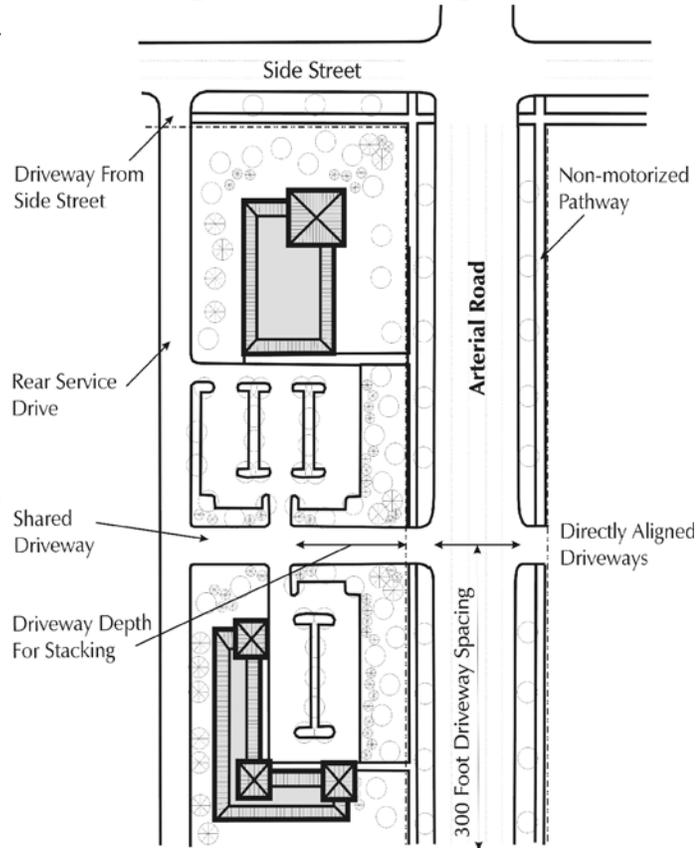
Access Design Guidelines: The township and the road commission should work together to establish guidelines for access management. These guidelines generally relate to a subdivision or site plan of a particular development that is being reviewed at the local level, but also includes the public right-of-way, which is under the jurisdiction of the Ottawa County Road Commission. Thus, implementation of guidelines will require coordination between the township and road commission so that driveway permits are not granted until the access requirements of the county are met through the township’s site plan approval process and building permits are not granted until access permits are granted.

The township may adopt access management standards within the zoning ordinance that are equal to or more restrictive than the road commission standards. As part of the zoning ordinance, the township can enforce these standards as part of the site plan review process. A developer would be required to comply with both the road commission’s driveway permit requirements and the township’s site plan review requirements.

Number of Access Points: The number of access points should be limited to one where possible. The number of driveways allowed along major roads will affect traffic flow, ease of driving, and crash potential. Every effort should be made to limit the number of driveways; and encourage access off side streets, service drives, frontage roads, and shared driveways. Along major roads, driveways should be properly spaced from one another and from intersections with other major streets. Driveways should be aligned with those across the street or properly offset following the adopted zoning standards. Some recommended guidelines for major roads are as follows:

- Access to a parcel should consist of a single two-way driveway.
- Certain developments generate enough traffic to consider allowing more than one driveway. Where possible, these second access points should be located on a side street or shared with adjacent uses. Multiple points of access should be required for any larger residential development for the purpose of efficient traffic circulation and emergency vehicle access.
- For larger parcels with arterial frontages of at least 300 feet, an additional driveway may be warranted; additional driveways should only be considered following a traffic impact study which demonstrates the need for additional access.
- Where parcels have frontage on both a major road and a side street, access should be provided from the side street.

Figure 13 Access Management



Alternative Access: Along major arterials, alternative access should be encouraged, such as shared driveways, rear service drives or frontage roads. Commercial developments and parking lots should be connected through front or rear service drives. Those measures can be used to minimize the number of driveways, while preserving the property owner's right to reasonable access. Certain turning movements should be limited, especially left turns, where safety hazards may be created or traffic flow may be impeded.

High Traffic Generators: Uses that are high traffic generators should be located where they can best be accommodated by the roadway system. The commercial nodes shown on the future land use map are located at arterial intersections which are currently signalized or may be signalized in the future.

Shared Driveways, Frontage Roads and Service Drives: Sharing or joint use of a driveway by two or more property owners should be encouraged. This will require a written easement from all

affected property owners during the site plan approval process. Where a future shared access is desired, the developer should indicate an easement which will be provided to future adjacent uses.

In areas within one-quarter mile of existing or future signal locations, access to individual properties should be provided via these alternative access methods rather than by direct connection to a major arterial. Ideally, this should be through a rear service drive (a rear service drive has adequate depth for on-site stacking, compared to a "frontage" road).

In the case of existing, proposed or recommended rear service drives, additional access to individual properties may be allowed through direct connection to the adjacent arterial street, provided that movements at these driveways are restricted to right turns into and/or out of the site, and are appropriately spaced.

In areas where frontage roads or service drives are proposed or recommended but adjacent properties have not yet developed, the site should be designed to accommodate a future drive, with access easements provided. The township may temporarily grant individual properties a direct connection to an arterial road until the frontage road or service drive is constructed. This access point should then be required to be closed when the frontage road or service drive is constructed.

Sight Distance: The minimum sight distance required for a vehicle to enter or exit the traffic stream on an arterial from a side street or driveway should be determined by the road commission. However, a safe sight distance can be estimated as the distance an oncoming vehicle travels in eight seconds, at the posted speed limit. Thus, by sitting as a motorist at a future driveway location, there should be eight seconds between when an approaching vehicle is first visible and when it passes the proposed driveway location. If this distance cannot be met on the site, indirect access through another property should be sought.

Driveway Spacing and Location: The spacing of driveways from intersections and other driveways will assist in the reduction of turning movement conflicts. Some general guidelines are as follows:

- **Driveway Spacing from Intersections:** The minimum distance, on the same side of the street, between a driveway and an intersecting street should be 100 feet along a major arterial and 250 feet from any existing signalized intersection. In these cases a right turn in, right turn out driveway could be considered for access, with left turns accommodated through frontage roads or service drives. For driveways accessing non-arterial streets driveway spacing from intersections is recommended to be 75 feet. If the amount of street frontage is not sufficient to meet these criteria the driveway should be constructed along the property line farthest from the intersection to encourage future shared use, and/or a frontage road or rear access service drive should be developed.
- Changes to these guidelines should only be considered if it can be demonstrated by a traffic impact study that the driveway operation will not result in conflicts with vehicles at the adjacent intersection. These guidelines can also generally be applied to spacing from access points on the opposite side of the street. Preferably, major access points should be aligned with, or 250 feet from, major access points on the opposite side. The actual dimension will vary depending upon existing and expected timing movements.

- **Driveway Spacing from Other Driveways:** Minimum and desirable driveway spacing requirements should be determined based on posted speed limits along the parcel frontage, based upon the following table.

**Table 10
Minimum and Desirable Driveway Spacing**

Posted Speed (mph)	Driveway Spacing * (in feet)	
	Minimum	Desirable
30	125	260
35	150	350
40	185	440
45	230	570
50	275	700
55	350	875

* As measured from the centerline of each driveway.

The "desirable" values provided in the above table are based on the sight distance necessary to allow an egressing vehicle to enter the arterial traffic stream without causing oncoming traffic to decrease their speed by more than 10 mph, and should be required where parcel size permits. The "minimum" values in the table are based on the distances required to avoid conflicts between vehicles turning right or left from adjacent driveways.

In order to prevent left turn conflicts, proposed driveways should be aligned with those across the street or offset a sufficient distance from driveways across the street in accordance with the minimum spacing standards listed in the table.

In the case of expansion, alteration or redesign of existing development where it can be demonstrated that pre-existing conditions prohibit adherence to the minimum driveway spacing standards, the driveway spacing requirements could be modified, but the driveway spacing should not be less than 60 feet.

Port Sheldon Street and New Holland Street Overlay. In addition, the Ottawa County Road Commission has recommended minimum spacing standards for driveways along Port Sheldon Street and New Holland Street, as follows:

Table 11 Minimum Spacing Between Adjacent Driveways	
Posted Speed (mph)	Driveway Spacing * (in feet)
	Minimum
40	300
45	350
50 +	455

* As measured from the centerline of each driveway.

Table 12 Minimum Spacing Between Opposite Side Driveways	
Posted Speed (mph)	Driveway Spacing * (in feet)
	Minimum
40	525
45	630
50 +	750

* As measured from the centerline of each driveway.

The Natural Beauty Road Act (Part 357, Natural Beauty Roads, of the Natural Resources and Environmental Protection Act, P.A. 451 of 1994, as amended) empowers the county road commission to dedicate county roads as Michigan Natural Beauty Roads. Specific procedures are to be followed by interested citizens when recommending the designation of potential natural beauty roads to the road commission.

At least twenty-five residents must initiate a petition for designation of a county or local road as a natural beauty road. Within six months after the petition is received, the road commission holds a public hearing to consider the described road or street as a natural beauty road. Within 30 days after the public hearing, the road commission announces its decision as to whether the road will be designated as a natural beauty road.

The goal of the Natural Beauty Roads program is to identify and preserve in a natural, essentially undisturbed condition, certain county roads having unusual or outstanding natural beauty by virtue of native vegetation or other natural features within or associated with the right-of-way, for the use and enjoyment of local residents and the public in general.

Based upon the guidelines prepared by the Department of Natural Resources and the Ottawa County Road Association, the objectives of the Natural Beauty Roads program are:

- To officially recognize and designate roads in the county system which meet the natural beauty criteria.
- To keep these roadsides as they presently exist insofar as possible.
- To maintain and administer these roads so that they will continue to meet the criteria and at the same time provide safe public travel.
- To mark such roads for the information of the public.

Criteria for Designation:

- Character of Road - road must have outstanding natural features and/or scenic or natural vistas.
- Length - normally a minimum of one-half mile will be considered.
- Roadside Development - preferably no development or development that is compatible with the surroundings and does not detract from the natural unspoiled character.
- Road Bed - natural beauty roads may be dirt, gravel, or hard surface.
- Function of the Road - roads must be county roads, city streets, or village streets; collectors or primary roadways are not eligible.

Accepted Maintenance Practices:

In general, natural beauty roads should receive the same level of maintenance performed on the road prior to designation, as long as the character of use and development of the road does not change to the extent that a higher degree of maintenance is necessary. Maintenance guidelines have been adopted for the following:

- Roadside mowing
- Grading
- Use of herbicides
- Dust laying
- Cross drainage
- Signing
- Tree and Shrub Trimming and Tree Removal
- Road Surfacing

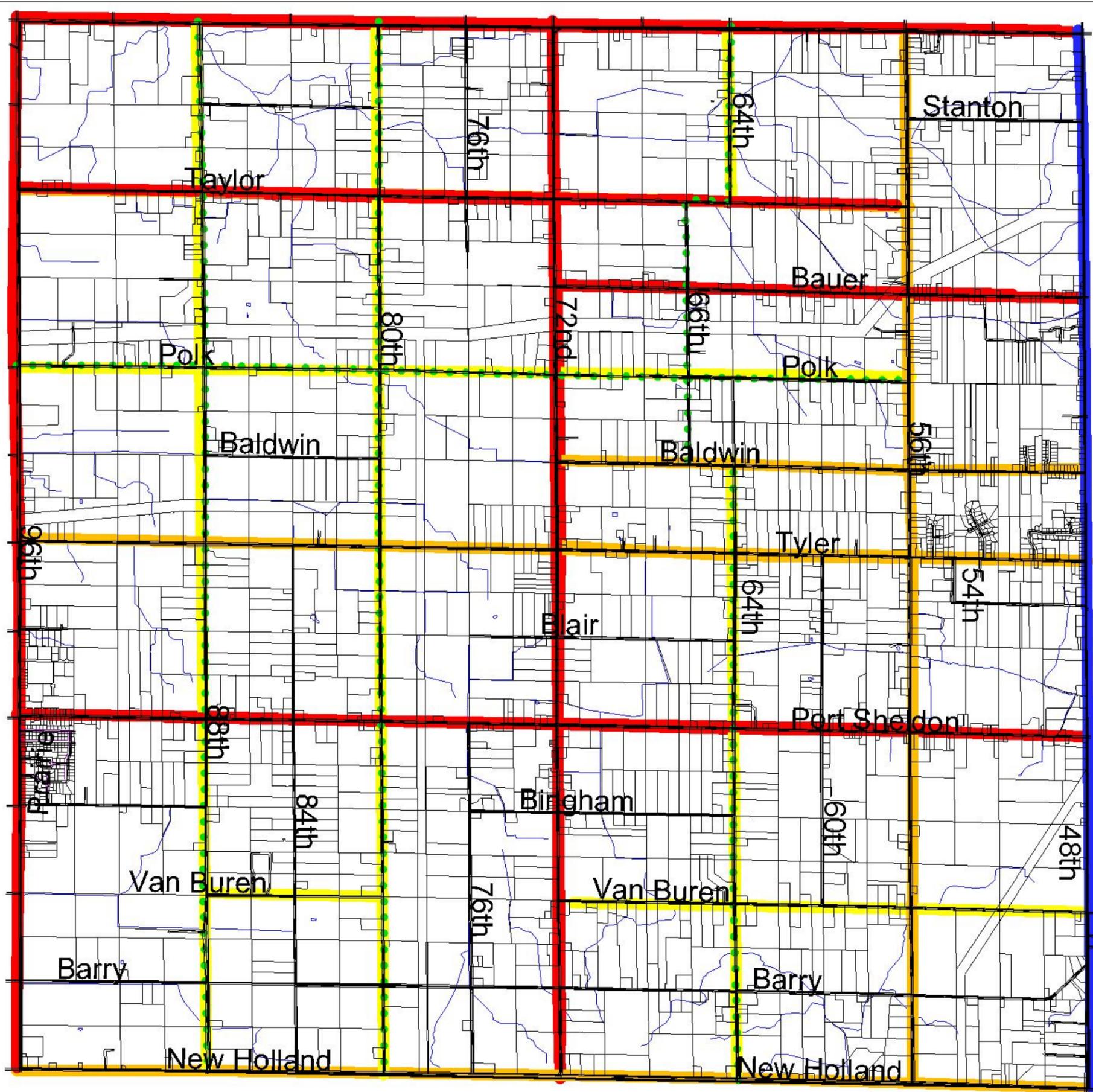


Tree-lined section of Polk Avenue

The township should work with the county on designating roadways with pristine natural features as natural beauty roads. Potential natural beauty roads have been designated on the Roadway Function Classification Map.

The county planning commission is initiating a tree transplant program to provide for the transfer of trees being removed on development sites to sections of county roads with the intent of establishing tree lined streets along local county roads. These trees would be planted along the outer edge of the 86-foot wide right-of-way line along county roads. The primary candidates for the planting of trees will be along those roads designated on the Roadway Functional Classification Map as natural beauty roads. While these roadways currently contain sections with existing tree canopies, there are sections of these roads with major “gaps” in the woodlands. The eventual goal is that the entire length of these roads will be tree lined. While these roads are primary candidates for the tree transplant program, other local county roads may be designated for inclusion in this program.

TREE TRANSPLANT PROGRAM



-  Regional Arterial Roadways - 160-foot right-of-way
-  Arterial Roadways - 120-foot right-of-way
-  Collector Roadways - 100-foot right-of-way
-  Section Line Collectors - 86-foot right-of-way
-  Local Roadways - 66-foot right-of-way
-  Natural Beauty Roadways

Source: Ottawa County GIS Department

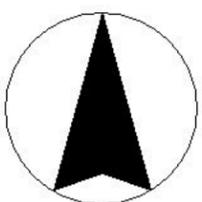
Map 14

Roadway Functional Classification

Blendon Township

Ottawa County, Michigan

LSL
 LANGWORTHY
 STRADER
 LEBLANC &
 ASSOCIATES, INC.



Aug 2001



8. BLENDON'S GREENWAY PLAN

A greenway is a linear feature within the natural landscape that is used to integrate key destinations and features within a community. A key function of a greenway is to tie together a community's cultural landscape by providing transportation routes and access between the residential population and recreational, and cultural destinations. Greenways also can play an important role in enhancing the ecological function of the natural environment by preserving vital natural areas and corridors. More specifically, a greenway is a corridor that offers the following benefits:

- Provision of recreational opportunities, including:
 - nature trails;
 - bike paths; and
 - pedestrian facilities.
- Protection, management and enhancement of natural resources, including:
 - water quality improvement;
 - wildlife migration corridors and habitat; and
 - enhancement and protection of natural vegetation.
- Enhancement of the quality of life and aesthetic appeal of the community, including:
 - improved linkages between the community's residents and recreational, cultural and community resources.
 - scenic natural areas as viewed along roadways;
 - natural character of agricultural and residential areas;
 - natural buffers between residential and agricultural land uses; and
 - promotion of a healthy, active lifestyle for residents.
- Provision of alternative non-motorized transportation modes, including:
 - bike paths; and
 - walking/hiking paths.

Greenways are corridors or linkages that are managed for conservation and/or recreation and which connect focal areas. These include:

- *Recreational greenways featuring paths and trails of various kinds, based upon natural corridors and road rights-of-ways;*
- *Ecologically significant natural corridors, possibly along drainageways;*
- *Scenic routes along public road right-of-ways;*
- *Buffer zones between residential and agricultural uses; and,*
- *Linkages providing for alternative modes of non-motorized movement.*

In order to develop an effective greenway plan for Blendon Township that meets the objectives described, an evaluation of the township's resources is needed. The following section describes the cultural and natural resources that must be considered in developing the plan. The second section establishes an understanding of the users of the system in order to ensure their needs are met by the greenway plan.

Cultural and Natural Resources

Cultural and natural resource components are comprised of a variety of land and water areas, all of which function as an integral system. Because the combined total system provides more value than the sum of its individual parts, decisions on individual locations should be based upon the vision of the whole. The components of Blendon's cultural and natural resource system include a wide range of public and private resources. Key public resources include township owned properties, road rights-of-way, utility easements, and areas such as drainageways and wetlands. Key private resources include lands that have been maintained in a natural state by the landowner.

The township hall property at the intersection of 72nd Avenue and Tyler Road could be enhanced to include other uses such as public open space and recreation facilities. The township hall property is an important public facility that should be linked with the community by a bike path system that connects it into surrounding residential areas.

The public roadways through the township also contribute to the overall network of interconnected public open space. Many road rights-of-way can be used to provide linear paths such as bike paths, which allow non-motorized movement. They also provide natural aesthetic amenities such as tree lined roads, natural vegetation and views of open space.

Utility easements that traverse across the township offer great potential for use as part of the Blendon greenway system. These easements are already set aside for essential public service use and the majority are cleared and graded for easy installation of bike paths.

While a network of public open space provides access to community recreation and other public resources and encourages non-motorized movement, these networks also provide for ecological needs. County drains and private open space play important roles in maintaining the township's ecological functions. These include lands maintained in a near natural state through regulatory means such as drainageways and wetlands, and through good land stewardship practices by public landowners. Private open space can also include conservation easements or common areas within clustered residential developments.

Management of natural greenway systems enhances each individual's enjoyment of their own private open space and protects the investment that each resident has made in their property through the following:

- *Habitat for wildlife;*
- *Buffers between clustered development and ecologically sensitive areas;*
- *Minimize increases in storm water runoff;*
- *Vegetation to maintain air quality; and*
- *Maintain natural rural character.*

While these private open space areas are not generally accessible by the public, they indirectly enhance the quality of each resident's property. Collectively, these private open space areas are essential to maintaining the investment that each resident has made as a part of the township and the enjoyment they derive from living in a community with rural character. As the township develops, there is a greater potential for disruption of the natural ecosystems and its rural character may be altered. Planning for a natural open space which is integrated with development will help mitigate these impacts and will protect private property owner's investments.

In addition to the above elements that are focused on the benefits of a greenway system to residents, a greenway system can play a major role in protecting the natural environment in general. The components of the natural environment function, change and interact as part of the ecosystem. A major objective of the greenway program is to maintain these natural components in a balanced state, while still allowing the community to grow in a controlled manner. The environmental features to be considered, as described in the Environmental Conditions section of this master plan, are: soils, topography, creeks/drains, wetlands, woodlands and wildlife habitat.

In Blendon Township, there are a number of user groups to consider for various components of the township greenways system. These include the following:

- **Pedestrians:** This group will utilize the trail and bike path system for recreation and as an alternative means of transportation. While the requirements of this group are similar to those of the recreational walkers, convenient and safe access to destinations is most important.
- **Recreational/health walkers and joggers:** These groups will utilize the bike path system for recreation, scenic enjoyment and physical exercise. These users require a safe and relaxing environment.
- **Bicyclists:** This group will utilize the bike path system for recreation as well as transportation. The pathway's physical requirements are much different for this group. Bicyclists will generally travel longer distances than pedestrians and require trails improved to a higher quality. In crowded situations, there will be conflicts between pedestrians and bicyclists. If there are high traffic areas, separately designated paths may be required.
- **Equestrians:** Because Blendon Township is a rural community, a significant number of residents keep horses. Many of these residents ride on private property or gravel roads. However, as the township becomes more developed there may be a desire for specific bridle trails as part of the greenway system.

Blendon Township has a number of resources that present opportunities for non-motorized transportation and opportunities to preserve the valuable natural resources within the community. Efforts to provide an effective and useful greenways system in Blendon Township should include:

- Installing a non-motorized network along major roadways within the township to provide the opportunity for pedestrian activity such as walking, jogging, and bicycling in a safe and comfortable environment.
- Developing sidewalks in residential hamlet areas and bike paths for clustered open space development in the rural reserve district. In addition, clustered open space developments will allow for recreational open space within each development and, potentially, between developments. These elements will provide linkages between residential areas and recreational amenities.
- Preserving the township's natural, rural character by maintaining wooded right-of-ways and views of rural open space.
- Maintaining natural corridors of open space along major drainageways to provide connections between significant natural areas.
- Clustering development to preserve these greenway corridors and the open space between developments can be connected. The design of adjacent open space developments should be coordinated to provide for linkages between neighborhoods and the creation of an informal park system through the Township.
- Maintaining buffers between development and ecologically sensitive areas or farmland.
- Protecting the ecological functions of natural waterways and drainage networks through buffering and other methods.
- Enhancing natural habitat and migration routes to maintain or increase the township's ability to support indigenous wildlife.
- Increasing the public's awareness and access to the greenways system, bike paths and the township's natural amenities through education of residents.

Greenway Objectives:

- ***Pedestrian activity***
- ***Linkages from neighborhoods to destinations***
- ***Preserve natural rural character***
- ***Natural corridors connecting open space***
- ***Buffer ecologically sensitive areas***
- ***Protect natural waterways***
- ***Wildlife habitat***
- ***Increase awareness of greenways***

The Greenways Plan Map identifies the location of proposed bike paths; important riparian corridors; and large woodland areas. In order to meet the objectives listed in the section above, these three elements must be considered in the design of development sites and as a part of infrastructure improvements. The map includes two main components: the provision of non-motorized transportation and recreation facilities; and conservation of valuable natural resources.

Non-Motorized Facilities

The trails and bike paths proposed under the greenway plan serve a number of purposes. They will provide non-motorized connections between homes, neighborhood schools, and activity centers. In addition, these trails will provide ample opportunities for recreational use, as they will be linked with other trails and transportation facilities.

Trails and bike paths are to be shared-use facilities and will be accessible to pedestrians, cyclists, equestrians and other users. Bike paths are proposed in the following locations:

Regional Pathways

- Taylor
- Port Sheldon
- 96th Avenue

Local Pathways

- Bauer
- Baldwin
- Tyler
- 56th Avenue
- 72nd Avenue
- 48th Avenue

In addition, pathways in Blendon Township should be planned to connect to existing or future pathways in neighboring communities. An example is the proposed east-west, 10-foot wide paved trail that would connect the Kent Trail in Byron Township to the Macatawa Greenway Trail near Holland. The proposed trail would traverse Zeeland Charter Township and Jamestown Charter Township. Blendon Township should work to link at least one of the north-south pathways shown on the Greenways Plan with this proposed regional trail.

Bike Path Siting: The major objectives to be considered when identifying appropriate pathway locations are:

- To design a bike path that produces minimal impact on the land and nearby landowners.
- To provide for recreation and transportation.
- To choose an alignment that is visually pleasing and provides a variety of views and experiences.
- To take advantage of the natural terrain and vegetation.
- To provide a bike path that can be easily maintained.

- To have minimal impact on wildlife habitat and wetlands.

Design:

- The relationship between greenway projects, particularly bike paths, and nearby private spaces must be carefully considered. Views, residential privacy, and access from residential areas adjacent to greenways are important.
- Residential areas require a design that is sensitive to the character, forms, materials, and colors. Nearby residents should be involved in the design process. The character of the public/private interface requires particular attention.
- Environmentally sensitive areas require a sensitive balance between the desire for public recreation and protection of natural resources. The appropriate location and intensity of use of any bike path system requires careful and well thought out analysis. Opportunities to enhance the natural environment of the greenway should be pursued. Seating and rest areas should be provided in areas where wildlife can be observed without being disturbed.
- Bike paths and wildlife habitat have the potential to conflict because of the environmental impact of construction. In addition, some wildlife species are intolerant of the presence of pathway users. Where high quality habitat is present, pathway links should be rerouted around the habitat. Subtle, attractive buffers should be integrated where necessary to protect the wildlife's privacy.
- Occasional viewing, and seating areas can be provided along the bike path for resting and passive recreation activities.
- Bike path alignment should consider the larger patches of vegetation, open space, and drainage corridors that have high wildlife value. Bike paths should not cut through the center of such parcels.
- Bike path intersections should be located at natural focal points and convenient access points.
- Existing utility easements should be utilized where possible to extend the bike path and greenway system throughout the township.

Pathway type: Pathways can be paved or unpaved. Paved pathways should be designed and constructed following the standards of the American Society of Highway and Transportation Officials. To determine whether paved, unpaved, or parallel paved and unpaved pathways are most appropriate, the following criteria can be used:

- Paved bike paths should be provided when:
 - High bicycle speed and volume is anticipated

- Located close to urbanized areas and there is an interest in accommodating the needs of certain groups that require very smooth surfaces (e.g. wheelchairs, strollers)
 - There is an existing or projected year round transportation need for the bike path.
 - Winter maintenance is anticipated.
 - The pathway connects paved pathway sections along a greenway.
- Paved pathways for bicyclist can be provided as separate pathways or as bike lanes along the shoulder of roadways.
 - With paved shoulders special consideration needs to be given to proper striping and signage to provide a safe environment for bicyclists.
 - Unpaved pathways should be provided when:
 - The township finds that a paved pathway would cause unacceptable environmental impacts.
 - The criteria for paving a pathway are not met and a pathway is still needed.
 - Equestrian use is anticipated.
 - Separate paved and unpaved pathways may be provided when:
 - Both the criteria for paving a pathway are met and equestrian use is anticipated.
 - Conflict between users is anticipated because of high volume.
 - The environmental impacts of separate pathways are acceptable.
 - The area has sufficient space and amenity to make separate pathways desirable.

Conservation

Greenways can be established to maintain and enhance the ecological functions which are vital to the quality of life on Blendon. The natural functions that should be maintained and the components of the natural system are described in the previous section of this plan under Environmental Conditions. Natural features which will determine the most appropriate location for greenways are soils, drainage, wetlands, vegetation and wildlife habitat.

Drainageways: Greenways should be established to protect natural drainageways. This will include the wetland areas that the drainageway flows through and the natural vegetation along the banks and in the upland areas surrounding drainageways. Sufficient natural buffers on both sides of streams and creeks should be protected in a natural vegetative state to maintain the quality and moderation of surface water flow into the drainageways and to provide protection from excessive soil erosion.

Habitat: Greenways should be established to maintain, enhance and/or reconnect natural habitat corridors. Where there are areas of wildlife habitat such as wooded areas or wetlands,

these can be connected by greenways. Connections should be made between like natural areas, and the connection should match the natural characteristics of the existing habitat areas.

Implementation of the greenways plan will be achieved through a variety of means. First and foremost, the greenways concept should be taken into consideration whenever the township is making day-to-day decisions on land use and development proposals. Other specific implementation programs can include the following:

Recreational greenways can be achieved for the township by:

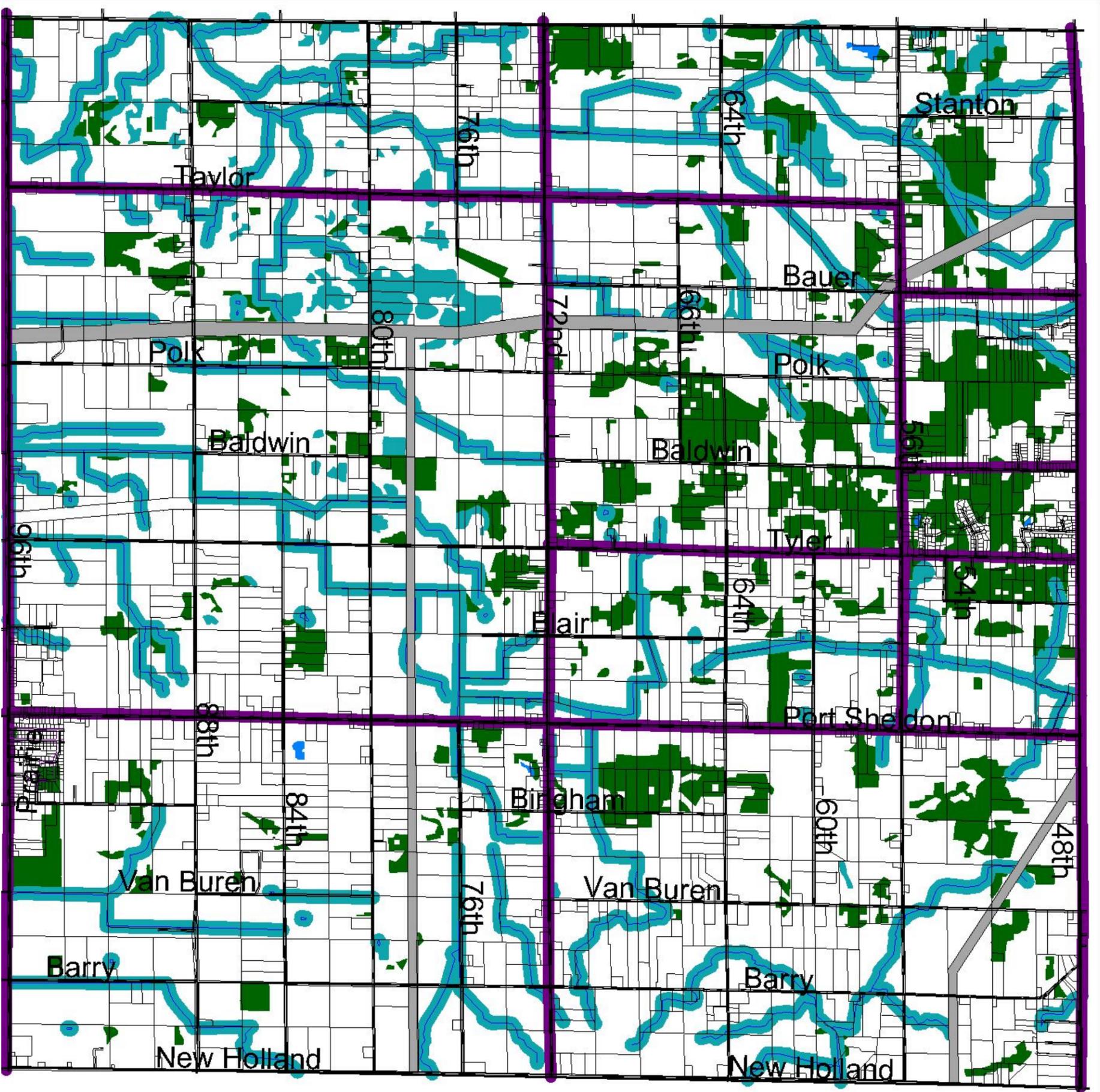
- Working with Ottawa County and school districts to provide recreational facilities for the area and to link these facilities with other components of the greenway **system**
- **Working with the Ottawa County Road Commission to encourage the installation of pathways as roads are paved or otherwise improved**
- Obtaining private neighborhood recreational areas within residential clustered open space developments through the use of incentives such as density bonuses
- Coordinate the design of open space developments with open space on adjacent land to provide for linkages between neighborhoods and the creation of an informal park system through the Township
- Private investment and donations for township park land and open space corridors

Conservation greenways can be established by:

- Encouraging the use of clustered open space development to preserve ecological and riparian corridors as part of the natural open space system
- Promoting farmland and open space preservation programs
- Purchasing or transferring development rights
- Private investment and donations

A township bike path system can be developed by:

- Providing dedicated millage for bike path construction
- Working with the road commission to include bike paths/lanes with road projects
- Transportation Enhancement (TEA21) Grants
- MDNR funds for bike paths
- Private investment and donations
- Requiring developments to construct bike paths along site frontages, where designated in bike path plan



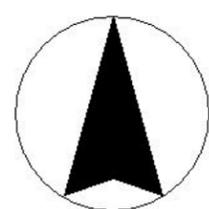
-  Non-motorized Pathways
-  Riparian Corridors
-  Woodlands
-  Utility Corridors

Source: Ottawa County GIS Department

Map 15 Greenways Plan

Blendon Township
Ottawa County, Michigan

LSL
LANGWORTHY
STRADER
LEBLANC &
ASSOCIATES, INC.



September 2001

2000 0 2000 4000 Feet



9. CAPITAL IMPROVEMENTS ACTION PLAN

As Blendon Township continues to develop and grow, there will be an increased demand placed on its infrastructure and its facilities and services such as roads, fire protection and township administrative services. As the population grows, there will be the need for additional services to meet residents' needs such as expanded utilities and recreational facilities. In order to begin planning to meet these needs the township should begin a process of planning for capital improvements.

This section outlines the process for the township to develop and maintain a Capital Improvements Plan (CIP). The CIP authorizes and provides the basis for control of expenditures for the acquisition of significant township assets and construction of all capital facilities. A five-year CIP should be developed and updated annually. Because much of the infrastructure within the township (roads and drains) is under the jurisdiction of county agencies, the county will need to be an integral part of the CIP process.

As capital improvement projects are completed, the operation of these facilities are funded in the operating budget. The operating budget authorizes and provides the basis for control of operating expenditures for both internal and citizen services, including operating and maintaining new capital facilities. Because of this, operational costs need to be considered as part of the budgeting process.

The following guidelines determine what is a CIP project:

- Relatively high monetary value (at least \$25,000)
- Long life (at least five years)
- Results in creation of a fixed asset, or the revitalization of a fixed asset

Included within the above definition of a CIP project are the following items:

- Construction of new township facilities
- Remodeling or expansion of existing facilities
- Purchase, improvement and development of land
- Operating equipment and machinery for new or expanded facilities
- Planning and engineering costs related to specific capital improvements
- Road construction, paving, reconstruction or improvement

In general, automotive and other rolling stock, personal computers, and other equipment not attached to or part of new facilities are not to be included as a CIP project. The exception to this is when the total dollar amount of all the items are of a considerable value that they are grouped together and considered as a single capital project.

The following process should be followed in developing a 5-year CIP:

- **CIP Coordination Team** - A CIP coordination team is first established representing various township and county organizations to draft and coordinate the CIP. The CIP Coordinating Team should be made up of representatives from the township board, planning commission, township engineer, township planner, fire department, county road commission, drain commissioner and parks & recreation commission. The CIP coordination team membership allows for the coordination of projects between township consultants and county agencies to ensure projects are properly planned, infrastructure components are coordinated (e.g. a sewer line is installed at the same time as a roadway is paved at a specific location), long-term operating impacts are included in estimates, time frames for construction activity and cash flow requirements are realistic, projects are coordinated geographically (e.g. not more than one east/west thoroughfare is restricted at a time), and project costs are reviewed to determine the adequacy of the budget and appropriate funding sources.
- **Prioritization** - Once the committee is formed projects are identified based upon the township master plan and other sources of information. The identified projects are then evaluated based upon the criteria listed in the next section. This evaluation criteria is used in formation of a prioritized list of projects. Then a list of potential funding sources and mechanisms are identified.
- **Review & Adoption** - The draft CIP is submitted to the township planning commission for review and recommendation to the township board. The final CIP with a prioritized list of projects for the next five years is adopted by the township board.
- **Update** - The CIP needs to be continually reviewed, implementation monitored and the plan updated for review and adoption on an annual basis as part of the township budgeting process.

After the CIP coordination team identifies and reviews each potential improvement, the team prioritizes the program based on the following prioritization process. Projects are prioritized based on the master plan, anticipated funding sources, and a project prioritization matrix utilizing the following evaluation criteria:

- **Annual Costs** - The expected change in operation and maintenance costs. Additional operating costs or reductions because of the new project need to be identified. Also to be considered are changes in revenues which may be affected by a project, for example, the loss in property taxes incurred when private land is acquired for a public project.
- **Capital Costs** - These represent the total capital costs of implementing the project, including future year capital costs associated with long term maintenance. Also to be considered is whether the proposed project will reduce future capital costs, and the extent of such savings. For example, a rehabilitation project that averts a more expensive, subsequent replacement should be taken into consideration.

- **Community and Citizen Benefits** - Economic impacts such as property values, the future tax base, added jobs, income to citizens, changes in business income, and improvements in residential property values must be considered.
- **Distributional Effects** - This includes estimates of the number and type of persons likely to be affected by the project and nature of the impact.
- **Effect on Interjurisdictional Relationships** - Possible beneficial/adverse effects on relationships with other jurisdictions or quasi-governmental agencies in the area constitute this criterion. The effects of projects such as roadway improvements along township borders are likely to require special regional coordination.
- **Feasibility of Implementation** - This element is a measure of special implementation problems (e.g., physical or engineering restraints).
- **Health and Safety Effects** - This criterion includes health-related environmental impacts like reductions/increases in traffic accidents, injuries, deaths, sickness due to poor water quality, health hazards due to sewer problems, etc.
- **Implication of Deferring the Project** - Deferring capital projects is tempting for hard-pressed governments but an estimate of the possible effects, such as higher future costs and inconvenience to the public, provides valuable guidance in proposal assessment.
- **Master Plan Goals** - If a capital project directly addresses a master plan goal, the relative attractiveness of that project increases. The improvements should contribute towards the desired smart growth pattern outlined in the master plan and also be done in a manner that retains the Township's rural character. Projects which would facilitate unplanned growth that is contrary to the master plan should not be proposed.
- **Public Perception of Need** - This criterion refers to project assessment of (a) the extent of public support; (b) interest group advocacy and/or opposition.
- **Rural Community Character, Environmental, and Social Effects** - Significant quality-of-life- related impacts need to be considered, this includes impact to the township's rural character, noise, air and water pollution effects, households displaced, effect on commuters, changes in recreational opportunities, etc.

After all proposed projects are prioritized using the criteria, the list of projects are reviewed from two more viewpoints: (1) Does the list stand an intuitive or "common sense" check where projects fall in the priority order that was "anticipated?" In other words do the projects that are considered to be high priority score well or are adjustments required to meet specific needs?; and (2) Are there any linkages between projects? Are any projects related to each other geographically, or otherwise, such that having them accomplished concurrently would be advantageous? What about sequencing or timing? Are any projects dependent on the completion of other projects? Adjustments to the priority list may be necessary dependent on this final review.

The prioritized projects are subsequently reviewed by the planning commission and the recommended five-year CIP Plan is reviewed by the township board during budget work/study sessions and public hearings prior to budget adoption.

Funding sources for the CIP includes a wide range of sources. All potential capital funding resources should be evaluated to ensure equity of funding for the CIP. Equity is achieved if the beneficiaries of a project or service pay for it. For example, general tax revenues and/or general obligation bonds appropriately pay for projects that benefit the general public as a whole. User fees, development fees, and/or contributions pay for projects that benefit specific users. In planning to secure funding for a CIP it is also important to consider the time frame involved in securing certain types of funding. Also the financial costs associated with securing the funding source, such as the cost associated in preparing grant applications or TIF plans, needs to be budgeted for. The following summarizes some of the funding sources for the CIP.

- **General Obligation Bonds** - These are bonds that are secured by the full faith and credit of the issuer. General Obligation bonds issued by the township or county are secured by a pledge of the issuer’s property taxing power and must be authorized by the electorate. As a general law township, Blendon Township’s authority to issue tax supported bonds is limited to certain types of improvements such as township halls, fire stations and libraries.

- **Special Assessment Bonds** - This form of bond is issued for property owners desiring improvements to their property such as roads, water lines, sewer lines or drainage. The expenditure of funds to construct the specific capital improvements and to pay the debt service on bonds is appropriated as part of the township’s budget; however, the property owners fund the debt service payments through a special assessment on their improved property. Special assessments are apportioned according to the assumed benefits to the property affected. Special assessment funding might prove useful to implement water and sewer improvements, roadway paving, streetscape improvements and to construct new roads.

- **Tax Increment Financing:** There are a number of state statutes that provide for the creation of a tax increment financing authority such as a Local Development Finance Authority or a Brownfield Redevelopment Authority. These can be used to fund infrastructure improvements in industrial areas or for the remediation of environmental contamination. When a tax increment finance district is established, the state equalized assessment value of all properties within the district are recorded. Every year thereafter, the property tax revenue generated by any increase in the total stated equalized value is "captured" by the township to finance improvements established in the overall development plan. The development plan is a required document illustrating all proposed improvements within the district. Often, revenue bonds are used to finance the improvements and the tax increment revenues are used to repay the bonds. This tool could be used for improvements to the industrial park road in Borculo, as an example.

- **Water/Sewer Tap Fees** - These are fees received from developers for connections to township utilities when new construction developments are made. These fees are

based upon the costs of providing/extending the infrastructure and services in the development areas.

- **Water/Sewer Funds** - These are utility bill revenues received from the sale of domestic water and fees for the disposal of sanitary sewer waste from customers within the township. Water and Sewer operating revenues in excess of expenditures are transferred to CIP to fund water and sewer projects.
- **General Fund** - The township board may authorize transfers from general township revenues for capital projects without a dedicated funding source.
- **Dedicated Millages.** Special property tax millages can be used to generate revenue for a specific purpose. For example, several Michigan communities have passed millages to fund road improvements, bike path programs, and parkland acquisition. It should be noted that these millages would need to be approved by township voters, making them subject to prevailing political conditions.
- **TEA-21 Transportation Enhancement Program (M-DOT)** - TEA-21 established a fund for transportation enhancement activities. Funds from the Surface Transportation Program are set aside for these activities and can include a number of transportation enhancement activities including historic preservation, landscaping and beautification, bike paths, roadway improvements, environmental mitigation to address water pollution due to highway runoff and other similar projects. Each year funds become available for allocation based on competitive needs. Requests are solicited and screened for application completeness at the local level, screened for project merit at the regional level and finally selected for action at the state level by MDOT. This program would be a good option to fund landscaping, bike path construction, and drainage improvements.
- **Michigan Department of Natural Resources Grants** - There are two recreation grant programs available through the Michigan Department of Natural Resources (MDNR): the Clean Michigan Initiative Recreation Bond (CMI - Recreation Bond) and the Michigan Natural Resources Trust Fund (MNRTF).

The CMI - Recreation Bond provides financial assistance to local governments for the development and renovation of indoor and outdoor recreation facilities, with a focus on meeting community recreation needs. The grant money awarded ranges between \$15,000 and \$75,000 with a required minimum local match of 25 percent.

MNRTF provides funding assistance for state and local outdoor recreation needs, including land acquisition and development of recreation facilities. This assistance is directed at creating and improving outdoor recreational opportunities and providing protection to valuable natural resources. These are grants between \$15,000 and \$500,000 with a required minimum local match of 25 percent.

- **Community Development Block Grant Programs (CDBG):** The CDBG provides federal funds on an annual basis to local governments for a variety of programs that are intended to benefit low and moderate income residents or certain target

populations, such as the elderly. These funds can be used for community development activities, such as a senior citizen activity center.

The CIP can be classified into a few major categories: Community Recreation Facilities, Transportation, Drainage, Utilities, Public Safety and Service Facilities.

- **Community Recreation Facilities** programs address the desire to provide neighborhood recreation facilities and parks. These recreational needs are met by providing parks, bike paths and senior centers.
- **Transportation** programs would include working with the road commission to identify and fund roadway improvements such as road paving or intersection improvements.
- **Drainage** addresses needs for drainage improvements within the township. This program includes drain projects, detention basins and culvert replacements.
- **Utilities** - The township can facilitate funding mechanism whereby property owners elect to pay for the installation and construction of infrastructure such as water and sewer that benefits their property. The township facilitates this process by coordinating the design and construction, as well as finance mechanisms for the improvements.
- **Public Safety** programs address the need to provide fire stations, training facilities, and automation systems related to fire protection.
- **Service Facilities** programs provide for the construction and renovation of township facilities necessary for efficient and effective operations, such as the township hall.

The operating impact of capital projects are analyzed and taken into consideration during the extensive CIP prioritization process. The cost associated with the ongoing operation and long term maintenance of the capital project needs to be taken into consideration. This may include personal, vehicle, material and administrative costs. Estimated new revenues and/or operational efficiency savings associated with projects are also taken into consideration (net operating costs) during the capital project review.

Capital Improvements Program Priority Evaluation Matrix

	Evaluation Criteria											
	Capital Costs	Annual Costs	Community and Citizen Benefits	Distributional Effects	Feasibility of Implementation	Health and Safety Effects	Implication of Deferring the Project	Inter-jurisdictional Relationships	Master Plan Goals	Public Perception of Need	Rural Character, Environment and Social	
List of Capital Projects												
Recreation Facilities												
Township Park		1	3	3	2	1	1	1	3	1	3	19
Transportation - Pathways												
Taylor, 56 th and Bauer Pathway	1,030,000	2	3	2	3	3	1	3	3	2	2	24
96 th Ave. Pathway	950,000	2	3	2	3	3	1	3	3	2	2	24
Port Sheldon Pathway	950,000	2	3	2	3	3	1	3	3	2	2	24
Transportation - Roads												
Pave 1.5 miles of 64th in sections 14 & 23	375,000	3	3	1	3	2	3	2	1	3	1	22
Pave 2 miles of Taylor in sections 11 & 12	500,000	3	3	1	3	2	3	2	3	3	3	26
Pave 2 miles of 60th in sections 23 & 26	500,000	3	3	1	3	2	2	2	2	2	2	22
Pave 2 miles of 84th in sections 20 & 29	500,000	3	2	1	3	2	2	2	2	2	2	21
Pave one mile of 56th in sections 13 & 24	500,000	3	2	1	3	2	1	2	3	1	3	21
Pave one mile of Stanton in section 1	250,000	3	1	1	3	2	2	2	2	2	2	20
Pave 2 miles of Polk in sections 14 & 15	500,000	3	2	1	3	2	2	2	1	2	1	19

List of Capital Projects	Evaluation Criteria											Total Score
	Capital Costs	Annual Costs	Community and Citizen Benefits	Distributional Effects	Feasibility of Implementation	Health and Safety Effects	Implication of Deferring the Project	Inter-jurisdictional Relationships	Master Plan Goals	Public Perception of Need	Rural Character, Environment and Social	
Pave 2 mi of VanBuren in sections 34 & 35	500,000	3	2	1	3	2	1	2	2	1	2	19
Drainage												
Rush Creek regional detention pond		2	2	2	2	2	3	3	2	1	2	21
Utilities												
Sewer Service Area 1		1	3	2	2	3	3	3	3	3	2	25
Water Service Area		1	3	2	3	3	2	3	3	2	1	23
Sewer Service Area 2		1	3	2	1	3	2	3	3	1	2	21
Public Safety												
Fire department truck	250,000	3	2	3	3	3	2	2	1	1	1	21
Fire department truck	250,000	3	2	3	3	3	2	2	1	1	1	21
Service Facilities												
New Township Hall	600,000	2	3	3	2	1	3	1	1	3	1	20

Evaluation Matrix Scoring

1= Scores low towards meeting criteria

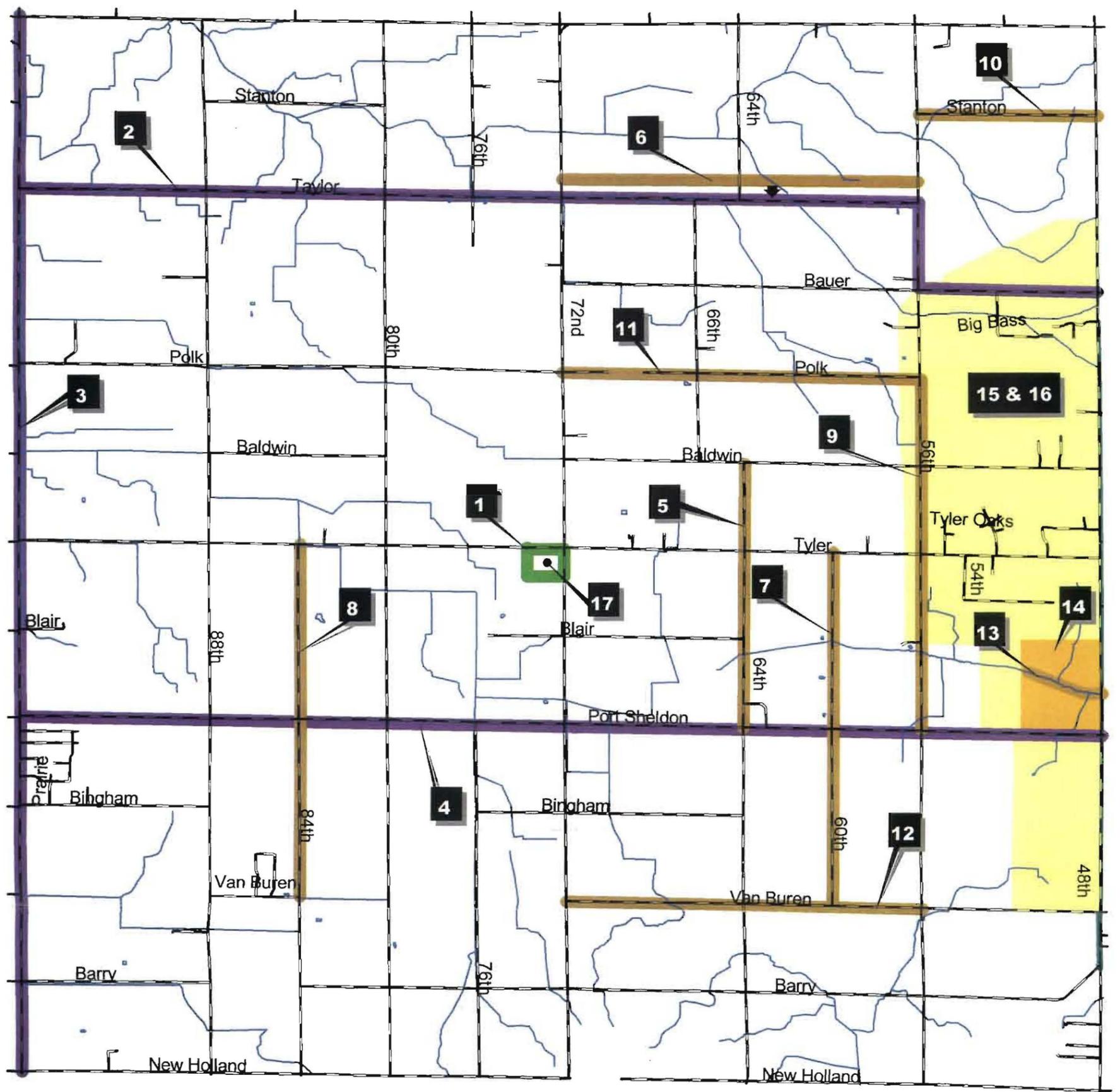
2= Scores medium towards meeting criteria

3= Scores high towards meeting criteria

Capital Improvements Program Funding Matrix

List of Capital Projects	Capital Costs	General Obligation Bonds	Special Assessment Bonds	Local Development Finance Authority	Brownfield Redevelopment Authority	Water/Sewer Tap Fees	Water/Sewer Funds	General Fund	Dedicated Millages	TEA-21	CMI - Recreation Bond	Natural Resources Trust Fund	CDBG
Recreation Facilities													
Township Park		✓						✓	✓		✓	✓	✓
Transportation - Pathways													
Taylor, 56 th and Bauer Pathway	1,030,000	✓						✓	✓	✓	✓		✓
96 th Ave. Pathway	950,000	✓						✓	✓	✓	✓		✓
Port Sheldon Pathway	950,000	✓						✓	✓	✓	✓		✓
Transportation													
Pave 1.5 miles of 64th in sections 14 & 23	375,000		✓						✓				
Pave 2 miles of Taylor in sections 11 & 12	500,000		✓						✓				
Pave 2 miles of 60th in sections 23 & 26	500,000		✓						✓				
Pave 2 miles of 84th in sections 20 & 29	500,000		✓						✓				
Pave one mile of 56th in sections 13 & 24	500,000		✓						✓				
Pave one mile of Stanton in section 1	250,000		✓						✓				
Pave 2 miles of Polk in sections 14 & 15	500,000		✓						✓				
Pave 2 mi of VanBuren in sections 34 & 35	500,000		✓						✓				

List of Capital Projects	Capital Costs	General Obligation Bonds	Special Assessment Bonds	Local Development Finance Authority	Brownfield Redevelopment Authority	Water/Sewer Tap Fees	Water/Sewer Funds	General Fund	Dedicated Millages	TEA-21	CMI - Recreation Bond	Natural Resources Trust Fund	CDBG
Drainage													
Rush Creek regional detention pond		✓	✓					✓					
Utilities													
Sewer Service Area 1			✓			✓	✓						
Water Service Area			✓			✓	✓						
Sewer Service Area 2			✓			✓	✓						
Public Safety													
Fire department truck	250,000	✓						✓	✓				
Fire department truck	250,000	✓						✓	✓				
Service Facilities													
New Township Hall	600,000	✓						✓	✓				



- 1. Township Park
- 2. Taylor, 56 th and Bauer Pathway
- 3. 96 th Ave. Pathway
- 4. Port Sheldon Pathway
- 5. Pave 1.5 miles of 64 th in sections 14 & 23
- 6. Pave 2 miles of Taylor in sections 11 & 12
- 7. Pave 2 miles of 60 th in sections 23 & 26
- 8. Pave 2 miles of 84 th in sections 20 & 29
- 9. Pave 2 miles of 56 th in sections 13 & 24

- 10. Pave one mile of Stanton in section 1
- 11. Pave 2 miles of Polk in sections 14 & 15
- 12. Pave 2 miles of Van Buren in sections 34 & 35
- 13. Rush Creek regional detention pond
- 14. Sewer Service Area 1
- 15. Water Service Area
- 16. Sewer Service Area 2
- 17. New Township Hall

Map 16

Capital Improvements Plan

Blendon Township Ottawa County, Michigan

LSL
LANGWORTHY
STRADER
LEBLANC &
ASSOCIATES, INC.



September 2002

