



City of Mishawaka

CAPITAL AVENUE LAND USE PLAN



St. Joseph County

December 2003

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SECTION 1 – INTRODUCTION TO THE LAND USE PLAN

1.1 Purpose of the Land Use Plan

The land use plan is being completed because of the construction of the Capital Avenue (S.R. 331) expressway between S.R. 23 and U.S. 20 on the east side of the City of Mishawaka within the northeast portion St. Joseph County, Indiana. This major transportation improvement in the City of Mishawaka and St. Joseph County is anticipated to become a primary factor stimulating development opportunities along and in the vicinity of the new expressway corridor. As a result of this anticipated development, it is imperative to plan for the future and develop a land use plan that achieves balanced, orderly, high quality development along and in the vicinity of the corridor, while preserving existing resources.

The land use plan is also being completed as a result of the expansion of the AM General Hummer/GM H2 Assembly Plant (between McKinley Highway and Jefferson Boulevard). This plant expansion is important to the area's financial economy and the creation of a land use plan is critical for ensuring complementary, supportive and compatible land uses in the vicinity of the plant and surrounding locations.

1.2 Details of the Land Use Plan

The land use plan should be considered general, long-term and fluid. Specifically, it establishes general guidelines for future land use development and subsequent zoning along and in the vicinity of the corridor, focusing on anticipated, long-term land use needs that will require updates as existing conditions and needs change. The land use plan is also not regulatory in nature but rather is intended as a guide for use in future planning and decision making.

The land use plan was created through a comprehensive and concentrated effort. The creation and completion of the land use plan involved collecting information on existing land uses, infrastructure, transportation systems, utilities availability, and resources (environmental, natural, cultural, social, and economic). The analysis of the existing conditions and resources then highlighted and explained what opportunities the area could capitalize on and what constraints the area must overcome to achieve success in potential future development.

The plan was also prepared by collecting and analyzing input from key public and private stakeholders (charrettes) from both the City of Mishawaka and St. Joseph County. This combined effort is essential because the new

expressway corridor travels through both the City and County and therefore has the potential to affect future land use development and patterns in both jurisdictions equally. Also, without coordinating effort, competing and uncomplimentary development and patterns are likely. Several opportunities for citizen participation and input (public meeting/hearing and survey) were also provided to supplement and improve the land use plan and its recommendations.

SECTION 2 – PLANNING PROCESS

2.1 Introduction to the Planning Process

A land use plan is a vision for an area's future and development. Therefore, the process directing the plan is of critical importance. The planning process must be logical and complementary. Insights and experiences gained during each element of the process should be used to formulate the direction and become a foundation for the following elements. The process is strengthened when collaboration is dominant during each element. The process also requires continuous monitoring to ensure successful progress. According to the American Planning Association (APA), the planning process's most important purpose is to serve the public interest by promoting information dissemination, empowerment and decision-making. It must also strive to protect the integrity of the area's physical environment (both natural and man-made) and pay special attention to the interrelatedness of decisions and the long-range consequences of present actions.

2.2 The Capital Avenue Planning Process

The planning process used for development of the Capital Avenue Land Use Plan involved the following eight basic planning elements:

- Land Use Issue Identification
- Public Participation and Public Officials Input
- Planning Area Goals and Objectives
- Resource Inventory and Analysis
- Draft Land Use Plan
- Public Officials Input
- Final Land Use Plan
- Approval and Adoption of the Land Use Plan

2.2.1 Land Use Issue Identification

This element of the planning process identifies the issue(s) necessitating the need to complete the plan. Without the knowledge of why the plan is needed, steps forward are impossible.

The expressway construction proposed between S.R. 23 and U.S. 20 along with the expansion of AM General Hummer/GM H2 Assembly Plant has the potential to significantly influence the development and land use patterns in these areas. As a result, it is critical to develop a land use plan that addresses the issues that are expected to result from this major transportation improvement and plant expansion.

2.2.2 Public Participation and Public Officials Input

This element of the planning process attempts to satisfy the need to serve the public interest through information dissemination, empowerment and decision-making.

A joint public meeting of the Mishawaka City Plan Commission and the Area Plan Commission of St. Joseph County was held on February 22, 2001. This meeting presented information on existing resources and conditions within the planning area. During the meeting, knowledgeable discussion and input on the type and possible location of potential future land uses along and in the vicinity of the new expressway corridor were expressed by the public for incorporation into the planning process and for consideration in the subsequent development of the land use plan. In addition to input at the joint public meeting, the public was also afforded an opportunity to provide input through planning surveys that were submitted to the City and County planning departments.

Early input into the project planning by public officials was obtained through a planning charrette that was held on December 19, 2001. Attendees at the charrette consisted of elected and appointed officials, staff from the Mishawaka and St. Joseph County planning departments, invited members of the local development community, and the project consultant. The charrette provided an opportunity for input on current development trends, detailed discussion of opportunities and constraints for development in the planning area, and conceptual land use recommendations based upon the planning process and earlier public input on the planning.

2.2.3 Planning Area Goals and Objectives

This element of the planning process identifies an agreement between the City of Mishawaka and St. Joseph County about what the prepared land use plan is intended to achieve. Without this agreement and collaboration, any energy or direction regarding the land use plan is futile. The development of the goals and objectives also considers the views and information collected during the public participation and public officials element of the planning process.

Input obtained from public participation, in general, indicated a desire to see the land along the corridor remain consistent with the existing character of the area. Protecting the area's existing resources, especially residential areas, and additional open space and

recreational use areas were identified as important development components.

Community leaders, through the charrette process, concurred with the public visions for the land use planning. They also expressed a desire to utilize the local and regional access that will be provided by Capital Avenue in order to enhance economic growth, particularly near the north end of the corridor and in the vicinity of the AM General Hummer/GM H2 Assembly Plant.

As a result, the following goal was developed for the land use plan:

The goal of the land use plan is to achieve balanced, orderly, high quality land use development along and in the vicinity of the Capital Avenue corridor that prevents uncontrolled urban sprawl and preserves and enhances the area's character, resources, and quality of life.

Additionally, the following objectives were established in order to achieve the plan's stated goal:

- Achieve high quality and diversified residential environments where people desire to live.
- Identify compatible and strategic locations for high quality, innovative and pedestrian friendly commercial and office developments.
- Attract high quality industrial developments that provide jobs, strengthen the area's financial economy and minimize negative effects on adjacent developments and the physical environment (both natural and man-made).
- Provide environmentally sensitive development that balances the needs of the area's residents and the preservation of the unique physical environment (both natural and man-made).

2.2.4 Resource Inventory and Analysis

This element of the planning process provides a sense of the area's existing conditions and its probable future direction. The resources inventoried and information collected provide a basis to develop an overall picture of the area. Without a clear image of existing conditions, starting to think about how the area might or should be developed is impossible.

Information collected during this process includes: existing land uses, infrastructure, transportation systems, utilities availability, and resources (environmental, natural, cultural, social, and economic). The analysis of the existing conditions and resources highlight and explain what opportunities the area can capitalize on and what constraints the area must overcome in order to achieve success in future development. The opportunities and constraints analysis provides the foundation for developing proposed land uses along and in the vicinity of the new corridor. Specifically, land was only proposed for potential future development if it represented land with balanced opportunity and constraint characteristics. Further discussion on opportunities and constraints is presented in **Section 5**.

2.2.5 Draft Land Use Plan

This element of the planning process summarizes and incorporates all previous elements and results in a Draft Land Use Plan that achieves the stated goal and objectives. The draft plan was prepared by the project consultant with input from the planning staff of the two governments. Information collected on existing conditions and input from the general public and public officials from the City of Mishawaka and St. Joseph County was assessed. A proposed land use plan map was developed taking into consideration the recommendations from the public stakeholders and community leaders.

2.2.6 Public Officials Input

Upon completion of the Draft Land Use Plan and proposed land use map, a second planning charrette with public officials was held on November 20, 2002. This meeting provided an opportunity for local officials to be informed about the synthesis of the planning data, review the Draft Land Use Plan, and to provide comments on the proposed land use map.

2.2.7 Final Land Use Plan

Revisions to the draft plan and proposed land use map were made by the project consultant with input from the planning staff of the two governments. This included input from the second public officials charrette. Details of the plan were established and a Final Land Use Plan with recommended land use map was prepared.

2.2.8 Approval and Adoption of the Land Use Plan

The plan approval and adoption process extends beyond completion of the Final Land Use Plan. As proposed, this process will include a

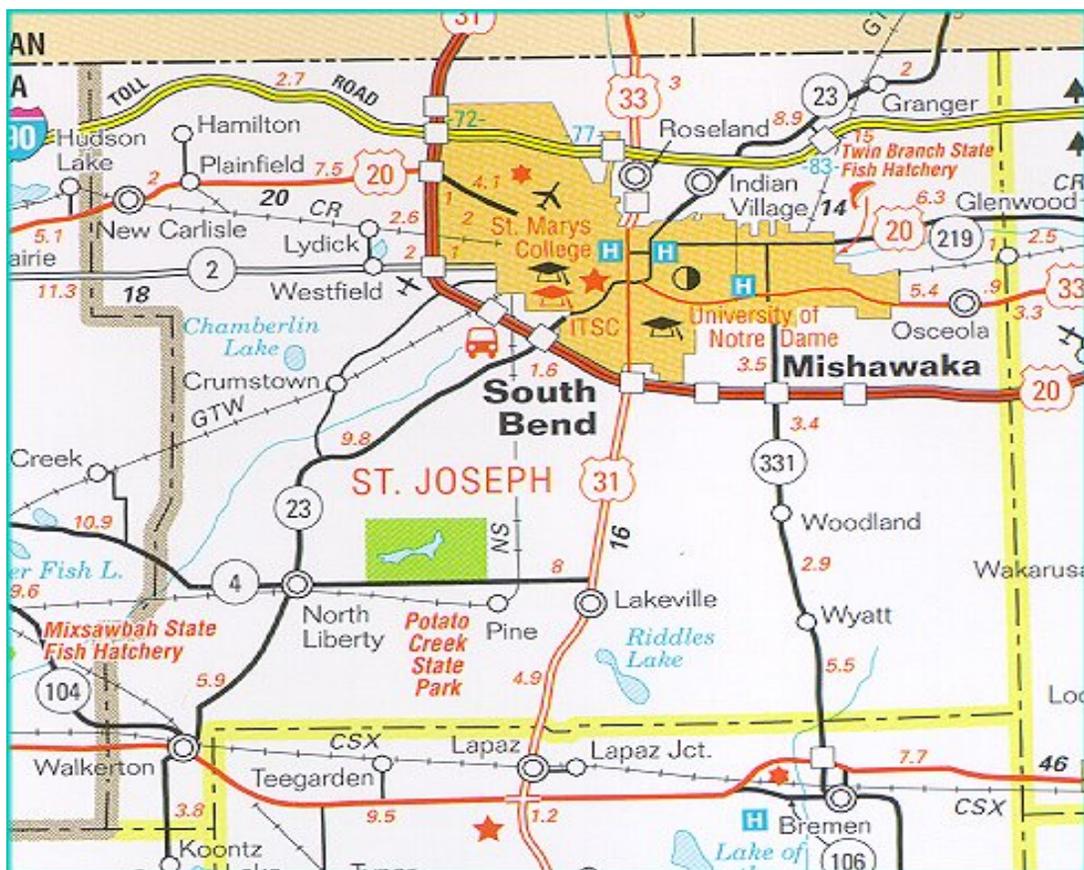
joint public meeting of the Mishawaka City Plan Commission and the Area Plan Commission of St. Joseph County for presentation of the Final Land Use Plan and recommended land use map. After this, each of the plan commissions will follow their own procedures for approval and adoption of the land use plan including compliance with any public hearing requirements.

The adopted land use plan will provide many benefits for the future development of the Capital Avenue corridor. These may include serving as a guide for future detailed land use decisions, zoning changes, master plans for major development proposals, decisions on the extension of public services within the planning area, and other related planning and development activities that may arise for the Capital Avenue corridor.

SECTION 3 – PLANNING AREA

3.1 City of Mishawaka and St. Joseph County

Mishawaka, the Princess City, is located in north central Indiana within St. Joseph County approximately 150 miles north of Indianapolis, Indiana, approximately 10 miles south of the Michigan State line, approximately 90 miles east of Chicago, Illinois, and approximately 85 miles west of the Ohio State Line. The City is located both north and south of the meandering path of the St. Joseph River and has access to the Indiana Toll Road (I-80/90) via the Mishawaka Milepost (MP) 83 interchange. The City's population is approximately 46,600 people [2000 census], which is an increase of approximately 9% over the 1990 population of 42,600. Mishawaka is the 13th largest city in the State of Indiana and is approximately 17 square miles in size.



Map 1: Mishawaka and St. Joseph County Location Map

St. Joseph County, which is approximately 457 square miles in size, is the fourth largest county in the state with a population of approximately 267,120

people [2000 census]. St. Joseph County is bordered on the north by Michigan, on the south by Marshall County, on the east by Elkhart County, and on the west by La Porte County. The county seat is South Bend, which is immediately west of the City of Mishawaka and the fourth largest city in Indiana with a population of approximately 107,800 people [2000 census].

3.2 Description of New Expressway Alignment

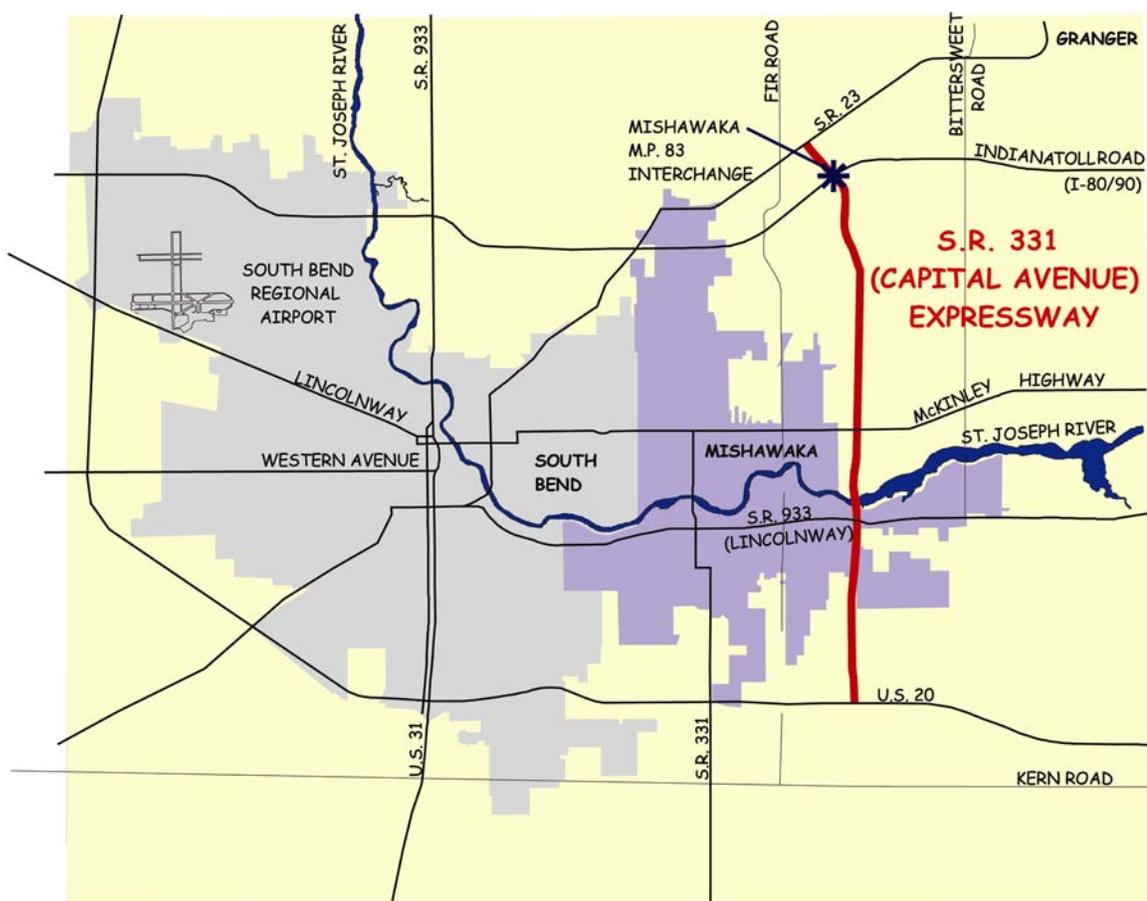
The new Capital Avenue (S.R. 331) expressway has been and will continue to be constructed from the north to the south. The expressway's current alignment follows existing S.R. 331 from S.R. 23 south to Day Road. From the S.R. 331/Day Road intersection, the alignment will proceed south to Jefferson Boulevard adjacent to the west side of the American Electric Power (AEP) transmission line across McKinley Highway. From Jefferson Boulevard, the expressway will continue along the current alignment of S.R. 331 south across the St. Joseph River to S.R. 933 (Lincolnway). From S.R. 933 (Lincolnway), the alignment proceeds south under the Norfolk Southern railroad (NSRR) tracks, diagonally through the existing S.R. 331/12th Street/Harrison Road intersection, and under the AEP transmission lines, adjacent to existing Elm Road to the alignment's south terminus at the existing U.S. 20/Elm Road interchange.

At the Capital Avenue (S.R. 331) intersections with Cleveland, Douglas, Day, McKinley, Jefferson, S.R. 933 (Lincolnway), 12th Street/ Harrison, and Dagoon, there will be limited access right of way for the expressway. The table below details the limited access at each intersection. The limited access will restrict turning movements at the approaches of the noted cross roads that intersect S.R. 331. Turning movements at these intersections will be restricted to right-in/right-out access. This turning restriction is required to protect the operational integrity of the intersections. Concrete center curbs will prevent left turns.

Local Road Turning Restrictions	
<i>Cross Roads Intersecting S.R. 331</i>	<i>Limited Access Right of Way Limits</i>
Cleveland	650 feet West; 700 feet East
Douglas	600 feet West; 700 feet East
Day	1000 feet West; 800 feet East
McKinley	850 feet West; 800 feet East
Jefferson	550 feet West; 850 feet East
S.R. 933 (Lincolnway)	800 feet West; 750 feet East
12 th Street/ Harrison	700 feet West; 900 feet East
Dagoon	800 feet West; 400 feet East

3.3 Description of the Planning Area

Considering the location of the new expressway alignment, the planning area's boundaries are S.R. 23 and the Indiana Toll Road (I-80/90) on the north, Kern Road on the south, Bittersweet Road on the east, and Fir Road on the west. Higher density areas with stable, existing development such as the "Granger" areas north of the Toll Road and the "Twin Branch" area or Lincolnway East corridor through Mishawaka will be excluded from the planning area. The limits of the planning area were chosen because the anticipated development to result from the new expressway construction and plant expansion is not expected to extend beyond the identified planning area boundaries.



Map 2: Planning Area Overview Map

The planning area is approximately 13,900 acres (22 square miles) in size and is comprised of the following existing, general land uses and sizes: 1) Commercial – 319 acres; 2) Residential – 3,689 acres; 3) Industrial – 908 acres; 4) Recreational – 431 acres; 5) Institutional – 258 acres; and 6) Utilities – 61 acres.

Land classified as commercial contains activities such as goods and service-oriented shopping, restaurants and office areas. Land classified as residential contains activities such as single and multi-family housing and manufactured housing. Land classified as industrial is comprised of activities including assembly plants, factories, and warehouses. Recreational classified land involves active and passive leisure activities such as golf courses and parks. Land classified as institutional contains activities such as schools, libraries, police, fire, medical clinics and hospitals. The land classified as undeveloped includes land involved with agricultural activities as well as large tracts of land not being used for any activities.

The planning area includes land in both the City of Mishawaka and St. Joseph County along with both the Mishawaka School Corporation and the Penn-Harris-Madison School Corporation. In order to stimulate redevelopment, St. Joseph County has also previously identified a tax increment financing (TIF) district within the planning area. The TIF district is located roughly north of the St. Joseph River, south of Day Road, east of Home Street and west of Bittersweet Road. The district includes, for example, the Twin Branch Energy Industrial Park and the AM General Hummer/GM H2 Assembly Plant

3.4 Unique Characteristics of the Planning Area

The north part of the planning area, between McKinley Highway and S.R. 23, is a mix of agricultural land, undeveloped land, and scattered suburban/rural residences. Juday Creek Golf Course, Juday Creek, Willow Creek, Canadian National railroad tracks and a section of the AEP transmission corridor are present within this part of the planning area. Penn North Fire Station No. 1 is also located on McKinley Highway at the south end of this section of the planning area.

The types and densities of land uses in this part of the planning area demonstrate a fringe or transitional pattern of development. Unlike the south end of the corridor, which transitions into the contiguous rural lands of St. Joseph County, this part of the corridor is located at the western end of a large pocket of agricultural land that is bordered by extensive residential developments extending from the west to the north and northeast. These residential developments have been one of the primary urban growth areas of St. Joseph County over the past 25 years.

The mid-point of the planning area, generally from just south of 12th Street/Harrison Road and continuing north across the St. Joseph River to McKinley Highway mostly lies within the corporate limits of the City of

Mishawaka. This area contains a greater mix of urban land uses that have generally developed in a more dense development pattern. Major residential areas, several apartment complexes, Bendix Park, the Frank Zappia Public Access Site, Laing Park, Twin Branch Park, Hums Park, Prickett Marina Park, Eberhart-Petro Municipal Golf Course, Eller Ditch, The Res, NSRR tracks, Elsie Rogers Elementary School, Hums Elementary School, and Beiger Elementary School are within this section of the planning area. Mishawaka's Fire Station No. 4 is also located within this section of the **planning area**.

Immediately east of the boundaries of this section of the planning area (near McKinley Highway) are Bittersweet Elementary School, Schmucker Middle School and Penn High School.

Commercial businesses in this area are limited, but there is some light manufacturing and industrial land uses along with several roadside service businesses present. Twin Branch Energy Industrial Park is located in this part of the planning area along with the AM General Hummer/GM H2 Assembly Plant.

The south end of the planning area, from U.S. 20 to about 12th Street/Harrison Road, primarily consists of suburban/rural residences and agricultural land. This area is on the fringe, or transitional area, between the urbanized land uses in the City of Mishawaka and the rural area of St. Joseph County. Eller Ditch, Elm Road Elementary School, sections of the AEP transmission corridor, George Wilson Park, and a small development of commercial service businesses are also located within this section of the planning area.

3.5 Summary of General Land Use in the Planning Area

Only a minimal amount of new development in the Capital Avenue planning area has occurred in recent years. Land use in the area can, therefore, be considered stable. Except for individual lots along the local roads, the major new residential developments have been limited to the southern part of the planning area and along a section of Jefferson Boulevard. The only major new non-residential development is the expansion of the AM General Hummer/GM H2 Assembly Plant.

MAP 3 PLANNING AREA

SECTION 4 –RESOURCE INVENTORY

4.1 Introduction to the Physical Environment

The planning area's physical environment refers to both the natural and man-made environments. These environments and their unique characteristics provide an overall picture of the area and offer both opportunities and constraints for future development. An extensive understanding of the area's physical environment is required to explain the resource opportunities the area can capitalize on and the resource constraints the area must contend with in order to properly plan and achieve success in future development. Completing land use plans require that the physical environment being planned be fully analyzed. This section examines some of the key features of the planning area's physical environment.

4.2 Natural Environment

The planning area's natural environment includes its surface water resources, topography, soils and environmentally sensitive areas such as wetlands, floodplains and wellhead protection areas. These features are shown on [Map 4](#).

4.2.1 Surface Water Resources

The planning area's main water feature is the St. Joseph River. The river's headwaters are located in Michigan and it discharges into Lake Michigan at St. Joseph, Michigan. Several other high quality streams also exist within the planning area. They include Eller Ditch, Willow Creek and Juday Creek. Eller Ditch is approximately 6 miles long, Willow Creek is approximately 7 miles long and Juday Creek is approximately 12 miles long. All of the streams discharge into the St. Joseph River and offer excellent stream habitats and good water quality. Willow Creek and Juday Creek are both important as cold water trout streams.

4.2.2 Topography

The planning area's topography is the shape and configuration of its natural and man-made features. Overall, from S.R. 23 south to the river, the planning area consists of level ground moraine with some rolling terrain and steep slopes. From the river south to U.S. 20, the planning area is rolling with an approximate 100 foot elevation drop between Dragoon Trail and U.S. 20. The terrace on the north side of the river valley has a much lower gradient than the gradient south of the river. The planning area is not located in a karst geology region.

4.2.3 Soils

The planning area's soils are generally either sandy loam (Oshtemo-Fox association, Tyner-Oshtemo association, and Rensselaer-Gilford-Maumee association), or loamy (Riddles-Miami-Crosier association). Loam soils are soils rich in organic matter. Further describing the planning area's soils, the Oshtemo-Fox and Tyner-Oshtemo associations are deep, moderately coarse textured, well-drained, and level to strongly sloping soils. The Rensselaer-Gilford-Maumee association is deep, moderately coarse to coarse textured, very poorly drained, depressional, with level slopes. The Riddles-Miami-Crosier association is deep, moderately fine to medium textured, somewhat poorly drained to well drained, and level to strongly sloping soils. A more detailed description of the soil associations and some more of their unique characteristics are listed below.

The Oshtemo-Fox Association

The soils of this association have moderately rapid to rapid permeability and a low available water capacity. The organic-matter content is moderate to high in the soil's surface layer. Runoff is slow to medium.

The Tyner-Oshtemo Association

The soils of this association have moderate to moderately rapid permeability and a low to moderate available water capacity. The organic-matter content is moderate to high in the soil's surface layer. Runoff is slow to medium.

The Rensselaer-Gilford-Maumee Association

The soils in this association have slow to rapid permeability and a low to high available water capacity. The organic-matter content is high in the soil's surface layer. Runoff is very slow to ponded.

The Riddles-Miami-Crosier Association

The soils in this association have moderately slow to moderate permeability and a high available water capacity. The organic-matter content is moderate in the soil's surface layer. It is low where the soil is severely eroded. Runoff is slow to rapid.

4.2.4 Wetlands

In general, wetlands are areas where water covers the soil, or is present either at or near the soil's surface for part or all of the year,

including the growing season for plants. Specifically, three basic indicators can identify wetlands. They are vegetation, hydrology and soils. All three characteristics must be present during some portion of the growing season for an area to be considered a 'jurisdictional' wetland, which is a wetland protected by the Clean Water Act. For the purpose of regulation under the Clean Water Act, the U.S. Army Corps of Engineers defines 'jurisdictional' wetlands as "areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions."

Wetlands are important to an area because they contribute to the overall well being of the natural environment. Specifically, they provide critical habitat for wildlife, store and filter nutrients and sediments making rivers and streams cleaner and drinking water safer, recharge underground aquifers, protect an area from flooding, control erosion in an area's lakes, rivers and streams and provide an area for recreational and educational opportunities.

The Capital Avenue planning area has several areas that meet the above requirements as wetlands. These wetland areas were identified through discovery during general field reconnaissance or using National Wetland Inventory (NWI) maps. The wetlands were not delineated in the field.

4.2.5 Floodplains

Floodplains are areas of land that are susceptible to inundation by floodwaters. In other words, it is the land that is normally dry but would be under water during a flood. A 100 year floodplain differs in that it is an area adjoining a river, stream, or other waterway that would be covered by water in the event of a 100 year flood, which is a flood having a one percent chance of being equaled or exceeded in magnitude any given year. The same definition applies for a 500 year floodplain.

The Federal Emergency Management Agency (FEMA) defines and can change the flood boundaries. The Flood Boundary and Floodway Maps (Community-Panel Numbers 180227 0010 and 180224 0045) developed for the National Flood Insurance Program by FEMA show that there are areas north and south of the St. Joseph River located within the 100 year flood boundaries. There are also areas north and

south of Juday Creek within both the 100 year and 500 year flood boundaries.

4.2.6 Wellhead Protection Areas

The U.S. Environmental Protection Agency defines a Wellhead Protection Area (WHPA) as the "surface and subsurface areas surrounding a water well or wellfield, supplying a public water system, through which contaminants are reasonably likely to move toward and reach such water well or wellfield." Basically, a WHPA is a location with an aquifer below that supplies drinking water for the people living in the vicinity. The physical boundaries of a WHPA are based upon the delineation of a capture zone for the water well or wellfield. Specifically, the capture zone for a water well or wellfield is defined by its recharge area, which is the surface and subsurface area that contributes groundwater to a water well or wellfield. Once the boundary is delineated, the designated area of land is then managed to minimize the potential of groundwater contamination by human activities that occur on the surface and/or subsurface.

Sections of the Mishawaka Utilities WHPA are located within the boundary of the planning area. Both 5-year and 10-year capture zones have been identified for this WHPA.

4.2.7 Other Environmentally Sensitive Areas

Several environmentally sensitive areas are located in the planning area. These are:

- Healthquest Wetland Mitigation Site (protected by Army Corps of Engineers and IDEM)
- Elder Road Classified Forest
- AEP Natural Area
- 'The Res' Environmental Education Area
- Audubon Property
- Rogers Ditch Wetland/Forest Complex

MAP 4 NATURAL ENVIRONMENT RESOURCES MAP

4.3 Man-Made Environment

The planning area's man-made environment includes its physical structures, public infrastructure such as water, sanitary sewer, electric and natural gas, transportation network and park and recreation areas. These facilities are shown on [Map 5](#).

4.3.1 Water Service Areas

Water service is provided to the planning area by Mishawaka Utilities. Mishawaka Utilities is owned and operated by the City of Mishawaka for the sole purpose of providing electric, water and wastewater treatment utility services for Mishawaka's citizens. If establishments within the planning area are not serviced by Mishawaka Utilities they are utilizing private water wells.

4.3.2 Sanitary Sewer Service Areas

The City of Mishawaka Sewer Maintenance Department provides sanitary sewer service to the planning area. According to the department, their sewer collection system has a service area, which includes the City of Mishawaka and portions of Clay, Penn and Harris Townships. The service area for the collection system covers approximately 17 square miles and includes over 200 miles of sewers. If the City's sewers do not service establishments within the planning area, they are utilizing septic systems, which are regulated by St. Joseph County's Health Department.

4.3.3 Electric and Natural Gas

As mentioned above, Mishawaka Utilities provides electric utility service for Mishawaka's citizens. Outside the City limits, electric is provided by AEP. AEP is one of the largest electric utilities in the United States with almost 5 million customers linked to AEP's 11-state electric transmission and distribution grids.

The Northern Indiana Public Service Company (NIPSCO) provides natural gas to all areas of the planning area.

4.3.4 Transportation

Regional highways that connect the planning area with other population and commerce centers in northern Indiana and points beyond include U.S. 20 and the Indiana Toll Road (I-80/90). The east-west arterials and collectors that provide accessibility to the major developments within the planning area include S.R. 23, Cleveland Road, Douglas Road, Day Road, McKinley Highway,

Jefferson Boulevard, S.R. 933 (Lincolnway), 12th Street/Harrison Road, and Dragoon Trail. All of these east-west roads traverse the entire width of the planning area. Most of these roads also provide additional mobility beyond the corridor with continuous and direct connections to Mishawaka and South Bend to the west and Elkhart to the east. The north-south arterials and collectors that provide accessibility to the planning area's developments include Bittersweet Road, Blackberry Road, Currant Road, Fir Road, existing Capital Avenue (S.R. 331), and Byrkit Street (Fir Road). Unlike the east-west roads in the planning area, these roads do not provide for continuous or direct travel along substantial portions of the area. Furthermore, no single north-south artery or collector traverses the entire length of the corridor. However, after the completion of the Capital Avenue expressway, this roadway will traverse the entire north-south length of the planning area.

The planning area also contains two active railroads, Canadian National (north of the river) and Norfolk Southern (south of the river).

4.3.5 Parks and Recreation Areas

The planning area contains a variety of parks and recreation areas. The following parks and recreation areas are located north of the river: Juday Creek Golf Course, Eberhart-Petro Municipal Golf Course (this course is also south of the river, connected by a bridge) and Prickett Marina Park. The following parks and recreation areas are located south of the river: the Frank Zappia Public Access Site, Laing Park, Twin Branch Park, The Res, Bendix Park, Hums Park, and George Wilson Park.

MAP 5 MAN-MADE ENVIRONMENT RESOURCES MAP

SECTION 5 – OPPORTUNITIES AND CONSTRAINTS

5.1 Opportunities and Constraints Analysis

Once the planning area's physical environment and its unique resources have been inventoried and evaluated, an overall picture of the area offering both opportunities and constraints for future development can be created. In other words, the completed resource inventory revealed that land within the planning area is viable for future development because certain opportunities are present. Further, certain areas were eliminated as land available for future development because certain constraints are present. This section examines the planning area's resources and their inherent opportunities and constraints for future development.

5.1.1 Natural Environment

Surface Water Resources

As mentioned previously, the St. Joseph River is the planning area's main water feature. The river along with the other high quality streams present is an obvious constraint for future development. Development of areas that negatively impact these surface water resources will not be considered a viable option. These resources provide the area's citizens with valuable recreational and natural amenities and should not be destroyed in order to establish a future development.

Topography and Soils

Sections 4.2.2 and 4.2.3 described generally the overall topography and soil characteristics of the planning area. Examples of topography and soil characteristics that affect development include, drainage, seasonal high water table, organic matter content, and slope.

According to the Soil Survey of St. Joseph County, Indiana, soils that are very poorly drained or poorly drained are a severe limitation to development because of their potential to be a high flood hazard. Soils that are somewhat poorly drained are only a moderate limitation to development. As a result, all areas that have very poorly drained or poorly drained soils were considered a constraint for future development.

According to the Soil Survey, soils that have a seasonal high water table that is at the surface or exhibit frequent ponding characteristics are a severe limitation to development. Soils with a seasonal high

water table at a depth of one to three feet are only a moderate limitation to development. Please note, the depth of the seasonal high water table is the distance from the surface of the soil to the highest level that the ground water reaches in the soil during most years. All areas that have a very high water table (water at the surface or frequent ponding) were considered a constraint for future development.

According to the Soil Survey, soils with a very high organic matter content are a severe limitation to development because these soils are unstable and have high compressibility. All areas within the planning area that have soils with very high organic matter content were considered a constraint for future development.

The topography (slope) of an area is one of the major limiting factors to development. According to the Soil Survey, slopes from 15% to 25% present development constraints. Areas with slopes greater than 25% are generally considered unfavorable to development or areas that are 'unbuildable'. Areas with slopes this steep usually have very shallow depths to the bedrock and as a result are often characterized by rock outcroppings. No areas within the planning area have slopes greater than 25%. However, there are areas with slopes from 15% to 25% that present development constraints and these areas were considered unavailable for future development.

Wetlands

As previously described, wetlands are incredibly valuable to an area and should be preserved when possible. As a result, all wetlands within the planning area were not considered land available for future development. The presence of a wetland was considered a constraint for future development. Wetlands also offer an opportunity for recreational and educational use, especially in floodplains or adjacent to existing recreational uses.

Floodplains

Since flooding is usually measured by the area of land that has a one in 100 chance of flooding per year, the resulting 100 year floodplain boundaries are a constraint on development. No areas within these boundaries are considered land available for future development. Please note, the 500 year floodplain boundary is not considered a development constraint. As a result, all areas within these boundaries were considered land available for future development. Floodplains

also offer an opportunity to expand or link existing parks and recreation uses.

Wellhead Protection Areas

As previously described, wellhead protection areas are important for protecting the recharge areas around a public water system. The areas delineated as recharge areas are then managed to minimize the potential for groundwater contamination. The areas designated as Mishawaka's capture zones are not considered limiting to future development and as a result were considered land available for future development. However, development in these areas will have to be sensitive to established, essential practices that minimize the potential for contaminating the groundwater.

Other Environmentally Sensitive Areas

The previously noted properties are important ecological, recreational and educational areas. Protection of these areas from future development should be provided.

5.1.2 Man-Made Environment

Water and Sanitary Sewer Service Areas

Provision of water and sanitary sewer services are key elements in shaping the pattern of development. In areas where these services are available or in the immediate vicinity, development opportunities are likely. When these services are not available in the general vicinity, development opportunities are unlikely. Mishawaka Utilities and the City of Mishawaka have indicated that all areas within the planning area are either already serviced by or can be serviced in the future by water and sanitary sewer based upon current long-range master plans for such public services. As a result, all areas are available for future development because water and sanitary sewer service is or will be provided.

Electric and Natural Gas

Provision of electric and natural gas are also essential for development. All areas within the planning area have these utilities available, or in the immediate vicinity. As a result, all areas are available for future development opportunities because electric and natural gas are available or will be available.

Transportation

The existing transportation network in and around the planning area is an opportunity for future development. Because regional highways along with arterial and collector roadways are present, there are considerable opportunities for growth and development. The established transportation network provides the linkages, mobility and accessibility needed for successful future development. Also, the existing transportation network will be further enhanced by the construction of the Capital Avenue (.R. 331) expressway.

The planning area is also serviced by two railroads. These rail lines also provide opportunities for future development especially in regards to industrial activities such as assembly plants, factories, and/or warehouses.

Opportunities to use development standards to visually enhance the planning area's transportation network are also recommended. For example, vegetative screening, landscaping, access control and setbacks along the existing roadway corridors are all recommended options for visually enhancing the planning area.

Parks and Recreation Areas

The planning area has a variety of parks and recreation areas. These parks and recreation areas enhance the overall quality of life of the community. They also have always been regarded as a crucial community asset and an essential component for quality growth and development. As a result, these areas are an opportunity for growth. However, they are a constraint too because areas that negatively impact these resources are not a viable development option.

Opportunities to provide pedestrian and trail linkages through new developments to the community's parks and recreation areas are also recommended. These linkages will contribute to the area's overall quality of life and further the progress made towards quality growth and development.

5.2 Maximum vs. Balanced Constraints Development

During the opportunities and constraints analysis, two viable development options were analyzed, maximum and balanced. The Maximum Constraints Scenario was the most limiting in regards to future development. In review, all areas of land with the following characteristics were eliminated as land available for future development: negatively impact surface water resources,

very poorly drained and poorly drained soils, very high water table, very high organic matter content, steep slopes, wetlands, and areas within the 100 year floodplain boundaries. **Map 6** highlights land availability under the **maximum constraints scenario**. Specifically, all land coded yellow is available for development. The land coded blue exhibits characteristics limiting to development. Under this scenario, approximately 2,620 acres of land are available for future development.

The balanced constraints development scenario was less limiting in regards to future development and permitted more development under the existing conditions. For example, areas were eliminated as land available for development only when they negatively impact surface water resources, have soils with a very high organic matter content, are wetlands or are within the 100 year floodplain boundaries. Under this scenario, areas with very poorly drained and poorly drained soils, very high water table, and steep slopes were no longer considered a major constraint for future development. They were no longer considered major constraints because of today's advanced engineering, design and construction techniques and technologies. For example, the following techniques and technologies make it possible to successfully develop and manage a site that has limiting soil and water table characteristics associated with it, removing soils and replacing with clean fill, adding clean fill to a site, constructing detention/retention ponds, utilizing interceptor drains and/or underdrain systems, site grading, and low impact development (LID), which is a new approach to managing stormwater.

Map 7 highlights land availability under the **balanced constraints scenario**. Specifically, all land coded yellow is available for development. The land coded blue exhibits characteristics limiting to development. Under this scenario, approximately 4,965 acres of land are available for future development.

The land availability difference between the maximum and balanced constraints scenarios is approximately 2,345 acres.

MAP 6 MAXIMUM CONSTRAINTS SCENARIO

MAP 7 BALANCED CONSTRAINTS SCENARIO

SECTION 6 – RECOMMENDED LAND USE PLAN

6.1 Introduction to the Land Use Plan

The balanced constraints scenario was used as the foundation for developing the recommended land uses within the planning area. Only the areas coded as yellow (land available for development) on the balanced map were assigned a recommended land use. This scenario was chosen as the foundation for the development of recommended land uses because as mentioned previously it was the most flexible scenario in regards to future development. Under this scenario, there are still development constraints limiting the availability of land for future uses but there is also land available. The result is 'balanced', orderly, high quality land use that promotes professional planning considerations and which incorporates, to the extent possible, expressed development desires of the public, local officials and development interests.

6.2 Land Use Plan Overview

6.2.1 North Planning Area

Major areas for residential growth, corporate park development, and a regional office and retail center dominate the proposed developed land uses for this portion of the planning area between SR 23/Indiana Toll Road and Day Road. In order to protect Juday Creek water quality, a large open space area is proposed along the Juday Creek floodplain.

All residential growth will be located west of the highway corridor. The planned residential growth areas provide for a low and/or medium density expansion of adjacent existing single family subdivisions.

Industrial development is proposed as master planned corporate parks with one-story flex buildings or multi-story office buildings with no outside storage areas that are highly visible. Designated amenities may be appropriate if incorporated as part of the overall corporate community. Retail sales of consumer goods and services, which support or are commonly associated with the primary uses, can be developed as secondary uses. The planned corporate parks will be located east of the highway corridor and will not abut any primary residential lands.

In order to take advantage of the regional access provided by the Indiana Toll Road, a major commercial office and retail, hotel, medical, and research park development is proposed for the northwest quadrant of the Capital Avenue crossing of the Indiana Toll Road. This will be a master planned community and may include research, laboratory, office, and support spaces.

Located immediately west of the Canadian National Railroad between Douglas Road and Day Road is a proposed professional office park with medium density residential development. This area is proposed to support the planned relocation of the St. Joseph Regional Medical Center to Edison Lakes Park located just west of the planning area along Douglas Road. The professional office park may include offices associated with health and human services such as clinics, ambulatory/outpatient care centers and laboratories along with possible professional, scientific, and technical service business offices,

A small commercial service area is proposed in the southwest quadrant of the Capital Avenue/Douglas Road intersection. This area will be developed in such a manner so as to provide a buffer for the adjacent residential development. The commercial development will be for low density uses not big box development. Controlled right of way along Douglas Road will require a service road for access to this area.

6.2.2 Central Planning Area

Most of the land between Day Road and Harrison Road (12th Street) is urbanized with a mix of residential and industrial land uses. The planning approach for this area is to provide for infill development consistent with the current uses, maintain the protection of sensitive environmental areas, and provide recreational services to the residents of the area.

New residential development is proposed adjacent to existing residential areas located along and near Day Road, Currant Road, Elder Road, Early Road, Jefferson Highway, and Harrison Road. Most of this residential development will be low density and will be developed with integrated open space for park/recreational uses and natural areas.

Industrial uses proposed for this area will be located adjacent to existing industrial uses or at major highway intersections. These uses

consist of light industrial, manufacturing, and distribution with possible integrated commercial businesses.

Open space will extend a greenbelt from the north planning area to Jefferson Highway along the east side of Capital Avenue. Other recreational/open space areas include a forested wetland complex east of Currant Road, Willow Creek and adjacent forestland between McKinley Highway and Jefferson Highway, and a new open space area between 'The Res' and Harrison Road. The land use plan supports expansion of Bendix Park along 12th Street.

6.2.3 South Planning Area

The south planning area, which extends from Harrison Road to Kern Road, will primarily be developed by residential uses north of US 20 and light industrial uses south of US 20. Large open space areas are proposed adjacent to Blackberry Road (Eller Ditch headwaters) and north of Kern Road (Rogers Ditch headwaters and wetlands).

Residential development between 12th Street and Dragoon Trail to the west of Capital Avenue will be medium density which is consistent with adjacent existing residential development. Proposed residential development south of Dragoon Trail and to the east of Capital Avenue will be low density. This development will be built with integrated open spaces for park/recreational uses and natural areas.

A commercial service area is proposed for the southwest quadrant of the Capital Avenue/12th Street intersection. This area is intended for businesses that will provide goods and services for the nearby residential areas.

New industrial development for this area will be limited to the southwest and southeast quadrants of the Capital Avenue/US 20 interchange. The proposed uses will be for light industrial with integrated commercial. Buffering should be provided between the industrial and commercial uses that may be developed in this area.

MAP 8 RECOMMENDED LAND USE PLAN

6.3 Recommended Land Uses for Capital Avenue Planning Area

The following recommended land uses by development area are presented on **Map 8**.

Area 1	Commercial office and retail, hotel, medical, and research park.
Area 2	Low to medium-density residential
Area 3	Corporate park developed as a master planned corporate community.
Area 4	Low-density residential with open space for park/recreational uses and natural areas
Area 5	Medium-density residential as buffer to Canadian National Railroad
Area 6	Professional office park with medium density residential
Area 7	Low-density residential
Area 8	Commercial service with buffer uses that support the adjacent uses
Area 9	Light Industrial
Area 10	Medium-density residential
Area 11	Industrial/manufacturing/distribution with integrated commercial
Area 12	Low-density residential
Area 13	Low-density residential with open space for park/recreational uses and natural areas
Area 14	Industrial/manufacturing/distribution with integrated commercial

Area 15	Industrial/manufacturing/distribution
Area 16	Industrial/manufacturing/distribution
Area 17	Commercial
Area 18	Light Industrial
Area 19	Low-density residential
Area 20	Low-density residential
Area 21	Commercial
Area 22	Commercial service for nearby neighborhoods
Area 23	Medium-density residential
Area 24	Medium-density residential
Area 25	Light industrial
Area 26	Medium-density residential
Area 27	Low-density residential with open space for park/recreational uses and natural areas
Area 28	Low-density residential with open space for park/recreational uses and natural areas
Area 29	Low-density residential with open space for park/recreational uses and natural areas
Area 30	Light industrial with integrated commercial