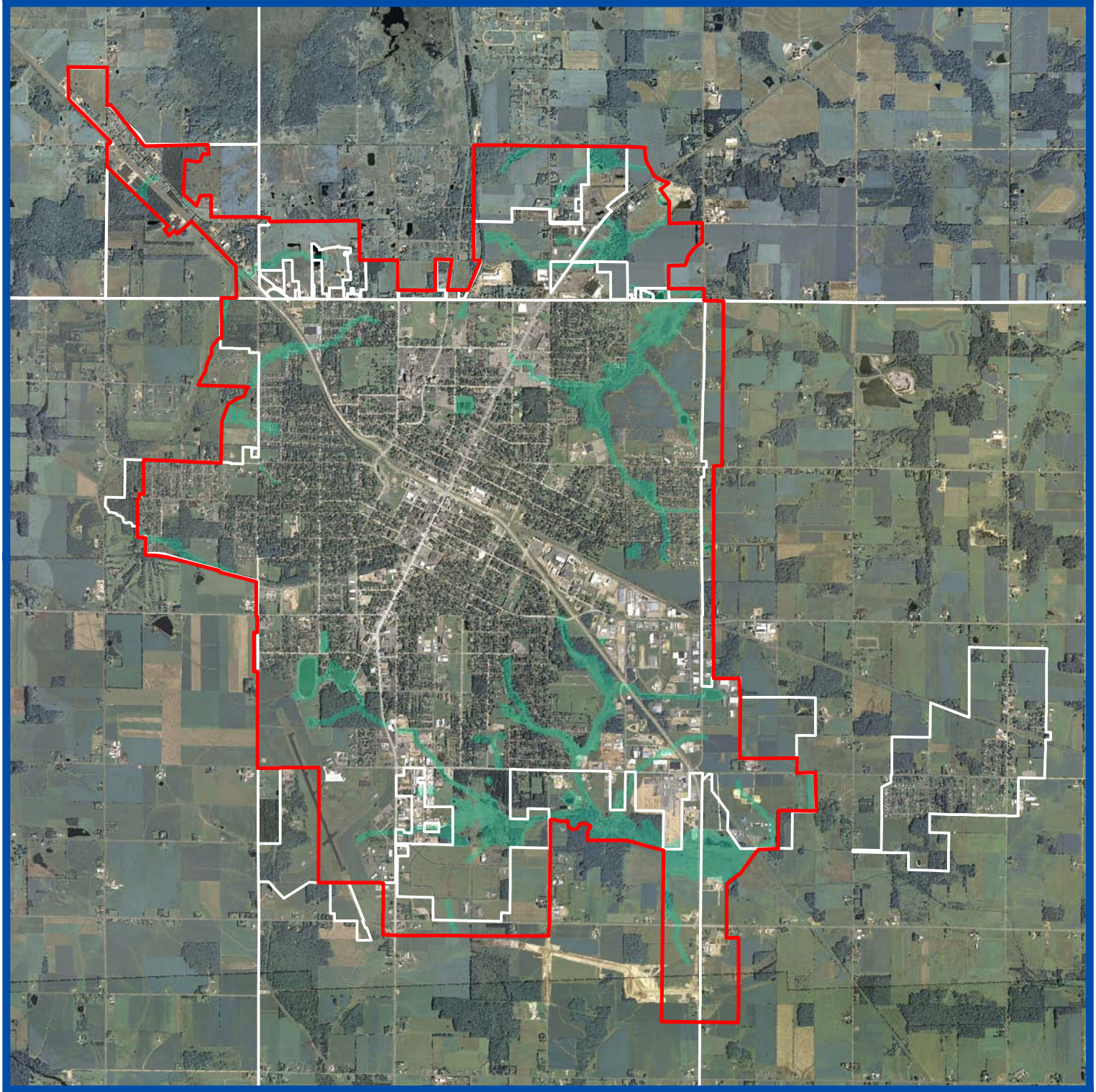
MARSHFIELD SEWER SERVICE AREA PLAN UPDATE

2010 - 2030

AN AREAWIDE WATER QUALITY MANAGEMENT PLAN



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For:
Marshfield Sewer Service Area Planning Advisory Committee
And
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City of Marshfield Resolution of Plan Adoption
WisDNR Letter of Plan Approval
Marshfield Stormwater & Erosion Control Ordinances

SECTION 1.0 INTRODUCTION

1.1 PURPOSE

This report is intended to update and replace the original 2000-2020 sewer service area plan for the City of Marshfield and surrounding area. These types of plans are also known as areawide water quality management plans.

The general purpose of this areawide water quality management plan, herein referred to as Sewer Service Area Plan, is to maintain a twenty year sanitary sewer service boundary for the Marshfield Urban Area and an institutional structure for implementing the Plan and managing the extension of sanitary sewage services within this urban area.

The urban sanitary sewer service area boundary identifies the geographic land area within which sanitary sewer service could be made available by the year 2030 through a cost-effective, environmentally acceptable manner.

In addition to delineating an urban sewer service boundary, the Sewer Service Area Plan provides a framework for future planning at each individual municipal level. The data, trends, projections and findings developed in this Plan are consistent with detailed community plans for the City of Marshfield, the Village of Hewitt, and the Towns of Cameron, Lincoln, Marshfield, McMillan and Spencer. The goals and policies developed throughout this planning process will also be applicable and useful in the development of local policy direction with respect to land use decisions within these communities.

Thus, the Sewer Service Area Plan will serve the following overall purposes:

1) It establishes the geographic boundaries for possible sanitary sewer service to the year 2030;
2) It provides a technical basis to anticipate future needs for wastewater collection and centralized treatment facilities for the planning area;
3) It establishes an institutional structure for reviewing boundary and plan amendments and for approving sewer extensions and expansions of sewage treatment plants;
4) It serves as a guide for community officials as they make land development decisions within their respective communities;
5) It identifies areas to be protected from development by designating them as environmentally sensitive areas. Such areas will control and direct the growth of communities in order to protect environmental, social, and economic concerns; and
6) The Plan will become a component of the Central Wisconsin River Basin Integrated Management Plan.

1.2 DESCRIPTION OF THE STUDY AREA

The study or planning area for this Sewer Service Area Plan is shown in Figure 1. The planning area is not to be confused with the actual sewer service area. The planning area is a much broader geographic area designed to limit the focus of the study and related data collection and portrayal beyond the furthest possible extent of sewer service in any direction. A general understanding of the surrounding area is also necessary for adequate planning processes. The final "planned" sewer service area boundary will fall somewhere inside this greater planning study area.

An urban planning area usually corresponds to the municipality's extraterritorial jurisdiction which is then increased or decreased as necessary. In Marshfield, the City's three mile extraterritorial area was deemed more than needed, so a lesser study area of about a one and one-half mile buffer was selected to provide a better scale on working maps of the area. This buffer was then altered to match up with established Census blocks. The Census blocks are used as "special analysis zones" for purposes of this Plan, because basic historical data on demographic characteristics are compiled on a census block basis. This planning area includes all or part of the following jurisdictions: in Wood County: City of Marshfield, Village of Hewitt, Town of Cameron, Town of Lincoln and Town of Marshfield, and in Marathon County: Town of McMillan and Town of Spencer.

1.3 FEDERAL AND STATE LEGISLATIVE FRAMEWORK

Federal legislation for water quality planning programs was enacted under Section 208 of the Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500) and the Federal Clean Water Act of 1977. These Acts set the framework for a state and national water quality management program with the major goal of making Wisconsin's and the nation's waters "fishable and swimmable" *and drinkable* for the future. Congress mandated that this goal be achieved through a comprehensive program of water quality planning, municipal wastewater treatment facilities, and a national discharge permit program for municipal and industrial wastewater discharges. A key section of the Act(s) is Section 208 which requires the preparation of Areawide Water Quality Management Plans by local agencies designated by the state.

Pursuant to the congressional mandates of Public Law 92-500, the Wisconsin Legislature created chapters 281.11, 281.12 and 283.83 of the Wisconsin Statutes which gives the Wisconsin Department of Natural Resources (DNR) the charge and authority to organize a comprehensive state program for the enhancement and protection of all waters in the state. Under this statutory authority, Chapter

NR121 of the Wisconsin Administrative Code was established specifying the policies, procedures and requirements for Wisconsin areawide water quality planning programs.

Through Wisconsin Administrative Code NR121.05(4), the DNR requires that a "sewer service area plan" be prepared for all urban areas over 10,000 in population, thus requiring that a plan be prepared for the City of Marshfield and the surrounding urban area. Although this Plan and any subsequent updates approved by the DNR technically becomes a state document incorporated into the Central Wisconsin River Basin Integrated Management Plan, it is prepared under the direction of an advisory committee consisting of local officials from the Marshfield Area.

1.4 NEED FOR UPDATE OF ORIGINAL SEWER SERVICE AREA PLAN 2000-2020

Over the last ten years there have been several amendments to the sewer service area boundary in which areas inside the boundary have been "swapped out" (Type 1 Amendment - See Section 9) for lands where sewered development was proposed outside the boundary. Note, there was an additional amendment that revised text, but did not affect the boundary. These boundary amendments are as follows:

1) August 2001 - Type 1 amendment to the SSA boundary in the Town of McMillan.

2) January 2005 - Administrative correction to add area inadvertently omitted from boundary shown on approved map.

3) August 2005 - Type 1 amendment to the SSA boundary in the Towns of Spencer, McMillan, and Cameron.

4) April 2010 - Type 1 amendment to the SSA boundary in the Towns of Lincoln, Cameron and Marshfield.

These amendments have depleted the amount of land available for future Type 1 Amendments, limiting the City's ability to accommodate future growth and development.

In 2007, the City of Marshfield updated its comprehensive plan in accordance with the statutory requirements. That plan identified areas of potential development extending outside of the existing sewer service boundary. With the limited available sewer service area the City lacks the flexibility necessary to implement its comprehensive plan.

As a result, the City requested the NCWRPC to undertake this update of the Sewer Service Area Plan.

1.5 INTERRELATIONSHIPS BETWEEN THE SEWER SERVICE AREA PLAN, THE 201 FACILITIES PLANS AND THE WISCONSIN RIVER BASIN PLANS

Three types of water quality plans are required under the Federal Water Pollution Control Act. These include basin plans under Section 209 and 303, facilities plans under Section 201, and areawide water quality management (sewer service area) plans under Section 208. The relationship of these plans is illustrated in Figure 2.

The Central Wisconsin River Basin Plan is one of several major river basin plans for the State of Wisconsin. As a whole, these basin plans provide a statewide analysis of water quality and a description of overall goals for protection and enhancement of the state's waters. The primary use of basin plans is as a management guide for specific local governmental actions such as grant awards, setting conditions in waste treatment discharge permits and the identification of needed specific local planning and action.

By contrast with the regional character of basin plans, the 201 facilities plans and 208 areawide water quality management plans are limited to a local area within a major river basin. The facilities plans deal with the planning and preliminary design related to the construction of municipal sewage treatment plants. Through a systematic evaluation of alternatives, the facilities plan is intended to assure that only cost-effective and environmentally sound treatment facilities are constructed.

The Sewer Service Area Plan is a local urban area plan that identifies the most cost-effective method of providing sanitary sewer service. Unlike the facilities plan, which is limited to the treatment plant itself, the Sewer Service Area Plan identifies what lands can be served by municipal sewer within a twenty-year planning period. The boundaries of service areas for each sewage treatment plant are identified based upon what is most cost-effective. The quantities and types of land uses and population to be served are also projected in a Sewer Service Area Plan.

The Marshfield Sewer Service Area Plan will be combined with other like plans from the other urban areas in the Central Wisconsin River Basin to fill in the urban elements of the Central Wisconsin River Basin Integrated Management Plan. The Sewer Service Area Plan relates directly to the DNR's sewer extension policy in that once the Plan is approved by the state, all proposals for construction of wastewater treatment facilities, installation of interceptor sewers and all sewer line extensions must be in conformance with the Sewer Service Area Plan before

DNR approval to extend a sewer line will be given.

1.6 GUIDELINES FOR PREPARATION OF THE SEWER SERVICE AREA PLAN

1) The Sewer Service Area Plan shall be consistent with the requirements of Wisconsin Administrative Code NR121 "Areawide Water Quality Management Plans".

2) The Plan shall be generally consistent with the land use policies and recommendations of locally adopted comprehensive plans.

3) The Marshfield Sewer Service Area Planning Advisory Committee shall oversee the development of the Plan and be responsible for all public policy aspects of the Plan.

4) Opportunities for public participation, including at a minimum public hearing per NR121.08, will be provided as part of the development of the Sewer Service Area Plan.

5) Wood County Planning and Zoning will serve as the designated agent for administration of sewer extension and plumbing plan reviews and sewer service area amendments.

Figure 1
Marshfield Sewer Service Area
Study Area

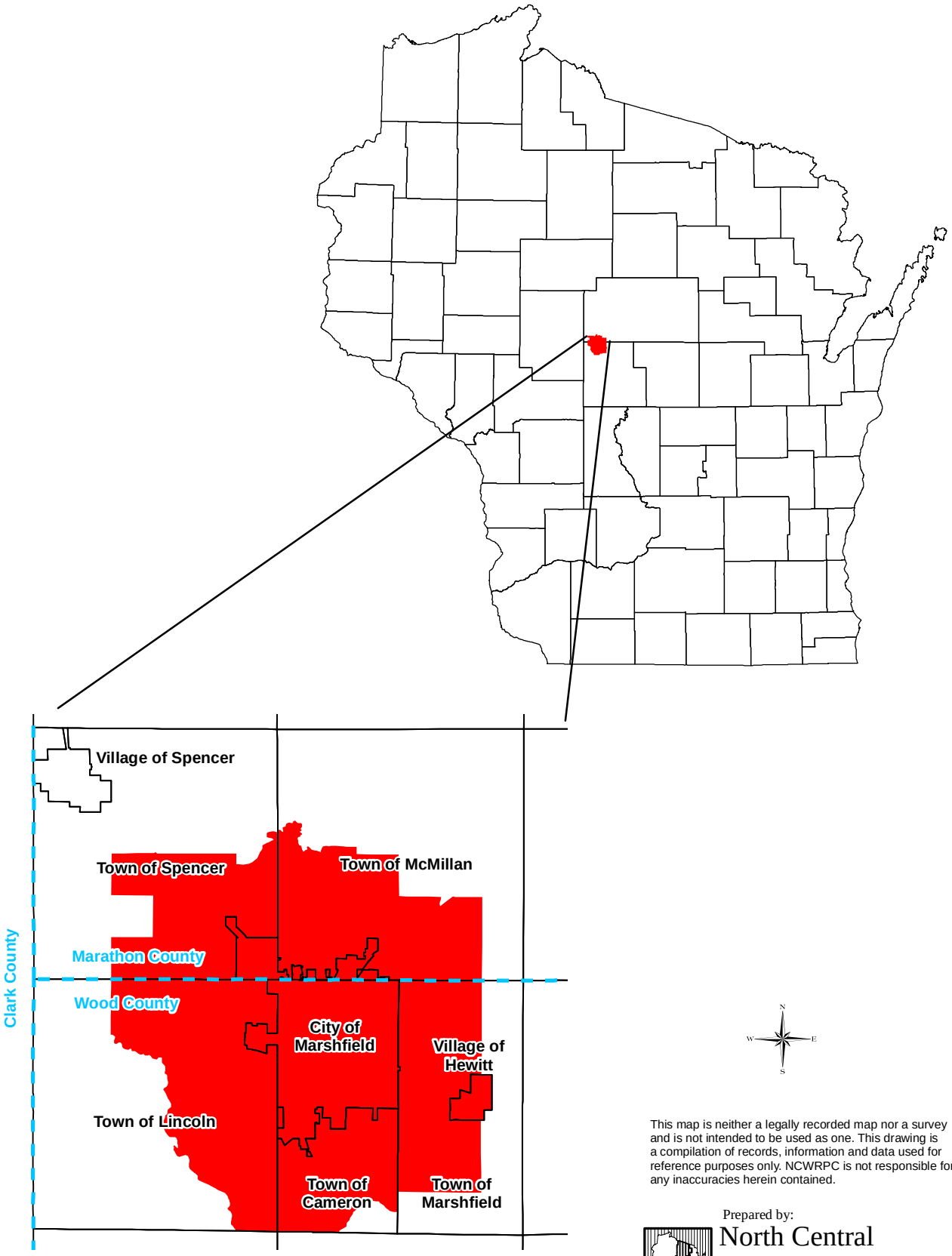

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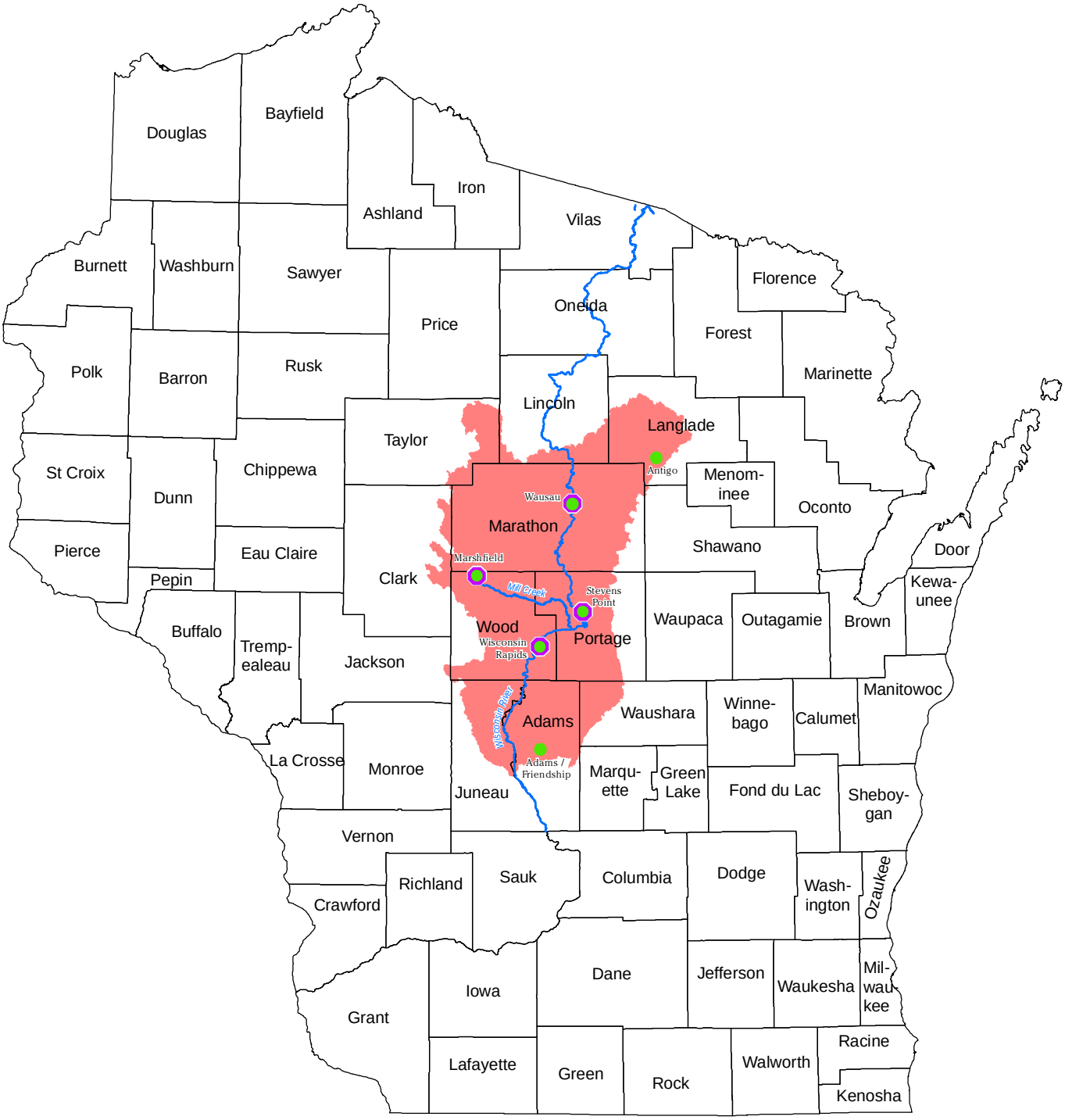
Figure 2
Water Quality Plan Relationships



201 Facilities plans for municipal wastewater treatment

208 Area - wide water quality management (Sewer Service Area Plans)

County Boundaries

Basin planning boundary (Central Wisconsin Basin)

N
W E
S

0 10 20 40 60 80 Miles

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SECTION 2.0 LOCAL PLANS FOR WASTEWATER FACILITIES

2.1 BACKGROUND ON FACILITIES PLANS

The 201 facilities plan represents the first step in a three-step process that must be followed to obtain federal funding for wastewater treatment facilities under Public Law 92-500. The facilities plan serves the following purposes:

1) The development and evaluation of alternative wastewater treatment methods;
2) Selection of the cost effective and environmentally sound plan which will best solve the wastewater treatment problems of the area; and
3) Presentation of preliminary designs for the selected plan of wastewater treatment.

Marshfield's current facilities plan was prepared in 1997 by Strand Associates Inc. under the title, *Cost-Effective Analysis and Environmental Information Document: City of Marshfield, WI Wastewater Utility*. Hewitt's facilities plan was prepared by Perry-Carrington Engineering Corporation in 1992 and titled, *Village of Hewitt Facilities Plan for Wastewater Treatment Plant*. Much of the planning data that is found in the facilities plans is applicable and was used in the preparation of this Sewer Service Area Plan.

2.2 EXISTING WASTEWATER TREATMENT AND COLLECTION SYSTEMS

The City of Marshfield and the Village of Hewitt are the only municipal wastewater treatment facilities in the study area. The wastewater collection and treatment systems for the City of Marshfield and Village of Hewitt are described below. The City's current treatment plant came on-line in April of 2000 with a design life to 2020. The Village opened its current plant in 1994 with a design life to 2014.

2.2.1 CITY OF MARSHFIELD COLLECTION AND TREATMENT SYSTEM

The City of Marshfield maintains a collection and conveyance system that includes four pumping stations, various force mains and about 140 miles of sanitary sewer line, including the new interceptor sewer installed with the Highway 10 re-route. Some sewers in the City are believed to date back to the 1880s.

Marshfield's collection system has historically had a high rate of infiltration and inflow (I/I) and has had problems with backups, overflows and bypasses of untreated wastewater during weather related peak flow events. The City has

actively addressed I/I removal since the early 1970s through extensive investigation and rehabilitation. However, the projected degree of I/I removal has not yet been realized. The City continues its efforts to control I/I through collection system maintenance, repairs and improvements including replacement. In addition to exceeding collection capacity, I/I is conveyed to the wastewater plant, unnecessarily increasing treatment costs and impacting plant capacity.

The City of Marshfield began operation of a sanitary sewer collection system in 1880 along with settling and digestion of solids in the wastewater. During the 1920s, additional solids settling and digestion facilities were added. In the 1930s, wastewater treatment facilities were centralized and enhanced to include primary clarification and a trickling filter. In the late 1940s, the municipal treatment facilities were relocated to the immediate past site. That facility included comminution, pumping, pre-aeration, primary clarification, biological treatment by trickling filters, anaerobic sludge digestion and sludge storage. A major expansion to that facility took place in the early 1970s when grit removal, activated sludge facilities (aeration tanks and final clarifiers) and biological sludge handling facilities were constructed. Tertiary treatment sand filters were added in the mid-1980s along with miscellaneous other improvements. This plant was retired during preparation of original SSA Plan.

The facilities plan reviewed a number of alternatives to address the above cited system deficiencies and meet projected wastewater infrastructure needs. The recommended alternative was the New Site Alternative, new plant at new site. This alternative was determined to be the most overall cost-effective based on initial cost, operation & maintenance costs, and other non-monetary factors. The new facility came on-line in April 2000 with subsequent closure and abandonment of the previous site.

Wastewater is conveyed via a gravity interceptor to the current site about two miles southeast of the previous plant. The interceptor eliminated the need for the 29th Street Pumping Station and allows areas in the southeast part of the City to be served by gravity rather than requiring a pumping station and force main.

The current facilities consist of three influent screw pumps, each with a capacity of pumping 15 MGD. After being pumped by the influent pumps, the wastewater proceeds through a fine 1/8 inch screening system to remove debris and organics. The debris proceeds through a wash press before being disposed of as solids waste.

Organics and food matter are further removed in a 2.75 MG oxidation activated sludge process tank. Further solids are settled from the wastewater in a 881,000

gallon clarifier. The fully treated wastewater then flows through a 2,000 foot channel where it intersects with and is discharged to Mill Creek. Excess solids are thickened on a three meter gravity belt thickener and pumped to two biosolids storage tanks each holding over 2 million gallons.

Design criteria for the current Marshfield Wastewater Treatment Plant are shown in Table 1.

TABLE 1: Capacity/Loading Information - Marshfield Treatment Plant	
DESIGN LIFE:	
Population-	30,000
Year-	2020
FLOW:	
Average Design Flow-	4.63 MGD
Peak Instantaneous Flow-	28 MGD
LOADING:	
Biochemical Oxygen Demand (BOD)-	11,000 lb/day
Total Suspended Solids (TSS)-	11,000 lb/day
Total Kjeldahl Nitrogen (TKN)-	1,550 lb/day
Phosphorus (P)-	350 lb/day
EFFLUENT LIMITS:	
Carbonaceous BOD-	16 mg/L monthly average
TSS-	20 mg/L monthly average
Dissolved Oxygen-	4.0 mg/L daily minimum
pH-	6-9 s.u.
Source: City of Marshfield, June 2010.	

Currently (at the time of this update), the plant is operating at about half capacity and handles peaks with no problem as it was designed to. The only issue for the plant is pending new phosphorus limits. However, the City is close to obtaining a renewal on its five -year permit, deferring impact of the new limits beyond 2015 and providing time to plan for compliance.

2.2.2 VILLAGE OF HEWITT COLLECTION AND TREATMENT SYSTEM

In 1970, the Village of Hewitt constructed a sanitary sewer collection system and a two cell, clay-lined stabilization pond wastewater treatment facility, with effluent discharging to Mill Creek. The collection system currently consists of approximately 25,400 feet of gravity sewer, 6,900 feet of force main, and six lift stations. By 1985, the Village had reached the plant's design population of 500 persons, and the plant began having difficulty meeting discharge limits. An

aeration system was added to the existing ponds. By 1991, wastewater flow had again reached the capacity of the facility, and it was discovered that the facility itself was a potential groundwater contamination problem due to minimal separation between the pond bottom and the water table.

The facilities plan recommended a new treatment plant on a new site as the most cost-effective solution. The "new" facility began operation in 1994, south of the Village near the original plant, which was then abandoned per DNR requirements. The project included new force main and rehabilitation of all lift stations. The I/I was determined to be not excessive. An oxidation ditch type wastewater treatment system was installed. Treatment components include an automatically cleaned bar screen, grit removal, oxidation ditch with aerators, secondary clarifier, and sludge holding tank. Effluent disinfection is included in the design should it eventually be needed, however, it is not currently required.

The oxidation ditch treatment system is an extended aeration activated sludge process. Long slender concrete channels are used as continuous loop reactors to biologically treat wastewater. Water depth is normally 7 to 10 feet with horizontal velocity, oxygen and mixing supplied by surface aerators. Ditch effluent flows to a clarifier where solids are removed. The removed solids are recycled to the ditch or disposed on farmlands. Effluent discharge continues to be at Mill Creek.

The projected future population and loadings that this plant has been designed to accommodate are as follows: 930 (2014) population; 113,500 gpd average daily flow; 148,000 gpd wet weather daily flow rate; 250,000 gpd peak daily flow rate; 170 lb/day BOD loading; and 200 lb/day suspended solids loading.

Currently (at the time of this update), the plant is operating at about half capacity with no problems. The plant's current five-year permit is up in 2014 which is also the final year of its facility plan, so the Village will have to look at its options for extending the life of its facility.

2.2.3 DISPOSAL OF SEPTAGE IN MUNICIPAL SEWAGE SYSTEMS

According to state regulations, a municipal sewage system must accept and treat septage from a licensed disposer between November 15 and April 15 and is required to provide adequate facilities for the introduction of septage into the sewage system. The system may, but is not required to accept septage at others times during the year. Land spreading, according to state regulations and guidelines, is another option for disposal of septage (not negated by the regulations on disposal of septage in municipal systems).

Licensed disposers may apply to the municipal system for permission, annually,

per state regulations. The system will prepare a disposal plan for each approved applicant with terms and conditions including reasonable fees, again per state regulations. In Marshfield's case they simply pay a license fee, show proof of insurance, and log the source(s) of the wastewater. They are then billed for each load discharged.

Other exceptions to the requirement to accept septage include cases where system capacity would be exceeded or any applicable limitations, standards or other legal requirements would be violated; the septage is not compatible with the system; or the disposer fails to comply with their disposal plan or other disposal rules promulgated by the system.

Subject to the above, the system is required to accept, treat and dispose of the septage that is generated within its sewer service area and holding tank wastewater that is generated outside the sewer service area but inside or equal to the facility planning area (established in the 201 facilities plan). If the system is unable to accommodate all requests for acceptance of septage, state regulations establish the following priority system:

1) Wastes from existing or new holding and septic tanks within the sewer service area and holding tanks within the system's holding tank service area (which may be established by ordinance per state regulations).

2) Wastes from existing holding tanks for residential or commercial establishments outside the sewer service area and holding tank service area but inside the facility planning area where the holding tank was installed to replace an inadequate private sewerage system.

3) Wastes from existing septic tanks and holding tanks that were installed not as a replacement to an inadequate sewer system for residential or commercial establishments outside the sewer service and holding tank service areas but inside the facility's planning area.

4) Wastes from new or existing septic and holding tanks for residential or commercial establishments outside the facility planning area.

Disposers may apply to and negotiate disposal plans with systems outside the area where the septage is collected. Locations for land spreading is also at the option of the disposer, subject to County and state licensing and regulation. Cities, villages or towns may not prohibit or regulate disposal of septage on land if that disposal complies with the County and state rules. However, for land disposal on a site where soil, geologic or other conditions may result in an increased probability of groundwater contamination, the department may require additional treatment prior to discharge to that site.

2.2.4 SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS OF THE LOCAL 201 FACILITIES PLANS

Each facility plan evaluated several treatment alternatives and recommended the most cost-effective alternative with minimal environmental impact on the planning area. The selected alternatives have addressed system deficiencies and increased capacity for both the City and the Village.

The Marshfield facilities plan concluded that the "new" plant will improve water quality through improved effluent quality and elimination of overflows and bypasses of untreated wastewater. Nitrification (ammonia oxidation) should provide a water quality benefit to Mill Creek.

Similarly, the Hewitt plan concluded that the "new" plant would produce a better quality effluent than its predecessor, thus resulting in improved water quality in the receiving stream, Mill Creek.

One alternative considered in the Hewitt facilities plan, notable from an areawide sewer service planning standpoint, was regionalization or connection to the City of Marshfield treatment plant. Regionalization was shown to have the least environmental impacts, however, documentation in the plan, including correspondence from the DNR and the City show strong opposition on both sides to regionalization. These political and social adverse impacts were significant enough that the DNR determined that regionalization could not be considered a feasible alternative and backed down from requiring it.

Today, with the Marshfield plant significantly closer to the Village than the previous City plant, regionalization would be more technically and economically feasible. Whether or not the political or social climate has changed over time, as well, remains to be seen. The future fiscal impact of meeting new requirements, such as the phosphorus limits, may influence the options to be considered by the Village when seeking to renew its permit.

SECTION 3.0 CENTRAL WISCONSIN RIVER BASIN INTEGRATED MANAGEMENT PLAN

3.1 BACKGROUND OF BASIN PLAN

The Central Wisconsin River Basin is a subset of the entire Wisconsin River corridor. The River is divided into three segments to distribute the workload between different DNR region offices. Located in Central Wisconsin, the Basin extends south from the Merrill Dam located on the Wisconsin River in Lincoln County to the Castle Rock Flowage Dam in Juneau and Adams Counties, see Figure 2.

The 1992 Central Wisconsin River Water Quality Management Plan has been the basis for water resources management priorities and activities to address water quality issues, providing management and monitoring recommendations for lakes and streams in the Central Wisconsin River Basin.

The DNR continues to use the 1992 plan as a basis for management decisions. In 2002, the DNR completed the State of the Central Wisconsin River Basin Report to provide updated lake and stream tables and other updated background and program information. Together these two plan reports serve as the DNR's Central Wisconsin River Basin Integrated Management Plan.

In previous plans, the municipal point source pollution problems in the basin were not dealt with in very much detail. This updated basin plan now directs more attention on point sources with the Point Source Report, which examines existing and future wastewater treatment facility and management needs.

All future water quality management activities within the basin, including the Marshfield Sewer Service Area Plan must be consistent with the basin plan according to state law.

3.2 CONCLUSIONS AND RECOMMENDATIONS OF THE BASIN PLAN REGARDING MUNICIPAL POINT SOURCE POLLUTION

Ultimately, the basin plan outlines steps that are necessary for waters of the basin to meet the "fishable and swimmable" goal. The specific action goals of the basin plan are as follows:

1) Identify water quality problems in the basin in order to set priorities and provide guidance for management activities for specific lakes and streams;
2) Guide and direct the public, designated management agencies, state and federal agencies, and local governments in efforts to protect and

improve Wisconsin's water resources;

3) Anticipate future management activities necessary for water quality protection;
4) Integrate and coordinate DNR programs for managing both surface and groundwater resources in Wisconsin; and
5) Incorporate the public's concerns and increase public awareness of everyone's responsibilities to water quality protection and improvement.

For Marshfield, Hewitt and the Mill Creek watershed, the 1992 basin plan lists the following Point Source Recommendations:

"28") Hewitt Sanitary District should complete a facility plan and subsequent upgrading to comply with current code and designing for the next 20-year period.

Note: This was completed as discussed above.

"29") The City of Marshfield should continue to reduce clear water inflow to the plant since there is little reserve hydraulic capacity.

Note: As discussed earlier, the City continues to work on its I/I problems, and the new treatment plant has been designed to handle the excess inflow that is not cost-effective to remove.

In the 2002 basin plan update, an additional recommendation was added for Marshfield, as follows:

"8") City of Marshfield should develop and implement an erosion control and stormwater management ordinance to improve water quality and habitat within Mill Creek.

Note: Marshfield is addressing current federal and state stormwater requirements including erosion control. The City is participating in the North Central Wisconsin Stormwater Coalition along with Wisconsin Rapids, Stevens Point, Merrill and the Wausau area communities. The purpose of the Coalition is to avoid duplication of efforts and save costs in minimizing discharge of pollutants carried by stormwater runoff.

The group's work to cooperatively comply with the Wisconsin Pollutant Discharge Elimination System (WPDES) includes the following at the time of this writing:

- Public Education and Outreach Programming
- Construction Site Erosion Control Ordinance Development
- Post-Construction Stormwater Management Ordinance

Development
- Illicit Discharge Ordinance Development (Pending)

Marshfield has adopted two of the ordinances and is working on the third, see attachments. With regard to Sewer Service Area planning, the stormwater program is another aspect of water quality management.

A comprehensive list and recommendations of other water quality issues related to municipal operations and activities is also presented in the basin plan.

3.3 DISCUSSION OF WATER RESOURCE CONDITIONS IN THE MARSHFIELD AREA

Marshfield's municipal wells are shallow (only 50 to 90 feet deep) and exist in sand and gravel deposits within narrow bedrock channels. Domestic and farm supply wells in the surrounding towns and village are low yielding wells drilled into fractured bedrock. Top soil consists of 8 to 10 feet of tight clay soils, which limits recharge. The shallow depth to groundwater and fractured bedrock aquifers leave the water supply in the Marshfield area susceptible to contamination by microbes and other contaminant sources. Low levels of nitrate and volatile organic compounds have been found in the Marshfield water supply.

As a result of these conditions, the Village of Hewitt, which relies on individual wells rather than a municipal supply, has recently had to turn down a number proposed new residential developments due to concerns about limited water quantity and poor water quality. In the surrounding town areas, large lot sizes and distances between residential units tend to minimize these issues.

Due to the agricultural nature of the Marshfield area, the primary sources of surface water pollutants include: 1) polluted runoff from agricultural operations, 2) sediment from cropland erosion, and 3) runoff from winterspread manure. Streambank erosion is also a significant issue. Such factors resulted in the Upper Yellow River Watershed being selected for a Priority Watershed project in 1994 to reduce the amount of pollutants reaching the surface water and groundwater within the watershed.

The other notable surface water issue in the area is the impaired water (EPA 303d) listing of Mill Creek. This stream suffers from low dissolved oxygen and is impacted by stormwater runoff, sedimentation, agricultural runoff, flashy stream flow, streambank erosion, and nutrient enrichment. As noted in Section 2, Mill Creek is the receiving water for treated effluent from both the City of Marshfield and Village of Hewitt waste water treatment plants.

SECTION 4.0 PLANNING AREA GROWTH PROJECTIONS

4.1 INTRODUCTION

Delineation of a year 2030 sewer service area requires the development of a series of assumptions and projections concerning population growth of the Marshfield Area, average household size, number of households, development densities, and a plan of projected land use patterns.

Population projections for the Marshfield Area have been generated for various past planning efforts including local comprehensive plans and facilities plans for municipal wastewater treatment facilities, and by the Wisconsin Department of Administration for its official state population projection, last updated in 2009. These projections serve as the base from which projections for the sewer service area of this report were developed.

Care must be exercised in selecting a method for projecting the future population levels of small units of government. Many population projection methods have been proven faulty and unreliable, some of which merely project past trends in a straight line into the future.

The most important control totals which the area's projections must fit within are the projections made by the Wisconsin Department of Administration in 2008. The validity of the State's projections are reaffirmed by the official 2009 population estimates arrived at through a detailed methodology. Maintaining consistency and uniformity of projections will insure the greatest degree of legitimacy to the area and local population figures used.

4.2 GROWTH ASSUMPTIONS

Because planning for 20 years into the future cannot be based upon an absolute degree of certainty, it is important that there be a general consensus about the assumed future conditions from which planning projections are made. Changing development goals and policies within each of the area municipalities could require changes in the assumptions over the term of the planning period. The following growth assumptions serve as the basis for the projections found in Section 4.4. In addition, the historical population growth examined in Section 4.3 serves as important underpinning data to the municipal and area projections.

1) Marshfield is part of the central Wisconsin "Ruro-plex", a term coined by former Governor Lee Dreyfus to describe the three-county/four-city community of Marshfield, Wausau, Stevens Point and Wisconsin Rapids.

The central theme of this regional growth center concept is growth in economic development and employment at levels above the state average.

2) The Marshfield area will remain a hub for growth within central Wisconsin.

3) Statewide population trends have been toward decentralization to the outer ring around the core city. This has created a diffuse kind of "bedroom community", building up in the rural area surrounding the City of Marshfield.

4) Wisconsin annexation statutes will continue to be a barrier to the physical expansion of the urban area's incorporated municipalities.

5) Population projections used within this report reflect the official numbers established by the Wisconsin Department of Administration per NR121.

6) Growth in population and housing is expected to exceed official state projections by 2030 as the national and local economies recover from economic downturn.

7) The physical setting and national recognition (i.e: Forbes and other publications) of the Marshfield area will continue to attract population and businesses.

8) Completion of Highway 10 will spur growth in the community, particularly on the south side (industrial and business parks), as well as facilitate commuting to other employment centers such as Stevens Point or Wisconsin Rapids thereby enabling people to maintain residence in the Marshfield area.

9) Marshfield will continue to support growth in specialized industries such as stainless steel.

10) The Marshfield Clinic will remain a very strong base for urban area growth.

11) Community Care of Central Wisconsin expects an increase in community based residential facilities (CBRF) and managed care in the Marshfield area due to the quality of life factors and access to medical care.

12) There will be enough jobs created in the Marshfield area to provide a basis for population growth.

13) Local units of government in the Marshfield area will be receptive to

growth contingent upon reasonable standards, regulations, and financial feasibility.

14) Marshfield will continue to provide a satisfactory level of public services and cultural and environmental amenities.

4.3 HISTORICAL POPULATION GROWTH

Wood County has been a steadily urbanizing county with the growth of the Marshfield and Wisconsin Rapids urban areas. Historically, the growth of the Marshfield urban area has been a major portion of the overall growth of the County. The population of Marshfield has increased by 37 percent from 1960 to present. The City has continued to have positive population growth, although the nineties ended with a net loss, following a period of significant expansion in the 1960's and 1970's.

When one looks only at Marshfield's population growth, the degree of urban area growth is not truly evident. The areas adjacent to the City of Marshfield have also experienced significant increase in population. The townships of Cameron, Lincoln, Marshfield, McMillan and Spencer, and the village of Hewitt have seen a combined population growth of 63% over this same period.

TABLE 2: Population Trends 1960 - 2009 Marshfield And Surrounding Communities

	City of Marshfield		V. of Hewitt		T. of Cameron		T. of Lincoln		T. Marshfield		T. of McMillan		T. of Spencer	
Year	Pop.	% Change	Pop.	% Change	Pop.	% Change	Pop.	% Change	Pop.	% Change	Pop.	% Change	Pop.	% Change
1960	14,153		0		286		1,241		977		1,209		806	
1970	15,619	10.4	211	100.0	503	75.9	1,232	-0.7	845	-13.5	1,255	3.8	972	20.6
1980	18,290	17.1	470	122.7	590	17.3	1,269	3.0	784	-7.2	1,433	14.2	989	1.7
1990	19,293	5.5	595	26.6	522	-11.5	1,429	12.6	767	-2.2	1,697	18.4	1,036	4.8
2000	18,800	-2.6	670	12.6	510	-2.3	1,554	8.7	811	5.7	1,790	5.5	1.341	29.4
2009	19,413	3.3	771	15.1	544	6.7	1,689	8.7	852	5.1	1,940	8.4	1,575	17.4

Source: U.S. Census Data & WisDOA Estimate Data

4.3.1 CITY OF MARSHFIELD

The City of Marshfield has seen steady growth for most of the past 50 years. The 2000 Census marked the first time in recent history in which the City population decreased. However, current estimates indicate that the population is again growing with 600 new residents since the 2000 Census. According to Wisconsin Department of Administration estimates, as of 2009, the City's population was 19,413. Much of this growth is attributable to growth of the Marshfield Clinic, but

it is difficult to determine how much of the growth is being captured by the surrounding communities.

4.3.2 VILLAGE OF HEWITT

The Village of Hewitt experienced significant growth since its incorporation, growing 123 % in the 1970's. Since then, growth has remained relatively strong with an increase of 26.6 % between 1980 and 1990. During the1990's, the growth rate was 12.6 % and has continued at about that same pace through 2009. The Village has very few residential lots available, and while there is land within the village limits, the lack of a municipal water system has severely hampered the potential for further growth at this time.

4.3.3 TOWN OF CAMERON

Between 1960 and 1970, Cameron experienced a 75.9 % increase in population. There was continued growth between 1970 and 1980 of 17.3 %, but then population declined 11.5 % during the 1980's and another 2.3 % in the 1990's. Population has rebounded slightly by 6.7 %, between 2000 and 2009, however, because of the Town's small geographic area (1/4 of a "normal" township) and the fact that it is bordered by industrial development to the north and commercial to the east, the Town may have a disadvantage in drawing residential growth that typically seeks a buffer from traffic and noise. Cameron may be more attractive to additional commercial and industrial development due to its location.

4.3.4 TOWN OF LINCOLN

The Town of Lincoln posted a net loss of population from 1960 to 1970, but rebounded slowly during the 1970's. The 1980's saw a "boom" in the Town with a 12.6 % increase in population. The Town has continued to exhibit this stronger growth posting another 8.7 % increase in the 1990's and has continued at that same pace through 2009. Residential development has concentrated to the north and northeast toward the City of Marshfield.

4.3.5 TOWN OF MARSHFIELD

The Town of Marshfield has experienced a declining population for much of the last 50 years, declining 21.5 % from 1960 to 1990. A significant chunk of this decrease occurred in the 1960's when the Village of Hewitt incorporated. However, the 1990's have seen a reversal of this trend for the Town, which posted growth of 5.7 % for the decade, and this growth has continued with a 5.1 % increase between 2000 and 2009.

4.3.6 TOWN OF MCMILLAN

The Town of McMillan had an 18.9 % increase in population from 1960 to 1980. The Town maintained this strong growth with another 18.4 % increase in the 1980's. Much of this growth occurred in developing residential areas north of the City of Marshfield. The Town's growth has continued with a 5.5 % increase posted in the 1990's and 8.4 % between 2000 and 2009.

4.3.7 TOWN OF SPENCER

The Town of Spencer's growth rate tapered off significantly in the 1970's and 1980's after increasing by 20.6 % during the 1960's. Spencer's growth then jumped to nearly 30 % for the 1990's, and it has remained strong posting a 17.4 % increase between 2000 and 2009. Spencer is likely somewhat influenced by major employers in the Village of Spencer six miles northwest, however a significant amount of this growth is likely attributable to wider employment opportunities in Marshfield.

4.4 POPULATION PROJECTIONS

4.4.1 CITY OF MARSHFIELD POPULATION PROJECTIONS

Sewer service area plans are required to forecast growth over a twenty-year period. Population projections for the City of Marshfield were taken from the 201 facilities plan, official WisDOA sources, and continuation of growth rate. The City's current comprehensive plan incorporates the WisDOA projections. These sources should be referenced for specific information on the City's projections. For sewer service area planning purposes, state administrative code requires the use of official WisDOA projections unless WisDOA agrees to "sign-off" on an alternative number. The various year 2030 City population projections are summarized below:

Alternative 1: 19,533 - 1990-2009 Growth Rate
Alternative 2: 20,071 - WisDOA State Projection (Selected)
Alternative 3: 25,812 - 201 Facilities Plan

While a specific population figure is selected for purposes of planning a year 2030 sewer service area, the City's future population at any time during the planning period can be expected to fluctuate within the population range of 19,533 to 25,812. Table 3 provides a population projection summary by five-year intervals for the City based on the selected population figure from WisDOA of 20,071.

TABLE 3: City of Marshfield Selected Population Projection Summary by Five-Year Intervals					
	2010	2015	2020	2025	2030
City of Marshfield	19,551	19,772	19,966	20,073	20,071
Source: WisDOA Demographic Services Center, 2008.					

4.4.2 VILLAGE OF HEWITT POPULATION PROJECTION

The Village of Hewitt is projected to expand by an additional 119 people by the end of the planning period for a total year 2030 population of 890. The same sources as noted above for Marshfield were used. The various year 2030 Village population projections are summarized below:

Alternative 1: 890 - WisDOA State Projection (Selected)
Alternative 2: 930 - 201 Facilities Plan
Alternative 3: 999 - 1990-2009 Growth Rate

Table 4 provides a population projection summary by five-year intervals for the Village based on the selected population figure from WisDOA of 890. However, with the current water resource situation, growth is not expected to be able to continue at this rate.

TABLE 4: Village of Hewitt Selected Population Projection Summary by Five-Year Intervals					
	2010	2015	2020	2025	2030
Village of Hewitt	731	773	808	847	890
Source: WisDOA Demographic Services Center, 2008.					

4.4.3 TOWN POPULATION PROJECTIONS

The five towns surrounding the City of Marshfield are projected to increase an additional 1,223 by the close of the twenty-year planning cycle for a total year 2030 population for all towns of 7,823. This is an 18.5 % increase over the 2009 population. Table 5 provides a population projection summary by five-year intervals for each town based on the projection figures from WisDOA.

TABLE 5: Marshfield Area Towns Population Projection Summary by Five Year Intervals					
Town of:	2010	2015	2020	2025	2030
Cameron	522	522	519	515	508
Lincoln	1,675	1,734	1,790	1,839	1,875
Marshfield	860	879	898	912	920
McMillan	1,976	2,065	2,154	2,238	2,311
Spencer	1,641	1,786	1,934	2,076	2,209
Source: WisDOA Demographic Services Center, 2008.					

4.5 URBAN AREA LAND USE PROJECTIONS

4.5.1 INTRODUCTION

Precise projections of the future land use requirements of an urban area are often difficult to determine because of continually changing conditions, and the fact that land area needs of an urban area are satisfied in large part by lands throughout the County. The Sewer Service Area Plan recognizes that the primary determinants of land needs on a long-range basis are subject to significant change that will certainly happen over time, and that such change cannot be accurately accounted for.

Such determinants include private sector decisions that determine the market for doing business in the urban area, technological and economic factors which may increase or decrease land needs for certain uses, governmental policy and regulation, energy factors and continually changing cultural preferences for styles of working and living. For example, the overall growth projection for the Marshfield Area would be reduced if an energy crisis would make it more necessary to live and do business in metropolitan areas, as opposed to the current preferences to live and do business in small cities and rural areas.

This Plan contains projections of the acreage of lands within the urban area judged necessary for and having "potential" for commercial, industrial and residential uses, and which have a reasonable likelihood of development according to current trends and economic outlooks. While these projections are not based exclusively upon future population, they nevertheless were developed with future population needs in mind.

In doing this, the projected quantities of land required to meet the needs of the urban area include excess lands beyond actual need. The excess lands are

provided to account for the reality that in a free market economy there is expected to be flexibility of choice of building sites when purchasing land for development. This is necessary to avoid excessively high prices which would be caused by unreasonable limitations on land availability. This "market factor" is further discussed later in this section.

Planning for an adequate supply of developable land operates within the overall philosophy that restricting development of certain lands for public interest purposes such as environmental and agricultural protection is necessary and desirable. The land use projections and recommendations in this report acknowledge and attempt to serve this overall land use planning philosophy.

4.5.2 URBAN AREA LAND REQUIREMENTS

This Plan recognizes that the actual level of development may vary from the projections shown. The projection figures are intended to be indicators of the nature and intensity of future development, and as such the specific figures themselves do not represent any official or final level of acceptance. The projections should be updated periodically to reflect current levels of development and new development potential.

The projected quantities of future land uses are generally based upon the following factors:

1) Future land use plans within adopted community comprehensive plans,
2) Land use planning principles and locational criteria,
3) Natural land capabilities,
4) Potential and likelihood of public utility extensions,
5) Degree of access and potential for improvement,
6) Availability and use of lands, and
7) Local governmental and citizen goals and values already known to exist or emerging in certain areas.

4.5.3 RESIDENTIAL LAND REQUIREMENTS

4.5.3A AVERAGE HOUSEHOLD SIZE

Projections of the average number of persons per household are an important variable in estimating the amount of additional land that will be needed for residential purposes.

On the national level, the population per household has steadily declined since the 1960's, while the country's total population has increased. The decline in

household size is reflected in the large increase in the nation's housing stock.

On a community level, changes in average number of persons per household are influenced by national trends, but even more so by the mix of housing types and the age and cost of the community's housing stock. The factors that influence household size on a community basis make these projections difficult, however, such projections remain necessary to determine the amount of residential land consumption during the planning period.

The projections shown in Table 6 were developed for the Marshfield urban area and are based on projections for the state by the Department of Administration. The average household size for each community in the urban area was projected from 2000 to the year 2030 by applying the rate of household decline projected for the state to each of the Community's 2000 household size.

TABLE 6:
Projected Change in Average Persons Per Household for Marshfield Area 2000 to 2030

	2000	2005	2010	2015	2020	2025	2030
State of Wisconsin	2.50	2.46 (-1.60%)	2.41 (-2.03%)	2.38 (-1.24%)	2.35 (-1.26%)	2.33 (-0.85%)	2.31 (-0.86%)
C. Marshfield	2.24	2.20	2.16	2.13	2.11	2.09	2.07
V. Hewitt	2.88	2.83	2.78	2.74	2.71	2.68	2.66
T. Cameron	2.68	2.64	2.58	2.55	2.52	2.50	2.48
T. Lincoln	2.88	2.83	2.78	2.74	2.71	2.68	2.66
T. Marshfield	2.75	2.71	2.65	2.62	2.59	2.56	2.5
T. McMillan	2.93	2.88	2.82	2.79	2.75	2.73	2.71
T. Spencer	2.82	2.77	2.71	2.68	2.65	2.63	2.61

Source: US Bureau of Census, 2000; WisDOA, 2008; and NCWRPC, 2010.

4.5.3B AVERAGE DEVELOPMENT DENSITY

Projecting future development density is another important variable in determining residential land needs. Table 7 shows the densities at which the level current development has occurred through 2009 for each community in the planning area. These densities were determined using land areas calculated through the project geographic information system (GIS) database, the WisDOA 2009 population estimates, and the above persons per household data.

The average residential population density provided by the service area is calculated to be 6.7 persons per acre with the overall population density at 2.27 persons per residential acre. This density converts to a residential development density of 3.1 housing units per acre (1.1 overall) based on the estimated average household size for Marshfield.

This density is significantly higher than the average density of unsewered parts of the planning area, also illustrated in Table 7. The higher density level is needed for cost-effective sewer service.

TABLE 7: Average Residential Development Density of the Urban Area, 2009

Community	Overall Average Population Density (persons per acre)	Average Residential Population Density (persons/residential acre)	Average Residential Development Density (housing units per res. acre)
City of Marshfield	2.27	6.70	3.10
Village of Hewitt	1.29	3.86	1.39
Town of Cameron	0.12	2.15	0.83
Town of Lincoln	0.08	3.13	1.12
Town of Marshfield	0.08	1.78	0.58
Town of McMillan	0.09	1.51	0.54
Town of Spencer	0.08	1.86	0.69

Source: NCWRPC, 2010.

4.5.3C RESIDENTIAL LAND REQUIREMENTS

An estimated 103 net acres should be required to meet the needs of the urban area population by the year 2030. This is determined by dividing the projected population growth from 2009 to 2030 (658) by the projected persons per household (2.07) to arrive at the estimated number of new households (318) required to meet the additional need. The number of additional housing units is then divided by the estimated development density of 3.1 units per acre to determine the additional acreage of residential land that will require sewer service (103).

4.5.4 COMMERCIAL AND INDUSTRIAL LAND REQUIREMENTS

Commercial and industrial growth are important determinants of land requirements in the urban area. Labor force figures for Marshfield were

obtained from the U.S. Census Bureau's Local Employment Dynamics (LED) website. This data shows an average annual growth in employment of 0.77%. Between 2002 and 2008, the number of jobs in Marshfield increased from 22,031 to 23,047. Discounting for job losses due to the recent economic slump, this rate of growth projects to 26,089 total jobs over the next twenty years. Total employment will therefore increase by 3,042 jobs by 2030.

The LED data indicates that 15% of this employment is goods producing (industrial) and 85% trade and other services (commercial). This ratio breaks down the estimated employment to 456 additional industrial workers and 2,586 new commercial employees. These employment estimates were used in conjunction with estimated employment densities (number of employees per acre) for commercial (8.83) and industrial (4.61) land use types to determine acreage needs for future employment.

Thus, an estimate of 392 net additional commercial (293) and industrial (99) acres for the urban area is anticipated by the year 2030. These figures are generally consistent with the City's comprehensive plan.

4.5.5 PUBLIC PARK AND OUTDOOR RECREATION NEEDS

Park and outdoor recreation needs can constitute a significant portion of land within the future urban area. The recommended standard used by the NCWRPC in figuring park needs is 10.5 acres per 1,000 population. This standard is not intended to include specialized outdoor recreational facilities such as nature reserves, hunting grounds, public utility lands, golf courses, athletic fields, private facilities or school lands. The above standard may be conservative in meeting current and future needs.

The following formula summarizes the public parkland needs of the City for the planning period to 2030: Population increase 2009-2030 = 658 x 10.5 acres / 1,000 Population = 7 additional acres needed by 2030.

4.5.6 RIGHT-OF-WAY LAND REQUIREMENTS

The space consumed for the transportation facilities which we use to access all the land types discussed above is often overlooked when doing acreage allocation for land use needs. Although modern planning practice is often recommending that communities shift to "neo-traditional" standards including narrower streets, right-of-way can still consume significant amounts of land which must be accounted for because other "hard" development should not locate within these reserved areas. Right-of-way consumes as much as 25 percent of the developed land area of communities in Wisconsin. In Marshfield,

the GIS database indicates that right-of-way area amounts to about 16 percent, which will be assumed to remain constant over the planning period.

Thus, the estimate for additional land needed for right-of-way totals 80 acres through 2030 based on the acreage allocated for other land uses specified above.

4.5.7 ALLOWANCE FOR MARKET FACTORS

As stated earlier, the philosophy of this Plan is to provide additional lands beyond the net needs of the urban area to provide flexibility and choice in development sites. To accommodate factors beyond the control of local government which render lands unavailable for development, a market factor of 2 has been provided. This factor was based on the projected future land area needs and a cursory review of undeveloped lands in and around the urban area, as well as the likelihood that a given piece of property will be available for development at any given time.

Current projections (on which the allocation of area expected to require sewer service in the future are based) reflect development conditions that are significantly curtailed due to the economic downturn. Within the long-range, 20-year, planning horizon of this Sewer Service Area Plan, economic recovery and improved development conditions are anticipated. Resulting growth is anticipated to exceed the current projections in the long-term. This market factor allowance is necessary to accommodate this development and provide flexibility and choice in siting.

In addition, the original sewer service area was deemed too restrictive by state and local officials. The market factor selected for this update is expanded to address that concern.

The market factor makes available an additional 1,164 acres over the actual net need within the year 2030 sewer service area to accommodate market decisions. While not all of this additional acreage would be expected to be developed during the planning period, it is anticipated that this acreage will provide additional opportunities for development in the event of other lands being kept off the real estate market.

4.5.8 INFILL AND REDEVELOPMENT OF VACANT LANDS

A certain amount of undeveloped land exists within the current corporate limits of the City of Marshfield. This Plan recognizes that infill development is good public policy and establishes goals and objectives to achieve infill. There is a

clear cost effectiveness advantage to infill development that has infrastructure like sewer and water lines already installed. Existing developable urban areas already served by utilities and services should be included in the acreage allocated to the future sewer service area. These areas may have been by-passed by development or be available for redevelopment like brownfields.

The land use analysis component of this Plan identified existing land uses within sewered areas including vacant areas which may be appropriate for infill development. The majority of land within the City is considered urban level development. There are limited areas of development with onsite sewage systems within the City Limits, as the City requires connection to sewer and water on their becoming available.

Vacant, undeveloped lands within the corporate limits are generally agricultural or wooded lands on the periphery. This Plan generally does not target these agricultural or forested tracts for development in order to preserve urban greenspace and to respect farmland preservation goals. Those vacant tracts which are not valuable for agriculture or greenspace are identified as vacant, developable and included in the sewer service area acreage allocation.

Developed, but vacant, sites available for possible redevelopment were not inventoried for this Plan. However, the number of sites of this type is considered low, as Marshfield has a good history of reuse.

4.5.9 TOTAL URBAN AREA LAND REQUIREMENTS

The estimated land needs in the year 2030 for the Marshfield Urban Area are projected to be 1,746 acres less infill goal of 100 acres for a total need of 1,646 additional acres. This acreage will consist of the following land use needs shown in Table 8.

TABLE 8: Sewered Land Area Needs for Marshfield in Year 2030

Land Use	Net Acreage Demand	Market Factor	Total Acreage Demand
Residential	103 Acres	206 Acres	309 Acres
Commercial	293 Acres	586 Acres	879 Acres
Industrial	99 Acres	198 Acres	297 Acres
Recreation	7 Acres	14 Acres	21 Acres
ROW	80 Acres	160 Acres	240 Acres
Subtotal	582 Acres	1,164 Acres	1,746 Acres
Less Infill	-100 Acres		- 100 Acres
Totals	482 Acres	1,164 Acres	1,646 Acres

Source: NCWRPC, 2011.

These estimated land needs are generally consistent with the City of Marshfield Comprehensive Plan. They have been updated for 2010 and incorporate modified methodologies for commercial acreage allocation and market factor assignment

5.0 ENVIRONMENTALLY SENSITIVE AREAS

5.1 INTRODUCTION

Delineating environmentally sensitive areas is one of the most important components of a sewer service area plan. These areas need to be protected in order to protect water quality.

According to Administrative Code NR 121 provisions, "Major areas unsuitable for the installation of waste treatment systems because of physical or environmental constraints are to be excluded from the service area. Areas to be considered for exclusion from the sewer service area because of the potential for adverse impacts on the quality of the waters of the state from both point and nonpoint sources of pollution include but are not limited to wetlands, shorelands, floodways and floodplains, steep slopes, highly erodible soils and other limiting soil types, groundwater recharge areas, and other such physical constraints."

Environmentally sensitive areas are defined, generally, as those areas that are unsuitable for sewered development because of the potential significant adverse impact upon water quality (see NR 121.05(1)(g)2.c.). The sewer service area is that area presently served or anticipated to be served by a sewage treatment system within a sewer service area plan's 20-year planning period. Technically, the sewer service area does not include environmentally sensitive areas, which are delineated separately and do not count in acreage allocations for sewered development.

The Plan uses the term "environmentally sensitive areas" rather than "environmental corridors" primarily due to the inconsistent use of the term "environmental corridors" across the state. Additionally, "environmental corridors" implies the need for the subject resource to be linear or contiguous within the sewer service area, however, such contiguity is not required for an area to be sensitive and in need of protection under NR121 for maintenance of water quality. While it is true that many environmentally sensitive areas are associated with streams; many wetlands, steep slopes and groundwater recharge areas are not necessarily linear.

A community may decide to include as "environmental corridors" areas other than those considered environmentally sensitive for water quality. Parks, woodlands and other green spaces can be added to the environmentally sensitive areas component of a sewer service area plan. In this way, the sewer service area planning process helps guide local growth within the myriad planning processes and multi-level authorities involved in development. This integration can help to avoid negative impacts on water resources locally and

regionally. However, local communities should supplement the delineation of environmentally sensitive areas with local or regional protections, such as conservancy zoning or wellhead protection programming.

A sewer service plan regulates only sewered development. Its authority does not prohibit unsewered development from occurring in environmentally sensitive areas (although these areas may be regulated by the U.S. Army Corps of Engineers or other agencies). In rare cases, plan updates or amendments are proposed that would remove land from the environmentally sensitive area designation to allow sewered development. Development in these areas may require a Clean Water Act Section 404 permit or a Wisconsin Statutes Chapter 30 permit and water quality certification for compliance with NR103 in order to protect water quality.

Lands removed from an environmentally sensitive areas designation should not include any areas with development constraints that would adversely impact groundwater or surface water quality. For example, an amendment that removes wetlands from an environmentally sensitive area will not be approved unless it is shown that fill for development of the proposed site has received a valid federal permit and wetland water quality certification.

Environmentally sensitive area delineations sometimes include features that are not water quality related, so not every sensitive area development proposal will require a permit. The DNR has approved amendments to remove land not associated with water from designation, such as some parks and historic sites. Removal of any area from the environmentally sensitive area designation should go through the DNR review process, however, areas that do not involve a water quality concern will generally be processed faster than those which require a permit.

The exact boundaries of environmentally sensitive areas must be located through a field survey by the appropriate authorities such as Army Corps of Engineers and/or WisDNR staff.

The remaining entries of this section discuss in detail the elements that comprise the environmentally sensitive area for purposes of this sewer service area plan. Table 8, below, provides a "quick reference" summary of the guidelines for environmentally sensitive area designation.

TABLE 9: ENVIRONMENTALLY SENSITIVE AREA (ESA) GUIDELINES		
Element	**Applicable Features**	**Delineated Buffer**
PRIMARY ESAs - NO SEWER SERVICE ENCROACHMENT PERMITTED		
SHORELANDS	All Lakes, Rivers, Streams - Perennial and Intermittent	✓ Buffer 75' from OHWM ✓ Buffer 100' on Highly Sensitive or Degraded Waters ✓ Expand Buffer to include all of 100-year Floodplain
WETLANDS	All Wetlands delineated on WI Wetland Inventory Maps	✓ Buffer 50'
STEEP SLOPES	All Areas of Slope 12% or Greater	✓ General Area of Slope - No Buffer
PARKS and GREENWAYS	Select Municipal Greenways, Conservancy Areas, and Stormwater Mgmt Facilities	✓ Parcel Boundary
CONDITIONAL ESA - SEWER SERVICE PERMITTED PER CONDITIONS		
WELLHEAD PROTECTION AREAS	Municipal Wellhead Locations	✓ Steady State Recharge Area or Minimum 1,200' Buffer
Source: NCWRPC, 2010.		

5.2 SHORELANDS AND FLOODPLAINS

Shorelands are lands within 1,000 feet above the ordinary high-water mark of a navigable lake, pond or flowage and 300 feet above the ordinary high-water mark of a navigable river or stream to the landward side of the floodplain. This includes both perennial and intermittent waterways. Shorelands represent environmental features which should be given high priority for protection from development, especially those shorelands which coincide with wetlands as identified in the Wisconsin Wetlands Inventory maps. The Department of Natural Resources will not approve any sewer service area plan or amendment that is not consistent with an approved shoreland zoning ordinance.

At the same time, shoreland areas are often highly valuable real estate on which significant development takes place. The shoreland zoning that regulates

this development attempts to balance this real estate value with their inherent environmental values. From an environmental corridor or environmentally sensitive standpoint, the first 75 to 100 feet of the shoreland area is most critical. Therefore, for sewer service area planning purposes, it is a 75 foot buffer around all lakes, ponds, flowages, rivers and streams that is delineated as an environmentally sensitive area to be excluded from sewer service. If the waterbody is very sensitive or already degraded, the buffer should be extended to 100 foot to provide extra protection, where possible. Finally, in the case of floodplains, the buffer expands out to the landward boundary of the floodplain.

The floodplain is the land calculated to be covered by floodwater during the 100-year flood. The floodplain includes the floodway and the flood fringe. The floodway is the channel of the river or stream and those portions of the floodplain adjoining the channel required to carry and discharge the flood waters or flood flows associated with the 100-year flood (see NR 116.03 Wis. Adm. Code).

To prevent development in a high hazard area, floodplains should be excluded from sewer service areas, and especially the floodway portion of the floodplain, except where there is an existing development that must be served. The Department of Natural Resources will not approve any sewer service area plan or amendment that is not consistent with an approved floodplain zoning ordinance or which allows new service to new development in the floodway.

Plans or amendments which would result in a reduction of storm or flood water conveyance or storage capacity should be denied unless remedial actions which conform to NR 116 are identified and approved prior. When there is an existing, lawful development within the floodway, a plan or amendment may include the development within the boundaries of the proposed service area.

Lands officially determined to be out of the mapped floodplain should be considered removed from the ESA unless other factors dictate. These areas are typically documented with a Letter of Map Revision (LOMR) or Letter of Map Amendment (LOMA) issued by FEMA.

In determining environmentally sensitive areas for sewer service area planning, the principle source for locating waterbodies is the U.S. Geological Survey 1:24,000 quadrangle maps. The "quads" are typically one of the principle authorities establishing jurisdiction in shoreland zoning codes. While this implies navigability, many non-navigable waterbodies are also important in terms of overall water quality protection and should also be protected by the shoreland buffer where possible.

There are several streams in and around the Marshfield study area. The major

river is the East Branch of the Yellow River west of Marshfield in Wood and Marathon Counties. This river drains into the Wisconsin River to the east. The Yellow River itself forms part of the extreme western boundary line of the study area. There are also four streams in the area: Beaver Creek, Mill Creek, Scheuer Creek and Squaw Creek. Mill Creek heads at the Wildwood Park, Marshfield. Squaw and Scheuer Creeks also have their headwaters within the study area.

WisDNR has classified Mill Creek as a non-attainment water and placed it on the 303d list of waterbodies not meeting designated water quality standards. Phosphorus is the primary contaminant affecting the creek and low dissolved oxygen is a problem. In the original Plan, the WisDNR requested that Mill Creek have a 100-foot buffer applied due to its sensitive nature.

5.3 WETLANDS

Although wetlands are often associated with waterbodies, especially shoreland wetlands which are very ecologically important, many wetland areas may not be directly related to a lake or stream. Many wetlands occur in the study area that range in size from less than two acres to several thousand acres. The largest wetland in the area is McMillan Marsh (about 6,500 acres) north of Marshfield in Marathon County. McMillan Marsh is also a designated wildlife area.

The Department of Natural Resources' Wisconsin Wetland Inventory Map is the primary source used to determine wetland locations. According to these inventory maps, most wetlands in the study area are emergent/wet meadow type with persistent vegetation and wet soil, palustrine hydrology. A few of the wetlands area scrub/shrub, with broad-leaved deciduous vegetation and wet soil, palustrine hydrology. Finally, some wetlands are forested with broad-leaved deciduous vegetation, and wet soil palustrine hydrology.

In the eastern part of the study area there are a number of wetlands associated with several streams. There is a high quality wetland associated with Mill Creek north of U.S. Highway 10. It is an emergent wetland with a broad floodplain. Wildlife values for the wetland are high for migratory waterfowl. There are emergent and shrub wetlands with moderate wildlife values associated with Squaw Creek. Further to the north and east there are wetlands associated with Scheuer Creek that have high wildlife values.

In the western part of the study area there are numerous wetlands associated with streams and drainage ways. Many contain high quality wildlife and fisheries habitat, especially those associated with the East Branch of the Yellow River and its tributaries.

Wetlands are areas where water is at, near or above the land surface long enough to be capable of supporting aquatic or hydrophytic vegetation and having soils indicative of wet conditions (see NR 103 Wis. Adm. Code). Hydric soils, identified in Soil Survey reports for Marathon and Wood Counties prepared by what is now known as the Natural Resource Conservation Service, were not specifically mapped as part of this planning effort due to inconsistencies between the Marathon and Wood survey reports including the age and lack of digital format in Wood County, however, spot checking specific soil types indicate that the wetland and floodplain areas already mapped as part of the environmentally sensitive area contain virtually all identified hydric soil types.

All wetlands should be excluded from sanitary sewer service areas, particularly wetlands identified in the Wisconsin Wetlands Inventory maps. Wetlands will be buffered 50 feet from the outer boundary shown on the Wetland Inventory maps in order to help maintain the functional integrity of each wetland area. These lands should be designated environmentally sensitive areas, where sanitary sewer service is prohibited.

5.4 STEEP SLOPES / HIGHLY ERODIBLE SOILS

This category is defined as any slope or gradient equal to or greater than 12 percent and any soil type occurring on a slope equal to or greater than 12 percent. In general, slopes equal to or greater than 12 percent, regardless of soil type, and which are near surface waters, must be excluded from sewer service areas. Steep slopes in combination with other environmental features should also be considered for designation as an environmentally sensitive area. Where a construction erosion control ordinance exists, sewer service area plans or amendments should be consistent with those slope restrictions. Development on slopes resulting in direct runoff into a body of water should be prohibited or mitigation measures required to protect water quality.

Glacial land forms are the dominant features within the study area, and most soils were derived from till according to Marathon and Wood County Soil Surveys. The major non-wetland soil types found in the planning area are sandy loam and silt loam soils developed from glacial till or moraine deposits, including Marshfield silt loam 0 to 3 percent slope, Santiago silt loam 2 to 6 percent slope, and Freeon silt loam 6 to 12 percent slope. Gently rolling hills characterize the topography of the area. Elevations range from 1,175 feet above sea level near Beaver Creek south of Marshfield to 1,358 feet just north of the City.

Areas of steep slope identified for inclusion in the environmentally sensitive area of the sewer service area plan were determined using the U.S. Geological

Survey's Digital Elevation Model (DEM) derived from 1:24,000 contours. These were crossed checked against locally derived contours from orthophotography mapping activities. Due to inconsistencies between the Marathon and Wood survey reports including the age and lack of digital format in Wood County, the highly generalized nature of the soil type slope ranges and the availability of the DEM, soil slope classes, identified in Soil Survey reports for Marathon and Wood Counties prepared by what is now known as the Natural Resource Conservation Service, were not specifically mapped as part of this planning effort.

5.5 PARKS AND GREENWAYS

Community park lands come in a variety of parks, greenways and other open space. These types of areas are typically included when a community chooses to put together an environmental corridors system, however, caution should be exercised when designating public park lands as environmentally sensitive areas. In terms of sewer service area planning, many parks have sewered facilities, or the community may want them to have sewered facilities in the future. Potential future park sites may be candidates for environmentally sensitive designation to help protect them until needed, however, these sites should be "officially mapped". Some municipal stormwater management facilities (basins, swales, etc.) are counted as open space and are often designated due to their water quality protection aspects.

For this plan, the following parks and greenways are being designated as environmentally sensitive areas:

- Conner Park
- Meadowbrook Greenway
- Northeast Greenway
- Pleasant Valley Greenway
- Southeast Greenway
- Stormwater Detention Basins

5.6 WELLHEAD PROTECTION AREAS

In Marshfield, as with much of Wisconsin, municipal wells draw water from groundwater aquifers. Thousands of people depend on the safety of this water supply. Since sewer service area planning is all about water quality, it only makes sense that such plans address the protection of these municipal groundwater sources.

The City of Marshfield obtains its municipal water supply from six well fields, which pump ground water from sand and gravel units deposited in pre-glacial

bedrock channels. While ground water quality from these wells is generally good, ground water from sand and gravel units is particularly susceptible to contamination. At this time, the City's water supply receives only minimal treatment.

Historically, the city of Marshfield has had difficulty locating adequate water supplies. For that reason, the protection of existing water supplies is even more important.

In order to protect the City's water supplies, the surrounding surface and subsurface area around each well should be protected. This area around each well which needs protection shall be called a Well Recharge Area.

Marshfield Wells 21 and 22, located in the McMillan Wildlife Area to the North of Marshfield, have their Well Recharge Areas shown in Figure 3 as a 1200-foot radius around each well. This is the basic buffer recommended by DNR regulations when no scientific data is available defining the zone of recharge for a well.

Scientific studies and digital aquifer flow system models have been conducted for Marshfield Wells 1 through 6, known as the Southside Well Field; Wells 7, 8, and 10, known as the Wildwood Well Field; and Wells 13, 15, 16, 17, 18, 19, 20 and LN-7. These studies have identified the areas of the aquifer contributing water to each of these wells. Figure 3 shows the steady-state capture zone for these wells as Well Recharge Areas for the wells. The steady state capture zone represents the maximum area of the aquifer that will contribute water to a well with a given pumping rate.

Well recharge areas can, in some cases, cover areas of significant size. Often, there may be no other environmentally limiting factors associated with much of the land in the recharge zone. In these cases, such lands may be perfectly suitable for uses which pose low risk to ground water supplies. For purposes of this Plan, municipal well recharge areas are defined as "Conditional" Environmentally Sensitive Areas which, unlike "Primary" Areas, permit certain sewered development that present low potential for contaminating ground water and meet certain review conditions as specified in Section 9.2.1.

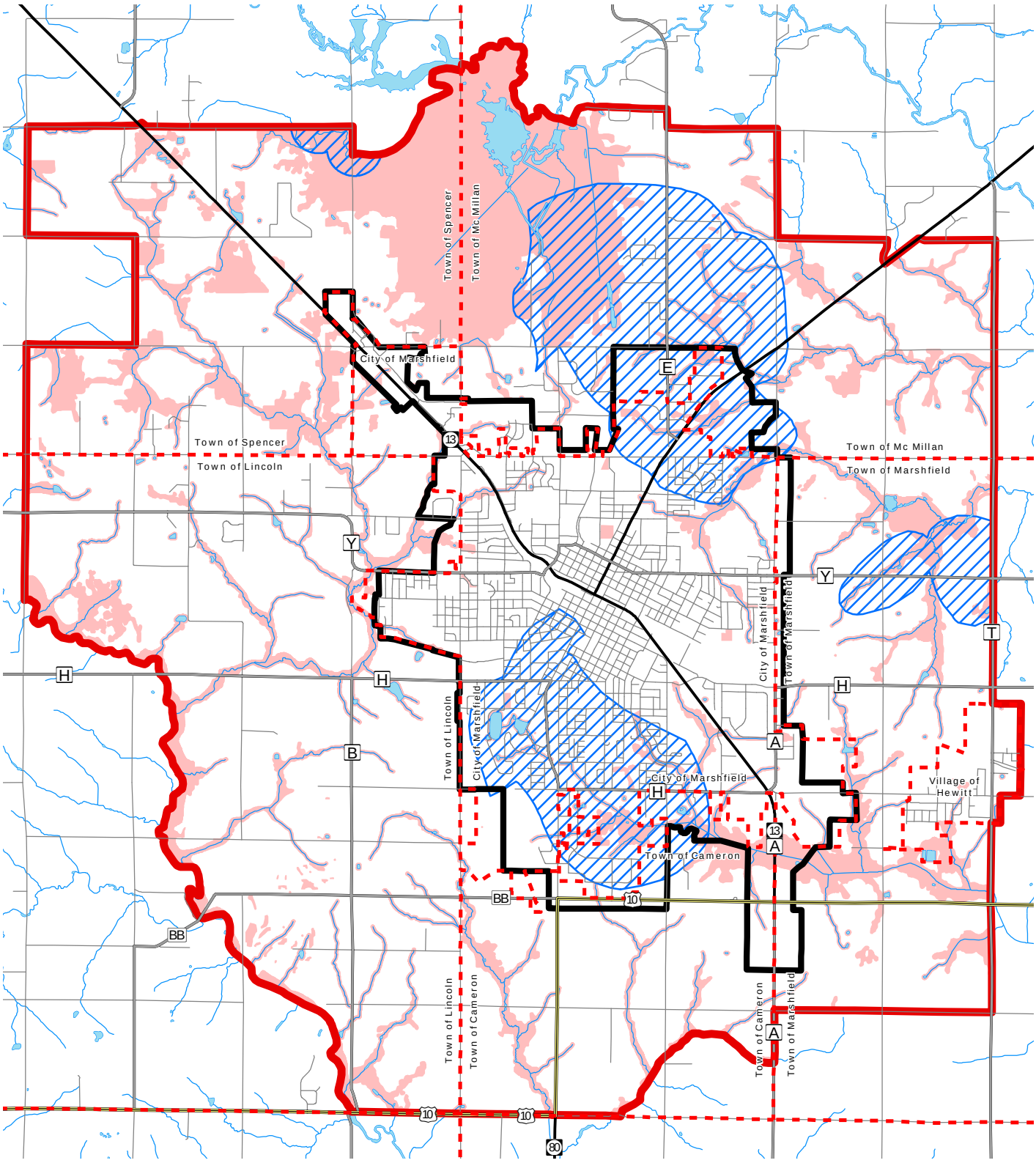
5.7 COMPOSITE ENVIRONMENTALLY SENSITIVE AREAS MAP

The environmentally sensitive areas shown on the sewer service area maps are a representation of the conditions at the time of map preparation, using the best available data, see Figure 3. The map does not reflect field survey work that specific development proposals require. The presence and location of

wetlands, navigable waters, floodplains, and similar site features must be verified by field survey and applicable permits must be obtained prior to any land disturbing activity, preferably before an amendment is submitted to the DNR. DNR staff will evaluate the navigability of any streams involved and whether or not a water quality certification is needed before promulgating an administrative decision.

In the event of questions or controversy regarding an environmentally sensitive area delineation on a specific site, the DNR water resource planner or rivers and regulations administrator should participate in field work with the water quality planning agency, Army Corps of Engineers and city, county, or DNR zoning administration staff as appropriate. The findings of a site inspection takes precedence over the sewer service area map(s).

Figure 3
Environmentally Sensitive Areas



Boundary Lines
- Minor Civil Divisions
- US Highway
- State Highways
- County Highways
- Local Roads
- Planning Area Boundary
- Sewer Service Boundary
- Water
- Wellhead Protection Area
- Environmentally Sensitive Areas

N

0 0.35 0.7 1.4 2.1 Miles

This map is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only. NCWRPC is not responsible for any inaccuracies herein contained.

Source: WI DNR, NCWRPC, City of Marshfield
Note - The exact environmentally sensitive areas must be located through a field survey by Army Corps and/or WI DNR staff.

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6.0 URBAN AREA COMPREHENSIVE PLANS

6.1 INTRODUCTION

Under current state law, for a community's plan to carry any legal weight it must be a comprehensive plan as defined in the statute. As a result most communities have done or are in the process of comprehensive planning. Such is the case in the Marshfield area. A review and analysis of the completed plans and planning efforts in progress for the participating municipalities within the study area is an essential element in the development of the Marshfield Sewer Service Area Plan. Consideration of the individual community's comprehensive plans assisted in the development of a Sewer Service Area Plan that safeguards area water quality while being consistent and compatible with the community's view of future development. Likewise, study area communities should develop future plans or updates that are consistent with the goals and objective of this Sewer Service Area Plan.

Currently, the City of Marshfield and the Towns of Cameron, Lincoln, McMillan and Spencer have adopted comprehensive plans. The Village of Hewitt and Town of Marshfield were in the early stages of comprehensive planning as of this writing. This section provides an overview of the comprehensive plans and planning efforts of the study area communities available at the time of developing the Marshfield Sewer Service Area Plan, refer to Figure 4 for a composite future land use plan map. Included in each overview are important points of consistency between the local plan and the Sewer Service Area Plan. The individual plans should be consulted directly for additional detail on specific land use issues in any of the communities in this study area.

Sewerage facilities are an important part of an interactive system of land use and development. These facilities are influenced by the pattern of development and exert a strong force in determining that pattern. The following sections discuss the locally adopted plans which represent the desired development patterns of the urban area communities. These plans will guide the urban area's future growth and will assist local engineers and consultants in designing sewer systems to accommodate expected growth. In addition, the plans indicate which areas are not viewed as primary growth zones within the Marshfield urban area.

6.2 CITY OF MARSHFIELD COMPREHENSIVE PLAN

The City of Marshfield's current comprehensive plan was adopted by the City Council in 2007. This Sewer Service Area Plan is consistent with the stated goals, objectives and policies of the city plan, specifically to (under *Community*

Growth and Development) "Locate growth where it can be efficiently and economically served by existing and planned streets and public utilities."; and to (under *Public Services*) "Coordinate future development and redevelopment projects with the availability of existing and planned public utilities and facilities."; among others.

Under the *Intergovernmental Planning and Development* goals and objectives, items such as identifying cooperative solutions for regional development issues that impact the entire Marshfield community, including areas outside the City's boundaries; and working cooperatively with surrounding governments to protect sensitive environmental features and productive farmland in areas where development is not planned, show coherence with the Sewer Service Area Plan. However, the City does not currently exercise extraterritorial controls other than plat review. The City's annexation policy as stated in the municipal code is, generally, not to extend sewer service to properties outside the corporate limits of the City. Further, any annexation must be determined to be feasible from a public service standpoint, including sewer service.

The comprehensive plan's Land Use element is of the traditional mixed urban use type with a central business district (CBD) surrounded by predominately residential use with areas of commercial and industrial uses. Increase in commercial use is anticipated on the main arterial streets, Central Avenue and S.T.H. "13", with areas of development toward the outer limits of the City. Transition commercial areas where use is converting from residential to commercial are located between these outer limit commercial areas and the CBD. Industrial use is concentrated in the southern and southeastern portions of the City. The primary industrial district is the East Side Industrial Park with other manufacturing and distributing companies located in close proximity. An Air Business Park is located on the south side of the City near the Marshfield Airport.

The comprehensive plan Natural, Cultural and Agricultural Resources element calls for the continued expansion and preservation of an existing greenway system (primarily wetlands and floodplains) to preserve natural runoff corridors and stormwater detention areas. The City has a revised and updated stormwater and erosion control ordinance.

The City Plan is implemented through zoning, subdivision and other ordinances and programs. The zoning ordinance is a standard code with a variety of residential districts that provide for urban level densities. Although, "large-lot" and "estate" zoning districts are available, the comprehensive plan recommends a "new neighborhoods" concept. This concept calls for the development of new residential areas as neighborhoods rather than uncoordinated subdivisions, and envisions a density of 5 dwelling units per acre. The subdivision ordinance has provisions requiring land suitability for

development, greenway dedication, and layout of both sanitary and storm sewer. The comprehensive plan recommends a number of revisions to these ordinances.

The City has entered into intergovernmental agreements with the Towns of Cameron and McMillian. Both agreements identify no-contest areas and joint planning areas for which the communities will jointly develop plans for growth.

6.3 VILLAGE OF HEWITT PLANNING

The Village of Hewitt is currently in the process of developing a comprehensive plan with the assistance of the Wood County Planning & Zoning Department. The Village has adequate available land within its boundaries and sufficient capacity at its wastewater treatment facility, which continues to operate with few issues. However, a major constraint, according to Village officials, is water supply. In fact, the Village believes that growth will not continue at the same rates as in the past due to this issue. This raises the question of where future growth currently allocated to the Village will be diverted to.

The existing land use is primarily residential, and the Village does have zoning. No extraterritorial controls are utilized at this time, and no annexation is expected. Hewitt has no construction site erosion control or stormwater management ordinances, nor any intergovernmental agreements at this time.

6.4 TOWN OF CAMERON COMPREHENSIVE PLAN

The Town of Cameron comprehensive plan was adopted by the Town Board in 2007. Preparation of the plan was assisted by the Wood County Planning & Zoning & Zoning Office. The Town also has its own zoning ordinance in effect. The Town Plan recognizes the impact and influence that the City of Marshfield has and will have on the Town's land use. The principle example of this is the annexation by the City to create the Mill Creek Business Park out of an area of the Town planned for large lot residential.

The Mill Creek annexation and the Highway 10 re-routing were driving influences on the Town's decision to enter into a Cooperative Boundary Plan and Agreement with the City. The agreement identifies city growth areas, no-contest areas and joint planning areas for which the communities will jointly develop plans for growth.

Under the agreement, Highway 10 was used as a reference point for growth with higher density development being encouraged north of the highway and preservation of rural character and agricultural lands to the south of the

highway. At the same time, acknowledgment of added growth pressures due to increased access created by highway development is recognized within the plan.

A significant land use and water quality issue identified by the plan is related to the high percentage of holding tanks within the Town due to the poor soil drainage and relatively high ground water. The plan encourages higher density development to locate closer to the city limits to allow for possible expansion of sewer lines or cooperative sewerage districts. This higher density in the northern part of the Town was also seen as encouraging preservation of rural character and farmland in the southern sections of the Town.

The goals of the Sewer Service Area Plan are consistent with the policies in the Town of Cameron's comprehensive plan. For example, polices under *Housing* include: "Zone areas for residential development where public sewer and water can serve higher densities in the future if problems arise with regard to groundwater quality or quantity"; and "Work with City of Marshfield to promote planned development in the service area of the Marshfield Sewer Service Area Plan."

6.5 TOWN OF LINCOLN COMPREHENSIVE PLAN

The comprehensive plan for the Town of Lincoln was prepared in 2002 with assistance from the Wood County Planning & Zoning & Zoning Office. The Town also has its own general zoning ordinance in effect. Many of the issues identified within the Town of Lincoln comprehensive plan are similar in nature to the Town of Cameron plan.

The Sewer Service Area Plan goals are consistent with the goals and objectives of the Town's plan. These Town goals and objectives include recognizing that "...the City of Marshfield will influence development pressure in the northern portion of the Town of Lincoln, and growth in this area should be managed to maintain the uncongested, rural lifestyle that initially brought residents to the area." This goal is supported with objectives to seek input from the City in the development and maintenance of an Official Street Map "...to ensure that any future land use conflicts are minimized..." and "...for large residential parcels in the northeast portion of the Town, require a midyard setback to facilitate the division of parcels if future sewer and water extensions are developed." Other objectives for preserving rural character and farmland include cluster development and promotion of development in the northern portion of the Town.

6.6 TOWN OF MARSHFIELD PLANNING

The Town of Marshfield is currently in the process of developing a comprehensive plan with the assistance of the Wood County Planning & Zoning Department. There is a document called "Considerations for Planning and Zoning Program" prepared by the Wood County Planning & Zoning Office for the Town of Marshfield Zoning Board. This document includes background and environmental information for use in Town zoning decisions. In this report there is mapping of possible residential and industrial growth areas. According to the map, residential growth areas are indicated on sections 3 and 10 in the northwestern corner. Proposed industrial growth areas are shown in sections 15 and 22 in the west central section of the Town.

The Sewer Service Area Plan is consistent with these proposed growth areas, in so far as the areas are located adjacent to the City boundaries, which would provide for more efficient extension of sewer and water services if needed in the future. In addition, the proposed industrial growth area would be a natural extension of industrial use as it relates to the City's comprehensive planning.

The Town of Marshfield has its own zoning ordinance. The minimum residential lot size without sewer service is 1.5 acres.

6.7 TOWN OF MCMILLAN COMPREHENSIVE PLAN

The Town of McMillan comprehensive plan was adopted by the Town Board in October of 2005 and was prepared with the assistance of the Marathon County Planning Department as part of a countywide planning effort. The Town is under Marathon County Zoning with a two-acre minimum lot size and has its own subdivision ordinance in effect. Like Cameron, the Town of McMillian has entered into a Cooperative Boundary Plan and Agreement with the City. The agreement identifies no-contest areas and joint planning areas for which the communities will jointly develop plans for growth.

The comprehensive plan indicates that septic system failures have been a problem. As is the case with Cameron and Lincoln, soil conditions in the Town are not conducive to conventional type septic systems. Holding tanks are commonly used. As a result the Town plan looks to maintaining larger lot size requirements in order to provide space requirements for non-holding tank systems where soil conditions and new technologies allow.

The Sewer Service Area Plan goals are consistent with the goals and policies of the Town's plan. These Town goals and policies include "active coordination with the City of Marshfield on future boundary issues" and "encouraging future

growth and development to occur contiguous or in close proximity to existing services and development" under *Land Use*, as well as "manage fringe development around the City" under *Intergovernmental Cooperation*.

6.8 TOWN OF SPENCER COMPREHENSIVE PLAN

The Town of Spencer comprehensive plan was adopted by the Town Board in October of 2005 and was prepared with the assistance of the Marathon County Planning Department as part of a countywide planning effort. The plan cites the common theme of soils not suitable for conventional on-site septic systems. The Town is under Marathon County Zoning with a minimum rural residential lot size of 40,000 sq. ft.

The Sewer Service Area Plan goals are generally consistent with the goals and policies of the Town's plan. For example, under *Land Use,* a policy indicates that the Town "will direct future residential growth to areas contiguous with existing development".

6.9 NORTH CENTRAL WISCONSIN REGIONAL PLANNING COMMISSION REGIONAL COMPREHENSIVE PLAN

The Regional Comprehensive Plan (RCP) was prepared by the NCWRPC staff and adopted by the Commission in December of 2003 to replace the previous *Framework for Regional Development*. The RCP was prepared under the authority of s.66.0309 and is intended to provide long-range policy direction for guiding growth, development and redevelopment in north central Wisconsin and for making public and private investment decisions in the Region. The RCP does not specify details of local development plans.

The Sewer Service Area Plan is consistent with the following RCP goals and objectives:

- Provide adequate infrastructure and public services and an adequate supply of developable land to meet existing and future market demand for residential, commercial and industrial uses.

- Encouragement of land uses, densities, and regulations that promote efficient development patterns and relatively low municipal and state governmental and utility costs.

- Discourage sprawling, low-density development where there is existing infrastructure and service capacity.

- Promotion of the redevelopment of lands with existing infrastructure and public services and the maintenance and rehabilitation of existing residential, commercial and industrial structures.

- Encourage infill and the reuse of underutilized areas.

- Development should be discouraged in environmentally sensitive areas including wetlands and floodplains.

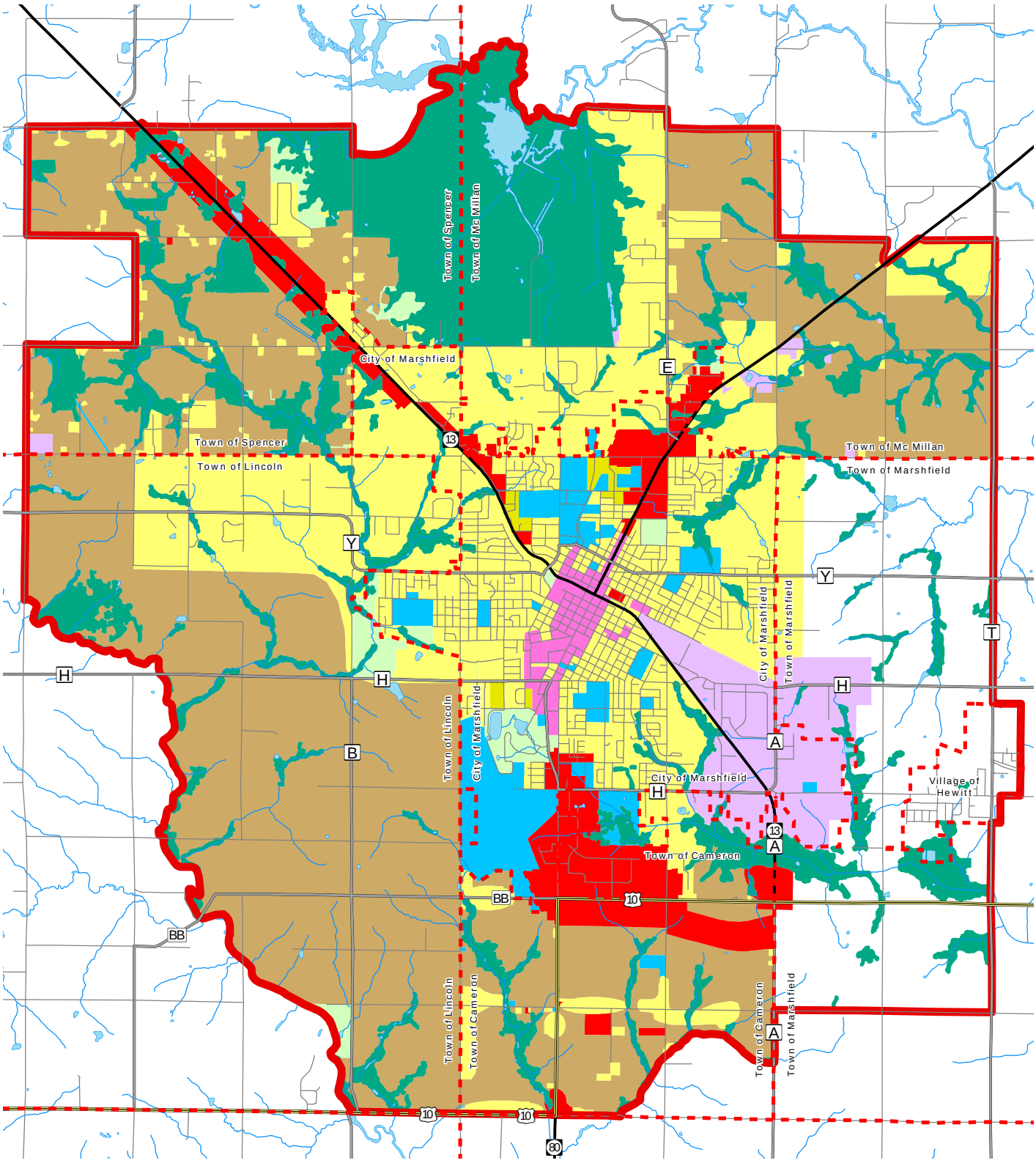
- Encouragement of coordination and cooperation among nearby units of government.

- Encourage local units of government to enter into joint planning initiatives, including intergovernmental land use, service and boundary agreements.

- Promote cooperative planning among all cities, villages and their surrounding towns.

Figure 4

Generalized Land Use Plans



Minor Civil Divisions
US Highway
State Highways
County Highways
Local Roads
Planning Area Boundary
Water

Plan Landuse

Agriculture
Commercial
Environmental Cooridor
High Residential
Industrial
Institutional
Mixed Use
No Plan
Open Space
Residential

N

0 0.35 0.7 1.4 2.1 Miles

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Source: WI DNR, NCWRPC, City of Marshfield
Note - The exact environmentally sensitive areas must be located through a field survey by Army Corps and/or WI DNR staff.

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SECTION 7.0 GOALS, OBJECTIVES & POLICIES OF THE SSA PLAN

7.1 INTRODUCTION

One of the most important steps in developing an urban area sewer service plan is to establish some overall goals and policy objectives to guide the development and implementation of the Plan.

The goals and policies presented in this chapter were drawn from a broad base, including: the Marshfield Sewer Service Area Planning Advisory Committee; citizens and elected officials of the municipalities participating in the preparation of the Plan; goals established at the state and federal levels; locally adopted land use policies and plans; and recognized professional planning principles.

The following goals and policies constitute the adopted guidelines by which the Sewer Service Area Planning Advisory Committee and its administrative staff will:

1) Establish the boundaries of the 20 year sewer service area,

2) Review sewer extension requests,

3) Review Sewer Service Area Plan Amendments, and

4) Other reviews related to sewer service.

7.2 GOALS, OBJECTIVES AND POLICIES

GOAL I) To provide and maintain public utilities and services which efficiently meet the needs of each community while protecting water resources and the quality of the environment.

OBJECTIVE I.1) By making maximum use of the existing facilities.

POLICIES: I.1.1) Where compatible with community plans and other community policies, sanitary sewer extensions into areas in proximity to existing development will be given high priority. Extensions which may cause leap-frog or sprawl development will be discouraged.

I.1.2) Encourage increased density of development through local land use regulations.

I.1.3) Provide sufficient land area for higher density development through zoning.

OBJECTIVE I.2) By developing efficient water, sewer, flood control, and solid waste facilities in such a way as to protect the quality of the environment, particularly surface and groundwater resources.

POLICIES: I.2.1) Environmentally sensitive open space and unique natural areas should be preserved and not used for urban development.

I.2.2) Proposed developments should include areas which set aside open space for recreation, storm water retention, and natural drainage ways for storm water run-off.

I.2.3) Reduce peak stormwater flows by increasing infiltration of stormwater runoff throughout watersheds.

I.2.4) Local units of government should work together on comprehensive stormwater management planning to identify stormwater management needs in the planning area. Stormwater control ordinances that address both water quality and quantity should be adopted by all local units.

OBJECTIVE I.3) By controlling development of areas where environmental sensitivity indicates that development should not take place.

POLICIES: I.3.1) Urban development should be directed to land suitable for development and discouraged on unsuitable land, such as shorelands and floodplains, wetlands, steep slopes, greenways, and wellhead protection areas.

I.3.2) Subdivision plat designs which do not provide adequate means of protecting future residents from problems associated with drainage and steep slopes should be rejected. In addition, developers should be required to submit detailed plans for adequately draining such areas.

I.3.3) Certain shoreland, floodplain, wetland, greenway and other potentially sensitive areas will be zoned for recreation or conservation uses.

I.3.4) Sewer extensions will not be approved for development of

environmentally sensitive areas, as identified in Chapter 5, however they may be allowed to cross certain sensitive areas with the appropriate permits to facilitate development adjacent to these areas.

GOAL II) To guide the future development of the City of Marshfield within the defined sewer service limits in an efficient, sequential, orderly, and compatible manner.

OBJECTIVE II.1) By extending sewer services only to those areas where demand exists and only within the sewer service area.

POLICIES: II.1.1) Extensions will not be made beyond the 20 year sewer service area unless the Plan is amended.

II.1.2) Sewers may not be extended beyond the sewer service area, however, they should be sized to accommodate future basin development that may occur outside of the service area in the future. It should be noted that interceptor sizing is not a factor in the local review process. Interceptor sizing is based on code specifications.

II.1.3) Public utilities and services will be extended to development areas on a cost effective basis.

II.1.4) Development in the sewer service area is limited to areas that have adequate public utilities and services or that have adequate services and are physically designed to accommodate higher density development when public utilities become available.

OBJECTIVE II.2) By providing sufficient land area in which the future development of the City can be accommodated.

POLICIES: II.2.1) The Sewer Service Area Plan should be reviewed and updated as necessary at least every five years to accommodate changing growth and development trends.

II.2.2) A "market factor" will be incorporated into planned sewer service area acreage allocation to allow flexibility of choice among competing sites for over-priced properties, properties not being made available to the market, or buyer fancy.

OBJECTIVE II.3) By encouraging utilization of vacant land within the City that

is already provided with urban services.

POLICIES: II.3.1) By directing infill development and redevelopment toward areas that do not require upgrading existing public facilities.

II.3.2) Future urban development should be encouraged to infill vacant developable lands within existing corporate limits and then staged outward adjacent to existing urban level development.

GOAL III) To encourage future development, occurring outside the sewer service limits, to locate in an efficient, orderly, and compatible manner.

OBJECTIVE III.1) By encouraging development that is consistent with city, village, town and county plans.

POLICIES: III.1.1) Planning should be done on an area-wide basis by the representatives of the local governing units.

III.1.2) Efforts should be made to emphasize the benefits from new development to the entire urban area, not just each separate governmental entity; and to increase intergovernmental cooperation.

III.1.3) Review of proposed development of area-wide significance should have input from all involved units in the urban area.

III.1.4) Sewer service extensions will be used as a tool to implement community plans by directing growth into the most desirable areas.

OBJECTIVE III.2) By encouraging industrial development to locate on sites having necessary public services.

POLICIES: III.2.1) New industrial developments should be contiguous with existing development.

III.2.2) The location of new industry should follow land use plans so that public utilities such as sewers and streets can be properly sized when constructed to provide adequate service.

III.2.3) New industrial development sites within the urban service area should not be created unless the development on those

sites is served with public sewer and water facilities.

OBJECTIVE III.3) By encouraging the utilization of existing commercial districts as the primary trade area before providing additional commercial areas.

POLICIES: III.3.1) Limit commercial development to those areas indicated in the community plans.

III.3.2) Discourage the scattering of commercial uses and strip-type commercial development along streets and highways through local zoning ordinances.

III.3.3) New commercial development sites within the urban service area should not be created unless the development on those sites is served with public sewer and water facilities.

OBJECTIVE III.4) By working with the towns in the Marshfield planning area, the Village of Hewitt and Wood County to develop and adopt local development plans that are mutually consistent and compatible.

POLICIES: III.4.1) Planning by municipalities should avoid duplication of public facilities and services.

III.4.2) Planning at all levels should embrace water quality protection by delineating environmentally sensitive areas within which development is prohibited.

GOAL IV) To promote the conservation of agricultural land.

OBJECTIVE IV.1) By encouraging higher density development.

POLICIES: IV.1.1) Encourage the orderly and sequential extension of urban services, with the intent of preventing the premature development of agricultural land.

IV.1.2) Encourage the development of vacant property in which the City has already invested public funds for public utilities.

IV.1.3) Recognize the need for both concentration of improvements and the preservation of open space in the design of neighborhoods.

OBJECTIVE IV.2) By minimizing problems associated with large lot rural subdivisions locating in the sewer service limits.

POLICIES IV.2.1) Rural residential development within the sewer service area should be planned to accommodate future urban densities and urban services.

IV.2.2) Surveys and subdivision plats creating new residential development sites within the sewer service limits should be discouraged unless arrangements are made for future provision of urban services including sanitary sewer and water.

IV.2.3) Lots should be wide enough and developed with mid-yard setbacks so that they may be divided for further development when sanitary sewers are installed.

SECTION 8.0 MARSHFIELD SEWER SERVICE AREA BOUNDARY PLAN

8.1 INTRODUCTION

This section ties together the previous sections of this report to establish the Marshfield Sewer Service Area boundary. This official boundary is depicted in the Sewer Service Area Boundary Map, see Figure 5. This boundary is administered according to the procedures and criteria outlined in Section 9 of this report.

8.2 PLANS FOR MUNICIPAL SEWAGE TREATMENT FACILITIES

This Sewer Service Area Plan incorporates by reference the selected plans for municipal waste treatment approved for the City of Marshfield in the 1997 *Cost-Effective Analysis and Environmental Information Document: City of Marshfield, WI Wastewater Utility* and for the Village of Hewitt in the 1992 *Village of Hewitt Facilities Plan for Wastewater Treatment Plant* (See Section 2). In Marshfield, the selected plan provided for the most cost-effective treatment alternative when all economic, social and environmental costs where considered. The recommended facility was constructed and came on-line in April 2000. In Hewitt, the selected alternative has been in operation since 1994. In addition, each treatment plan was supported by the results of the public participation phase of each facilities plan study. Future facilities planning efforts should be reviewed by the Sewer Service Area Planning Advisory Committee to coordinate cost-effective, long-range sewer service.

8.3 PLANS FOR THE WISCONSIN RIVER BASIN

The Sewer Service Area Plan is a formal amendment to the Wisconsin River Basin Plan. As an amendment, this Plan and any subsequent plan amendments must be in conformance with the water quality goals and objectives identified in the Wisconsin River Water Quality Management (or "Basin") Plan. The overall basin plan is divided into plan reports by sub-basin. Marshfield is contained in the Central Wisconsin River Basin Plan report, which was last updated in 2002, (See Section 3).

Within the sub-basin, the Marshfield area is split by three watersheds: the Little Eau Pleine River, the Mill Creek and the Upper Yellow River. As discussed earlier, the Upper Yellow River Watershed is important to consider due to its priority watershed status. The Sewer Service Area Plan focuses more on the Mill Creek Watershed because both the City of Marshfield and Village of Hewitt treatment plants discharge to Mill Creek.

Stream bank pasturing and channel ditching have degraded habitat conditions in Mill Creek, and the watershed has ranked high for non-point source priority watershed selection. As a result, the Mill Creek Watershed has received additional scrutiny in the form of monitoring and assessment studies.

8.4 PLANS FOR COMMUNITY GROWTH AND DEVELOPMENT

The growth projections developed in Section 4 of this report determine what size the sewer service area should be to accommodate this growth in the most cost-effective manner. The environmentally sensitive areas identified in Section 5 determine where development should be prohibited to protect water quality: the primary goal of this Plan. The land use elements of the comprehensive plans discussed in Section 6 for the various communities in the urban area are used in conjunction with the environmentally sensitive areas to help determine where the sewer service area boundary lines should be drawn. The goals of this Plan, as spelled out in Section 7, should be consistent with the local comprehensive plans in calling for orderly growth that protects environmentally sensitive areas and water quality.

Future amendments of this Plan should take into account any new community planning efforts, including joint planning activities between the City and adjacent towns related to the various cooperative boundary agreements.

Communities in the Marshfield area should incorporate and support the goals and objectives from Section 7 of the Sewer Service Area Plan in their future comprehensive planning efforts.

8.5 SEWER SERVICE AREA BOUNDARY MAP

The designation of a sewer service boundary is a major element of the overall planning process of this Sewer Service Area Plan. The boundary takes into account the projections of future population, land demands, environmentally sensitive areas, and extensive input on the part of elected officials represented on the Planning Advisory Committee.

The sewer service area designated on the Boundary Map, see Figure 5, in this section provides for the projected land needs of the Marshfield Sewer Service Area to the year 2030 as identified in Section 4. A general profile of the boundary area is shown in Table 10. The boundary *excludes* environmentally sensitive areas to prohibit them from sewered development in order to protect water quality. The Sewer Service Area can be amended to reflect changes in growth needs within the urban area. The boundary amendment procedures are located in Section 9 of this report. Additionally, the Sewer Service Area can

be reevaluated periodically for a plan update. Update cycles are typically 5 to 10 years.

Inclusion of lands within the Sewer Service Area does not imply that all of those lands will be developed with sanitary sewer by the year 2030. Many factors including market demand, land availability for sale, accessibility, and political decision making will ultimately determine the amount of land which is sewered by the end of the planning period.

TABLE 10: Sewer Service Area Boundary Profile				
	Total Area (Acres)	*ESA Area (Acres)*	*Developed/Served Area (Acres)*	*Available Area (Acres)*
2000	9,275.79	1,042.20	6,509.59	1,724.00
2011	9,571.88	1,035.00	6,877.74	1,659.14
Source: NCWRPC 2011.				

Overall total sewer service area has been increased nearly 300 acres (3.19%) since the original boundary was established in 2000. Note, however, that a mapping discrepancy of about 50 acres was discovered in the original map which accounts for part of this "increase". Actual expansion of the sewer service area boundary is a result of previous amendments, netting 63.5 acres (See Section 1.4), and newly mapped additions of 182.6 acres (See Figure 5) which brings the Marshfield Sewer Service Area to within 1% of the current acreage allocation of 1646 acres (See Section 4.5).

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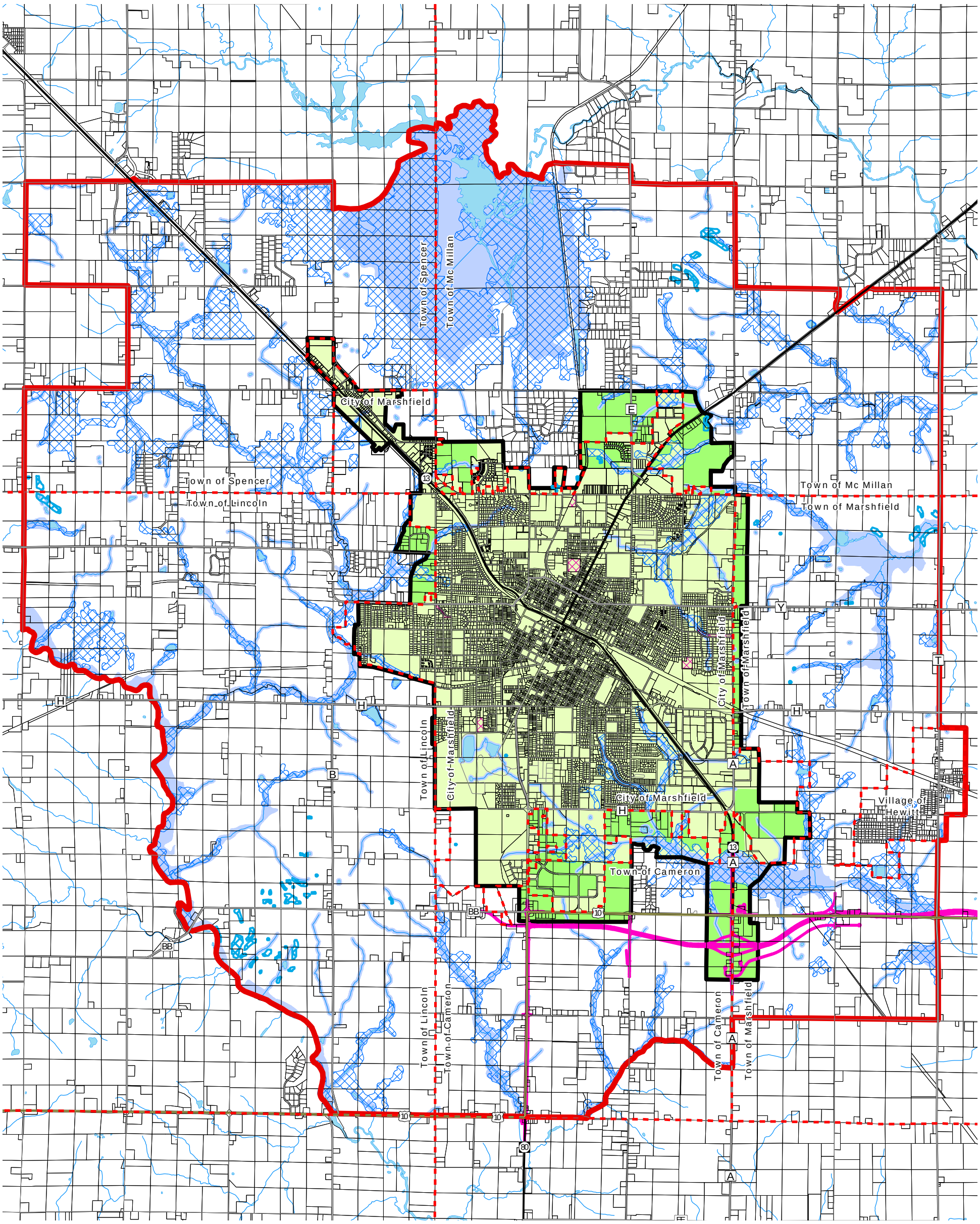
Figure 5

Marshfield Sewer Service Area Boundary Map



Minor Civil Divisions
Parcel Lines
Planning Area Boundary
Sewer Service Boundary
US Highway
State Highways
County Highways
Local Roads
Highway 10 Reroute
Water

Sewer Service Status
Developed Areas
Future Development Areas

Environmentally Sensitive Areas
Steep Slopes Element
Wetlands Element
Shorelands Element
Parks & Greenways Element

N

0 0.35 0.7 1.4 2.1 Miles

This map is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only. NCWRPC is not responsible for any inaccuracies herein contained.

Source: WI DNR, NCWRPC, City of Marshfield
Note - The exact environmentally sensitive areas must be located through a field survey by Army Corps and/or WI DNR staff.

Prepared by:
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North Central Wisconsin Regional Planning Commission
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(715) 849-5510 www.ncwrpc.org

SECTION 9.0 SEWER SERVICE AREA PLAN ADMINISTRATION

9.1 INTRODUCTION

As with any planning program, the success of the program depends on if and how it is implemented. The degree to which the program is implemented will often depend not only on the political atmosphere in the planning area, but on the clarity of the implementation guidelines set forth as part of the plan. The purpose of this section is to establish simple, complete guidelines for putting the Plan to use. Specific topics addressed in this section include the local review of sewage treatment facility proposals, how the Plan can be amended and by whom, and when and how the Plan will be subject to comprehensive updating processes.

The Wood County Planning & Zoning Department has agreed to act as a neutral third-party, designated agent for the administrative procedures for this Plan.

9.2 SEWER EXTENSION REVIEW PROCESS

This Plan provides the necessary guidelines for local review of applications for extension of sanitary sewers in the Marshfield sewer service area. The local review will be conducted to determine whether or not the proposed sewer extension is in conformance with the approved Plan. The determination will focus on the location of the proposed extension and service area; that is, does the service area lie within the delineated sewer service boundaries but not within an environmentally sensitive area (ESA)? Note that a sewer line may actually cross an ESA if there are no other feasible options for avoiding it, but the proposed sewered development must not be in the ESA. The following paragraphs outline the local review process:

1) The City should submit a letter and simple plan map of the proposed sewer extension and the immediate and ultimate service area for the proposed extension to the Wood County Planning & Zoning Office. To avoid unnecessary project delays, this submittal should be made early in the planning process, prior to completing detailed plans and specifications for the project. Submitting the plans early will insure that local review is made prior to submittal of the plans to the state and that costly detailed sewer design and specification documents are not prepared for areas that do not conform to the Sewer Service Area Plan and are subsequently rejected by the state.

2) The staff of the Wood County Planning & Zoning Office will review all

submissions and will provide the City with a review letter (aka 208 Conformance Letter) within 15 days of receipt of the plan map. If the proposed sewer extension is in conformance with the Plan, the letter from the County Planning Office should be attached to the sewer extension plans which are submitted to the state by the applicant.

3) If the proposed sewer extension is not in conformance with the Plan or if there are questions about consistency, the City will be notified by letter from the Wood County Planning & Zoning Office within 15 working days after receipt of the proposal.

4) If the proposed extension is not in conformance with the approved Plan, the City should determine if it wishes to further pursue the sewer extension proposal. If not, no further action is necessary.

5) If the proposal is to be pursued, the Sewer Service Area Plan must be amended in order for the proposed extension to be in conformance. The process for amending the Plan is contained in Section 9.5, below. With the approval of the appropriate amendment, the Wood County Planning & Zoning Office may issue the letter of conformance for the sewer extension.

6) Sewer extension requests denied by the Wood County Planning & Zoning Office may be "appealed" by resubmitting the request directly to the Department of Natural Resources.

Section 9.2.1 WELLHEAD PROTECTION REVIEW PROCESS

Figure 3 shows the Well Recharge Areas for the City's municipal well. These Well Recharge Areas are designated as "conditional" environmentally sensitive areas. Sanitary sewer service may be extended into these areas, as in many cases it may be more beneficial to serve these areas with sewer rather than with holding tanks or drain fields.

The Sewer Service Area Plan should be used as a tool to assist in providing public utilities and services which efficiently meet the needs of each community while protecting water resources and the quality of the environment. To that end, Marshfield Utilities recommends that future development within the Well Recharge Areas for the municipal wells be monitored.

The following types of development in the Well Recharge Areas should be evaluated on a case-by-case basis to determine if the development poses a threat to the quality of the water:

1. Asphalt products manufacturing plants
2. Automobile car washes
3. Automobile service stations
4. Building materials and product sales
5. Cemeteries
6. Chemical storage, sale, processing or manufacturing plants
7. Dry cleaning establishments
8. Electronic circuit assembly plants
9. Electroplating plants
10. Exterminating shops
11. Agriculture chemical manufacturing, distributing, or storage plants
12. Foundries and forge plants
13. Garages-for repair and servicing of motor vehicles, including body repair, painting or engine rebuilding
14. Highway salt storage areas
15. Industrial liquid waste storage areas
16. Junkyards and auto graveyards
17. Landfills
18. Metal reduction and refinement plants
19. Mining operations (gravel pits)
20. Motor and machinery service and assembly shops
21. Paint products manufacturing
22. Petroleum products storage or processing
23. Plastics manufacturing
24. Printing and publishing establishments
25. Pulp and paper manufacturing
26. Trucking terminals
27. Dairy or cheese processing plants
28. Feedlots and manure storage facilities
29. Photography studios, including the development of film and pictures
30. Private on-site sewage disposal systems where sanitary sewer already exists
31. Other uses/conditions as may be determined by City zoning and well head protection ordinances.

It may be possible that certain development could be operated in an environmentally sound manner with special material storage, handling, and monitoring practices. While the listed industries should be scrutinized closely, we recommend that any proposed industry be evaluated for their potential to contaminate ground water.

These requirements are not intended to be needless burdens or restrictions on any particular industry. Rather, they reflect the level of care necessary to

protect the availability of a critical resource for the community. Careless handling of industrial chemicals in sensitive areas can do irreparable harm to the aquifer. This can result in serious damage to the health and vitality of the local economy and create a substantial financial liability to the industry at fault. These requirements should be viewed as protection for the industries as well as protection of the aquifer.

9.3 REVIEW OF PLUMBING PLANS SUBMITTED FOR STATE APPROVAL

Plumbing plans for proposed private interceptor main sewers or building sewers for more than 54 drainage units require a conformance letter under Wisconsin Administrative Code Chapter Comm 82.20(4)(b). Before the Department of Commerce - Safety and Building Division can approve the plumbing plans, the contractor needs a conformance letter from the water quality planning agency (Wood County Planning & Zoning Office) stating that the proposed structure is within the sewer service area but not within an environmentally sensitive area. The review procedure for such plumbing plans follows the same outline as for sewer extensions, above.

9.4 OTHER REVIEWS

From time to time, the Department of Natural Resources or other state agency may request / require review of various activities related to sewer service, but not specifically identified within this Plan. These reviews should parallel procedures established in this Section. If it is determined that the requested review does not fit within guidelines of this plan, the Marshfield Sewer Service Area Planning Advisory Committee should meet to discuss and make a recommendation.

9.5 AMENDMENT PROCESS

9.5.1 INTRODUCTION

The purpose of this section is to detail the process to be followed by the Sewer Service Area Planning Advisory Committee in amending this Plan, a process which is essential for maintaining a service area which is in the best interest of the communities in the Marshfield area and in the best interest of the area's water quality. Amendments will provide communities and private developers with the needed flexibility to incorporate unanticipated community growth, additional technical data, changing community trends and continuous public input into the sewer service area planning process. The Wood County Planning & Zoning Office will administer the amendment process, and the City of Marshfield will maintain the records of boundary amendments and incorporate

those amendments on the service area map and in the text of the Plan during the updating process.

Two types of amendments to the service area boundaries can be expected. The first, a "Type I Amendment", involves a situation where the service boundary is changed, but the service area acreage is not increased. Under these circumstances, the administrative procedure for acting on the local service area boundary changes would be similar to that used for local zoning ordinance amendments with input from the surrounding / affected communities.

The second type of boundary amendment, a "Type II Amendment", would increase the service area acreage. The primary justification for a Type II Boundary Amendment is for unanticipated new population or mercantile growth to be served by sanitary sewers above that which was projected in the Plan. In all likelihood, if the Plan is updated every five years, there will not be any amendment of this type. However, if there is a need for this type of amendment, the Sewer Service Area Planning Advisory Committee would hear and take action on the proposed boundary expansion.

Both types of amendment procedures were developed to provide a fair and reasonable means of reviewing service area boundary changes. These procedures include public notice, public hearings and public records of the hearing proceedings.

Service area boundary amendment standards were established to provide a broad framework for analyzing the merits of proposed amendments and to identify basic parameters for the two types of amendments. These amendment standards are presented below and the detailed procedures for both types of amendment follows.

9.5.2 AMENDMENT STANDARDS

In order to provide an equitable and uniform basis for revising the sewer service boundaries, all proposed amendments which would add territory to the service area should meet standards 1 through 3 below, as well as standard 4 or 5. Annexations or detachments of territory, as defined in Chapter 66, Wis. Stats., within the boundaries of the sewer service area do not constitute amendments to the service boundaries and are therefore not subject to the amendment procedures.

1) There will be minimal adverse impacts on water quality as a result of development stimulated by the amendment.

2) Existing or planned sewage facilities and interceptors must have sufficient capacity to treat the projected wastewater flows generated by the added territory.

3) The boundary amendment must be in general conformance with adopted County or local community development or land use plans and the established goals and objectives of this Plan.

4) The configuration of sewer service area boundaries may be modified provided there is no increase in the total acreage projected in the Plan for the service area and modifications of the boundary promote cost-effective, orderly and a logical extension of sewered development. (This type of amendment would most likely occur where development in a particular location abuts the current limits of the service area; a developer or municipality proposes an additional development beyond this boundary {in conformance with adopted County or local plans}; and there are adequate existing or planned sewer facilities to serve the needs of the area added.) Since this type of boundary amendment does not involve an increase in the total service area acreage, an area which is equal to the amount of land added must be removed from the service area.

5) The established acreage of the service area may be increased by amending the service boundary only when it can be demonstrated to meet one of the following criteria:

   A. There is a documented need for a sanitary sewer collection system for areas of existing development.

   B. There is a documented need for sanitary sewer to serve a proposed unique facility or development.

   C. There is a documented need for flexibility to accommodate unanticipated short-term development required for reasonable community growth that is consistent with adopted community plans.

   D. An environmentally sensitive area is re-designated provided there are no significant adverse water quality impacts.

   E. There is an error in the maps, data, projections or allocations of the adopted Plan.

9.5.3 AMENDMENT PROCEDURES

9.5.3A TYPE I AMENDMENT

Amendment of service area boundaries without increasing the land area within the sewer service area boundary. For every acre added to the service area, an area of equal size is removed. For this type of change, the following procedures should be used:

1) A petition to include or exclude a particular area is filed with the City Plan Commission. The petition should include:

   A. A map showing the location of the property with reference to the existing sewer service area boundary;
   B. General development plans for the area including land use proposals, environmentally sensitive areas to be excluded, and a preliminary timetable for implementing the development plan;
   C. Estimates of existing and anticipated population, wastewater generation and means of collection from the area; and
   D. Other information deemed relevant to the application.

2) The Plan Commission refers the petition to the Wood County Planning & Zoning Office for review and recommendation.

3) If the petition proposes an addition to the sewer service area, the City, working with County Planning, shall propose an area of equal size for removal. Generally, land recommended for removal from the service area will have a low potential for development in the near future because of recent development trends in the community, inadequate urban services, unique environmental features, or poor site conditions due to slopes, soils or groundwater.

4) The Plan Commission, holds a public hearing and makes a recommendation on the proposed amendment following publication of a Class I Notice in accordance with Chapter 985, Wis. Stats. and including notification submitted to the surrounding affected communities. In formulating a recommendation, the Commission should consider:

   A. testimony received at the public hearing;
   B. comments from other local communities and the DNR;
   C. information on the impact the amendment would have on sewer line and treatment plant capacity, water supply facilities and other needed services;

D. conformance with community plans;
E. development trends in the area;
F. features of the physical environment; and
G. conformance with the adopted Sewer Service Area Plan goals and objectives and the amendment standards.

A record of the public hearing proceedings and testimony shall be kept by the Plan Commission.

5) Following the public hearing, the recommendations of the Plan Commission, other local communities, and agencies should be submitted to the City Council within 7 days.

6) The Council shall review the recommendations and take final action on the amendment. All or any part of the petitioned land may be added to the service area.

7) Amendments approved by the City shall be submitted to the Wood County Planning and Zoning Office within 30 days of approval. The County Planning Director shall transmit the amendment to the DNR for final approval.

8) The DNR will review the amendment and notify the City and the County Planning Director of their decision. If the DNR rejects the amendment, the City may appeal the decision under Section 9.6, below.

9.5.3B TYPE II AMENDMENT

Amend service area boundary and increase the total service area acreage.

It is anticipated that Type II Amendments will be relatively infrequent because the sewer service area boundaries will be periodically re-evaluated during the Plan update process. This update will, among other things, propose modifications to the service boundary based upon unanticipated growth occurrences. The following procedure should be used for a Type II Amendment:

1) The City submits a petition to expand its service area acreage to the Sewer Service Area Planning Advisory Committee and the Wood County Planning & Zoning Office. The petition should:

A. include a map showing the location of the properties in question and any environmentally sensitive areas to be excluded, with reference to the existing sewer service area boundary;

B. compare the population projections of the Plan with actual population increases in the community;
C. compare vacant land projections in the Plan with the actual amount of land vacant and anticipated population in the amendment area;
D. provide data on the current development density of the community; and
E. supply information on the capacity of existing sewer lines and treatment facilities to serve the area.

2) The Wood County Planning & Zoning Office shall review the petition and related information and also submit the petition to the DNR for review and comment.

3) Within 60 days after receiving the petition, the Sewer Service Area Planning Advisory Committee, holds a public hearing and makes a recommendation on the proposed amendment following publication of a Class I Notice in accordance with Chapter 985, Wis. Stats. In formulating a recommendation, the Committee should consider:

A. testimony received at the public hearing;
B. comments from other local communities, Wood County Planning and Zoning and the DNR;
C. information on the impact the amendment would have on sewer line and treatment plant capacity, water supply facilities and other needed services;
D. conformance with community plans;
E. development trends in the area;
F. features of the physical environment; and
G. conformance with the adopted Sewer Service Area Plan goals and objectives and the amendment standards.

A record of the public hearing proceedings and testimony shall be kept by the Wood County Planning and Zoning Office.

4) The recommendation of the Sewer Service Area Planning Advisory Committee is submitted to the Marshfield City Plan Commission for review and comment. The petition recommendation and Plan Commission comments are to be submitted to the City Council within 7 days of the Plan Commission meeting.

5) The Council shall review the recommendations and take final action on the amendment. All or any part of the petitioned land may be added to the service area by the City Council.

6) Amendments approved by the City shall be submitted to the Wood County Planning and Zoning Office within 7 days of approval. The County Planning Director shall transmit the amendment to the DNR for final approval.

7) The DNR will review the amendment and notify the City and the County Planning Director of their decision. If the DNR rejects the amendment, the City may appeal the decision under Section 9.6, below.

9.5.3C OTHER PLAN AMENDMENTS

Except for sewer service area boundary changes which follow the specific procedures above, any other amendments to this Plan will require approval of the Sewer Service Area Planning Advisory Committee.

Proposed amendments should be submitted to members of the Sewer Service Area Planning Committee at least one week prior to the meeting at which action on the amendment is expected to be taken. Amendments approved by the Committee will be transmitted by the Wood County Planning & Zoning Office to the DNR for review and final approval.

9.6 APPEALS

Any person aggrieved by a Department of Natural Resources water quality management plan decision has the right to file a judicial appeal of the decision. Wisconsin Statutes and Administrative Code establish time periods within which requests to review department decisions must be filed. For judicial review of a decision pursuant to s.227.52 and 227.53, Wisconsin Statutes, a petition for review must be filed within 30 days after service of the decision. The respondent in an action for judicial appeal is the DNR.

9.7 PLAN UPDATE

Sewer service area plans should be have a comprehensive review by the Sewer Service Area Planning Advisory Committee every five years. If it is determined that a major update is required, the update should include the following as a minimum:

- A review and update of population and the demographic projections.
- A review of population densities, household size changes and urban development trends in the area.

- The impact of major land use changes or developments in the urban area should be assessed.

- A review of any significant changes to environmentally important lands in the area.

- Revisions to the goals and objectives of the Plan to reflect changing conditions, trends and socio-economic atmosphere.

- A brief description of relevant events occurring during the preceding years which impact on area-wide water quality management planning.

- A brief description of any amendments to the Plan and service area boundaries made since the last update.

- A revised service area boundary extended to accommodate the urban area's anticipated population.

- A review of changes in the institutional structure for Plan review and implementation.

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ATTACHMENTS

RESOLUTION NO. 2011-09

A Resolution wherein the Common Council of the City of Marshfield adopts the Marshfield Sewer Service Area Plan update for 2011-2030.

WHEREAS, The City of Marshfield adopted its original Sewer Service Area Plan in September of 2000 as required by the Federal Clean Water Act legislation and State Administrative Code N.R. 121 to protect water quality; and

WHEREAS, in order to continue compliance with these regulations the Marshfield Sewer Service Area Planning Advisory Committee (MSSAPAC), with assistance from the North Central Wisconsin Regional Planning Commission has undertaken the necessary planning process to update the Marshfield Sewer Service Area Plan; and

WHEREAS, through MSSAPAC meetings, a public hearing, and a City of Marshfield Plan Commission meeting, information was provided, analyzed, and considered for inclusion in the Plan Update; and

WHEREAS, the Plan Update identifies environmentally sensitive areas and proposes environmentally sound sewer service extension goals, objectives, and policies that will protect water quality within the sewer service area boundary; and

WHEREAS, the Plan Update also identifies policies and procedures to make future amendments to this Plan;

NOW, THEREFORE, BE IT RESOLVED that the Common Council of the City of Marshfield, Wisconsin having considered the input of MSSAPAC, the City Plan Commission, and comments heard at the public hearing, hereby adopts the Marshfield Sewer Service Area Plan Update, 2011-2030.

ADOPTED: 7-12-11

Chris L. Meyer, Mayor

APPROVED: 7-12-11

Deb M. Hall

Deb M. Hall, Clerk

Chapter 25

CONSTRUCTION SITE EROSION CONTROL

Article I. Construction Site Erosion Control

Sec. 25-01. Authority
Sec. 25-02. Findings of Fact
Sec. 25-03. Purpose
Sec. 25-04. Applicability and Jurisdiction
Sec. 25-05. Definitions
Sec. 25-06. Technical Standards
Sec. 25-07. Performance Standards
Sec. 25-08. Permitting Requirements, Procedures and Fees
Sec. 25-09. Erosion and Sediment Control Plan, Statement, and Amendments
Sec. 25-10. Fee Schedule
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Article II. Post-Construction Storm Water Management

Sec. 25-21. Authority
Sec. 25-22. Findings of Fact
Sec. 25-23. Purpose and Intent
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Sec. 25-26. Technical Standards
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Sec. 25-28. Permitting Requirements, Procedures and Fees
Sec. 25-29. Storm Water Management Plan
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Article I. Construction Site Erosion Control

Sec. 25-01. Authority

(1) This ordinance is adopted by the City of Marshfield under the authority granted by s. 62.234, Wis. Stats. This ordinance supersedes all provisions of an ordinance previously enacted under s. 62.23, Wis. Stats., that relate to construction site erosion control. Except as otherwise specified in s. 62.234 Wis. Stats., s. 62.23, Wis. Stats., applies to this ordinance and to any amendments to this ordinance.

(2) The provisions of this ordinance are deemed not to limit any other lawful regulatory powers of the same governing body.

(3) The Common Council hereby designates the Director of Public Works or his designee to administer and enforce the provisions of this ordinance.

(4) The requirements of this ordinance do not pre-empt more stringent erosion and sediment control requirements that may be imposed by any of the following:

(a) Wisconsin Department of Natural Resources administrative rules, permits or approvals including those authorized under ss. 281.16 and 283.33, Wis. Stats.

(b) Targeted non-agricultural performance standards promulgated in rules by the Wisconsin Department of Natural Resources under s. NR 151.004, Wis. Adm. Code.

Sec. 25-02. Findings of Fact

The City of Marshfield finds that runoff from land disturbing construction activity carries a significant amount of sediment and other pollutants to the waters of the state in City of Marshfield.

Sec. 25-03. Purpose

Sec. 25-04. Applicability and Jurisdiction

(a) This ordinance applies to a construction site which has one or more acres of land disturbing construction activity except as provided under subsection (b) below:

(b) This ordinance does not apply to the following:

1. A construction project that is exempted by federal statutes or regulations from the requirement to have a national pollutant discharge elimination system permit issued under chapter 40, Code of Federal Regulations, part 122, for land disturbing construction activity.

2. Nonpoint discharges from agricultural facilities and practices

3. Nonpoint discharges from silviculture activities.

4. Routine maintenance for project sites under 5 acres of land disturbance if performed to maintain the original line and grade, hydraulic capacity or original purpose of the facility.

(c) Notwithstanding the applicability requirements in subsection (a) above, this ordinance applies to construction sites of any size that, in the opinion of the Director of Public Works or his designee, are likely to result in runoff that exceeds the safe capacity of the existing drainage facilities or receiving body of water, that causes undue channel erosion, that increases water pollution by scouring or the transportation of particulate matter or that endangers property or public safety.

(2) JURISDICTION.

This ordinance applies to land disturbing construction activity on construction sites located within the boundaries and jurisdiction of the City of Marshfield.

(3) EXCLUSIONS.

This ordinance is not applicable to activities conducted by a state agency, as defined under s. 227.01 (1), Wis. Stats., but also including the office of district attorney, which is subject to the state plan promulgated or a memorandum of understanding entered into under s. 281.33 (2), Wis. Stats.

Sec. 25-05. Definitions

(1) *Administering authority* means a governmental employee, or a regional planning commission empowered under s. 62.234, Wis. Stats., that is designated by the Common Council to administer this ordinance.

(2) *Agricultural facilities and practices* has the meaning in s. 281.16(1), Wis. Stats.

(3) *Average annual rainfall* means a calendar year of precipitation, excluding snow, which is considered typical.

(4) *Best management practice* or "BMP" means structural or non-structural measures, practices, techniques or devices employed to avoid or minimize soil, sediment or pollutants carried in runoff to waters of the state.

(5) *Business day* means a day that the office of the Director of Public Works is routinely and customarily open for business.

(6) *Cease and desist order* means a court-issued order to halt land disturbing construction activity that is being conducted without the required permit.

(7) *Combined sewer system* means a system for conveying both sanitary sewage and storm water runoff.

(8) *Construction site* means an area upon which one or more land disturbing construction activities occur, including areas that are part of a larger common plan of development or sale where multiple separate and distinct land disturbing construction activities may be taking place at different times on different schedules but under one plan.

(9) *Design storm* means a hypothetical discrete rainstorm characterized by a specific duration, temporary distribution, rainfall intensity, return frequency, and total depth of rainfall.

(10) *Development* means residential, commercial, industrial or institutional land uses and associated roads.

(11) *Division of land* means the creation from one parcel, two or more parcels regardless of size.

(12) *Erosion* means the process by which the land's surface is worn away by the action of wind, water, ice or gravity.

(13) *Erosion and sediment control plan* means a comprehensive plan developed to address pollution caused by erosion and sedimentation of soil particles or rock fragments during construction that meet the requirements of section 25-09.

(14) *Extraterritorial* means the unincorporated area within 3 miles of the corporate limits of a first, second, or third class city, or within 1.5 miles of a fourth class city or village.

(15) *Final stabilization* means that all land disturbing construction activities at the construction site have been completed and that a uniform perennial vegetative cover has been established, with a density of at least 70 percent of the cover, for the unpaved areas and areas not covered by permanent structures, or that employ equivalent permanent stabilization measures.

(16) *Governing body* means the Common Council of the City of Marshfield.

(17) *Land disturbing construction activity* means any man-made alteration of the land surface resulting in a change in the topography or existing vegetative or non-vegetative soil cover, that may result in runoff and lead to an increase in soil erosion and movement of sediment into waters of the state. Land disturbing construction activity includes but is not limited to clearing and grubbing, demolition, excavating, pit trench dewatering, filling and grading activities.

(18) *MEP or maximum extent practicable* means a level of implementing best management practices in order to achieve a performance standard specified in this chapter which takes into account the best available technology, cost effectiveness and other competing issues such as human safety and welfare, endangered and threatened resources, historic properties and geographic features. MEP allows flexibility in the way to meet the performance standards and may vary based on the performance standard and site conditions.

(19) *Performance standard* means a narrative or measurable number specifying the minimum acceptable outcome for a facility or practice.

(20) *Permit* means a written authorization issued by the Director of Public Works or his designee to the applicant to conduct land disturbing construction activity or to discharge post-construction runoff to waters of the state.

(21) *Permit application fee* means a sum of money paid to the City of Marshfield by the permit applicant for the purpose of recouping the expenses incurred by the authority in administering the permit.

(22) *Pollutant* has the meaning given in s. 283.01 (13), Wis. Stats.

(23) *Pollution* has the meaning given in s. 281.01 (10), Wis. Stats.

(24) *Post-construction site* means a construction site following the completion of land disturbing construction activity and final site stabilization.

(25) Responsible party means any person or entity holding fee title to the property or performing services to meet the performance standards of this ordinance through a contract or other agreement.

(26) Runoff means storm water or precipitation including rain, snow or ice melt or similar water that moves on the land surface via sheet or channelized flow.

(27) Sediment means settleable solid material that is transported by runoff, suspended within runoff or deposited by runoff away from its original location.

(28) Separate storm sewer means a conveyance or system of conveyances including roads with drainage systems, streets, catch basins, curbs, gutters, ditches, constructed channels or storm drains, which meets all of the following criteria:

(a) Is designed or used for collecting water or conveying runoff.

(b) Is not part of a combined sewer system.

(c) Is not draining to a storm water treatment device or system, i.e. a treatment plant designed for the purpose of treating storm water.

(d) Discharges directly or indirectly to waters of the state.

(29) Site means the entire area included in the legal description of the land on which the land disturbing construction activity is proposed in the permit application.

(30) Stop work order means an order issued by the Director of Public Works or his designee which requires that all construction activity on the site be stopped.

(31) Technical standard means a document that specifies design, predicted performance and operation and maintenance specifications for a material, device or method.

(32) Type II distribution means a rainfall type curve as established in the "United States Department of Agriculture, Soil Conservation Service), Technical Paper 149, published 1973". The Type II curve is applicable to all of Wisconsin and represents the most intense storm pattern.

(33) Waters of the state has the meaning given in s. 281.01 (18), Wis. Stats.

Sec. 25-06. Technical Standards

(a) Applicable design criteria, standards and specifications identified in the *Wisconsin Construction Site Best Management Practice Handbook*, WDNR Pub. WR-222 November 1993 Revision.

(b) Other design guidance and technical standards identified or developed by the Wisconsin Department of Natural Resources under subchapter V of chapter NR 151, Wis. Adm. Code.

(c) For this ordinance, average annual basis is calculated using the appropriate annual rainfall or runoff factor, also referred to as the R factor, or an equivalent design storm using a type II distribution, with consideration given to the geographic location of the site and the period of disturbance. The following year and location has been selected as average annual rainfall: Green Bay, 1969 (Mar 29 - Nov 25).

(2) OTHER STANDARDS. Other technical standards not identified or developed in Subsection (1) above, may be used provided that the methods have been approved by the Director of Public Works or his designee.

Sec. 25-07. Performance Standards

(1) RESPONSIBLE PARTY. The responsible party shall implement an erosion and sediment control plan, developed in accordance with section 25-09 that incorporates the requirements of this section.

(2) PLAN. A written plan shall be developed in accordance with section 25-09 and implemented for each construction site.

(3) EROSION AND OTHER POLLUTANT CONTROL REQUIREMENTS. The plan required under subsection (2) above shall include the following:

(a) BMPs that, by design, achieve to the maximum extent practicable, a reduction of 80% of the sediment load carried in runoff, on an average annual basis, as compared with no sediment or erosion controls until the construction site has undergone final stabilization. No person shall be required to exceed an 80% sediment reduction to meet the requirements of this paragraph. Erosion and sediment control BMPs may be used alone or in combination to meet the requirements of this paragraph. Credit toward meeting the sediment reduction shall be given for limiting the duration or area, or both, of land disturbing construction activity, or

other appropriate mechanism. Credit determination shall be subject to soil loss prediction tools that estimate the sediment load leaving a construction site under varying conditions.

(b) Notwithstanding par. (a), if BMPs cannot be designed and implemented to reduce the sediment load by 80%, on an average annual basis, the plan shall include a written and site-specific explanation as to why the 80% reduction goal is not attainable and the sediment load shall be reduced to the maximum extent practicable.

(c) Where appropriate, the plan shall include sediment controls to do all of the following to the maximum extent practicable:

1. Prevent tracking of sediment from the construction site onto roads and other paved surfaces.

2. Prevent the discharge of sediment as part of site de-watering.

3. Protect the separate storm drain inlet structure from receiving sediment.

(d) The use, storage and disposal of chemicals, cement and other compounds and materials used on the construction site shall be managed during the construction period, to prevent their entrance into waters of the state. However, projects that require the placement of these materials in waters of the state, such as constructing bridge footings or BMP installations, are not prohibited by this paragraph.

(4) LOCATION. The BMPs used to comply with this section shall be located prior to runoff entering waters of the state. Regional treatment facilities shall not be used for construction site sediment removal.

(5) ALTERNATE REQUIREMENTS. The Director of Public Works or his designee may establish storm water management requirements more stringent than those set forth in this section if the Director of Public Works or his designee determines that an added level of protection is needed for sensitive resources.

Sec. 25-08. Permitting Requirements, Procedures and Fees

(2) PERMIT APPLICATION AND FEES. At least one responsible party desiring to undertake a land disturbing construction activity subject to this ordinance shall submit an application for a permit and an erosion and sediment control plan that meets the requirements of section 25-09 and shall pay a non-refundable permit application fee to the City of Marshfield. Said application shall be submitted on forms provided by the City of Marshfield. By submitting an application, the applicant is authorizing the Director of Public Works or his designee to enter the site to obtain information required for the review of the erosion and sediment control plan.

(3) REVIEW AND APPROVAL OF PERMIT APPLICATION. The Director of Public Works or his designee shall review any permit application that is submitted with an erosion and sediment control plan, and the required fee. The following approval procedure shall be used:

(a) Within 30 calendar days of the receipt of a complete permit application, as required by subsection (2) above, the Director of Public Works or his designee shall inform the applicant whether the application and plan are approved or disapproved based on the requirements of this ordinance.

(b) If the permit application and plan are approved, the Director of Public Works or his designee shall issue the permit.

(c) If the permit application or plan is disapproved, the Director of Public works or his designee shall state in writing the reasons for disapproval.

(d) The Director of Public Works or his designee may request additional information from the applicant. If additional information is submitted, the Director of Public Works or his designee shall have 30 business days from the date the additional information is received to inform the applicant that the plan is either approved or disapproved.

(4) SURETY BOND. As a condition of approval and issuance of the permit, the Director of Public Works or his designee may require the applicant to deposit a surety bond or irrevocable letter of credit to guarantee a good faith execution of the approved erosion control plan and any permit conditions.

(5) PERMIT REQUIREMENTS. All permits shall require the responsible party to:

(a) Notify the Director of Public Works or his designee within 48 hours of commencing any land disturbing construction activity.

(b) Notify the Director of Public Works or his designee of completion of any BMPs within 14 days after their installation.

(c) Obtain permission in writing from the Director of Public Works or his designee prior to any modification pursuant to section 25-09(3) of the erosion and sediment control plan.

(d) Install all BMPs as identified in the approved erosion and sediment control plan

(e) Maintain all road drainage systems, stormwater drainage systems, BMPs and other facilities identified in the erosion and sediment control plan.

(f) Repair any siltation or erosion damage to adjoining surfaces and drainage ways resulting from land disturbing construction activities and document repairs in a site erosion control log.

(g) Inspect the BMPs within 24 hours after each rain of 0.5 inches or more which results in runoff during active construction periods, and at least once each week, make needed repairs and document the findings of the inspections in a site erosion control log with the date of inspection, the name of the person conducting the inspection, and a description of the present phase of the construction at the site.

(h) Allow the Director of Public Works or his designee to enter the site for the purpose of inspecting compliance with the erosion and sediment control plan or for performing any work necessary to bring the site into compliance with the control plan. Keep a copy of the erosion and sediment control plan at the construction site.

(6) PERMIT CONDITIONS. Permits issued under this section may include conditions established by the Director of Public Works or his designee in addition to the requirements set forth in subsection (5) above, where needed to assure compliance with the performance standards in section 25-07.

(7) PERMIT DURATION. Permits issued under this section shall be valid for a period of 180 days, or the length of the building permit or other construction authorizations, whichever is longer, from the date of issuance. The Director of Public Works or his designee may extend the period one or more times for up to an additional 180 days. The Director of Public Works or his designee may require additional BMPs as a condition of the extension if they are necessary to meet the requirements of this ordinance.

(8) MAINTENANCE. The responsible party throughout the duration of the construction activities shall maintain all BMPs necessary to meet the requirements of this ordinance until the site has undergone final stabilization.

Sec. 25-09. Erosion and Sediment Control Plan, Statement, and Amendments

(a) An erosion and sediment control plan shall be prepared and submitted to the Director of Public Works or his designee with the required application and permit fee.

(b) The erosion and sediment control plan shall be designed to meet the performance standards in section 25-07 and other requirements of this ordinance.

(c) The erosion and sediment control plan shall address pollution caused by soil erosion and sedimentation during construction and up to final stabilization of the site. The erosion and sediment control plan shall include, at a minimum, the following items:

1. The name(s) and address(es) of the owner or developer of the site, and of any consulting firm retained by the applicant, together with the name of the applicant's principal contact at such firm. The application shall also include start and end dates for construction.

2. Description of the site and the nature of the construction activity.

3. A sequence of construction of the construction site, including stripping and clearing; rough grading; construction of utilities, infrastructure, and buildings; and final grading and landscaping. Sequencing shall identify the expected date on which clearing will begin, the estimated duration of exposure of cleared areas, areas of clearing, installation of temporary erosion and sediment control measures, and establishment of permanent vegetation.

4. Estimates of the total area of the site and the total area of the site that is expected to be disturbed by construction activities.

5. Estimates, including calculations, if any, of the runoff coefficient of the site before and after construction activities are completed.

6. Calculations to show the expected percent reduction in the average annual sediment load carried in runoff as compared to no sediment or erosion controls.

7. Existing data describing the surface soil as well as subsoils.

8. Depth to groundwater, as indicated by Natural Resources Conservation Service soil information where available.

9. Name of the immediate named receiving water from the United States Geological Service 7.5 minute series topographic maps.

(d) The erosion and sediment control plan shall include a site map. The site map shall include the following items and shall be at a scale not greater than 100 feet per inch and at a contour interval not to exceed two feet.

1. Existing topography, vegetative cover, natural and engineered drainage systems, roads and surface waters. Lakes, streams, wetlands, channels, ditches and other watercourses on and immediately adjacent to the site shall be shown. Any identified 100-year flood plains, flood fringes and floodways shall also be shown.

2. Boundaries of the construction site.

3. Drainage patterns and approximate slopes anticipated after major grading activities.

4. Areas of soil disturbance.

5. Location of major BMPs identified in the plan.

6. Location of areas where stabilization practices will be employed.

7. Areas which will be vegetated following construction.

8. Boundaries of delineated wetlands on the site and locations where storm water is discharged to a surface water or wetland.

(e) Each erosion and sediment control plan shall include a description of appropriate controls and measures that will be performed at the site to prevent pollutants from reaching waters of the state. The plan shall clearly describe the appropriate control measures for each major activity and the timing during the construction process that the measures will be implemented. The description of erosion controls shall include, when appropriate, the following minimum requirements:

1. Description of interim and permanent stabilization practices, including a practice implementation schedule. Site plans shall ensure that existing vegetation is preserved where attainable and that disturbed portions of the site are stabilized.

2. Description of structural practices to divert flow away from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from the site. Unless otherwise specifically approved in writing by the Director of Public Works or his designee, structural measures shall be installed on upland soils.

3. Management of overland flow at all sites, unless otherwise controlled by outfall controls.

4. Trapping of sediment in channelized flow.

5. Staging construction to limit bare areas subject to erosion.

6. Protection of downslope drainage inlets where they occur.

7. Minimization of tracking at all sites.

8. Clean up of off-site sediment deposits.

9. Proper disposal of building and waste materials at all sites.

10. Stabilization of drainage ways.

11. Control of soil erosion from dirt stockpiles.

12. Installation of permanent stabilization practices as soon as possible after final grading.

13. Minimization of dust to the maximum extent practicable.

(f) The erosion and sediment control plan shall require that velocity dissipation devices be placed at discharge locations and along the length of any outfall channel, as necessary, to provide a non-erosive flow from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected.

(2) EROSION AND SEDIMENT CONTROL PLAN STATEMENT. For each construction site identified under section 25-04 (1)(c), an erosion and sediment control plan statement shall be prepared. This statement shall be submitted to the Director of Public Works or his designee. The control plan statement shall briefly describe the site, including a site map. Further, it shall also include the BMPs that will be used to meet the requirements of the ordinance, including the site development schedule.

(3) AMENDMENTS. The applicant shall amend the plan if any of the following occur:

(a) There is a change in design, construction, operation or maintenance at the site which has the reasonable potential for the discharge of pollutants to waters of the state and which has not otherwise been addressed in the plan.

(b) The actions required by the plan fail to reduce the impacts of pollutants carried by construction site runoff.

(c) The Director of Public Works or his designee notifies the applicant of changes needed in the plan.

Sec. 25-10. Fee Schedule

Sec. 25-11. Inspection

Sec. 25-12. Enforcement

(a) Any land disturbing construction activity regulated under this ordinance is being undertaken without a permit.

(b) The erosion and sediment control plan is not being implemented in a good faith manner.

(c) The conditions of the permit are not being met.

(2) If the responsible party does not cease activity as required in a stop-work order posted under this section or fails to comply with the erosion and sediment control plan or permit conditions, the Director of Public Works or his designee may revoke the permit.

(3) If the responsible party, where no permit has been issued, does not cease the activity after being notified by the Director of Public Works or his designee, or if a responsible party violates a stop-work order posted under subsection (1) above, the Director of Public Works or his designee may request the City Attorney to obtain a cease and desist order in any court with jurisdiction.

(4) The Director of Public Works or his designee may retract the stop-work order issued under subsection (1) above or the permit revocation under subsection (2) above.

(5) After posting a stop-work order under subsection (1) above, the Director of Public Works or his designee may issue a notice of intent to the responsible party of its intent to perform work necessary to comply with this ordinance. The Director of Public Works or his designee may go on the land and commence the work after issuing the notice of intent. The costs of the work performed by the Director of Public Works or his designee, plus interest at the rate authorized by the Common Council shall be billed to the responsible party. In the event a responsible party fails to pay the amount due, the clerk shall enter the amount due on the tax rolls and collect as a special assessment against the property pursuant to subch. VII of ch. 66, Wis. Stats.

(6) Any person violating any of the provisions of this ordinance shall be subject to a forfeiture of billable damages plus a penalty as provided in Section 1-05 of the City of Marshfield Municipal Code, together with the costs of prosecution for each violation. Each day a violation exists shall constitute a separate offense.

(7) Compliance with the provisions of this ordinance may also be enforced by injunction in any court with jurisdiction. It shall not be necessary to prosecute for forfeiture or a cease and desist order before resorting to injunctional proceedings.

Sec. 25-13. Appeals

(a) Shall hear and decide appeals where it is alleged that there is error in any order, decision or determination made by the Director of Public Works or his designee in administering this ordinance except for cease and desist orders obtained under section 25-12 (3).

(b) Upon appeal, may authorize variances from the provisions of this ordinance which are not contrary to the public interest and where owing to special conditions a literal enforcement of the provisions of the ordinance will result in unnecessary hardship; and

(c) Shall use the rules, procedures, duties and powers authorized by statute in hearing and deciding appeals and authorizing variances.

(2) WHO MAY APPEAL. Appeals to the Board of Appeals may be taken by any aggrieved person or by any office, department, board, or bureau of the City of Marshfield affected by any decision of the Director of Public Works or his designee.

Article II. Post-Construction Storm Water Management

Sec. 25-21. Authority

(2) The provisions of this ordinance are deemed not to limit any other lawful regulatory powers of the same governing body.

(3) The Common Council hereby designates the Director of Public Works or his designee to administer and enforce the provisions of this ordinance.

(4) The requirements of this ordinance do not pre-empt more stringent storm water management requirements that may be imposed by any of the following:

(a) Wisconsin Department of Natural Resources administrative rules, permits or approvals including those authorized under ss. 281.16 and 283.33, Wis. Stats.

(b) Targeted non-agricultural performance standards promulgated in rules by the Wisconsin Department of Natural Resources under s. NR 151.004, Wis. Adm. Code.

Sec. 25-22. Findings of Fact

(1) Degrade physical stream habitat by increasing stream bank erosion, increasing streambed scour, diminishing groundwater recharge, diminishing stream base flows and increasing stream temperature.

(2) Diminish the capacity of lakes and streams to support fish, aquatic life, recreational and water supply uses by increasing pollutant loading of sediment, suspended solids, nutrients, heavy metals, bacteria, pathogens and other urban pollutants.

(3) Alter wetland communities by changing wetland hydrology and by increasing pollutant loads.

(4) Reduce the quality of groundwater by increasing pollutant loading.

(5) Threaten public health, safety, property and general welfare by overtaxing storm sewers, drainage ways, and other minor drainage facilities.

(6) Threaten public health, safety, property and general welfare by increasing major flood peaks and volumes.

(7) Undermine floodplain management efforts by increasing the incidence and levels of flooding.

Sec. 25-23. Purpose and Intent

(a) Further the maintenance of safe and healthful conditions.

(b) Prevent and control the adverse effects of storm water; prevent and control soil erosion; prevent and control water pollution; protect spawning grounds, fish and aquatic life; control building sites, placement of structures and land uses; preserve ground cover and scenic beauty; and promote sound economic growth.

(c) Control exceedance of the safe capacity of existing drainage facilities and receiving water bodies; prevent undue channel erosion; control increases in the scouring and transportation of particulate matter; and prevent conditions that endanger downstream property.

(2) INTENT. It is the intent of the City of Marshfield that this ordinance regulates post-construction storm water discharges to waters of the state. This ordinance may be applied on a site-by-site basis. The City of Marshfield recognizes, however, that the preferred method of achieving the storm water performance standards set forth in this ordinance is through the preparation and implementation of comprehensive, systems-level storm water management plans that cover hydrologic units, such as watersheds, on a municipal and regional scale. Such plans may prescribe regional storm water devices, practices or systems, any of which may be designed to treat runoff from more than one site prior to discharge to waters of the state. Where such plans are in conformance with the performance standards developed under s. 281.16, Wis. Stats., for regional storm water management measures and have been approved by the City of Marshfield, it

is the intent of this ordinance that the approved plan be used to identify post-construction management measures acceptable for the community.

Sec. 25-24. Applicability and Jurisdiction

(a) Where not otherwise limited by law, this ordinance applies after final stabilization, to a site that had one or more acres of land disturbing construction activity unless the site is otherwise exempt under subsection (b) below.

(b) A site that meets any of the criteria in this paragraph is exempt from the requirements of this ordinance.

1. A redevelopment post-construction site with no increase in exposed parking lots or roads.

2. A post-construction site with less than 10% connected imperviousness based on complete development of the post-construction site, provided the cumulative area of all parking lots and rooftops is less than one acre.

3. Nonpoint discharges from agricultural facilities and practices.

4. Nonpoint discharges from silviculture activities.

5. Routine maintenance for project sites under 5 acres of land disturbance if performed to maintain the original line and grade, hydraulic capacity or original purpose of the facility.

6. Underground utility construction such as water, sewer and fiber optic lines. This exemption does not apply to the construction of any above ground structures associated with utility construction.

(c) Notwithstanding the applicability requirements in subsection (a) above, this ordinance applies to post-construction sites of any size that, in the opinion of the Director of Public Works or his designee, is likely to result in runoff that exceeds the safe capacity of the existing drainage facilities or receiving body of water, that causes undue channel erosion, that increases water pollution by scouring or the transportation of particulate matter or that endangers property or public safety.

(2) JURISDICTION.

This ordinance applies to post construction sites within the boundaries and jurisdiction of the City of Marshfield.

(3) EXCLUSIONS.

This ordinance is not applicable to activities conducted by a state agency, as defined under s. 227.01 (1), Wis. Stats., but also including the office of district attorney, which is subject to the state plan promulgated or a memorandum of understanding entered into under s. 281.33 (2), Wis. Stats.

Sec. 25-25. Definitions

(1) *Administering authority* means a governmental employee, or a regional planning commission empowered under s. 62.234, Wis. Stats., that is designated by the Common Council to administer this ordinance.

(2) *Agricultural facilities and practices* has the meaning given in s. 281.16, Wis. Stats.

(3) *Average annual rainfall* means a calendar year of precipitation, excluding snow, which is considered typical.

(4) *Best management practice* or *BMP* means structural or non-structural measures, practices, techniques or devices employed to avoid or minimize sediment or pollutants carried in runoff to waters of the state.

(5) *Business day* means a day the office of the Director of Public Works or his designee is routinely and customarily open for business.

(6) *Cease and desist order* means a court-issued order to halt land disturbing construction activity that is being conducted without the required permit.

(7) *Combined sewer system* means a system for conveying both sanitary sewage and storm water runoff.

(8) *Connected imperviousness* means an impervious surface that is directly connected to a separate storm sewer or water of the state via an impervious flow path.

(9) *Design storm* means a hypothetical discrete rainstorm characterized by a specific duration, temporal distribution, rainfall intensity, return frequency, and total depth of rainfall.

(10) *Development* means residential, commercial, industrial or institutional land uses and associated roads.

(11) *Division of land* means the creation from one parcel, two or more parcels, regardless of size.

(12) *Effective infiltration area* means the area of the infiltration system that is used to infiltrate runoff and does not include the area used for site access, berms or pretreatment.

(13) *Erosion* means the process by which the land's surface is worn away by the action of wind, water, ice or gravity.

(14) *Exceptional resource waters* means waters listed in s. NR 102.11, Wis. Adm. Code.

(15) *Extraterritorial* means the unincorporated area within 3 miles of the corporate limits of a first, second, or third class city, or within 1.5 miles of a fourth class city or village.

(16) *Final stabilization* means that all land disturbing construction activities at the construction site have been completed and that a uniform, perennial, vegetative cover has been established, with a density of at least 70% of the cover, for the unpaved areas and areas not covered by permanent structures, or employment of equivalent permanent stabilization measures.

(17) *Financial guarantee* means a performance bond, maintenance bond, surety bond, irrevocable letter of credit, or similar guarantees, in a form acceptable to the City Attorney that is submitted to the Director of Public Works or his designee by the responsible party to assure that requirements of the ordinance are carried out in compliance with the storm water management plan.

(18) *Governing body* means the Common Council of the City of Marshfield.

(19) *Impervious surface* means an area that releases as runoff all or a large portion of the precipitation that falls on it, except for frozen soil. Rooftops, sidewalks, driveways, parking lots and streets are examples of areas that typically are impervious.

(20) *In-fill area* means an undeveloped area of land located within existing development.

(21) *Infiltration* means the entry of precipitation or runoff into or through the soil.

(22) *Infiltration system* means a device or practice such as a basin, trench, rain garden or swale designed specifically to encourage infiltration, but does not include natural infiltration in pervious surfaces such as lawns, redirecting of rooftop downspouts onto lawns or minimal infiltration from practices, such as swales or road side channels designed for conveyance and pollutant removal only.

(23) *Karst feature* means an area or surficial geologic feature subject to bedrock dissolution so that it is likely to provide a conduit to groundwater, and may include caves, enlarged fractures, mine features, exposed bedrock surfaces, sinkholes, springs, seeps or swallets.

(24) *Land disturbing construction activity* means any man-made alteration of the land surface resulting in a change in the topography or existing vegetative or non-vegetative soil cover, that may result in runoff and lead to an increase in soil erosion and movement of sediment into waters of the state. Land disturbing construction activity includes but is not limited to clearing and grubbing, demolition, excavating, pit trench dewatering, filling and grading activities.

(25) *Maintenance agreement* means a legal document that provides for long-term maintenance of storm water management practices.

(26) *MEP* or *maximum extent practicable* means a level of implementing best management practices in order to achieve a performance standard specified in this ordinance which takes into

account the best available technology, cost effectiveness and other competing issues such as human safety and welfare, endangered and threatened resources, historic properties and geographic features. MEP allows flexibility in the way to meet the performance standards and may vary based on the performance standard and site conditions.

(27) *New development* means development resulting from the conversion of previously undeveloped land or agricultural land uses.

(28) *Off-site* means located outside the property boundary described in the permit application.

(29) *On-site* means located within the property boundary described in the permit application.

(30) *Ordinary high-water mark* has the meaning given in s. NR 115.03(6), Wis. Adm. Code.

(31) *Outstanding resource waters* means waters listed in s. NR 102.10, Wis. Adm. Code.

(32) *Percent fines* means the percentage of a given sample of soil, which passes through a # 200 sieve.

(33) *Performance standard* means a narrative or measurable number specifying the minimum acceptable outcome for a facility or practice.

(34) *Permit* means a written authorization issued by the Director of Public Works or his designee to the applicant to conduct land disturbing construction activity or to discharge post-construction runoff to waters of the state.

(35) *Permit application fee* means a sum of money paid to the City of Marshfield by the permit applicant for the purpose of recouping the expenses incurred by the authority in administering the permit.

(36) *Pervious surface* means an area that releases as runoff a small portion of the precipitation that falls on it. Lawns, gardens, parks, forests or other similar vegetated areas are examples of surfaces that typically are pervious.

(37) *Pollutant* has the meaning given in s. 283.01(13), Wis. Stats.

(38) *Pollution* has the meaning given in s. 281.01(10), Wis. Stats.

(39) *Post-construction site* means a construction site following the completion of land disturbing construction activity and final site stabilization.

(40) *Pre-development condition* means the extent and distribution of land cover types present before the initiation of land disturbing construction activity, assuming that all land uses prior to development activity are managed in an environmentally sound manner.

(41) *Preventive action limit* has the meaning given in s. NR 140.05(17), Wis. Adm. Code.

(42) *Redevelopment* means areas where development is replacing older development.

(43) *Responsible party* means any person or entity holding fee title to the property or other person contracted or obligated by other agreement to implement and maintain post-construction storm water BMPs.

(44) *Runoff* means storm water or precipitation including rain, snow or ice melt or similar water that moves on the land surface via sheet or channelized flow.

(45) *Separate storm sewer* means a conveyance or system of conveyances including roads with drainage systems, streets, catch basins, curbs, gutters, ditches, constructed channels or storm drains, which meets all of the following criteria:

(a) Is designed or used for collecting water or conveying runoff.

(b) Is not part of a combined sewer system.

(c) Is not draining to a storm water treatment device or system, i.e. a treatment plant designed for the purpose of treating storm water.

(d) Discharges directly or indirectly to waters of the state.

(46) *Site* means the entire area included in the legal description of the land on which the land disturbing construction activity occurred.

(47) *Stop work order* means an order issued by the Director of Public Works or his designee which requires that all construction activity on the site be stopped.

(48) *Storm water management plan* means a comprehensive plan designed to reduce the discharge of pollutants from storm water after the site has under gone final stabilization following completion of the construction activity.

(49) *Storm water management system plan* is a comprehensive plan designed to reduce the discharge of runoff and pollutants from hydrologic units on a regional or municipal scale.

(50) *Technical standard* means a document that specifies design, predicted performance and operation and maintenance specifications for a material, device or method.

(51) *Top of the channel* means an edge, or point on the landscape, landward from the ordinary high-water mark of a surface water of the state, where the slope of the land begins to be less than 12% continually for at least 50 feet. If the slope of the land is 12% or less continually for the initial 50 feet, landward from the ordinary high-water mark, the top of the channel is the ordinary high-water mark.

(52) *TR-55* means the United States Department of Agriculture, Natural Resources Conservation Service (previously Soil Conservation Service), Urban Hydrology for Small Watersheds, Second Edition, Technical Release 55, June 1986.

(53) *Type II distribution* means a rainfall type curve as established in the "United States Department of Agriculture, Soil Conservation Service, Technical Paper 149, published 1973". The Type II curve is applicable to all of Wisconsin and represents the most intense storm pattern.

(54) *Waters of the state* has the meaning given in s. 281.01 (18), Wis. Stats.

Sec. 25-26. Technical Standards

(1) Technical standards identified, developed or disseminated by the Wisconsin Department of Natural Resources under subchapter V of chapter NR 151, Wis. Adm. Code.

(2) Where technical standards have not been identified or developed by the Wisconsin Department of Natural Resources, other technical standards may be used provided that the methods have been approved by the Director of Public Works or his designee.

(3) In this ordinance, the following year and location has been selected as average annual rainfall: Green Bay, 1969 (Mar. 29-Nov. 25).

(4) Total suspended solids calculations shall utilize the United States Environmental Protection Agency (USEPA) National Urban Runoff Program (NURP) particle size distribution.

Sec. 25-27. Performance Standards

(1) RESPONSIBLE PARTY. The responsible party shall implement a post-construction storm water management plan that incorporates the requirements of this section.

(2) PLAN. A written storm water management plan in accordance with 25-29 shall be developed and implemented for each post-construction site.

(3) REQUIREMENTS. The plan required under subsection (2) above, shall include the following:

(a) TOTAL SUSPENDED SOLIDS. BMPs shall be designed, installed and maintained to control total suspended solids carried in runoff from the post-construction site as follows:

1. For new development, by design, reduce to the maximum extent practicable, the total suspended solids load by 80%, based on the average annual rainfall, as compared to no runoff management controls. No person shall be required to exceed an 80% total suspended solids reduction to meet the requirements of this subsection.

2. For redevelopment, by design, reduce to the maximum extent practicable, the total suspended solids load by 40%, based on the average annual rainfall, as compared to no runoff management controls. No person shall be required to exceed a 40% total suspended solids reduction to meet the requirements of this subsection.

3. For in-fill development, by design, reduce to the maximum extent practicable, the total suspended solids load by 80%, based on an average annual rainfall, as compared to no runoff management controls. No person shall be required to exceed an 80% total suspended solids reduction to meet the requirements of this subsection.

4. Notwithstanding subsections 1 to 3 above, if the design cannot achieve the applicable total suspended solids reduction specified, the storm water management plan shall include a written and site-specific explanation why that level of reduction is not attained and the total suspended solids load shall be reduced to the maximum extent practicable.

(b) PEAK DISCHARGE.

1. By design, BMPs shall be employed to maintain or reduce the peak runoff discharge rates, to the maximum extent practicable, as compared to pre-development conditions for the 2-year, 24-hour; the 10-year, 24 hour; the 25 year, 24 hour; and the 100 year, 24 hour design storms applicable to the post-construction site. Pre-development conditions shall assume "good hydrologic conditions" for appropriate land covers as identified in TR-55 or an equivalent methodology. The meaning of "hydrologic soil group" and "runoff curve number" are as determined in TR-55. However, when pre-development land cover is cropland, rather than using TR-55 values for cropland, the runoff curve numbers in Table 1 shall be used.

Table 1 - Maximum Pre-Development Runoff Curve Numbers for Cropland Areas

Hydrologic Soil Group

A

B

C

D

Runoff Curve Number

56

70

79

83

(c) INFILTRATION. BMPs shall be designed, installed, and maintained to infiltrate runoff to the maximum extent practicable in accordance with the following, except as provided in subsections 5 through 8 below.

1. For residential developments one of the following shall be met:

a. Infiltrate sufficient runoff volume so that the post-development infiltration volume shall be at least 90% of the pre-development infiltration volume, based on an average annual rainfall. However, when designing appropriate infiltration systems to meet this requirement, no more than 1% of the project site is required as an effective infiltration area.

b. Infiltrate 25% of the post-development runoff from the 2 year -24 hour design storm with a type II distribution. Separate curve numbers for pervious and impervious surfaces shall be used to calculate runoff volumes and not composite curve numbers as defined in TR-55. However, when designing appropriate infiltration systems to meet this requirement, no more than 1% of the project site is required as an effective infiltration area.

2. For non-residential development, including commercial, industrial and institutional development, one of the following shall be met:

a. Infiltrate sufficient runoff volume so that the post-development infiltration volume shall be at least 60% of the pre-development infiltration volume, based on an average annual rainfall. However, when designing appropriate infiltration systems to meet this requirement, no more than 2% of the project site is required as an effective infiltration area.

b. Infiltrate 10% of the runoff from the 2 year - 24 hour design storm with a type II distribution. Separate curve numbers for pervious and impervious surfaces shall be used to calculate runoff volumes, and not composite curve numbers as defined in TR-55. However, when designing appropriate infiltration systems to meet this requirement, no more than 2% of the project site is required as an effective infiltration area.

3. Pre-development condition shall be the same as in subsection (b) above.

4. A model that calculates runoff volume, such as SLAMM, or an equivalent methodology approved by the Director of Public Works or his designee shall be used.

5. Before infiltrating runoff, pretreatment shall be required for parking lot runoff and for runoff from new road construction in commercial, industrial and institutional areas that will enter an infiltration system. The pretreatment shall be designed to protect the infiltration system from clogging prior to scheduled maintenance and to protect groundwater quality in accordance with subsection 9 below. Pretreatment options may include, but are not limited to, oil/grease separation, sedimentation, biofiltration, filtration, swales or filter strips.

6. Exclusions. The runoff from the following areas is prohibited from meeting the requirements of subsection (c) above:

a. Areas associated with tier 1 industrial facilities identified in s. NR 216.21(2)(a), Wis. Adm. Code, including storage, loading, rooftop and parking.

b. Storage and loading areas of tier 2 industrial facilities identified in s. NR 216.21 (2)(b), Wis. Adm. Code.

c. Fueling and vehicle maintenance areas.

d. Areas within 1000 feet up gradient or within 100 feet down gradient of karst features.

e. Areas with less than 3 feet separation distance from the bottom of the infiltration system to the elevation of seasonal high groundwater or the top of bedrock, except this subsection 6.e. does not prohibit infiltration of roof runoff.

f. Areas with runoff from industrial, commercial and institutional parking lots and roads and residential arterial roads with less than 5 feet separation distance from the bottom of the infiltration system to the elevation of seasonal high groundwater or the top of bedrock.

g. Areas within 400 feet of a community water system well as specified in s. NR 811.16(4), Wis. Adm. Code, or within 100 feet of a private well as specified in s. NR 812.08(4), Wis. Adm. Code, for runoff infiltrated from commercial, industrial and institutional land uses or regional devices for residential development.

h. Areas where contaminants of concern, as defined in s. NR 720.03(2), Wis. Adm. Code are present in the soil through which infiltration will occur.

i. Any area where the soil does not exhibit one of the following soil characteristics between the bottom of the infiltration system and the seasonal high groundwater

and top of bedrock: at least a 3-foot soil layer with 20% fines or greater; or at least a 5-foot soil layer with 10% fines or greater. This does not apply where the soil medium within the infiltration system provides an equivalent level of protection. This subsection, 5i, does not prohibit infiltration of roof runoff.

7. Exemptions. The following are not required to meet the requirements of this subsection (c) above:

a. Areas where the infiltration rate of the soil is less than 0.6 inches/hour.

b. Parking areas and access roads less than 5,000 square feet for commercial and industrial development.

c. Redevelopment post-construction sites.

d. In-fill development areas less than 5 acres.

e. Infiltration areas during periods when the soil on the site is frozen.

f. Roads in commercial, industrial and institutional land uses, and arterial residential roads.

8. Where alternate uses of runoff are employed, such as for toilet flushing, laundry or irrigation, such alternate use shall be given equal credit toward the infiltration volume required by this section.

9. Infiltration systems designed in accordance with subsection (c) above shall, to the extent technically and economically feasible, minimize the level of pollutants infiltrating to groundwater and shall maintain compliance with the preventive action limit at a point of standards application in accordance with ch. NR 140, Wis. Adm. Code. However, if site specific information indicates that compliance with a preventive action limit is not achievable, the infiltration BMP may not be installed or shall be modified to prevent infiltration to the maximum extent practicable. The discharge from BMPs shall remain below the enforcement standard at the point of standards application.

(d) PROTECTIVE AREAS.

1. *Protective area* means an area of land that commences at the top of the channel of lakes, streams and rivers, or at the delineated boundary of wetlands, and that is the greatest of the following widths, as measured horizontally from the top of the channel or delineated wetland boundary to the closest impervious surface. However, in this paragraph, "protective area" does not include any area of land adjacent to any stream enclosed within a pipe or culvert, such that runoff cannot enter the enclosure at this location.

a. For outstanding resource waters and exceptional resource waters, and for wetlands in areas of special natural resource interest as specified in s. NR 103.04, 75 feet.

b. For perennial and intermittent streams identified on a United States geological survey 7.5-minute series topographic map, or a county soil survey map, whichever is more current, 50 feet.

c. For lakes, 50 feet.

d. For highly susceptible wetlands, 50 feet. Highly susceptible wetlands include the following types: fens, sedge meadows, bogs, low prairies, conifer swamps, shrub swamps, other forested wetlands, fresh wet meadows, shallow marshes, deep marshes and seasonally flooded basins. Wetland boundary delineations shall be made in accordance with s. NR 103.08(1m). This paragraph does not apply to wetlands that have been completely filled in accordance with all applicable state and federal regulations. The protective area for wetlands that have been partially filled in accordance with all applicable state and federal regulations shall be measured from the wetland boundary delineation after fill has been placed.

e. For less susceptible wetlands, 10 percent of the average wetland width, but no less than 10 feet nor more than 30 feet. Less susceptible wetlands include degraded wetlands dominated by invasive species such as reed canary grass.

f. In subsections a, d and e above, determinations of the extent of the protective area adjacent to wetlands shall be made on the basis of the sensitivity and runoff susceptibility of the wetland in accordance with the standards and criteria in s. NR 103.03.

g. For concentrated flow channels with drainage areas greater than 130 acres, 10 feet.

2. This paragraph applies to post-construction sites located within a protective area, except those areas exempted pursuant to subsection 4. below.

3. The following requirements shall be met for protective areas:

a. Impervious surfaces shall be kept out of the protective area to the maximum extent practicable. The storm water management plan shall contain a written site-specific explanation for any parts of the protective area that are disturbed during construction.

b. Where land disturbing construction activity occurs within a protective area, and where no impervious surface is present, adequate sod or self-sustaining vegetative cover of 70% or greater shall be established and maintained. The adequate sod or self-sustaining vegetative cover shall be sufficient to provide for bank stability,

maintenance of fish habitat and filtering of pollutants from upslope overland flow areas under sheet flow conditions. Non-vegetative materials, such as rock riprap, may be employed on the bank as necessary to prevent erosion, such as on steep slopes or where high velocity flows occur.

c. Best management practices such as filter strips, swales, or wet detention basins, that are designed to control pollutants from non-point sources may be located in the protective area.

4. This paragraph does not apply to:

a. Structures that cross or access surface waters such as boat landings, bridges and culverts.

b. Structures constructed in accordance with s. 59.692(1v), Wis. Stats.

c. Post-construction sites from which runoff does not enter the surface water, except to the extent that vegetative ground cover is necessary to maintain bank stability.

(e) FUELING AND VEHICLE MAINTENANCE AREAS. Fueling and vehicle maintenance areas shall, to the maximum extent practicable, have BMPs designed, installed and maintained to reduce petroleum within runoff, such that the runoff that enters waters of the state contains no visible petroleum sheen.

(f) SWALE TREATMENT FOR TRANSPORTATION FACILITIES.

1. Applicability. Except as provided in subsection 2 below, transportation facilities that use swales for runoff conveyance and pollutant removal meet all of the requirements of this section, if the swales are designed to the maximum extent practicable to do all of the following:

a. Be vegetated. It is preferred that tall and dense vegetation be maintained within the swale due to its greater effectiveness at enhancing runoff pollutant removal. However, where appropriate, non-vegetative measures may be employed to prevent erosion or provide for runoff treatment, such as rock riprap stabilization or check dams.

b. Carry runoff through a swale for 200 feet or more in length that is designed with a flow velocity no greater than 1.5 feet per second for the peak flow generated using either a 2-year, 24-hour design storm or a 2-year storm with a duration equal to the time of concentration as appropriate. If a swale of 200 feet in length cannot be designed with a flow velocity of 1.5 feet per second or less, then the flow velocity shall be reduced to the maximum extent practicable. Check dams may be included in the swale design to slow runoff flows and improve pollutant removal.

2. Exemptions. The Director of Public Works or his designee may, consistent with water quality standards, require other provisions of this section be met on a transportation facility with an average daily travel of vehicles greater than 2500 and where the initial surface water of the state that the runoff directly enters is any of the following:

a. An outstanding resource water.

b. An exceptional resource water.

c. Waters listed in s. 303(d) of the federal clean water act that are identified as impaired in whole or in part, due to nonpoint source impacts.

d. Waters where targeted performance standards are developed under s. NR 151.004, Wis. Adm. Code, to meet water quality standards.

(4) GENERAL CONSIDERATIONS FOR ON-SITE AND OFF-SITE STORM WATER MANAGEMENT MEASURES. The following considerations shall be observed in managing runoff:

(a) Natural topography and land cover features such as natural swales, natural depressions, native soil infiltrating capacity, and natural groundwater recharge areas shall be preserved and used, to the extent possible, to meet the requirements of this section.

(b) Emergency overland flow for all storm water facilities shall be provided to prevent exceeding the safe capacity of downstream drainage facilities and prevent endangerment of downstream property or public safety.

(c) Except as provided herein, all rainwater downspouts shall be placed so that drainage is to pervious surfaces. The owner is responsible for arranging drainage in a manner that complies with the law. Rainwater from downspouts shall be drained so as not to cause flooding of or dampness to walls, ceilings, or floors in any portion of on-site buildings or in any adjacent building, structure, or property. Direct connection of downspouts to municipal storm sewer or drain tile systems will not be permitted.

(5) LOCATION AND REGIONAL TREATMENT OPTION.

(a) The BMPs may be located on-site or off-site as part of a regional storm water device, practice or system.

(b) Post-construction runoff within a non-navigable surface water that flows into a BMP, such as a wet detention pond, is not required to meet the performance standards of this ordinance. Post-construction BMPs may be located in non-navigable surface waters.

(c) Except as allowed under subsection (d) below, post-construction runoff from new development shall meet the post-construction performance standards prior to entering a

navigable surface water.

(d) Post-construction runoff from any development within a navigable surface water that flows into a BMP is not required to meet the performance standards of this ordinance if:

1. The BMP was constructed prior to the effective date of this ordinance and the BMP either received a permit issued under ch. 30, Wis. Stats., or the BMP did not require a ch. 30, Wis. Stats., permit; and

2. The BMP is designed to provide runoff treatment from future upland development.

(e) Runoff from existing development, redevelopment and in-fill areas shall meet the post-construction performance standards in accordance with this paragraph.

1. To the maximum extent practicable, BMPs shall be located to treat runoff prior to discharge to navigable surface waters.

2. Post-construction BMPs for such runoff may be located in a navigable surface water if allowable under all other applicable federal, state and local regulations such as ch. NR 103, Wis. Adm. Code and ch. 30, Wis. Stats.

(f) The discharge of runoff from a BMP, such as a wet detention pond, or after a series of such BMPs is subject to this chapter.

(g) The Director of Public Works or his designee may approve off-site management measures provided that all of the following conditions are met:

1. The Director of Public Works or his designee determines that the post-construction runoff is covered by a storm water management system plan that is approved by the City of Marshfield and that contains management requirements consistent with the purpose and intent of this ordinance.

2. The off-site facility meets all of the following conditions:

a. The facility is in place.

b. The facility is designed and adequately sized to provide a level of storm water control equal to or greater than that which would be afforded by on-site practices meeting the performance standards of this ordinance.

c. The facility has a legally obligated entity responsible for its long-term operation and maintenance.

(h) Where a regional treatment option exists such that the Director of Public Works or his designee exempts the applicant from all or part of the minimum on-site storm water management requirements, the applicant shall be required to pay a fee in an amount

determined in negotiation with the Director of Public Works or his designee. In determining the fee for post-construction runoff, the Director of Public Works or his designee shall consider an equitable distribution of the cost for land, engineering design, construction, and maintenance of the regional treatment option.

(6) ALTERNATE REQUIREMENTS. The Director of Public Works or his designee may establish storm water management requirements more stringent than those set forth in this section if the Director of Public Works or his designee determines that an added level of protection is needed to protect sensitive resources.

Sec. 25-28. Permitting Requirements, Procedures and Fees

(2) PERMIT APPLICATION AND FEES. Unless specifically excluded by this ordinance, any responsible party desiring a permit shall submit to the Director of Public Works or his designee a permit application made on a form provided by the Director of Public Works or his designee for that purpose.

(a) Unless otherwise excepted by this ordinance, a permit application must be accompanied by a storm water management plan, a maintenance agreement and a non-refundable permit application fee.

(b) The storm water management plan shall be prepared to meet the requirements of sections 25-27 and 25-29, the maintenance agreement shall be prepared to meet the requirements of section 25-30, the financial guarantee, if required, shall meet the requirements of section 25-31, and fees shall be those established by the Common Council as set forth in section 25-32.

(3) REVIEW AND APPROVAL OF PERMIT APPLICATION. The Director of Public Works or his designee shall review any permit application that is submitted with a storm water management plan, maintenance agreement, and the required fee. The following approval procedure shall be used:

(a) Within 30 calendar days of the receipt of a complete permit application, including all items as required by subsection (2) above, the Director of Public Works or his designee shall inform the applicant whether the application, plan and maintenance agreement are approved or disapproved based on the requirements of this ordinance.

(b) If the storm water permit application, plan and maintenance agreement are approved, or if an agreed upon payment of fees in lieu of storm water management practices is made, the Director of Public Works or his designee shall issue the permit.

(c) If the storm water permit application, plan or maintenance agreement is disapproved, the Director of Public Works or his designee shall detail in writing the reasons for disapproval.

(d) The Director of Public Works or his designee may request additional information from the applicant. If additional information is submitted, the Director of Public Works or his designee shall have 30 calendar days from the date the additional information is received to inform the applicant that the plan and maintenance agreement are either approved or disapproved.

(4) PERMIT REQUIREMENTS. All permits issued under this ordinance shall be subject to the following conditions; holders of permits issued under this ordinance shall be deemed to have accepted these conditions. The Director of Public Works or his designee may suspend or revoke a permit for violation of a permit condition, following written notification of the responsible party. An action by the Director of Public Works or his designee to suspend or revoke this permit may be appealed in accordance with section 25-34.

(a) Compliance with this permit does not relieve the responsible party of the responsibility to comply with other applicable federal, state, and local laws and regulations.

(b) The responsible party shall design and install all BMPs in accordance with the approved storm water management plan and this permit.

(c) The responsible party shall notify the Director of Public Works or his designee at least 7 business days before commencing any work in conjunction with the storm water management plan, and within 7 business days upon completion of the BMPs. If required as a special condition under subsection (5) below, the responsible party shall make additional notification according to a schedule set forth by the Director of Public Works or his designee so that BMPs can be inspected during construction.

(d) BMPs required as part of this ordinance shall be surveyed by a Registered land Surveyor or Professional Engineer and certified "as built" by a licensed Professional Engineer or Hydrologist. Completed BMPs must pass a final inspection by the Director of Public Works or his designee to determine if they are in accordance with the approved storm water management plan and ordinance. The Director of Public Works or his designee or its designee shall notify the responsible party in writing of any changes required in said BMPs to bring them into compliance with the conditions of this permit.

(e) The responsible party shall notify the Director of Public Works or his designee of any significant modifications it intends to make to an approved storm water management plan. The Director of Public Works or his designee may require that the proposed modifications be submitted to it for approval prior to incorporation into the storm water management plan and execution by the responsible party.

(f) The responsible party shall maintain all BMPs in accordance with the storm water management plan until the practices either become the responsibility of the City of Marshfield, or are transferred to subsequent private owners as specified in the approved maintenance agreement.

(g) The responsible party authorizes the Director of Public Works or his designee to perform any work or operations necessary to bring BMPs into conformance with the approved storm water management plan, and consents to a special assessment or charge against the property as authorized under subsection VII of ch. 66, Wis. Stats., or to charging such costs against the financial guarantee posted under section 25-31.

(h) If so directed by the Director of Public Works or his designee, the responsible party shall repair at the responsible party's own expense all damage to adjoining municipal facilities and drainage ways caused by runoff, where such damage is caused by activities that are not in compliance with the approved storm water management plan.

(i) The responsible party shall permit property access to the Director of Public Works or his designee or its designee for the purpose of inspecting the property for compliance with the approved storm water management plan and this permit.

(j) Where site development or redevelopment involves changes in direction, increases in peak rate and/or total volume of runoff from a site, the Director of Public Works or his designee may require the responsible party to make appropriate legal arrangements with affected property owners concerning the prevention of endangerment to property or public safety.

(k) The responsible party is subject to the enforcement actions and penalties detailed in section 25-33, if the responsible party fails to comply with the terms of this permit.

(5) PERMIT CONDITIONS. Permits issued under this subsection may include conditions established by the Director of Public Works or his designee in addition to the requirements needed to meet the performance standards in section 25-27 or a financial guarantee as provided for in section 25-31.

(6) PERMIT DURATION. Permits issued under this section shall be valid from the date of issuance through the date the Director of Public Works or his designee notifies the responsible party that all storm water management practices have passed the final inspection required under subsection (4)(d) above.

Sec. 25-29. Storm Water Management Plan

(a) Name, address, and telephone number for the following or their designees: landowner; developer; project engineer for practice design and certification; person(s) responsible for installation of BMPs; and person(s) responsible for maintenance of BMPs prior to the transfer, if any, of maintenance responsibility to another party.

(b) A proper legal description of the property proposed to be developed, referenced to the U.S. Public Land Survey system or to block and lot numbers within a recorded land subdivision plat.

(c) Pre-development site conditions, including:

1. One or more site maps at a scale of not less than 1 inch equals 50 feet. The site maps shall show the following: site location and legal property description; predominant soil types and hydrologic soil groups; existing cover type and condition; topographic contours of the site at intervals not to exceed two feet; topography and drainage network including enough of the contiguous properties to show runoff patterns onto, through, and from the site; watercourses that may affect or be affected by runoff from the site; flow path and direction for all storm water conveyance sections; watershed boundaries used in hydrology determinations to show compliance with performance standards; lakes, streams, Army Corps of Engineers certified wetlands, channels, ditches, and other watercourses on and immediately adjacent to the site; limits of the 100 year floodplain; location of wells and wellhead protection areas covering the project area and delineated pursuant to s. NR 811.16, Wis. Adm. Code.

2. Hydrology and pollutant loading computations as needed to show compliance with performance standards. All major assumptions used in developing input parameters shall be clearly stated. The geographic areas used in making the calculations shall be clearly cross-referenced to the required map(s).

(d) Post-development site conditions, including:

1. Explanation of the provisions to preserve and use natural topography and land cover features to minimize changes in peak flow runoff rates and volumes to surface waters and wetlands.

2. Explanation of any restrictions on storm water management measures in the development area imposed by wellhead protection plans and ordinances.

3. One or more site maps at a scale of not less than 1 inch equals 50 feet showing the following: post-construction pervious areas including vegetative cover type and condition; impervious surfaces including all buildings, structures, and pavement; post-construction topographic contours of the site at intervals not to exceed 2 feet; post-construction drainage network including enough of the contiguous properties to show runoff patterns onto, through, and from the site; locations and dimensions of drainage easements; locations of maintenance easements specified in the maintenance agreement; flow path and direction for all storm water conveyance sections; location and type of all storm water management conveyance and treatment practices, including the on-site and off-site tributary drainage area; location and type of conveyance system that will carry runoff from the drainage and treatment practices to the nearest adequate outlet such as a curbed street, storm drain, or natural drainage way; watershed boundaries used in hydrology and pollutant loading calculations and any changes to lakes, streams, wetlands, channels, ditches, and other watercourses on and immediately adjacent to the site.

4. Hydrology and pollutant loading computations as needed to show compliance with performance standards. The computations shall be made for each discharge point in the development, and the geographic areas used in making the calculations shall be clearly

cross-referenced to the required map(s).

5. Results of investigations of soils and groundwater required for the placement and design of storm water management measures. Detailed drawings including cross-sections and profiles of all permanent storm water conveyance and treatment practices.

(e) A description and installation schedule for the BMPs needed to meet the performance standards in section 25-27.

(f) A maintenance plan developed for the life of each BMP including the required maintenance activities and maintenance activity schedule.

(g) Cost estimates for the construction, operation, and maintenance of each BMP.

(h) Other information requested in writing by the Director of Public Works or his designee to determine compliance of the proposed BMPs with the provisions of this ordinance.

(i) All site investigations, plans, designs, computations, and drawings shall be certified by a Professional Engineer or Hydrologist licensed in the State of Wisconsin, to be prepared in accordance with accepted engineering practice and requirements of this ordinance.

(2) ALTERNATE REQUIREMENTS. The Director of Public Works or his designee may prescribe alternative submittal requirements for applicants seeking an exemption to on-site storm water management performance standards under section 25-27(5).

Sec. 25-30. Maintenance Agreement

(2) AGREEMENT PROVISIONS. The maintenance agreement shall contain the following information and provisions and be consistent with the maintenance plan required by section 25-29 (1)(f):

(a) Identification of the storm water facilities and designation of the drainage area served by the facilities.

(b) A schedule for regular maintenance of each aspect of the storm water management system consistent with the storm water management plan required under section 25-28(2).

(c) Identification of the party(s) responsible for long term maintenance of the BMPs identified in the storm water management plan required under section 25-28(2).

(d) Requirement that the responsible party(s) shall maintain BMPs in accordance with the schedule included in subsection (b) above.

(e) Authorization for the Director of Public Works or his designee to access the property to conduct inspections of BMPs as necessary to ascertain that the practices are being maintained and operated in accordance with the agreement.

(f) A requirement on the Director of Public Works or his designee to maintain public records of the results of the site inspections, to inform the responsible party responsible for maintenance of the inspection results, and to specifically indicate any corrective actions required to bring the BMP into proper working condition.

(g) Agreement that the party designated under subsection (c) above, as responsible for long term maintenance of the BMPs, shall be notified by the Director of Public Works or his designee of maintenance problems which require correction. The specified corrective actions shall be undertaken within a reasonable time frame as set by the Director of Public Works or his designee.

(h) Authorization of the Director of Public Works or his designee to perform the corrected actions identified in the inspection report if the responsible party designated under subsection (c) above does not make the required corrections in the specified time period. The Director of Public Works or his designee shall enter the amount due on the tax rolls and collect the money as a special charge against the property pursuant to subsection. VII of ch. 66, Wis. Stats.

Sec. 25-31. Financial Guarantee

(2) CONDITIONS FOR RELEASE. Conditions for the release of the financial guarantee are as follows:

(a) The Director of Public Works or his designee shall release the portion of the financial guarantee established under this section, less any costs incurred by the City of Marshfield to complete installation of BMPs, upon submission of "as built plans" by a licensed professional engineer. The Director of Public Works or his designee may make provisions for a partial pro-rata release of the financial guarantee based on the completion of various development stages.

(b) The Director of Public Works or his designee shall release the portion of the financial guarantee established under this section to assure maintenance of BMPs, less any costs incurred by the City of Marshfield, at such time that the responsibility for practice maintenance is passed on to another entity via an approved maintenance agreement.

Sec. 25-32. Fee Schedule

Sec. 25-33. Enforcement

(2) The Director of Public Works or his designee shall notify the responsible party by certified mail of any non-complying land disturbing construction activity or post-construction runoff. The notice shall describe the nature of the violation, remedial actions needed, a schedule for remedial action, and additional enforcement action which may be taken.

(3) Upon receipt of written notification from the Director of Public Works or his designee under subsection (2) above, the responsible party shall correct work that does not comply with the storm water management plan or other provisions of this permit. The responsible party shall make corrections as necessary to meet the specifications and schedule set forth by the Director of Public Works or his designee in the notice.

(4) If the violations to a permit issued pursuant to this ordinance are likely to result in damage to properties, public facilities, or waters of the state, the Director of Public Works or his designee may enter the land and take emergency actions necessary to prevent such damage. The costs incurred by the Director of Public Works or his designee plus interest and legal costs shall be billed to the responsible party pursuant to section 25-30(2)(h).

(5) The Director of Public Works or his designee is authorized to post a stop work order on all land disturbing construction activity that is in violation of this ordinance, or to request the municipal attorney to obtain a cease and desist order in any court with jurisdiction.

(6) The Director of Public Works or his designee may revoke a permit issued under this ordinance for non-compliance with ordinance provisions.

(7) Any permit revocation, stop work order, or cease and desist order shall remain in effect unless retracted by the Director of Public Works or his designee or by a court with jurisdiction.

(8) The Director of Public Works or his designee is authorized to refer any violation of this ordinance, or of a stop work order or cease and desist order issued pursuant to this ordinance, to the municipal attorney for the commencement of further legal proceedings in any court with jurisdiction.

(9) Any person, firm, association, or corporation who does not comply with the provisions of this ordinance shall be subject to a forfeiture of billable damages plus a penalty as provided in Section 1-05 of the City of Marshfield Municipal Code, together with the costs of prosecution. Each day that the violation exists shall constitute a separate offense.

(10) Compliance with the provisions of this ordinance may also be enforced by injunction in any court with jurisdiction. It shall not be necessary to prosecute for forfeiture or a cease and desist order before resorting to injunctional proceedings.

(11) When the Director of Public Works or his designee determines that the holder of a permit issued pursuant to this ordinance has failed to follow practices set forth in the storm water management plan, or has failed to comply with schedules set forth in said storm water management plan, the Director of Public Works or his designee or a party designated by the Director of Public Works or his designee may enter upon the land and perform the work or other operations necessary to bring the condition of said lands into conformance with requirements of the approved plan. The Director of Public Works or his designee shall keep a detailed accounting of the costs and expenses of performing this work. These costs and expenses shall be deducted from any financial security posted pursuant to section 25-31 of this ordinance. Where such a security has not been established, or where such a security is insufficient to cover these costs, the

costs and expenses shall be entered on the tax roll as a special charge against the property and collected with any other taxes levied thereon for the year in which the work is completed, pursuant to section 25-30(2)(h).

Sec. 25-34. Appeals

(1) BOARD OF APPEALS. The Board of Appeals, created pursuant to section 18-34 of the Municipal Code pursuant to s. 62.23(7)(e), Wis. Stats, shall hear and decide appeals where it is alleged that there is error in any order, decision or determination made by the Director of Public Works or his designee in administering this ordinance. The board shall also use the rules, procedures, duties, and powers authorized by statute in hearing and deciding appeals. Upon appeal, the board may authorize variances from the provisions of this ordinance that are not contrary to the public interest, and where owing to special conditions a literal enforcement of the ordinance will result in unnecessary hardship.

(2) WHO MAY APPEAL. Appeals to the Board of Appeals may be taken by any aggrieved person or by an officer, department, board, or bureau of the City of Marshfield affected by any decision of the Director of Public Works or his designee.