

ENVIRONMENTAL ANALYSIS AND DECISION ON THE NEED
FOR AN ENVIRONMENTAL IMPACT STATEMENT (EIS)

Form 1600-8

Rev. 6-2001

Department of Natural Resources (DNR)

Region or Bureau: Bureau of Watershed Management

Type List Designation: 150.03 (6)(b).5.a

NOTE TO REVIEWERS: This document is a DNR environmental analysis that evaluates probable environmental effects and decides on the need for an EIS. The attached analysis includes a description of the proposal and the affected environment. The DNR has reviewed the attachments and, upon certification, accepts responsibility for their scope and content to fulfill requirements in s. NR 150.22, Wis. Adm. Code. Your comments should address completeness, accuracy or the EIS decision. For your comments to be considered, they must be received by the contact person before 4:30 p.m., November 2, 2007.

Contact Person: Tom Gilbert

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Applicant: East Central Wisconsin Regional Planning Commission (ECWRPC)

Title of Proposal: Oshkosh 2030 Sewer Service Area Plan Update

Location: The areas proposed to be added to the Oshkosh Sewer Service Area (SSA) in Winnebago County are shown in **Attachment 1** and described in **Attachment 2**.

PROJECT SUMMARY

1. Overview of the proposal:

The proposed Oshkosh SSA Plan updates and amends the 1997 sewer service area planning element of the Lower Fox River Basin Integrated Management Plan (WDNR publ. WT-666-2001) and the State of the Upper Fox River Basin plan (WDNR publ. WT-665-2001). The updating process is part of a regularly scheduled five-year re-evaluation, the last of which was completed in 1997 according to Wisconsin Administrative Code NR 121.07(2)(a)1.

The basic purpose of the proposed amendment is to include within the planned Oshkosh sewer service area certain lands located immediately adjacent to, but outside, the currently adopted sewer service area.

Sewer service area plans serve as a basis for Wisconsin Department of Natural Resources (WDNR) approval of state and federal funding for the planning and construction of wastewater treatment and sewerage facilities. They also serve as a basis for WDNR approval of locally proposed sanitary sewer extensions and Department of Commerce approval of private interceptor or certain building sewers. In addition, because the plans also identify environmentally sensitive areas, they serve as a guide for environmental permit decisions.

The sewer service area plans are intended to be an important planning and development guide for local communities. The plans provide the following functions:

- Identify wastewater treatment and collection system needs for sewer service areas for a 20 or more year planning period;

- Forecast the amount and location of future urban development areas;
- Identify environmentally sensitive areas which should be preserved;
- Contain land use development forecasts and recommendations for implementing wastewater treatment and collection plans for individual sewer service areas;
- Inform developers and property owners of community policies and restrictions before development is proposed;
- Establish “holding tank” service area for isolated and rural special uses.

The proposed amended SSA plan is essentially a planning document to serve as a guide for development and sewerage system expansion. As future specific projects for development or sewerage system expansion are proposed they will be subject to state, federal and local regulations and permitting processes. These processes may include specific review and analysis under the Wisconsin Environmental Policy Act (WEPA) in accordance with chapter NR 150, Wis. Adm. Code.

2. Documents, plans, studies or memos on which this DNR review is based:

Oshkosh 2030 Sewer Service Area Plan Update prepared by the East Central Wisconsin Regional Planning Commission – Draft - April 28, 2006.

3. Sewer Service Area Descriptions

With the inclusion of the proposed 3,650 acres of expansion area, the year 2030 Sewer Service Area is shown in **Attachment 1**. In total, it encompasses 27,639 acres, which includes 1,039 acres of environmentally sensitive land, 18,210 acres of developed land, and 8,112 acres of vacant land considered developable, as of 2005.

The following governmental entities are located, or partially located, in the SSA.

City of Oshkosh
 Edgewood – Shangri La Sanitary District No. 1
 Algoma Sanitary District No. 1
 Black Wolf Sanitary District No. 1
 Island View Sanitary District
 Sunset Point Sanitary District
 Town of Oshkosh
 Town of Algoma
 Town of Vinland
 Town of Black Wolf
 Town of Nekimi
 Winnebago County

DNR EVALUATION OF PROJECT SIGNIFICANCE

4. Environmental Effects and Their Significance

A description of environmental resources and effects is provided in **Attachments 3 and 6**, which consists of excerpts from the Oshkosh 2030 Sewer Service Area Plan Update. This information covers the description of water resources, point and non-point source impacts, groundwater impacts, effects on geographically scarce resources, and other miscellaneous effects.

The current land uses and environmental features in the amendment addition areas are shown in **Attachments 4 and 5**.

Extent to which the primary and secondary environmental effects listed in the supporting documents are reversible.

The loss of prime farmland and other agricultural land and the benefit it provides for wildlife is considered irreversible. Other typical effects of urbanization including air and noise pollution, traffic congestion, and waste generation are considered relatively irreversible. Adverse surface water and groundwater effects are technically reversible but this may not be practically achievable based on specific local circumstances.

5. Significance of Cumulative Effects

The cumulative effects of providing sewer and other urban services to commercial or industrial development in the amendment areas will include increased traffic, noise, air pollution and potentially stormwater runoff. Existing land in agricultural production will be lost and the rural character of the area will be converted more to an urban character. The development enabled by the SSA expansion is expected to enhance the local economy and provide jobs.

If there were insufficient industrial and commercial lands within the sewer service area to meet the demand, it is possible that development would occur with onsite sewage disposal systems. Within the relatively high densities of urban area development sanitary sewer generally has less adverse impact on the environment than numerous onsite sewage systems, particularly as the onsite systems become old. The delineation and protection of environmentally sensitive areas through the sewer service area planning process is a positive secondary impact. The Facility Planning and Wastewater Permitting Programs oversee the maintenance of wastewater treatment standards and capacity. The Regional Water Quality Management Plan is intended to promote efficient, orderly and planned land use development patterns which allow for logical, cost-effective sewered development that incorporates sound environmental management practices.

6. Significance of Risk

The impacts to surface water, groundwater, and environmentally significant areas associated with urbanization will be controlled and mitigated to an extent such that it is anticipated water quality protection will be maintained. Sewerage systems have some potential for failure but emergency response provisions would be available and the reliability of sewer service is generally considered quite high and protective of public health and safety.

Wetlands and stream corridors represent the major features within the subject environmentally sensitive areas. All wetlands within the boundary of the proposed amendment to the sewer service area should be protected through either the implementation of the sewer service area plan itself or the Army Corps 404 wetland permit process, water quality standards for wetlands (Wis. Adm. Code, NR 103), and Wisconsin Administrative Code NR 115, the shoreland wetland program for unincorporated areas which are administered locally by counties.

Stormwater management plan development is required for any construction site activity disturbing one or more acres of land, pursuant to Chapter NR 216, Wisconsin Administrative Code.

7. Significance of Precedent

The approval of the SSA plan amendment would provide direction for local community growth but does not foreclose future options. Sewer service area plans allow amendment procedures to respond to new information and demands relative to providing water quality protection in a development setting. Chapter NR 121 also requires periodic SSA Plan updates.

8. Significance of Controversy over Environmental Effects

A public hearing sponsored by ECWRPC was held on April 27, 2006 at the Oshkosh City Hall. A summary of the plan amendment was provided. There were no public objections or controversial issues raised at the hearing. The Commission subsequently adopted the plan update as Resolution 11-06.

ALTERNATIVES

9. Alternatives that would decrease or eliminate adverse environmental effects

Alternatives to the expansion of the sewer service area (SSA) at this location would be to increase density within the current SSA, or to expand the SSA in another location, or to provide a lesser, or no, expansion of the SSA. The no expansion alternative would promote development using private onsite wastewater treatment systems. This might be implemented in some areas but the overall density of development and estimated wastewater flows are such that it has been determined to be cost-effective and environmentally beneficial to extend public sewer service. Onsite systems would discharge into local groundwater and potential groundwater impacts associated with this have not been specifically determined. The areawide water quality management planning process does not provide for a “no-growth” sewer service area if the conditions, standards, and requirements of expanding the service area are addressed.

Providing a smaller expansion of the sewer service area might serve to more effectively promote development located adjacent to the sewer urban fringe, but other factors drive development decisions to a great extent such that is uncertain if the service area boundaries would alter development patterns to a significant extent. Regardless of the service area boundaries, in-filling along the sewer urban fringe is typically most economical and promoted by other factors.

The proposed additions to the Oshkosh SSA are generally spread out uniformly around the perimeter of the existing SSA, and represent a logical extension into adjacent areas. Expanding the SSA in other locations would also have environmental effects and there is no relocation that would significantly change the anticipated environmental effects.

Increasing density within the current SSA as an alternative to expansion is not feasible based on the forecast population and density standards adopted under local comprehensive or land use planning. The SSA process as defined under NR 121, Wis. Adm. Code, allows for the use of local municipal adopted population density standards.

Other alternatives with regard to serving the area by connecting to a sewerage system other than Oshkosh are not feasible.

Alternative methods of mitigation for non-point or other construction related impacts may be considered on a project specific basis as developments occur.

SUMMARY OF ISSUE IDENTIFICATION ACTIVITIES

10. List agencies, citizen groups and individuals contacted regarding the project (include DNR personnel and title) and summarize public contacts, completed or proposed.

<u>Date</u>	<u>Contact</u>	<u>Comment Summary</u>
6/8/07	Tom Gilbert - DNR – Wastewater Facility Planning Coordinator – WT	Prepared EA

11. On-site inspection or past experience with site by evaluator.

Not Applicable

DECISION (This decision is not final until certified by the appropriate authority)

In accordance with s. 1.11, Stats., and Ch. NR 150, Adm. Code, the Department is authorized and required to determine whether it has complied with s.1.11, Stats., and Ch. NR 150, Wis. Adm. Code.

Complete either A or B below:

A. EIS Process Not Required



The attached analysis of the expected impacts of this proposal is of sufficient scope and detail to conclude that this is not a major action which would significantly affect the quality of the human environment. In my opinion, therefore, an environmental impact statement is not required prior to final action by the Department.

B. Major Action Requiring the Full EIS Process



The proposal is of such magnitude and complexity with such considerable and important impacts on the quality of the human environment that it constitutes a major action significantly affecting the quality of the human environment.

Signature of Evaluator Thomas A. Gilbert	Date Signed November, 6, 2007
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Number of responses to news release or other notice: News release was issued on October 15, 2007, allowing for public comment until November 2, 2007. No comments were received.

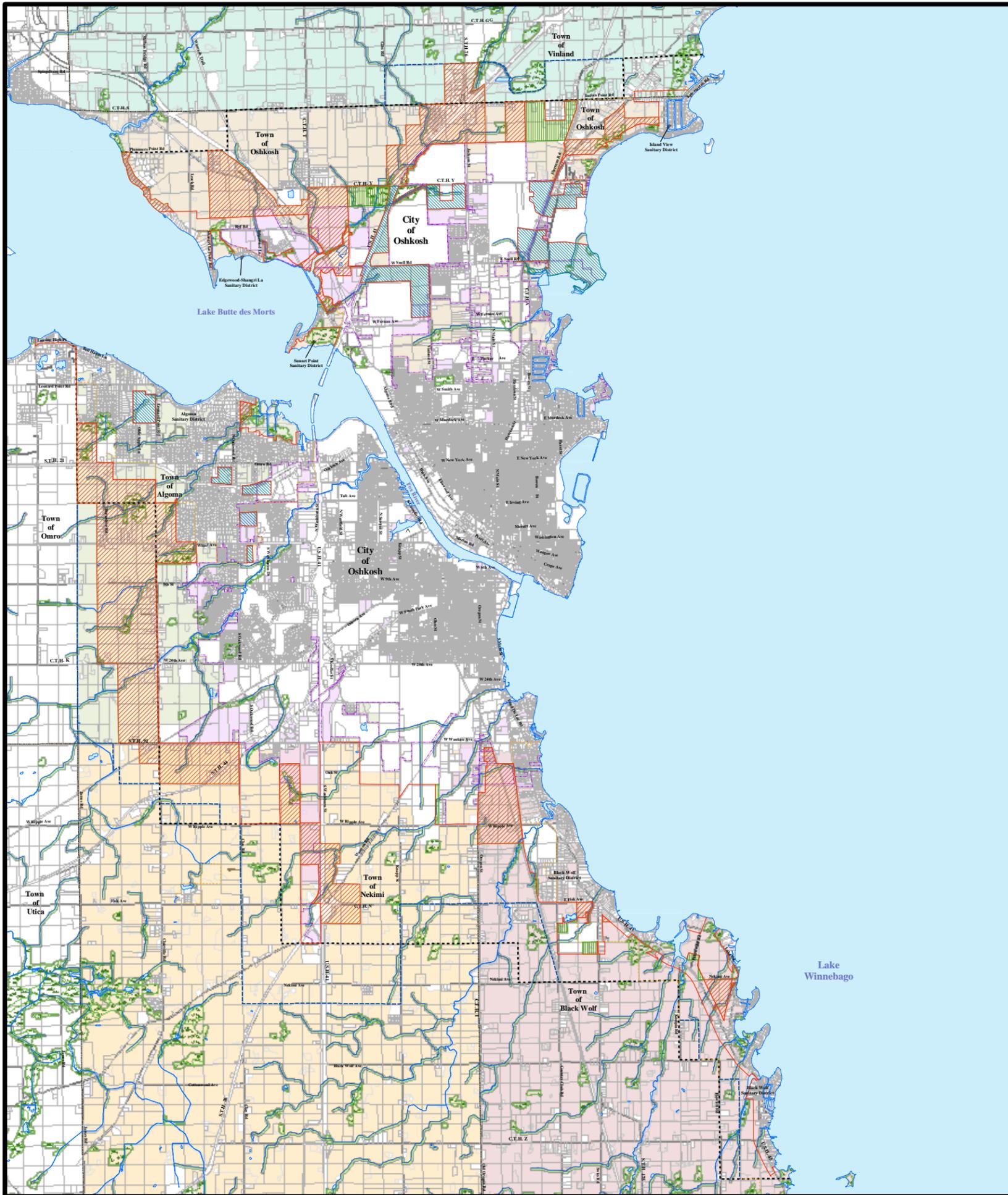
Certified to be in compliance with WEPA	
Environmental Analysis and Liaison Program Staff 	Date Signed 11/08/2007

NOTICE OF APPEAL RIGHTS

If you believe that you have a right to challenge this decision, you should know that Wisconsin statutes and administrative rules establish time periods within which requests to review Department decisions must be filed.

For judicial review of a decision pursuant to sections 227.52 and 227.53, Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to file your petition with the appropriate circuit court and serve the petition on the Department. Such a petition for judicial review shall name the Department of Natural Resources as the respondent.

This notice is provided pursuant to section 227.48(2), Stats.



OSHKOSH SEWER SERVICE AREA 2030 PLAN UPDATE *REVISED DRAFT - APRIL 7, 2006*

EXISTING SSA CONDITIONS

-  Existing Sewer Service Area Boundary
-  Existing Planning Area Boundary
-  Corporate Limit Boundary
-  Township Boundary
-  Sanitary District Boundary
-  Wastewater Treatment Facility
-  WDNR Designated Wetlands
-  Environmentally Sensitive Area
(75 Foot Stream Buffer/50 Foot Wetland Buffer)

PROPOSED 2030 SSA UPDATE

-  In-Fill Additions
-  Sewer Service Area Additions
-  Sewer Service Area Removals
-  Proposed Planning Area Adjustments

LAND DEVELOPMENT STATUS

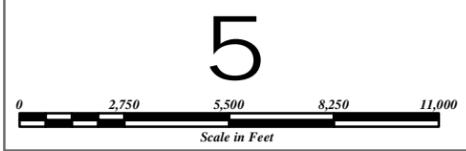
- VACANT DEVELOPABLE LANDS**
-  City of Oshkosh
 -  Town of Nekimi
 -  Town of Oshkosh
 -  Town of Black Wolf
 -  Town of Algoma
 -  Town of Vinland
 -  Developed Land Uses

This map represents proposed Sewer Service Allocation areas and proposed Planning Area Boundary changes based on the March 30, 2006 Public Information meeting held at the Town of Oshkosh town hall.

Note: Based on current East Central policy, SSA acreage allocations may only occur for communities with 'certified' comprehensive plans. Currently, the City of Oshkosh is the only community to meet this requirement. Therefore, acreage allocated outside of the City of Oshkosh, or one of its legally defined 'growth areas', will have a "hold" applied to it until such time the the Commission certifies the communities' respective plans.

PREPARED APRIL 2006 BY:

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Year 2030 Sewer Service Area

The year 2030 Sewer Service Area for the Oshkosh WWTF is illustrated in Map 8 and contains a total of 27,640 acres. Of this total, 1,326 acres have been designated as environmentally sensitive areas (ESAs) and 8,112 acres are considered to be vacant/developable areas. If one removes the vacant acreage that is reserved for public or institutional uses based on community requests (462) from this total, a final figure of 7,650 acres are left to accommodate traditional residential, commercial, and industrial development. This compares to a calculated vacant acreage need of 4,599 acres for these types of development; therefore, an 'excess' of 3,513 vacant acres exists within the 2030 SSA. A more detailed listing of SSA allocations are contained in Appendix C. A short description of the major acreage allocations and growth areas are provided below:

- **City of Oshkosh.** A total of 2,273 vacant acres were added to the City of Oshkosh. The majority of these acres are considered vacant infill areas. Over half of the vacant acres (1,425) allocated are slated for commercial and industrial uses. Major redevelopment areas are located along the shores of the Fox River, associated with the proposed Five Rivers Resort and planned river walk. Areas west and NW of USH 41 are also slated for commercial and industrial development.
- **Town of Algoma.** Major acreage allocations include large portions of vacant developable lands stretching west from Leonard Point Road and south of STH 21. A total of 2,547 acres will be allocated, with over half the available acreage (1,584 acres) slated for residential development. Commercial and industrial uses total approximately 426 acres. The majority of commercial and industrial growth is planned for the areas around STH 91 and STH 44.
- **Town of Oshkosh.** Within the Town of Oshkosh the majority of projected growth is planned in areas west of USH 41. Development priority areas and acreage allocations are located south of CTH Y and bisected by CTH T. Expansions were added North of CTH Y along the west frontage road of USH 41 due to known 'aged' onsite systems. A number of infill areas were added as an attempt to clarify SSA boundaries. A total of 1,603 vacant acres were allocated with 812 acres slated for residential development and a total of 657 acres slated for commercial and industrial uses.
- **Town of Nekimi.** Approximately 400 acres were added along the northern border of the Town of Nekimi. This allocation is largely due to planned development by the City of Oshkosh. Areas along the west USH 41 frontage road were allocated to remove an existing hole within the 2020 SSA Plan. Acreage allocations along the USH 41 east frontage road were added due to the planned development of the "Fields of Honor" Military Veterans Museum as well as planned development of Commercial uses by the City of Oshkosh.
- **Town of Black Wolf.** The Town of Black Wolf will continue to grow at a slow rate. Allocated acreage is primarily located along Oregon Street and West Ripple road. Other areas were added to fill in holes within the 2020 SSA Plan.
- **Town of Vinland.** A small amount of acreage was added along STH 76 and north west of USH 41. These areas were brought into the SSA to accommodate for anticipated failures of existing 'aged' on-site systems. At this time, as with the Town of Oshkosh, no formal agreement exists with the City to extend services into the Town of Vinland.

ENVIRONMENTALLY SENSITIVE AREAS

Watersheds and Water Features

The Oshkosh Sewer Service Planning Area falls within four subwatersheds all of which are located within the Upper Fox River Basin (map 4). The Winnebago North and West Watershed (UF01) contain the entire City of Oshkosh and the lakeshore areas of the Town of Oshkosh. This watershed ranks high for non-point pollution, primarily due to urban run off. A small portion of the SSA also falls within the Little Lake Butte des Morts Watershed (LF06) located south of Indian Point Road, west of USH 41, and east of CTH A within the Town of Oshkosh. Land use within this portion of the watershed is a mix of residential areas along the shoreline and agricultural uses west of the shoreline. Lake Butte des Morts Watershed (UF04) is located on both the north and south shores of Lake Butte des Morts and stretches into the central portions of the Oshkosh SSA. Land use is primarily agricultural, with urban areas located along Lake Butte des Morts southern shoreline, within the Town of Algoma, and along the northern shoreline within the Town of Oshkosh. The Fond du Lac River Watershed (UF03) stretches into the Planning Area from the south along the west shores of Lake Winnebago. Clustered urban residential development along the shoreline of Lake Winnebago is the prominent land use, with agricultural uses stretching west of the shoreline.

Lakes

Lake Winnebago is the largest inland lake in Wisconsin and is an important natural resource for the lakeshore communities within the SSA. Lake Winnebago is a highly eutrophic lake due to non-point pollution sources largely due to the amount of developed lands surrounding the lake (i.e. lawn fertilizers, street runoff, etc.). Lake Butte des Morts is part of the Winnebago Pool Lakes System connected to Lake Winnebago by a channel of the Fox River flowing through the City of Oshkosh connecting Lake Butte des Morts and Lake Winnebago. The mouth of the Upper Fox River and Wolf River are connected to the Winnebago Pool Lakes.

Wetlands

Wetlands are essential environmental features providing wildlife habitat, scenic open spaces, flood water retention, and groundwater recharge areas. Wetlands act as a natural filtering system for nutrients such as phosphorus and nitrates. They provide a buffer zone protecting shorelines and stream banks. A large wetland complex is located on the northwest portion of the SSA, west of USH 41 and adjacent to Lake Butte des Morts (map 4). Another significant wetland is located in the south shore of Lake Butte des Morts just west of USH 41. Sawyer Creek, which runs through the western portion of the service area, is a significant environmentally sensitive corridor. The Willow Harbor area within the Black Wolf Sanitary District is also a significant environmentally sensitive area within the SSA and provides a natural barrier dividing the district in half.

Floodplains

Mapped FEMA Floodplains exist within various portions of the defined SSA (map 4). Areas susceptible to flooding are considered unsuitable for any type of development due to the potential health risks and property damage. As revised in 1984, the Flood Insurance Rate Map (FIRM) for the incorporated and unincorporated portions of Winnebago County identify areas along Lake Winnebago and Lake Buttes des Morts shorelines which are subject to flooding within the 100-year floodplain. Additional floodplain areas lie along a number of inland streams, creeks and drainage ditches, which discharge into Lake Butte des Morts and Lake Winnebago.

Soils

Soils support the physical base for development within the Planning Area. Knowledge of the limitations and potential difficulties of soil types is important in evaluating land use proposals such as residential development, utility installation and other various projects. Some soils exhibit characteristics such as slumping, compaction, erosion, and high water tables which place limits on development. Severe soil limitations do not necessarily indicate areas cannot be developed, but rather that more extensive construction measures must be taken to prevent environmental and property damage. These construction techniques generally increase the costs of development and the utilities needed to service that development. According to the Soil Survey of Winnebago County, prepared by the USDA in 1976, and the Soil Survey of Winnebago County (USDA 1989) one major soil association is present within the Oshkosh SSA:

- **Kewaunee-Manawa-Hortonville:** This soil association comprises the majority of the SSA. This association is well to somewhat poorly drained and nearly level to sloping. This unit is used mainly for cultivated crops. Seasonal wetness, poor tilth, and erosion are the main farming concerns, while residential uses are limited due to poor conditions for septic tank absorption fields.

Groundwater & Geology

These natural features are closely related and will have the highest impact on future development within the planning area. The existence of generally poorly drained soils on level slopes with highly organic materials draws a concern over the potential for groundwater contamination. Failing on-site waste disposal systems, abandoned and active landfills, agricultural practices, and other land uses can be a direct source of contamination of groundwater.

Groundwater can be found within three feet of the surface throughout the entire SSA. Map 4 illustrates these areas based on NRCS soils mapping. The City of Oshkosh draws water from Lake Winnebago for its municipal drinking water supply. A large portion of the Oshkosh SSA falls within an Arsenic Advisory Area. The advisory area is associated with the St. Peter Sandstone formation running north and south. Levels of arsenic in groundwater supplies have elevated due to declining groundwater levels which expose the St. Peter Sandstone formation allowing oxidation of pyrite to occur. The Town of Algoma has added a public water supply in 2004 in response to the elevated levels of arsenic in the areas groundwater. Currently the Town uses two wells to meet their needs. The Town does not have a mandatory hook-up in place, however new wells need to comply with the most recent Department of Natural Resources well-casing requirements. The Algoma Sanitary District No. 1 has a Wellhead Protection Plan and Ordinance in place to identify and limit potential groundwater contamination.

LIMITING ENVIRONMENTAL CONDITIONS

Much of the Oshkosh planning area has limiting environmental conditions for development as indicated on map 4. Soils are universally unsuitable for private septic systems, high groundwater conditions near the lake areas are prominent, and bedrock is near the surface on the south side of the City of Oshkosh, limiting future development in a currently vacant area. There are no steep slopes (12% or more) present within the SSA.

Holding Tank Service Areas

There are numerous sewage holding tanks and individual on-site septic systems within the Oshkosh Planning Area. According to Wisconsin Administrative Code NR113 septic pumpage from these systems is directed to the Oshkosh regional treatment facility. In addition, large holding tanks exceeding 3,000 gallons per day need a special holding tank service area designation. There are no large holding tanks present in the Oshkosh Planning Area. The Oshkosh treatment facility does receive waste by contract from a holding tank service area for the J.J. Keller business area which is located three miles north of the planning area in the Town of Vinland. A complete inventory of existing private on-site holding tanks and septic systems is not available from the county for development within the planning area.

Water Quality Assessment & Development Impacts

Continued urbanization of the Oshkosh Sewer Service Area will impact surface and groundwater resources. Surface water runoff and pollutant loadings are likely to increase and groundwater recharge is likely to decrease. The scope of these impacts cannot be precisely determined because specific future development characteristics (location, type, density and site mitigation) are unknown. However, it is possible to generally estimate water quality impacts by applying assumptions relative to the nature of future development.

Point Source Water Quality Impacts

Population growth and commercial/industrial development will increase wastewater flows and loadings to the treatment plant and ultimately to the Fox River. Without a wastewater engineering assessment it is not possible to analyze specific flows for the different existing land uses and estimate future flows for comparison to treatment plant design capacity. A rough estimate comparing existing average daily flows of current development to a percentage increase in overall future development can be made (table 4). Based upon this analysis, the average flows are expected to increase by 6.86 mgd which is well within the capacity of the current treatment facility design.

Non-point Source Water Quality Impacts

The Oshkosh SSA includes portions of four watersheds. Various land uses within these watersheds contribute significant urban and agricultural runoff to the Winnebago Pool Lakes. Sediment loads, nutrients and other pollutants are carried through storm sewers and drainageways throughout the SSA.

Surface water runoff and pollutant loadings will increase with the forecast growth for the 2030 SSA. The placement of roads, buildings and parking areas increase the amount of impervious area, and hence, more water runs off the land surface carrying organic and inorganic pollutants associated with these more intensive urban uses. The Department of Natural Resources has general guidelines for estimating unit area loadings of pollutants by land use categories. Within the Oshkosh Sewer Service Area four pollutants have been analyzed for seven land use categories. The estimated loadings address both existing and future land uses. The estimates only relate to land uses within the service area with resultant impacts on the Fox River and Lake Winnebago. Specific subwatershed analysis has not been attempted.

The estimated annual pollutant loadings for the existing development area (based on November 2004 land use) within the Oshkosh SSA are listed in Table 5. The land uses within this area consist primarily of older development with significant infrastructure and stormwater mitigation is therefore more difficult and costly in these areas.

Table 6 illustrates the future annual pollutant loadings expected based on the total amounts of development which could occur by 2030 within the Oshkosh SSA if all the available vacant lands were developed. The pollutant loadings are estimates for the proposed land uses with no significant stormwater mitigation measures or practices adopted. Utilization of stormwater detention facilities, site development controls, preservation of green space and other measures can help mitigate urban non-point source impacts on water quality. These loadings can serve as a baseline for proposed areawide stormwater reduction efforts.

Table 4: WASTEWATER FLOW PROJECTIONS

Oshkosh SSA - Projected 2030 Residential Wastewater Flows

SSA	2005-2030 Increase	2005-2030 SSA Population Increase (includes additional 10% of 2005-2030 increase)	Additional Flows (@ 80 gallons per day per person)		Peak Flows (@4.0 factor)	
			gallons per day (gpd)	millions of gallons (mgd)	gallons per day (gpd)	millions of gallons (mgd)
Oshkosh SSA	5,471	16,584	1,326,720	1.327	5,306,880	5.31

Source: ECWRPC - March 2005

Oshkosh SSA - Projected 2030 Commercial/Industrial Flows

SSA	2005-2030 Employee Increase	2030 Acres Needed for C/I Uses	Acres + 20% Market Factor*	Projected Flows (@ 1100 gal./ac./day)	
				Gallons per day (gpd)	Millions of Gallons per Day (mgd)
Oshkosh SSA	13,171	1,171	1,405	1,545,280	1.55

Source: ECWRPC - March 2006

Oshkosh SSA - Summary of Projected 2030 Flows & WWTF Capacities

SSA	Additional Residential Flows (mgd)	Additional Comm/Ind. Flows (mgd)	Total Additional Flows (mgd)	Existing WWTF Flows (Avg. of 2004 mo. Avg. flows - mgd)*	Existing / Planned WWTF Design Capacity (mgd)	Difference (Ex. / Planned Capacity - Existing & Projected Flows)
Oshkosh SSA	5.31	1.55	6.86	13.13	35.00	15.01

Source: 2004 CMAR Reports, City of Oshkosh, and ECWRPC - March, 2005

TABLE 5
Oshkosh SSA - Existing (2005) Non-Point Source Pollution Loading Estimate

2005 Acres	Development Type	Unit Area Loads by Land Use (lbs/acre/yr)				Calculated Loadings			
		Sediment	Phosphorus	Zinc	Lead	Sediment	Phosphorus	Zinc	Lead
2,422.0	Medium Dens Res. (2-6 units/ac, no alleys)	190.0	0.5	0.2	0.2	460,180.0	1,211.0	484.4	484.4
68.9	Multi-Family Res. (3+ units / 1-3 stories)	420.0	1.0	0.7	0.8	28,938.0	68.9	48.2	55.1
865.1	Commercial (strip/downtown)	1,400.0	1.5	2.1	2.7	1,211,140.0	1,297.7	1,816.7	2,335.8
797.8	Manufacturing Industries	900.0	1.5	2.1	2.4	718,020.0	1,196.7	1,675.4	1,914.7
58.0	Freeways / Local Roads	600.0	0.9	1.9	2.5	34,800.0	52.2	110.2	145.0
203.0	Undeveloped / Vacant	25.0	0.0	0.0	0.0	1,450.0	0.6	0.0	0.3
250.2	Institutional / Governmental	700.0	0.5	0.6	1.1	175,119.0	125.1	150.1	275.2
4,665.0	TOTALS					2,655,747.0	3,993.9	4,296.6	5,222.7
						Tons	1327.87	2.00	2.15
								2.15	2.61

Source: ECWRPC, 2005

Note: Total SSA acres is less than previously noted due to water features not being included in these calculations.

TABLE 6
Oshkosh SSA - Future (2030) Non-Point Source Pollution Loading Estimate

2030 Acres	Development Type	Unit Area Loads by Land Use (lbs/acre/yr)				Calculated Loadings			
		Sediment	Phosphorus	Zinc	Lead	Sediment	Phosphorus	Zinc	Lead
4,661.0	Medium Dens Res. (2-6 units/ac, no alleys)	190.0	0.5	0.2	0.2	885,590.0	2,330.5	932.2	932.2
102.3	Multi-Family Res. (3+ units / 1-3 stories)	420.0	1.0	0.7	0.8	42,966.0	102.3	71.6	81.8
1,518.4	Commercial (strip/downtown)	1,400.0	1.5	2.1	2.7	2,125,760.0	2,277.6	3,188.6	4,099.7
1,259.8	Manufacturing Industries	900.0	1.5	2.1	2.4	1,133,820.0	1,889.7	2,645.6	3,023.5
117.5	Freeways / Local Roads	600.0	0.9	1.9	2.5	70,488.0	105.7	223.2	293.7
571.8	Undeveloped / Vacant	25.0	0.0	0.0	0.0	14,295.0	5.7	0.0	2.9
461.8	Institutional / Governmental	700.0	0.5	0.6	1.1	323,260.0	230.9	277.1	508.0
8,692.6	TOTALS					4,596,179.0	6,942.5	7,338.3	8,941.8
						Tons	2298.09	3.47	4.47
								3.67	4.47

Source: ECWRPC, 2005

Note: Total SSA acres is less than previously noted due to water features not being included in these calculations.

Groundwater Impacts

A United States Geological Survey study on groundwater and aquifer conditions for the Fox Valley region was completed in 1998. Findings of this study have determined that the deep aquifer (sandstone deposits), which provides high capacity wells, is recharged from the west and northern edges of the Fox Cities urban area. Increased development of the recharge areas could have long-term impacts on the groundwater recharge. Conversion of rural/agricultural lands to urban uses may impact both the quality and quantity of groundwater as development continues. Groundwater recharge will decrease as areas are paved over or built upon. At the same time, withdrawal of groundwater on a regional basis is likely to increase for domestic, commercial and industrial use. According to U.S.G.S. reports, the deep sandstone aquifer in the Fox Cities area is declining at a rate of two feet per year. However, increases in withdrawals will be restricted to private industrial/commercial high capacity wells within the planning area since the City utilizes surface water (Lake Winnebago) as its source of supply.

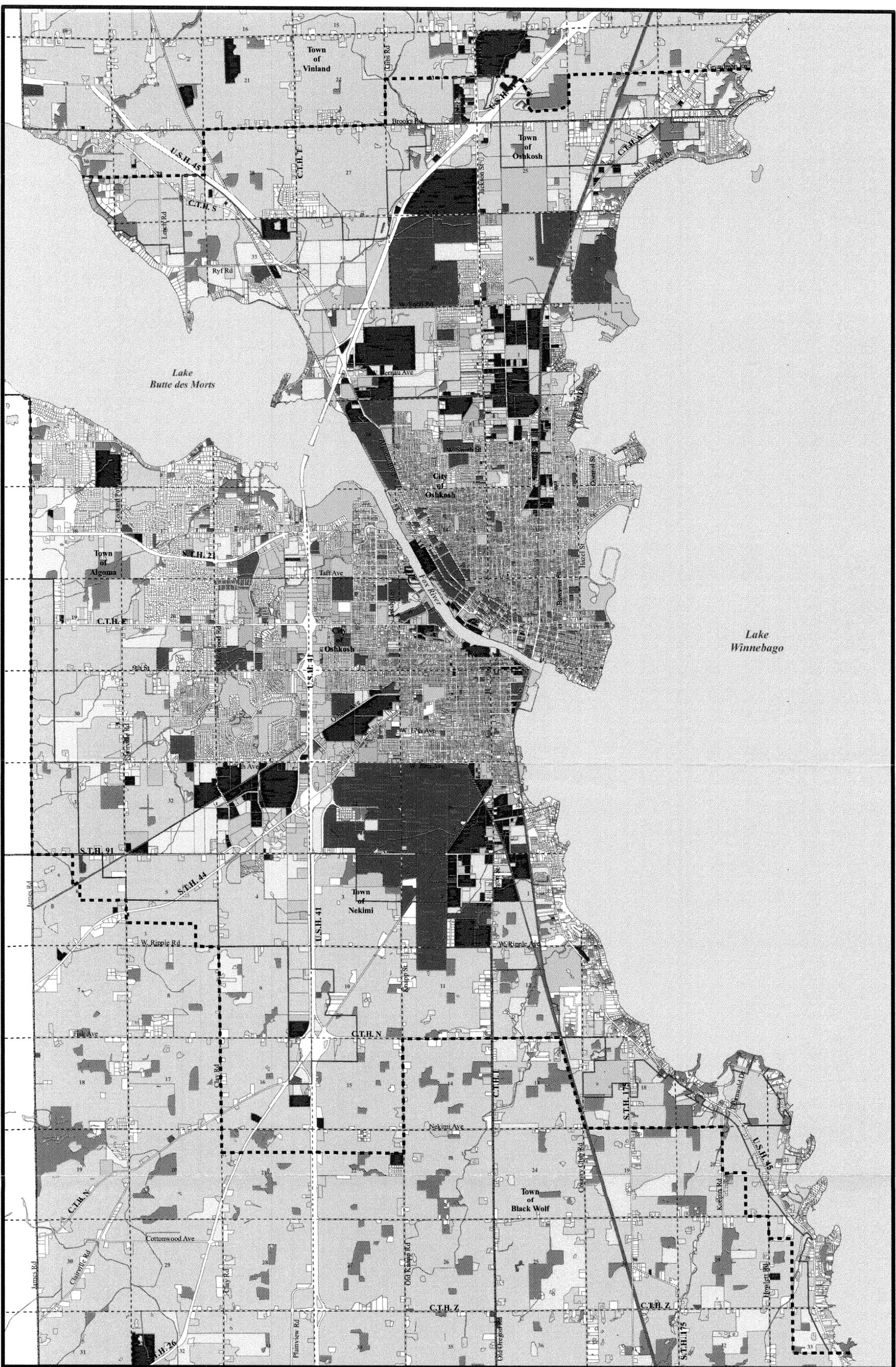
While there are no significant negative groundwater impacts anticipated with increased development in the service area, there may be localized impacts as areas develop. The City of Oshkosh obtains its potable water supply from Lake Winnebago, therefore the City will not place significant withdrawal demands on the deep groundwater aquifer. The Town of Algoma Sanitary District currently receives its water from municipal wells. Because of recent water quality problems associated with natural geologic occurrences the District installed a municipal water system using the deep well aquifer.

Water Quality Protection & Stormwater Management

Cumulative impacts, including loss of baseflow in streams from increased development of impervious surfaces and enhanced stream flashiness and the resulting streambank erosion from alterations to headwaters and tributaries, will occur with full buildout of the sewer service area. Stormwater management actions other than large-scale detention ponds are available for older urban areas such as enhanced street sweeping, comprehensive stormwater management and other nonstructural best management practices.

Various stormwater management activities are underway within the subwatersheds of the planning area. A priority watershed project is underway for the Fond du Lac Subwatershed. Water quality improvements are being proposed and installed in both the rural and urban portions of these watersheds.

East Central recommends receipt of preliminary subdivision plats for review for a conformance check with the sewer service area and water quality plan. Recommendations are made for final plat approval concerning water quality and stormwater management as well as environmental and cultural resource concerns.



2030 OSHKOSH SEWER SERVICE AREA UPDATE
2005 EXISTING LAND USE

Map 3

- | | | | | | |
|--|---------------------------|--|-------------------------------|--|--------------------------------------|
| | Single Family Residential | | Open Space/Recreational | | 2030 Sewer Service Area Boundary |
| | Multi-Family Residential | | Agricultural | | 2050 Proposed Planning Area Boundary |
| | Commercial | | Vacant - Developable | | Section Line |
| | Industrial | | Woodlands | | Corporate Limit Boundary |
| | Public/Institutional | | Wastewater Treatment Facility | | Township Boundary |

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This map and its associated sewer service allocation areas does not obligate the community(ies) to provide sewer service to property owners contained herein.

This data was created for use by the East Central Wisconsin Regional Planning Commission Geographic Information System. Any other use/application of this information is the responsibility of the user and such use/application is at their own risk. East Central Wisconsin Regional Planning Commission disclaims all liability regarding fitness of the information for any use other than for East Central Wisconsin Regional Planning Commission business.

5,400 0 5,400

Scale in Feet

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2030 OSHKOSH SEWER SERVICE AREA UPDATE
ENVIRONMENTALLY SENSITIVE AREAS and LIMITING CONDITIONS

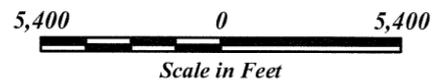
Map 4

- | | | |
|--|-------------------------------|--------------------------------------|
| Buffers (75 Foot Stream/50 Foot Wetland) | WDNR Designated Wetlands | 2030 Sewer Service Area Boundary |
| Bedrock Within 5 Feet of Surface | Floodplain Areas | 2050 Proposed Planning Area Boundary |
| Slopes 12% and Greater | Floodway Areas | Section Line |
| Groundwater Within 2 Feet of Surface | Streams | Corporate Limit Boundary |
| | Wastewater Treatment Facility | Township Boundary |

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Appendix E – Environmental Assessment of 2030 SSA Allocations

The Oshkosh 2030 SSA acreage allocations can be divided into four areas. Lake Butte des Morts and the Fox River divide the SSA allocations north and south while USH 41 divides the SSA east and west. There are number of growing environmental issues common to all four areas such as: aquatic invasive species, elevated Arsenic levels in groundwater, a highly eutrophic lake system and loss of natural shorelines. Each of the four area's allocated vacant/developable acres are described in greater detail below.

<u>Oshkosh 2030 SSA Allocation Area: 1</u>	
Location	SSA allocations for Area 1 fall within the northeast portion of the SSA, located north of the Fox River and east of USH 41 encompassing portions of the City of Oshkosh, Town of Oshkosh and Town of Vinland.
General Physical Features	This area is part of the Southeast Glacial Plains ecological landscape. Generally flat lands and fertile soils dominate the area which are utilized for agricultural purposes. Vacant areas that are not being utilized for agricultural uses are comprised of grasslands with broken mixed deciduous woodlands scattered throughout the area.
Current Development	The majority of SSA allocations (vacant/developable areas) to this area are currently being utilized for agricultural purposes. With some existing commercial development located along the major highway corridors. Existing and future land use acreage totals for each community can be found in Appendix C, Page XXXVII.
Planned or Proposed Development	Over half of the vacant developable lands within this area are slated for residential uses. Commercial and industrial uses will continue to be located along the USH 41 corridor.
Limiting Environmental Conditions*	Large portions of the vacant/developable areas have groundwater occurring within two feet. High groundwater can exist in areas that are not delineated wetlands. Development of these areas can have adverse impacts on the quality and quantity of the area's groundwater recourses.

<p>Water Features</p>	<p>Lake Winnebago bounds this area to the east and the Fox River to the south. Both of these water bodies are listed on the WDNR's 2006 Impaired Waters List as category 5A, low priority waters. The Fox River is listed due to coal tar contamination associated with the Oshkosh Coal Tar Site. Contaminated sediments results in an aquatic toxicity impairment. Lake Winnebago is listed due to the following pollutants: mercury, polychlorobiphenyls (pcbs), phosphorous, and sedimentation. Contaminated sediments, physical habitat destruction, and non-point source pollution contribute to the following water body impairments: dissolved oxygen levels, eutrophication, fish consumption advisories, and sedimentation.</p> <p>A number of small wetland areas are scattered along the lakeshore and drainage corridors. These water features are subject to non-point pollution due to urban development.</p>
<p>WDNR Natural Heritage Inventory</p>	<p>The following endangered (END), threatened (THR), or special concern (SC) species may exist within portions of the Area 1 SSA allocations: Blanding's Turtle (THR); Banded Killfish (SC); Pugnose Minnow (SC); Emergent Marsh; Lake Sturgeon (SC); Greater Redhorse (THR); Pugnose Shiner (THR); Lake Chubsucker (SC); Striped Shiner (END); Pygmy Shrew (SC); Waxleaf Meadowrue (SC); Cattle Egret (SC); Black-crowned Night-heron (SC); Great Egret (THR); Gorgone Checker Spot (SC); Prairie White-fringed Orchid (END); Marsh Blazing Star (SC); Small White Lady's-slipper (SC); Broad-winged Skipper (SC); Wet-mesic Prairie; Mulberry Wing (SC).</p>
<p><u>Oshkosh 2030 SSA Allocation Area: 2</u></p>	
<p>Location</p>	<p>SSA allocations for Area 2 fall within the southeast portion of the Oshkosh 2030 SSA, located south of the Fox River shoreline and east of USH 41 encompassing portions of the City of Oshkosh, Town of Black Wolf and Town of Nekimi.</p>
<p>General Physical Features</p>	<p>This area is part of the Southeast Glacial Plains ecological landscape. Generally flat lands and fertile soils dominate the area, which are utilized for agricultural purposes. Vacant areas that are not being utilized for agricultural uses are comprised of grasslands with broken mixed deciduous woodlands scattered throughout the area.</p>

<p>Current Development</p>	<p>The majority of SSA allocations to this area are currently being utilized for agricultural purposes. Residential development is located within the City limits and continues south along the lakeshore within the Town of Black Wolf. Existing and future land use acreage totals for each community can be found in Appendix C, Page XXXVII.</p>
<p>Planned or Proposed Development</p>	<p>The majority of the vacant/developable lands within this area are slated for residential uses. Commercial and industrial uses are slated for areas along the USH 41 corridor.</p>
<p>Limiting Environmental Conditions*</p>	<p>Large portions of the vacant/developable areas have groundwater occurring within two feet. High groundwater can exist in areas that are not delineated wetlands. Development of these areas can have adverse impacts on the quality and quantity of the area's groundwater resources.</p> <p>A few high bedrock areas fall within the allocated areas with the most occurrences located east of Country Club Road and south of East Fisk Avenue in the Town of Black Wolf.</p>
<p>Water Features</p>	<p>Lake Winnebago bounds this area to the east and the Fox River to the north. Both of these water bodies are listed on the WDNR's 2006 Impaired Waters List as category 5A, low priority waters. The Fox River is listed due to coal tar contamination associated with the Oshkosh Coal Tar Site. Contaminated sediments results in an aquatic toxicity impairment. Lake Winnebago is listed due to the following pollutants: mercury, polychlorobiphenyls (pcbs), phosphorous, and sedimentation. Contaminated sediments, physical habitat destruction, and nonpoint source pollution contribute to the following water body impairments: dissolved oxygen levels, eutrophication, fish consumption advisories, and sedimentation.</p> <p>Willow Harbor is a large emergent/wet meadow wetland and sensitive shoreline located within the Town of Black Wolf. A number of other small wetland areas are scattered throughout this area, however none of these fall within the 2030 SSA allocations.</p>
<p>WDNR Natural Heritage Inventory</p>	<p>The following endangered (END), threatened (THR), or special concern (SC) species may exist within portions of the Area 2 SSA allocations: Blanding's Turtle (THR); Banded Killfish (SC); Pugnose Minnow (SC); Emergent Marsh; Lake Sturgeon (SC);</p>

<p>WDNR Natural Heritage Inventory Continued</p>	<p>Greater Redhorse (THR); Pugnose Shiner (THR); Lake Chubsucker (SC); Striped Shiner (END); Pygmy Shrew (SC); Waxleaf Meadowrue (SC); Lake-cress (END); Kenentucky Coffee-tree.</p>
<p><u>Oshkosh 2030 SSA Allocation Area: 3</u></p>	
<p>Location</p>	<p>SSA allocations for area three fall within the southwest portion of the Oshkosh 2030 SSA, located south of the Lake Butte des Morts shoreline and west of USH 41 encompassing portions of the City of Oshkosh, Town of Algoma and Town of Nekimi.</p>
<p>General Physical Features</p>	<p>This area is part of the Southeast Glacial Plains ecological landscape. Generally flat lands and fertile soils dominate the area, which are utilized for agricultural purposes. Vacant areas that are not being utilized for agricultural uses are comprised of grasslands with broken mixed deciduous woodlands scattered throughout the area.</p>
<p>Current Development</p>	<p>The majority of SSA allocations to this area are currently being utilized for agricultural purposes. Residential development is located within the City limits and stretches west from Leonard Point Road and south of STH 21 in the Town of Algoma. Commercial and industrial development is scattered along the USH 41 frontage roads and along the STH 91 and 44 corridors. Existing and future land use acreage totals for each community can be found in Appendix C, Page XXXVII.</p>
<p>Planned or Proposed Development</p>	<p>The majority of the vacant developable lands within this area are slated for residential uses with commercial and industrial uses slated for areas along the USH 41, STH 91 and STH 44 corridors.</p>
<p>Limiting Environmental Conditions*</p>	<p>Large portions of the vacant/developable areas have groundwater occurring within two feet. High groundwater can exist in areas that are not delineated wetlands. Development of these areas can have adverse impacts on the quality and quantity of the area's groundwater recourses.</p> <p>An area of steep slope exists in the SSA allocated areas located west of Leonard Point Road and north of STH 21.</p>

<p>Water Features</p>	<p>Lake Butte des Morts bounds this area to the north, which is part of the Winnebago Pool Lakes. This water features is subject to non-point pollution due to urban development.</p> <p>There is a large emergent/wet meadow wetland located east of N. Oakwood Road and north of Omro Road. Smaller wetland areas and unnamed steam channels run throughout this portion of the SSA, however wetland and stream buffers will help protect these sensitive areas from development impacts.</p>
<p>WDNR Natural Heritage Inventory</p>	<p>The following endangered (END), threatened (THR), or special concern (SC) species may exist within portions of the Area 3 SSA allocations: Blanding’s Turtle (THR); Banded Killfish (SC); Pugnose Minnow (SC); Emergent Marsh; Lake Sturgeon (SC); Greater Redhorse (THR); Pugnose Shiner (THR); Lake Chubsucker (SC); Striped Shiner (END); Pygmy Shrew (SC); Waxleaf Meadowrue (SC).</p>
<p><u>Oshkosh 2030 SSA Allocation Area: 4</u></p>	
<p>Location</p>	<p>Area four’s SSA allocations fall within the northwest portion of the Oshkosh 2030 SSA, located north of the Lake Butte des Morts shoreline and west of USH 41 encompassing portions of the City of Oshkosh, and Town of Oshkosh.</p>
<p>General Physical Features</p>	<p>This area is part of the Southeast Glacial Plains ecological landscape. Generally flat lands and fertile soils dominate the area, which are utilized for agricultural purposes. Vacant areas that are not being utilized for agricultural uses are comprised of grasslands with broken mixed deciduous woodlands scattered throughout the area.</p>
<p>Current Development</p>	<p>The majority of SSA allocations to this area are currently being utilized for agricultural purposes. Residential development is located primarily along the lake shore and STH 45. Existing and future land use acreage totals for each community can be found in Appendix C, Page XXXVII.</p>

Planned or Proposed Development	The majority of the vacant developable lands within this area are slated for residential uses with commercial and industrial uses slated for areas along the USH 41 and STH 45 corridors.
Limiting Environmental Conditions*	Large portions of the allocated vacant/developable areas have groundwater occurring within two feet. High groundwater can exist in areas that are not delineated wetlands. Development of these areas can have adverse impacts on the quality and quantity of the area's groundwater recourses.
Water Features	<p>Lake Butte des Morts bounds this area to the south, which is part of the Winnebago Pool Lakes. This water features is subject to non-point pollution due to urban development.</p> <p>There is a large amount of emergent/wet meadow wetlands and sensitive shore lines starting just east of Sunset Point Lane and stretches northwest to Shangri La Point Road. Smaller wetland and environmentally sensitive areas are associated with Slough Creek, which stretches inland northeast approximately one mile.</p>
WDNR Natural Heritage Inventory	The following endangered (END), threatened (THR), or special concern (SC) species may exist within portions of the Area 4 SSA allocations: Blanding's Turtle (THR); Banded Killfish (SC); Pugnose Minnow (SC); Emergent Marsh; Lake Sturgeon (SC); Greater Redhorse (THR); Pugnose Shiner (THR); Lake Chubsucker (SC); Striped Shiner (END); Pygmy Shrew (SC); Waxleaf Meadowrue (SC); Gorgone Checker Spot (SN); Prairie White-fringed Orchid (END); Marsh Blazing Star (SC); Small White Lady's Slipper (THR); Broad-winged Skipper (SC); Wet-mesic Prairie, Mulberry Wing (SC); Dwarf Milkweed (THR).

*Natural occurring environmental conditions where development may not be suitable such as: groundwater within 1 foot of the surface, Slopes greater than 12%, and bedrock occurring within 5 feet of the surface.

Sources: ECWRPC, WDNR's Ecological Landscapes of Wisconsin, Ecosystem Management Planning Hand Book, WDNR's 2006 Impaired Waters List (303d list), & WDNR's Natural Heritage Inventory Working List.