AMENDMENT TO THE

# REGIONAL WATER QUALITY MANAGEMENT PLAN

# NORTHWESTERN WAUKESHA COUNTY

AS ADOPTED BY THE

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

MARCH 2001

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William J. Stauber Chief Land Use Planner

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COMMISSION

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- SUBJECT: Certification of Amendment to the Adopted Regional Water Quality Management Plan (Northwestern Waukesha County)
- TO: The Legislative Bodies of Concerned Local Units of Government within and adjacent to the Southeastern Wisconsin Region, namely: the County of Waukesha; the Cities of Delafield and Oconomowoc; the Villages of Chenequa, Dousman, Hartland, Lac La Belle, Merton, Nashotah, Oconomowoc Lake, and Wales; the Towns of Delafield, Genesee, Merton, Oconomowoc, Ottawa, and Summit; and the Town of Ixonia Sanitary District No. 2

This is to certify that at the meeting of the Southeastern Wisconsin Regional Planning Commission, held at the Waukesha County Courthouse, Waukesha, Wisconsin, on the 7th day of March 2001, the Commission did by unanimous vote of all Commissioners present, being 17 ayes and 0 nays, and by appropriate Resolution, a copy of which is made a part hereof and incorporated by reference to the same force and effect as if it had been specifically set forth herein in detail, adopt an amendment to the regional water quality management plan, which plan was originally adopted by the Commission on the 12th day of July 1979, as part of the master plan for the physical development of the Region. Said amendment to the regional water quality management plan pertains to the northwestern Waukesha County area and consists of the documents attached hereto and made a part hereof. Such action taken by the Commission is recorded on, and is a part of, said plan, and the plan as amended is hereby transmitted to the constituent local units of government for consideration, adoption, and implementation.

IN TESTIMONY WHEREOF, I have hereunto set my hand and seal and cause the Seal of the Southeastern Wisconsin Regional Planning Commission to be hereto affixed. Dated at the City of Waukesha, Wisconsin, this 8th day of March 2001.

Thomas H. Buestrin, Chairman Southeastern Wisconsin Regional Planning Commission

ATTEST: hilip C- Evenson

Philip C. Evenson, Deputy Secretary

## **RESOLUTION NO. 2001-06**

# RESOLUTION OF THE SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION AMENDING THE ADOPTED REGIONAL WATER QUALITY MANAGEMENT PLAN, THAT PLAN BEING A PART OF THE MASTER PLAN FOR THE PHYSICAL DEVELOPMENT OF THE REGION CONSISTING OF THE COUNTIES OF KENOSHA, MILWAUKEE, OZAUKEE, RACINE, WALWORTH, WASHINGTON, AND WAUKESHA IN THE STATE OF WISCONSIN (NORTHWESTERN WAUKESHA COUNTY)

WHEREAS, pursuant to Section 66.0309(10) of the *Wisconsin Statutes*, the Southeastern Wisconsin Regional Planning Commission, at a meeting held on the 12th day of July 1979, duly adopted a regional water quality management plan as documented in the three-volume SEWRPC Planning Report No. 30, *A Regional Water Quality Management Plan for Southeastern Wisconsin: 2000*; and

WHEREAS, the Commission has sponsored and administered the preparation of a sub-regional sanitary sewerage system plan for the northwestern Waukesha County area, which plan was prepared under the guidance of the Commission's Intergovernmental Coordinating and Advisory Committee for the Northwestern Waukesha County Sanitary Sewerage System Plan, and is documented in a report entitled, "Sanitary Sewerage System Plan for the Northwestern Waukesha County Area," prepared by Black & Veatch Corporation, dated April 2000; and

WHEREAS, the sanitary sewerage system plan for the northwestern Waukesha County area contains recommendations attendant to sanitary sewer service areas, the locations of trunk sewers, and the configuration of sewage treatment plants, such recommendations being intended to constitute in their entirety an amendment to the regional water quality management plan; and

WHEREAS, the proposed amendment to the regional water quality management plan is documented in a Commission staff memorandum entitled, "Amendment to the Regional Water Quality Management Plan and Summary Report–Northwestern Waukesha County Sewerage System Plan," attached hereto and made a part hereof; and

WHEREAS, the recommended change to the regional water quality management plan, as documented in the aforereferenced staff memorandum, was the subject of a public hearing held by the Regional Planning Commission on March 1, 2001; and

WHEREAS, Section 66.0309(9) of the *Wisconsin Statutes* authorizes and empowers the Regional Planning Commission, as the work of making the whole master plan progresses, to amend, extend, or add to the master plan or carry any part or subject thereof into greater detail;

# NOW, THEREFORE, BE IT HEREBY RESOLVED:

<u>FIRST</u>: That the regional water quality management plan for the Southeastern Wisconsin Region, being a part of the master plan for the physical development of the Region and comprised of SEWRPC Planning Report No. 30, Volumes One, Two, and Three, which was adopted by the Commission as a part of the master plan on the 12th day of July 1979, be and the same hereby is amended in the manner identified on Map 10 of the aforereferenced SEWRPC staff memorandum.

<u>SECOND</u>: That a true, correct, and exact copy of this resolution, together with the aforereferenced SEWRPC staff memorandum, shall be forthwith distributed to each of the local legislative bodies of the local governmental units within the Region entitled thereto and to such other bodies, agencies, or individuals as the law may require or as the Commission, its Executive Committee, or its Executive Director, at their discretion, shall determine and direct.

The foregoing resolution, upon motion duly made and seconded, was regularly adopted at the meeting of the Southeastern Wisconsin Regional Planning Commission held on the 7th day of March 2001, the vote being: Ayes 17; Nays 0.

-Al# K

Thomas H. Buestrin, Chairman

ATTEST: Rhilig C- Even son

Philip C. Evenson, Deputy Secretary

# AMENDMENT TO THE REGIONAL WATER QUALITY MANAGEMENT PLAN AND SUMMARY REPORT

# NORTHWESTERN WAUKESHA COUNTY SEWERAGE SYSTEM PLAN

# March 2001

A sanitary sewerage system plan has recently been completed for the northwestern Waukesha County area. The recommended plan is intended to serve as a guide to the long-range development of sewerage facilities within the area. The preparation of the plan was necessitated by, and the plan was designed to meet, the rapid urban development being experienced, and anticipated to continue to be experienced, within the northwestern Waukesha County area.

The sewerage system study area consists of all or portions of the Cities of Delafield and Oconomowoc; the Villages of Chenequa, Dousman, Hartland, Lac La Belle, Merton, Nashotah, Oconomowoc Lake, and Wales; and the Towns of Delafield, Genesee, Merton, Oconomowoc, Ottawa, and Summit, all in Waukesha County; and the Town of Ixonia in Jefferson County. The study area excludes that portion of the Town of Delafield which is included in the Pewaukee Lake Sanitary District sewer service area and which is expected to be provided with sewage treatment services through the City of Brookfield areawide wastewater treatment facility. The area is traversed east to west by IH 94 and is located in two watersheds, with about 87 percent of the study area being located within the Rock River watershed and approximately 13 percent located within the Fox River watershed.

In response to a request from the City of Oconomowoc and the Town of Summit, the Southeastern Wisconsin Regional Planning Commission prepared a prospectus which set forth the need for the preparation of a comprehensive sanitary sewerage system plan for the northwestern Waukesha County area and detailed the scope and content of the study required to prepare the plan. The prospectus was reviewed and approved by the local units of government in the study area and was published in September of 1993. That prospectus formed the basis for the conduct of the plan summarized herein.

The Commission—in accordance with the approved prospectus—created the Northwestern Waukesha County Area Sewerage System Planning Committee to oversee the study. The Planning Committee consists of local, county, and State elected and appointed officials, all of which were particularly knowledgeable and concerned about the development of the area and the need to provide supporting infrastructure for such development. The membership of the Committee is set forth in the accompanying box.

Funding for the conduct of the work was provided by Waukesha County<sup>1</sup> and the local units of government concerned. After interviewing a number of consulting engineering firms, the Committee selected the firm of Black & Veatch Corporation to perform the desired planning work. The findings of the study are documented in the report prepared by Black & Veatch Corporation entitled, *Sanitary Sewerage System Plan for the Northwestern Waukesha County Area*, dated April 2000. The report identifies the sewer service needs of the study area; proposes and evaluates alternative means of meeting those needs; recommends a sewerage system plan for the area; and recommends an institutional structure for the implementation of the plan. A summary of the plan appears below.

<sup>&</sup>lt;sup>1</sup>This planning program was funded, in part, by Waukesha County through its Community Development Block Grant Program.

# NORTHWESTERN WAUKESHA COUNTY AREA SEWERAGE SYSTEM PLANNING COMMITTEE

Kent D. Woods, Chairman	
Jeffrey A. Flaws, Vice-Chairman	President, Village of Wales
Philip C. Evenson, Secretary	Executive Director, Southeastern Wisconsin
	Wisconsin Regional Planning Commission
Dale W. Arenz	Attorney, Ixonia Sanitary District No. 2
Robert A. Douglas	Administrator, Village of Chenequa
Raymond O. Foster, Jr	President, Village of Oconomowoc Lake
James W. Hansen	Utilities Superintendent, Village of Dousman
Robert W. Hyde	General Manager, Delafield-Hartland Water
	Pollution Control Commission
Vytautas P. Janusonis	Chairman, Town of Ottawa
Thomas E. Kraus	Chairman, Town of Merton
Sharon L. Leair	Chairman, Town of Genesee
Richard L. Mace	Manager, Planning and Zoning Division, Waukesha
	County Department of Parks and Land Use
Edmond McAleer	
William J. Mielke	Consulting Engineer, City of Oconomowoc
Jackie A. Shuda	Wastewater Engineer, Illinois Fox Team, Wisconsin
	Department of Natural Resources-Southeast Region
Joseph St. Thomas	Chairman, Town of Oconomowoc
George Stumpf	President, Village of Lac La Belle
Maurice Sullivan	Chairman, Town of Summit
Wallace C. Thiel	Administrator, Village of Hartland
William Treuden	Trustee, Village of Nashotah
Robert W. Weber	President, Village of Merton

# INVENTORY FINDINGS AND ANALYSIS OF FUTURE CONDITIONS

The planning effort included extensive inventories and analyses of a variety of factors bearing on sewerage system development within the study area. The findings of these inventories and analyses are summarized below.

# Population, Households, and Economic Activity

Careful consideration was given in the planning effort to trends in population, households, and employment within the study area. The data required to analyze these trends were drawn from the Waukesha County development plan. Two future scenarios were considered in this respect:

- 2010 stage of the Waukesha County development plan, and
- Buildout or ultimate development as envisioned under the Waukesha County development plan.

Table 1 sets forth the levels of resident population, households, and employment within the study area in 1990, and as projected under the two future scenarios.

# LEVELS OF POPULATION, HOUSING UNITS, AND EMPLOYMENT WITHIN THE NORTHWESTERN WAUKESHA COUNTY SEWERAGE SYSTEM PLAN STUDY AREA

Category	1990	Waukesha County Development Plan: 2010	Waukesha County Development Plan: Buildout
Occupied Housing Units	21,022	27,950	45,700
Total Population	57,326	75,600	122,400
Employment	18,600	33,800	51,000

Source: SEWRPC.

The 1990 and 1995 resident population of the study area was about 57,000 and 62,000 persons, respectively, and is expected to increase to about 76,000 persons by the year 2010. The resident population is expected to increase to about 122,000 persons under buildout or ultimate development conditions. The number of households in the study area is expected to increase from about 21,000 in 1990 to about 28,000 in 2010 and to about 45,700 under buildout conditions.

The economy of the area changed significantly during the recent past with diversification and the movement of both jobs and people to the area. The number of jobs in the study area is expected to increase from about 18,600 in 1990 to about 34,000 in 2010 and to about 51,000 under buildout conditions.

## Land Use

For use in the planning effort, the existing land use and projections of future land use developed for the Waukesha County development plan were considered within the study area under the two growth scenarios. Table 2 sets forth land uses within the study area as of 1990 and under the year 2010 stage and ultimate development as envisioned in the Waukesha County development plan. Map 1 shows existing land use within the study area as of 1995. Maps 2 and 3 show the development pattern associated with each of the two alternative futures. As can be seen by review of Table 2, 1990 urban land use in the study area is expected to increase by 70 and 90 percent under the 2010 stage and ultimate development growth scenarios, respectively.

#### **Environmentally Sensitive Lands**

The planning effort also included careful inventories of the natural resource base of the study area and the ability of that base to sustain urban development. The primary environmental corridors within the study area were identified and mapped. These corridors contain the best remaining elements of the natural resource base, including streams and lakes and associated shorelands and floodlands; wetlands; woodlands; wildlife habitat areas; areas of rugged terrain and high-relief topography; wet, poorly drained, and organic soils; remnant prairies; existing and potential park sites; sites of historic, cultural and archaeological value; areas possessing scenic vistas or viewpoints; areas of groundwater recharge and discharge; and areas of scientific and educational value. The Waukesha County development plan and the regional land use plan recommend that these environmental corridors be preserved in essentially open, natural uses. The preservation of these corridors was therefore incorporated into the land use plan on which the sewerage system plan was based. Map 4 shows the location of the primary and secondary environmental corridors and isolated natural areas within the study area.

# **Surface Watersheds**

The study area is located in two watersheds, as shown on Map 5. Approximately 87 percent of the study area lies within the Rock River watershed and approximately 13 percent is located within the Fox River watershed. The Rock River watershed portion of the study area can be further subdivided into subwatersheds of the three major tributaries: the Ashippun, Bark, and Oconomowoc Rivers. The study area contains 24 lakes with a surface area of 50 acres or more.

#### GENERALIZED LAND USES WITHIN THE NORTHWESTERN WAUKESHA COUNTY SEWERAGE SYSTEM PLAN STUDY AREA: 1990, 2010, AND ULTIMATE DEVELOPMENT

Category	1990 (acres)	2010 (acres)	Ultimate (acres)
Residential Commercial Industrial Transportation, Communication, and Utility Governmental and Institutional Recreational Agricultural, Rural Residential, and Other Open Lands Environmental <sup>a</sup>	15,952 643 418 1,301 1,072 1,793 55,594 36,560	25,149 1,214 815 1,334 1,714 2,829 43,926 37,290	30,747 1,917 1,440 1,334 1,769 2,829 36,945 37,290
Total	115,618	115,618	1,547

<sup>a</sup>Includes lands designated as primary environmental corridor, secondary environmental corridor, and isolated natural area.

Source: SEWRPC.

## Sanitary Sewerage Facilities and Service Areas

#### **Existing Facilities**

The planning effort included inventories and assessments of the sanitary sewerage systems existing within the study area with respect to service area, trunk sewer configuration and capacity, wastewater treatment plant location and capability, and wastewater flows.

There are three public wastewater treatment facilities in operation within the study area. These public wastewater treatment facilities and the tributary collection and conveyance systems together, in 1995, served a resident population of about 28,000 persons, or about 45 percent of the resident population of the study area. Table 3 provides a listing of the capacities and certain other basic characteristics of these public wastewater treatment facilities. Map 6 shows the sewer service areas and the location of the wastewater treatment facilities as these existed within the study area in 1995.

In addition to the public wastewater treatment facilities, a private special-purpose wastewater treatment facility serves the Ethan Allen School northwest of the Village of Wales and receives wastewater generated by the school residents and support staff and facilities. The plant is designed to treat about 66,000 gallons per day (gpd) estimated to be generated with a resident population of about 600. Loadings in 1995 were about 45,000 gallons per day on an average annual basis.

#### Sewer Service Area and Onsite Sewage Disposal Systems Analysis

As part of the planning program, a review was made of the public sanitary sewer service areas within the study area and the potential need to revise the currently approved sanitary sewer service area boundaries. As part of that analysis, the condition and suitability of onsite systems was evaluated for all of the urban-density areas within the study area. This analysis was conducted to determine the likelihood of system failures over the planning period; the potential for continued use of onsite systems in each area; and the potential need for, and the potential timing for, a public sanitary sewer system.

The existing and potential future sewerage system evaluation for each of the urban areas was based upon a number of considerations, both monetary and nonmonetary. The factors considered include the proportion and number of potentially failing systems based upon factors, such as system age and soil capabilities; lot sizes and potential for locating replacement systems; distance to an existing public system; groundwater and surface water



#### GENERALIZED LAND USE WITHIN THE NORTHWESTERN WAUKESHA COUNTY SEWERAGE SYSTEM PLAN STUDY AREA: 1995

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GENERALIZED LAND USE WITHIN THE NORTHWESTERN WAUKESHA COUNTY SEWERAGE SYSTEM PLAN STUDY AREA: 2010 STAGE OF THE WAUKESHA COUNTY DEVELOPMENT PLAN

PRIME AGRICULTURAL

INDUSTRIAL

COMMERCIAL

OTHER OPEN LANDS TO BE PRESERVED

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- EXTRACTIVE
- WATER
- URBAN RESERVE



GENERALIZED LAND USE WITHIN THE NORTHWESTERN WAUKESHA COUNTY SEWERAGE SYSTEM PLAN STUDY AREA: ULTIMATE DEVELOPMENT UNDER THE WAUKESHA COUNTY DEVELOPMENT PLAN

Source: SEWRPC.

Map 3



ENVIRONMENTALLY SENSITIVE AREAS WITHIN THE NORTHWESTERN WAUKESHA COUNTY SEWERAGE SYSTEM PLAN STUDY AREA: 1995



#### WATERSHED AND SUBWATERSHED BOUNDARIES WITHIN THE NORTHWESTERN WAUKESHA COUNTY SEWERAGE SYSTEM PLAN STUDY AREA: 1995

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#### SELECTED CHARACTERISTICS OF EXISTING PUBLIC WASTEWATER TREATMENT FACILITIES IN THE NORTHWESTERN WAUKESHA COUNTY PLANNING AREA: 1995

		Date of			Existing Lo	ading: 1995	Design	Capacity
Name of Public Sewage Treatment Plant	Areas Served	Original Construction and Major Modification	Level of Treatment Provided	Disposal of Effluent	Annual Average Hydraulic (mgd)	Peak Hydraulic (mgd)	Average Hydraulic (mgd)	Peak Hydraulic (mgd)
City of Oconomowoc Wastewater Treatment Plant	City of Oconomowoc, Villages of Oconomowoc Lake (part), and Lac la Belle; Town of Oconomowoc Mary Lane Sanitary District; Town of Oconomowoc Blackhawk Drive Sanitary District; and Town of Ixonia Sanitary Sewer District No. 2	1936, 1976	Secondary, advanced, and auxiliary	Oconomowoc River	2.16	5.79	4.00	9.00
Delafield-Hartland Water Pollution Control Commis- sion Wastewater Treat- ment Facility	City of Delafield, Villages of Hartland and Nashotah, and Town of Delafield (part) <sup>a</sup>	1980	Secondary, advanced, and auxiliary	Bark River	1.55	4.60 <sup>b</sup>	2.20	5.50
Village of Dousman Sewer Utility Wastewater Treatment Facility	Village of Dousman	1961, 1972, 1983	Secondary, advanced, and auxiliary	Bark River	0.23	1.42	0.35	0.87

<sup>a</sup> The Town of Summit Sanitary District No. 1 has an agreement with the Delafield-Hartland Pollution Control Commission and will be connected to the system in the year 2001.

<sup>b</sup>Peak flow value based upon December 2000 facility plan.

Source: Black & Veatch and SEWRPC.

quality; transportation system impacts for holding tank waste and septage hauling; costs; and consistency with previously adopted plans. The areas considered are shown on Map 7. A summary of the analyses is presented in Table 4. Given the findings of the evaluation, the recommended sewer service areas are shown on Map 8. Selected information on each of the planned sewer service areas is provided in Table 5.

#### Development of Anticipated Future Sanitary Sewerage System Flows and System Evaluation

Estimates of future sewage flows were developed based upon careful consideration of past sewerage flows; upon anticipated resident population, household, and economic activity levels, and attendant land use development patterns; and upon likely rates of clearwater infiltration and inflow to sewerage facilities. Sewage flows were estimated for both average and extended wet weather conditions. The future flows based upon the year 2010 stage and ultimate development of the Waukesha County development plan land use conditions are shown in Table 6.

To determine the adequacy of the existing conveyance systems, the system of existing trunk sewers was identified and analyzed. A mathematical model was used to estimate flows at key locations and to route those flows through the system. The flows routed through the sewer system were then compared to the capacity of each sewer segment. For sewer segments or pump stations where total flow exceeded capacity by a selected amount, a parallel relief sewer or replacement sewer or expanded pumping facilities is sized and simulated so that flow continued to be routed downstream. Before performing an analysis, the model was calibrated against flow projections based on measured data from the area wastewater treatment plants. The results of the calibration provided satisfactory agreement between computer-generated and measured flow.

The study area includes significant areas which are planned to be served by onsite sewage disposal systems in the future. Thus, the availability of septage and holding tank waste disposal facilities is an important factor in the system planning. Based upon an analysis of the number onsite systems in the study area, it is estimated that about 2,000 to 4,000 gpd of septage and about 8,000 to 12,000 gpd of holding tank wastes will be generated in the potential service area to the Oconomowoc wastewater treatment facility for the year 2010. Quantities for the buildout condition at the Oconomowoc facility would be 5,000 to 7,000 gpd and 16,000 to 20,000 gpd for septage



#### EXISTING SEWER SERVICE AREAS AND WASTEWATER TREATMENT FACILITIES WITHIN THE NORTHWESTERN WAUKESHA COUNTY SEWERAGE SYSTEM PLAN STUDY AREA:1995

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AREAS CONSIDERED IN ONSITE SITE SEWAGE DISPOSAL SYSTEM ANALYSIS NORTHWESTERN WAUKESHA COUNTY SEWERAGE SYSTEM PLAN STUDY AREA

Source: SEWRPC.

					Development in Areas with			Distance			
	1990			Area with	Groundwater	Area with		from		Include	
	Housing		Lots Less	Depth to	Levels Less	Depth to	Significant	Nearest	Include	in Sewer	
	Density	Onsite	than 1.0	Groundwater	than Five	Bedrock	Onsite	Sewer	in 2010	Service	
Urban	(units per	Unsuitable	Acre in	Less than	Feet from	Less than	Problems	Service	Sewer	Area	
Concentration	quarter	Soils	Size	25 Feet	Surface	25 Feet	(percent	Area	Service	Beyond	Continue
Name	section)	(percent)	(percent)	(percent)	(percent) <sup>a</sup>	(percent)	of area)	(miles)	Area	2010	Onsite Use
Ashippun Lake	60	10	95	100	30	0	30	0.5			х
Beaver Lake	35	18	<20	29	10	7	13	0.0		х	
Delafield East	36	17	<10	0	<10	0	75	2.0	xb		
Delafield East-Central	34	20	<10	0	<10	0	65	0.0	xb		
Delafield West-Central	43	17	<15	0	<10	0	16	0.0		х	
Genesee Central	6	27	<10	0	25	0	22	0.0			Х
Genesee East	46	43	<10	0	<10	100	40	2.4		xb	
Genesee Northeast	55	27	<10	0	<10	33	33	0.0			х
Genesee West	26	8	<10	0	10	0	4	0.5			х
Genesee Depot	38	45	80	50	<10	100	33	1.5			Х
Genesee Lakes	19	27	55	100	N/A	0	32	0.0	Х		
Golden Lake	27	15	95	100	65	0	33	2.0		Х	
Lake Keesus	35	6	60	25	N/A	0	16	1.0		Х	
Mapleton Lake	40	0	70	100	N/A	0	5	0.0			Х
Merton SE	6	30	10	0	<10	0	0	0.0			Х
Village of Merton	47	8	35	0	<10	0	5	0.5		Х	
Monches	33	5	40	0	35	100	5	2.0			Х
Monterey	20	20	60	100	<10	0	10	1.5			Х
North Lake	25	19	50	75	20	17	18	0.0		Х	
Pine Lake	11	7	10	40	<10	0	14	0.0		Х	
Pretty Lake	52	20	95	100	<10	0	40	2.8			Х
School Section Lake	30	40	45	100	<10	0	38	1.0			Х
Silver Lake NW	4	70	<10	100	50	0	90	0.0		Х	
Summit NW	7	30	<10	100	<10	0	40	0.0		Х	
Wales	55	23	<10	6	<10	6	7	0.0		Х	
Waterville	20	3	<10	100	<10	0	3	0.0			Х

NOTE: N/A indicates not applicable.

<sup>a</sup>Based upon soil interpretations for seasonal high groundwater levels and review of large-scale topographic maps.

<sup>b</sup>Recommended to be served to Fox River watershed systems.

Source: Black & Veatch and SEWRPC.

and holding tank waste, respectively. It is estimated that about 5,000 to 7,000 gpd of septage and about 15,000 to 21,000 gpd of holding tank wastes will be generated in the potential service area to the Delafield-Hartland wastewater treatment facility. Quantities for the buildout condition would be similar. The Dousman wastewater facility has not accepted septage and holding tank waste in recent years and does not anticipate doing so during the planning period.

### DEVELOPMENT OF THE RECOMMENDED SANITARY SEWERAGE SYSTEM PLAN

Six major alternatives, each with up to three subalternatives, for providing sanitary sewer service to the study area were prepared and evaluated, using the year 2010 stage of the Waukesha County development plan as the basis for the initial configuration and sizing of the alternatives. Each of the alternatives was evaluated based upon the cost-effectiveness and implementability. The six major alternatives considered are as follows:

Alternative 1	Expand the existing plans
Alternative 2	Combine the Dousman and Delafield-Hartland plants at Delafield-Hartland
Alternative 3	Combine the Dousman and Oconomowoc plants at Oconomowoc
Alternative 4	Combine the Oconomowoc and Delafield-Hartland plants at Oconomowoc
Alternative 5	Combine the Oconomowoc and Delafield-Hartland plants at Delafield-Hartland
Alternative 6	Combine all plants into a single regional plant

11116 \*\*\* + · 188. स्मे + un PINELAKE \$ 1 4 1 1 2 al .... ... -LDEN STATE AND ΚĒ -. n dan 1 + d O ENDER! PLANNED (BEYOND 2010) STUDY AREA BOUNDARY PLANNED (2010 - ASSUMED TO BE SERVED TO FOX RIVER WATER SHED SYSTEM) SEWER SERVICE AREA BOUNDARY  $\overline{\overline{D}}$ EXISTING PLANNED (BEYOND 2010 - ASSUMED TO BE SERVED TO FOX RIVER WATER SHED SYSTEM) ½ ¾ 1 MILE  $\overline{}$ 0 ¼ PLANNED (2010) 0 2000 4000 6000 8000 10000 FEET AREA INCLUDED IN THE CITY OF WAUKESHA SEWER SERVICE AREA Source: Black and Veatch and SEWRPC.

#### NORTHWESTERN WAUKESHA COUNTY SEWERAGE SYSTEM PLAN EXISTING AND PLANNED SEWER SERVICE AREAS: 2000

#### SELECTED CHARACTERISTICS OF SEWER SERVICE AREAS IN THE NORTHWESTERN WAUKESHA COUNTY SEWERAGE SYSTEM PLAN STUDY AREA

	Assump	tions for	Existing 1990		Waukesha County Development Plan					Year 2020 Data			
	System	Planning			Year	Year 2010 <sup>a</sup>		Buildout Conditions <sup>b</sup>		Households		Resident Population	
Sewer Service Area	Include in 2010 Sewer Service Area	Include in Sewer Service Area after 2010	Households	Resident Population	Households	Resident Population	Households	Resident Population	Intermediate Growth	High Growth	Intermediate Growth	High Growth	
Delafield-Nashotah <sup>C</sup> Delafield East <sup>d</sup> Delafield East Central <sup>d</sup> Delafield Northeast <sup>d</sup> , <sup>e</sup> Dousman Hartland Ixonia. Lower Genesee Lake Oconomowoc <sup>1</sup> Oconomowoc Lake Okauchee Lake	X X X X X X X X X X X X		2,610 12 140 4 610 2,700 303 58 5,470 160 1 930	6,950 36 440 12 2,060 7,990 930 200 14,700 420 5 330	3,850 36 190 - <sup>e</sup> 985 3,930 370 122 7,800 220 2 425	9,750 100 530 - e 3,015 10,800 1,100 335 19,000 510 6,560	5,310 50 200 - e 1,420 4,960 430 132 16,800 250 2 940	13,500 140 550 - e 4,280 13,665 1,300 360 41,250 595 7 950	3,600 40 160 - <sup>e</sup> 990 4,350 4309 80 8,370 160 2,200	4,610 50 190 - e 1,430 4,800 4309 80 13,100 200 2 900	8,600 100 440 - e 3,100 11,400 1,3009 260 20,400 390 5,300	11,800 140 480 - e 4,300 13,400 1,3009 280 33,800 520 7 500	
Beaver Lake Delafield West Central Genesee East <sup>d</sup> Golden Lake Lake Keesus North Lake Pine Lake Village of Merton Wales		X X X X X X X X X	480 285 140 54 280 300 170 380 940	1,520 930 470 120 780 820 445 1,260 3,190	660 420 175 54 410 355 190 530 1,040	1,830 1,190 530 140 1,150 950 420 1,770 3,400	920 480 220 70 420 460 190 650 1,180 <sup>h</sup>	2,580 1,350 665 180 1,190 1,260 420 2,160 3,900 <sup>h</sup>	540 430 150 54 370 330 200 520 1,150 <sup>h</sup>	790 1,200 250 54 390 400 200 650 1,180 <sup>h</sup>	1,480 450 520 110 980 800 480 1,480 3,800 <sup>h</sup>	2,060 1,260 740 1,040 1,040 530 1,820 3,900 <sup>h</sup>	

#### NOTE: N/A indicates not applicable.

<sup>a</sup>2010 stage of the Waukesha County development plan.

<sup>b</sup>Waukesha County development plan approximate buildout conditions.

<sup>C</sup>Includes Nashotah-Nemahbin Lakes area.

<sup>d</sup>Area considered to be potentially provided with public sanitary sewer service in the future. However, no specific sewerage system planning is being conducted under this study, since the area would likely be served through sewerage systems in the Fox River watershed.

<sup>e</sup>Area was not planned for urban development in the Waukesha County development plan. Thus, no significant growth was envisioned in the area. Subsequently, an amendment to that plan was approved which would allow for urban-density development, as is being proposed by the property owners involved.

<sup>f</sup>Includes Silver Lake and Silver Lake NW.

<sup>g</sup>Not included in 2020 regional land use plan as a planned sewer service area. Use of buildout condition recommended for planning purposes.

<sup>h</sup>Planned population and household levels based upon information developed as part of the ongoing Village of Wales land use plan and representing a refinement to the values included in northwestern Waukesha County sewerage system plan.

Source: SEWRPC.

# SUMMARY OF DESIGN HYDRAULIC LOADING FOR WASTEWATER TREATMENT FACILITIES WITHIN THE NORTHWEST WAUKESHA COUNTY SEWERAGE SYSTEM PLAN STUDY AREA

Facility	Population	Average Day (mgd)	Maximum Month (mgd)	Peak Day (mgd)	Peak Hour (mgd)
2010 Oconomowoc Dela-Hart Dousman	27,100 20,500 3,350	4.71 2.69 0.48	5.75 3.36 0.60	6.59 5.38 0.89	14.13 8.07 1.92
Buildout Conditions Oconomowoc Dela-Hart Dousman	58,700 31,700 4,850	8.13 3.94 0.65	9.92 4.93 0.81	11.38 7.88 1.20	20.33 11.82 2.60

Source: Black & Veatch.

Subalternative 6A	Oconomowoc site
Subalternative 6B	Delafield-Hartland site
Subalternative 6C	New site downstream of Dousman

Alternative 6 included three subalternatives which permit evaluation of alternative locations for a single, large regional plant. These alternative plans are initially developed considering no public sewer service is provided to the Village of Wales area. These six major alternatives were then revised considering the inclusion of the Wales area in the area proposed to be served by public sanitary sewer service. Alternatives 1 through 5 have three subalternatives when considering the addition of Wales to the sewer service area. These subalternatives are listed below.

Alternatives 1 through	15
Subalternative A	Construct a new plant in Wales
Subalternative B	Convey wastewater flows from the Wales area to the Delafield-Hartland plant
Subalternative C	Convey wastewater flows from the Wales area to the Dousman plant

The recommended sanitary sewerage system plan for the northwestern Waukesha County area includes treatment facility expansion and upgrading, relief sewers, modifications to existing pumping stations and force mains, gravity sewer extensions, and new pumping stations and force main extensions. The recommended improvements are shown on Map 9. The probable cost of the recommended sewerage system plan improvements are summarized in Table 7. The table includes probable capital costs and annual operation and maintenance costs for each phase of improvements. Based upon the cost analysis and consideration of the noncost factors, the plan recommends expansion of the existing plants and that the Wales area continue to be served by onsite sewage disposal systems in the near-term. However, the Wales area would continue to be designated as a planned sewer service area with that service being provided beyond the year 2010 by conveyance of wastewater to the Delafield-Hartland wastewater treatment facility.

# PLAN IMPLEMENTATION

The report contains an analysis of various funding options for implementing the recommended sewerage system plan; a review of the institutional options for plan implementation; and a discussion of recommendations for plan implementation.



RECOMMENDED IMPROVEMENT PROJECTS WITHIN THE NORTHWESTERN WAUKESHA COUNTY SEWERAGE SYSTEM PLAN STUDY AREA

Source: Black and Veatch and SEWRPC.

#### PROBABLE IMPROVEMENTS SUMMARY

Item	Probable Capital Cost <sup>a</sup> (millions of dollars)	Probable Annual Operation and Maintenance (millions of dollars)
Phase 1 (current) Relief Sewers Pump Stations and Force Main Improvements Treatment Facility	0.44  	b  
Subtotal	0.44	
Phase 2 (2010) Relief Sewers Pump Station and Force Main Improvements Extensions Treatment Facility	0.77 11.35 13.34 9.57	b 0.14 0.04 0.29
Subtotal	35.03	0.47
Phase 3 (buildout) Relief Sewers Pump Station and Force Main Improvements Extensions Treatment Facility Subtotal	0.85 9.62 10.60 28.82 49.89	b 0.18 0.04 1.10 1.32
Total	85.36	1.79

<sup>a</sup>Includes 40 percent for contingency, engineering, legal, and administration.

<sup>b</sup>No significant additional operation and maintenance cost is expected for relief sewers.

Source: Black & Veatch.

Two basic institutional options for implementing the recommended sewerage system plan were considered: 1) a system based upon continuation of the existing contracting arrangements, and 2) formation of a new regional authority which would own and operate facilities independently to furnish wastewater conveyance and treatment services. Such an authority could be a metropolitan sewerage district as provided for under *Wisconsin Statutes* 66.20 and 66.22. A variation of the second alternative would provide for creation of a cooperative contract commission under Section 66.30 of the *Wisconsin Statutes* which provides broad authority enabling municipalities to contract with each other for the receipt and furnishing of services or the joint exercises of powers or duties. Such contract arrangements may include the creation of commissions for cooperatively carrying out such activities as sewerage system ownership and operation on an areawide basis. Such commissions can be given bonding powers for the purposes of acquiring, developing, and equipping land, buildings, and facilities for areawide projects. This approach could be more acceptable to the communities than the regional authority metropolitan sewerage district option, because it allows the communities involved to be directly involved in the administration of the activities involved.

Table 8 summarizes the advantages and disadvantages of each of the two institutional arrangements. The contract commission option would have similar advantages and disadvantages to the new regional authority. However, it would have the advantage of the communities involved maintaining control as participants of the commission and avoiding a new entirely separate authority.

#### COMPARISON OF INSTITUTIONAL OPTIONS FOR THE NORTHWESTERN WAUKESHA COUNTY SEWERAGE SYSTEM PLAN STUDY AREA

Alternative	Advantages	Disadvantages
Regional Authority	Coordinated effort to plan and implement recommended improvements	Length of time and amount of effort required to establish a regional authority
	Independent nonpolitical agency	Difficulty in administering credit of existing asset base to communities
	Uniform sewer charge would be beneficial in attracting regional development	Requires local treatment plant operation approvals which are not in place
	Ability of regional agency to issue debt would relieve existing debt burden to communities	Loss of control over local system infrastructure and connection to local systems
	Minimizes fiscal impact of constructing recommended improvements	
Existing Contract	Contractual structure in place for majority of communities in service area	Difficult to properly allocate costs to the communities
	Existing contract structure easily modified for remaining communities	Places higher economic costs on developing communities than regional authority option
		Variation in user charges

Source: Black & Veatch and SEWRPC.

Based upon review of the advantages and disadvantages of the institutional options, the plan recommends that the current institutional arrangements be maintained. New areas would be added to each respective sewerage system through contract arrangements. This option is recommended primarily because it appears to be more implementable. Forming one or more regional authorities could potentially result in expensive legal fees and time delays that could offset any potential administrative cost savings.

# **RECOMMENDED AMENDMENTS TO THE REGIONAL** WATER QUALITY MANAGEMENT PLAN

On the basis of the proposals contained in the recommended sewerage system plan, it is recommended that the Regional Planning Commission formally amend its regional water quality management plan in the following respects:

- The sewer service areas set forth in the adopted regional water quality management plan in general form would be modified to conform with those set forth under the recommended system plan, as shown on Map 10.
- The alignment and configuration of trunk sewers set forth under the regional water quality management plan would be modified to add the trunk sewers proposed under the recommended system plan, as shown on Map 10.
- The Delafield-Hartland Water Pollution Control Commission wastewater treatment facility would be designated as the treatment facility to serve the Wales area. The public wastewater treatment facility proposed for Wales in the current plan is eliminated.



#### RECOMMENDED MODIFICATIONS TO REGIONAL WATER QUALITY MANAGEMENT PLAN BASED UPON NORTHWESTERN WAUKESHA COUNTY SEWERAGE SYSTEM PLAN STUDY AREA

It should be noted that the areas shown on Map 10 to be added to the sewer service area are based upon systemlevel planning consistent with the original regional water quality management plan. As such, the delineations are necessarily general. That regional plan recommends that each sewer service area be refined over time by the local units of government involved, the Wisconsin Department of Natural Resources, and the Southeastern Wisconsin Regional Planning Commission. That sewer service area refinement process would only take place only when a community is ready to further pursue the installation of a public sewer system.

# PUBLIC REACTION TO THE PLAN AMENDMENT

A public hearing was held on March 1, 2001, at the Fish Hatchery Building in the City of Delafield, Wisconsin, for the purpose of receiving comments on the plan amendment. The hearing was sponsored by the Southeastern Wisconsin Regional Planning Commission. Summary minutes of the public hearing are presented in Appendix A. The meeting was chaired by Mr. Kent Woods, Chairman of the Northwestern Waukesha County Sewerage System Planning Committee, who introduced the program. The meeting was attended by 28 people.

The plan amendment was presented before receiving public comment. A summary of the northwestern Waukesha County sewerage system plan was presented as the rationale for amending the regional water quality management plan. The summary of the plan included: background of the study; study area participants; Advisory Committee members; levels of population, housing units, and employment within the study area; generalized land uses within the study area; alternatives considered; evaluation of the alternatives; probable improvements costs; comparison of institutional options; and recommended amendments to the regional water quality management plan. Public comment on the amendments to the regional water quality management plan for northwestern Waukesha County was then solicited.

A review of the hearing record indicates that four individuals spoke at the hearing, each expressing general support for the amendment. In addition, there was discussion as to the flexibility of the plan, terms of service, and how to resolve conflicts if they arise during negotiations for contracts for services. The Chairman of the Town of Oconomowoc and Chairman of the Ashippun Lake Protection and Rehabilitation District recommended that the area in the vicinity of Ashippun and Mapleton Lakes be added to the long-term planned sewer service area. They noted that a proposed trunk sewer was located about 0.5 mile from those area, and that the Meadow View School, which is located between Ashippun Lake and the proposed trunk sewer, could potentially need sewer service in the future. They accordingly requested that the Ashippun-Mapleton Lakes area be added to the long-term sewer service area.

A review of the northwestern Waukesha County sewerage system plan indicted that the areas in question were initially determined to be left out of the sewer service area after consideration of several factors, including groundwater conditions, depth to bedrock, lot sizes, soil conditions, distance from public sewer service area, and the identified extend of onsite sewerage system problems. Of the factors considered, those relating to distance to the planned service area, depth to groundwater, and lot sizes, would favor ultimately providing sewer service, as would the potential school needs raised at the hearing. Accordingly, the recommended changes to the regional water quality management plan have been revised to include the Ashippun and Mapleton Lakes areas, as shown on Map 11, based on a strong expression of local support by the Town of Oconomowoc and the Ashippun Lake Protection and Rehabilitation District.

The Chairman read a letter from the Village of Hartland endorsing the amendment.

# CONCLUDING RECOMMENDATION

On the basis of the foregoing, it is recommended that the Southeastern Wisconsin Regional Planning Commission formally amend the regional water quality management plan for northwestern Waukesha County, with the amendment providing for the addition of the Ashippun-Mapleton Lakes area to the long-term planned sewer service area as shown on Map 11.



POST-PUBLIC HEARING RECOMMENDED MODIFICATIONS TO THE REGIONAL WATER QUALITY MANAGEMENT PLAN BASED UPON THE NORTHWESTERN WAUKESHA COUNTY SEWERAGE SYSTEM PLAN STUDY AREA

# **CONCLUDING COMMENTS**

The recommended plan for sanitary sewer service for the northwestern Waukesha County area is designed to meet both the present and probable future needs of this important urbanizing area in a cost-effective manner. The plan is designed to accommodate population and economic activity levels which may be expected within the study area over the next 20 years. Many of the recommended facilities, if constructed, may be expected to continue to serve the communities involved well beyond 20 years. Since most major sewerage facilities have a service life of 50 to 100 years, the plan recommends that those facilities be sized for "ultimate" levels of potential future growth in resident population and employment when this can be accomplished with a minimal increase in costs as demonstrated by the comparison of component sizes and costs under each of the three future land use scenarios evaluated.

# Appendix A

# SUMMARY MINUTES OF THE PUBLIC HEARING MEETING CONVENED TO DISCUSS THE AMENDMENT TO THE REGIONAL WATER QUALITY MANAGEMENT PLAN FOR NORTHWESTERN WAUKESHA COUNTY March 1, 2001

## **INTRODUCTION**

A public hearing meeting to discuss the amendment to the regional water quality management plan for northwestern Waukesha County was convened at the Fish Hatchery Building in Delafield, Wisconsin, on March 1, 2001, at 6:35 p.m.

Participants attending the public hearing meeting were the following:

Name	<u>Representing</u>	
Kent D. Woods	Representative, Town of Delafield	
Walter Baade	Supervisor, Town of Oconomowoc	
Harry Beggs	Citizen, Village of Wales	
Robert P. Biebel	Chief Environmental Engineer, Southeastern Wisconsin	
	Wisconsin Regional Planning Commission	
Kenneth Chase	Citizen, Village of Wales	
Marilyn Czubkowski	Clerk/Treasurer, City of Delafield	
Joseph W. Eberle	Ruekert & Mielke, Inc.	
Richard Garvey	Citizen, Town of Oconomowoc	
Frank Geers	Town of Summit Sanitary District No. 1	
John Gross	Citizen, City of Oconomowoc	
Milton Guenterberg	Citizen, Town of Summit	
James W. Hansen	Utilities Superintendent, Village of Dousman	
Patricia M. Kokan	Southeastern Wisconsin Regional Planning Commission	
William J. Mielke	Ruekert & Mielke, Inc., for the City of Oconomowoc	
Richard J. Morris	Citizen, Town of Merton	
Shannon Olson	Reporter, Oconomowoc Enterprise	
Drake Reid	Supervisor, Town of Genesee	
Jack Riley	Citizen, Town of Summit	
Paul Rom	Black & Veatch Corporation	
Frank Safoshnik	Citizen, Town of Summit	
Lisa Safoshnik	Citizen, Town of Summit	
Michael Schallock	Citizen, Town of Delafield	
Joseph St. Thomas	Chairperson, Town of Oconomowoc	
Maurice Sullivan	Chairperson, Town of Summit	
Roland O. Tonn	Planner, City of Oconomowoc	
Douglas VanEeckhot	Citizen, Town of Delafield	
Todd Werter	Citizen, Town of Merton	
Robert Zeisloft	Citizen, Town of Delafield	

# PROCEEDINGS

Mr. Woods called the meeting to order at 6:35 p.m., thanking all present for their attendance and participation. Mr. Woods then asked each of the meeting participants to sign in if they haven't already done so. Mr. Woods then introduced current and ex-officio members of the Advisory Committee, asking each to stand as his name was called. Mr. Woods also introduced Mr. Rom, the project manager on the study from Black & Veatch Corporation, and Mr. Biebel and Ms. Kokan of the Commission staff. He then asked Mr. Biebel to summarize the findings and recommendations of the northwestern Waukesha County sewerage system plan and the related amendments to the regional water quality management plan.

In his presentation, Mr. Biebel explained the rationale for amending the regional water quality management plan. In addition the background of the study; study area participants; advisory committee members; levels of population, housing units, and employment within the study area; generalized land uses within the study area; alternatives considered; evaluation of the alternatives; probable improvements costs; comparison of institutional options; and recommended amendments to the regional water quality management plan were reviewed. A combination of overhead display maps and slides were used for the presentation.

Mr. Woods thanked Mr. Biebel for his presentation and then opened the floor to public comment. Mr. Woods asked that each person wishing to comment please stand and state their name and address before commenting.

# **QUESTIONS AND ANSWERS**

- Q. Mr. Baade asked how set in stone were the boundaries of the sewer service area? He suggested that the boundaries would extend more to the north to the Ashippun and Mapleton Lakes area. He explained that Meadow View Elementary School may need to be provided with public sewer in the future. He stated that it would be very desirable to include the school within the boundary. He pointed to Map 9 indicating the location of the school and its relationship to the Ashippun Lake area, noting that there was a proposed trunk sewer located about 0.5 mile from the Ashippun-Mapleton Lakes area.
- A. Mr. Biebel replied that a review of this situation would be made. He stated that the initial analysis had found that it is not cost-effective to extend the boundaries. However, he noted that this issue of the Meadow View School had not been considered.
- Q. Mr. Baade asked if there would be a way to require the City of Oconomowoc to provide service to those wanting service?
- A. Mr. Biebel replied that no one can dictate to the City the terms of such an agreement and that it would be up to the City to decide. He noted that the City had, in the past, been receptive to serving lake-oriented areas in the planned service area. He also stated that the State or the EPA has, in the past, had a policy of not interfering with the terms for sewer service.
- Q. Mr. St. Thomas asked if there was the possibility of modifying the boundary on the east side of Okauchee to provide for connection to the Dela-Hart system, or if the area was to be served by Oconomowoc?
- A. Mr. Biebel replied that it was chosen to go to Oconomowoc, as it has been planned in that manner for the past 20 years and that some sewer infrastructure was in place to serve the area. He stated that the trunk sewer to serve the area in question was needed for Pine Lake and other communities. He also noted that a new sewer system would be needed to connect to the Dela-Hart system, as the existing sewers were not sized for the Okauchee Lake area. He also indicated that the new Dela-Hart facility plan does not include provisions to serve that area. He indicated on Map 9 where the trunk sewers are recommended to be placed.

- Q. Mr. Chase asked if Wales were to contract with Dela-Hart and they were unable to negotiate a reasonable agreement, who would arbitrate to reach agreement?
- A. Mr. Biebel stated that a study would be needed to determine a fair basis for such a contract and that such a study would have to involve both Wales and Dela-hart and possibly others. He also indicated that Wales, Genesee, and others are already looking into treatment for wastes from a selected area, and this might pave the way for future negotiations for further waste treatment. He also stated that Dela-Hart currently serves several communities on a contract basis and that they had experience in developing terms of service in a reasonable way. He also noted that the Dela-Hart facility plan recognizes that Wales may be included for treatment.

# **OTHER COMMENTS**

For the record, Mr. Woods read a March 1, 2001, letter from the Village of Hartland endorsing the plan amendment for the regional water quality management plan for northwest Waukesha County.

[Secretary's Note: A copy of the Village of Hartland letter is attached hereto as Exhibit A.]

Mr. Mielke stated for the record that the City of Oconomowoc endorses the plan amendment for the regional water quality management plan for northwest Waukesha County.

# ADJOURNMENT

Being there were no further questions or comments, Mr. Woods thanked everyone for attending and the meeting was adjourned at 7:20 p.m.



Exhibit A

#### **ADMINISTRATION**

210 Соттолwood Avenue • P.O. Box 260 Hartland, WI 53029 Phone (414) 367-2714 Fax (414) 367-2430



March 1, 2001

Mr. Phil Evenson, Executive Director Southeastern Wisconsin Regional Planning Commission 916 N. East Avenue P.O. Box 1607 Waukesha, Wisconsin 53187-1607

Re: Northwestern Waukesha County Sewerage System Plan

Dear Phil:

I am pleased to take this opportunity to endorse the Northwestern Waukesha County Sewerage System Plan. Thank you for the leadership role that SEWRPC played in the plan's development.

As development continues throughout northwestern Waukesha County we all will benefit from the foresight provided in this plan.

Very truly yours,

Wallace C. This

Wallace C. Thiel Village Administrator