



Public Facilities Needs Assessment For Water Tower and System Improvements

**Village of Sister Bay
Door County, Wisconsin
September 23, 2005**

Sister Bay Water Tower and System Improvements Impact Fee

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1 Introduction

The Village of Sister Bay is a growing community located in Door County, Wisconsin. The costs of providing adequate public facilities continue to rise while trying to meet the needs of the growing population. It is therefore increasingly important for the village to pay for new or expanded public facilities in a manner that is fiscally sound, equitable, and affordable to residents and property owners. Development impact fees offer communities in Wisconsin an equitable way to charge new development for the associated provision of new or expanded facilities.

The Village of Sister Bay has taken the necessary steps to ensure public facilities are in place to accommodate new development. The village now has the public infrastructure in place with sufficient capacity to accommodate anticipated development for many years into the future. Since future residents and property owners who require the excess capacity are not part of the village during the construction of such facilities, existing residents and property owners may bear more than a proportionate share of the cost to build or expand facilities required by future development. The use of development impact fees will allow the village to recover these costs.

The water system which serves the Village of Sister Bay as well as the Liberty Grove Sanitary District No. 1 has undergone periodic improvements to prepare for the needs of future development in and around the village. The village also completed a comprehensive plan in 2003 which is consistent with Wisconsin Statutes 66.1001 to help with the physical development and planning of the village's future. A comprehensive water distribution, wastewater collection and stormwater management master plan is currently underway and should be completed during the summer of 2006. This ongoing study should result in updated costs and revised allocation formulas which may be used to modify the proposed impact fee.

1.1 Purpose of this Needs Assessment

In 1995 the Wisconsin Statutes gave municipalities the authority to impose impact fees on developers to pay for the capital costs for construction of facilities which will serve new developments. The purpose of this public facilities needs assessment is to determine the water tower and system improvements needs for land development and make recommendations regarding the amount of impact fees to impose on developers in accordance with Wisconsin State Statute 66.0617. A copy of Wisconsin State Statute 66.0617 is included in Appendix A. Currently; the Village of Sister Bay does have an impact fee ordinance in place and does assess impact fees at this time for wastewater treatment plant expansion. This study quantifies the economic impact of providing water tower and system improvements capacity for land developments and presents calculations for determining the amount of the impact fee in accordance with the Wisconsin State Statute standards to recover the associated capital costs.

The impact fee will be a one-time fee assessed to developers that will utilize the water tower and system improvements reserve capacity to serve their land development. The collected fees are required by statute to be deposited in a segregated account and to be used only for recovering and paying for capital costs of facilities to serve new growth. The fee can be used to pay for engineering and legal fees, land costs, and construction costs associated with new facilities provided for land development. The imposition of impact fees should offset the cost of providing reserve capacity for future users and thereby reduce the burden of reserve capacity costs on existing users of water system services.

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1.2 Scope of the Needs Assessment

In accordance with Wisconsin State Statute 66.0617, the public facilities needs assessment shall include:

- ◆ An inventory of existing public facilities, including an identification of any existing deficiencies in the quantity or quality of those public facilities, for which it is anticipated that an impact fee may be imposed.
- ◆ An identification of new public facilities, or improvements or expansions of existing public facilities, that will be required because of land development for which it is anticipated that impact fees may be imposed. This identification shall be based on explicitly identified service areas and service standards.
- ◆ A detailed estimate of the capital costs of providing the new public facilities or the improvements or expansions in existing public facilities.
- ◆ Calculation of the impact fee based on a rational and equitable method.
- ◆ Estimates of the effects on housing affordability in the village when impact fees are imposed.

1.3 Available Information

The following information and reports were utilized for the preparation of this study.

- ◆ Engineering Report, Village of Sister Bay, Water System Study. Dated January, 2000 as prepared by Robert E. Lee & Associates, Inc.
- ◆ Village of Sister Bay 20-Year Comprehensive Plan. Dated October 2003 as prepared by Bay-Lake Regional Planning Commission.
- ◆ Letter from Robert E. Lee & Associates dated August 19, 2004 regarding the future need for a water tower
- ◆ Letter from Robert E. Lee & Associates dated October 6 19, 2004 regarding the cost estimates for water tower
- ◆ Village of Sister Bay Water Sewer Utility Water Usage for 2001, 2002, 2003 and 2004
- ◆ Engineering Report, Village of Sister Bay, Wastewater Treatment Plant Modifications. Dated November 24, 2004 as prepared by Robert E. Lee & Associates, Inc.

2 Impact Fee Requirements

Impact fees are regulated under Wisconsin State Statute 66.0617 which defines an impact fee as cash contributions, contributions of land or interests in land or any other items of value that are imposed on a developer by a city, village, town, or county. A developer, as defined by the statute, is a person that constructs or creates a land development. Land development, also defined by statute, means the construction or modification of improvements to real property that creates additional residential dwelling units within a city, village, town, or county or that result in nonresidential uses that create a need for new, expanded, or improved public facilities within a

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city, village, town, or county. Therefore, impact fees can be used to pay for the capital costs associated with water system capacity that is reserved for future land development.

The creation of an impact fee includes the following key elements:

- ◆ Preparation of a public facilities needs assessment to demonstrate that the fee is calculated appropriately;
- ◆ Institution of an impact fee ordinance; and
- ◆ Implementation of a public hearing process to review the public facilities needs assessment and proposed ordinance.

Impact fees imposed by ordinance are required to meet the following standards:

- ◆ Bear a rational relationship to the need for new, expanded, or improved public facilities that are required to serve land development.
- ◆ May not exceed the proportionate share of the capital costs that are required to serve land development, as compared to existing uses of land within the village.
- ◆ Shall be based on actual capital costs or reasonable estimates of capital costs for new, expanded, or improved public facilities.
- ◆ Shall be reduced to compensate for other capital costs imposed by the village with respect to land development to provide or pay for public facilities, including special assessments, special charges, land dedications or fees in lieu of land dedications.
- ◆ Shall be reduced to compensate for moneys received from the federal or state government specifically to provide or pay for the public facilities for which the impact fees are imposed.
- ◆ May not include amounts necessary to address existing deficiencies in public facilities.
- ◆ Shall be payable by the developer to the village, either in full or in installment payments that are approved by the village, before a building permit may be issued or other required approval may be given by the village.

In accordance with state statutes this public facilities needs assessment is to be made available for public inspection and copying in the office of the clerk for at least 20 days before the date of the public hearing for the impact fee ordinance.

3 Growth Projections

3.1 Historic and Projected Population

Estimated growth in population and water utility customers forms the basis for determining how many future customers will be served by the utility. There were two sources of population projections: 1) Wisconsin Department of Administration (WDOA), and 2) population projections created by the Bay-Lake Regional Planning Commission (BLRPC) for the Village of Sister Bay 20-Year Comprehensive Plan dated October 2003. Table 3-1 shows these two sources of projections

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as well as Census counts and the official 2004 population estimates for the village from WDOA. All population figures represent the permanent or wintertime population.

**Table 3-1
Historic and Projected Population, Village of Sister Bay**

Census	WDOA Pop. Estimate	WDOA Projections	BLRPC Share of County*	BLRPC Growth Trend	BLRPC Linear Trend
1920	190				
1930	238				
1940	309				
1950	429				
1960	520				
1970	483				
1980	564				
1990	675				
2000	886				
2004	914				
2005		956	973	967	934
2010		1,027	1,024	1,047	982
2015		1,077	1,069	1,163	1,048
2020		1,113	1,100	1,279	1,114
2025		1,119			

*Population projection utilized in Village of Sister Bay Engineering Report for Wastewater Treatment Plant Modifications, November 24, 2003 as prepared by Robert E. Lee & Associates, Inc.

Sources: U.S. Bureau of the Census, 1920-2000. January 1, 2004 Final Population Estimates, Wisconsin Department of Administration, Demographics Services Center, October 10, 2004. Village of Sister Bay 20-Year Comprehensive Plan, October 2003, prepared by Bay-Lake Regional Planning Commission.

The basis for projected change in population used to determine growth will be between the year 2004 and the year 2025. The only population projections available to the year 2025 are that of the Wisconsin Department of Administration (WDOA) showing very little growth between the years 2020 and 2025. The 2025 WDOA population projection of 1,119 was used as the low end of the population projections for the Village of Sister Bay. Therefore, the low end growth in population from the year 2004 to the year 2025 is calculated to be 205.

In order to determine the high end or Bay-Lakes Regional Planning Commission's (BLRPC) growth trend population projection to the year 2025 the same number increase from the year 2015 to year 2020 of 116 people was used to determine the year 2025 estimated population of 1,395. Therefore, the high end growth in population from the year 2004 to the year 2025 is calculated to be 481.

The water system also serves the Liberty Grove Sanitary District, but there is no information regarding population growth specific to the Sanitary District. Bay-Lakes Regional Planning Commission Population Projections presented in the Village of Sister Bay Engineering Report for Wastewater Treatment Plant Modifications, November 24, 2003 as prepared by Robert E. Lee &

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Associates, Inc. showed the Town of Liberty Grove year 2000 population to be 1,858 and the 2005 population to be 2,009 and year 2020 population to be 2,179. The change in population projection between the years 2015 and 2020 was 34 people. To determine the year 2025 estimated population, the same increase in population of 34 was added to the 2020 population of 2,179 to obtain 2,213. The population increase between the years 2000 and 2005 was used to obtain the 2004 population of 2,068. The increase in population for the Town of Liberty Grove from the year 2004 to the year 2025 was estimated to be 145. It is unknown how much of this growth would be within the Liberty Grove Sanitary District.

The Village of Sister Bay 20-Year Comprehensive Plan prepared by Bay-Lakes Regional Planning Commission dated December 15, 2003 states that only 44% of the available land zoned for residential development has been developed within the Village of Sister Bay. The population growth projections to the year 2025 can be accommodated by the available land.

3.2 New Customer Projections

3.2.1 Population Driven Customer Growth

The Village of Sister Bay 20-Year Comprehensive Plan prepared by Bay-Lakes Regional Planning Commission dated December 15, 2003 showed the persons per household in the year 2005 to be 1.72 decreasing to 1.59 by the year 2020. The average number of persons per household over the 2005 to 2020 time frame is 1.65 and will be used for customer growth projections. Using the Village of Sister Bay permanent or wintertime population projections previously calculated showing a low growth of 205 people and a high growth of 481 people, the number of new households by the year 2025 ranges between a low of 124 and a high of 291. The 2000 census showed that approximately the same numbers of people are seasonal as are permanent. Therefore, to obtain maximum summertime growth, the number of new housing units should double to a low of 248 and high of 582.

The Town of Liberty Grove was estimated to grow 145 in permanent or wintertime population by the year 2025. Using the same average number of persons per household of 1.65 as within the Village of Sister Bay shows an increase of 88 households within the Town of Liberty Grove. Using the same scenario as the Village of Sister Bay, the maximum summertime growth doubles to 176 additional household in the year 2025.

3.2.2 Housing Driven Customer Growth

The Village of Sister Bay 20-Year Comprehensive Plan also made projections of occupied housing units based on census housing counts and a linear trend to the year 2020. Table 3-2 shows the various projected occupied housing units. To determine the 2004 number of occupied housing units a prorating was made between the year 2000 and the year 2005 high and low projections. The year 2004 low was calculated to be 464 and the high was calculated to be 494.

To determine the high and low projections to the year 2025 the growth between the years 2015 and 2020 was used as the same increase between 2020 and 2025. Therefore, the 2025 low end of the projected households was calculated to be 610 and the high end was calculated to be 805. Therefore, the increase in occupied housing units from 2004 to 2025 was calculated to be a low of 146 and a high of 311. These projections are somewhat higher than the population driven projections for additional permanent or wintertime households. To include the maximum or summertime housing units, the estimated occupied housing units will double to a low of 292 and high of 622.

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**Table 3-2
Historic and Projected Households (Occupied, Full-Time Units), Village of Sister Bay**

Census	WDOA Projections	BLRPC Linear Trend	BLRPC Linear Pop.	BLRPC Share of County
1970	198			
1980	217			
1990	284			
2000	446			
2005	494	468	506	503
2010	548	489	559	547
2015	591	530	635	583
2020	624	570	720	619
2025	628			

Sources: U.S. Bureau of the Census, 1970-2000. Village of Sister Bay 20-Year Comprehensive Plan, October 2003, prepared by Bay-Lake Regional Planning Commission.

3.2.3 Customer Growth Projections Used for Calculating Impact Fees

The increase in households to the year 2025 using the housing driven customer growth was more than the population driven estimates of future customers. The more conservative estimates shown in the population drive analysis will be used to determine the impact fee to increase the level of confidence that the project costs will be collected from impact fees. Therefore, the average number of permanent additional customers is projected to be the average of the high and low calculated to be 208 in the Village of Sister Bay and 88 in the Town of Liberty Grove. The maximum summertime customers are then estimated to be twice the wintertime permanent customers of 416 in the Village of Sister Bay and 176 in the Town of Liberty Grove.

4 Water Facilities Prior to Improvements

The existing water system was constructed starting in 1972. In 1995 and again in 2000 a Water System report was prepared by Robert E. Lee & Associates, Inc. Information as to the description of facilities constructed at that time, the design capacities, and cost allocations was used for this report as updated by their 2004 letter report.

The first storage tank was built in 1972 as part of the original construction and had a capacity of 100,000 gallons. The elevated storage tank was built in 1996 and has 150,000 gallons of capacity.

Currently, the system is experiencing some pressure fluctuations at the outer edges of the system and fire flows may not be sufficient in all areas.

5 New Water System Improvements

5.1 Description of Improvements

The project would consist of a 150,000 gallon elevated storage tank built from steel. The location of the tower would be determined by the 2006 Comprehensive Utilities Master Plan.

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5.1.1 System Improvements

The 2000 Water System report identified a series of distribution system improvements that would be required for the expected growth. They are detailed in that report (using 2000 costs) and summarized below:

- Westwood Drive – West Little Sister Road \$206,685
- Future Expansion Northeast Residential \$680,873
- Smith Drive – Orchard Drive \$27,068
- Fieldcrest Road \$144,653
- Woodcrest Road – Smith Drive \$166,388
- Woodcrest Road \$218,734
- Highway 57 – Fieldcrest Road \$124,335
- Fieldcrest Road – Country Lane \$138,375
- Country Lane \$241,245
- Country Lane – Highway 42 \$27,405
- Fieldcrest – Bay Shore Drive \$241,245
- Highway 57 – Flint Ridge Road \$152,348
- Fieldcrest – Flint Ridge Road \$102,938
- Woodcrest – Smith Drive Phase 2 \$144,059

These projects would normally be fully assessable to the abutting property owners, except circumstances may occur under which the Village would want to oversize the pipe sizes or fund costs which would not otherwise be assessable.

5.2 Service Area

The water system in general currently serves the entire Village of Sister Bay except for the southern portion of the village, generally south of Cherrywood Lane, and to the east, generally east of Woodcrest Road. The system also serves the Liberty Grove Sanitary District.

The existing elevated storage tank has a capacity of 150,000 gallons and the existing standpipe has a 100,000 gallons capacity for a total of 250,000 gallons of elevated storage. Based upon future water storage projections from the 2000 Water System Study the projected need for storage is 612,000 gallons. In order to meet the ISO fire flow requirement of 3,500 gallons per minute for three hours the Village needs to provide an additional 375,000 gallons of elevated storage.

5.3 Service Standard

The service standard for the purposes of determining the impact fee is based on the estimated average water usage per day per customer. Water facilities are generally designed for a 20-year life and therefore should be paid for over that time frame. Also, financing for the facility is over a 20-year time frame and impact fees should pay the appropriate share within that time frame. Therefore, the impact fee should be collected by the year 2025 in an amount sufficient to pay for the appropriated capital costs. The impact fee should then be based on the lesser number of customers determined by calculating the number of customers that could be accommodated by the available capacity in the water system or the average number of additional housing units projected to the year 2025.

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6 Improvement Capital Costs

6.1 Capital Costs

The Impact Fee Statute states the costs that can be included to accommodate land development. These costs include cost to construct, expand, or improve public facilities; cost of land; legal costs; and engineering and design costs. The capital costs used to calculate the impact fee includes construction costs and engineering costs. The estimated costs for the water tower and system improvements were provided by the Village of Sister Bay in Table 6-1.

**Table 6-1
Water System Improvement Capital Costs**

Description	Cost	Amount Attributed Existing Customers	to Amount Attributed Future Customers	to
150,000 gallon tower	\$425,000	\$85,000	\$340,000	
Site work	\$10,000	\$2,000	\$8,000	
Connection to system	\$10,000	\$2,000	\$8,000	
Control systems	\$25,000	\$5,000	\$20,000	
System Improvements	\$200,000	\$100,000	\$100,000	
Inflation Impact	\$67,000	\$13,400	\$53,600	
Contingencies	\$67,000	\$13,400	\$53,600	
Land	\$50,000	\$10,000	\$40,000	
Total Construction Cost	\$854,000	\$230,000	\$623,200	
Engineering Costs	\$100,500	\$25,000	\$75,500	
Total Costs	\$954,500	\$255,800	\$698,700	

The water tower and system improvements costs are split between existing customers and future customers on a 20/80 split except for the system improvements which are allocated 50/50. The engineering costs were prorated based on the proportion of construction costs.

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**Table 6-2
Water Sales and Pumping Volumes**

Water Sales					
Year	Total Sales	Village	District	VSF %	SD %
2000	57,764	50,730	7,034	87.8%	12.2%
2001	63,789	56,423	7,366	88.5%	11.5%
2002	63,289	55,911	7,378	88.3%	11.7%
2003	65,330	57,745	7,585	88.4%	11.6%
2004	61,998	54,070	7,928	87.2%	12.8%
2005					
Five Year Average	62,434	54,976	7,458	88.1%	11.9%
Three Year Average	63,539	55,909	7,630	88.0%	12.0%

The volumes were taken from the annual Public Service Commission annual reports.

The Town of Liberty Grove does not receive any water from the system so they are excluded from the calculations. The overall design capacity allocation was determined as:

Village of Sister Bay	87.99%
Town of Liberty Grove	0%
Liberty Grove Sanitary District	12.01%

This same allocation should be used to recover the capital costs associated with new development from impact fees. Therefore, proportionate share of each entity is as follows:

Village of Sister Bay	\$614,794
Town of Liberty Grove	\$0
Liberty Grove Sanitary District	<u>\$ 83,906</u>
Total Amount	\$698,700

6.2 Water tower and system improvements Impact Fee

The following methodology used to calculate the growth in the service area is the same one used for the recently adopted Wastewater Treatment Plant Impact fee.

In 2003 the average annual water use was 177,466 gallons per day for an average 960 customers within the Village of Sister Bay and the Liberty Grove Sanitary District. By allocation, the 960 customers represent 59.3% of the total capacity. In 2003 it was reported that the wastewater treatment plant was operating at approximately 50% capacity and water records for the Village of Sister Bay and the Liberty Grove Sanitary District verify approximately 50% of their allocated capacity. This would indicate that an additional 960 customers could be added between the Village and the Sanitary District. Projected growth does not indicate this much growth. Therefore, the impact fee to cover the costs associated with new development is determined based on a payback by 2025 to coincide with design life and the financing term. The impact fee basis should

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be the projected maximum number of new customers by the year 2025. The estimate can be directly determined for the Village of Sister Bay, but there is no direct estimate of how many customers in the Town of Liberty Grove will be in the Sanitary District. Therefore, the estimated growth in customers in the Sanitary District will be in the same proportion as the water sales which, calculates a maximum of 20 new customers in the Sanitary District and 156 new customers in the Town. The calculated impact fee to be assessed to new development is shown in Table 6-3.

**Table 6-3
Calculated Impact Fee for Each Governmental Entity**

Governmental Entity	Capital Costs	Maximum No. of New Customers	Calculated Impact Fee
Village of Sister Bay	\$614,794	416	\$1,478
Town of Liberty Grove	\$0	156	\$0
Liberty Grove Sanitary District	\$83,906	20	\$4,195

To be consistent with charging an impact fee per a residential user equivalent, it is recommended that the impact fee be assessed for the Village based on the “residential meter equivalent” as shown in the Village of Sister Bay Wastewater Management User Charge System. It is also recommended that the Liberty Grove Sanitary District also impose an impact fee based upon the same methodology as the Village. The potential growth in the service area proposed in the ongoing comprehensive water system study could lead to a situation where the Town of Liberty Grove also impose an impact fee within the area of the Town inside the study area outside the existing boundaries of the Sanitary District. Any increase in the potential number of customers above reduces the impact fee for the communities.

6.3 Effect of Impact Fees on Housing Affordability

As stated in the Village of Sister Bay 2003 Comprehensive Plan, in the year 2000 the housing units in Sister Bay were valued between \$200,000 and \$299,000. It was also stated that the Village of Ephraim had similar home values. In 2003 there were four new building constructed in the Village of Ephraim at an average cost of \$333,800. The proposed impact fees are in the neighborhood of 0.4% of the housing unit values. Therefore, the imposition of impact fees will have a minimal effect on housing affordability.

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