
Report on Updated Reserve Capacity Assessments for Sewer and Water Facilities

Prepared for the

Village of Sussex

by Trilogy Consulting, LLC

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INTRODUCTION

Under Wisconsin Statutes §66.0703, municipalities have the authority to levy and collect special assessments within a limited and determinable area for special benefits conferred upon the property by any municipal work or improvement. If the assessment is imposed under the municipality's police power, the assessment must be made on a reasonable basis, but is not required to be limited to the specific value of the benefits accruing to each property.

In 1976, the Village of Sussex first imposed Reserve Capacity Assessments (RCA's) upon properties connecting to the Village's sanitary sewer and water system. These properties receive a special benefit from the availability of excess capacity in the Village's sanitary sewer and water systems.

The basis for the assessments is the value of the excess capacity in the sanitary sewer and water facilities serving the entire system. These system-wide facilities include wastewater treatment facilities, wells, water towers, interceptor sewers and the oversizing of water mains. The intent of the assessments is that properties obtaining new or additional sanitary sewer or water service are required to buy into the amount of system-wide reserve capacity required to serve their development. The amount of capacity required for each new development is determined based on estimated water and sewer usage, which is equated to a per Residential Equivalent Connection (REC) for sewer usage and an equivalent residential water meter for water usage. A REC is defined as the amount of water used by one single-family home on an annual basis. The Reserve Capacity Assessments are levied in addition to any requirements by the Village to provide or pay for collector sewers or water distribution mains to serve specific properties.

In 1996, 2005, and 2012, the amounts of the assessments were reviewed and updated due to new capital improvements completed or anticipated by the Village. This report re-evaluates the amounts of the assessments based on the costs of major capital improvements completed since 2011 and additional planned improvements.

The area for which it is proposed that the recommended Reserve Capacity Assessment be levied includes all properties within the Village of Sussex, and for sanitary sewer facilities, properties in the Lisbon Sanitary District No. 1 that are included in the Village Growth Area as defined in the Boundary Stipulation and Intergovernmental Cooperation Agreement between the Village of Sussex and the Town of Lisbon ("Boundary Agreement") and the extraterritorial sewer service area depicted in Exhibit F of the Boundary Agreement, that are not yet connected to the municipal sanitary sewer or water system or which have a change in use requiring additional water or sewer service. These properties benefit from the provision of excess capacity in the system-wide sanitary sewer and water facilities provided by the Village and the improvements

and the Reserve Capacity Assessments constitute an exercise of the Village's police powers under Wisconsin Statutes §66.0703.

IMPETUS FOR STUDY

The utilities have gone several years since formally updating the amount of the assessments and are planning on significant capital investment in the upcoming years for water and wastewater main replacements, upgrades to two wells for radium treatment, an additional well to replace 3 older wells, and upgrades to the Wastewater Treatment Facility. For these reasons, the Village hired Trilogy Consulting to conduct an analysis to update the amount of the assessments. The study consisted of determining recommended RCAs based on detailed costs of assets put in place since the last study was performed, plus inclusion of planned projects that are either under construction or planned in the next few years. A projection of RCAs was prepared to the year 2025.

RESERVE CAPACITY ASSESSMENT FOR EXISTING WASTEWATER TREATMENT FACILITIES

Sussex owns and operates the Sussex Regional Wastewater Treatment Facility (WWTF), which serves the Village of Sussex, the Lisbon Sanitary District No. 1 ("Lisbon SD1"), and areas in the Village of Menomonee Falls, the Village of Lannon and the Town of Lisbon ("Lisbon").

The WWTF was completed in 1995 with a rated capacity of 3.2 million gallons per day. Under intermunicipal agreements, the Village of Menomonee Falls, the Village of Lannon and the Town of Lisbon each agreed to pay upfront for a percentage of the capacity of the new WTF. The Village of Sussex paid for capacity to serve both the Village of Sussex and the majority of the Lisbon SD1. Because the WWTF that was constructed at that time almost entirely replaced the previous facility, each municipality paid for a percentage of the cost equal to their percentage share of reserved capacity.

In 2007 the Village began a major upgrade and expansion to the WWTF, which was completed in 2008, expanding the capacity to 5.1 million gallons per day. Under the terms of the intermunicipal agreement, each party paid for a share of the upgrade costs in proportion to their share of previously purchased capacity. Each party also had the option to purchase additional capacity. Those that did so were required to pay for the expansion costs in proportion to the percentage of incremental new capacity purchased. Since the recent improvements included both upgrade and expansion costs that were paid for on different bases, the percentage of total costs incurred by each party for that project was different than the percentage share of capacity in the facility.

Exhibit 1 summarizes the total capacity of the WWTF, the amount of capacity purchased by each municipality, the number of Residential Equivalent Connections that could be served by each municipality's capacity, and the percentage of the cost paid for by the Village of Sussex and Lisbon SD1 for the 1995 WWTF and the 2007 expansion and upgrade.

The original cost of the existing assets installed prior to the 2007 facility upgrade was \$12,554,806. These costs were adjusted to a current value of \$30,118,808 in terms of 2018 dollars using the Engineering News Record (ENR) construction cost index for Minneapolis, as shown in Exhibit 2. The Village of Sussex, including the majority of Lisbon SD1, paid for 66.25 percent of cost of the pre-2007 assets and the remainder of the cost was paid for by the other service area municipalities. Therefore, only the capital costs assigned to the Village of Sussex, and that portion of Lisbon SD 1 that did not finance its portion of project costs, are recovered through the RCA fee. The calculated fee per REC is shown on Exhibit 2.

The original cost of assets installed as part of the most recent expansion and upgrade, and other minor improvements completed since then, is \$8,195,270. The current value of the post-2007 assets is \$12,019,122, as adjusted using the ENR Minneapolis construction cost index and shown in Exhibit 3. Sussex and Lisbon SD1 paid for 46.66 percent of the total cost of the 2007 WWTF expansion and upgrades, in accordance with intermunicipal agreements. The fee per REC is shown on Exhibit 3 and is calculated by dividing the adjusted share of WWTF costs attributable to Sussex and Lisbon SD1 by the amount of total WWTF capacity allocated to Sussex and Lisbon SD1.

RESERVE CAPACITY ASSESSMENT FOR INTERCEPTOR SEWER FACILITIES

The Village of Sussex sanitary sewer interceptor system serves the Village of Sussex, the Lisbon SD1 and a portion of the Town of Lisbon. The RCA for existing and planned sewer interceptor facilities includes the total cost for all existing sanitary sewer interceptor assets as well as planned interceptors.

While the sewer interceptor system serves Sussex, Lisbon SD1 and a portion of the Town of Lisbon, the RCA fee for interceptor facilities is recovered only from residents and business owners inside the Village of Sussex, and from Lisbon SD1 through an intermunicipal agreement. The costs of any future interceptor facilities that benefit portions of other portions of the Town of Lisbon will be recovered directly from the Town of Lisbon through an intermunicipal agreement. Each project to serve the Town of Lisbon will serve different portions of the Town; therefore a study will be done for each of those projects as it moves forward to determine what, if any, costs will need to be covered by the potential users of the facilities and the most effective and fair means to do so. Such complexities make it unreasonable to include those costs and fee impacts in this

RCA study. It is therefore appropriate to identify the amount of capacity in the interceptor system allocated solely to the Village of Sussex and Lisbon SD 1 for the purposes of calculating the RCA fee for interceptor facilities.

The number of RECs of capacity allocated to Sussex and Lisbon SD1 at the WWTF (9,366 RECs) is the total number of RECs used to calculate the interceptor system RCA fee for interceptors serving the Village and Lisbon SD1 since it represents the total planned capacity needed to serve both communities through at least the planning horizon of this study.

Exhibit 4 shows the calculation of the RCA fee for all existing and planned interceptor facilities. The original cost of \$6,501,066 of existing interceptor facilities, net of developer contributions, costs financed through tax incremental financing, and oversizing costs was brought into 2018 dollars using the ENR Construction Cost Index for the Minneapolis region. An additional \$37,230 of oversizing costs for a future planned interceptor was also included in the fee. The \$16,508,983 in 2018 dollars, divided by 9,366 RECs, yields the RCA fee per REC shown on Exhibit 4.

TOTAL RCA FOR SEWER FACILITIES

The total RCA fee per REC for all sanitary sewer facilities, which includes the existing Wastewater Treatment Facility and existing and planned sewer interceptor facilities, is shown on Exhibit 5. It is recommended that each single-family dwelling unit be assessed for one REC and each multi-family unit be assessed for 0.75 RECs per unit. The number of RECs for nonresidential uses should be determined based on estimated annual sewer usage, divided by 52,000 gallons.

RESERVE CAPACITY ASSESSMENT FOR WATER SYSTEM FACILITIES

The Village water supply and distribution system serves only the residents and businesses of the Village of Sussex. Therefore, the RCA fee for water facilities is assessed only to properties within Village boundaries. The total RCA fee for water facilities has two components, an RCA fee for water assets that existed as of 2007, and an RCA fee for assets installed after 2007 as well as for planned future water assets.

As shown in Exhibit 6, as of 2007 the Village water system could supply peak day water demands of 3.053 million gallons per day, which equates to approximately 7,633 RECs. In 2007 and 2008 the Village constructed two new wells that expanded the total capacity of the Village water supply and distribution system to 3.391 million gallons per day, or 8,478 RECs.

The original cost of water system assets as of 2007, net of developer contributions, costs financed through tax incremental financing, estimated oversizing costs for watermains larger than 8 inches in diameter, and assets associated with Wells 1, 2, and 3 that will be replaced by Well No. 8, was

\$4,701,134. This cost converted to 2018 dollars using the ENR Construction Cost Index for the Minneapolis region is \$10,147,128. The 2018 value of these assets divided by 7,633 RECs yields the RCA fee per REC shown on Exhibit 7.

The original cost of assets installed in 2007 or later, net of developer contributions, costs financed through tax incremental financing, estimated oversizing costs for watermains larger than 8 inches in diameter, and assets that will be replaced in connection with construction of Well 8, was \$2,517,495. This cost converted to 2018 dollars is \$3,372,212. The Village also plans to construct treatment systems at Wells 4 and 5 and a new Well 8 to replace Wells 1, 2, and 3, and to replace large diameter watermain in Maple Avenue over the next several years. These improvements, including the oversizing portion of the Maple Avenue watermain, have total estimated costs of \$10,512,488. The total cost of post-2007 improvements, divided by 8,478 RECs, yields the RCA fee per shown on Exhibit 8.

TOTAL RESERVE CAPACITY ASSESSMENT FOR WATER FACILITIES

The total RCA fee for all water facilities is shown on Exhibit 9. The RCA fees per REC are converted into an RCA fee per equivalent meter size. The Village has historically collected the water RCA fee on the basis of water meter size, and the equivalency factors are consistent with the Village's current RCA fee.

IMPLEMENTATION

It is recommended that the Village defer the Reserve Capacity assessments until such time as one of the following occur: certified survey map approval; final subdivision plat approval; connection to the sanitary sewer or water system; or issuance of a building or plumbing permit. The amount of the deferred assessments is recommended to increase each year in accordance with the schedules contained in Exhibits 5 and 9.

It is also recommended that the Village levy an additional reserve capacity assessment when a property has a change in use that results in an increase in water or sewer usage. The following policy guidelines are recommended for imposing RCAs for a change in use:

- Additional RCAs for a change in use should only be charged if there is a change in the type of land use, modifications or expansions to the structure(s) that require a building or plumbing permit or redevelopment of the property, in the case of sewer RCAs, or installation of a larger water meter in the case of water RCAs. Increased water or sewer usage due to a change in the volume of business or similar factors that do not involve a change in the nature of the nonresidential use or modifications to the building should not result in an additional RCA. These changes are less likely to be permanent and

administratively collecting increased RCA fees in those situations would hinder economic growth, be administratively burdensome to both the business and the Village, and likely lead to overcharging as individual business situations change in real time. This situation is similar to the single-family residential situation, where the same sewer RCA is charged for each single-family residence regardless if there are 2 residents or 6, etc., and the number of residents can change regularly over time without an additional RCA charge.

- The amount of the RCA should only be based on the incremental increase in RECs for purposes of sewer RCAs or water meter size for purposes of water RCAs.
- The incremental increase in RECs or water meter size should be based on the estimated RECs for the previous use if no RCAs have been paid for the property (i.e. properties developed prior to the establishment of the RCA).
- For properties that have paid RCAs, the incremental increase should be based on the change in the number of RECs or the water meter size since the RCAs were paid (which may be different than the most recent use of the property).
- If a property is redeveloped, the incremental increase in RECs or water meter size should be computed based on the difference between the use or number of RCAs paid for the existing building and the estimated use of the new building.
- The RCAs paid for a property should be credited to the property as a whole, not to any individual buildings, rental units or tenants on the property.
- No RCAs shall be refunded for a change in use that results in a decrease in water or sewer usage. However, the property should retain the right to use of the water and sewer system equal to the quantity of any RCAs previously paid.

Village of Sussex
2018 Update to Sewer and Water Reserve Capacity Assessments

Exhibit 1
Sussex Wastewater Treatment Facility Capacity

Municipality/Sanitary District	Pre-2007 Capacity Analysis			Post-2007 Capacity Analysis		
	MGD ⁽¹⁾	RECs ⁽²⁾	Percent	MGD ⁽³⁾	RECs ⁽²⁾	Percent
Village of Sussex	1.85	6,167	57.81%	2.50	8,333	49.02%
Town of Lisbon	0.23	767	7.19%	0.89	2,967	17.45%
Town of Lisbon SD1	0.27	900	8.44%	0.31	1,033	6.08%
Village of Lannon	0.30	1,000	9.37%	0.30	1,000	5.88%
Village of Menomonee Falls	0.55	1,833	17.18%	1.10	3,667	21.57%
Total	3.20	10,667	100.00%	5.10	17,000	100.00%
Sussex and Lisbon SD1 share of total capacity		7,067	66.25%		9,366	55.10%
Sussex and Lisbon SD1 share of total cost of 2008 WWTF upgrades ⁽⁴⁾			66.25%			46.66%

Notes:

(1) Source: Village of Sussex 2005 Report on Reserve Capacity Assessments for Sanitary Sewer and Water System Facilities, Village of Sussex, Wisconsin. Prepared by Ruckert/Mielke. February 15, 2005.

(2) One Residential Equivalent Connection (REC) is defined as the amount of wastewater generated by a single-family household including inflow and infiltration - 300 gallons per day.

(3) Village of Sussex Staff, June, 2012.

(4) The pre-2007 share of total WTF costs are taken from the Village of Sussex 2005 Report on Reserve Capacity Assessments for Sanitary Sewer and Water System Facilities, Village of Sussex, Wisconsin. Prepared by Ruckert/Mielke. February 15, 2005. The post-2007 percent of total costs come from Village Staff as of June, 2012.

Exhibit 2

Reserve Capacity Assessment for Pre-2007 Wastewater Treatment Facility Capacity Assets

Year	Adjusted Cost - Beginning of Year ⁽²⁾	33.75% Non- Sussex Share ⁽³⁾	Net Sussex/LSD 1 Share	Sussex/LSD 1 Capacity (RECs)	RCA Fee per REC
2018 ⁽¹⁾	\$30,118,808	(\$10,165,098)	\$19,953,710	7,067	\$2,824
2019	\$31,022,372	(\$10,470,051)	\$20,552,321	7,067	\$2,908
2020	\$31,953,043	(\$10,784,152)	\$21,168,891	7,067	\$2,995
2021	\$32,911,634	(\$11,107,676)	\$21,803,958	7,067	\$3,085
2022	\$33,898,983	(\$11,440,907)	\$22,458,076	7,067	\$3,178
2023	\$34,915,952	(\$11,784,134)	\$23,131,818	7,067	\$3,273
2024	\$35,963,431	(\$12,137,658)	\$23,825,773	7,067	\$3,371
2025	\$37,042,334	(\$12,501,788)	\$24,540,546	7,067	\$3,473

Notes:

(1) Original cost of \$12,554,806 inflated to December, 2017 dollars using the Engineering News Record (ENR) Minneapolis Construction Cost Index (CCI).

(2) Adjusted cost based on inflation rate of 3.0%.

(3) The Sussex and Town of Lisbon SD 1 share of WWTF capacity and total share of WWTF costs taken from the 2005 Report on Reserve Capacity Assessments for Sanitary Sewerage and Water System Facilities Village of Sussex, Wisconsin. Completed by Ruekert/Mielke, February 2, 2005.

Exhibit 3

Reserve Capacity Assessment for Post-2007 Wastewater Treatment Facility Capacity Assets

Year	Adjusted Cost - Beginning of Year ⁽²⁾	53.34% Non- Sussex Share ⁽³⁾	Net Sussex/LSD 1 Share	Sussex/LSD 1 Capacity (RECs)	RCA Fee per REC
2018 ⁽¹⁾	\$12,019,122	(\$6,411,000)	\$5,608,122	9,366	\$599
2019	\$12,379,696	(\$6,603,330)	\$5,776,366	9,366	\$617
2020	\$12,751,087	(\$6,801,430)	\$5,949,657	9,366	\$635
2021	\$13,133,620	(\$7,005,473)	\$6,128,147	9,366	\$654
2022	\$13,527,629	(\$7,215,637)	\$6,311,992	9,366	\$674
2023	\$13,933,458	(\$7,432,106)	\$6,501,352	9,366	\$694
2024	\$14,351,462	(\$7,655,070)	\$6,696,392	9,366	\$715
2025	\$14,782,006	(\$7,884,722)	\$6,897,284	9,366	\$736

Notes:

(1) Original cost of \$8,195,270 inflated to December, 2017 dollars using the Engineering News Record (ENR) Minneapolis Construction Cost Index (CCI).

(2) Adjusted cost based on inflation rate of 3.0%.

(3) The Village of Sussex and Lisbon SD 1 paid for approximately 46.66% of the cost of the WTF upgrade and expansion project. Source: Village staff.

Exhibit 4

Reserve Capacity Assessment for Total Sanitary Sewer Interceptor System Assets

Year	Adjusted Cost - Beginning of Year ⁽²⁾	System Capacity (RECs)	RCA Fee per REC
2018 ⁽¹⁾	\$16,508,983	9,366	\$1,763
2019	\$17,004,252	9,366	\$1,816
2020	\$17,514,380	9,366	\$1,870
2021	\$18,039,811	9,366	\$1,926
2022	\$18,581,005	9,366	\$1,984
2023	\$19,138,436	9,366	\$2,043
2024	\$19,712,589	9,366	\$2,105
2025	\$20,303,966	9,366	\$2,168

Notes:

(1) Original cost net of costs financed by TIF or developers of \$6,501,066 inflated to December, 2017 dollars using the Engineering News Record (ENR) Minneapolis Construction Cost Index (CCI), plus \$37,230 of oversizing costs for future interceptor to serve the Frantl property.

(2) Adjusted cost based on inflation rate of 3.0%.

Exhibit 5

Total Reserve Capacity Assessment for Sanitary Sewer System Capacity

Year	Pre-2007	Post-2007	Interceptors	Total
	Wastewater Treatment Facility	Wastewater Treatment Facility		
2018	\$2,824	\$599	\$1,763	\$5,186
2019	\$2,908	\$617	\$1,816	\$5,341
2020	\$2,995	\$635	\$1,870	\$5,500
2021	\$3,085	\$654	\$1,926	\$5,665
2022	\$3,178	\$674	\$1,984	\$5,836
2023	\$3,273	\$694	\$2,043	\$6,010
2024	\$3,371	\$715	\$2,105	\$6,191
2025	\$3,473	\$736	\$2,168	\$6,377

Exhibit 6
Village of Sussex Water System Capacity

	2007 System Capacity ⁽¹⁾	Current System Capacity ⁽²⁾
Peak System Capacity (MGD)	3.053	3.391
Max Day Pumpage per Customer	400	400
Total System Capacity	7,633	8,478

Notes:

(1) Source: 2005 Report on Reserve Capacity Assessments for Sewerage and Water Facilities for the Village of Sussex. Ruckert/Mielke.

(2) Source: 2017 Village of Sussex PSC Annual Report, Page W-20.
Includes the capacity of all wells assuming the largest well (Well 4) is out of service.

Exhibit 7
Reserve Capacity Assessment for Pre-2007 Water System Capacity

Year	Adjusted Cost - Beginning of the Year ⁽²⁾	System Capacity (RECs)	RCA Fee per REC
2018 ⁽¹⁾	\$10,147,128	7,633	\$1,329
2019	\$10,451,542	7,633	\$1,369
2020	\$10,765,088	7,633	\$1,410
2021	\$11,088,041	7,633	\$1,453
2022	\$11,420,682	7,633	\$1,496
2023	\$11,763,302	7,633	\$1,541
2024	\$12,116,201	7,633	\$1,587
2025	\$12,479,687	7,633	\$1,635

Notes:

(1) Original cost of \$4,701,134 inflated to December, 2017 dollars using the Engineering News Record (ENR) Minneapolis Construction Cost Index (CCI).

(2) Adjusted cost based on inflation rate of 3.0%.

Exhibit 8

Reserve Capacity Assessment for Post-2007 and Planned Water System Capacity

Year	Adjusted Cost - Beginning of the Year ⁽²⁾	System Capacity (RECs)	RCA Fee per REC
2018 ⁽¹⁾	\$13,884,699	8,478	\$1,638
2019	\$14,301,240	8,478	\$1,687
2020	\$14,730,277	8,478	\$1,737
2021	\$15,172,185	8,478	\$1,790
2022	\$15,627,351	8,478	\$1,843
2023	\$16,096,172	8,478	\$1,899
2024	\$16,579,057	8,478	\$1,956
2025	\$17,076,429	8,478	\$2,014

Notes:

(1) Original cost of \$2,517,495 of assets constructed in 2007 or later, inflated to December, 2017 dollars using the Engineering News Record (ENR) Minneapolis Construction Cost Index (CCI), plus \$10,512,488 of planned assets .

(2) Adjusted costs based on inflation rate of 3.0%.

Exhibit 9

Total Reserve Capacity Assessment for Water System Capacity

Year	5/8 - inch	1 - inch	1 1/4 - inch	1 1/2 inch	2 - inch	3 - inch	4 - inch	6 - inch
2018	\$2,967	\$4,954	\$7,416	\$9,878	\$19,783	\$47,457	\$83,050	\$177,967
2019	\$3,056	\$5,102	\$7,638	\$10,174	\$20,377	\$48,881	\$85,542	\$183,306
2020	\$3,148	\$5,255	\$7,867	\$10,479	\$20,988	\$50,348	\$88,108	\$188,805
2021	\$3,242	\$5,413	\$8,103	\$10,794	\$21,617	\$51,858	\$90,751	\$194,469
2022	\$3,339	\$5,575	\$8,346	\$11,118	\$22,266	\$53,414	\$93,474	\$200,303
2023	\$3,440	\$5,743	\$8,597	\$11,451	\$22,934	\$55,016	\$96,278	\$206,312
2024	\$3,543	\$5,915	\$8,855	\$11,795	\$23,622	\$56,667	\$99,167	\$212,502
2025	\$3,649	\$6,092	\$9,120	\$12,148	\$24,331	\$58,367	\$102,142	\$218,877