



2022 New Housing Fee Report

505 Third Street
Hudson, Wisconsin
www.hudsonwi.gov

January 26, 2023

Contents

Executive Summary.....	3
Housing Fee Report.....	3
Disclaimer.....	3
Residential Development Fees.....	4
Housing Fees Collected, 2022	5
Appendix A: Building Permit Fee Schedule	6
Appendix B: Sewer Service Charges and Connection Fees	12
Appendix C: Sewer Rate and Connection Fees and Study	13

Executive Summary

In 2018, the Wisconsin State Legislature approved new legislation which requires villages and cities of 10,000 population or more to provide prepare and post a "New Housing Fee Report" by January 1, 2020. This document was prepared to meet the requirements for Wis. Stats. 66. 10014 (New housing fee report).

Housing Fee Report

Requirements of this report include the following elements:

- (1) In this section, "municipality" means a city or village with a population of 10,000 or more.*
- (2) Not later than January 1, 2020, a municipality shall prepare a report of the municipality's residential development fees. The report shall contain all of the following:*
 - a. Whether the municipality imposes any of the following fees or other requirements for purposes related to residential construction, remodeling, or development and, if so, the amount of each fee:*
 - 1. Building permit fee.*
 - 2. Impact fee.*
 - 3. Park fee.*
 - 4. Land dedication or fee in lieu of land dedication requirement.*
 - 5. Plat approval fee.*
 - 6. Storm water management fee.*
 - 7. Water or sewer hook-up fee.*
 - b. The total amount of fees under par. (a) that the municipality imposed for purposes related to residential construction, remodeling, or development in the prior year and an amount calculated by dividing the total amount of fees under this paragraph by the number of new residential dwelling units approved in the municipality in the prior year.*
- (3)*
 - a. A municipality shall post the report under sub. (2) on the municipality's Internet site on a web page dedicated solely to the report and titled "New Housing Fee Report." If a municipality does not have an Internet site, the county in which the municipality is located shall post the information under this paragraph on its Internet site on a web page dedicated solely to development fee information for the municipality.*
 - b. A municipality shall provide a copy of the report under sub. (2) to each member of the governing body of the municipality.*
- (4) If a fee or the amount of a fee under sub. (2) (a) is not properly posted as required under sub. (3) (a), the municipality may not charge the fee.*

Disclaimer

This report was prepared in order to meet requirements enacted by 2017 WI Act 243 in Wis. Stat. 66.10014. The City of Hudson imposes the following fees or other requirements for purposes related to residential construction, remodeling, or development. The City of Hudson has made every effort to ensure the accuracy of the information provided in this document. It is not intended to cover all circumstances. Final determination of fees shall be calculated upon submittal.

Residential Development Fees

The fees listed in the table below reflect the City of Hudson's 2022 permit and impact fees. The entire City fee schedule can be found at hudsonwi.gov or by clicking [here](#).

Building Permit Fee	
Permit to Start Construction	\$60.00
Permit – New/Additions/Alterations	Per Schedule (see Appendix A)
Reinspection/Special Inspections	\$60.00
Demolition Permit	\$100.00
Sprinkler/Alarm System – Plan Review & Inspection over \$1,500.00	\$125.00
Sprinkler/Alarm System – Plan Review & Inspection under \$1,500.00	\$65.00
Fire Department Reinspection/Special Inspections	\$60.00
Start Prior to Issuance of Permit: Double for first violation; Triple for subsequent violations.	
Grading Permit	
One and Two Family Residential	\$150.00
Multiple Family, Commercial and Industrial less than 5 acres	\$250.00
Multiple Family, Commercial and Industrial 5 acres +	\$500.00
Impact Fee	
Trunk Sanitary Sewer	Per Schedule (see Appendix B & C)
Trunk Water Main Supply, Storage, and Treatment Facilities	Per Schedule (see Appendix C)
Park Fee	
Open Space/Dwelling Unit Residential	\$822.00
Comm/Industrial Development under 9,999 sq. ft.	\$1,050.00
Comm/Industrial Development 10,000 to 24,999 sq. ft.	\$1,575.00
Comm/Industrial Development over 25,000 sq. ft.	\$2,100.00
Land Dedication or Fee in Lieu of Land Dedication Requirement	
N/A	
Plat Approval Fee	
Certified Survey Map	\$200.00 + \$100.00/lot
Pre-preliminary Plat Review	\$500.00
Preliminary Plat Review	\$750.00 + \$50.00/lot
Preliminary Plat Reapplication	\$50.00/lot
Final Plat Review	\$750.00 + \$50.00/lot
Final Plat Reapplication	\$50.00/lot
Storm Water Management Fee	
Trunk Storm Sewer	Per Schedule (see Appendix B)
Water or Sewer Hook-up Fee	
Sewer Connection Charge	Per Schedule (see Appendix C)

Housing Fees Collected, 2022

The following table illustrated the residential fees imposed by the City of Hudson for purposes related to residential construction, remodeling, or development in the prior year is listed in.

2022 Building Permit Fees

Residential	New Construction		Additions/Alterations/Decks	
	Total Permits	Permit Inspection Fees	Total Permits	Permit Fees
Single Family	7	\$16,355.50	206	\$35,880.00
Two Family	0	\$0.00	0	0
Multi-Family	2 (175 units)	\$93,500.00	6	\$1,792.00
Condominium	0	0	0	0
Total	9 (182 units)	\$109,855.50	212	\$37,672.00
Cost per Permit	\$12,206.17/permit \$603.60/unit		\$177.70/permit	

*Building permits and fees include principal structure and deck permits. Pool and accessory building permits are not included in reported numbers.

2022 Subdivision Fees

Subdivision Type	Applications	Filing Fee
Pre-Preliminary Plat	0	-
Preliminary Plat	1	\$3,300.00
Final Plat	0	-
Certified Survey Map	3	\$1,900.00



Building Permit Fee Schedule¹ Adopted March 12, 2018

Valuation	Multiplier	Minimum Fee ²
\$500 - \$6,000	n/a	\$60
\$6,001 - \$200,000	0.01	\$60
\$200,001 - \$500,000	0.007	\$2,000
\$500,001 - \$2,000,000	0.005	\$3,500
\$2,000,001 - \$30,000,000	0.0034	\$10,000
\$30,000,001 and up	0.0016	\$102,000

¹ Valuation to include everything to construct any given project excluding land cost. Submitted valuation may be verified using nationally recognized construction costs.

² Additional fees may apply including, but not limited to, sewer hook-up, erosion control, open space, etc.

INTERNATIONAL CODE COUNCIL

Building Valuation Data – February 2015

Square Foot Construction Costs ^{a, b, c, d}

Group (2012 International Building Code)	IA	IB	IIA	IIB	IIIA	IIIB	IV	VA	VB
A-1 Assembly, theaters, with stage	229.03	221.51	216.10	207.06	194.68	189.07	200.10	177.95	171.21
A-1 Assembly, theaters, without stage	209.87	202.35	196.94	187.90	175.62	170.01	180.94	158.89	152.15
A-2 Assembly, nightclubs	177.89	172.85	168.07	161.49	151.98	147.78	155.80	137.68	132.99
A-2 Assembly, restaurants, bars, banquet halls	176.89	171.85	166.07	160.49	149.98	146.78	154.80	135.68	131.99
A-3 Assembly, churches	211.95	204.43	199.02	189.98	177.95	172.34	183.02	161.22	154.48
A-3 Assembly, general, community halls, libraries, museums	176.88	169.36	162.95	154.91	141.73	137.12	147.95	125.00	119.26
A-4 Assembly, arenas	208.87	201.35	194.94	186.90	173.62	169.01	179.94	156.89	151.15
B Business	182.89	176.17	170.32	161.88	147.55	142.00	155.49	129.49	123.76
E Educational	195.85	189.10	183.56	175.25	163.21	154.58	169.21	142.63	137.99
F-1 Factory and industrial, moderate hazard	108.98	103.99	97.83	94.17	84.37	80.56	90.16	69.50	65.44
F-2 Factory and industrial, low hazard	107.98	102.99	97.83	93.17	84.37	79.56	89.16	69.50	64.44
H-1 High Hazard, explosives	102.01	97.02	91.86	87.20	78.60	73.79	83.19	63.73	N.P.
H234 High Hazard	102.01	97.02	91.86	87.20	78.60	73.79	83.19	63.73	58.67
H-5 HPM	182.89	176.17	170.32	161.88	147.55	142.00	155.49	129.49	123.76
I-1 Institutional, supervised environment	180.72	174.14	169.28	161.12	149.06	145.04	161.12	133.69	129.43
I-2 Institutional, hospitals	308.50	301.79	295.93	287.50	272.14	N.P.	281.10	254.09	N.P.
I-2 Institutional, nursing homes	213.56	206.85	200.99	192.56	179.22	N.P.	186.16	161.17	N.P.
I-3 Institutional, restrained	208.37	201.66	195.80	187.37	174.54	167.98	180.97	156.48	148.74
I-4 Institutional, day care facilities	180.72	174.14	169.28	161.12	149.06	145.04	161.12	133.69	129.43
M Mercantile	132.61	127.57	121.79	116.21	106.35	103.15	110.52	92.05	88.36
R-1 Residential, hotels	182.28	175.70	170.83	162.68	150.87	146.84	162.68	135.49	131.23
R-2 Residential, multiple family	152.86	146.27	141.41	133.25	122.04	118.01	133.25	106.66	102.41
R-3 Residential, one- and two-family	143.93	139.97	136.51	132.83	127.95	124.61	130.57	119.73	112.65
R-4 Residential, care/assisted living facilities	180.72	174.14	169.28	161.12	149.06	145.04	161.12	133.69	129.43
S-1 Storage, moderate hazard	101.01	96.02	89.86	86.20	76.60	72.79	82.19	61.73	57.67
S-2 Storage, low hazard	100.01	95.02	89.86	85.20	76.60	71.79	81.19	61.73	56.67
U Utility, miscellaneous	77.10	72.64	68.12	64.64	58.13	54.28	61.62	45.49	43.33

- a. Private Garages use Utility, miscellaneous
- b. Unfinished basements (all use group) = \$15.00 per sq. ft.
- c. For shell only buildings deduct 20 percent
- d. N.P. = not permitted

Building Permit Fee Schedule

\$0 - \$175,000

Valuation	Fee	Valuation	Fee	Valuation	Fee	Valuation	Fee	Valuation	Fee
<= \$6,000	\$60	\$40,000	\$400	\$74,000	\$740	\$108,000	\$1,080	\$142,000	\$1,420
\$7,000	\$70	\$41,000	\$410	\$75,000	\$750	\$109,000	\$1,090	\$143,000	\$1,430
\$8,000	\$80	\$42,000	\$420	\$76,000	\$760	\$110,000	\$1,100	\$144,000	\$1,440
\$9,000	\$90	\$43,000	\$430	\$77,000	\$770	\$111,000	\$1,110	\$145,000	\$1,450
\$10,000	\$100	\$44,000	\$440	\$78,000	\$780	\$112,000	\$1,120	\$146,000	\$1,460
\$11,000	\$110	\$45,000	\$450	\$79,000	\$790	\$113,000	\$1,130	\$147,000	\$1,470
\$12,000	\$120	\$46,000	\$460	\$80,000	\$800	\$114,000	\$1,140	\$148,000	\$1,480
\$13,000	\$130	\$47,000	\$470	\$81,000	\$810	\$115,000	\$1,150	\$149,000	\$1,490
\$14,000	\$140	\$48,000	\$480	\$82,000	\$820	\$116,000	\$1,160	\$150,000	\$1,500
\$15,000	\$150	\$49,000	\$490	\$83,000	\$830	\$117,000	\$1,170	\$151,000	\$1,510
\$16,000	\$160	\$50,000	\$500	\$84,000	\$840	\$118,000	\$1,180	\$152,000	\$1,520
\$17,000	\$170	\$51,000	\$510	\$85,000	\$850	\$119,000	\$1,190	\$153,000	\$1,530
\$18,000	\$180	\$52,000	\$520	\$86,000	\$860	\$120,000	\$1,200	\$154,000	\$1,540
\$19,000	\$190	\$53,000	\$530	\$87,000	\$870	\$121,000	\$1,210	\$155,000	\$1,550
\$20,000	\$200	\$54,000	\$540	\$88,000	\$880	\$122,000	\$1,220	\$156,000	\$1,560
\$21,000	\$210	\$55,000	\$550	\$89,000	\$890	\$123,000	\$1,230	\$157,000	\$1,570
\$22,000	\$220	\$56,000	\$560	\$90,000	\$900	\$124,000	\$1,240	\$158,000	\$1,580
\$23,000	\$230	\$57,000	\$570	\$91,000	\$910	\$125,000	\$1,250	\$159,000	\$1,590
\$24,000	\$240	\$58,000	\$580	\$92,000	\$920	\$126,000	\$1,260	\$160,000	\$1,600
\$25,000	\$250	\$59,000	\$590	\$93,000	\$930	\$127,000	\$1,270	\$161,000	\$1,610
\$26,000	\$260	\$60,000	\$600	\$94,000	\$940	\$128,000	\$1,280	\$162,000	\$1,620
\$27,000	\$270	\$61,000	\$610	\$95,000	\$950	\$129,000	\$1,290	\$163,000	\$1,630
\$28,000	\$280	\$62,000	\$620	\$96,000	\$960	\$130,000	\$1,300	\$164,000	\$1,640
\$29,000	\$290	\$63,000	\$630	\$97,000	\$970	\$131,000	\$1,310	\$165,000	\$1,650
\$30,000	\$300	\$64,000	\$640	\$98,000	\$980	\$132,000	\$1,320	\$166,000	\$1,660
\$31,000	\$310	\$65,000	\$650	\$99,000	\$990	\$133,000	\$1,330	\$167,000	\$1,670
\$32,000	\$320	\$66,000	\$660	\$100,000	\$1,000	\$134,000	\$1,340	\$168,000	\$1,680
\$33,000	\$330	\$67,000	\$670	\$101,000	\$1,010	\$135,000	\$1,350	\$169,000	\$1,690
\$34,000	\$340	\$68,000	\$680	\$102,000	\$1,020	\$136,000	\$1,360	\$170,000	\$1,700
\$35,000	\$350	\$69,000	\$690	\$103,000	\$1,030	\$137,000	\$1,370	\$171,000	\$1,710
\$36,000	\$360	\$70,000	\$700	\$104,000	\$1,040	\$138,000	\$1,380	\$172,000	\$1,720
\$37,000	\$370	\$71,000	\$710	\$105,000	\$1,050	\$139,000	\$1,390	\$173,000	\$1,730
\$38,000	\$380	\$72,000	\$720	\$106,000	\$1,060	\$140,000	\$1,400	\$174,000	\$1,740
\$39,000	\$390	\$73,000	\$730	\$107,000	\$1,070	\$141,000	\$1,410	\$175,000	\$1,750

Building Permit Fee Schedule

\$176,000 - \$429,000

Valuation	Fee	Valuation	Fee	Valuation	Fee	Valuation	Fee	Valuation	Fee
\$176,000	\$1,760	\$294,000	\$2,058	\$328,000	\$2,296	\$362,000	\$2,534	\$396,000	\$2,772
\$177,000	\$1,770	\$295,000	\$2,065	\$329,000	\$2,303	\$363,000	\$2,541	\$397,000	\$2,779
\$178,000	\$1,780	\$296,000	\$2,072	\$330,000	\$2,310	\$364,000	\$2,548	\$398,000	\$2,786
\$179,000	\$1,790	\$297,000	\$2,079	\$331,000	\$2,317	\$365,000	\$2,555	\$399,000	\$2,793
\$180,000	\$1,800	\$298,000	\$2,086	\$332,000	\$2,324	\$366,000	\$2,562	\$400,000	\$2,800
\$181,000	\$1,810	\$299,000	\$2,093	\$333,000	\$2,331	\$367,000	\$2,569	\$401,000	\$2,807
\$182,000	\$1,820	\$300,000	\$2,100	\$334,000	\$2,338	\$368,000	\$2,576	\$402,000	\$2,814
\$183,000	\$1,830	\$301,000	\$2,107	\$335,000	\$2,345	\$369,000	\$2,583	\$403,000	\$2,821
\$184,000	\$1,840	\$302,000	\$2,114	\$336,000	\$2,352	\$370,000	\$2,590	\$404,000	\$2,828
\$185,000	\$1,850	\$303,000	\$2,121	\$337,000	\$2,359	\$371,000	\$2,597	\$405,000	\$2,835
\$186,000	\$1,860	\$304,000	\$2,128	\$338,000	\$2,366	\$372,000	\$2,604	\$406,000	\$2,842
\$187,000	\$1,870	\$305,000	\$2,135	\$339,000	\$2,373	\$373,000	\$2,611	\$407,000	\$2,849
\$188,000	\$1,880	\$306,000	\$2,142	\$340,000	\$2,380	\$374,000	\$2,618	\$408,000	\$2,856
\$189,000	\$1,890	\$307,000	\$2,149	\$341,000	\$2,387	\$375,000	\$2,625	\$409,000	\$2,863
\$190,000	\$1,900	\$308,000	\$2,156	\$342,000	\$2,394	\$376,000	\$2,632	\$410,000	\$2,870
\$191,000	\$1,910	\$309,000	\$2,163	\$343,000	\$2,401	\$377,000	\$2,639	\$411,000	\$2,877
\$192,000	\$1,920	\$310,000	\$2,170	\$344,000	\$2,408	\$378,000	\$2,646	\$412,000	\$2,884
\$193,000	\$1,930	\$311,000	\$2,177	\$345,000	\$2,415	\$379,000	\$2,653	\$413,000	\$2,891
\$194,000	\$1,940	\$312,000	\$2,184	\$346,000	\$2,422	\$380,000	\$2,660	\$414,000	\$2,898
\$195,000	\$1,950	\$313,000	\$2,191	\$347,000	\$2,429	\$381,000	\$2,667	\$415,000	\$2,905
\$196,000	\$1,960	\$314,000	\$2,198	\$348,000	\$2,436	\$382,000	\$2,674	\$416,000	\$2,912
\$197,000	\$1,970	\$315,000	\$2,205	\$349,000	\$2,443	\$383,000	\$2,681	\$417,000	\$2,919
\$198,000	\$1,980	\$316,000	\$2,212	\$350,000	\$2,450	\$384,000	\$2,688	\$418,000	\$2,926
\$199,000	\$1,990	\$317,000	\$2,219	\$351,000	\$2,457	\$385,000	\$2,695	\$419,000	\$2,933
>= \$200,000	\$2,000	\$318,000	\$2,226	\$352,000	\$2,464	\$386,000	\$2,702	\$420,000	\$2,940
<= \$285,000	\$2,000	\$319,000	\$2,233	\$353,000	\$2,471	\$387,000	\$2,709	\$421,000	\$2,947
\$286,000	\$2,002	\$320,000	\$2,240	\$354,000	\$2,478	\$388,000	\$2,716	\$422,000	\$2,954
\$287,000	\$2,009	\$321,000	\$2,247	\$355,000	\$2,485	\$389,000	\$2,723	\$423,000	\$2,961
\$288,000	\$2,016	\$322,000	\$2,254	\$356,000	\$2,492	\$390,000	\$2,730	\$424,000	\$2,968
\$289,000	\$2,023	\$323,000	\$2,261	\$357,000	\$2,499	\$391,000	\$2,737	\$425,000	\$2,975
\$290,000	\$2,030	\$324,000	\$2,268	\$358,000	\$2,506	\$392,000	\$2,744	\$426,000	\$2,982
\$291,000	\$2,037	\$325,000	\$2,275	\$359,000	\$2,513	\$393,000	\$2,751	\$427,000	\$2,989
\$292,000	\$2,044	\$326,000	\$2,282	\$360,000	\$2,520	\$394,000	\$2,758	\$428,000	\$2,996
\$293,000	\$2,051	\$327,000	\$2,289	\$361,000	\$2,527	\$395,000	\$2,765	\$429,000	\$3,003

Building Permit Fee Schedule \$430,000 - \$1,190,000

Valuation	Fee	Valuation	Fee	Valuation	Fee	Valuation	Fee	Valuation	Fee
\$430,000	\$3,010	\$464,000	\$3,248	\$498,000	\$3,486	\$855,000	\$4,275	\$1,025,000	\$5,125
\$431,000	\$3,017	\$465,000	\$3,255	\$499,000	\$3,493	\$860,000	\$4,300	\$1,030,000	\$5,150
\$432,000	\$3,024	\$466,000	\$3,262	>= \$500,000	\$3,500	\$865,000	\$4,325	\$1,035,000	\$5,175
\$433,000	\$3,031	\$467,000	\$3,269	<= \$700,000	\$3,500	\$870,000	\$4,350	\$1,040,000	\$5,200
\$434,000	\$3,038	\$468,000	\$3,276	\$705,000	\$3,525	\$875,000	\$4,375	\$1,045,000	\$5,225
\$435,000	\$3,045	\$469,000	\$3,283	\$710,000	\$3,550	\$880,000	\$4,400	\$1,050,000	\$5,250
\$436,000	\$3,052	\$470,000	\$3,290	\$715,000	\$3,575	\$885,000	\$4,425	\$1,055,000	\$5,275
\$437,000	\$3,059	\$471,000	\$3,297	\$720,000	\$3,600	\$890,000	\$4,450	\$1,060,000	\$5,300
\$438,000	\$3,066	\$472,000	\$3,304	\$725,000	\$3,625	\$895,000	\$4,475	\$1,065,000	\$5,325
\$439,000	\$3,073	\$473,000	\$3,311	\$730,000	\$3,650	\$900,000	\$4,500	\$1,070,000	\$5,350
\$440,000	\$3,080	\$474,000	\$3,318	\$735,000	\$3,675	\$905,000	\$4,525	\$1,075,000	\$5,375
\$441,000	\$3,087	\$475,000	\$3,325	\$740,000	\$3,700	\$910,000	\$4,550	\$1,080,000	\$5,400
\$442,000	\$3,094	\$476,000	\$3,332	\$745,000	\$3,725	\$915,000	\$4,575	\$1,085,000	\$5,425
\$443,000	\$3,101	\$477,000	\$3,339	\$750,000	\$3,750	\$920,000	\$4,600	\$1,090,000	\$5,450
\$444,000	\$3,108	\$478,000	\$3,346	\$755,000	\$3,775	\$925,000	\$4,625	\$1,095,000	\$5,475
\$445,000	\$3,115	\$479,000	\$3,353	\$760,000	\$3,800	\$930,000	\$4,650	\$1,100,000	\$5,500
\$446,000	\$3,122	\$480,000	\$3,360	\$765,000	\$3,825	\$935,000	\$4,675	\$1,105,000	\$5,525
\$447,000	\$3,129	\$481,000	\$3,367	\$770,000	\$3,850	\$940,000	\$4,700	\$1,110,000	\$5,550
\$448,000	\$3,136	\$482,000	\$3,374	\$775,000	\$3,875	\$945,000	\$4,725	\$1,115,000	\$5,575
\$449,000	\$3,143	\$483,000	\$3,381	\$780,000	\$3,900	\$950,000	\$4,750	\$1,120,000	\$5,600
\$450,000	\$3,150	\$484,000	\$3,388	\$785,000	\$3,925	\$955,000	\$4,775	\$1,125,000	\$5,625
\$451,000	\$3,157	\$485,000	\$3,395	\$790,000	\$3,950	\$960,000	\$4,800	\$1,130,000	\$5,650
\$452,000	\$3,164	\$486,000	\$3,402	\$795,000	\$3,975	\$965,000	\$4,825	\$1,135,000	\$5,675
\$453,000	\$3,171	\$487,000	\$3,409	\$800,000	\$4,000	\$970,000	\$4,850	\$1,140,000	\$5,700
\$454,000	\$3,178	\$488,000	\$3,416	\$805,000	\$4,025	\$975,000	\$4,875	\$1,145,000	\$5,725
\$455,000	\$3,185	\$489,000	\$3,423	\$810,000	\$4,050	\$980,000	\$4,900	\$1,150,000	\$5,750
\$456,000	\$3,192	\$490,000	\$3,430	\$815,000	\$4,075	\$985,000	\$4,925	\$1,155,000	\$5,775
\$457,000	\$3,199	\$491,000	\$3,437	\$820,000	\$4,100	\$990,000	\$4,950	\$1,160,000	\$5,800
\$458,000	\$3,206	\$492,000	\$3,444	\$825,000	\$4,125	\$995,000	\$4,975	\$1,165,000	\$5,825
\$459,000	\$3,213	\$493,000	\$3,451	\$830,000	\$4,150	\$1,000,000	\$5,000	\$1,170,000	\$5,850
\$460,000	\$3,220	\$494,000	\$3,458	\$835,000	\$4,175	\$1,005,000	\$5,025	\$1,175,000	\$5,875
\$461,000	\$3,227	\$495,000	\$3,465	\$840,000	\$4,200	\$1,010,000	\$5,050	\$1,180,000	\$5,900
\$462,000	\$3,234	\$496,000	\$3,472	\$845,000	\$4,225	\$1,015,000	\$5,075	\$1,185,000	\$5,925
\$463,000	\$3,241	\$497,000	\$3,479	\$850,000	\$4,250	\$1,020,000	\$5,100	\$1,190,000	\$5,950

Building Permit Fee Schedule \$1,195,000 - \$4,300,000

Valuation	Fee	Valuation	Fee	Valuation	Fee	Valuation	Fee	Valuation	Fee
\$1,195,000	\$5,975	\$1,365,000	\$6,825	\$1,535,000	\$7,675	\$1,725,000	\$8,625	\$3,475,000	\$11,815
\$1,200,000	\$6,000	\$1,370,000	\$6,850	\$1,540,000	\$7,700	\$1,750,000	\$8,750	\$3,500,000	\$11,900
\$1,205,000	\$6,025	\$1,375,000	\$6,875	\$1,545,000	\$7,725	\$1,775,000	\$8,875	\$3,525,000	\$11,985
\$1,210,000	\$6,050	\$1,380,000	\$6,900	\$1,550,000	\$7,750	\$1,800,000	\$9,000	\$3,550,000	\$12,070
\$1,215,000	\$6,075	\$1,385,000	\$6,925	\$1,555,000	\$7,775	\$1,825,000	\$9,125	\$3,575,000	\$12,155
\$1,220,000	\$6,100	\$1,390,000	\$6,950	\$1,560,000	\$7,800	\$1,850,000	\$9,250	\$3,600,000	\$12,240
\$1,225,000	\$6,125	\$1,395,000	\$6,975	\$1,565,000	\$7,825	\$1,875,000	\$9,375	\$3,625,000	\$12,325
\$1,230,000	\$6,150	\$1,400,000	\$7,000	\$1,570,000	\$7,850	\$1,900,000	\$9,500	\$3,650,000	\$12,410
\$1,235,000	\$6,175	\$1,405,000	\$7,025	\$1,575,000	\$7,875	\$1,925,000	\$9,625	\$3,675,000	\$12,495
\$1,240,000	\$6,200	\$1,410,000	\$7,050	\$1,580,000	\$7,900	\$1,950,000	\$9,750	\$3,700,000	\$12,580
\$1,245,000	\$6,225	\$1,415,000	\$7,075	\$1,585,000	\$7,925	\$1,975,000	\$9,875	\$3,725,000	\$12,665
\$1,250,000	\$6,250	\$1,420,000	\$7,100	\$1,590,000	\$7,950	>= \$2,000,000	\$10,000	\$3,750,000	\$12,750
\$1,255,000	\$6,275	\$1,425,000	\$7,125	\$1,595,000	\$7,975	<= \$2,925,000	\$10,000	\$3,775,000	\$12,835
\$1,260,000	\$6,300	\$1,430,000	\$7,150	\$1,600,000	\$8,000	\$2,950,000	\$10,030	\$3,800,000	\$12,920
\$1,265,000	\$6,325	\$1,435,000	\$7,175	\$1,605,000	\$8,025	\$2,975,000	\$10,115	\$3,825,000	\$13,005
\$1,270,000	\$6,350	\$1,440,000	\$7,200	\$1,610,000	\$8,050	\$3,000,000	\$10,200	\$3,850,000	\$13,090
\$1,275,000	\$6,375	\$1,445,000	\$7,225	\$1,615,000	\$8,075	\$3,025,000	\$10,285	\$3,875,000	\$13,175
\$1,280,000	\$6,400	\$1,450,000	\$7,250	\$1,620,000	\$8,100	\$3,050,000	\$10,370	\$3,900,000	\$13,260
\$1,285,000	\$6,425	\$1,455,000	\$7,275	\$1,625,000	\$8,125	\$3,075,000	\$10,455	\$3,925,000	\$13,345
\$1,290,000	\$6,450	\$1,460,000	\$7,300	\$1,630,000	\$8,150	\$3,100,000	\$10,540	\$3,950,000	\$13,430
\$1,295,000	\$6,475	\$1,465,000	\$7,325	\$1,635,000	\$8,175	\$3,125,000	\$10,625	\$3,975,000	\$13,515
\$1,300,000	\$6,500	\$1,470,000	\$7,350	\$1,640,000	\$8,200	\$3,150,000	\$10,710	\$4,000,000	\$13,600
\$1,305,000	\$6,525	\$1,475,000	\$7,375	\$1,645,000	\$8,225	\$3,175,000	\$10,795	\$4,025,000	\$13,685
\$1,310,000	\$6,550	\$1,480,000	\$7,400	\$1,650,000	\$8,250	\$3,200,000	\$10,880	\$4,050,000	\$13,770
\$1,315,000	\$6,575	\$1,485,000	\$7,425	\$1,655,000	\$8,275	\$3,225,000	\$10,965	\$4,075,000	\$13,855
\$1,320,000	\$6,600	\$1,490,000	\$7,450	\$1,660,000	\$8,300	\$3,250,000	\$11,050	\$4,100,000	\$13,940
\$1,325,000	\$6,625	\$1,495,000	\$7,475	\$1,665,000	\$8,325	\$3,275,000	\$11,135	\$4,125,000	\$14,025
\$1,330,000	\$6,650	\$1,500,000	\$7,500	\$1,670,000	\$8,350	\$3,300,000	\$11,220	\$4,150,000	\$14,110
\$1,335,000	\$6,675	\$1,505,000	\$7,525	\$1,675,000	\$8,375	\$3,325,000	\$11,305	\$4,175,000	\$14,195
\$1,340,000	\$6,700	\$1,510,000	\$7,550	\$1,680,000	\$8,400	\$3,350,000	\$11,390	\$4,200,000	\$14,280
\$1,345,000	\$6,725	\$1,515,000	\$7,575	\$1,685,000	\$8,425	\$3,375,000	\$11,475	\$4,225,000	\$14,365
\$1,350,000	\$6,750	\$1,520,000	\$7,600	\$1,690,000	\$8,450	\$3,400,000	\$11,560	\$4,250,000	\$14,450
\$1,355,000	\$6,775	\$1,525,000	\$7,625	\$1,695,000	\$8,475	\$3,425,000	\$11,645	\$4,275,000	\$14,535
\$1,360,000	\$6,800	\$1,530,000	\$7,650	\$1,700,000	\$8,500	\$3,450,000	\$11,730	\$4,300,000	\$14,620

SUBDIVISION OF LAND

254 Attachment 1

Impact Fee Schedule City of Hudson

[Amended by Ord. No. 1-97; Ord. No. 11-99; 10-7-2002 by Ord. No. 11-02; 1-5-2004 by Ord. No. 1-04; 12-1-2014 by Ord. No. 14-14; 9-16-2019 by Ord. No. 13-19]

Facility Type	Single-Family Residential	Medium-Density Residential	High-Density Residential	Commercial and Industrial	Park	Institutional
Trunk storm sewer (per acre)	\$3,140.00	\$3,768.00	\$4,396.00	\$4,396.00	\$1,570.00	\$3,140.00
Trunk storm sewer (Stageline Road District) (per acre)	\$5,430.00	\$6,516.00	\$7,602.00	\$7,602.00	\$2,715.00	\$5,430.00

Water Facilities Impact Fee	
Meter Size	Fee
5/8 – inch	\$947
3/4 – inch	\$947
1 – inch	\$2,367
1 ½ - inch	\$4,734
2 – inch	\$7,574
3 – inch	\$14,201
4 – inch	\$23,669
6 – inch	\$47,338
8 – inch	\$75,740
10 – inch	\$113,610
12 – inch	\$151,480



HUDSON PUBLIC UTILITIES ISSUE SHEET

DATE: January 12, 2021
SUBMITTED TO: PUC and Common Council
SUBMITTED BY: Utility Director Peters
REGARDING: Updating of 2020 Sewer Rate Study and Connection Fee Study/ Ordinance 198-10

ISSUE: The 2020 Sewer Rate and Connection Fee study was adopted by Common Council on July 6, 2020. Since then, there has been the need to make some slight changes to the adopted document. Rates that were adopted on July 6, 2020 have not changed with the proposed changes.

Included changes are an amendment to the report to provide documentation of how much is included in the rates for the WWTP and general capital and how much is for the City and Village collection system accounts. More information on the funding sources for capital costs.

Amendments to Chapter 198 of the Municipal Code are highlighted on the attached sheets.

FUNDING SOURCE:

STAFF RECOMMENDATION:

COMMITTEE RECOMMENDATION: On January 12, 2021 the PUC approved the changes to the 2020 Sewer Rate and Connection Fee Study along with the recommended changes to Ordinance 198-10 and forward to the Common Council for approval.

ORDINANCE 3-21

CITY OF HUDSON, WISCONSIN

**AN ORDINANCE AMENDING CHAPTER 198 OF THE MUNICIPAL CODE OF THE CITY OF HUDSON
TO REVISE SEWER SERVICE CHARGES AND CONNECTION FEES**

WHEREAS, the City of Hudson caused a Sewer Rate Study and a Connection Fee Study for Sanitary Sewer Facilities to be prepared; and

WHEREAS, these studies recommended changes to the City's sewer rates and sewer connection fees;

THE COMMON COUNCIL OF THE CITY OF HUDSON HEREBY ORDAINS AS FOLLOWS:

SECTION 1. Section 198-10 of the Municipal Code is amended to read as follows:

§ 198-10. Sewer service charges and connection fees.

- A. A quarterly sewer service charge and meter charge are hereby imposed and shall be paid by the owner or occupants of each lot, parcel of land, building or premises served by the wastewater treatment works or otherwise discharging wastewater (including industrial waste) into the wastewater treatment works. It shall be the policy of the City to establish sewer service charges in such amount as to obtain sufficient revenues to pay operation and maintenance costs including contributions to a replacement fund, debt service, including any debt service reserves and coverage requirements, and annual capital outlay. Those aspects of sewer service charges relating to operation, maintenance and replacement fund shall be in accord with any relevant and applicable requirements imposed by the Wisconsin Department of Natural Resources or by federal law. The sewer service charge and meter charge shall be paid as herein provided in an amount determined as follows:
- (1) A sewer service charge is hereby imposed to recover the component of total operation, maintenance, and capital costs of the sewer system which relates to sewage flow attributable to users of the system. The sewer service charge shall be based on the cost of conveying and treating flow, BOD and suspended solids at the strength of domestic wastewater. The sewer service charge shall consist of a volumetric charge in terms of dollars per hundred cubic feet (\$/ccf). The sewer service charge for any parcel of land, building or premises served by the wastewater treatment works shall be based upon the quantity of water used as measured by the water meter in use.
 - (2) Quarterly meter charge.
 - (a) A quarterly meter charge will be imposed to cover customer costs, including billing and the maintenance cost of the meters. The meter charge will be imposed as a flat fee per meter based on meter size.

- (b) The minimum sewer meter charge will be based on the quarterly meter charge (prorated for new and closed accounts or for those with meter removals).
- (3) Measurement by meter; determination by Utility Director.
- (c) When a lot, parcel of land, building or premises discharging wastewater (including industrial waste) into the wastewater treatment works is a user of water not supplied by the City, the amount of water used shall be measured by a meter.
- (d) When it is impossible or impracticable to measure the amount of water being used, the Utility Director shall determine, in such manner as he finds practicable, the sewer service charge under Subsection A(1). Such determination may be appealed to the Council. In such cases, the Utility Director may, after approval by the Council, establish a flat rate for sewage services or authorize the installation, at the owner's expense, of a sewage meter.
- (4) Whenever the Utility Director determines that any lot, parcel of land, building or premises is discharging wastes of unusual volume, concentration or character or of greatly variable volume, a special rate shall be adopted for such user. The special rate is to ensure that all users pay their proportionate share of wastewater treatment cost.
- (a) The special rate shall be determined by the formula:

$$C_u = (V_c \times V_u) + (B_c \times B_u) + (S_c \times S_u) + (P_c \times P_u)$$

Where:

- C_u = User charge in dollars per year.
- V_c = Cost of the wastewater treatment works attributed to 100 cubic feet of wastewater volume.
- V_u = Volume of wastewater from the user per year measured in hundreds of cubic feet.
- B_c = Cost of the wastewater treatment works attributed to 100 pounds of BOD.
- B_u = Amount of BOD from the user per year measured in hundreds of pounds.
- S_c = Cost of the wastewater treatment works attributed to 100 pounds of suspended solids.
- S_u = Amount of suspended solids from the user per year measured in hundreds of pounds.

Pc = Cost of the wastewater treatment works attributed to any unit of any pollutant.

Pu = Amount of any pollutant from the user per year.

- (b) The minimum service charge rate shall be equal to the rate set under Subsection A(1).
 - (c) "Domestic waste" shall be defined as follows: "normal domestic strength wastewater" shall mean wastewater with concentrations of BOD and suspended solids no greater than 300 milligrams per liter respectively. Discharges in excess of either of these concentrations shall be surcharged at the rate per pound determined by the formula contained in Subsection A(4)(a) through (c).
 - (5) Wastewater contributions from users shall be reviewed at least biannually, and the sewer services charges shall be adjusted as required to recover actual costs.
 - (6) Proportionate distribution of operation, maintenance, replacement, and capital costs shall be maintained among wastewater treatment work users.
 - (7) Sufficient revenues to pay for total operation and maintenance costs including contributions to a replacement fund, debt service, including any debt service reserves and coverage requirements, and annual capital outlay shall be generated by the sewer service charge system.
 - (8) Operation and maintenance costs may include an allowance for North Hudson sewer collection system costs to the extent payment of such costs is required by contract.
 - (9) Sewer service charge rates, meter charge rates, special rates, and a North Hudson sewer collection system allowance, if applicable, shall be established by resolution of the Common Council.
- B. Payment.
- (1) The sewage service charge shall be payable to the Clerk within 20 days of the billing date.
 - (2) A late payment charge of 1% shall be added to all sewer bills not paid within 20 days from the billing date. Thereafter, a late penalty charge of 1% per month shall be added each month upon the unpaid balance. If any bill is not paid within 60 days from the billing date, the customer may be notified, in writing, that unless payment or satisfactory arrangement for payment is made within the next five days, the water services to the premises may be turned off. After such period, service may be discontinued and may not be restored until full payment of all sewer service charges and penalties due thereon.
 - (3) Unpaid utility bills will be transferred to the tax roll pursuant to W.S.A. § 66.0809.
- C. Disposition of revenue. The amounts received from the charges authorized by this section shall be credited to a separate account which shall show all receipts and expenditures to the wastewater treatment works. The credits to such account shall be available for payment of:
- (1) Principal and interest of bonds which may be issued to provide funds for wastewater treatment works.
 - (2) Cash funded capital outlay.

- (3) Any required cash reserve account payment.
- (4) Operation and maintenance of the wastewater treatment works, including a separate replacement fund. The replacement fund shall be a cash account to be used for future expenditures for obtaining or installing equipment, accessories or appurtenances which are necessary to maintain the capacity and performance of the wastewater treatment works through the service of life for which such works were designed and constructed.
- (5) North Hudson sewer collection system allowance.
- D. Sewer service charges as a lien. All charges established hereunder shall be a lien upon the property served pursuant to W.S.A. § 66.076(7) and shall be collected in the manner therein provided.
- E. Sewer connection charge.
 - (1) Sewer connection charges for buildings not presently connected to the wastewater treatment works, or for buildings that have a change in use that requires a larger water meter, shall be based on equivalent residential meters based on the following schedule. For buildings with a change in use the charge would be the difference between the amount for the existing meter size and the amount for the proposed meter size. Buildings connecting directly to the City's collection system will be charged both the conveyance and treatment connection charges. Buildings connecting to the wastewater treatment works via a collection system outside of the City will be charged the treatment connection charge only.

Meter Size	Conveyance Charge	Treatment Charge	Total Charge
5/8 – inch	\$2,380	\$1,479	\$3,859
3/4 – inch	\$2,380	\$1,479	\$3,859
1 – inch	\$5,951	\$3,697	\$9,648
1 ½ - inch	\$11,902	\$7,395	\$19,297
2 – inch	\$19,043	\$11,832	\$30,875
3 – inch	\$35,705	\$22,184	\$57,889
4 – inch	\$59,509	\$36,974	\$96,483
6 – inch	\$119,018	\$73,948	\$192,966
8 – inch	\$190,429	\$118,317	\$308,746
10 – inch	\$285,644	\$177,476	\$463,120
12 – inch	\$380,858	\$236,634	\$617,492

- (2) The sewer connection charge shall automatically increase effective each January 1 by a percentage equal to the percentage increase in the 20-City Construction Cost Index published by the Engineering News Record over the most recent 12-month period, unless the City, by resolution, limits the fee increase to a lesser percentage rate.
- F. Other charges may be imposed when a customer requests special services such as a special billing or meter reading outside of the normal schedule. Rates for special

services will be the same as the rates ordered by the Public Service Commission for the water utility for Other Charges as shown on Schedule OC-1 of the Rate File.

SECTION 2. SEVERABILITY. If a court of competent jurisdiction determines any section, clause, provision or portion of this ordinance to be unconstitutional or invalid for any reason, the remainder of this ordinance shall not be affected thereby.

SECTION 3. EFFECTIVE DATE. This ordinance shall become effective upon adoption by the Common Council and publication as provided by law.

Adopted this _____ day of _____, 2021.

APPROVED:

Rich O' Connor, Mayor

ATTEST:

Becky Eggen, City Clerk

First Reading: _____

Date Adopted: _____

Date Published: _____

Sewer Rate Study

Prepared for the

City of Hudson

by Trilogy Consulting, LLC

November 2020

TABLE OF CONTENTS

INTRODUCTION..... 4

IMPETUS FOR STUDY..... 4

STUDY METHODOLOGY..... 4

SEWER RATE STUDY 6

SUMMARY 6

HISTORICAL AND FORECAST CUSTOMER DEMANDS 7

 Table 1 - Historical Flows and Trends 8

 Table 2 - Projected Flows and Demand 10

 Table 3 - Test Year Revenues at Present Rates 12

HISTORICAL AND FORECAST OPERATION AND MAINTENANCE EXPENSE..... 12

 Table 4 - Historical and Forecast O&M Expenses 14

CASH FLOW FORECASTS 15

 Figure 1 - Projected Cash Flow with Zero Increase 18

 Figure 2 - Projected Cash Flow with 2021 Increase 19

 Figure 3 - Projected Cash Flow with Phased-In Increase: 38 Percent in 2021, 11 Percent in 2022... 20

 Figure 4 - Projected Cash Flow with Phased-In Increase: 11 Percent in 2021, 38 Percent in 2022... 21

 Figure 5 - Projected Cash Flow with Phased-In Rate Increase: 23.7 Percent in 2021, 23.7 Percent in 2022 22

 Table 5 - Forecast Cash Flows: 38 Percent Increase in 2021, 11 Percent Increase in 2022..... 24

 Table 6 - Forecast Cash Flows: 11 Percent Increase in 2021, 38 Percent Increase in 2022..... 26

 Table 7 - Forecast Cash Flows: 23.7 Percent Increase in 2021, 23.7 Percent Increase in 2022 28

REVENUE REQUIREMENTS AND COST-OF-SERVICE ANALYSIS..... 30

PROPOSED RATE SCHEDULE..... 30

 Table 8 - Proposed Phased-In Rate Schedule – Increase of 38 Percent in 2021 and 11 Percent in 2022 31

 Table 9 - Proposed Phased-In Rate Schedule – Increase of 11 Percent in 2021 and 38 Percent in 2022 32

 Table 10 - Proposed Phased-In Rate Schedule – Increase of 23.7 Percent in 2021 and 23.7 Percent in 2022 33

COMMUNITY RATE COMPARISON..... 33

 Table 11 - Regional Comparison of Average Residential Bills..... 34

 Table 12 - Regional Comparison of Average Non-Residential Bills..... 35

RECOMMENDATIONS..... 35

APPENDIX A – SEWER UTILITY COST OF SERVICE STUDY AND PROPOSED RATE DESIGN..... 36

INTRODUCTION

The City of Hudson owns and operates a wastewater collection system and Wastewater Treatment Facility that provides wastewater service to just over 7,600 customers within the City of Hudson and the Village of North Hudson. The City serves the Village on a retail basis and covers the costs of limited operation and maintenance of the Village's collection system, but the Village is responsible for major repairs, rehabilitation, and replacement for its collection mains and lift stations. About 16 percent of billable wastewater flows over the past five years have been from the Village of North Hudson, and approximately 84 percent were from the customers within the City of Hudson, on average. The City is required to treat at its wastewater treatment plant: organic pollutants (BOD), suspended solids (TSS), phosphorus and ammonia (NH-3). The City last increased wastewater rates in January of 2019.

IMPETUS FOR STUDY

The sewer utility is planning on significant capital investment in upgrades to the Wastewater Treatment Facility in the amount of \$12,700,000, equipment replacement, and ongoing replacement of sewer infrastructure as needed. For these reasons, the City hired Trilogy Consulting to conduct a formal Sewer User Rate Study. The study consisted of determining recommended user rates based on a detailed cost of service study for 2020, and cash flow projections, including future rate increases. A 25-year projection of user rates and cash flows was prepared to develop a plan to complete all necessary capital improvement projects and meet all debt requirements while maintaining the financial health of the Utility.

STUDY METHODOLOGY

The study is generally organized into three sections:

1. An analysis of historical conditions including historical revenues, expenses, and usage.
2. Projections for the next twenty-five years, including billed wastewater usage projections, and projections of future operating and maintenance expenses. The analysis took into consideration the City's 5-year capital improvement needs, as well as estimates of capital improvements for years 6-25 based on prior years' investments and scheduled annual debt service payments for existing utility debt. Utility capital funding in future years includes connection fees, revenues generated from annual rates, new debt issuances and utility reserves.
3. Allocation of costs and detailed rate calculations for the 'test year' or target year for the immediate rate increase(s). In this study, 2022 was used as the year when the full amount of debt service payments for the Wastewater Treatment Facility upgrades will be in place.

The user rates were calculated using a cash-based method. The cash-based method calculates rates to recover the cost of operating and maintenance expenses, administrative expenses, annual debt service and any debt coverage requirements, annual capital outlay expenses, transfers to the City collection system replacement fund and to the Village for collection system costs, and deposits into reserve funds, if necessary.

SEWER RATE STUDY

SUMMARY

The purpose of this study was to recommend rates that will collect adequate revenues for the City of Hudson Wastewater Utility to fulfill all its current and upcoming obligations. Specifically, revenues need to be adequate to recover operation and maintenance expenses, debt service, transfers to the City collection system replacement fund and to the Village for collection system costs, and annual capital improvements. These current revenues will be combined with the reserves in the wastewater fund to fund the capital improvement plan.

The results of the study indicate a significant rate increase of about 47 percent by 2022. This overall level of rate increases is recommended to fund the utility's ongoing operating expenses and \$17.3 million capital improvement program for 2020 through 2024 and to maintain an adequate level of reserve funds available to cover ongoing equipment replacements, unexpected replacement and rehabilitation needs, or unexpected fluctuations in revenues or expenses. Significant capital improvements in this plan include Wastewater Treatment Facility (WWTF) improvements estimated at \$12.7 million, the Hwy 35/2nd Street sewer replacement project estimated at \$1.69 million, a new jet truck at \$450,000, and approximately \$550,000 per year of miscellaneous replacements and rehabilitation projects at the Wastewater Treatment Plant for 2022-2024, based on past history.

Of the \$17.1 million in capital projects included in the projections, \$12.7 million would be funded through debt using the State Clean Water Fund program, \$1.0 million from the City's sewer collection system replacement fund, \$1.5 million from general utility reserves paid in by past customers and the remaining \$1.9 million through annual revenues generated through user charges, connection charges, interest income and other revenues.

Currently, the City's wastewater rates are some of the lowest in Hudson's geographic region. Following this recommendation would increase rates significantly, yet rates would remain below average in the region, not considering any increases to wastewater rates that other communities may also implement in the interim.

Following implementation of the rates for 2020 through 2022, a plan for additional inflationary cost-of-living type rate increases is recommended for consideration by the City Council. These increases should be evaluated on an annual basis and adjusted for changing conditions, such as an increase in sales or unexpected capital needs. The recommended rate increases for 2020 through 2022 would increase the utility's user charge revenues by a total of about \$1.03 million per year by 2022.

HISTORICAL AND FORECAST CUSTOMER DEMANDS

The following table shows the analysis of historical trends in total wastewater treated at the wastewater treatment plant, as well as number of customers, customer volume of wastewater and estimated loadings (BOD, TSS, phosphorus and NH-3) for domestic strength customers. The Utility does not currently serve any known high-strength sewer customers at this time but may in the future. However, it does receive a small amount of leachate from a local landfill; currently, there is no charge for accepting this waste.

City of Hudson
2020 Sewer Rate Study

Table 1 - Historical Flows and Trends

	2015	2016	2017	2018	Last 12 Months	5-Year Trend	
	(Gallons)	(Gallons)	(Gallons)	(Gallons)	(Gallons)	(Gallons)	
WWTP Influent							
Total Annual Inflow	554,699,400	545,828,600	538,910,700	547,665,200	559,053,000	552,394,520	
Total Billable Flow	405,324,870	442,895,200	415,254,680	456,951,040	403,052,413	427,548,918	
Billable Flow as % of Inflow	73.1%	81.1%	77.1%	83.4%	72.1%	77.4%	
Inflow/Infiltration	149,374,530	102,933,400	123,656,020	90,714,160	156,000,587	124,845,602	
I/I as % of Inflow	26.9%	18.9%	22.9%	16.6%	27.9%	22.6%	
Maximum Monthly Flow per Day							
Average Day Flow	1,519,724	1,491,335	1,476,468	1,500,453	1,531,652	1,513,410	
Max Day/Average Day Ratio	-	-	-	-	-	-	
BOD (mg/l)	252	245	232	205	224	203	
TSS (mg/l)	-	-	-	-	-	-	
P (mg/l)	-	-	-	-	-	-	
NH3 (mg/l)	-	-	-	-	-	-	
BOD (lbs)	1,166,802	1,113,724	1,041,328	937,790	1,043,575	933,927	
TSS (lbs)	-	-	-	-	-	-	
P (lbs)	-	-	-	-	-	-	
NH3 (lbs)	-	-	-	-	-	-	
Customer Demand							
Residential Sewer Usage	259,473,810	277,850,490	256,150,740	281,259,470	236,898,257	249,803,916	
Residential Customers	6,211	6,300	6,400	6,550	6,629	6,744	
Usage / Customer	41,776	44,103	40,024	42,940	35,737	37,042	
Multi-Family Sewer Usage	35,290,100	40,371,680	38,935,320	44,931,000	42,024,570	45,719,012	
Multi-Family Customers	55	60	62	65	69	72	
Usage / Customer	641,638	672,861	627,989	691,246	609,052	634,106	
Commercial Sewer Usage	92,840,360	105,372,910	101,686,780	112,599,480	105,635,081	113,471,726	
Commercial Customers	470	480	490	500	522	530	
Usage / Customer	197,533	219,527	207,524	225,199	202,366	214,259	
Industrial Sewer Usage	4,871,310	5,325,380	4,517,320	3,361,300	2,935,032	2,451,078	
Industrial Customers	22	23	24	25	25	26	
Usage / Customer	221,423	231,538	188,222	134,452	117,401	93,553	
Public Authority Sewer Usage	12,849,290	13,974,740	13,964,520	14,799,790	15,337,209	15,925,376	
Public Authority Customers	32	33	34	35	35	36	
Usage / Customer	401,540	423,477	410,721	422,851	438,206	439,928	
Total Domestic Strength Usage	Strength (mg/l)	405,324,870	442,895,200	415,254,680	456,951,040	402,830,149	427,371,107
Estimated BOD (lbs.)	300	1,014,123	1,108,124	1,038,967	1,143,292	1,007,881	1,069,283
Estimated TSS (lbs.)	300	1,014,123	1,108,124	1,038,967	1,143,292	1,007,881	1,069,283
Estimated Phos. (lbs.)	8	27,043	29,550	27,706	30,488	26,877	28,514
Estimated NH-3 (lbs.)	40	135,216	147,750	138,529	152,439	134,384	142,571
Landfill Leachate	Strength (mg/l)	-	-	-	-	222,264	177,811
Estimated BOD (lbs.)	100	-	-	-	-	185	148
Estimated TSS (lbs.)	300	-	-	-	-	556	445
Total			415,254,680	456,951,040	403,052,413	427,548,918	
Estimated BOD (lbs.)			1,038,967	1,143,292	1,008,066	1,069,431	
Estimated TSS (lbs.)			1,038,967	1,143,292	1,008,437	1,069,727	
Estimated Phos. (lbs.)			27,706	30,488	26,877	28,514	
Estimated NH-3 (lbs.)			138,529	152,439	134,384	142,571	

Wastewater Treatment Plant Influent

The total volume of wastewater treated at the plant has fluctuated some over the past several years, with a dip in 2017 and an increase in 2019. However, the 'billable' flow, or wastewater generated by customers, has fluctuated more during the same time, with 2019 flows being down compared to prior years. The remaining volume is clearwater infiltration and inflow, water that seeps into the system via cracks in wastewater mains or customer service laterals, or through sewer manholes. At certain times of year, such as periods of high precipitation, infiltration and inflow (I/I) may be the majority of water volume arriving at the treatment plant. Wastewater entering the plant is sampled daily for wastestrengths, so the total pounds of BOD entering the plant per year can be estimated. Total pounds of these constituents have seen a steady decline in the last several years, before an uptick during 2019. To make sure the all customers are charged fairly, surcharge rates were calculated as a part of this study in case the Utility samples customers that should be charged for high-strength flows for any of the constituent loadings in the future.

Forecast flows for 2020 through 2022 follow trends over the previous five years, as shown in the next table. It should be noted that at the time this study was being completed, the City was in the midst of the global COVID-19 pandemic, with effects on billed water and sewer demand unknown as of yet. This was not factored into the long-term projections, as it is assumed that any impacts will be temporary, but revenues during the pandemic may be higher or lower than expected during a normal year. In addition, the assumptions used in this study should be reviewed post-pandemic to determine whether any impacts on water and sewer use were temporary or if longer-term structural changes resulted.

**City of Hudson
2020 Sewer Rate Study**

Table 2 - Projected Flows and Demand

			Current Year		Test Year	
	Last 12 Months	5-Year Trend	2020	2021	2022	
<u>WWTP Influent</u>	(Gallons)	(Gallons)	(Gallons)	(Gallons)	(Gallons)	
Total Annual Inflow	559,053,000	552,394,520	552,352,476	563,657,338	577,118,157	
Total Billable Flow	403,052,413	427,548,918	427,516,377	440,923,457	448,087,068	
Billable Flow as % of Inflow	72.1%	77.4%	77.4%	78.2%	77.6%	
Inflow/Infiltration	156,000,587	124,845,602	124,836,099	122,733,881	129,031,089	
I/I as % of Inflow	27.9%	22.6%	22.6%	21.8%	22.4%	
Maximum Monthly Flow per Day			1,815,953	1,853,120	1,897,375	
Average Day Flow	1,531,652	1,513,410	1,513,294	1,544,267	1,581,146	
Max Day/Average Day Ratio	-	-	1.20	1.20	1.20	
BOD (mg/l)	224	203	232	235	233	
TSS (mg/l)	-	-	232	235	233	
P (mg/l)	-	-	6	6	6	
NH3 (mg/l)	-	-	31	31	31	
BOD (lbs)	1,043,575	933,927	1,069,090	1,102,634	1,120,558	
TSS (lbs)		-	1,069,090	1,102,634	1,120,558	
P (lbs)		-	28,509	29,404	29,882	
NH3 (lbs)		-	142,545	147,018	149,408	
<u>Customer Demand</u>						
Residential Sewer Usage	236,898,257	249,803,916	249,811,324	256,827,148	258,105,858	
Residential Customers	6,629	6,744	6,744	6,852	6,961	
Usage / Customer	35,737	37,042	37,042	37,482	37,079	
Multi-Family Sewer Usage	42,024,570	45,719,012	45,655,601	47,795,528	50,243,885	
Multi-Family Customers	69	72	72	75	79	
Usage / Customer	609,052	634,106	634,106	637,274	635,999	
Commercial Sewer Usage	105,635,081	113,471,726	113,557,429	117,155,646	120,218,932	
Commercial Customers	522	530	530	542	554	
Usage / Customer	202,366	214,259	214,259	216,154	217,002	
Industrial Sewer Usage	2,935,032	2,451,078	2,432,367	2,659,475	2,489,373	
Industrial Customers	25	26	26	26	26	
Usage / Customer	117,401	93,553	93,553	102,288	95,745	
Public Authority Sewer Usage	15,337,209	15,925,376	15,837,391	16,263,395	16,806,757	
Public Authority Customers	35	36	36	37	38	
Usage / Customer	438,206	439,928	439,928	439,551	442,283	
Total Domestic Strength Usage	Strength (mg/l)	402,830,149	427,371,107	427,294,113	440,701,193	447,864,804
Estimated BOD (lbs.)	300	1,007,881	1,069,283	1,069,090	1,102,634	1,120,558
Estimated TSS (lbs.)	300	1,007,881	1,069,283	1,069,090	1,102,634	1,120,558
Estimated Phos. (lbs.)	8	26,877	28,514	28,509	29,404	29,882
Estimated NH-3 (lbs.)	40	134,384	142,571	142,545	147,018	149,408
Landfill Leachate	Strength (mg/l)	222,264	177,811	222,264	222,264	222,264
Estimated BOD (lbs.)	100	185	148	185	185	185
Estimated TSS (lbs.)	300	556	445	556	556	556
Total		403,052,413	427,548,918	427,516,377	440,923,457	448,087,068
Estimated BOD (lbs.)		1,008,066	1,069,431	1,069,275	1,102,820	1,120,743
Estimated TSS (lbs.)		1,008,437	1,069,727	1,069,646	1,103,190	1,121,114
Estimated Phos. (lbs.)		26,877	28,514	28,509	29,404	29,882
Estimated NH-3 (lbs.)		134,384	142,571	142,545	147,018	149,408

Customer Demand

The Wastewater Utility mostly serves domestic sewage customers (residential, multi-family, commercial, industrial and public authority, i.e. government); it does not have any high strength customers currently and the only hauled waste is a small amount of leachate from a local landfill, which is not currently charged. However, if any increase in monitoring indicates that there could be high strength customers that the Utility is unaware of, or if a new customer is known to discharge high-strength waste, then they may be charged surcharges for higher than domestic strength pollutant loadings.

Domestic Waste

The volume of domestic strength waste has fluctuated over the last three years, resulting from changes within all customer classes. The estimates of pounds of pollutant loadings for domestic strength waste are based on current domestic strength assumptions of 300 mg/l for BOD, 300 mg/l for TSS, 8 mg/l for phosphorus, and 40 mg/l for NH-3. A comparison of total pounds being treated at the plant versus estimated pounds from domestic strength sewage indicated that those assumptions are reasonable. Additional sampling at the treatment plant in the future may result in a need for those assumptions to be adjusted, but there is no need to do so at present.

Forecast Revenues at Present Rates

The table below shows the forecast revenues at present rates for the test year, based on the forecast number of customers and volume of sewer usage. The City currently charges the following user charges:

- Sewer Usage Charge of \$3.00 per hundred cubic feet of wastewater (estimated based on metered water use) for all users. This rate is comprised of \$2.88 per hundred cubic feet for collection system operation and maintenance and WWTP operation, maintenance, and capital, and a trunk line and lift station replacement charge of \$0.12 per hundred cubic feet. Revenues from the trunk line and lift station replacement charge are transferred to the Village of North Hudson and to the City's sewer collection system replacement fund based on the amount of billable flows from each municipality. For 2015 through 2019, approximately 16 percent of these revenues, or \$11,000 per year, were transferred to the Village, and 84 percent, or \$58,000 per year, to the City's replacement fund.
- Flat Charge based on the size of customer's water meter

City of Hudson
2020 Sewer Rate Study

Forecast user charge revenues of \$2,031,586 for the test year of 2022 are higher than 2018 user charge revenues of \$1,900,341 due to projected growth in the number of customers and billed usage through 2022.

Table 3 - Test Year Revenues at Present Rates

YEAR: 2022		Residential	Multi-Family	Commercial	Industrial	Public Authority	Total
Sewer Usage Charges							
Usage	CCF	345,061	67,171	160,720	3,328	22,469	598,750
Revenues	\$2.88	\$993,777	\$193,452	\$462,875	\$9,585	\$64,711	\$1,724,399
Collection System Replacement Charges							
Usage	CCF	345,061	67,171	160,720	3,328	22,469	598,750
Revenues	\$0.12	\$41,407	\$8,061	\$19,286	\$399	\$2,696	\$71,850
Fixed Charges							
Meter Size		6,961	79	554	26	38	7,658
5/8"	\$7.60	6,706	11	322	10	15	7,064
3/4"	\$7.60	248	7	37	2	-	294
1"	\$8.45	6	17	98	7	7	135
1 1/4"	\$9.50						
1 1/2"	\$10.35	1	18	66	5	7	97
2"	\$11.15	-	19	28	-	4	51
2 1/2"	\$11.70						
3"	\$12.50	-	6	3	2	5	16
4"		-	-	-	-	-	-
6"		-	1	-	-	-	1
Revenues		\$211,646	\$3,014	\$18,357	\$908	\$1,411	\$235,337
Total Metered Customers		\$1,246,830	\$204,527	\$500,519	\$10,893	\$68,818	\$2,031,586
Pinkys Landfill Leachate							
		Units	Rates	Revenues			
Holding Tank (CCF)		297.14	\$0.00	\$0			\$0
No. of Loads		70	\$0.00	\$0			\$0
Subtotal				\$0			\$0
						Total	\$2,031,586

HISTORICAL AND FORECAST OPERATION AND MAINTENANCE EXPENSE

The following table shows the actual O&M expenses for 2015 through 2018, budgeted 2019 and 2020 expenses, a 4-year trend analysis and forecast expenses for 2020 through 2022. Some categories of expenses that fluctuate substantially from year to year were normalized to reflect historical average expenses or the 4-year trend analysis. Electricity, chemicals, and biosolids costs were forecast based on the forecast wastewater influent. These adjustments were done to reflect a typical year so that the O&M expenses can be projected for future years. As shown the

projected O&M expense for 2020 used for cash flow forecasting purposes was \$1,841,589, or approximately 2.0 percent higher than actual 2018 expenses. Future years' O&M expenses are forecast to increase by 2.0 percent per year.

**City of Hudson
2020 Sewer Rate Study**

Table 4 - Historical and Forecast O&M Expenses

Account Description	2016	2017	2018	Budget 2019	4-Year Trend	Budget 2020	Current Year 2020	2021	Test Year 2022
	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)
WASTEWATER TREATMENT & DISPOSAL									
Salaries and Wages	217,503	230,697	231,426	216,455	223,417	211,367	211,367	215,594	219,906
FICA	15,624	16,086	16,775	16,560	17,136	16,170	16,170	15,650	15,963
Retirement	14,246	14,967	15,496	13,785	14,410	13,452	13,452	14,073	14,355
Health Insurance	72,956	82,808	93,023	90,060	100,094	76,064	76,064	81,526	83,156
Utilities - Electricity	105,858	108,978	102,390	108,000	106,266	108,000	108,000	107,991	111,675
Utilities - Gas	12,304	12,080	14,078	13,000	13,887	13,000	13,887	14,026	14,166
Contractual Services	280,892	78,662	124,313	73,900	(4,390)	79,500	139,442	140,836	142,245
Chemicals	26,120	27,406	73,794	25,000	48,837	25,000	27,261	28,097	29,056
Supplies	30,082	49,182	46,062	49,000	56,990	48,300	56,990	57,560	58,135
Biosolids Charges	300,810	340,154	335,654	335,000	352,422	335,000	390,138	406,403	417,139
Other Services & Charges	13,036								
SUBTOTAL WASTEWATER TREATMENT & DISPOSAL	1,089,431	961,020	1,053,011	940,760	929,068	925,853	1,052,771	1,081,756	1,105,796
LIFT STATIONS & PUMPING EQUIPMENT									
Salaries and Wages	28,946	23,953	26,411	22,960	21,693	26,467	26,467	26,996	27,536
GASB 68	22,289	29,144	13,357				21,597	22,029	22,469
FICA	2,133	1,710	1,916	1,760	1,652	2,025	1,946	1,985	2,024
Retirement	1,948	1,629	1,769	1,500	1,411	1,472	1,772	1,807	1,843
Health Insurance	8,585	8,206	9,262	8,620	8,959	7,281	8,973	9,153	9,336
Utilities - Electricity	18,845	19,827	18,901	19,900	19,928	19,500	20,854	21,723	22,297
Utilities - Gas	1,286	327	344	400	(71)	400	357	361	364
Contractual Services	5,940	20,314	5,150	6,500	6,105	9,500	6,105	6,166	6,228
Supplies	912	1,428	332	5,000	4,710	5,000	891	900	909
Other Services & Charges									
SUBTOTAL LIFT STATIONS & PUMPING EQUIPMENT	90,884	106,538	77,442	66,640	64,385	71,645	88,961	91,119	93,006
WASTEWATER COLLECTION SYSTEM									
Salaries and Wages	35,930	28,312	24,609	30,010	24,350	88,239	88,239	90,004	91,804
FICA	2,576	1,996	1,770	2,300	1,897	6,750	6,750	6,544	6,675
Retirement	2,375	1,925	1,649	1,970	1,607	5,780	5,780	5,996	6,116
Health Insurance	9,117	9,593	9,363	12,820	12,943	39,861	39,861	30,965	31,584
Contractual Services	35,408	19,675	118,626	50,250	91,859	54,300	55,990	56,550	57,115
Supplies	3,918	2,348	1,656	5,000	3,869	10,600	3,869	3,908	3,947
Other Services & Charges									
SUBTOTAL WASTEWATER COLLECTION SYSTEM	89,324	63,849	157,673	102,350	136,525	205,530	200,489	193,966	197,241
DAMS									
Salaries and Wages	3,496	3,615	3,870	2,580	2,767	3,032	2,767	2,822	2,879
FICA	259	262	281	200	211	232	204	209	213
Retirement	235	245	259	170	182	199	185	189	193
Health Insurance	1,363	1,428	1,635	845	981	713	1,076	1,097	1,119
Contractual Services	1,362	0	3,222	3,000	3,930	4,000	1,896	1,915	1,934
Utilities - Electricity	516	534	1,098	1,000	1,291	100	787	795	803
Supplies				100					
SUBTOTAL DAMS	7,231	6,084	10,365	7,895	9,362	8,276	6,915	7,027	7,140
GENERAL AND ADMINISTRATIVE EXPENSES									
Salaries and Wages	171,758	180,328	170,009	124,638	123,764	130,430	130,430	133,039	135,699
GASB 68		29,144					21,080	21,501	21,931
FICA	12,405	13,089	12,347	9,539	9,510	10,278	10,278	9,746	9,941
Retirement	11,482	12,258	11,374	8,162	8,108	8,735	8,735	8,902	9,080
Health Insurance	56,037	62,877	58,995	37,900	39,379	36,905	36,905	44,394	45,282
Contractual Services	18,677	30,666	27,404	31,900	36,264	30,200	27,162	27,433	27,708
Supplies	3,895	3,650	2,240	7,250	6,423	7,775	4,259	4,301	4,344
Insurance	44,072	74,227	48,530	63,560	65,789	54,688	54,688	55,235	55,787
Other Services & Charges									
SUBTOTAL GENERAL & ADMINISTRATIVE EXPENSES	318,326	406,239	330,899	282,949	289,236	279,011	293,536	304,552	309,773
METER READING									
Salaries and Wages	12,085	12,403	6,766	11,040	8,381	10,760	10,760	10,975	11,195
FICA	821	841	500	845	685	823	823	780	796
Retirement	728	771	453	725	588	705	705	695	709
Health Insurance	2,625	3,190	2,073	4,950	4,674	4,181	4,181	3,331	3,398
Contractual Services	338	698	1,016	500	839	500	839	847	856
Supplies	6,113	6,203	5,337	6,700	6,312	6,600	6,312	6,375	6,439
Meter Use Charge Paid to Water Utility	161,611	173,998	162,205	175,000	175,297	180,000	175,297	180,556	185,973
SUBTOTAL METER READING EXPENSES	184,321	198,104	178,350	199,760	196,775	203,569	198,917	203,560	209,365
TOTAL OPERATION & MAINTENANCE EXPENSES	1,779,517	1,741,834	1,807,740	1,600,354	1,625,350	1,693,884	1,841,589	1,881,980	1,922,322

HISTORICAL AND FORECAST CAPITAL IMPROVEMENTS

Between 2015 and 2019, the Utility invested almost \$2.0 million, or an average of just under \$400,000 per year, in capital improvements and equipment replacement. Most of this amount was for WWTP improvements and communications, vehicles, and other general equipment.

The Utility's forecast capital improvements for 2020 through 2024 includes \$17.1 million of capital improvements and equipment. Of this amount, \$1.69 million is for the Hwy 35/2nd Street trunk sewer replacement project. The rest is for improvements and upgrades to the WWTP, as well as vehicles and other general equipment.

Of this amount, \$12.7 million for major upgrades to the WWTP in 2020 and 2021 is planned to be borrowed through the Wisconsin Clean Water Fund program. The Hwy 35/2nd Street trunk sewer replacement will be funded in part with funds from the City's sewer collection system replacement fund and in part with utility reserves. Other capital expenditures will be funded in part with current revenues and in part with reserves. In total, the Utility plans to issue \$12.7 million in debt, use \$1.5 million of sewer utility reserves and \$1.0 million of sewer collection system replacement reserves, and fund the remaining \$1.9 million with current revenues.

With the borrowing for the WWTP upgrades, annual debt service is projected to increase from no debt service currently to just over \$784,000 per year by 2022.

Table 5 - Forecast Capital Improvements

Account Description	Current Year	Test Year			
	2020	2021	2022	2023	2024
Land and land rights	\$0				
Structures and improvements	\$0				
Service connections, traps and access	\$0				
Collecting mains	\$0				
Interceptor mains	\$0	\$1,690,000			
Force mains	\$0				
Other collecting system equip	\$0				
Land and land rights	\$0				
Pumping structures and improvements	\$0				
Receiving wells	\$0				
Electric pumping equipment	\$0				
Other power pumping equip	\$0				
Misc. pumping equipment	\$0				
Land and land rights	\$0				
Treatment plant structures and improvements	\$6,195,600		\$530,450	\$546,364	\$562,754
Preliminary treatment equip	\$1,395,200				
Primary treatment equip	\$0				
Secondary treatment equip	\$881,200				
Advanced treatment equip	\$1,851,600				
Chlorination equipment	\$0				
Sludge treatment and disposal equip	\$1,214,000				
Plant site piping	\$419,500				
Flow metering equipment	\$0				
Outfall sewer pipes	\$0				
Other treatment and disposal plant equip	\$296,000				
Structures and improvements	\$819,800				
Office furniture and equipment	\$0				
Computers	\$68,300				
Transportation equipment	\$0		\$450,000		
Communication equipment	\$153,800				
Other general equipment	\$0				
Laboratory equipment	\$0				
Total Cost	\$13,295,000	\$1,690,000	\$980,450	\$546,364	\$562,754

CASH FLOW FORECASTS

To estimate the overall level of immediate and future rate increases, a 25-year cash flow forecast was prepared. Multiple cash flow forecasts were prepared for various scenarios of the level and timing of immediate and future rate increases. Each forecast was evaluated with the same criteria:

- Generating positive cash flow;
- Providing sufficient debt coverage for future debt;

- Maintaining the utility's reserves above recommended levels – Recommended reserve levels include operating reserves to manage cash flow or fluctuations in revenues or expenses, any restricted debt reserves, and capital reserves for unplanned capital costs. Wastewater utilities that have a loan through the state's Clean Water Fund Program are also required to maintain an equipment replacement fund to pay for replacement of mechanical and other equipment;
- Avoiding or mitigating the need for issuance of new debt for routine wastewater main and equipment replacement; and
- Percentage of debt financing versus equity.

As of December 31, 2018, the wastewater utility had total reserve funds totaling \$6,321,807. About \$1.95 million of this total was held in a restricted account for equipment replacement, meaning it cannot be used for any other use than the designated use, such as operating losses or ongoing capital improvements. The remaining \$4.37 million was unrestricted, meaning it can be used for any purpose, including capital improvements, operating expenses, or debt service payments. Additionally, the City maintains a Sewer Collection System Replacement Fund within its general funds, which had a balance of \$1,076,512. This fund is to be used for replacement of sewer main throughout the City.

The cash flow analysis developed a recommended minimum amount of reserves the Utility should keep on hand, for those purposes and as a rate stabilizer. This amount was determined to be \$3.7 million to \$3.8 million for the next several years, comfortably below the Utility's actual reserve levels as of the end of 2018.

All the alternative cash flow scenarios were based on the following common assumptions:

- Inflation of approximately two percent per year in operation and maintenance expenses;
- Continuation of a similar level of other operating revenues and non-operating revenues as contained in the 2020 budget;
- Any debt issuance for the treatment plant would be for 20 years at the current interest rate of 1.65% through the Clean Water Fund loan program; any future debt issuances would be for 20 years at 3.50% interest with level annual payments;
- Recommended reserve levels include the following:
 - Operating reserve equal to 3 months of annual operating expenses;
 - Debt service reserve equal to current year's debt service payments;
 - Equipment replacement fund equal to the estimated year-end 2019 level of \$2,044,440 – this fund currently has a larger balance than necessary, but may need to be adjusted based on final costs of the Wastewater Treatment Facility upgrades;

- Depreciation/Capital reserve equal to \$500,000 for emergency replacement of critical infrastructure.

The following charts show the five cash flow alternatives that were prepared: one with zero increase to rates (do-nothing alternative), one showing all of the increase occurring at the beginning of 2021, and three alternatives for phasing the increase in over two increases, one at the beginning of 2021 and a second increase at the beginning of 2022. All the rate increase scenarios also include future rate increases of 2.0 percent every other year. The three options that were explored for phasing the rate increase were as follows:

- An increase in user charge revenues of approximately 38.0 percent in 2021 and 11.0 percent in 2022. The rate increase of 38.0 percent would provide revenues sufficient to pay debt service on the Clean Water Fund (CWF) loan for the WWTF project plus the required 10 percent debt coverage. The second rate increase is recommended to allow the Utility to cash fund capital improvements other than the WWTF project without significant negative cash flow.
- An increase of 11.0 percent in 2021 and another increase of 38.0 percent in 2022. Since the Utility will not have to make full principal and interest payments on the CWF loan until 2022, the full rate increase needed to provide debt coverage could be delayed until 2022. The smaller increase in 2021, could however, result in the need for larger or more frequent rate increases in future years.
- A third option was to implement the rate increase in equal steps in 2021 and 2022. To achieve the overall target of a 46.5 percent rate increase by 2022, two increases of approximately 23.7 percent could be implemented.

Figure 1 - Projected Cash Flow with Zero Increase

City of Hudson
2020 Sewer Rate Study

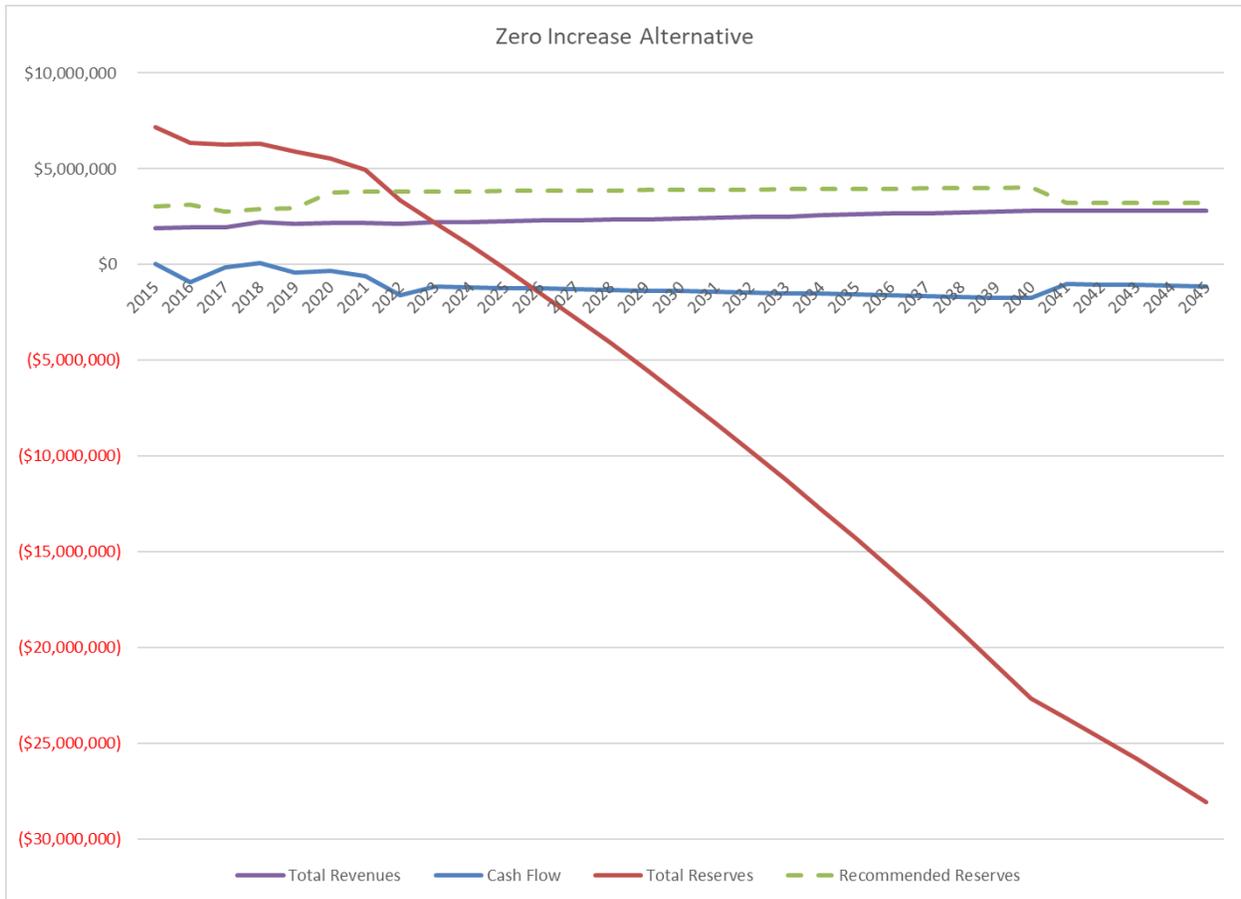


Figure 2 - Projected Cash Flow with 2021 Increase

City of Hudson
2020 Sewer Rate Study

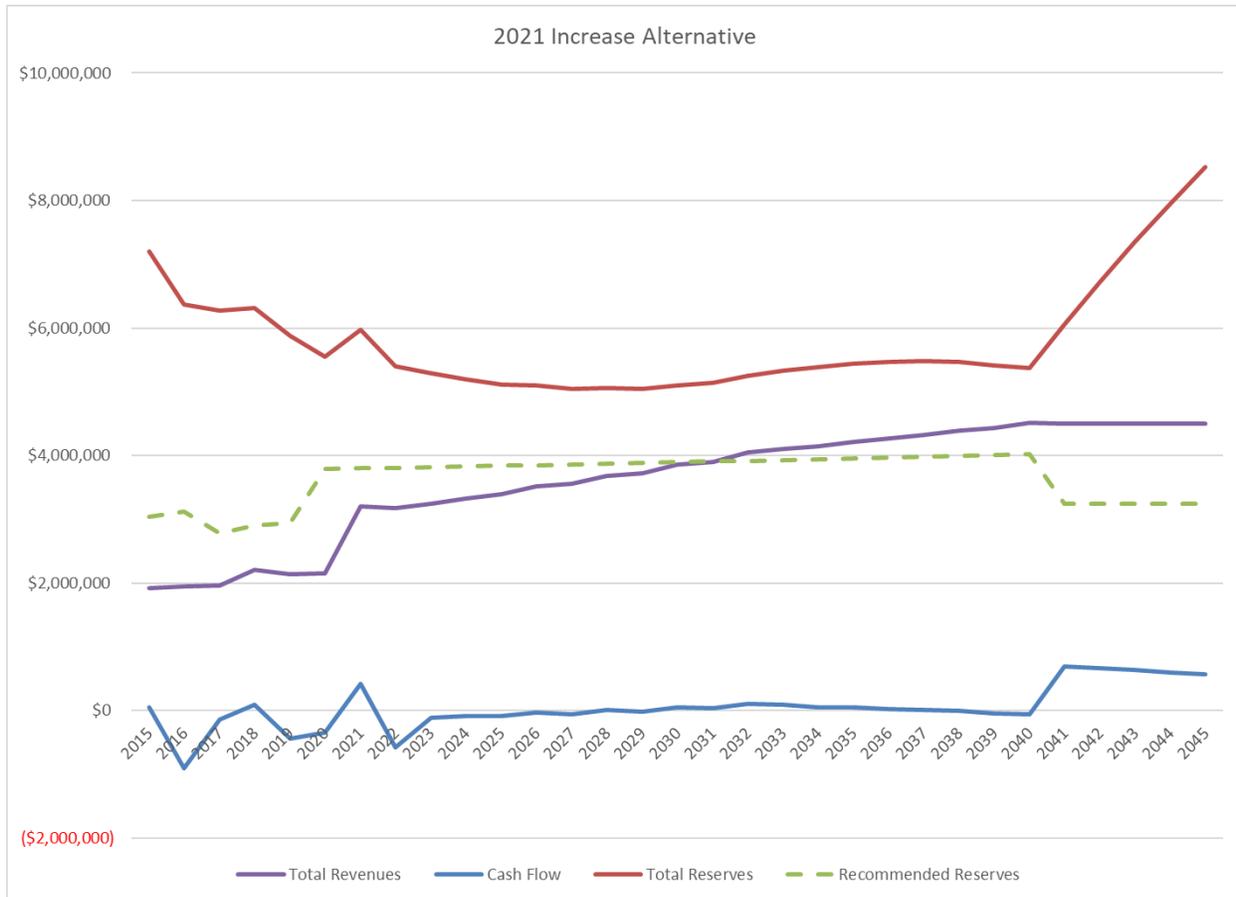


Figure 3 - Projected Cash Flow with Phased-In Increase: 38 Percent in 2021, 11 Percent in 2022

City of Hudson
2020 Sewer Rate Study



Figure 4 - Projected Cash Flow with Phased-In Increase: 11 Percent in 2021, 38 Percent in 2022

City of Hudson
2020 Sewer Rate Study

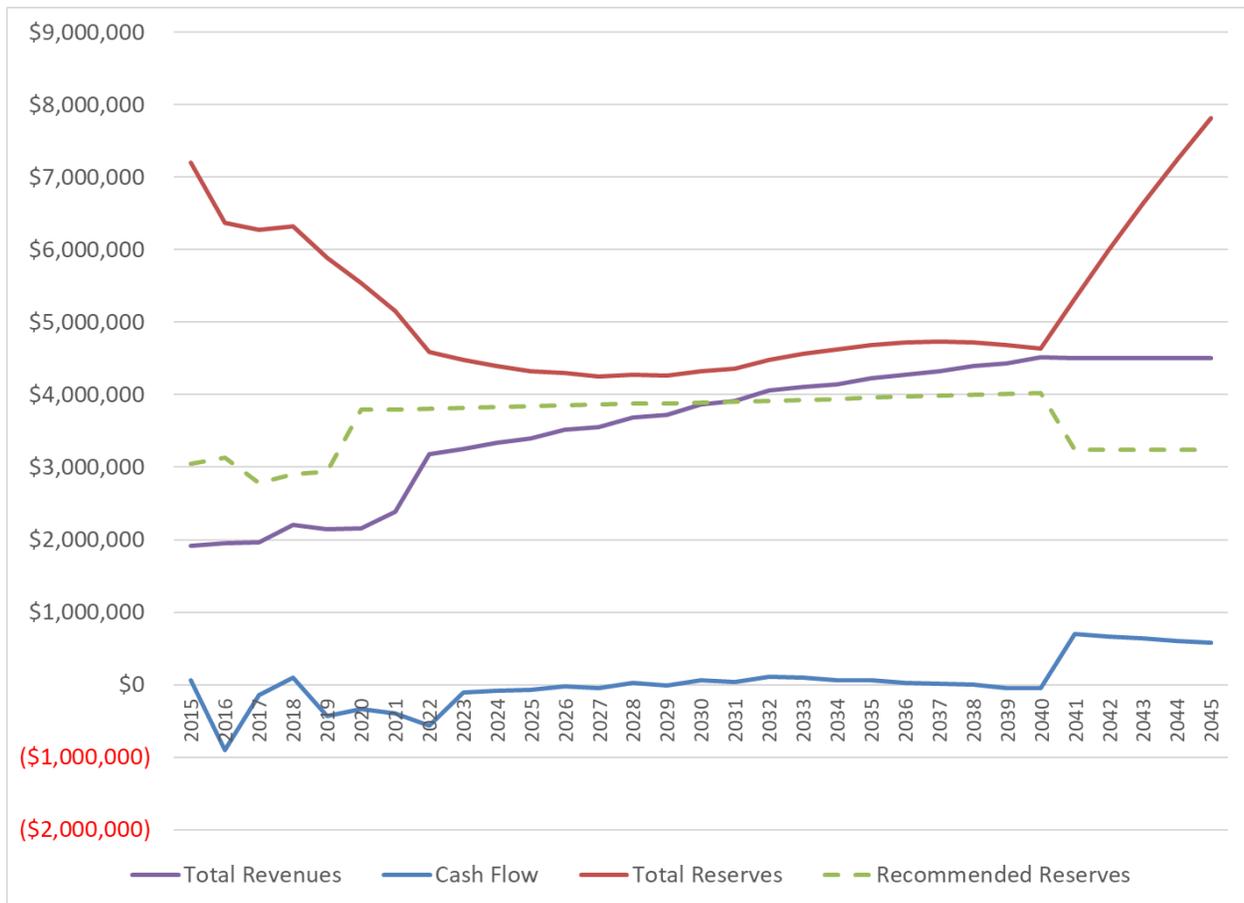
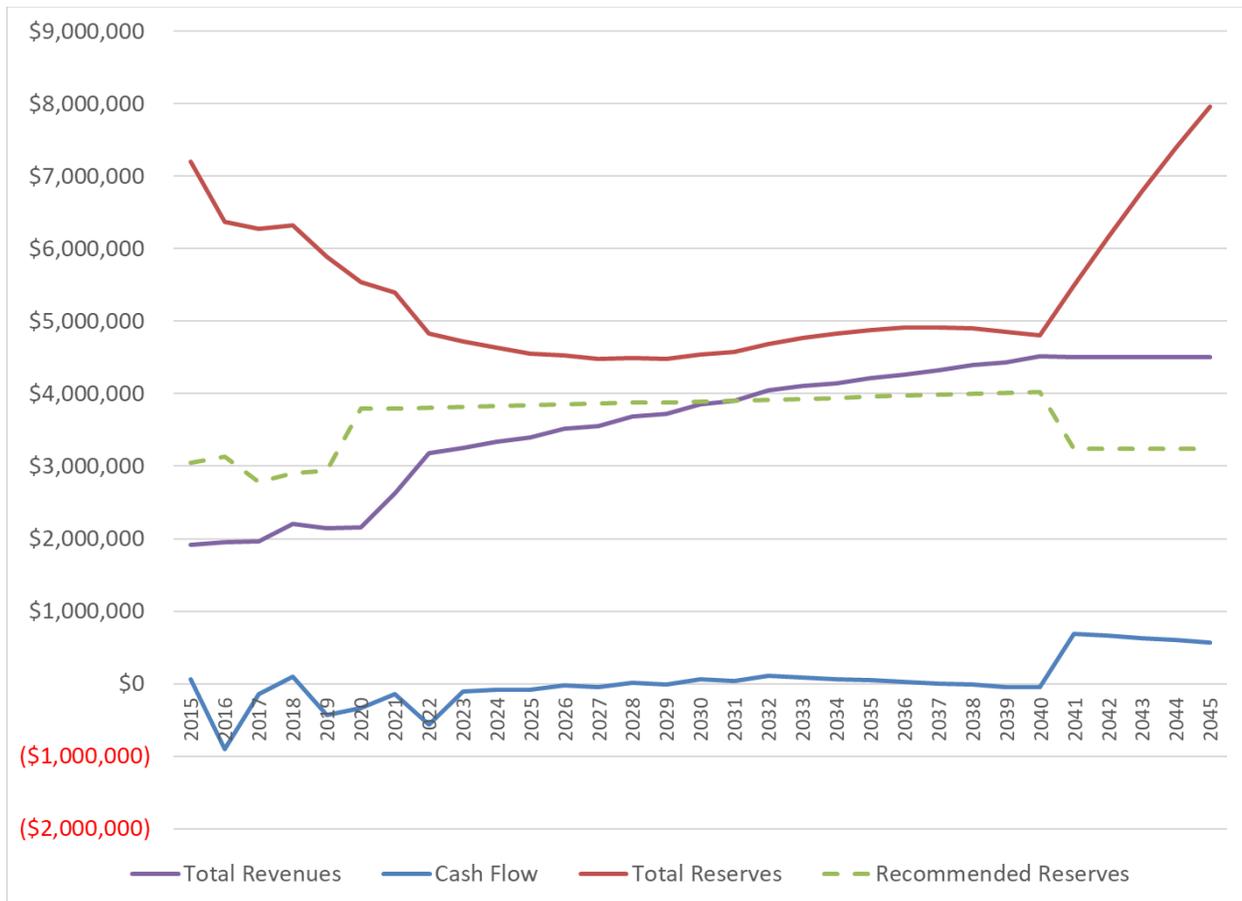


Figure 5 - Projected Cash Flow with Phased-In Rate Increase: 23.7 Percent in 2021, 23.7 Percent in 2022

City of Hudson
2020 Sewer Rate Study



Key findings and recommendations regarding the utility’s financial condition are as follows:

- The utility has had fluctuating cash flow for several years but had negative cash flow in 2019, with most of the capital additions being funded through reserves.
- Utility reserve levels are above the minimum recommended amount. However, without an increase, reserves are expected to drop below the recommended minimum in 2021 and be completely depleted by 2024 or 2025, due to the debt service on the treatment plant upgrades.
- The utility is currently free of debt.
- The utility has utility-financed capital improvements totaling \$17.1 million, or an average of \$3.4 million per year, planned for the period 2020-2024, with 12.7 million of that for the 2020/2021 upgrades at the treatment plant.
- An increase in user charge revenues of approximately 46.5 percent is recommended to generate sufficient revenues to fund the expected level of expenses, the capital improvement program, and projected debt service while maintaining the cash reserves

at the recommended level. A rate increase of 38.0 percent is required to provide revenues sufficient to pay debt service on the Clean Water Fund loan for the WWTF project plus the required 10 percent debt coverage. The remainder of the increase is recommended to allow the Utility to cash fund routine capital improvements to the WWTF and additions and replacements to vehicles, communication equipment and other general equipment without significant negative cash flow.

- Additional future rate increases may be warranted, depending on actual sales and expenses. The projected cash flows include 2.0 percent increases every other year, in 2024, 2026 and 2028. With the rate increases and the use of reserves, it is expected that the utility will not need to issue debt for any other planned capital projects anticipated during the next five years and may not need to issue debt for a longer period of time.
- Under the recommended plan, approximately \$1.5 million of the Utility's cash reserves would be used to fund a portion of the capital improvement program, with an additional \$1.0 million from the City Sewer Collection System Replacement fund used for the Hwy 35 / 2nd Street reconstruction.
- In total, with the recommended plan, the Utility's cash reserves are projected to decrease from \$5.9 million to \$4.4 million in the Wastewater Utility fund, and from \$1.15 million to \$453,000 in the Sewer Collection System Fund between 2019 and 2024.

The following tables show the forecast cash flows with the three options for phasing in the recommended rate increase. It should be noted that these future projections of cash flow are for planning purposes only. The City and the Utility should continue to assess the financial, physical, and operational conditions of the utility on an annual basis to respond to changing conditions and make decisions regarding which capital improvement projects to undertake, how those projects should be financed and the appropriate rate increase that may be needed to meet future revenue requirements.

Table 6 - Forecast Cash Flows: 38 Percent Increase in 2021, 11 Percent Increase in 2022

City of Hudson
2020 Sewer Rate Study

	Current Year		Test Year					2027	2028	
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Projected Demand Change										
Customer Growth		6.1%	3.1%	1.6%	1.6%	1.4%	1.7%	1.6%	1.5%	1.7%
Projected Average Expense Change		15.1%	2.2%	2.1%	2.1%	2.1%	2.0%	2.1%	2.1%	2.1%
Projected Rate Increase		0.0%	38.0%	11.0%	0.0%	2.0%	0.0%	2.0%	0.0%	2.0%
Revenues										
Subtotal User Charge Revenues	\$1,944,250	\$1,944,250	\$2,683,065	\$2,978,202	\$3,025,398	\$3,130,037	\$3,184,300	\$3,298,628	\$3,349,688	\$3,475,389
Less: Charges for City/Village Collection Systems ⁽¹⁾	(\$71,000)	(\$68,580)	(\$70,731)	(\$71,880)	(\$73,019)	(\$74,064)	(\$75,348)	(\$76,522)	(\$77,707)	(\$79,042)
Subtotal Other Operating Revenues	\$42,560	\$61,245	\$63,212	\$41,823	\$46,309	\$51,030	\$52,724	\$51,020	\$48,581	\$49,933
Subtotal Non-Operating Revenues	\$226,800	\$222,746	\$231,768	\$238,025	\$256,213	\$227,653	\$241,121	\$246,402	\$236,043	\$242,362
Total Cash In	\$2,142,610	\$2,159,661	\$2,907,314	\$3,186,171	\$3,254,902	\$3,334,656	\$3,402,797	\$3,519,527	\$3,556,605	\$3,688,643
Expenses										
Subtotal O&M	\$1,600,354	\$1,841,589	\$1,881,980	\$1,922,322	\$1,962,088	\$2,004,233	\$2,045,203	\$2,087,767	\$2,131,553	\$2,177,285
Debt Service	\$0	\$0	\$136,429	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117
Capital Outlay	\$916,750	\$13,295,000	\$1,690,000	\$980,450	\$546,364	\$562,754	\$579,637	\$597,026	\$614,937	\$633,385
Less: New Borrowing		\$12,700,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Transfer to General Fund per Intermunicipal Contract	\$62,000	\$63,788	\$65,331	\$66,091	\$67,666	\$69,065	\$70,255	\$71,528	\$72,961	\$74,211
Less: Transfer from Sewer Collection Replacement Fund ⁽²⁾			\$1,000,000							
Total Cash Out	\$2,579,104	\$2,500,377	\$2,773,741	\$3,752,979	\$3,360,234	\$3,420,169	\$3,479,211	\$3,540,438	\$3,603,567	\$3,668,997
Net Cash Flow	(\$436,494)	(\$340,716)	\$133,574	(\$566,809)	(\$105,332)	(\$85,513)	(\$76,414)	(\$20,911)	(\$46,962)	\$19,645
Sewer Utility Reserves										
Beginning Balance	\$6,321,807	\$5,885,313	\$5,544,597	\$5,678,171	\$5,111,362	\$5,006,030	\$4,920,517	\$4,844,103	\$4,823,192	\$4,776,230
Net Cash Flow	(\$436,494)	(\$340,716)	\$133,574	(\$566,809)	(\$105,332)	(\$85,513)	(\$76,414)	(\$20,911)	(\$46,962)	\$19,645
Ending Balance	\$5,885,313	\$5,544,597	\$5,678,171	\$5,111,362	\$5,006,030	\$4,920,517	\$4,844,103	\$4,823,192	\$4,776,230	\$4,795,876
Unrestricted Reserves	\$3,840,873	\$2,716,040	\$2,849,614	\$2,282,805	\$2,177,473	\$2,091,960	\$2,015,546	\$1,994,635	\$1,947,674	\$1,967,319
Restricted Reserves	\$2,044,440	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557
Total Reserves	\$5,885,313	\$5,544,597	\$5,678,171	\$5,111,362	\$5,006,030	\$4,920,517	\$4,844,103	\$4,823,192	\$4,776,230	\$4,795,876
Recommended Reserves										
Unrestricted Reserves	\$400,089	\$460,397	\$470,495	\$480,581	\$490,522	\$501,058	\$511,301	\$521,942	\$532,888	\$544,321
Capital Reserve	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000
Restricted Reserves	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Debt Service	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440
DNR Grant Replacement Account	\$2,944,529	\$3,788,954	\$3,799,052	\$3,809,137	\$3,819,079	\$3,829,615	\$3,839,857	\$3,850,498	\$3,861,445	\$3,872,878
Total	\$1,076,512	\$1,152,300	\$1,209,907	\$269,321	\$329,701	\$453,251	\$516,543	\$580,822	\$646,095	\$712,491
Sewer Collection System Replacement Fund										
Beginning Balance	\$59,640	\$57,608	\$59,414	\$60,379	\$61,336	\$62,213	\$63,292	\$64,279	\$65,274	\$66,395
Transfer from Sewer Utility	\$0	\$0	(\$1,000,000)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Expenditures ⁽²⁾	\$1,152,300	\$1,209,907	\$269,321	\$329,701	\$391,037	\$453,251	\$516,543	\$580,822	\$646,095	\$712,491
Ending Balance	\$59,640	\$57,608	\$59,414	\$60,379	\$61,336	\$62,213	\$63,292	\$64,279	\$65,274	\$66,395

Notes:
(1) Funds transferred to the City and Village for collection system costs.
(2) Funds to be used for the Hwy 35 / 2nd Street trunk sewer replacement project in 2021.



Table 7 - Forecast Cash Flows: 11 Percent Increase in 2021, 38 Percent Increase in 2022

City of Hudson
2020 Sewer Rate Study

	Current Year					Test Year				
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Projected Demand Change		6.1%	3.1%	1.6%	1.6%	1.4%	1.7%	1.6%	1.5%	1.7%
Customer Growth		128	124	126	127	123	127	125	125	127
Projected Average Expense Change		15.1%	2.2%	2.1%	2.1%	2.1%	2.0%	2.1%	2.1%	2.1%
Projected Rate Increase		0.0%	11.0%	38.0%	0.0%	2.0%	0.0%	2.0%	0.0%	2.0%
Revenues										
Subtotal User Charge Revenues	\$1,944,250	\$1,944,250	\$2,158,118	\$2,978,202	\$3,025,398	\$3,130,037	\$3,184,300	\$3,298,628	\$3,349,688	\$3,475,389
Less: Charges for City/Village Collection Systems ⁽¹⁾	(\$71,000)	(\$68,580)	(\$70,731)	(\$71,880)	(\$73,019)	(\$74,064)	(\$75,348)	(\$76,522)	(\$77,707)	(\$79,042)
Subtotal Other Operating Revenues	\$42,560	\$61,245	\$63,212	\$41,823	\$46,309	\$51,030	\$52,724	\$51,020	\$48,581	\$49,933
Subtotal Non-Operating Revenues	\$226,800	\$222,746	\$231,768	\$238,025	\$256,213	\$227,653	\$241,121	\$246,402	\$236,043	\$242,362
Total Cash In	\$2,147,610	\$2,159,661	\$2,382,367	\$3,186,171	\$3,254,902	\$3,334,656	\$3,402,797	\$3,519,527	\$3,556,605	\$3,688,643
Expenses										
Subtotal O&M	\$1,600,354	\$1,841,589	\$1,881,980	\$1,922,322	\$1,962,088	\$2,004,233	\$2,045,203	\$2,087,767	\$2,131,553	\$2,177,285
Debt Service	\$0	\$0	\$136,429	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117
Capital Outlay	\$916,750	\$13,295,000	\$1,690,000	\$980,450	\$546,364	\$562,754	\$579,637	\$597,026	\$614,937	\$633,385
Less: New Borrowing	\$12,700,000	\$12,700,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Transfer to General Fund per Intermunicipal Contract	\$62,000	\$63,788	\$65,331	\$66,091	\$67,666	\$69,065	\$70,255	\$71,528	\$72,961	\$74,211
Less: Transfer from Sewer Collection Replacement Fund ⁽²⁾			\$1,000,000							
Total Cash Out	\$2,579,104	\$2,500,377	\$2,773,741	\$3,752,979	\$3,360,234	\$3,420,169	\$3,479,211	\$3,540,438	\$3,603,567	\$3,668,997
Net Cash Flow	(\$436,494)	(\$340,716)	(\$391,374)	(\$566,809)	(\$105,332)	(\$85,513)	(\$76,414)	(\$20,911)	(\$46,962)	\$19,645
Sewer Utility Reserves										
Beginning Balance	\$6,321,807	\$5,885,313	\$5,544,597	\$5,153,223	\$4,586,414	\$4,481,082	\$4,395,569	\$4,319,155	\$4,298,244	\$4,251,283
Net Cash Flow	(\$436,494)	(\$340,716)	(\$391,374)	(\$566,809)	(\$105,332)	(\$85,513)	(\$76,414)	(\$20,911)	(\$46,962)	\$19,645
Ending Balance	\$5,885,313	\$5,544,597	\$5,153,223	\$4,586,414	\$4,481,082	\$4,395,569	\$4,319,155	\$4,298,244	\$4,251,283	\$4,270,928
Unrestricted Reserves	\$3,840,873	\$2,716,040	\$2,324,667	\$1,757,858	\$1,652,526	\$1,567,013	\$1,490,599	\$1,469,688	\$1,422,726	\$1,442,372
Restricted Reserves	\$2,044,440	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557
Total Reserves	\$5,885,313	\$5,544,597	\$5,153,223	\$4,586,414	\$4,481,082	\$4,395,569	\$4,319,155	\$4,298,244	\$4,251,283	\$4,270,928
Recommended Reserves										
Unrestricted Reserves	\$400,089	\$460,397	\$470,495	\$480,581	\$490,522	\$501,058	\$511,301	\$521,942	\$532,888	\$544,321
Operating Reserve	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000
Capital Reserve	\$0	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117
Restricted Reserves	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440
Debt Service	\$2,944,529	\$3,788,954	\$3,799,052	\$3,809,137	\$3,819,079	\$3,829,615	\$3,839,857	\$3,850,498	\$3,861,445	\$3,872,878
DNR Grant Replacement Account										
Total	\$1,076,512	\$1,152,300	\$1,209,907	\$269,321	\$329,701	\$391,037	\$453,251	\$516,543	\$580,822	\$646,095
Sewer Collection System Replacement Fund	\$59,640	\$57,608	\$59,414	\$60,379	\$61,336	\$62,213	\$63,292	\$64,279	\$65,274	\$66,395
Beginning Balance	\$1,152,300	\$1,209,907	\$269,321	\$329,701	\$391,037	\$453,251	\$516,543	\$580,822	\$646,095	\$712,491
Transfer from Sewer Utility	\$0	\$0	(\$1,000,000)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Expenditures ⁽²⁾	\$1,152,300	\$1,209,907	\$269,321	\$329,701	\$391,037	\$453,251	\$516,543	\$580,822	\$646,095	\$712,491
Ending Balance	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Notes:

(1) Funds transferred to the City and Village for collection system costs.

(2) Funds to be used for the Hwy 35 / 2nd Street trunk sewer replacement project in 2021.

Table 8 - Forecast Cash Flows: 23.7 Percent Increase in 2021, 23.7 Percent Increase in 2022

City of Hudson
2020 Sewer Rate Study

	Current Year		Test Year									
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028		
Projected Demand Change		6.1%	3.1%	1.6%	1.6%	1.4%	1.7%	1.6%	1.5%	1.7%		
Customer Growth		128	124	126	127	123	127	125	125	127		
Projected Average Expense Change		15.1%	2.2%	2.1%	2.1%	2.1%	2.0%	2.1%	2.1%	2.1%		
Projected Rate Increase		0.0%	23.7%	23.7%	0.0%	2.0%	0.0%	2.0%	0.0%	2.0%		
Revenues												
Subtotal User Charge Revenues	\$1,944,250	\$1,944,250	\$2,405,037	\$2,975,031	\$3,022,177	\$3,126,705	\$3,180,909	\$3,295,115	\$3,346,122	\$3,471,689		
Less: Charges for City/Village Collection Systems ⁽¹⁾	(\$71,000)	(\$68,580)	(\$70,731)	(\$71,880)	(\$73,019)	(\$74,064)	(\$75,348)	(\$76,522)	(\$77,707)	(\$79,042)		
Subtotal Other Operating Revenues	\$42,560	\$61,245	\$63,212	\$41,823	\$46,309	\$51,030	\$52,724	\$51,020	\$48,581	\$49,933		
Subtotal Non-Operating Revenues	\$226,800	\$222,746	\$233,768	\$238,025	\$256,213	\$227,653	\$241,121	\$246,402	\$236,043	\$242,362		
Total Cash In	\$2,142,610	\$2,159,661	\$2,629,287	\$3,183,000	\$3,251,680	\$3,331,324	\$3,399,407	\$3,516,015	\$3,553,039	\$3,684,942		
Expenses												
Subtotal O&M	\$1,600,354	\$1,841,589	\$1,881,980	\$1,922,322	\$1,962,088	\$2,004,233	\$2,045,203	\$2,087,767	\$2,131,553	\$2,177,285		
Debt Service	\$0	\$0	\$136,429	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117		
Capital Outlay	\$916,750	\$13,295,000	\$1,690,000	\$980,450	\$546,364	\$562,754	\$579,637	\$597,026	\$614,937	\$633,385		
Less: New Borrowing	\$12,700,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Transfer to General Fund per Intermunicipal Contract	\$62,000	\$63,788	\$65,331	\$66,091	\$67,666	\$69,065	\$70,255	\$71,528	\$72,961	\$74,211		
Less: Transfer from Sewer Collection Replacement Fund ⁽²⁾		\$1,000,000										
Total Cash Out	\$2,579,104	\$2,500,377	\$2,773,741	\$3,752,979	\$3,360,234	\$3,420,169	\$3,479,211	\$3,540,438	\$3,603,567	\$3,668,997		
Net Cash Flow	(\$436,494)	(\$340,716)	(\$144,454)	(\$569,980)	(\$108,553)	(\$88,846)	(\$79,805)	(\$24,423)	(\$50,528)	(\$15,945)		
Sewer Utility Reserves												
Beginning Balance	\$6,321,807	\$5,885,313	\$5,544,597	\$5,400,143	\$4,830,163	\$4,721,610	\$4,632,764	\$4,552,959	\$4,528,536	\$4,478,008		
Net Cash Flow	(\$436,494)	(\$340,716)	(\$144,454)	(\$569,980)	(\$108,553)	(\$88,846)	(\$79,805)	(\$24,423)	(\$50,528)	(\$15,945)		
Ending Balance	\$5,885,313	\$5,544,597	\$5,400,143	\$4,830,163	\$4,721,610	\$4,632,764	\$4,552,959	\$4,528,536	\$4,478,008	\$4,493,953		
Unrestricted Reserves	\$3,840,873	\$2,716,040	\$2,571,586	\$2,001,606	\$1,893,053	\$1,804,207	\$1,724,403	\$1,699,980	\$1,649,451	\$1,665,396		
Restricted Reserves	\$2,044,440	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557		
Total Reserves	\$5,885,313	\$5,544,597	\$5,400,143	\$4,830,163	\$4,721,610	\$4,632,764	\$4,552,959	\$4,528,536	\$4,478,008	\$4,493,953		
Recommended Reserves												
Unrestricted Reserves	\$400,089	\$460,397	\$470,495	\$480,581	\$490,522	\$501,058	\$511,301	\$521,942	\$532,888	\$544,321		
Operating Reserve	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000		
Capital Reserve	\$0	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117		
Restricted Reserves	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440		
DNR Grant Replacement Account	\$2,944,529	\$3,788,954	\$3,799,052	\$3,809,137	\$3,819,079	\$3,829,615	\$3,839,857	\$3,850,498	\$3,861,445	\$3,872,878		
Total	\$1,076,512	\$1,152,300	\$1,209,907	\$1,269,321	\$1,329,701	\$1,391,037	\$1,453,251	\$1,516,543	\$1,580,822	\$1,646,095		
Sewer Collection System Replacement Fund	\$59,640	\$57,608	\$59,414	\$60,379	\$61,336	\$62,213	\$63,292	\$64,279	\$65,274	\$66,395		
Beginning Balance	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Transfer from Sewer Utility	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Expenditures ⁽²⁾	\$1,152,300	\$1,209,907	\$1,269,321	\$1,329,701	\$1,391,037	\$1,453,251	\$1,516,543	\$1,580,822	\$1,646,095	\$1,712,491		
Ending Balance	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		

Notes:
 (1) Funds transferred to the Village and the City for collection system costs.
 (2) Funds to be used for the Hwy 35 / 2nd Street trunk sewer replacement project in 2021.



REVENUE REQUIREMENTS AND COST-OF-SERVICE ANALYSIS

The tables attached to this report as an appendix show the detailed revenue requirements and the cost of service analysis based on projected 2022 revenue requirements. The cost of service analysis allocates the utility's revenue requirements first to utility functions and then to each customer class. Rates were calculated to recover the costs for 2022, and then stepped-in rates for 2021 were developed to phase in the rate increase. Finally, the estimated revenues at the proposed rates for 2020 through 2022 were calculated. Utility revenue requirements include operation and maintenance expense, debt service, and capital improvements.

Costs were first allocated to the functions served by the utility. Each of the utility's costs was split between costs to provide collector sewer conveyance, wastewater treatment for average daily volume, costs to provide peak (maximum day) treatment capacity, costs to treat pollutant loadings (BOD, TSS, phosphorus and NH-3), and customer costs that are relatively fixed per customer or meter.

Costs were then allocated to each customer class (residential, multi-family, commercial, industrial, public authority) based on the demand characteristics of each customer class. A portion of the conveyance system, average day and peak day flow costs were allocated to infiltration and inflow (I/I) based on forecast percentage of I/I on an average and peak day basis. Costs allocated to I/I are proposed to be recovered through the flat charge, as the amount of I/I in the system is related more closely to the number of customers, size of sewer laterals and feet of sewer main rather than the volume of wastewater generated by each customer.

PROPOSED RATE SCHEDULE

The targeted overall increase in user charge revenues by 2022 is approximately 46.5 percent. The following tables show the specific schedule of rates for 2021 and 2022 under each of the three options for phasing in the rate increase. Rate increases for specific types of charges vary from the overall rate increase.

**City of Hudson
2020 Sewer Rate Study**

Table 9 - Proposed Phased-In Rate Schedule – Increase of 38 Percent in 2021 and 11 Percent in 2022

Flat Charge

Connection Size	Current Charge	2020	Percent Change	2021	Percent Change	2022	Percent Change
5/8	\$7.60	\$7.60	0%	\$11.53	52%	\$12.80	11%
3/4	\$7.60	\$7.60	0%	\$11.53	52%	\$12.80	11%
1	\$8.45	\$8.45	0%	\$21.71	157%	\$24.10	11%
1 1/4	\$9.50	\$9.50	0%	\$30.72	223%	\$34.10	11%
1 1/2	\$10.35	\$10.35	0%	\$39.73	284%	\$44.10	11%
2	\$11.15	\$11.15	0%	\$62.16	458%	\$69.00	11%
2 1/2	\$11.70	\$11.70	0%	\$87.84	651%	\$97.50	11%
3	\$12.50	\$12.50	0%	\$107.66	761%	\$119.50	11%
4	\$0.00	\$0.00	NA	\$170.54	NA	\$189.30	11%
6	\$0.00	\$0.00	NA	\$319.91	NA	\$355.10	11%
8	\$0.00	\$0.00	NA	\$498.11	NA	\$552.90	11%
10	\$0.00	\$0.00	NA	\$734.05	NA	\$814.80	11%
12	\$0.00	\$0.00	NA	\$969.91	NA	\$1,076.60	11%

Usage Charges

	Units	Current Rate	2020	Percent Change	2021	Percent Change	2022	Percent Change
Domestic Sewage	\$/CCF	\$3.00	\$3.00	0%	\$3.83	28%	\$4.25	11%
Landfill Leachate	\$/CCF	\$0.00	\$2.00	NA	\$2.77	38%	\$3.07	11%
	\$/1,000 gals	\$0.00	\$2.68	NA	\$3.70	38%	\$4.11	11%
	per load	\$0.00	\$0.44	NA	\$0.61	38%	\$0.68	11%
Surcharge Rates								
BOD	\$/pound	\$0.00	\$0.50	NA	\$0.68	38%	\$0.76	11%
TSS	\$/pound	\$0.00	\$0.47	NA	\$0.65	38%	\$0.72	11%
Phosphorus	\$/pound	\$0.00	\$4.18	NA	\$5.77	38%	\$6.41	11%
TKN	\$/pound	\$0.00	\$0.80	NA	\$1.10	38%	\$1.22	11%

**City of Hudson
2020 Sewer Rate Study**

Table 10 - Proposed Phased-In Rate Schedule – Increase of 11 Percent in 2021 and 38 Percent in 2022

Flat Charge

Connection Size	Current Charge	2020	Percent Change	2021	Percent Change	2022	Percent Change
5/8	\$7.60	\$7.60	0%	\$9.28	22%	\$12.80	38%
3/4	\$7.60	\$7.60	0%	\$9.28	22%	\$12.80	38%
1	\$8.45	\$8.45	0%	\$17.46	107%	\$24.10	38%
1 1/4	\$9.50	\$9.50	0%	\$24.71	160%	\$34.10	38%
1 1/2	\$10.35	\$10.35	0%	\$31.96	209%	\$44.10	38%
2	\$11.15	\$11.15	0%	\$50.00	348%	\$69.00	38%
2 1/2	\$11.70	\$11.70	0%	\$70.65	504%	\$97.50	38%
3	\$12.50	\$12.50	0%	\$86.59	593%	\$119.50	38%
4	\$0.00	\$0.00	NA	\$137.10	NA	\$189.20	38%
6	\$0.00	\$0.00	NA	\$257.25	NA	\$355.00	38%
8	\$0.00	\$0.00	NA	\$400.65	NA	\$552.90	38%
10	\$0.00	\$0.00	NA	\$590.36	NA	\$814.70	38%
12	\$0.00	\$0.00	NA	\$780.14	NA	\$1,076.60	38%

Usage Charges

	Units	Current Rate	2020	Percent Change	2021	Percent Change	2022	Percent Change
Domestic Sewage	\$/CCF	\$3.00	\$3.00	0%	\$3.08	3%	\$4.25	38%
Landfill Leachate	\$/CCF	\$0.00	\$2.01	NA	\$2.23	11%	\$3.08	38%
	\$/1,000 gals	\$0.00	\$2.68	NA	\$2.98	11%	\$4.11	38%
	per load	\$0.00	\$0.44	NA	\$0.49	11%	\$0.68	38%
Surcharge Rates								
BOD	\$/pound	\$0.00	\$0.50	NA	\$0.55	11%	\$0.76	38%
TSS	\$/pound	\$0.00	\$0.47	NA	\$0.52	11%	\$0.72	38%
Phosphorus	\$/pound	\$0.00	\$4.18	NA	\$4.64	11%	\$6.40	38%
TKN	\$/pound	\$0.00	\$0.79	NA	\$0.88	11%	\$1.21	38%

City of Hudson
2020 Sewer Rate Study

Table 11 - Proposed Phased-In Rate Schedule – Increase of 23.7 Percent in 2021 and 23.7 Percent in 2022

Flat Charge

Connection Size	Current Charge	2020	Percent Change	2021	Percent Change	2022	Percent Change
5/8	\$7.60	\$7.60	0%	\$10.35	36%	\$12.80	24%
3/4	\$7.60	\$7.60	0%	\$10.35	36%	\$12.80	24%
1	\$8.45	\$8.45	0%	\$19.48	131%	\$24.10	24%
1 1/4	\$9.50	\$9.50	0%	\$27.57	190%	\$34.10	24%
1 1/2	\$10.35	\$10.35	0%	\$35.65	244%	\$44.10	24%
2	\$11.15	\$11.15	0%	\$55.78	400%	\$69.00	24%
2 1/2	\$11.70	\$11.70	0%	\$78.74	573%	\$97.40	24%
3	\$12.50	\$12.50	0%	\$96.60	673%	\$119.50	24%
4	\$0.00	\$0.00	NA	\$152.95	NA	\$189.20	24%
6	\$0.00	\$0.00	NA	\$286.98	NA	\$355.00	24%
8	\$0.00	\$0.00	NA	\$446.89	NA	\$552.80	24%
10	\$0.00	\$0.00	NA	\$658.61	NA	\$814.70	24%
12	\$0.00	\$0.00	NA	\$870.25	NA	\$1,076.50	24%

Usage Charges

	Units	Current Rate	2020	Percent Change	2021	Percent Change	2022	Percent Change
Domestic Sewage	\$/CCF	\$3.00	\$3.00	0%	\$3.44	15%	\$4.25	24%
Landfill Leachate	\$/CCF	\$0.00	\$2.01	NA	\$2.48	24%	\$3.07	24%
	\$/1,000 gals	\$0.00	\$2.69	NA	\$3.32	24%	\$4.11	24%
	per load	\$0.00	\$0.44	NA	\$0.55	24%	\$0.68	24%
Surcharge Rates								
BOD	\$/pound	\$0.00	\$0.50	NA	\$0.61	24%	\$0.76	24%
TSS	\$/pound	\$0.00	\$0.47	NA	\$0.58	24%	\$0.72	24%
Phosphorus	\$/pound	\$0.00	\$4.18	NA	\$5.17	24%	\$6.39	24%
TKN	\$/pound	\$0.00	\$0.79	NA	\$0.98	24%	\$1.21	24%

COMMUNITY RATE COMPARISON

To provide context for the proposed rates for Hudson, a comparison with the sewer user rates charged by other communities in the region was prepared. The two communities in Minnesota included in the comparison were chosen because they have their own wastewater treatment plant and are comparable to Hudson. The basis of the charges, and the estimated total annual bill for a residential customer for each community are shown in the following table. As shown, for a customer using 4,850 cubic feet or 36,278 gallons of water per year, the estimated annual sewer bill under current Hudson rates would be \$175.90 per year. Under the proposed rates for 2022, this would increase to \$257.33, or a total increase of \$20.36 per quarter. Even with the

City of Hudson
2020 Sewer Rate Study

increase, the average bill would remain significantly below the average or median bill for the other regional communities.

Table 12 - Regional Comparison of Average Residential Bills

Community	Fixed Charge	Bills per Year	Volume Rate	Annual Usage	Units	Annual Bill
Roberts	\$81.50	4	\$17.74	36,278	gallons	\$969.57
Hammond	\$14.75	12	\$13.39	36,278	gallons	\$662.76
Star Prairie	\$50.00	12	\$0.00	36,278	gallons	\$600.00
Wyoming, MN	\$30.06	4	\$12.80	36,278	gallons	\$584.60
Osceola	\$35.00	4	\$9.00	4,850	ft ³	\$576.50
Somerset	\$8.92	12	\$11.14	36,278	gallons	\$511.18
Ashland	\$15.92	12	\$6.21	4,850	ft ³	\$492.23
River Falls	\$16.50	12	\$7.04	36,278	gallons	\$453.40
Lindstrom, MN	\$32.00	4	\$8.86	36,278	gallons	\$449.26
Amery	\$42.27	4	\$5.33	36,278	gallons	\$362.44
New Richmond	\$8.50	12	\$6.68	36,278	gallons	\$344.34
Baldwin	\$27.30	4	\$5.28	36,278	gallons	\$300.75
Hudson (proposed 2022)	\$12.80	4	\$4.25	4,850	ft³	\$257.33
Chippewa Falls	\$17.01	4	\$2.85	4,850	ft ³	\$206.27
Menomonie	\$18.00	4	\$2.70	4,850	ft ³	\$202.95
Glenwood City	\$29.00	4	\$2.32	36,278	gallons	\$200.16
Hudson (current)	\$7.60	4	\$3.00	4,850	ft³	\$175.90
Rice Lake	\$4.40	12	\$3.08	36,278	gallons	\$164.54
Average w/o Hudson						\$442.56
Median w/o Hudson						\$451.33

A similar comparison was prepared for an average non-residential customer in Hudson using 28,700 cubic feet, or 214,676 gallons per year, with a 3/4" meter. Under current rates, this customer would receive an annual bill of \$894.80. Under the proposed increase for 2022, the annual bill would increase to \$1,316.15, or an increase of \$105.34 per quarter. Again, this would keep the average non-residential bill well below the median for the region.

City of Hudson
2020 Sewer Rate Study

Table 13 - Regional Comparison of Average Non-Residential Bills

Community	Fixed Charge	Bills per Year	Volume Rate	Annual Usage	Units	Annual Bill
Roberts	\$81.50	4	\$17.74	214,676	gallons	\$4,134.35
Hammond	\$14.75	12	\$13.39	214,676	gallons	\$3,051.51
Wyoming, MN	\$30.06	4	\$12.80	214,676	gallons	\$2,868.09
Osceola	\$35.00	4	\$9.00	28,700	ft ³	\$2,723.00
Somerset	\$22.71	12	\$11.14	214,676	gallons	\$2,664.01
Ashland	\$36.00	12	\$6.21	28,700	ft ³	\$2,214.27
Lindstrom, MN	\$32.00	4	\$9.28	214,676	gallons	\$2,119.30
River Falls	\$22.50	12	\$7.04	214,676	gallons	\$1,781.32
New Richmond	\$12.90	4	\$6.68	214,676	gallons	\$1,485.64
Amery	\$55.79	4	\$5.33	214,676	gallons	\$1,367.38
Hudson (proposed 2022)	\$24.10	4	\$4.25	28,700	ft³	\$1,316.15
Baldwin	\$36.07	4	\$5.28	214,676	gallons	\$1,277.77
Hudson (current)	\$8.45	4	\$3.00	28,700	ft³	\$894.80
Chippewa Falls	\$17.01	4	\$2.85	28,700	ft ³	\$885.99
Menomonie	\$18.00	4	\$2.70	28,700	ft ³	\$846.90
Rice Lake	\$4.40	12	\$3.08	214,676	gallons	\$714.00
Glenwood City	\$29.00	4	\$2.32	214,676	gallons	\$614.05
Star Prairie	\$50.00	12	\$0.00	214,676	gallons	\$600.00
Average w/o Hudson						\$1,834.22
Median w/o Hudson						\$1,633.48

RECOMMENDATIONS

It is recommended that the City phase in the rate increase according to one of the schedules shown in Tables 8-10 and continue to monitor the financial health of the utility for the necessity of additional future rate increases as presented in the cash flow forecasts. This will allow the Wastewater Utility to generate the revenue needed to provide adequate funding for the utility's operation and maintenance expenses and capital improvement program while maintaining the utility's reserve funds at the recommended levels.

**APPENDIX A – SEWER UTILITY COST OF SERVICE STUDY AND PROPOSED RATE
DESIGN**

Sewer Rate Study

Prepared for the

City of Hudson

by Trilogy Consulting, LLC

January 2021

TABLE OF CONTENTS

INTRODUCTION 4

IMPETUS FOR STUDY 4

STUDY METHODOLOGY 4

SEWER RATE STUDY 6

SUMMARY 6

HISTORICAL AND FORECAST CUSTOMER DEMANDS 7

 Table 1 - Historical Flows and Trends 8

 Table 2 - Projected Flows and Demand 10

 Table 3 - Test Year Revenues at Present Rates 12

HISTORICAL AND FORECAST OPERATION AND MAINTENANCE EXPENSE 12

 Table 4 - Historical and Forecast O&M Expenses 14

HISTORICAL AND FORECAST CAPITAL IMPROVEMENTS 15

 Table 5 - Forecast Capital Improvements 16

CASH FLOW FORECASTS 16

 Figure 1 - Projected Cash Flow with Zero Increase 19

 Figure 2 - Projected Cash Flow with 2021 Increase 20

 Figure 3 - Projected Cash Flow with Phased-In Increase: 38 Percent in 2021, 11 Percent in 2022... 21

 Figure 4 - Projected Cash Flow with Phased-In Increase: 11 Percent in 2021, 38 Percent in 2022... 22

 Figure 5 - Projected Cash Flow with Phased-In Rate Increase: 23.7 Percent in 2021, 23.7 Percent in 2022 23

 Table 6 - Forecast Cash Flows: 38 Percent Increase in 2021, 11 Percent Increase in 2022..... 25

 Table 7 - Forecast Cash Flows: 11 Percent Increase in 2021, 38 Percent Increase in 2022..... 26

 Table 8 - Forecast Cash Flows: 23.7 Percent Increase in 2021, 23.7 Percent Increase in 2022 27

REVENUE REQUIREMENTS AND COST-OF-SERVICE ANALYSIS 28

PROPOSED RATE SCHEDULE 28

 Table 9 - Proposed Phased-In Rate Schedule – Increase of 38 Percent in 2021 and 11 Percent in 2022 29

 Table 10 - Proposed Phased-In Rate Schedule – Increase of 11 Percent in 2021 and 38 Percent in 2022 30

Table 11 - Proposed Phased-In Rate Schedule – Increase of 23.7 Percent in 2021 and 23.7 Percent in 2022 31

COMMUNITY RATE COMPARISON..... 31

Table 12 - Regional Comparison of Average Residential Bills..... 32

Table 13 - Regional Comparison of Average Non-Residential Bills..... 33

RECOMMENDATIONS..... 33

APPENDIX A – SEWER UTILITY COST OF SERVICE STUDY AND PROPOSED RATE DESIGN..... 34

INTRODUCTION

The City of Hudson owns and operates a wastewater collection system and Wastewater Treatment Facility that provides wastewater service to just over 7,600 customers within the City of Hudson and the Village of North Hudson. The City serves the Village on a retail basis and covers the costs of limited operation and maintenance of the Village's collection system, but the Village is responsible for major repairs, rehabilitation, and replacement for its collection mains and lift stations. About 16 percent of billable wastewater flows over the past five years have been from the Village of North Hudson, and approximately 84 percent were from the customers within the City of Hudson, on average. The City is required to treat at its wastewater treatment plant: organic pollutants (BOD), suspended solids (TSS), phosphorus and ammonia (NH-3). The City last increased wastewater rates in January of 2019.

IMPETUS FOR STUDY

The sewer utility is planning on significant capital investment in upgrades to the Wastewater Treatment Facility in the amount of \$12,700,000, equipment replacement, and ongoing replacement of sewer infrastructure as needed. For these reasons, the City hired Trilogy Consulting to conduct a formal Sewer User Rate Study. The study consisted of determining recommended user rates based on a detailed cost of service study for 2020, and cash flow projections, including future rate increases. A 25-year projection of user rates and cash flows was prepared to develop a plan to complete all necessary capital improvement projects and meet all debt requirements while maintaining the financial health of the Utility.

STUDY METHODOLOGY

The study is generally organized into three sections:

1. An analysis of historical conditions including historical revenues, expenses, and usage.
2. Projections for the next twenty-five years, including billed wastewater usage projections, and projections of future operating and maintenance expenses. The analysis took into consideration the City's 5-year capital improvement needs, as well as estimates of capital improvements for years 6-25 based on prior years' investments and scheduled annual debt service payments for existing utility debt. Utility capital funding in future years includes connection fees, revenues generated from annual rates, new debt issuances and utility reserves.
3. Allocation of costs and detailed rate calculations for the 'test year' or target year for the immediate rate increase(s). In this study, 2022 was used as the year when the full amount of debt service payments for the Wastewater Treatment Facility upgrades will be in place.

The user rates were calculated using a cash-based method. The cash-based method calculates rates to recover the cost of operating and maintenance expenses, administrative expenses, annual debt service and any debt coverage requirements, annual capital outlay expenses, transfers to the City collection system replacement fund and to the Village for collection system costs, and deposits into reserve funds, if necessary.

SEWER RATE STUDY

SUMMARY

The purpose of this study was to recommend rates that will collect adequate revenues for the City of Hudson Wastewater Utility to fulfill all its current and upcoming obligations. Specifically, revenues need to be adequate to recover operation and maintenance expenses, debt service, transfers to the City collection system replacement fund and to the Village for collection system costs, and annual capital improvements. These current revenues will be combined with the reserves in the wastewater fund to fund the capital improvement plan.

The results of the study indicate a significant rate increase of about 47 percent by 2022. This overall level of rate increases is recommended to fund the utility's ongoing operating expenses and \$17.3 million capital improvement program for 2020 through 2024 and to maintain an adequate level of reserve funds available to cover ongoing equipment replacements, unexpected replacement and rehabilitation needs, or unexpected fluctuations in revenues or expenses. Significant capital improvements in this plan include Wastewater Treatment Facility (WWTF) improvements estimated at \$12.7 million, the Hwy 35/2nd Street sewer replacement project estimated at \$1.69 million, a new jet truck at \$450,000, and approximately \$550,000 per year of miscellaneous replacements and rehabilitation projects at the Wastewater Treatment Plant for 2022-2024, based on past history.

Of the \$17.1 million in capital projects included in the projections, \$12.7 million would be funded through debt using the State Clean Water Fund program, \$1.0 million from the City's sewer collection system replacement fund, \$1.5 million from general utility reserves paid in by past customers and the remaining \$1.9 million through annual revenues generated through user charges, connection charges, interest income and other revenues.

Currently, the City's wastewater rates are some of the lowest in Hudson's geographic region. Following this recommendation would increase rates significantly, yet rates would remain below average in the region, not considering any increases to wastewater rates that other communities may also implement in the interim.

Following implementation of the rates for 2020 through 2022, a plan for additional inflationary cost-of-living type rate increases is recommended for consideration by the City Council. These increases should be evaluated on an annual basis and adjusted for changing conditions, such as an increase in sales or unexpected capital needs. The recommended rate increases for 2020 through 2022 would increase the utility's user charge revenues by a total of about \$1.03 million per year by 2022.

HISTORICAL AND FORECAST CUSTOMER DEMANDS

The following table shows the analysis of historical trends in total wastewater treated at the wastewater treatment plant, as well as number of customers, customer volume of wastewater and estimated loadings (BOD, TSS, phosphorus and NH-3) for domestic strength customers. The Utility does not currently serve any known high-strength sewer customers at this time but may in the future. However, it does receive a small amount of leachate from a local landfill; currently, there is no charge for accepting this waste.

City of Hudson
2021 Sewer Rate Study

Table 1 - Historical Flows and Trends

	2015	2016	2017	2018	Last 12 Months	5-Year Trend	
	(Gallons)	(Gallons)	(Gallons)	(Gallons)	(Gallons)	(Gallons)	
WWTP Influent							
Total Annual Inflow	554,699,400	545,828,600	538,910,700	547,665,200	559,053,000	552,394,520	
Total Billable Flow	405,324,870	442,895,200	415,254,680	456,951,040	403,052,413	427,548,918	
Billable Flow as % of Inflow	73.1%	81.1%	77.1%	83.4%	72.1%	77.4%	
Inflow/Infiltration	149,374,530	102,933,400	123,656,020	90,714,160	156,000,587	124,845,602	
I/I as % of Inflow	26.9%	18.9%	22.9%	16.6%	27.9%	22.6%	
Maximum Monthly Flow per Day							
Average Day Flow	1,519,724	1,491,335	1,476,468	1,500,453	1,531,652	1,513,410	
Max Day/Average Day Ratio	-	-	-	-	-	-	
BOD (mg/l)	252	245	232	205	224	203	
TSS (mg/l)	-	-	-	-	-	-	
P (mg/l)	-	-	-	-	-	-	
NH3 (mg/l)	-	-	-	-	-	-	
BOD (lbs)	1,166,802	1,113,724	1,041,328	937,790	1,043,575	933,927	
TSS (lbs)	-	-	-	-	-	-	
P (lbs)	-	-	-	-	-	-	
NH3 (lbs)	-	-	-	-	-	-	
Customer Demand							
Residential Sewer Usage	259,473,810	277,850,490	256,150,740	281,259,470	236,898,257	249,803,916	
Residential Customers	6,211	6,300	6,400	6,550	6,629	6,744	
Usage / Customer	41,776	44,103	40,024	42,940	35,737	37,042	
Multi-Family Sewer Usage	35,290,100	40,371,680	38,935,320	44,931,000	42,024,570	45,719,012	
Multi-Family Customers	55	60	62	65	69	72	
Usage / Customer	641,638	672,861	627,989	691,246	609,052	634,106	
Commercial Sewer Usage	92,840,360	105,372,910	101,686,780	112,599,480	105,635,081	113,471,726	
Commercial Customers	470	480	490	500	522	530	
Usage / Customer	197,533	219,527	207,524	225,199	202,366	214,259	
Industrial Sewer Usage	4,871,310	5,325,380	4,517,320	3,361,300	2,935,032	2,451,078	
Industrial Customers	22	23	24	25	25	26	
Usage / Customer	221,423	231,538	188,222	134,452	117,401	93,553	
Public Authority Sewer Usage	12,849,290	13,974,740	13,964,520	14,799,790	15,337,209	15,925,376	
Public Authority Customers	32	33	34	35	35	36	
Usage / Customer	401,540	423,477	410,721	422,851	438,206	439,928	
Total Domestic Strength Usage	Strength (mg/l)	405,324,870	442,895,200	415,254,680	456,951,040	402,830,149	427,371,107
Estimated BOD (lbs.)	300	1,014,123	1,108,124	1,038,967	1,143,292	1,007,881	1,069,283
Estimated TSS (lbs.)	300	1,014,123	1,108,124	1,038,967	1,143,292	1,007,881	1,069,283
Estimated Phos. (lbs.)	8	27,043	29,550	27,706	30,488	26,877	28,514
Estimated NH-3 (lbs.)	40	135,216	147,750	138,529	152,439	134,384	142,571
Landfill Leachate	Strength (mg/l)	-	-	-	-	222,264	177,811
Estimated BOD (lbs.)	100	-	-	-	-	185	148
Estimated TSS (lbs.)	300	-	-	-	-	556	445
Total			415,254,680	456,951,040	403,052,413	427,548,918	
Estimated BOD (lbs.)			1,038,967	1,143,292	1,008,066	1,069,431	
Estimated TSS (lbs.)			1,038,967	1,143,292	1,008,437	1,069,727	
Estimated Phos. (lbs.)			27,706	30,488	26,877	28,514	
Estimated NH-3 (lbs.)			138,529	152,439	134,384	142,571	

Wastewater Treatment Plant Influent

The total volume of wastewater treated at the plant has fluctuated some over the past several years, with a dip in 2017 and an increase in 2019. However, the 'billable' flow, or wastewater generated by customers, has fluctuated more during the same time, with 2019 flows being down compared to prior years. The remaining volume is clearwater infiltration and inflow, water that seeps into the system via cracks in wastewater mains or customer service laterals, or through sewer manholes. At certain times of year, such as periods of high precipitation, infiltration and inflow (I/I) may be the majority of water volume arriving at the treatment plant. Wastewater entering the plant is sampled daily for wastestrengths, so the total pounds of BOD entering the plant per year can be estimated. Total pounds of these constituents have seen a steady decline in the last several years, before an uptick during 2019. To make sure the all customers are charged fairly, surcharge rates were calculated as a part of this study in case the Utility samples customers that should be charged for high-strength flows for any of the constituent loadings in the future.

Forecast flows for 2020 through 2022 follow trends over the previous five years, as shown in the next table. It should be noted that at the time this study was being completed, the City was in the midst of the global COVID-19 pandemic, with effects on billed water and sewer demand unknown as of yet. This was not factored into the long-term projections, as it is assumed that any impacts will be temporary, but revenues during the pandemic may be higher or lower than expected during a normal year. In addition, the assumptions used in this study should be reviewed post-pandemic to determine whether any impacts on water and sewer use were temporary or if longer-term structural changes resulted.

**City of Hudson
2021 Sewer Rate Study**

Table 2 - Projected Flows and Demand

		Current Year				Test Year
		Last 12 Months	5-Year Trend	2020	2021	2022
<u>WWTP Inflow</u>	(Gallons)					(Gallons)
Total Annual Inflow		559,053,000	552,394,520	552,352,476	563,657,338	577,118,157
Total Billable Flow		403,052,413	427,548,918	427,516,377	440,923,457	448,087,068
Billable Flow as % of Inflow		72.1%	77.4%	77.4%	78.2%	77.6%
Inflow/Infiltration		156,000,587	124,845,602	124,836,099	122,733,881	129,031,089
I/I as % of Inflow		27.9%	22.6%	22.6%	21.8%	22.4%
Maximum Monthly Flow per Day				1,815,953	1,853,120	1,897,375
Average Day Flow		1,531,652	1,513,410	1,513,294	1,544,267	1,581,146
Max Day/Average Day Ratio		-	-	1.20	1.20	1.20
BOD (mg/l)		224	203	232	235	233
TSS (mg/l)		-	-	232	235	233
P (mg/l)		-	-	6	6	6
NH3 (mg/l)		-	-	31	31	31
BOD (lbs)		1,043,575	933,927	1,069,090	1,102,634	1,120,558
TSS (lbs)			-	1,069,090	1,102,634	1,120,558
P (lbs)			-	28,509	29,404	29,882
NH3 (lbs)			-	142,545	147,018	149,408
<u>Customer Demand</u>						
Residential Sewer Usage		236,898,257	249,803,916	249,811,324	256,827,148	258,105,858
Residential Customers		6,629	6,744	6,744	6,852	6,961
Usage / Customer		35,737	37,042	37,042	37,482	37,079
Multi-Family Sewer Usage		42,024,570	45,719,012	45,655,601	47,795,528	50,243,885
Multi-Family Customers		69	72	72	75	79
Usage / Customer		609,052	634,106	634,106	637,274	635,999
Commercial Sewer Usage		105,635,081	113,471,726	113,557,429	117,155,646	120,218,932
Commercial Customers		522	530	530	542	554
Usage / Customer		202,366	214,259	214,259	216,154	217,002
Industrial Sewer Usage		2,935,032	2,451,078	2,432,367	2,659,475	2,489,373
Industrial Customers		25	26	26	26	26
Usage / Customer		117,401	93,553	93,553	102,288	95,745
Public Authority Sewer Usage		15,337,209	15,925,376	15,837,391	16,263,395	16,806,757
Public Authority Customers		35	36	36	37	38
Usage / Customer		438,206	439,928	439,928	439,551	442,283
Total Domestic Strength Usage	Strength (mg/l)	402,830,149	427,371,107	427,294,113	440,701,193	447,864,804
Estimated BOD (lbs.)	300	1,007,881	1,069,283	1,069,090	1,102,634	1,120,558
Estimated TSS (lbs.)	300	1,007,881	1,069,283	1,069,090	1,102,634	1,120,558
Estimated Phos. (lbs.)	8	26,877	28,514	28,509	29,404	29,882
Estimated NH-3 (lbs.)	40	134,384	142,571	142,545	147,018	149,408
Landfill Leachate	Strength (mg/l)	222,264	177,811	222,264	222,264	222,264
Estimated BOD (lbs.)	100	185	148	185	185	185
Estimated TSS (lbs.)	300	556	445	556	556	556
Total		403,052,413	427,548,918	427,516,377	440,923,457	448,087,068
Estimated BOD (lbs.)		1,008,066	1,069,431	1,069,275	1,102,820	1,120,743
Estimated TSS (lbs.)		1,008,437	1,069,727	1,069,646	1,103,190	1,121,114
Estimated Phos. (lbs.)		26,877	28,514	28,509	29,404	29,882
Estimated NH-3 (lbs.)		134,384	142,571	142,545	147,018	149,408

Customer Demand

The Wastewater Utility mostly serves domestic sewage customers (residential, multi-family, commercial, industrial and public authority, i.e. government); it does not have any high strength customers currently and the only hauled waste is a small amount of leachate from a local landfill, which is not currently charged. However, if any increase in monitoring indicates that there could be high strength customers that the Utility is unaware of, or if a new customer is known to discharge high-strength waste, then they may be charged surcharges for higher than domestic strength pollutant loadings.

Domestic Waste

The volume of domestic strength waste has fluctuated over the last three years, resulting from changes within all customer classes. The estimates of pounds of pollutant loadings for domestic strength waste are based on current domestic strength assumptions of 300 mg/l for BOD, 300 mg/l for TSS, 8 mg/l for phosphorus, and 40 mg/l for NH-3. A comparison of total pounds being treated at the plant versus estimated pounds from domestic strength sewage indicated that those assumptions are reasonable. Additional sampling at the treatment plant in the future may result in a need for those assumptions to be adjusted, but there is no need to do so at present.

Forecast Revenues at Present Rates

The table below shows the forecast revenues at present rates for the test year, based on the forecast number of customers and volume of sewer usage. The City currently charges the following user charges:

- Sewer Usage Charge of \$3.00 per hundred cubic feet of wastewater (estimated based on metered water use) for all users. This rate is comprised of \$2.88 per hundred cubic feet for collection system operation and maintenance and WWTP operation, maintenance, and capital, and a trunk line and lift station replacement charge of \$0.12 per hundred cubic feet. Revenues from the trunk line and lift station replacement charge are transferred to the Village of North Hudson and to the City's sewer collection system replacement fund based on the amount of billable flows from each municipality. For 2015 through 2019, approximately 16 percent of these revenues, or \$11,000 per year, were transferred to the Village, and 84 percent, or \$58,000 per year, to the City's replacement fund.
- Flat Charge based on the size of customer's water meter

City of Hudson
2021 Sewer Rate Study

Forecast user charge revenues of \$2,031,586 for the test year of 2022 are higher than 2018 user charge revenues of \$1,900,341 due to projected growth in the number of customers and billed usage through 2022.

Table 3 - Test Year Revenues at Present Rates

YEAR: 2022		Residential	Multi-Family	Commercial	Industrial	Public Authority	Total
Sewer Usage Charges							
Usage	CCF	345,061	67,171	160,720	3,328	22,469	598,750
Revenues	\$2.88	\$993,777	\$193,452	\$462,875	\$9,585	\$64,711	\$1,724,399
Collection System Replacement Charges							
Usage	CCF	345,061	67,171	160,720	3,328	22,469	598,750
Revenues	\$0.12	\$41,407	\$8,061	\$19,286	\$399	\$2,696	\$71,850
Fixed Charges							
Meter Size		6,961	79	554	26	38	7,658
5/8"	\$7.60	6,706	11	322	10	15	7,064
3/4"	\$7.60	248	7	37	2	-	294
1"	\$8.45	6	17	98	7	7	135
1 1/4"	\$9.50						
1 1/2"	\$10.35	1	18	66	5	7	97
2"	\$11.15	-	19	28	-	4	51
2 1/2"	\$11.70						
3"	\$12.50	-	6	3	2	5	16
4"		-	-	-	-	-	-
6"		-	1	-	-	-	1
Revenues		\$211,646	\$3,014	\$18,357	\$908	\$1,411	\$235,337
Total Metered Customers		\$1,246,830	\$204,527	\$500,519	\$10,893	\$68,818	\$2,031,586
Pinkys Landfill Leachate							
		Units	Rates	Revenues			
Holding Tank (CCF)		297.14	\$0.00	\$0			\$0
No. of Loads		70	\$0.00	\$0			\$0
Subtotal				\$0			\$0
						Total	\$2,031,586

HISTORICAL AND FORECAST OPERATION AND MAINTENANCE EXPENSE

The following table shows the actual O&M expenses for 2015 through 2018, budgeted 2019 and 2020 expenses, a 4-year trend analysis and forecast expenses for 2020 through 2022. Some categories of expenses that fluctuate substantially from year to year were normalized to reflect historical average expenses or the 4-year trend analysis. Electricity, chemicals, and biosolids costs were forecast based on the forecast wastewater influent. These adjustments were done to reflect a typical year so that the O&M expenses can be projected for future years. As shown the

projected O&M expense for 2020 used for cash flow forecasting purposes was \$1,841,589, or approximately 2.0 percent higher than actual 2018 expenses. Future years' O&M expenses are forecast to increase by 2.0 percent per year.

**City of Hudson
2021 Sewer Rate Study**

Table 4 - Historical and Forecast O&M Expenses

Account Description	2016	2017	2018	Budget	4-Year	Budget	Current Year	Test Year	
	2020	2020	2021	2022	Trend	2020	2020	2021	2022
	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)
WASTEWATER TREATMENT & DISPOSAL									
Salaries and Wages	217,503	230,697	231,426	216,455	223,417	211,367	211,367	215,594	219,906
FICA	15,624	16,086	16,775	16,560	17,136	16,170	16,170	15,650	15,963
Retirement	14,246	14,967	15,496	13,785	14,410	13,452	13,452	14,073	14,355
Health Insurance	72,956	82,808	93,023	90,060	100,094	76,064	76,064	81,526	83,156
Utilities - Electricity	105,858	108,978	102,390	108,000	106,266	108,000	108,000	107,991	111,675
Utilities - Gas	12,304	12,080	14,078	13,000	13,887	13,000	13,887	14,026	14,166
Contractual Services	280,892	78,662	124,313	73,900	(4,390)	79,500	139,442	140,836	142,245
Chemicals	26,120	27,406	73,794	25,000	48,837	25,000	27,261	28,097	29,056
Supplies	30,082	49,182	46,062	49,000	56,990	48,300	56,990	57,560	58,135
Biosolids Charges	300,810	340,154	335,654	335,000	352,422	335,000	390,138	406,403	417,139
Other Services & Charges	13,036								
SUBTOTAL WASTEWATER TREATMENT & DISPOSAL	1,089,431	961,020	1,053,011	940,760	929,068	925,853	1,052,771	1,081,756	1,105,796
LIFT STATIONS & PUMPING EQUIPMENT									
Salaries and Wages	28,946	23,953	26,411	22,960	21,693	26,467	26,467	26,996	27,536
GASB 68	22,289	29,144	13,357				21,597	22,029	22,469
FICA	2,133	1,710	1,916	1,760	1,652	2,025	1,946	1,985	2,024
Retirement	1,948	1,629	1,769	1,500	1,411	1,472	1,772	1,807	1,843
Health Insurance	8,585	8,206	9,262	8,620	8,959	7,281	8,973	9,153	9,336
Utilities - Electricity	18,845	19,827	18,901	19,900	19,928	19,500	20,854	21,723	22,297
Utilities - Gas	1,286	327	344	400	(71)	400	357	361	364
Contractual Services	5,940	20,314	5,150	6,500	6,105	9,500	6,105	6,166	6,228
Supplies	912	1,428	332	5,000	4,710	5,000	891	900	909
Other Services & Charges									
SUBTOTAL LIFT STATIONS & PUMPING EQUIPMENT	90,884	106,538	77,442	66,640	64,385	71,645	88,961	91,119	93,006
WASTEWATER COLLECTION SYSTEM									
Salaries and Wages	35,930	28,312	24,609	30,010	24,350	88,239	88,239	90,004	91,804
FICA	2,576	1,996	1,770	2,300	1,897	6,750	6,750	6,544	6,675
Retirement	2,375	1,925	1,649	1,970	1,607	5,780	5,780	5,996	6,116
Health Insurance	9,117	9,593	9,363	12,820	12,943	39,861	39,861	30,965	31,584
Contractual Services	35,408	19,675	118,626	50,250	91,859	54,300	55,990	56,550	57,115
Supplies	3,918	2,348	1,656	5,000	3,869	10,600	3,869	3,908	3,947
Other Services & Charges									
SUBTOTAL WASTEWATER COLLECTION SYSTEM	89,324	63,849	157,673	102,350	136,525	205,530	200,489	193,966	197,241
DAMS									
Salaries and Wages	3,496	3,615	3,870	2,580	2,767	3,032	2,767	2,822	2,879
FICA	259	262	281	200	211	232	204	209	213
Retirement	235	245	259	170	182	199	185	189	193
Health Insurance	1,363	1,428	1,635	845	981	713	1,076	1,097	1,119
Contractual Services	1,362	0	3,222	3,000	3,930	4,000	1,896	1,915	1,934
Utilities - Electricity	516	534	1,098	1,000	1,291	100	787	795	803
Supplies				100					
SUBTOTAL DAMS	7,231	6,084	10,365	7,895	9,362	8,276	6,915	7,027	7,140
GENERAL AND ADMINISTRATIVE EXPENSES									
Salaries and Wages	171,758	180,328	170,009	124,638	123,764	130,430	130,430	133,039	135,699
GASB 68		29,144					21,080	21,501	21,931
FICA	12,405	13,089	12,347	9,539	9,510	10,278	10,278	9,746	9,941
Retirement	11,482	12,258	11,374	8,162	8,108	8,735	8,735	8,902	9,080
Health Insurance	56,037	62,877	58,995	37,900	39,379	36,905	36,905	44,394	45,282
Contractual Services	18,677	30,666	27,404	31,900	36,264	30,200	27,162	27,433	27,708
Supplies	3,895	3,650	2,240	7,250	6,423	7,775	4,259	4,301	4,344
Insurance	44,072	74,227	48,530	63,560	65,789	54,688	54,688	55,235	55,787
Other Services & Charges									
SUBTOTAL GENERAL & ADMINISTRATIVE EXPENSES	318,326	406,239	330,899	282,949	289,236	279,011	293,536	304,552	309,773
METER READING									
Salaries and Wages	12,085	12,403	6,766	11,040	8,381	10,760	10,760	10,975	11,195
FICA	821	841	500	845	685	823	823	780	796
Retirement	728	771	453	725	588	705	705	695	709
Health Insurance	2,625	3,190	2,073	4,950	4,674	4,181	4,181	3,331	3,398
Contractual Services	338	698	1,016	500	839	500	839	847	856
Supplies	6,113	6,203	5,337	6,700	6,312	6,600	6,312	6,375	6,439
Meter Use Charge Paid to Water Utility	161,611	173,998	162,205	175,000	175,297	180,000	175,297	180,556	185,973
SUBTOTAL METER READING EXPENSES	184,321	198,104	178,350	199,760	196,775	203,569	198,917	203,560	209,365
TOTAL OPERATION & MAINTENANCE EXPENSES	1,779,517	1,741,834	1,807,740	1,600,354	1,625,350	1,693,884	1,841,589	1,881,980	1,922,322

HISTORICAL AND FORECAST CAPITAL IMPROVEMENTS

Between 2015 and 2019, the Utility invested almost \$2.0 million, or an average of just under \$400,000 per year, in capital improvements and equipment replacement. Most of this amount was for WWTP improvements and communications, vehicles, and other general equipment.

The Utility's forecast capital improvements for 2020 through 2024 includes \$17.1 million of capital improvements and equipment. Of this amount, \$1.69 million is for the Hwy 35/2nd Street trunk sewer replacement project. The rest is for improvements and upgrades to the WWTP, as well as vehicles and other general equipment.

Of this amount, \$12.7 million for major upgrades to the WWTP in 2020 and 2021 is planned to be borrowed through the Wisconsin Clean Water Fund program. The Hwy 35/2nd Street trunk sewer replacement will be funded in part with funds from the City's sewer collection system replacement fund and in part with utility reserves. Other capital expenditures will be funded in part with current revenues and in part with reserves. In total, the Utility plans to issue \$12.7 million in debt, use \$1.5 million of sewer utility reserves and \$1.0 million of sewer collection system replacement reserves, and fund the remaining \$1.9 million with current revenues.

With the borrowing for the WWTP upgrades, annual debt service is projected to increase from no debt service currently to just over \$784,000 per year by 2022.

Table 5 - Forecast Capital Improvements

Account Description	Current Year	Test Year			
	2020	2021	2022	2023	2024
Land and land rights	\$0				
Structures and improvements	\$0				
Service connections, traps and access	\$0				
Collecting mains	\$0				
Interceptor mains	\$0	\$1,690,000			
Force mains	\$0				
Other collecting system equip	\$0				
Land and land rights	\$0				
Pumping structures and improvements	\$0				
Receiving wells	\$0				
Electric pumping equipment	\$0				
Other power pumping equip	\$0				
Misc. pumping equipment	\$0				
Land and land rights	\$0				
Treatment plant structures and improvements	\$6,195,600		\$530,450	\$546,364	\$562,754
Preliminary treatment equip	\$1,395,200				
Primary treatment equip	\$0				
Secondary treatment equip	\$881,200				
Advanced treatment equip	\$1,851,600				
Chlorination equipment	\$0				
Sludge treatment and disposal equip	\$1,214,000				
Plant site piping	\$419,500				
Flow metering equipment	\$0				
Outfall sewer pipes	\$0				
Other treatment and disposal plant equip	\$296,000				
Structures and improvements	\$819,800				
Office furniture and equipment	\$0				
Computers	\$68,300				
Transportation equipment	\$0		\$450,000		
Communication equipment	\$153,800				
Other general equipment	\$0				
Laboratory equipment	\$0				
Total Cost	\$13,295,000	\$1,690,000	\$980,450	\$546,364	\$562,754

CASH FLOW FORECASTS

To estimate the overall level of immediate and future rate increases, a 25-year cash flow forecast was prepared. Multiple cash flow forecasts were prepared for various scenarios of the level and timing of immediate and future rate increases. Each forecast was evaluated with the same criteria:

- Generating positive cash flow;
- Providing sufficient debt coverage for future debt;

- Maintaining the utility’s reserves above recommended levels – Recommended reserve levels include operating reserves to manage cash flow or fluctuations in revenues or expenses, any restricted debt reserves, and capital reserves for unplanned capital costs. Wastewater utilities that have a loan through the state’s Clean Water Fund Program are also required to maintain an equipment replacement fund to pay for replacement of mechanical and other equipment;
- Avoiding or mitigating the need for issuance of new debt for routine wastewater main and equipment replacement; and
- Percentage of debt financing versus equity.

As of December 31, 2018, the wastewater utility had total reserve funds totaling \$6,321,807. About \$1.95 million of this total was held in a restricted account for equipment replacement, meaning it cannot be used for any other use than the designated use, such as operating losses or ongoing capital improvements. The remaining \$4.37 million was unrestricted, meaning it can be used for any purpose, including capital improvements, operating expenses, or debt service payments. Additionally, the City maintains a Sewer Collection System Replacement Fund within its general funds, which had a balance of \$1,076,512. This fund is to be used for replacement of sewer main throughout the City.

The cash flow analysis developed a recommended minimum amount of reserves the Utility should keep on hand, for those purposes and as a rate stabilizer. This amount was determined to be \$3.7 million to \$3.8 million for the next several years, comfortably below the Utility’s actual reserve levels as of the end of 2018.

All the alternative cash flow scenarios were based on the following common assumptions:

- Inflation of approximately two percent per year in operation and maintenance expenses;
- Continuation of a similar level of other operating revenues and non-operating revenues as contained in the 2020 budget;
- Any debt issuance for the treatment plant would be for 20 years at the current interest rate of 1.65% through the Clean Water Fund loan program; any future debt issuances would be for 20 years at 3.50% interest with level annual payments;
- Recommended reserve levels include the following:
 - Operating reserve equal to 3 months of annual operating expenses;
 - Debt service reserve equal to current year’s debt service payments;
 - Equipment replacement fund equal to the estimated year-end 2019 level of \$2,044,440 – this fund currently has a larger balance than necessary, but may need to be adjusted based on final costs of the Wastewater Treatment Facility upgrades;

- Depreciation/Capital reserve equal to \$500,000 for emergency replacement of critical infrastructure.

The following charts show the five cash flow alternatives that were prepared: one with zero increase to rates (do-nothing alternative), one showing all of the increase occurring at the beginning of 2021, and three alternatives for phasing the increase in over two increases, one at the beginning of 2021 and a second increase at the beginning of 2022. All the rate increase scenarios also include future rate increases of 2.0 percent every other year. The three options that were explored for phasing the rate increase were as follows:

- An increase in user charge revenues of approximately 38.0 percent in 2021 and 11.0 percent in 2022. The rate increase of 38.0 percent would provide revenues sufficient to pay debt service on the Clean Water Fund (CWF) loan for the WWTF project plus the required 10 percent debt coverage. The second rate increase is recommended to allow the Utility to cash fund capital improvements other than the WWTF project without significant negative cash flow.
- An increase of 11.0 percent in 2021 and another increase of 38.0 percent in 2022. Since the Utility will not have to make full principal and interest payments on the CWF loan until 2022, the full rate increase needed to provide debt coverage could be delayed until 2022. The smaller increase in 2021, could however, result in the need for larger or more frequent rate increases in future years.
- A third option was to implement the rate increase in equal steps in 2021 and 2022. To achieve the overall target of a 46.5 percent rate increase by 2022, two increases of approximately 23.7 percent could be implemented.

Figure 1 - Projected Cash Flow with Zero Increase

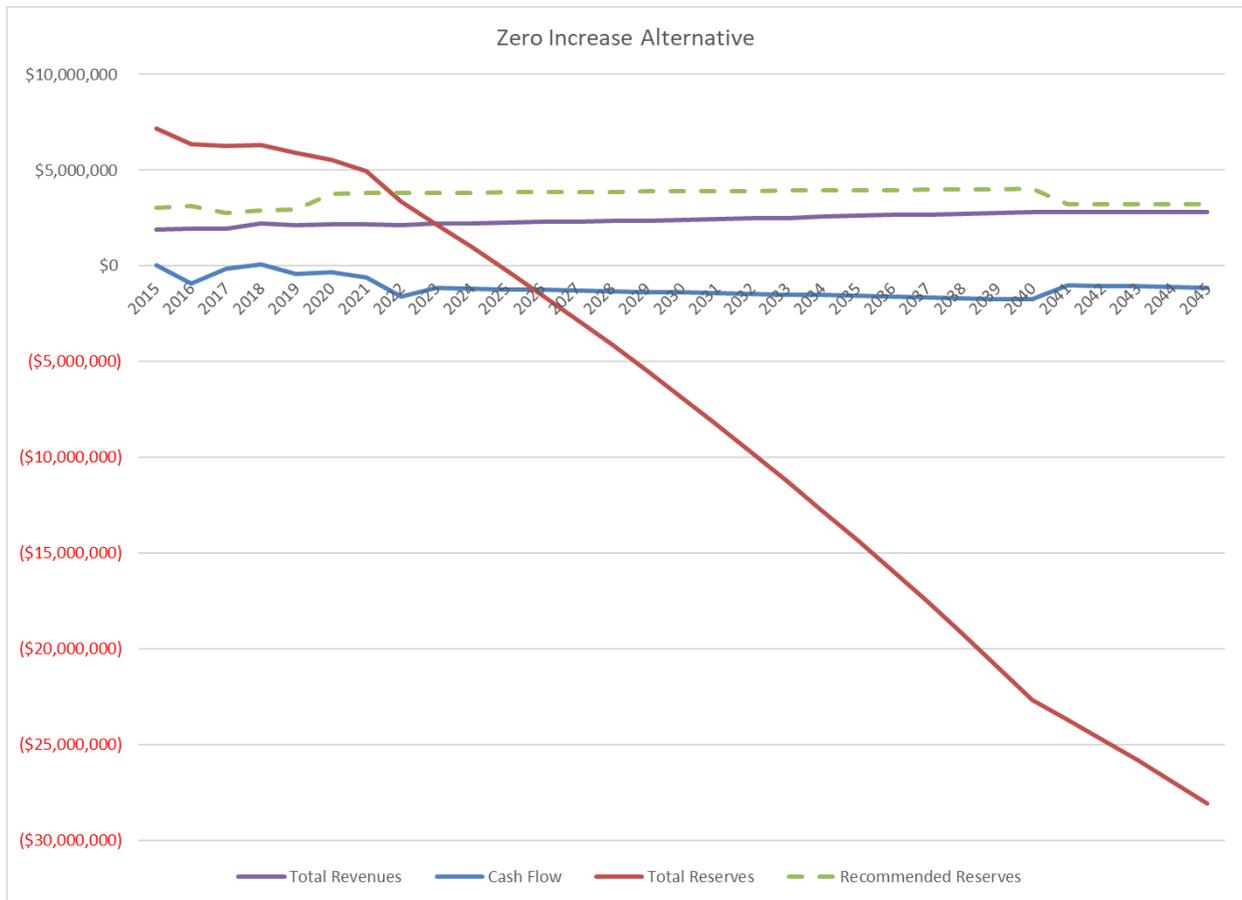


Figure 2 - Projected Cash Flow with 2021 Increase

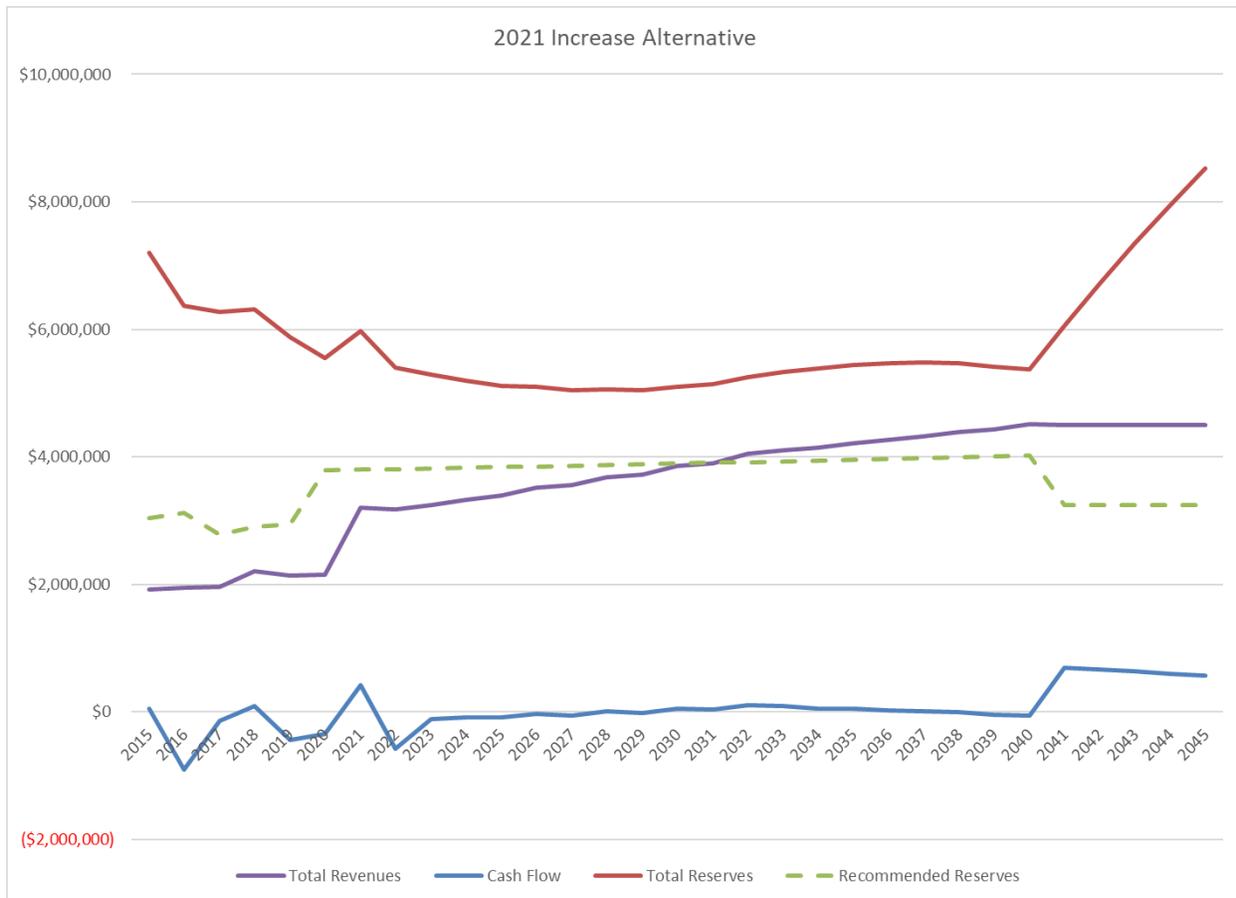
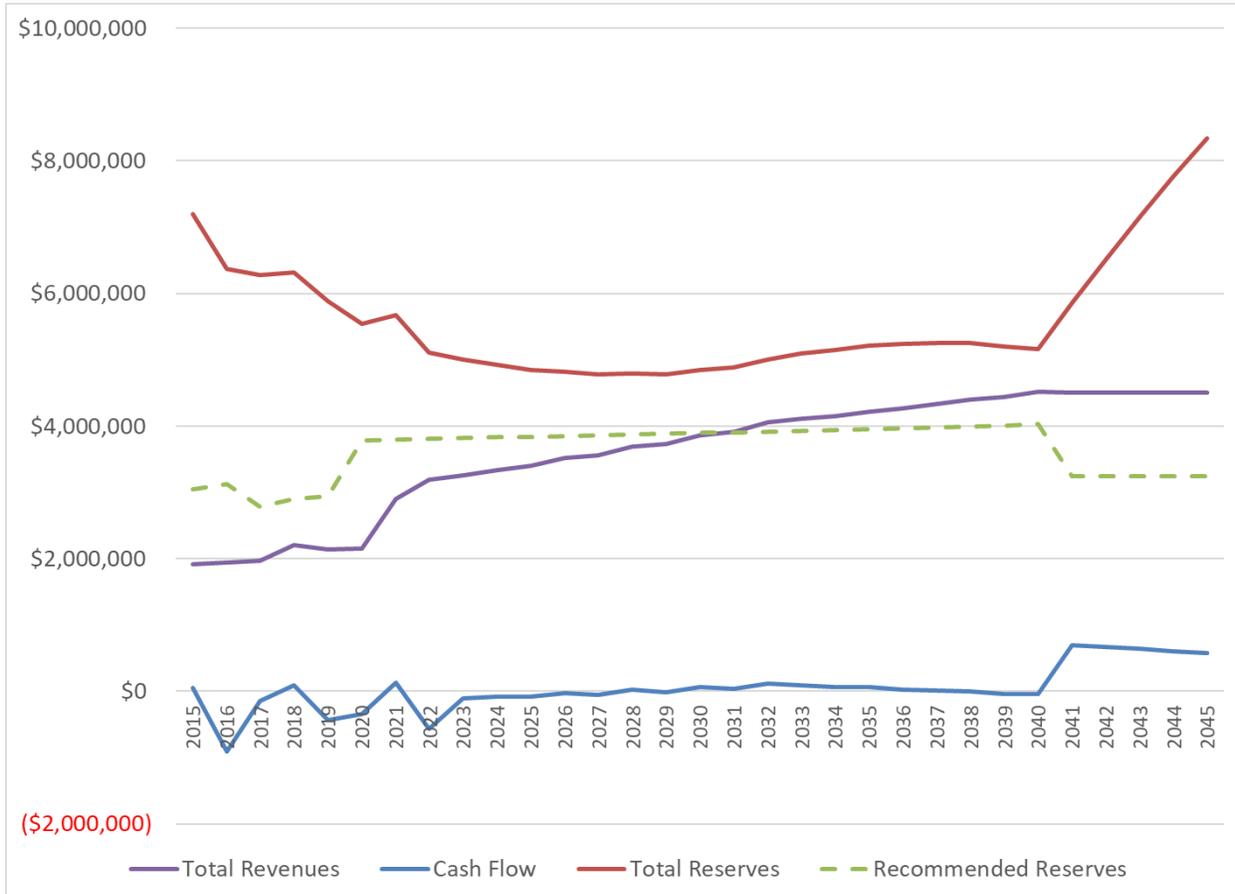


Figure 3 - Projected Cash Flow with Phased-In Increase: 38 Percent in 2021, 11 Percent in 2022



City of Hudson
2021 Sewer Rate Study

Figure 4 - Projected Cash Flow with Phased-In Increase: 11 Percent in 2021, 38 Percent in 2022

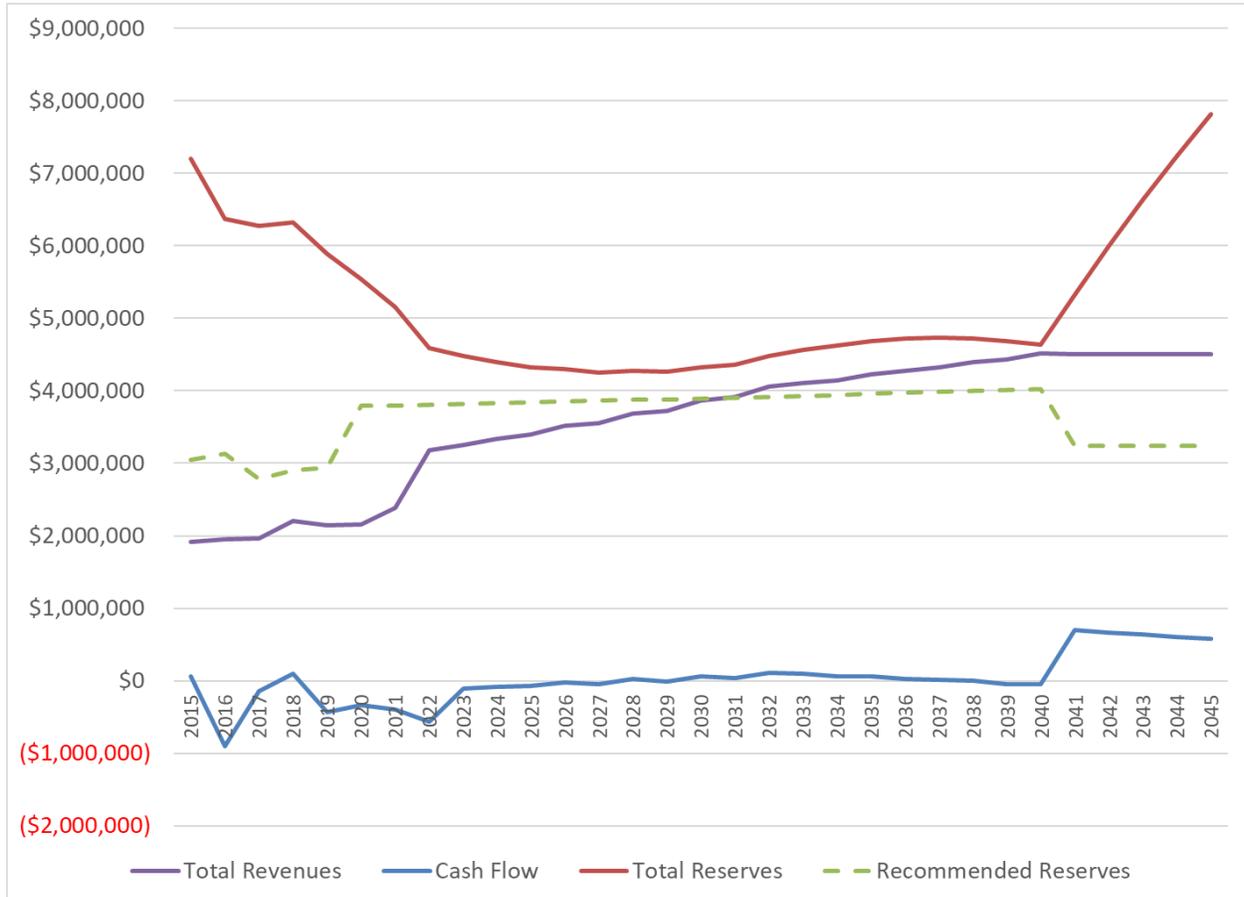
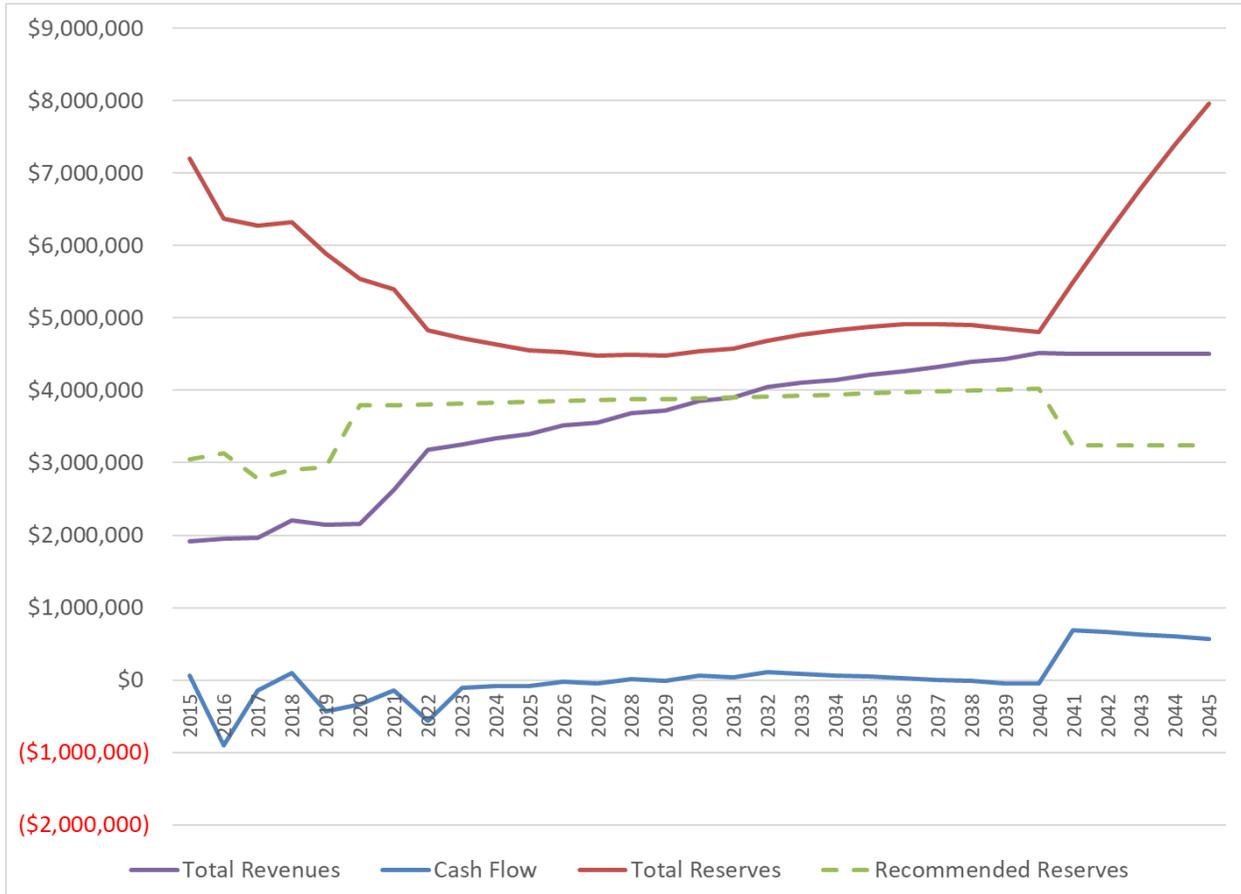


Figure 5 - Projected Cash Flow with Phased-In Rate Increase: 23.7 Percent in 2021, 23.7 Percent in 2022



Key findings and recommendations regarding the utility’s financial condition are as follows:

- The utility has had fluctuating cash flow for several years but had negative cash flow in 2019, with most of the capital additions being funded through reserves.
- Utility reserve levels are above the minimum recommended amount. However, without an increase, reserves are expected to drop below the recommended minimum in 2021 and be completely depleted by 2024 or 2025, due to the debt service on the treatment plant upgrades.
- The utility is currently free of debt.
- The utility has utility-financed capital improvements totaling \$17.1 million, or an average of \$3.4 million per year, planned for the period 2020-2024, with 12.7 million of that for the 2020/2021 upgrades at the treatment plant.

- An increase in user charge revenues of approximately 46.5 percent is recommended to generate sufficient revenues to fund the expected level of expenses, the capital improvement program, and projected debt service while maintaining the cash reserves at the recommended level. A rate increase of 38.0 percent is required to provide revenues sufficient to pay debt service on the Clean Water Fund loan for the WWTF project plus the required 10 percent debt coverage. The remainder of the increase is recommended to allow the Utility to cash fund routine capital improvements to the WWTF and additions and replacements to vehicles, communication equipment and other general equipment without significant negative cash flow.
- Additional future rate increases may be warranted, depending on actual sales and expenses. The projected cash flows include 2.0 percent increases every other year, in 2024, 2026 and 2028. With the rate increases and the use of reserves, it is expected that the utility will not need to issue debt for any other planned capital projects anticipated during the next five years and may not need to issue debt for a longer period of time.
- Under the recommended plan, approximately \$1.5 million of the Utility's cash reserves would be used to fund a portion of the capital improvement program, with an additional \$1.0 million from the City Sewer Collection System Replacement fund used for the Hwy 35 / 2nd Street reconstruction.
- In total, with the recommended plan, the Utility's cash reserves are projected to decrease from \$5.9 million to \$4.4 million in the Wastewater Utility fund, and from \$1.15 million to \$453,000 in the Sewer Collection System Fund between 2019 and 2024.

The following tables show the forecast cash flows with the three options for phasing in the recommended rate increase. It should be noted that these future projections of cash flow are for planning purposes only. The City and the Utility should continue to assess the financial, physical, and operational conditions of the utility on an annual basis to respond to changing conditions and make decisions regarding which capital improvement projects to undertake, how those projects should be financed and the appropriate rate increase that may be needed to meet future revenue requirements.

City of Hudson
2021 Sewer Rate Study

Table 6 - Forecast Cash Flows: 38 Percent Increase in 2021, 11 Percent Increase in 2022

	Test Year									
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Projected Demand Change			3.1%	1.6%	1.6%	1.4%	1.7%	1.6%	1.5%	1.7%
Customer Growth		6.1%	128	126	127	123	127	125	125	127
Projected Average Expense Change		15.1%	2.2%	2.1%	2.1%	2.0%	2.0%	2.1%	2.1%	2.1%
Projected Rate Increase		0.0%	38.0%	11.0%	0.0%	2.0%	0.0%	2.0%	0.0%	2.0%
Revenues										
Subtotal User Charge Revenues	\$1,944,250	\$1,944,250	\$2,683,065	\$2,978,202	\$3,025,398	\$3,130,037	\$3,184,300	\$3,298,628	\$3,349,688	\$3,475,389
Less: Charges for City/Village Collection Systems ⁽¹⁾	(\$71,000)	(\$68,580)	(\$70,731)	(\$71,880)	(\$73,019)	(\$74,064)	(\$75,348)	(\$76,522)	(\$77,707)	(\$79,042)
Subtotal Other Operating Revenues	\$42,560	\$61,245	\$63,212	\$41,823	\$46,309	\$51,030	\$52,724	\$51,020	\$48,581	\$49,933
Subtotal Non-Operating Revenues	\$226,800	\$227,746	\$231,768	\$238,025	\$256,213	\$227,653	\$241,121	\$246,402	\$236,043	\$242,362
Total Cash In	\$2,142,610	\$2,159,661	\$2,907,314	\$3,186,171	\$3,254,902	\$3,334,656	\$3,402,797	\$3,519,527	\$3,556,605	\$3,688,643
Expenses										
Subtotal O&M	\$1,600,354	\$1,841,589	\$1,881,980	\$1,922,322	\$1,962,088	\$2,004,233	\$2,045,203	\$2,087,767	\$2,131,553	\$2,177,285
Debt Service	\$0	\$0	\$136,429	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117
Capital Outlay	\$916,750	\$13,295,000	\$1,690,000	\$980,450	\$546,364	\$562,754	\$579,637	\$597,026	\$614,937	\$633,385
Less: New Borrowing		\$12,700,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Transfer to General Fund per Intermunicipal Contract	\$62,000	\$63,788	\$65,331	\$66,091	\$67,666	\$69,065	\$70,255	\$71,528	\$72,961	\$74,211
Less: Transfer from Sewer Collection Replacement Fund ⁽²⁾			\$1,000,000							
Total Cash Out	\$2,579,104	\$2,500,377	\$2,773,741	\$3,752,979	\$3,360,234	\$3,420,169	\$3,479,211	\$3,540,438	\$3,603,567	\$3,668,997
Net Cash Flow	(\$436,494)	(\$340,716)	\$133,574	(\$566,809)	(\$105,332)	(\$85,513)	(\$76,414)	(\$20,911)	(\$46,962)	\$19,645
Sewer Utility Reserves										
Beginning Balance	\$6,321,807	\$5,885,313	\$5,544,597	\$5,678,171	\$5,111,362	\$5,006,030	\$4,920,517	\$4,844,103	\$4,823,192	\$4,776,230
Net Cash Flow	(\$436,494)	(\$340,716)	\$133,574	(\$566,809)	(\$105,332)	(\$85,513)	(\$76,414)	(\$20,911)	(\$46,962)	\$19,645
Ending Balance	\$5,885,313	\$5,544,597	\$5,678,171	\$5,111,362	\$5,006,030	\$4,920,517	\$4,844,103	\$4,823,192	\$4,776,230	\$4,795,876
Unrestricted Reserves	\$3,840,873	\$2,716,040	\$2,849,614	\$2,282,805	\$2,177,473	\$2,091,960	\$2,015,546	\$1,994,635	\$1,947,674	\$1,967,319
Restricted Reserves	\$2,044,440	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557
Total Reserves	\$5,885,313	\$5,544,597	\$5,678,171	\$5,111,362	\$5,006,030	\$4,920,517	\$4,844,103	\$4,823,192	\$4,776,230	\$4,795,876
Recommended Reserves										
Unrestricted Reserves	\$400,089	\$460,397	\$470,495	\$480,581	\$490,522	\$501,058	\$511,301	\$521,942	\$532,888	\$544,321
Operating Reserve	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000
Capital Reserve										
Restricted Reserves	\$0	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117
DNR Grant Replacement Account	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440
Total	\$2,944,529	\$3,788,954	\$3,799,052	\$3,809,137	\$3,819,079	\$3,829,615	\$3,839,857	\$3,850,498	\$3,861,445	\$3,872,878
Sewer Collection System Replacement Fund										
Beginning Balance	\$1,076,512	\$1,152,300	\$1,209,907	\$269,321	\$329,701	\$391,037	\$453,251	\$516,543	\$580,822	\$646,095
Transfer from Sewer Utility	\$59,640	\$57,608	\$59,414	\$60,379	\$61,336	\$62,213	\$63,292	\$64,279	\$65,274	\$66,395
Expenditures ⁽²⁾		\$0	(\$1,000,000)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Ending Balance	\$1,152,300	\$1,209,907	\$269,321	\$329,701	\$391,037	\$453,251	\$516,543	\$580,822	\$646,095	\$712,491

Notes:
 (1) Funds transferred to the City and Village for collection system costs.
 (2) Funds to be used for the Hwy 35 / 2nd Street trunk sewer replacement project in 2021.



City of Hudson
2021 Sewer Rate Study

Table 7 - Forecast Cash Flows: 11 Percent Increase in 2021, 38 Percent Increase in 2022

	Current Year		Test Year							
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Projected Demand Change		6.1%	3.1%	1.6%	1.6%	1.4%	1.7%	1.6%	1.5%	1.7%
Customer Growth		128	124	126	127	123	127	125	125	127
Projected Average Expense Change		15.1%	2.2%	2.1%	2.1%	2.1%	2.0%	2.1%	2.1%	2.1%
Projected Rate Increase		0.0%	11.0%	38.0%	0.0%	2.0%	0.0%	2.0%	0.0%	2.0%
Revenues										
Subtotal User Charge Revenues	\$1,944,250	\$1,944,250	\$2,158,118	\$2,978,202	\$3,025,398	\$3,130,037	\$3,184,300	\$3,298,628	\$3,349,688	\$3,475,389
Less: Charges for City/Village Collection Systems ⁽¹⁾	(\$71,000)	(\$68,580)	(\$70,731)	(\$71,880)	(\$73,019)	(\$74,064)	(\$75,348)	(\$76,522)	(\$77,707)	(\$79,042)
Subtotal Other Operating Revenues	\$42,560	\$61,245	\$63,212	\$41,823	\$46,309	\$51,030	\$52,724	\$51,020	\$48,581	\$49,933
Subtotal Non-Operating Revenues	\$226,800	\$222,746	\$231,768	\$238,025	\$256,213	\$227,653	\$241,121	\$246,402	\$236,043	\$242,362
Total Cash In	\$2,142,610	\$2,159,661	\$2,382,367	\$3,186,171	\$3,254,902	\$3,334,656	\$3,402,797	\$3,519,527	\$3,556,605	\$3,688,643
Expenses										
Subtotal O&M	\$1,600,354	\$1,841,589	\$1,881,980	\$1,922,322	\$1,962,088	\$2,004,233	\$2,045,203	\$2,087,767	\$2,131,553	\$2,177,285
Debt Service	\$0	\$0	\$136,429	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117
Capital Outlay	\$916,750	\$13,295,000	\$1,690,000	\$980,450	\$546,364	\$562,754	\$579,637	\$597,026	\$614,937	\$633,385
Less: New Borrowing	\$12,700,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Transfer to General Fund per Intermunicipal Contract	\$62,000	\$63,788	\$65,331	\$66,091	\$67,666	\$69,065	\$70,255	\$71,528	\$72,961	\$74,211
Less: Transfer from Sewer Collection Replacement Fund ⁽²⁾		\$1,000,000								
Total Cash Out	\$2,579,104	\$2,500,377	\$2,773,741	\$3,752,979	\$3,360,234	\$3,420,169	\$3,479,211	\$3,540,438	\$3,603,567	\$3,668,997
Net Cash Flow	(\$436,494)	(\$340,716)	(\$391,374)	(\$566,809)	(\$105,332)	(\$85,513)	(\$76,414)	(\$20,911)	(\$46,962)	\$19,645
Sewer Utility Reserves										
Beginning Balance	\$6,321,807	\$5,885,313	\$5,544,597	\$5,153,223	\$4,586,414	\$4,481,082	\$4,395,569	\$4,319,155	\$4,298,244	\$4,251,283
Net Cash Flow	(\$436,494)	(\$340,716)	(\$391,374)	(\$566,809)	(\$105,332)	(\$85,513)	(\$76,414)	(\$20,911)	(\$46,962)	\$19,645
Ending Balance	\$5,885,313	\$5,544,597	\$5,153,223	\$4,586,414	\$4,481,082	\$4,395,569	\$4,319,155	\$4,298,244	\$4,251,283	\$4,270,928
Unrestricted Reserves	\$3,840,873	\$2,716,040	\$2,324,667	\$1,757,858	\$1,652,526	\$1,567,013	\$1,490,599	\$1,469,688	\$1,422,726	\$1,442,372
Restricted Reserves	\$2,044,440	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557
Total Reserves	\$5,885,313	\$5,544,597	\$5,153,223	\$4,586,414	\$4,481,082	\$4,395,569	\$4,319,155	\$4,298,244	\$4,251,283	\$4,270,928
Recommended Reserves										
Unrestricted Reserves	\$400,089	\$460,397	\$470,495	\$480,581	\$490,522	\$501,058	\$511,301	\$521,942	\$532,888	\$544,321
Operating Reserve	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000
Capital Reserve	\$0	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117
Restricted Reserves	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440
Debt Service	\$2,944,529	\$3,788,954	\$3,799,052	\$3,809,137	\$3,819,079	\$3,829,615	\$3,839,857	\$3,850,498	\$3,861,445	\$3,872,878
DNR Grant Replacement Account										
Total	\$1,076,512	\$1,152,300	\$1,209,907	\$269,321	\$329,701	\$391,037	\$453,251	\$516,543	\$580,822	\$646,095
Sewer Collection System Replacement Fund	\$59,640	\$57,608	\$59,414	\$60,379	\$61,336	\$62,213	\$63,292	\$64,279	\$65,274	\$66,395
Beginning Balance	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Transfer from Sewer Utility	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Expenditures ⁽²⁾	\$1,152,300	\$1,209,907	\$269,321	\$329,701	\$391,037	\$453,251	\$516,543	\$580,822	\$646,095	\$712,491
Ending Balance	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Notes:
 (1) Funds transferred to the City and Village for collection system costs.
 (2) Funds to be used for the Hwy 35 / 2nd Street trunk sewer replacement project in 2021.



City of Hudson
2021 Sewer Rate Study

Table 8 - Forecast Cash Flows: 23.7 Percent Increase in 2021, 23.7 Percent Increase in 2022

	Current Year		Test Year									
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028		
Projected Demand Change				1.6%	1.6%	1.4%	1.7%	1.6%	1.5%	1.7%		
Customer Growth				128	126	123	127	125	125	127		
Projected Average Expense Change				2.2%	2.1%	2.1%	2.0%	2.1%	2.1%	2.1%		
Projected Rate Increase				23.7%	23.7%	2.0%	0.0%	2.0%	0.0%	2.0%		
Revenues												
Subtotal User Charge Revenues	\$1,944,250	\$1,944,250	\$2,405,037	\$2,975,031	\$3,022,177	\$3,126,705	\$3,180,909	\$3,295,115	\$3,346,122	\$3,471,689		
Less: Charges for City/Village Collection Systems ⁽¹⁾	(\$71,000)	(\$68,580)	(\$70,731)	(\$71,880)	(\$73,019)	(\$74,064)	(\$75,348)	(\$76,522)	(\$77,707)	(\$79,042)		
Subtotal Other Operating Revenues	\$42,560	\$61,245	\$63,212	\$41,823	\$46,309	\$51,020	\$52,724	\$51,020	\$48,581	\$49,933		
Subtotal Non-Operating Revenues	\$226,800	\$222,746	\$221,768	\$238,025	\$256,213	\$227,653	\$241,121	\$246,402	\$236,043	\$242,362		
Total Cash In	\$2,142,610	\$2,159,661	\$2,629,287	\$3,183,000	\$3,251,680	\$3,331,324	\$3,399,407	\$3,516,015	\$3,553,039	\$3,684,942		
Expenses												
Subtotal O&M	\$1,600,354	\$1,841,589	\$1,881,980	\$1,922,322	\$1,962,088	\$2,004,233	\$2,045,203	\$2,087,767	\$2,131,553	\$2,177,285		
Debt Service	\$0	\$0	\$136,429	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117		
Capital Outlay	\$916,750	\$13,295,000	\$1,690,000	\$980,450	\$546,364	\$562,754	\$579,637	\$597,026	\$614,937	\$633,385		
Less: New Borrowing	\$12,700,000	\$12,700,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Transfer to General Fund per Intermunicipal Contract	\$62,000	\$63,788	\$65,331	\$66,091	\$67,666	\$69,065	\$70,255	\$71,528	\$72,961	\$74,211		
Less: Transfer from Sewer Collection Replacement Fund ⁽²⁾			\$1,000,000									
Total Cash Out	\$2,579,104	\$2,500,377	\$2,773,741	\$3,752,979	\$3,360,234	\$3,420,169	\$3,479,211	\$3,540,438	\$3,603,567	\$3,668,997		
Net Cash Flow	(\$436,494)	(\$340,716)	(\$144,454)	(\$569,980)	(\$108,553)	(\$88,846)	(\$79,805)	(\$24,423)	(\$50,528)	(\$15,945)		
Sewer Utility Reserves												
Beginning Balance	\$6,321,807	\$5,885,313	\$5,544,597	\$5,400,143	\$4,830,163	\$4,721,610	\$4,632,764	\$4,552,959	\$4,528,536	\$4,478,008		
Net Cash Flow	(\$436,494)	(\$340,716)	(\$144,454)	(\$569,980)	(\$108,553)	(\$88,846)	(\$79,805)	(\$24,423)	(\$50,528)	(\$15,945)		
Ending Balance	\$5,885,313	\$5,544,597	\$5,400,143	\$4,830,163	\$4,721,610	\$4,632,764	\$4,552,959	\$4,528,536	\$4,478,008	\$4,493,953		
Unrestricted Reserves	\$3,840,873	\$2,716,040	\$2,571,586	\$2,001,606	\$1,893,053	\$1,804,207	\$1,724,403	\$1,699,980	\$1,649,451	\$1,665,396		
Restricted Reserves	\$2,044,440	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557	\$2,828,557		
Total Reserves	\$5,885,313	\$5,544,597	\$5,400,143	\$4,830,163	\$4,721,610	\$4,632,764	\$4,552,959	\$4,528,536	\$4,478,008	\$4,493,953		
Recommended Reserves												
Unrestricted Reserves	\$400,089	\$460,397	\$470,495	\$480,581	\$490,522	\$501,058	\$511,301	\$521,942	\$532,888	\$544,321		
Capital Reserve	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000		
Restricted Reserves	\$0	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117	\$784,117		
DNR Grant Replacement Account	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440	\$2,044,440		
Total	\$2,944,529	\$3,788,954	\$3,799,052	\$3,809,137	\$3,819,079	\$3,829,615	\$3,839,857	\$3,850,498	\$3,861,445	\$3,872,878		
Sewer Collection System Replacement Fund												
Beginning Balance	\$1,076,512	\$1,152,300	\$1,209,907	\$269,321	\$329,701	\$391,037	\$453,251	\$516,543	\$580,822	\$646,095		
Transfer from Sewer Utility	\$59,640	\$57,608	\$59,414	\$60,379	\$61,336	\$62,213	\$63,292	\$64,279	\$65,274	\$66,395		
Expenditures ⁽²⁾	\$0	\$0	(\$1,000,000)	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Ending Balance	\$1,152,300	\$1,209,907	\$269,321	\$329,701	\$391,037	\$453,251	\$516,543	\$580,822	\$646,095	\$712,491		

Notes:
(1) Funds transferred to the Village and the City for collection system costs.
(2) Funds to be used for the Hwy 35 / 2nd Street trunk sewer replacement project in 2021.



REVENUE REQUIREMENTS AND COST-OF-SERVICE ANALYSIS

The tables attached to this report as an appendix show the detailed revenue requirements and the cost of service analysis based on projected 2022 revenue requirements. The cost of service analysis allocates the utility's revenue requirements first to utility functions and then to each customer class. Rates were calculated to recover the costs for 2022, and then stepped-in rates for 2021 were developed to phase in the rate increase. Finally, the estimated revenues at the proposed rates for 2020 through 2022 were calculated. Utility revenue requirements include operation and maintenance expense, debt service, and capital improvements.

Costs were first allocated to the functions served by the utility. Each of the utility's costs was split between costs to provide collector sewer conveyance, wastewater treatment for average daily volume, costs to provide peak (maximum day) treatment capacity, costs to treat pollutant loadings (BOD, TSS, phosphorus and NH-3), and customer costs that are relatively fixed per customer or meter.

Costs were then allocated to each customer class (residential, multi-family, commercial, industrial, public authority) based on the demand characteristics of each customer class. A portion of the conveyance system, average day and peak day flow costs were allocated to infiltration and inflow (I/I) based on forecast percentage of I/I on an average and peak day basis. Costs allocated to I/I are proposed to be recovered through the flat charge, as the amount of I/I in the system is related more closely to the number of customers, size of sewer laterals and feet of sewer main rather than the volume of wastewater generated by each customer.

PROPOSED RATE SCHEDULE

The targeted overall increase in user charge revenues by 2022 is approximately 46.5 percent. The following tables show the specific schedule of rates for 2021 and 2022 under each of the three options for phasing in the rate increase. Rate increases for specific types of charges vary from the overall rate increase.

**City of Hudson
2021 Sewer Rate Study**

Table 9 - Proposed Phased-In Rate Schedule – Increase of 38 Percent in 2021 and 11 Percent in 2022

Flat Charge

Connection Size	Current Charge	2020	Percent Change	2021	Percent Change	2022	Percent Change
5/8	\$7.60	\$7.60	0%	\$11.53	52%	\$12.80	11%
3/4	\$7.60	\$7.60	0%	\$11.53	52%	\$12.80	11%
1	\$8.45	\$8.45	0%	\$21.71	157%	\$24.10	11%
1 1/4	\$9.50	\$9.50	0%	\$30.72	223%	\$34.10	11%
1 1/2	\$10.35	\$10.35	0%	\$39.73	284%	\$44.10	11%
2	\$11.15	\$11.15	0%	\$62.16	458%	\$69.00	11%
2 1/2	\$11.70	\$11.70	0%	\$87.84	651%	\$97.50	11%
3	\$12.50	\$12.50	0%	\$107.66	761%	\$119.50	11%
4	\$0.00	\$0.00	NA	\$170.54	NA	\$189.30	11%
6	\$0.00	\$0.00	NA	\$319.91	NA	\$355.10	11%
8	\$0.00	\$0.00	NA	\$498.11	NA	\$552.90	11%
10	\$0.00	\$0.00	NA	\$734.05	NA	\$814.80	11%
12	\$0.00	\$0.00	NA	\$969.91	NA	\$1,076.60	11%

Usage Charges

	Units	Current Rate	2020	Percent Change	2021	Percent Change	2022	Percent Change
Domestic Sewage	\$/CCF	\$3.00	\$3.00	0%	\$3.83	28%	\$4.25	11%
Landfill Leachate	\$/CCF	\$0.00	\$2.00	NA	\$2.77	38%	\$3.07	11%
	\$/1,000 gals	\$0.00	\$2.68	NA	\$3.70	38%	\$4.11	11%
	per load	\$0.00	\$0.44	NA	\$0.61	38%	\$0.68	11%
Surcharge Rates								
BOD	\$/pound	\$0.00	\$0.50	NA	\$0.68	38%	\$0.76	11%
TSS	\$/pound	\$0.00	\$0.47	NA	\$0.65	38%	\$0.72	11%
Phosphorus	\$/pound	\$0.00	\$4.18	NA	\$5.77	38%	\$6.41	11%
TKN	\$/pound	\$0.00	\$0.80	NA	\$1.10	38%	\$1.22	11%

**City of Hudson
2021 Sewer Rate Study**

Table 10 - Proposed Phased-In Rate Schedule – Increase of 11 Percent in 2021 and 38 Percent in 2022

Flat Charge

Connection Size	Current Charge	2020	Percent Change	2021	Percent Change	2022	Percent Change
5/8	\$7.60	\$7.60	0%	\$9.28	22%	\$12.80	38%
3/4	\$7.60	\$7.60	0%	\$9.28	22%	\$12.80	38%
1	\$8.45	\$8.45	0%	\$17.46	107%	\$24.10	38%
1 1/4	\$9.50	\$9.50	0%	\$24.71	160%	\$34.10	38%
1 1/2	\$10.35	\$10.35	0%	\$31.96	209%	\$44.10	38%
2	\$11.15	\$11.15	0%	\$50.00	348%	\$69.00	38%
2 1/2	\$11.70	\$11.70	0%	\$70.65	504%	\$97.50	38%
3	\$12.50	\$12.50	0%	\$86.59	593%	\$119.50	38%
4	\$0.00	\$0.00	NA	\$137.10	NA	\$189.20	38%
6	\$0.00	\$0.00	NA	\$257.25	NA	\$355.00	38%
8	\$0.00	\$0.00	NA	\$400.65	NA	\$552.90	38%
10	\$0.00	\$0.00	NA	\$590.36	NA	\$814.70	38%
12	\$0.00	\$0.00	NA	\$780.14	NA	\$1,076.60	38%

Usage Charges

	Units	Current Rate	2020	Percent Change	2021	Percent Change	2022	Percent Change
Domestic Sewage	\$/CCF	\$3.00	\$3.00	0%	\$3.08	3%	\$4.25	38%
Landfill Leachate	\$/CCF	\$0.00	\$2.01	NA	\$2.23	11%	\$3.08	38%
	\$/1,000 gals	\$0.00	\$2.68	NA	\$2.98	11%	\$4.11	38%
	per load	\$0.00	\$0.44	NA	\$0.49	11%	\$0.68	38%
Surcharge Rates								
BOD	\$/pound	\$0.00	\$0.50	NA	\$0.55	11%	\$0.76	38%
TSS	\$/pound	\$0.00	\$0.47	NA	\$0.52	11%	\$0.72	38%
Phosphorus	\$/pound	\$0.00	\$4.18	NA	\$4.64	11%	\$6.40	38%
TKN	\$/pound	\$0.00	\$0.79	NA	\$0.88	11%	\$1.21	38%

**City of Hudson
2021 Sewer Rate Study**

Table 11 - Proposed Phased-In Rate Schedule – Increase of 23.7 Percent in 2021 and 23.7 Percent in 2022

Flat Charge

Connection Size	Current Charge	2020	Percent Change	2021	Percent Change	2022	Percent Change
5/8	\$7.60	\$7.60	0%	\$10.35	36%	\$12.80	24%
3/4	\$7.60	\$7.60	0%	\$10.35	36%	\$12.80	24%
1	\$8.45	\$8.45	0%	\$19.48	131%	\$24.10	24%
1 1/4	\$9.50	\$9.50	0%	\$27.57	190%	\$34.10	24%
1 1/2	\$10.35	\$10.35	0%	\$35.65	244%	\$44.10	24%
2	\$11.15	\$11.15	0%	\$55.78	400%	\$69.00	24%
2 1/2	\$11.70	\$11.70	0%	\$78.74	573%	\$97.40	24%
3	\$12.50	\$12.50	0%	\$96.60	673%	\$119.50	24%
4	\$0.00	\$0.00	NA	\$152.95	NA	\$189.20	24%
6	\$0.00	\$0.00	NA	\$286.98	NA	\$355.00	24%
8	\$0.00	\$0.00	NA	\$446.89	NA	\$552.80	24%
10	\$0.00	\$0.00	NA	\$658.61	NA	\$814.70	24%
12	\$0.00	\$0.00	NA	\$870.25	NA	\$1,076.50	24%

Usage Charges

	Units	Current Rate	2020	Percent Change	2021	Percent Change	2022	Percent Change
Domestic Sewage	\$/CCF	\$3.00	\$3.00	0%	\$3.44	15%	\$4.25	24%
Landfill Leachate	\$/CCF	\$0.00	\$2.01	NA	\$2.48	24%	\$3.07	24%
	\$/1,000 gals	\$0.00	\$2.69	NA	\$3.32	24%	\$4.11	24%
	per load	\$0.00	\$0.44	NA	\$0.55	24%	\$0.68	24%
Surcharge Rates								
BOD	\$/pound	\$0.00	\$0.50	NA	\$0.61	24%	\$0.76	24%
TSS	\$/pound	\$0.00	\$0.47	NA	\$0.58	24%	\$0.72	24%
Phosphorus	\$/pound	\$0.00	\$4.18	NA	\$5.17	24%	\$6.39	24%
TKN	\$/pound	\$0.00	\$0.79	NA	\$0.98	24%	\$1.21	24%

COMMUNITY RATE COMPARISON

To provide context for the proposed rates for Hudson, a comparison with the sewer user rates charged by other communities in the region was prepared. The two communities in Minnesota included in the comparison were chosen because they have their own wastewater treatment plant and are comparable to Hudson. The basis of the charges, and the estimated total annual bill for a residential customer for each community are shown in the following table. As shown, for a customer using 4,850 cubic feet or 36,278 gallons of water per year, the estimated annual sewer bill under current Hudson rates would be \$175.90 per year. Under the proposed rates for 2022, this would increase to \$257.33, or a total increase of \$20.36 per quarter. Even with the

City of Hudson
2021 Sewer Rate Study

increase, the average bill would remain significantly below the average or median bill for the other regional communities.

Table 12 - Regional Comparison of Average Residential Bills

Community	Fixed Charge	Bills per Year	Volume Rate	Annual Usage	Units	Annual Bill
Roberts	\$81.50	4	\$17.74	36,278	gallons	\$969.57
Hammond	\$14.75	12	\$13.39	36,278	gallons	\$662.76
Star Prairie	\$50.00	12	\$0.00	36,278	gallons	\$600.00
Wyoming, MN	\$30.06	4	\$12.80	36,278	gallons	\$584.60
Osceola	\$35.00	4	\$9.00	4,850	ft ³	\$576.50
Somerset	\$8.92	12	\$11.14	36,278	gallons	\$511.18
Ashland	\$15.92	12	\$6.21	4,850	ft ³	\$492.23
River Falls	\$16.50	12	\$7.04	36,278	gallons	\$453.40
Lindstrom, MN	\$32.00	4	\$8.86	36,278	gallons	\$449.26
Amery	\$42.27	4	\$5.33	36,278	gallons	\$362.44
New Richmond	\$8.50	12	\$6.68	36,278	gallons	\$344.34
Baldwin	\$27.30	4	\$5.28	36,278	gallons	\$300.75
Hudson (proposed 2022)	\$12.80	4	\$4.25	4,850	ft³	\$257.33
Chippewa Falls	\$17.01	4	\$2.85	4,850	ft ³	\$206.27
Menomonie	\$18.00	4	\$2.70	4,850	ft ³	\$202.95
Glenwood City	\$29.00	4	\$2.32	36,278	gallons	\$200.16
Hudson (current)	\$7.60	4	\$3.00	4,850	ft³	\$175.90
Rice Lake	\$4.40	12	\$3.08	36,278	gallons	\$164.54
Average w/o Hudson						\$442.56
Median w/o Hudson						\$451.33

A similar comparison was prepared for an average non-residential customer in Hudson using 28,700 cubic feet, or 214,676 gallons per year, with a 3/4" meter. Under current rates, this customer would receive an annual bill of \$894.80. Under the proposed increase for 2022, the annual bill would increase to \$1,316.15, or an increase of \$105.34 per quarter. Again, this would keep the average non-residential bill well below the median for the region.

City of Hudson
2021 Sewer Rate Study

Table 13 - Regional Comparison of Average Non-Residential Bills

Community	Fixed Charge	Bills per Year	Volume Rate	Annual Usage	Units	Annual Bill
Roberts	\$81.50	4	\$17.74	214,676	gallons	\$4,134.35
Hammond	\$14.75	12	\$13.39	214,676	gallons	\$3,051.51
Wyoming, MN	\$30.06	4	\$12.80	214,676	gallons	\$2,868.09
Osceola	\$35.00	4	\$9.00	28,700	ft ³	\$2,723.00
Somerset	\$22.71	12	\$11.14	214,676	gallons	\$2,664.01
Ashland	\$36.00	12	\$6.21	28,700	ft ³	\$2,214.27
Lindstrom, MN	\$32.00	4	\$9.28	214,676	gallons	\$2,119.30
River Falls	\$22.50	12	\$7.04	214,676	gallons	\$1,781.32
New Richmond	\$12.90	4	\$6.68	214,676	gallons	\$1,485.64
Amery	\$55.79	4	\$5.33	214,676	gallons	\$1,367.38
Hudson (proposed 2022)	\$24.10	4	\$4.25	28,700	ft³	\$1,316.15
Baldwin	\$36.07	4	\$5.28	214,676	gallons	\$1,277.77
Hudson (current)	\$8.45	4	\$3.00	28,700	ft³	\$894.80
Chippewa Falls	\$17.01	4	\$2.85	28,700	ft ³	\$885.99
Menomonie	\$18.00	4	\$2.70	28,700	ft ³	\$846.90
Rice Lake	\$4.40	12	\$3.08	214,676	gallons	\$714.00
Glenwood City	\$29.00	4	\$2.32	214,676	gallons	\$614.05
Star Prairie	\$50.00	12	\$0.00	214,676	gallons	\$600.00
Average w/o Hudson						\$1,834.22
Median w/o Hudson						\$1,633.48

RECOMMENDATIONS

It is recommended that the City phase in the rate increase according to one of the schedules shown in Tables 8-10 and continue to monitor the financial health of the utility for the necessity of additional future rate increases as presented in the cash flow forecasts. This will allow the Wastewater Utility to generate the revenue needed to provide adequate funding for the utility's operation and maintenance expenses and capital improvement program while maintaining the utility's reserve funds at the recommended levels.

**APPENDIX A – SEWER UTILITY COST OF SERVICE STUDY AND PROPOSED RATE
DESIGN**

Allocation of Operation and Maintenance Expenses to Service Cost Functions

YEAR		2022												
Acct No.	Alloc No.	Account Description	Total (\$)	CONVEYANCE		FLOW		TREATMENT PLANT				CUSTOMER COSTS		
				Collection System (\$)	Interceptor System (\$)	Average (\$)	Peak (\$)	BOD (\$)	TSS (\$)	P (\$)	NH-3 (\$)	Billing (\$)	Equivalent Meter (\$)	Equivalent Service (\$)
WASTEWATER TREATMENT & DISPOSAL														
	5	Salaries and Wages	219,906			43,981	0	65,972	65,972	21,991	21,991			
	5	FICA	15,963			3,193	0	4,789	4,789	1,596	1,596			
	5	Retirement	14,355			2,871	0	4,306	4,306	1,435	1,435			
	5	Health Insurance	83,156			16,631	0	24,947	24,947	8,316	8,316			
	7	Utilities - Electricity	111,675			44,670	0	27,919	22,335	11,168	5,584			
	7	Utilities - Gas	14,166			5,666	0	3,542	2,833	1,417	708			
Propor.		Contractual Services	142,245	0	0	18,383	0	56,161	45,880	11,404	10,416	0	0	0
	8	Chemicals	29,056			0	0	17,433	0	5,811	5,811			
Propor.		Supplies	58,135	0	0	7,513	0	22,953	18,751	4,661	4,257	0	0	0
	6	Biosolids Charges	417,139			0	0	208,570	166,856	20,857	20,857			
Propor.		Other Services & Charges	0	0	0	0	0	0	0	0	0	0	0	0
LIFT STATIONS & PUMPING EQUIPMENT														
	1	Salaries and Wages	27,536			22,947	4,589	0	0	0	0			
	1	GASB 68	22,469			18,724	3,745	0	0	0	0			
	1	FICA	2,024			1,687	337	0	0	0	0			
	1	Retirement	1,843			1,536	307	0	0	0	0			
	1	Health Insurance	9,336			7,780	1,556	0	0	0	0			
	1	Utilities - Electricity	22,297			18,581	3,716	0	0	0	0			
	1	Utilities - Gas	364			303	61	0	0	0	0			
	1	Contractual Services	6,228			5,190	1,038	0	0	0	0			
	1	Supplies	909			757	151	0	0	0	0			
	1	Other Services & Charges	0			0	0	0	0	0	0			
WASTEWATER COLLECTION SYSTEM														
Coll		Salaries and Wages	91,804	91,804										
Coll		FICA	6,675	6,675										
Coll		Retirement	6,116	6,116										
Coll		Health Insurance	31,584	31,584										
Coll		Contractual Services	57,115	57,115										
Coll		Supplies	3,947	3,947										
Coll		Other Services & Charges	0	0										
DAMS														
Propor.		Salaries and Wages	2,879	407	0	455	32	900	735	183	167	0	0	0
Propor.		FICA	213	30	0	34	2	67	54	14	12	0	0	0
Propor.		Retirement	193	27	0	30	2	60	49	12	11	0	0	0
Propor.		Health Insurance	1,119	158	0	177	12	350	286	71	65	0	0	0
Propor.		Contractual Services	1,934	273	0	305	21	605	494	123	112	0	0	0
Propor.		Utilities - Electricity	803	113	0	127	9	251	205	51	47	0	0	0
Propor.		Supplies	0	0	0	0	0	0	0	0	0	0	0	0
METER READING														
Cust		Salaries and Wages	11,195									11,195		
Cust		FICA	796									796		

YEAR	2022
-------------	-------------

Acct No.	Alloc No.	Account Description	Total	CONVEYANCE		FLOW		TREATMENT PLANT				CUSTOMER COSTS		
				Collection System	Interceptor System	Average	Peak	BOD	TSS	P	NH-3	Billing	Equivalent Meter	Equivalent Service
	Cust	Retirement	709									709		
	Cust	Health Insurance	3,398									3,398		
	Cust	Contractual Services	856									856		
	Propor.	Supplies	6,439									538	5,901	
	Meter	Meter Use Charge Paid to Water Utility	185,973										185,973	
		SUBTOTAL	1,612,549	198,250	0	221,542	15,580	438,825	358,494	89,109	81,385	17,491	191,874	0
		Subtotal for allocation of G & A expenses	1,612,549	198,250	0	221,542	15,580	438,825	358,494	89,109	81,385	17,491	191,874	0
		PERCENTAGE		12.29%	0.00%	13.74%	0.97%	27.21%	22.23%	5.53%	5.05%	1.08%	11.90%	0.00%
		GENERAL AND ADMINISTRATIVE EXPENSES												
	Gen	Salaries and Wages	135,699	16,683	0	18,643	1,311	36,928	30,168	7,499	6,849	1,472	16,147	0
	Gen	GASB 68	21,931	2,696	0	3,013	212	5,968	4,876	1,212	1,107	238	2,610	0
	Gen	FICA	9,941	1,222	0	1,366	96	2,705	2,210	549	502	108	1,183	0
	Gen	Retirement	9,080	1,116	0	1,248	88	2,471	2,019	502	458	98	1,080	0
	Gen	Health Insurance	45,282	5,567	0	6,221	438	12,323	10,067	2,502	2,285	491	5,388	0
	Gen	Contractual Services	27,708	3,406	0	3,807	268	7,540	6,160	1,531	1,398	301	3,297	0
	Gen	Supplies	4,344	534	0	597	42	1,182	966	240	219	47	517	0
	Gen	Insurance	55,787	6,859	0	7,664	539	15,181	12,402	3,083	2,816	605	6,638	0
	Gen	Other Services & Charges	0	0	0	0	0	0	0	0	0	0	0	0
		SUBTOTAL	309,773	38,084	0	42,559	2,993	84,299	68,867	17,118	15,634	3,360	36,859	0
		TOTAL	1,922,322	236,334	0	264,100	18,573	523,124	427,361	106,227	97,019	20,851	228,733	0

Allocation of Total Plant to Service Cost Functions

Acct No.	Alloc No.	Account Description	Average Balance (\$)	CONVEYANCE		FLOW		TREATMENT PLANT				CUSTOMER COSTS		
				Collection System (\$)	Interceptor System (\$)	Average (\$)	Peak (\$)	BOD (\$)	TSS (\$)	P (\$)	NH-3 (\$)	Billing (\$)	Equivalent Meter (\$)	Equivalent Service (\$)
		INTANGIBLE PROPERTY												
Cust		Misc. intangible property	0									0		
		COLLECTION SYSTEM												
Prop.		Land and land rights	0	0	0	0	0	0	0	0	0	0	0	0
Serv.		Service connections, traps and accessories	0											0
Coll		Collecting mains	680,920	680,920										
Int		Interceptor mains	0		0									
Int		Force mains	0		0									
Coll		Structures and improvements	0	0										
Coll		Receiving wells	0	0										
Coll		Electric pumping equipment	0	0										
Prop.		Other power pumping equipment	0	0	0	0	0	0	0	0	0	0	0	0
Prop.		Misc. pumping equipment	12,400	12,400	0	0	0	0	0	0	0	0	0	0
		TREATMENT AND DISPOSAL PLANT												
Prop.		Land and land rights	129,856			35,193	1,050	34,258	38,922	10,247	10,187			
5		Structures and improvements	10,547,988			2,109,598	0	3,164,396	3,164,396	1,054,799	1,054,799			
5		Electrical controls	804,635			160,927	0	241,391	241,391	80,464	80,464			
3		Preliminary treatment equipment	940,714			611,464	0	0	329,250	0	0			
2		Primary treatment equipment	207,974			103,987	0	20,797	83,189	0	0			
5		Secondary treatment equipment	1,253,173			250,635	0	375,952	375,952	125,317	125,317			
6		Advanced treatment equipment	925,800			0	0	462,900	370,320	46,290	46,290			
8		Chlorination equipment	83,276			0	0	49,966	0	16,655	16,655			
2		Sludge treatment and disposal equipment	1,006,547			503,274	0	100,655	402,619	0	0			
2		Biogas equipment	221,334			110,667	0	22,133	88,534	0	0			
1		Plant site piping	823,504			686,253	137,251	0	0	0	0			
7		Flow metering equipment	157,484			62,994	0	39,371	31,497	15,748	7,874			
1		Outfall sewer pipes	0			0	0	0	0	0	0			
Prop.		Other treatment and disposal plant equipment	645,902			175,050	5,223	170,398	193,596	50,967	50,668			
		SUBTOTAL TREATMENT AND DISPOSAL	17,748,187	0	0	4,810,040	143,524	4,682,217	5,319,665	1,400,487	1,392,253	0	0	0
		PERCENTAGE		0.00%	0.00%	27.10%	0.81%	26.38%	29.97%	7.89%	7.84%	0.00%	0.00%	0.00%
		SUBTOTAL COLLECTION, TREATMENT AND DISPOSAL	18,441,507	693,320	0	4,810,040	143,524	4,682,217	5,319,665	1,400,487	1,392,253	0	0	0
		PERCENTAGE		3.76%	0.00%	26.08%	0.78%	25.39%	28.85%	7.59%	7.55%	0.00%	0.00%	0.00%

Acct No.	Alloc No.	Account Description	CONVEYANCE		FLOW		TREATMENT PLANT				CUSTOMER COSTS			
			Average Balance	Collection System	Interceptor System	Average	Peak	BOD	TSS	P	NH-3	Billing	Equivalent Meter	Equivalent Service
GENERAL PLANT														
Gen		Structure and improvements	819,800	30,821	0	213,826	6,380	208,144	236,481	62,257	61,891	0	0	0
Gen		Office furniture and equipment	25,067	942	0	6,538	195	6,364	7,231	1,904	1,892	0	0	0
Gen		Computers	47,520	1,787	0	12,394	370	12,065	13,708	3,609	3,588	0	0	0
Gen		SCADA equipment	325,863	12,251	0	84,994	2,536	82,735	93,999	24,747	24,601	0	0	0
Gen		Transportation equipment	397,393	14,940	0	103,651	3,093	100,896	114,632	30,179	30,001	0	0	0
8		Laboratory and monitoring equipment	5,879			0	0	3,528	0	1,176	1,176			
Gen		Other general equipment	17,256	649	0	4,501	134	4,381	4,978	1,310	1,303	0	0	0
Gen		Communication equipment	83,805	3,151	0	21,859	652	21,278	24,175	6,364	6,327	0	0	0
			1,722,583	64,541	0	447,762	13,361	439,391	495,203	131,546	130,780	0	0	0
		TOTAL	20,164,091	757,861	0	5,257,803	156,884	5,121,608	5,814,868	1,532,033	1,523,033	0	0	0

Allocation of Debt to Service Cost Functions

Acct No.	Alloc No.	Account Description	Capital Financed through Debt (\$)	CONVEYANCE		FLOW		TREATMENT PLANT				CUSTOMER COSTS		
				Collection System (\$)	Interceptor System (\$)	Average (\$)	Peak (\$)	BOD (\$)	TSS (\$)	P (\$)	NH-3 (\$)	Billing (\$)	Equivalent Meter (\$)	Equivalent Service (\$)
INTANGIBLE PROPERTY														
Cust		Misc. intangible property	0									0		
COLLECTION SYSTEM														
Prop.		Land and land rights	0											
Serv.		Service connections, traps and accessories	0											0
Coll		Collecting mains	0	0										
Int		Interceptor mains	0		0									
Int		Force mains	0		0									
Coll		Structures and improvements	0	0										
Coll		Receiving wells	0	0										
Coll		Electric pumping equipment	0	0										
Prop.		Other power pumping equipment	0											
Prop.		Misc. pumping equipment	0											
TREATMENT AND DISPOSAL PLANT														
Prop.		Land and land rights	0			0	0	0	0	0	0			
5		Structures and improvements	5,855,900			1,171,180	0	1,756,770	1,756,770	585,590	585,590			
5		Electrical controls	0			0	0	0	0	0	0			
3		Preliminary treatment equipment	1,318,700			857,155	0	0	461,545	0	0			
2		Primary treatment equipment	0			0	0	0	0	0	0			
5		Secondary treatment equipment	832,900			166,580	0	249,870	249,870	83,290	83,290			
6		Advanced treatment equipment	1,750,000			0	0	875,000	700,000	87,500	87,500			
8		Chlorination equipment	0			0	0	0	0	0	0			
2		Sludge treatment and disposal equipment	1,147,400			573,700	0	114,740	458,960	0	0			
2		Biogas equipment	0			0	0	0	0	0	0			
1		Plant site piping	396,500			330,417	66,083	0	0	0	0			
7		Flow metering equipment	0			0	0	0	0	0	0			
1		Outfall sewer pipes	0			0	0	0	0	0	0			
Prop.		Other treatment and disposal plant equipment	279,700			76,698	1,636	74,158	89,769	18,720	18,720			
SUBTOTAL			11,581,100	0	0	3,175,730	67,719	3,070,538	3,716,914	775,100	775,100	0	0	0
PERCENTAGE				0.00%	0.00%	27.42%	0.58%	26.51%	32.09%	6.69%	6.69%	0.00%	0.00%	0.00%

Acct No.	Alloc No.	Account Description	Capital Financed through Debt	CONVEYANCE		FLOW		TREATMENT PLANT				CUSTOMER COSTS		
				Collection System	Interceptor System	Average	Peak	WASTE TREATMENT				Billing	Equivalent Meter	Equivalent Service
								BOD	TSS	P	NH-3			
GENERAL PLANT														
Gen		Structure and improvements	207,800	0	0	56,982	1,215	55,095	66,693	13,908	13,908	0	0	0
Gen		Office furniture and equipment	0	0	0	0	0	0	0	0	0	0	0	0
Gen		Computers	64,600	0	0	17,714	378	17,128	20,733	4,324	4,324	0	0	0
Gen		SCADA equipment	145,400	0	0	39,871	850	38,550	46,666	9,731	9,731	0	0	0
Gen		Transportation equipment	0	0	0	0	0	0	0	0	0	0	0	0
8		Laboratory and monitoring equipment	0	0	0	0	0	0	0	0	0	0	0	0
Gen		Other general equipment	0	0	0	0	0	0	0	0	0	0	0	0
Gen		Communication equipment	0	0	0	0	0	0	0	0	0	0	0	0
			417,800	0	0	114,568	2,443	110,773	134,091	27,963	27,963	0	0	0
		TOTAL	11,998,900	0	0	3,290,298	70,162	3,181,311	3,851,005	803,062	803,062	0	0	0

Summary of Allocation of Operating Costs to Service Cost Functions

YEAR		2022												
Retail Rate of Return		3.90%												
Net Asset Base		17,648,242												
Operating Cost	Total	CONVEYANCE			FLOW		TREATMENT PLANT				CUSTOMER COSTS			
		Collection System O&M	Interceptor System O&M	Collection System Replacement	Average	Peak	BOD	TSS	P	NH-3	Billing	Equivalent Meter	Equivalent Service	
	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	
Operation and Maintenance	1,922,322	236,334	0		264,100	18,573	523,124	427,361	106,227	97,019	20,851	228,733	0	
Debt Service	784,117	0	0		215,018	4,585	207,896	251,659	52,479	52,479	0	0	0	
City Sewer Collection System Replacement	60,379			60,379										
North Hudson Collection System Allowance	11,501			11,501										
Other Capital Improvements	253,207	0	0		68,623	2,048	66,800	75,894	19,980	19,863	0	0	0	
Total	3,031,526	236,334	0	71,880	547,741	25,206	797,819	754,914	178,686	169,361	20,851	228,733	0	

Wholesale Rate of Return		3.90%												
Net Asset Base		17,648,242												
Operating Cost	Total	CONVEYANCE			FLOW		TREATMENT PLANT				CUSTOMER COSTS			
		Collection System O&M	Interceptor System O&M	Collection System Replacement	Average	Peak	BOD	TSS	P	NH-3	Billing	Equivalent Meter	Equivalent Service	
	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	
Operation and Maintenance	1,922,322	236,334	0		264,100	18,573	523,124	427,361	106,227	97,019	20,851	228,733	0	
Debt Service	784,117	0	0		215,018	4,585	207,896	251,659	52,479	52,479	0	0	0	
City Sewer Collection System Replacement	60,379			60,379										
North Hudson Collection System Allowance	11,501			11,501										
Other Capital Improvements	253,207	0	0		68,623	2,048	66,800	75,894	19,980	19,863	0	0	0	
Total	3,031,526	236,334	0	71,880	547,741	25,206	797,819	754,914	178,686	169,361	20,851	228,733	0	

Overall Rate of Return		3.90%												
Net Asset Base		17,648,242												
Operating Cost	Total	CONVEYANCE			FLOW		TREATMENT PLANT				CUSTOMER COSTS			
		Collection System O&M	Interceptor System O&M	Other Collection System	Average	Peak	BOD	TSS	P	NH-3	Billing	Equivalent Meter	Equivalent Service	
	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	
Operation and Maintenance	1,922,322	236,334	0		264,100	18,573	523,124	427,361	106,227	97,019	20,851	228,733	0	
Debt Service	784,117	0	0		215,018	4,585	207,896	251,659	52,479	52,479	0	0	0	
City Sewer Collection System Replacement	60,379			60,379										
North Hudson Collection System Allowance	11,501			11,501										
Other Capital Improvements	253,207	0	0		68,623	2,048	66,800	75,894	19,980	19,863	0	0	0	
Total	3,031,526	236,334	0	71,880	547,741	25,206	797,819	754,914	178,686	169,361	20,851	228,733	0	

Customer Class Demand Allocation

YEAR		2022																							
Billing Units - CCF		BASE DEMAND					EXTRA-CAPACITY MAX DAY DEMAND					TREATMENT CATEGORIES													
Customer Class	Annual Volume	Average Day Volume	System Percent (%)	Collection Percent (%)	Collection System Replace. Percent (%)	Max Day / Average Day Ratio	Extra Capacity Ratio	Extra Capacity Volume Rate Per Day	Percent (%)	System Adjust. Percentage (%)	Coll. Adjust. Percentage (%)	Waste Strength (mg/l)	BOD		TSS		P		NH3						
													Loadings (lbs)	Percent (%)	Waste Strength (mg/l)	Loadings (lbs)	Percent (%)	Waste Strength (mg/l)	Loadings (lbs)	Percent (%)	Waste Strength (mg/l)	Loadings (lbs)	Percent (%)		
Residential	345,061	94,537	44.72%	44.74%	57.63%	1.20	0.20	18,907	57.59%	57.59%	57.63%	300	863,343	57.62%	300	863,343	57.60%	8.0	23,022	57.60%	40.0	115,112	57.60%		
Multi-Family	67,171	18,403	8.71%	8.71%	11.22%	1.20	0.20	3,681	11.21%	11.21%	11.22%	300	168,062	11.22%	300	168,062	11.21%	8.0	4,482	11.21%	40.0	22,408	11.21%		
Commercial	160,720	44,033	20.83%	20.84%	26.84%	1.20	0.20	8,807	26.82%	26.82%	26.84%	300	402,123	26.84%	300	402,123	26.83%	8.0	10,723	26.83%	40.0	53,616	26.83%		
Industrial	3,328	912	0.43%	0.43%	0.56%	1.20	0.20	182	0.56%	0.56%	0.56%	300	8,327	0.56%	300	8,327	0.56%	8.0	222	0.56%	40.0	1,110	0.56%		
Public Authority	22,469	6,156	2.91%	2.91%	3.75%	1.20	0.20	1,231	3.75%	3.75%	3.75%	300	56,217	3.75%	300	56,217	3.75%	8.0	1,499	3.75%	40.0	7,496	3.75%		
Landfill Leachate	297	81	0.04%	0.00%	0.00%	1.30	0.30	24	0.07%	0.07%	0.00%	100	248	0.02%	300	744	0.05%	8.0	20	0.05%	40.0	99	0.05%		
Inflow / Infiltration	172,501	47,261	22.36%	22.37%	0.00%	1.00	0.00	-	0.00%	0.00%	0.00%	-	-	0.00%	-	-	0.00%	-	-	0.00%	-	-	0.00%		
Total	771,548	211,383	100.0%	100.0%	100.0%			32,833	100.0%	100.0%	100.0%		1,498,320	100.0%		1,498,816	100.0%		39,968	100.0%		199,842	100.0%		

Consumer Costs Allocation Factors

Customer Class	Number of Meters												Total Meters	Percent Total
	5/8	3/4	1	1 1/4	1 1/2	2	3	4	6	8	10	12		
Residential	6,706	248	6		1								6,961	90.87%
Multi-Family	11	7	17		18	19	6		1				79	1.03%
Commercial	322	37	98		66	28	3	-					554	7.23%
Industrial	10	2	7		5		2						26	0.34%
Public Authority	15	-	7		7	4	5	2	-				40	0.52%
Total	7,064	294	135	0	97	51	16	2	1	0	0	0	7,660	

Equivalent Meters														
Allocation factor:	5/8	3/4	1	1 1/4	1 1/2	2	3	4	6	8	10	12	Total Equiv. Meters	Percent Total
Meter Size (Inches):	5/8	3/4	1	1 1/4	1 1/2	2	3	4	6	8	10	12		
Equiv. Meters Ratio:	1	1.0	2.5	3.7	5	8	15	25	50	80	120	160		

Customer Class	Equivalent Services												Total Equiv. Services	Percent Total
	5/8	3/4	1	1 1/4	1 1/2	2	3	4	6	8	10	12		
Residential	6,706	248	15	-	5	-	-	-	-	-	-	-	6,974	78.11%
Multi-Family	11	7	43	-	90	152	90	-	50	-	-	-	443	4.96%
Commercial	322	37	245	-	330	224	45	-	-	-	-	-	1,203	13.47%
Industrial	10	2	18	-	25	-	30	-	-	-	-	-	85	0.95%
Public Authority	15	-	18	-	35	32	75	50	-	-	-	-	225	2.51%
Total	7,064	294	338	0	485	408	240	50	50	0	0	0	8,929	100.00%

Equivalent Services														
Allocation factor:	5/8	3/4	1	1 1/4	1 1/2	2	3	4	6	8	10	12	Total Equiv. Services	Percent Total
Meter Size (Inches):	5/8	3/4	1	1 1/4	1 1/2	2	3	4	6	8	10	12		
Equiv. Services Ratio:	1	1.0	1.3	1.7	2	3	4	5	6	7	8	9		

Customer Class	Equivalent Services												Total Equiv. Services	Percent Total
	5/8	3/4	1	1 1/4	1 1/2	2	3	4	6	8	10	12		
Residential	6,706	248	8	-	2	-	-	-	-	-	-	-	6,964	87.48%
Multi-Family	11	7	22	-	36	57	24	-	6	-	-	-	163	2.05%
Commercial	322	37	127	-	132	84	12	-	-	-	-	-	714	8.97%
Industrial	10	2	9	-	10	-	8	-	-	-	-	-	39	0.49%
Public Authority	15	-	9	-	14	12	20	10	-	-	-	-	80	1.01%
Total	7,064	294	176	0	194	153	64	10	6	0	0	0	7,961	100.00%

Allocation of Service Cost Functions to Customer Classes - Combined Retail and Wholesale ROI

TEST YEAR		2022						
CASH BASIS	Total	Residential	Multi-Family	Commercial	Industrial	Public Authority	Landfill Leachate	Infiltration / Inflow
	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)
CONVEYANCE COSTS:								
Collection O&M	236,334	105,737	20,583	49,249	1,020	6,885	0	52,860
Interceptor O&M	0	0	0	0	0	0	0	0
Other Collection System	71,880	41,425	8,064	19,295	400	2,697	0	0
FLOW COSTS:								
Average Flow	547,741	244,968	47,686	114,099	2,363	15,951	211	122,463
Peak Flow	25,206	14,515	2,826	6,761	140	945	19	0
TREATMENT COSTS:								
BOD	797,819	459,709	89,489	214,121	4,434	29,934	132	0
TSS	754,914	434,844	84,648	202,539	4,194	28,315	375	0
P	178,686	102,926	20,036	47,940	993	6,702	89	0
NH-3	169,361	97,555	18,990	45,439	941	6,352	84	0
CUSTOMER COSTS:								
Billing	20,851	18,948	215	1,508	71	109	0	
Equivalent Meters	228,733	178,662	11,336	30,819	2,165	5,751	0	
Equivalent Services	0	0	0	0	0	0	0	
SUBTOTAL COST before I/I	3,031,526	1,699,289	303,874	731,770	16,719	103,643	909	175,323
I/I Allocation %		70%	7%	19%	1%	3%	0%	
TOTAL COST after I/I	3,031,526	1,822,099	316,883	764,795	18,037	108,803	909	
LESS OTHER REVENUE	41,837	24,891	4,451	10,719	245	1,518	13	
		59%	11%	26%	1%	4%	0%	
COST OF SERVICES	2,989,690	1,797,208	312,432	754,077	17,792	107,285	896	
REVENUE AT PRESENT RATES	2,031,586	1,246,830	204,527	500,519	10,893	68,818	0	
DIFFERENCE	958,104	550,378	107,905	253,558	6,899	38,467	896	
PERCENT INCREASE/DECREASE	47.16%	44.14%	52.76%	50.66%	63.34%	55.90%	#DIV/0!	

General Service Charge Calculation

	Cost of Service	Allocated I/I	Units	Annual Billing Periods	Cost per Billing Cycle (\$/Unit)	Billing Cycle - Quarterly					
Billing Cost	\$20,851	\$0	7,660	4	\$0.68						
Equivalent Meters	\$228,733	\$0	8,929	4	\$6.40						
Equivalent Services	\$0	\$175,323	7,961	4	\$5.51						
	\$249,584	\$175,323									

Size of Connection	Billing Cost (\$/unit)	Equivalent Meter Ratio	Meter Cost (\$/unit)	Equivalent Service Ratio	Service Cost (\$/unit)	Calculated Charge (\$/unit)	Present Charge (\$/unit)	Proposed Service Charge (\$/unit)	No. Connections	Revenues at Present Rates	Revenues at Proposed Rates
5/8-inch	\$0.68	1.0	\$6.40	1.0	\$5.51	\$12.59	\$7.60	\$12.80	7,064	\$214,746	\$361,677
3/4-inch	\$0.68	1.0	\$6.40	1.0	\$5.51	\$12.59	\$7.60	\$12.80	294	\$8,938	\$15,053
1-inch	\$0.68	2.5	\$16.01	1.3	\$7.16	\$23.85	\$8.45	\$24.10	135	\$4,563	\$13,014
1 1/4-inch	\$0.68	3.7	\$23.70	1.7	\$9.36	\$33.74	\$9.50	\$34.10	-	\$0	\$0
1 1/2-inch	\$0.68	5.0	\$32.02	2.0	\$11.01	\$43.72	\$10.35	\$44.10	97	\$4,016	\$17,111
2-inch	\$0.68	8.0	\$51.24	3.0	\$16.52	\$68.44	\$11.15	\$69.00	51	\$2,275	\$14,076
2 1/2-inch	\$0.68	12.0	\$76.85	3.5	\$19.27	\$96.81	\$11.70	\$97.50	-	\$0	\$0
3-inch	\$0.68	15.0	\$96.07	4.0	\$22.02	\$118.77	\$12.50	\$119.50	16	\$800	\$7,648
4-inch	\$0.68	25.0	\$160.11	5.0	\$27.53	\$188.32		\$189.20	2	\$0	\$1,514
6-inch	\$0.68	50.0	\$320.23	6.0	\$33.04	\$353.95		\$355.00	1	\$0	\$1,420
8-inch	\$0.68	80.0	\$512.37	7.0	\$38.54	\$551.59		\$552.90	-	\$0	\$0
10-inch	\$0.68	120.0	\$768.55	8.0	\$44.05	\$813.28		\$814.70	-	\$0	\$0
12-inch	\$0.68	160.0	\$1,024.73	9.0	\$49.55	\$1,074.97		\$1,076.60	-	\$0	\$0
Total									7,660	\$235,337	\$431,512
Cost of Service											\$424,906
Percent of Cost											101.6%

Volumetric and Surcharge Rate Calculation

		Total	Residential	Multi-Family	Commercial	Industrial	Public Authority	Landfill Leachate
Allocated Cost - Volumetric		\$2,564,783	\$1,476,788	\$287,872	\$688,724	\$14,238	\$96,265	\$896
Billable Units	CCF	599,047	345,061	67,171	160,720	3,328	22,469	297
Calculated Rate	\$ / CCF		\$4.28	\$4.29	\$4.29	\$4.28	\$4.28	\$3.01
Proposed Rate	\$ / CCF		\$4.25	\$4.25	\$4.25	\$4.25	\$4.25	\$3.08
Allocated Cost - BOD		\$797,819					Billable Units - 1,000 Gallons	222
Billable Units	Pounds	1,069,090					Calculated Rate - 1,000 Gallons	\$4.03
Calculated Rate	\$ / lb.	\$0.746					Proposed Rate - 1,000 Gallons	\$4.11
Proposed Rate		\$0.76						
Allocated Cost - TSS		\$754,914						
Billable Units	Pounds	1,069,090						
Calculated Rate	\$ / lb.	\$0.706						
Proposed Rate		\$0.72						
Allocated Cost - Phosphorus		\$178,686						
Billable Units	Pounds	28,509						
Calculated Rate	\$ / lb.	\$6.268						
Proposed Rate		\$6.40						
Allocated Cost - NH-3		\$169,361						
Billable Units	Pounds	142,545						
Calculated Rate	\$ / lb.	\$1.188						
Proposed Rate		\$1.21						
Estimated Revenues		\$2,545,602	\$1,466,511	\$285,477	\$683,062	\$14,144	\$95,493	\$915

Comparison of Current and Proposed Rate Schedules

TEST YEAR 2022

**Billing Cycle - Quarterly
Billing Units - CCF**

Quarterly Flat Charge

Connection Size	Current Charge	2020	Percent Change	2021	Percent Change	2022	Percent Change
5/8	\$7.60	\$7.60	0%	\$9.28	22%	\$12.80	38%
3/4	\$7.60	\$7.60	0%	\$9.28	22%	\$12.80	38%
1	\$8.45	\$8.45	0%	\$17.46	107%	\$24.10	38%
1 1/4	\$9.50	\$9.50	0%	\$24.71	160%	\$34.10	38%
1 1/2	\$10.35	\$10.35	0%	\$31.96	209%	\$44.10	38%
2	\$11.15	\$11.15	0%	\$50.00	348%	\$69.00	38%
2 1/2	\$11.70	\$11.70	0%	\$70.65	504%	\$97.50	38%
3	\$12.50	\$12.50	0%	\$86.59	593%	\$119.50	38%
4	\$0.00	\$0.00	NA	\$137.10	NA	\$189.20	38%
6	\$0.00	\$0.00	NA	\$257.25	NA	\$355.00	38%
8	\$0.00	\$0.00	NA	\$400.65	NA	\$552.90	38%
10	\$0.00	\$0.00	NA	\$590.36	NA	\$814.70	38%
12	\$0.00	\$0.00	NA	\$780.14	NA	\$1,076.60	38%

Usage Charges

	Units	Current Rate	2020	Percent Change	2021	Percent Change	2022	Percent Change
Domestic Sewage	\$/CCF	\$3.00	\$3.00	0%	\$3.08	3%	\$4.25	38%
Landfill Leachate	\$/CCF	\$0.00	\$2.01	NA	\$2.23	11%	\$3.08	38%
	\$/1,000 gals	\$0.00	\$2.68	NA	\$2.98	11%	\$4.11	38%
	per load	\$0.00	\$0.44	NA	\$0.49	11%	\$0.68	38%

Surcharge Rates

BOD	\$/pound	\$0.00	\$0.50	NA	\$0.55	11%	\$0.76	38%
TSS	\$/pound	\$0.00	\$0.47	NA	\$0.52	11%	\$0.72	38%
Phosphorus	\$/pound	\$0.00	\$4.18	NA	\$4.64	11%	\$6.40	38%
TKN	\$/pound	\$0.00	\$0.79	NA	\$0.88	11%	\$1.21	38%

Comparison of Revenue at Present Rates, Cost-of-Service and Proposed Rates

Customer Class	Cost of Service			Proposed Rates		
	Revenue at Present Rates	Revenue Required	Increase Over Present Rates	Revenue	Increase Over Present Rates	Percent of Cost of Service
Domestic						
Residential	\$1,246,830	\$1,797,208	44.1%	\$1,823,310	46.2%	101.5%
Multi-Family	\$204,527	\$312,432	52.8%	\$300,744	47.0%	96.3%
Commercial	\$500,519	\$754,077	50.7%	\$731,695	46.2%	97.0%
Industrial	\$10,893	\$17,792	63.3%	\$17,271	58.6%	97.1%
Public Authority	\$68,818	\$107,285	55.9%	\$103,178	49.9%	96.2%
Subtotal Domestic Retail	\$2,031,586	\$2,988,794	47.1%	\$2,976,198	46.5%	99.6%
Landfill Leachate	\$0	\$896		\$963		107.5%
Subtotal Wholesale	\$0	\$896	#DIV/0!	\$963	#DIV/0!	107.5%
Total	\$2,031,586	\$2,989,690	47.2%	\$2,977,161	46.5%	99.6%
Volumetric Charges	\$1,724,399	\$2,563,887		\$2,544,686		
Fixed Customer Charges	\$235,337	\$424,906		\$431,512		
Hauled Waste	\$0	\$896		\$963		
% Volumetric Charges	84.9%	85.8%		85.5%		
% Fixed Customer Charges	11.6%	14.2%		14.5%		
% Hauled Waste	0.0%	0.0%		0.0%		