

## FLOW AND STRENGTH PROJECTIONS

MONTH: November 2020

	<u>PROJECTED</u>	<u>ACTUAL</u>	<u>DIFFERENCE</u>	<u>PROJECTED INCOME FOR MONTH</u>	<u>ACTUAL INCOME FOR MONTH</u>	<u>SURPLUS OR DEFICIT</u>	<u>YEAR TO DATE SURPLUS/ DEFICIT \$\$</u>
FLOW (GALLONS)	140,410,887	171,428,200	31,017,313	\$ 88,178.04	\$ 107,656.91	\$ 19,478.87	
B.O.D. (#s)	314,522	379,032	64,510	\$ 59,444.66	\$ 71,637.00	\$ 12,192.34	
S. SOLIDS (#s)	316,070	372,304	56,234	\$ 80,281.78	\$ 88,608.35	\$ 8,326.57	
PHOSPHORUS (#s)	6,429	6,807	378	\$ 40,200.54	\$ 42,564.17	\$ 2,363.63	
AMMONIA-N (#s)	44,055	53,864	9,809	\$ 54,451.98	\$ 66,575.90	\$ 12,123.92	
CHLORIDES (#s)	640,485	804,734	164,249	\$ 1,921.46	\$ 2,414.20	\$ 492.75	
			<b>TOTAL:</b>	\$ 324,478.45	\$ 379,456.54	\$ 54,978.09	\$ 499,495.94

Monthly Surplus=	\$ 54,978.09
Yearly Surplus=	\$ 499,495.94

# HEART OF THE VALLEY METROPOLITAN SEWERAGE DISTRICT

MONTH: November 2020

## HYDRAULIC AND ORGANIC LOADINGS DATA

### INFLUENT\*

**TOTAL FLOW TO PLANT:** 167,558,000 GALLONS  
**AVERAGE B.O.D. :** 240 mg/L  
**AVERAGE SUSPENDED SOLIDS :** 193 mg/L  
**AVERAGE PHOSPHORUS :** 4.71 mg/L  
**AVERAGE AMMONIA-N :** 35.59 mg/L  
**AVERAGE CHLORIDES :** 564.62 mg/L

**MAXIMUM DAILY FLOW TO PLANT:**  
8,353,000

### PERCENT (%) BY COMMUNITY OF TOTAL MONTHLY VOLUME TREATED AT WWTP

<u>COMMUNITY</u>	<u>FLOW</u>	<u>BOD</u>	<u>TSS</u>	<u>PHOSPHORUS</u>	<u>AMMONIA</u>	<u>CHLORIDES</u>
KAUKAUNA	38.70	23.86	25.52	28.92	24.57	36.80
LITTLE CHUTE	27.77	36.56	33.88	29.16	48.89	32.90
KIMBERLY	12.27	10.67	10.11	11.39	7.34	16.15
COMBINED LOCKS	6.07	6.37	6.35	7.59	4.56	1.97
DARBOY	15.19	22.54	24.14	22.95	14.63	12.18

### AVERAGE DAILY INFLUENT LOADINGS

**FLOW :** 5,585,267 GALLONS  
**B.O.D. :** 10,919 POUNDS  
**SUSPENDED SOLIDS :** 8,928 POUNDS  
**PHOSPHORUS :** 214.05 POUNDS  
**AMMONIA-N :** 1,605 POUNDS  
**CHLORIDES :** 25,765 POUNDS

### PLANT DESIGN CRITERIA

<u>%</u>	<u>MAX</u>	<u>AVG</u>	<u>%</u>
46.9	11,900,000	8,500,000	65.71
74.5	14,651	12,209	89.43
54.8	16,278	13,565	65.82
52.6	407	339	63.14
83.6	1,920	1,600	100.28

### FINAL EFFLUENT

<u>MONTHLY AVERAGE</u>	<u>%</u>	<u>MONTHLY AVG PERMIT LIMIT</u>	
<b>FLOW:</b> 2,762,467			
<b>SUSPENDED SOLIDS :</b> 17.99 mg/L	60.0	30	mg/L
<b>SUSPENDED SOLIDS :</b> 401.29 lbs	50.1	801	lbs
<b>B.O.D. :</b> 13.93 mg/L	55.7	25	mg/L
<b>PHOSPHORUS :</b> 0.39 mg/L	39.2	1	mg/L
<b>AMMONIA-N :</b> 1.32 mg/L	7.3	18	mg/L
<b>CHLORIDES :</b> 576.15 mg/L			

**FOX ENERGY CENTER PUMPED:** 84,684,000 GALLONS

Effluent to Fox Energy  
**51%**

\* INCLUDES HAULED WASTE

# RAIN GAUGES

## DAILY RAINFALL TOTALS

MONTH: NOVEMBER

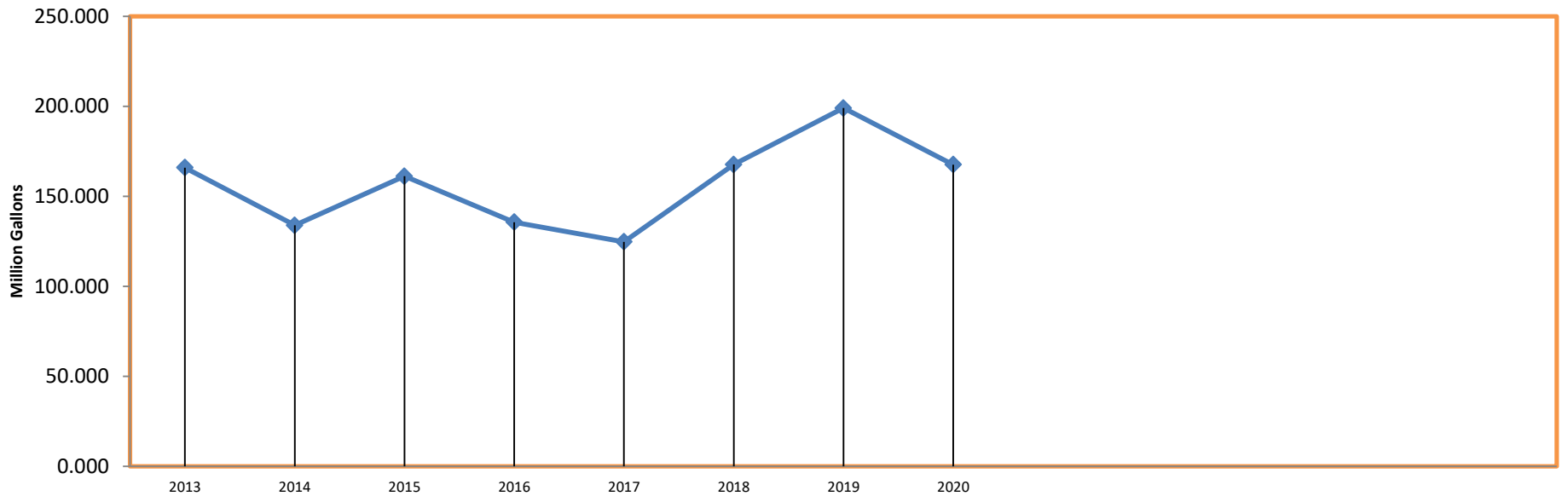
YEAR: 2020

<u>DATE</u>	<u>PLANT INCHES</u>	<u>KAUKAUNA INCHES</u>	<u>LITTLE CHUTE INCHES</u>	<u>KIMBERLY INCHES</u>	<u>DARBOY INCHES</u>
1	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00
10	0.99	1.03	1.08	1.30	1.13
11	0.00	0.00	0.00	0.00	0.00
12	0.02	0.03	0.03	0.05	0.04
13	0.02	0.01	0.01	0.01	0.01
14	0.08	0.05	0.10	0.05	0.05
15	0.28	0.29	0.37	0.32	0.32
16	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00
24	0.23	0.22	0.29	0.19	0.19
25	0.01	0.00	0.01	0.00	0.01
26	0.00	0.01	0.01	0.01	0.00
27	0.00	0.00	0.00	0.00	0.00
28	0.00	0.00	0.00	0.00	0.00
29	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00
<b>TOTAL:</b>	1.63	1.64	1.90	1.93	1.75

# HEART OF THE VALLEY METROPOLITAN SEWERAGE DISTRICT

<u>Year</u>	<u>November Flow Million Gallons</u>	<u>Precipitation Inches</u>
2013	165.861	2.76
2014	133.835	2.52
2015	161.094	2.21
2016	135.607	1.73
2017	124.659	0.97
2018	167.657	1.04
2019	199.024	2.79
2020	167.558	1.77

## November Flow Volumes

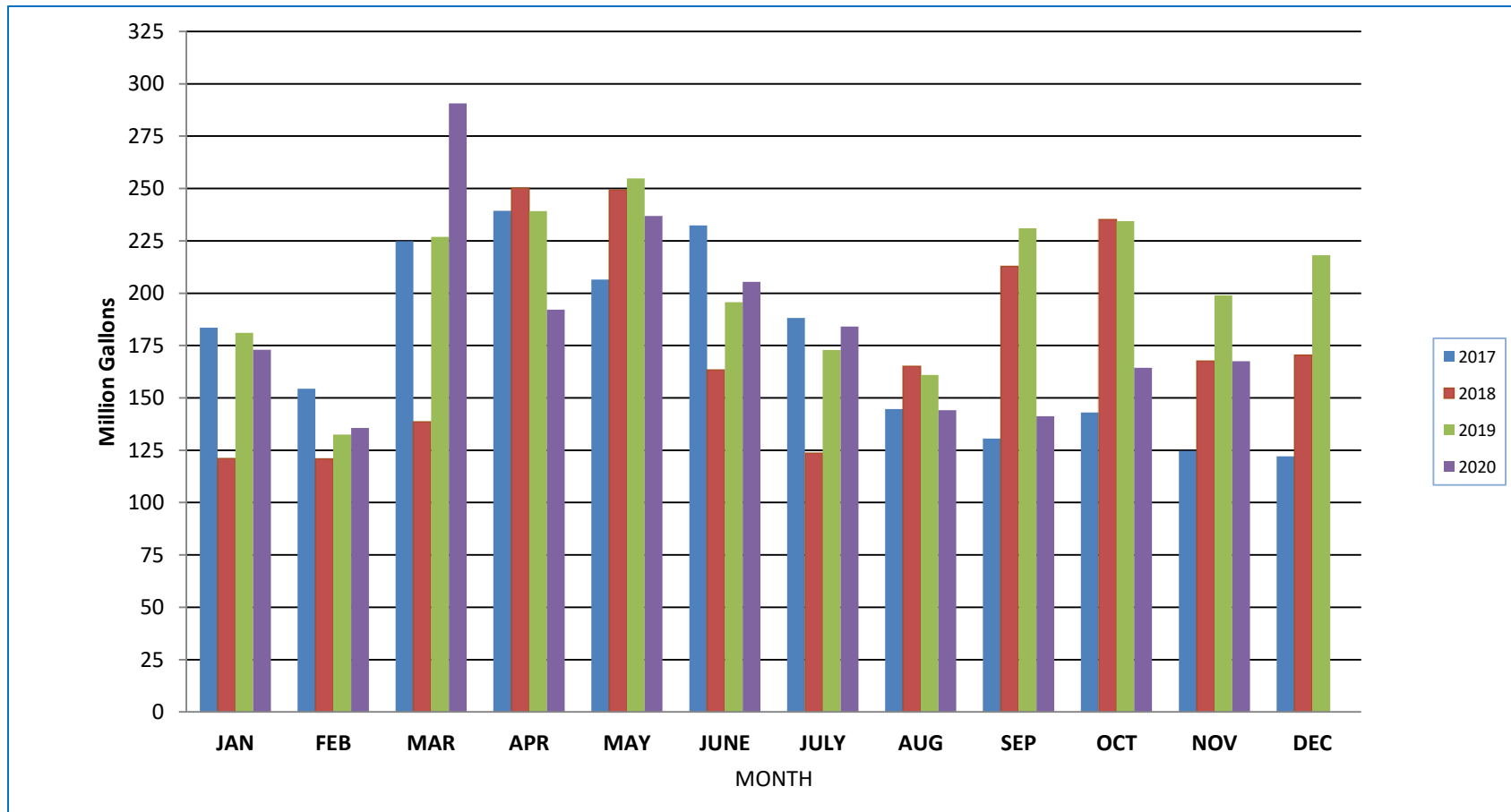


# HEART OF THE VALLEY METROPOLITAN SEWERAGE DISTRICT

	<u>JAN</u>	<u>FEB</u>	<u>MAR</u>	<u>APR</u>	<u>MAY</u>	<u>JUNE</u>	<u>JULY</u>	<u>AUG</u>	<u>SEP</u>	<u>OCT</u>	<u>NOV</u>	<u>DEC</u>
<b>2017</b>	183.493	154.391	224.799	239.329	206.521	232.395	188.142	144.717	130.601	143.016	124.659	122.136
<b>2018</b>	121.122	120.841	138.664	250.232	249.379	163.461	123.780	165.254	212.799	235.273	167.657	170.368
<b>2019</b>	181.037	132.459	226.921	239.147	254.810	195.654	172.916	160.932	231.033	234.439	199.024	218.097
<b>2020</b>	172.999	135.703	290.643	192.150	236.946	205.368	184.011	144.085	141.266	164.399	167.558	

\*\*\* FLOW VOLUMES REPORTED IN MILLION GALLONS \*\*\*

## MONTHLY FLOW VOLUMES



# HEART OF THE VALLEY METROPOLITAN SEWERAGE DISTRICT

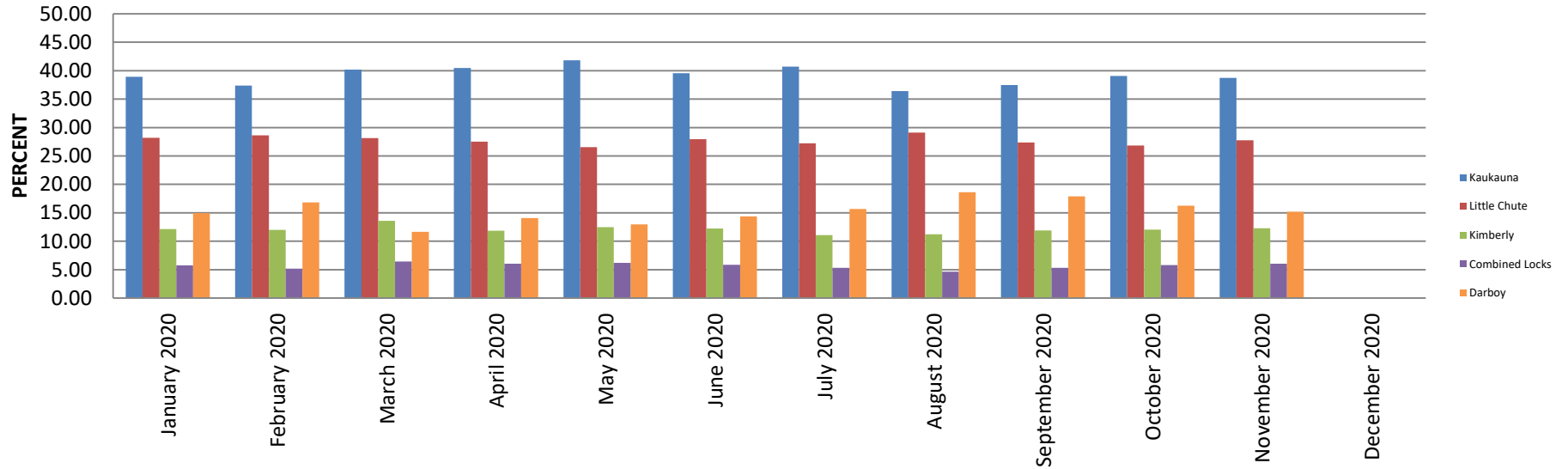
## % CONTRIBUTION BY COMMUNITY - FLOW GALLONS

	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>	<u>Rainfall - Inches</u>
January 2020	38.93	28.17	12.15	5.79	14.97	1.54
February 2020	37.38	28.60	12.01	5.18	16.84	1.02
March 2020	40.17	28.12	13.59	6.46	11.67	4.17
April 2020	40.47	27.52	11.85	6.07	14.09	1.21
May 2020	41.80	26.53	12.49	6.18	12.99	4.82
June 2020	39.55	27.94	12.26	5.86	14.39	3.82
July 2020	40.72	27.20	11.09	5.31	15.67	3.40
August 2020	36.40	29.09	11.21	4.66	18.64	1.48
September 2020	37.49	27.37	11.90	5.35	17.89	2.01
October 2020	39.04	26.85	12.05	5.81	16.24	3.51
November 2020	38.70	27.77	12.27	6.07	15.19	1.77
December 2020						

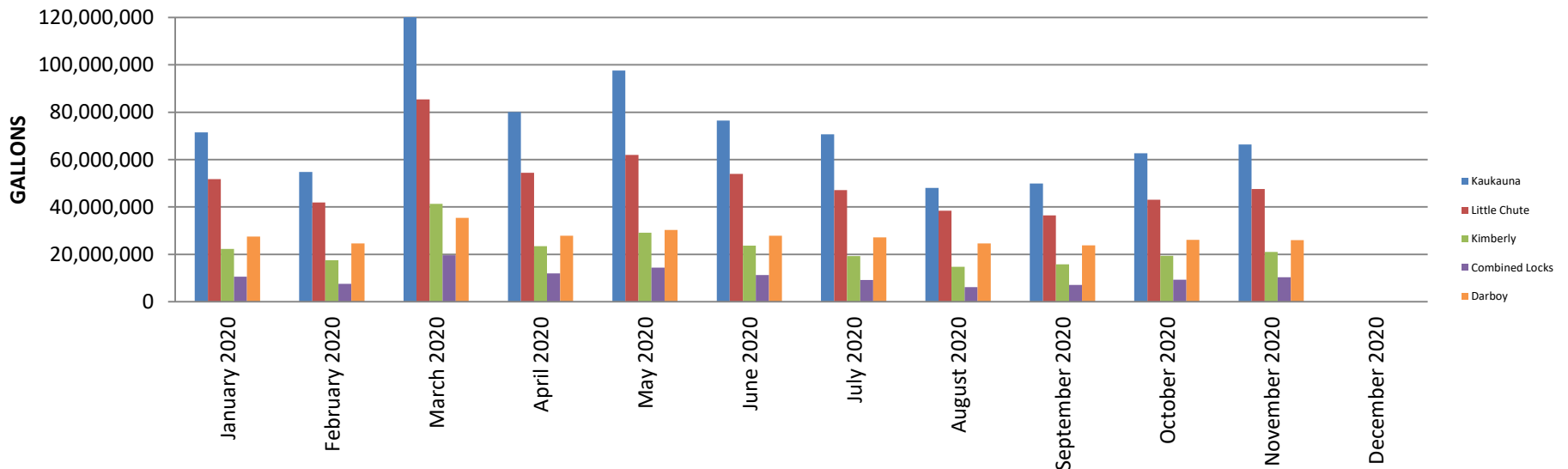
## GALLONS CONTRIBUTION BY COMMUNITY - FLOW GALLONS

	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2020	71,501,500	51,734,000	22,308,000	10,633,000	27,501,000
February 2020	54,742,700	41,878,000	17,584,000	7,585,000	24,662,000
March 2020	122,009,300	85,409,000	41,277,000	19,612,000	35,449,000
April 2020	80,039,800	54,420,000	23,426,000	12,010,000	27,872,000
May 2020	97,579,000	61,935,000	29,158,000	14,426,000	30,321,000
June 2020	76,458,700	54,024,000	23,700,000	11,337,000	27,826,000
July 2020	70,625,000	47,177,000	19,234,000	9,212,000	27,179,000
August 2020	48,098,900	38,442,000	14,807,000	6,164,000	24,633,000
September 2020	49,922,900	36,454,000	15,846,000	7,125,000	23,827,000
October 2020	62,692,800	43,119,000	19,358,000	9,332,000	26,081,000
November 2020	66,337,200	47,606,000	21,027,000	10,410,000	26,048,000
December 2020					

## % CONTRIBUTION BY COMMUNITY - FLOW GALLONS



## GALLONS CONTRIBUTION BY COMMUNITY - FLOW GALLONS



# HEART OF THE VALLEY METROPOLITAN SEWERAGE DISTRICT

## % CONTRIBUTION BY COMMUNITY - B.O.D. POUNDS

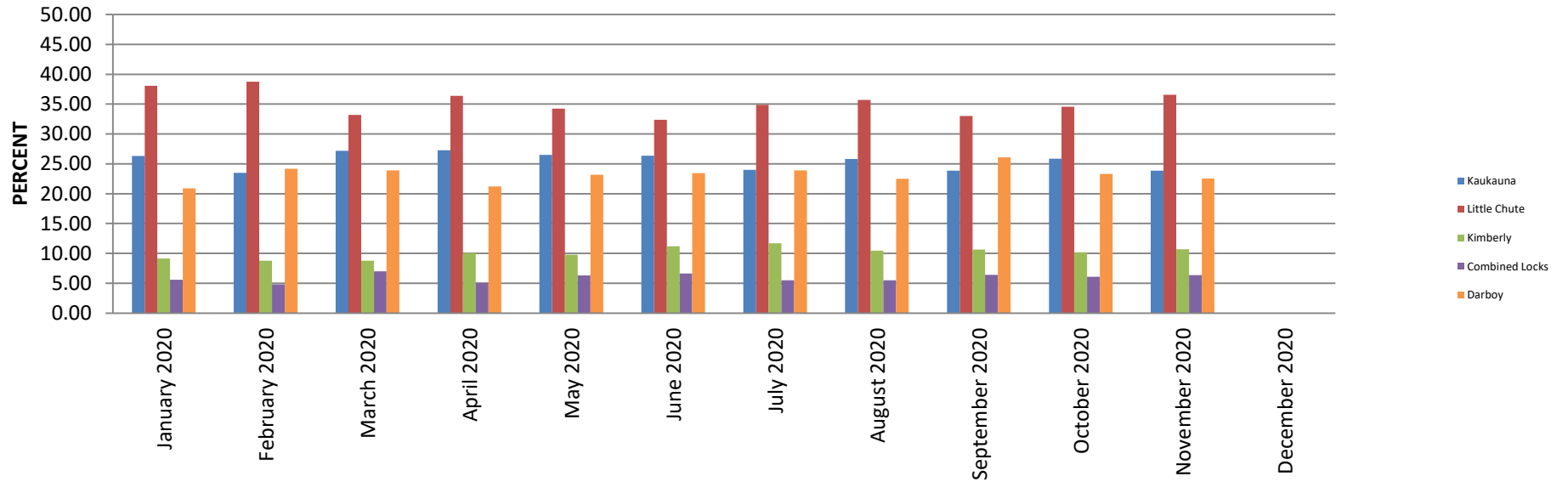
	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2020	26.31	38.06	9.14	5.61	20.89
February 2020	23.51	38.75	8.78	4.80	24.16
March 2020	27.16	33.17	8.77	7.00	23.90
April 2020	27.28	36.40	10.05	5.07	21.21
May 2020	26.51	34.25	9.76	6.34	23.15
June 2020	26.38	32.37	11.20	6.62	23.43
July 2020	24.01	34.87	11.70	5.51	23.91
August 2020	25.83	35.70	10.48	5.52	22.47
September 2020	23.86	32.99	10.64	6.42	26.09
October 2020	25.84	34.57	10.21	6.08	23.30
November 2020	23.86	36.56	10.67	6.37	22.54
December 2020					

## POUNDS CONTRIBUTION BY COMMUNITY - B.O.D. POUNDS

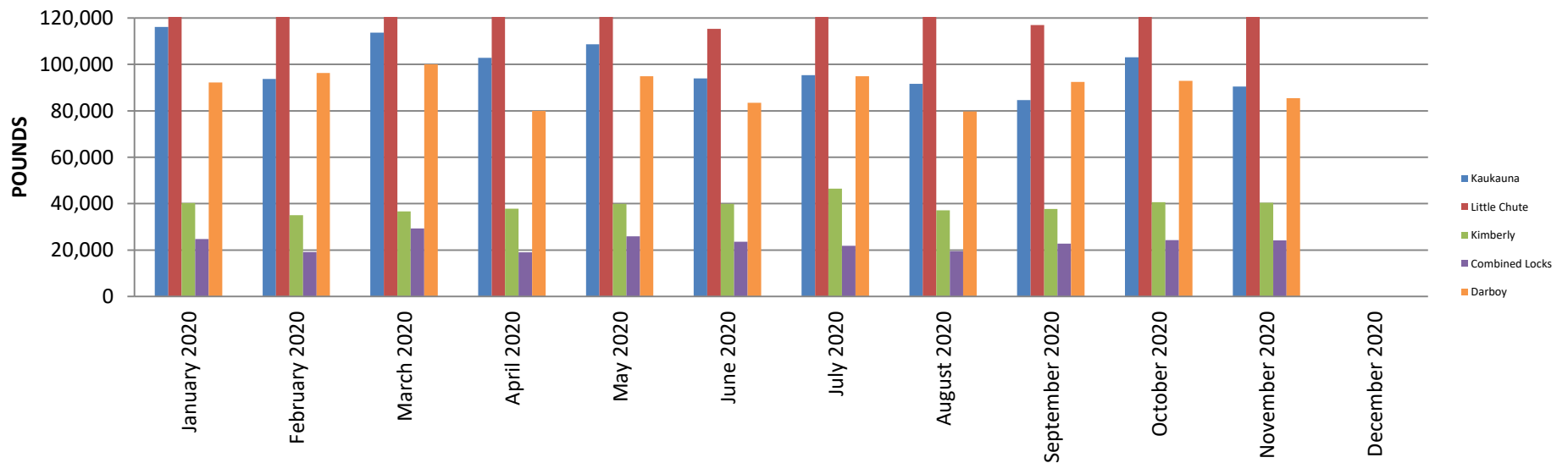
	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2020	116,126	167,978	40,327	24,751	92,218
February 2020	93,736	154,514	35,010	19,140	96,334
March 2020	113,644	138,814	36,687	29,304	99,993
April 2020	102,764	137,139	37,865	19,083	79,894
May 2020	108,649	140,375	39,988	25,987	94,910
June 2020	93,983	115,347	39,920	23,597	83,483
July 2020	95,326	138,428	46,452	21,887	94,932
August 2020	91,608	126,589	37,164	19,575	79,662
September 2020	84,576	116,945	37,698	22,764	92,463
October 2020	103,047	137,822	40,691	24,254	92,907
November 2020	90,432	138,563	40,447	24,158	85,432
December 2020					



## % CONTRIBUTION BY COMMUNITY - B.O.D. POUNDS



## POUNDS CONTRIBUTION BY COMMUNITY - B.O.D. POUNDS



# HEART OF THE VALLEY METROPOLITAN SEWERAGE DISTRICT

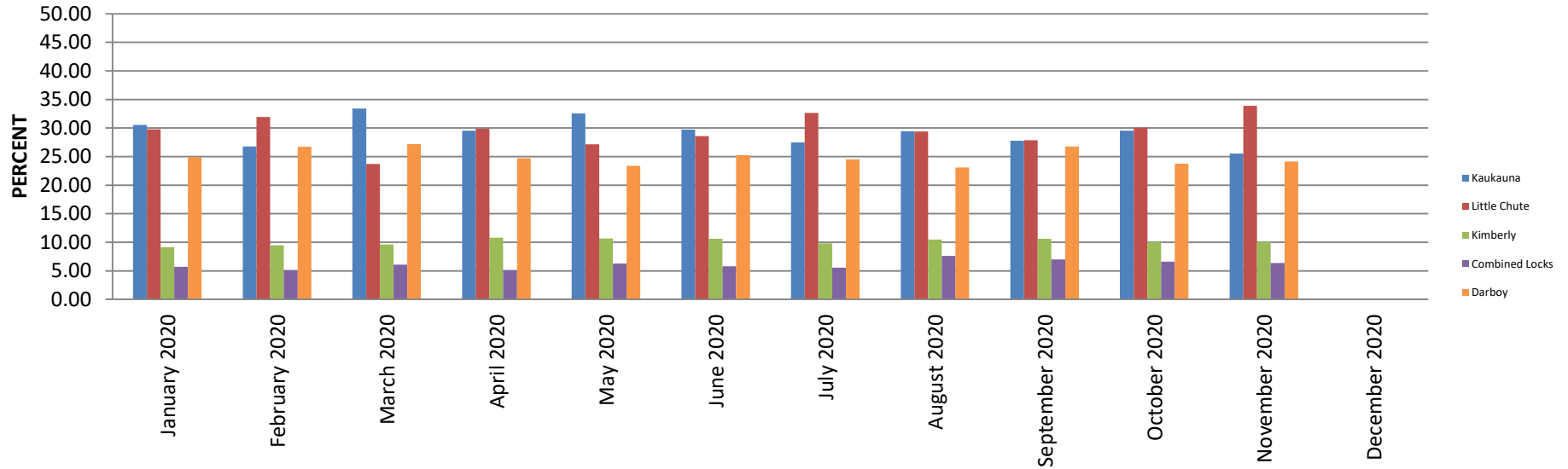
## % CONTRIBUTION BY COMMUNITY -TOTAL SUSPENDED SOLIDS POUNDS

	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2020	30.55	29.76	9.13	5.69	24.88
February 2020	26.76	31.92	9.47	5.13	26.72
March 2020	33.43	23.71	9.62	6.07	27.18
April 2020	29.52	29.85	10.82	5.11	24.70
May 2020	32.56	27.13	10.65	6.29	23.36
June 2020	29.75	28.59	10.62	5.80	25.25
July 2020	27.48	32.66	9.81	5.55	24.50
August 2020	29.42	29.39	10.50	7.62	23.07
September 2020	27.78	27.87	10.60	6.97	26.77
October 2020	29.53	30.08	10.06	6.59	23.75
November 2020	25.52	33.88	10.11	6.35	24.14
December 2020					

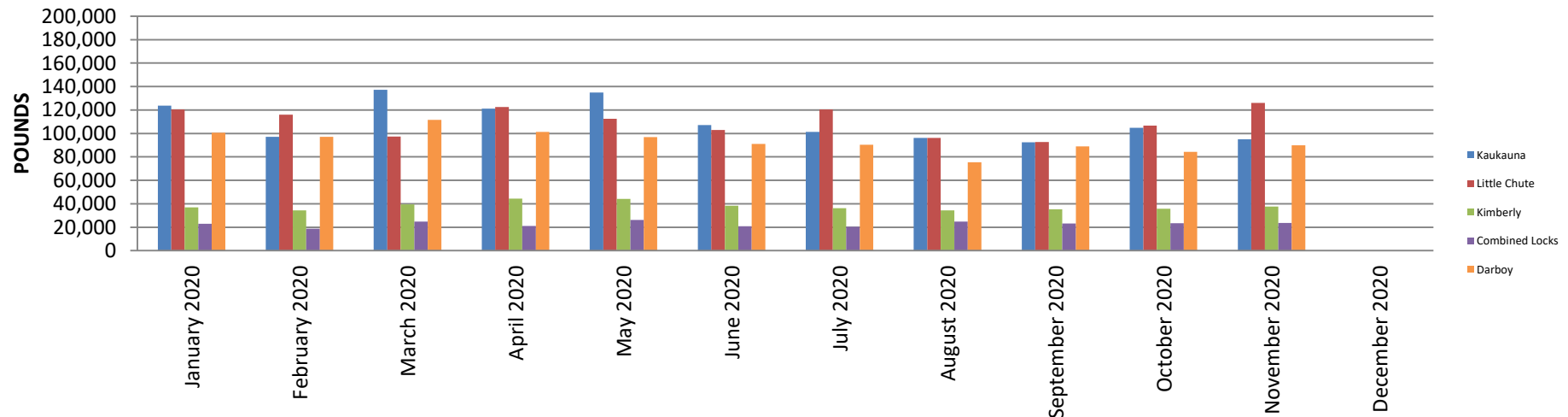
## POUNDS CONTRIBUTION BY COMMUNITY - TOTAL SUSPENDED SOLIDS POUNDS

	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2020	123,653	120,453	36,933	23,018	100,685
February 2020	97,202	115,929	34,406	18,648	97,055
March 2020	137,248	97,336	39,475	24,911	111,578
April 2020	121,195	122,555	44,409	20,961	101,405
May 2020	134,950	112,452	44,153	26,086	96,813
June 2020	107,147	102,964	38,235	20,894	90,953
July 2020	101,307	120,407	36,172	20,480	90,335
August 2020	96,178	96,056	34,316	24,907	75,425
September 2020	92,372	92,703	35,263	23,196	89,036
October 2020	104,795	106,750	35,693	23,378	84,309
November 2020	95,019	126,125	37,641	23,636	89,883
December 2020					

## % CONTRIBUTION BY COMMUNITY -TOTAL SUSPENDED SOLIDS POUNDS



## POUNDS CONTRIBUTION BY COMMUNITY - TOTAL SUSPENDED SOLIDS POUNDS



# HEART OF THE VALLEY METROPOLITAN SEWERAGE DISTRICT

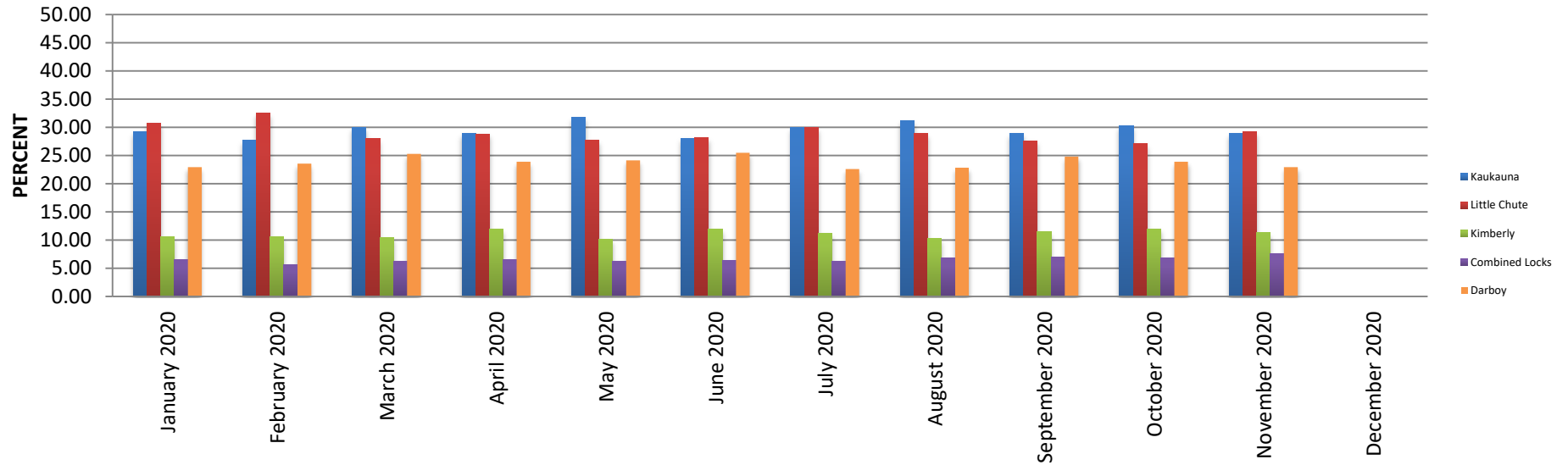
## % CONTRIBUTION BY COMMUNITY - PHOSPHORUS POUNDS

	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2020	29.15	30.78	10.62	6.50	22.95
February 2020	27.70	32.49	10.59	5.65	23.56
March 2020	29.92	28.02	10.51	6.27	25.27
April 2020	28.91	28.83	11.90	6.48	23.89
May 2020	31.70	27.67	10.20	6.29	24.14
June 2020	28.07	28.21	11.88	6.38	25.46
July 2020	29.93	29.98	11.20	6.31	22.59
August 2020	31.15	28.92	10.23	6.87	22.83
September 2020	28.92	27.64	11.56	7.05	24.83
October 2020	30.20	27.10	12.02	6.78	23.90
November 2020	28.92	29.16	11.39	7.59	22.95
December 2020					

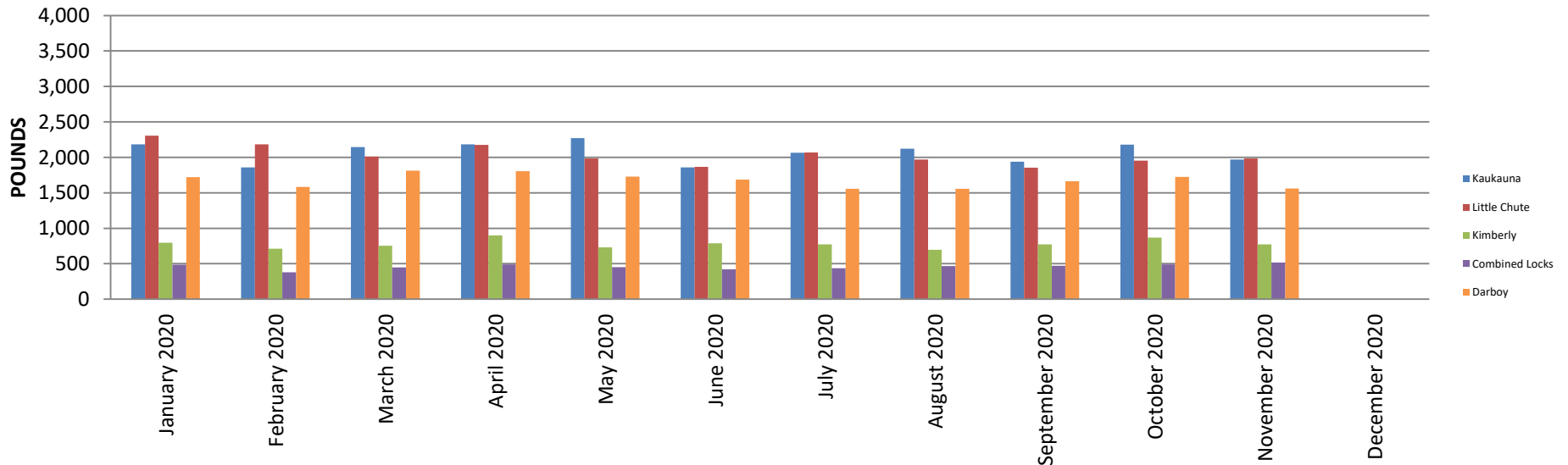
## POUNDS CONTRIBUTION BY COMMUNITY - PHOSPHORUS POUNDS

	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2020	2,185	2,306	796	487	1,720
February 2020	1,860	2,182	711	380	1,582
March 2020	2,146	2,010	754	450	1,813
April 2020	2,183	2,177	899	489	1,804
May 2020	2,272	1,983	731	451	1,730
June 2020	1,859	1,868	787	423	1,686
July 2020	2,064	2,067	772	435	1,558
August 2020	2,121	1,969	697	468	1,555
September 2020	1,939	1,853	775	472	1,665
October 2020	2,179	1,955	867	489	1,725
November 2020	1,968	1,985	775	516	1,562
December 2020					

## % CONTRIBUTION BY COMMUNITY - PHOSPHORUS POUNDS



## POUNDS CONTRIBUTION BY COMMUNITY - PHOSPHORUS POUNDS



# HEART OF THE VALLEY METROPOLITAN SEWERAGE DISTRICT

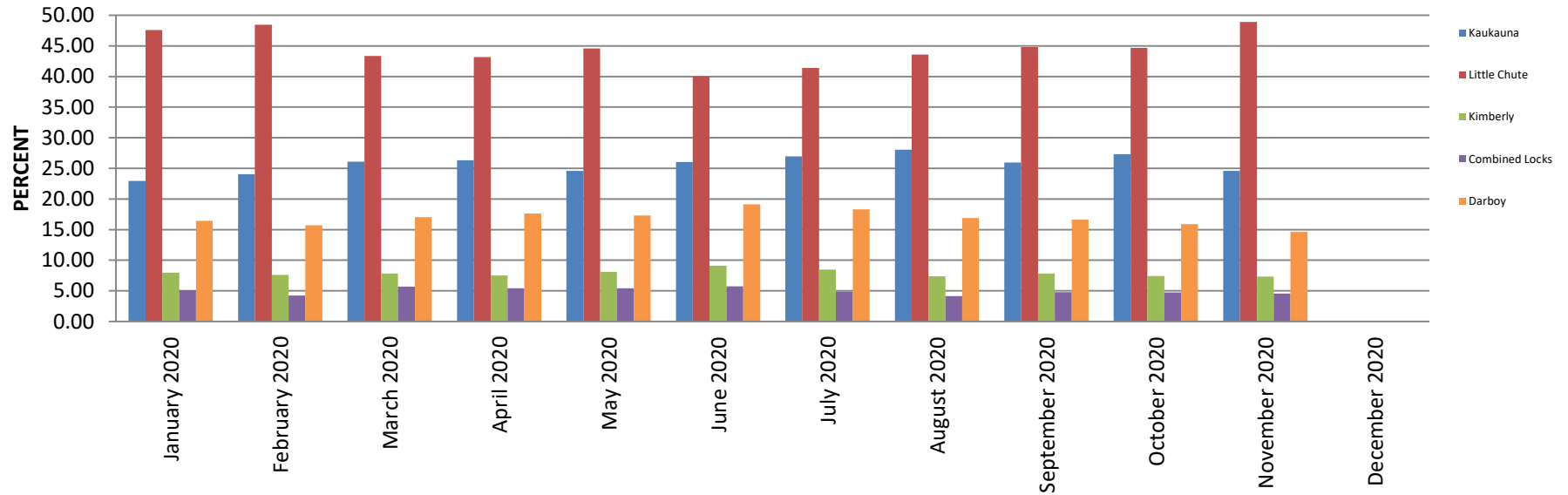
## % CONTRIBUTION BY COMMUNITY - AMMONIA POUNDS

	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2020	22.94	47.58	7.96	5.10	16.42
February 2020	24.04	48.44	7.60	4.22	15.70
March 2020	26.10	43.35	7.82	5.68	17.04
April 2020	26.33	43.15	7.49	5.40	17.63
May 2020	24.60	44.59	8.10	5.41	17.30
June 2020	26.03	40.01	9.11	5.74	19.11
July 2020	26.96	41.41	8.47	4.87	18.29
August 2020	28.03	43.57	7.38	4.12	16.91
September 2020	25.96	44.82	7.81	4.79	16.61
October 2020	27.30	44.67	7.42	4.71	15.91
November 2020	24.57	48.89	7.34	4.56	14.63
December 2020					

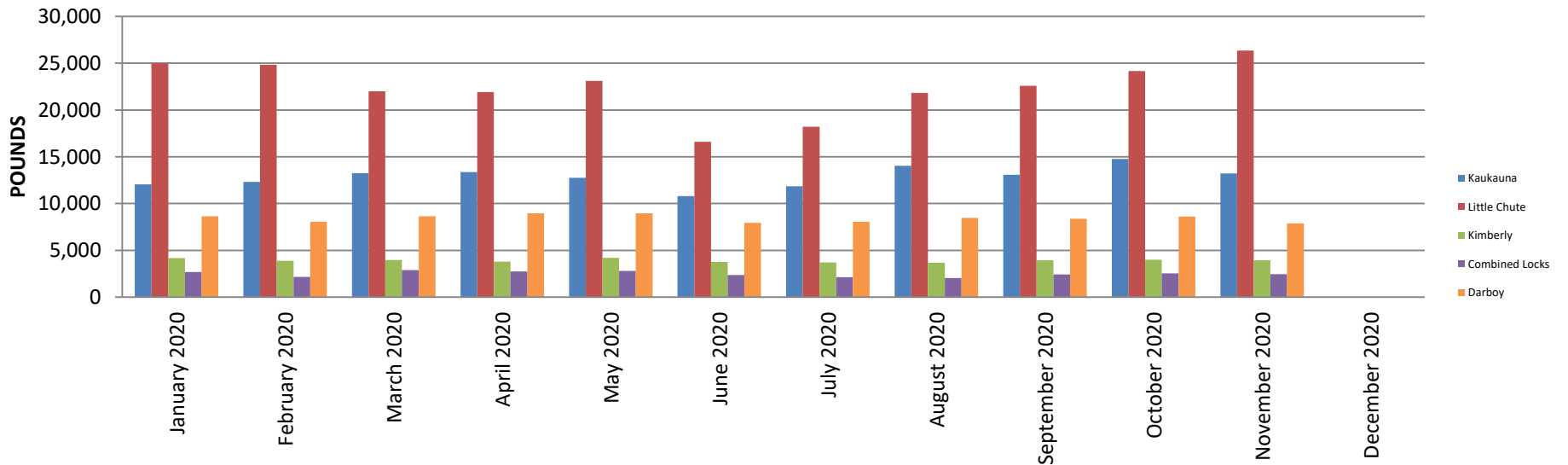
## POUNDS CONTRIBUTION BY COMMUNITY - AMMONIA POUNDS

	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2020	12,057	25,004	4,184	2,679	8,628
February 2020	12,321	24,825	3,892	2,161	8,046
March 2020	13,244	21,996	3,969	2,883	8,644
April 2020	13,372	21,915	3,806	2,742	8,953
May 2020	12,750	23,110	4,200	2,802	8,964
June 2020	10,802	16,603	3,779	2,380	7,930
July 2020	11,858	18,215	3,724	2,141	8,044
August 2020	14,033	21,815	3,694	2,064	8,465
September 2020	13,087	22,594	3,937	2,416	8,375
October 2020	14,769	24,169	4,015	2,547	8,609
November 2020	13,233	26,336	3,956	2,458	7,881
December 2020					

## % CONTRIBUTION BY COMMUNITY - AMMONIA POUNDS



## POUNDS CONTRIBUTION BY COMMUNITY - AMMONIA POUNDS



# HEART OF THE VALLEY METROPOLITAN SEWERAGE DISTRICT

## % CONTRIBUTION BY COMMUNITY - CHLORIDE POUNDS

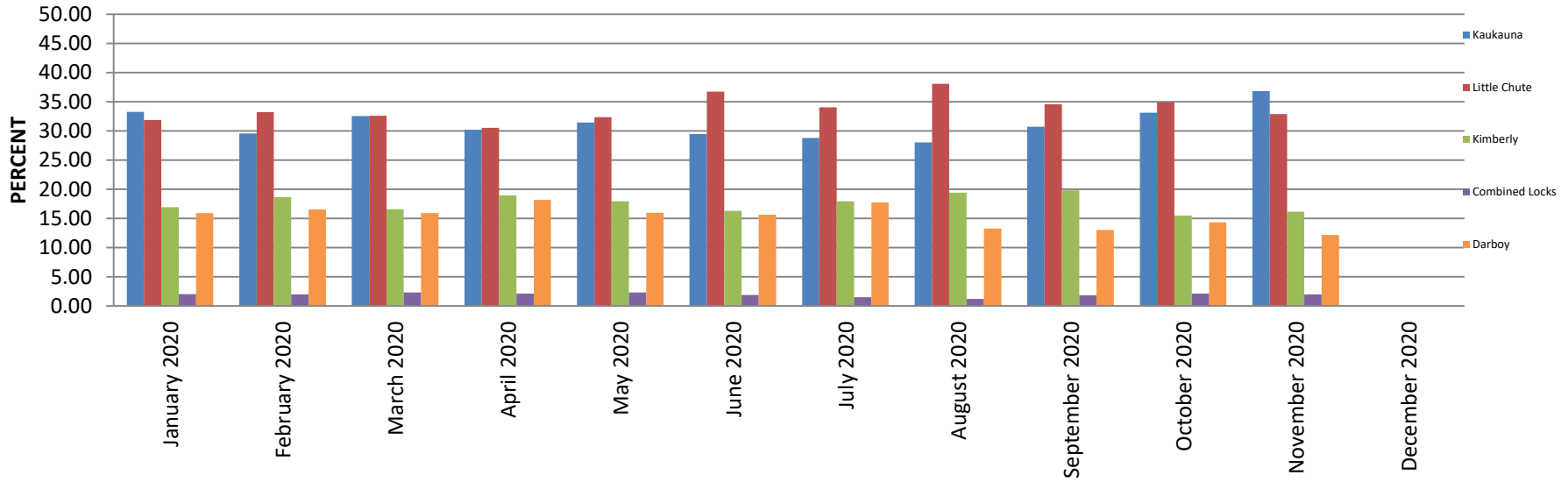
	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2020	33.27	31.86	16.93	2.04	15.91
February 2020	29.57	33.23	18.68	1.97	16.54
March 2020	32.56	32.60	16.60	2.34	15.91
April 2020	30.20	30.52	18.96	2.12	18.20
May 2020	31.46	32.35	17.93	2.30	15.95
June 2020	29.47	36.73	16.28	1.91	15.61
July 2020	28.78	34.02	17.95	1.52	17.73
August 2020	28.04	38.08	19.41	1.20	13.27
September 2020	30.73	34.57	19.81	1.84	13.05
October 2020	33.13	34.92	15.48	2.14	14.32
November 2020	36.80	32.90	16.15	1.97	12.18
December 2020					

## POUNDS CONTRIBUTION BY COMMUNITY - CHLORIDE POUNDS

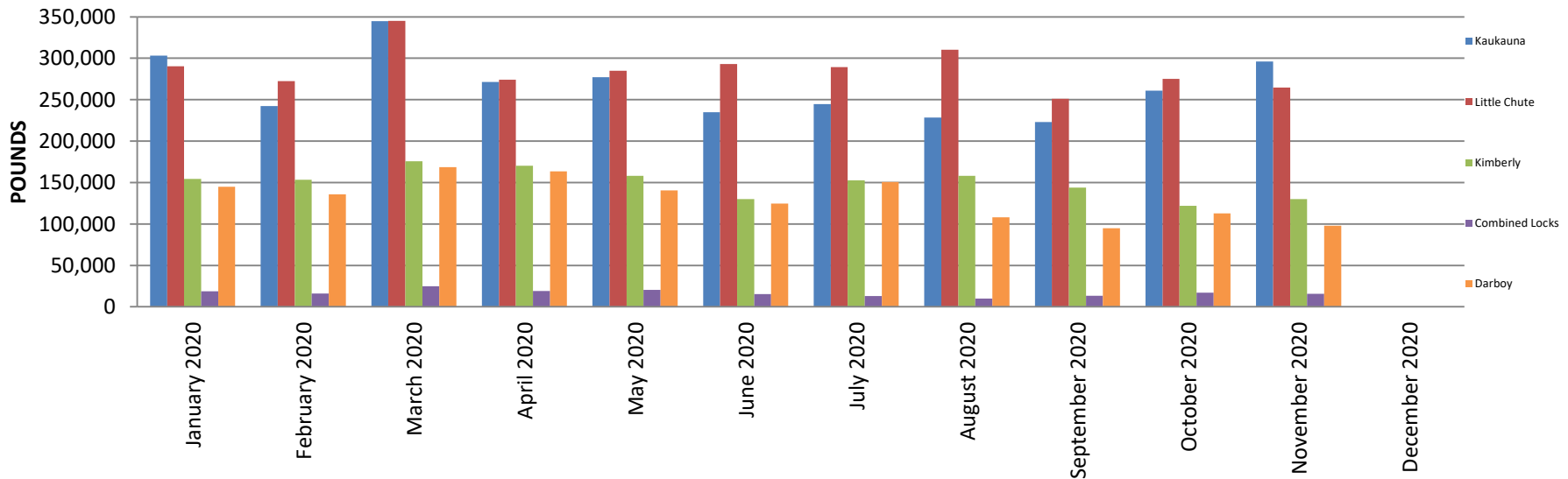
	<u>Kaukauna</u>	<u>Little Chute</u>	<u>Kimberly</u>	<u>Combined Locks</u>	<u>Darboy</u>
January 2020	303,362	290,456	154,342	18,577	145,056
February 2020	242,458	272,495	153,190	16,145	135,618
March 2020	344,863	345,310	175,792	24,776	168,557
April 2020	271,348	274,226	170,357	19,010	163,541
May 2020	277,271	285,093	158,023	20,281	140,550
June 2020	234,983	292,901	129,835	15,201	124,438
July 2020	244,663	289,178	152,588	12,890	150,660
August 2020	228,584	310,438	158,188	9,773	108,183
September 2020	223,052	250,953	143,817	13,273	94,714
October 2020	261,077	275,201	122,014	16,890	112,809
November 2020	296,166	264,762	129,971	15,824	98,011
December 2020					



## % CONTRIBUTION BY COMMUNITY - CHLORIDE POUNDS

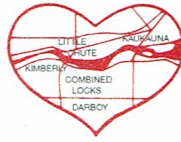


## POUNDS CONTRIBUTION BY COMMUNITY - CHLORIDE POUNDS



**DISTRICT DIRECTOR:**

Brian M. Helminger

**COMMISSIONERS:**

David J. Casper, President  
 Bruce M. Siebers, Vice-Pres.  
 Patrick E. Hennessey, Secretary  
 Kevin P. Coffey  
 John W. Sundelius

**SERVING:**

Combined Locks  
 Kaukauna  
 Kimberly  
 Little Chute  
 Darboy S.D.

**Heart of the Valley****METROPOLITAN SEWERAGE DISTRICT**

801 THILMANY ROAD  
 KAUKAUNA, WISCONSIN 54130  
 (920) 766-5731 FAX (920) 766-5733  
 www.hvmsd.org

**Facility:** Wisconsin Public Service Corporation - Fox Energy Center  
 P.O. Box 5651  
 Bismarck, ND 58506

**Attn:** Account # N2310E

**Month:** November

**Year:** 2020

## Gallons of Final Effluent Purchased (Billing)

<u>Date</u>	<u>Gallons</u>	<u>Date</u>	<u>Gallons</u>
11/1/2020	3,063,000	11/21/2020	2,729,000
11/2/2020	3,235,000	11/22/2020	2,725,000
11/3/2020	2,783,000	11/23/2020	2,957,000
11/4/2020	2,349,000	11/24/2020	2,994,000
11/5/2020	3,432,000	11/25/2020	2,758,000
11/6/2020	3,092,000	11/26/2020	2,682,000
11/7/2020	2,868,000	11/27/2020	2,475,000
11/8/2020	775,000	11/28/2020	2,622,000
11/9/2020	3,732,000	11/29/2020	2,803,000
11/10/2020	3,668,000	11/30/2020	2,863,000
11/11/2020	3,280,000		
11/12/2020	3,045,000		
11/13/2020	2,747,000		
11/14/2020	2,461,000	<b>Total:</b>	<b>84,684,000</b>
11/15/2020	1,833,000		
11/16/2020	3,191,000		
11/17/2020	2,494,000		
11/18/2020	2,557,000		
11/19/2020	3,152,000		
11/20/2020	3,319,000		

**Facility:** Wisconsin Public Service Corporation - Fox Energy Center  
P.O. Box 5651  
Bismarck, ND 58506

**Attn:** Account # N2310E

## **MONTHLY BILLING**

**Month:** November

**Year:** 2020

**GALLONS PURCHASED:** 84,684,000

**BILLING RATE:** \$0.1592812 PER 1000 GALLONS

**TOTAL AMOUNT DUE: \$13,488.57**

**Heart of the Valley  
Metropolitan Sewerage District**

**Fox Energy Revenue  
From the Sale of Final Effluent**

**2020**

**Final Effluent Sent to Fox Energy Facility**

**Gallons: 956,164,000**

**Charge Per 1000 Gallons: \$0.1592812 Per 1000 Gallons**

**Sale of Final Effluent (Revenue Collected): \$152,298.95**