

Town of Friday Harbor Water, Wastewater, and Solid Waste Utilities Summary Reports

www.fridayharbor.org

Period ending: March 2018

Data provided by
Wayne Haefele, PE, Public Works Director
Water Utility, Mike Deegan, Water System Mgr.
Frank Byrne, Water Treatment Plant Operator
Wastewater Utility, Don Reitan, Leadman
Solid Waste Utility, Dave Smith, Leadman

Analysis & Reports prepared by
Steven Dubail, System Administrator

Utilization of Sustainable Annual Water System Capacity

Period start: Apr-17

Period end: Mar-18

Sustainable Annual Yield (TFH
Comprehensive Water System Plan
Update, June, 2013, page 3-6)

205 million gallons

Annual use - 12 month period
percent of Sustainable Annual Yield

114.6 million gallons
55.9%

exceeds Sustainable Yield?

No

TOWN OF FRIDAY HARBOR

Water Consumption & Production

Revised meter loss reporting begin 07/09 (per Robert Krebs, Evergreen Rural Water Assoc.)

Period	USE (consumption)	Cumulative Use YTD	Flow (production)	Unaccounted over / (under)	Cumulative Flow YTD	Average Daily Flow	
2016							
<i>gallons</i>	Jan-16	6,904,531	6,697,000	207,531		216,032	
	Feb-16	6,043,999	12,948,530	-177,001	12,918,000	222,179	
	Mar-16	5,087,613	18,036,143	-972,387	18,978,000	195,484	
	Apr-16	7,613,121	25,649,264	-6,879	26,598,000	254,000	
	May-16	8,678,417	34,327,681	-317,583	35,594,000	290,194	
	Jun-16	10,308,890	44,636,572	-414,110	46,317,000	357,433	
	Jul-16	12,724,140	57,360,712	-241,860	59,283,000	418,258	YTD
	Aug-16	14,723,626	72,084,337	-1,091,374	75,098,000	510,161	Unaccounted
	Sep-16	12,583,251	84,667,588	-12,749	87,694,000	419,867	as % of Flow
Average	Oct-16	8,473,803	93,141,391	421,803	95,746,000	259,742	0.38%
Monthly Use	Nov-16	6,714,525	99,855,916	1,656,525	100,804,000	168,600	
8,877,761	Dec-16	6,677,221	106,533,136	1,356,221	106,125,000	171,645	408,136
YEAR TOTAL:	12	107,043,584	Cumulative Metered/Other Use YTD	106,125,000	408,136 Unaccounted	Cumulative 3% meter loss	290,300 2,915,731
2017							
<i>gallons</i>	Jan-17	8,403,985	8,484,000	-80,015		273,677	
	Feb-17	6,321,628	14,725,613	-770,372	15,576,000	253,286	
	Mar-17	6,110,787	20,836,401	-688,213	22,375,000	219,323	
	Apr-17	8,344,725	29,181,126	-1,394,275	32,114,000	324,633	
	May-17	7,085,245	36,266,371	672,245	38,527,000	206,871	
	Jun-17	10,048,456	46,314,827	-256,544	48,832,000	343,500	
	Jul-17	14,681,313	60,996,140	-353,687	63,867,000	485,000	YTD
	Aug-17	13,661,250	74,657,390	-1,147,750	78,676,000	477,710	Unaccounted
	Sep-17	14,093,015	88,750,405	-874,985	93,644,000	498,933	as % of Flow
Average	Oct-17	7,823,149	96,573,554	-216,851	101,684,000	259,355	5.10%
Monthly Use	Nov-17	6,680,806	103,254,360	-592,194	108,957,000	242,433	
9,176,124	Dec-17	6,859,133	110,113,492	-211,867	116,028,000	228,097	-5,914,508
YEAR TOTAL:	12	110,113,492	Cumulative Metered/Other Use YTD	116,028,000	-5,914,508 Unaccounted	Cumulative 3% meter loss	317,735 2,989,222
2018							
<i>gallons</i>	Jan-18	6,473,834	7,347,000	-873,166		237,000	
	Feb-18	6,318,823	12,792,658	-735,177	14,401,000	251,929	
	Mar-18	5,860,732	18,653,389	-705,268	20,967,000	211,806	
	Apr-18	0	18,653,389	0	20,967,000	0	
	May-18	0	18,653,389	0	20,967,000	0	
	Jun-18	0	18,653,389	0	20,967,000	0	
	Jul-18	0	18,653,389	0	20,967,000	0	YTD
	Aug-18	0	18,653,389	0	20,967,000	0	Unaccounted
	Sep-18	0	18,653,389	0	20,967,000	0	as % of Flow
Average	Oct-18	0	18,653,389	0	20,967,000	0	11.03%
Monthly Use	Nov-18	0	18,653,389	0	20,967,000	0	
6,217,796	Dec-18	0	18,653,389	0	20,967,000	0	-2,313,611
YEAR TOTAL:	3	18,653,389	Cumulative Metered/Other Use YTD	20,967,000	-2,313,611 Unaccounted	Cumulative 3% meter loss	233,578 519,061

3 YEAR	Use	Flow	Daily Flow	3 Year Loss
AVERAGES:	4,655,443 :gal/month	9,004,444 :gal/month	183,771	as % of Flow 3.22%

source: Monthly Water Treatment Plant Report & utility.mdb's 3 yr cumulative flow 243,120,000
3 yr unaccounted -7,819,982

TOWN OF FRIDAY HARBOR

WATER CONSUMPTION (Use) BY CUSTOMER CLASS

source: utilTry08 & 13.mdb

2017

CLASS:	COM	IND	MFR	P.A	SFR	Special	other uses	TOTAL	% of Use	Avg. Daily Use
JAN	1,522,040	64,130	1,784,220	551,340	2,709,390	26,341	1,746,524	8,403,985	7.6%	271,096
FEB	1,365,694	62,440	1,609,780	543,810	2,304,698	11,761	423,445	6,321,628	5.7%	217,987
MAR	1,260,276	59,000	1,487,140	553,910	2,123,792	16,589	610,080	6,110,787	5.5%	197,122
APR	1,822,081	82,410	1,735,510	818,880	2,721,771	24,848	1,139,225	8,344,725	7.6%	278,158
MAY	1,674,249	82,550	1,463,560	889,740	2,385,893	12,380	576,873	7,085,245	6.4%	228,556
JUN	2,446,960	164,880	1,824,870	1,242,690	3,826,796	112,208	430,052	10,048,456	9.1%	334,949
JUL	3,334,220	268,660	2,381,990	2,639,580	5,193,251	326,292	537,320	14,681,313	13.3%	473,591
AUG	3,357,600	237,730	2,092,660	2,205,820	4,655,884	342,879	768,677	13,661,250	12.4%	440,685
SEP	3,407,091	310,670	2,344,390	2,203,930	4,918,473	250,810	657,651	14,093,015	12.8%	469,767
OCT	1,865,743	210,540	1,634,240	925,160	2,679,317	17,669	490,480	7,823,149	7.1%	252,360
NOV	1,464,721	103,880	1,561,380	712,520	2,376,936	15,326	446,043	6,680,806	6.1%	222,694
DEC	1,371,120	107,260	1,598,730	883,340	2,437,286	26,115	435,282	6,859,133	6.2%	221,262
TOTAL	24,891,795	1,754,150	21,518,470	14,170,720	38,333,487	1,183,218	8,261,662	110,113,492	100.0%	300,857
AVERAGE	2,074,316	146,179	1,793,206	1,180,893	3,194,457	98,602	688,471	110,113,492	:USE for Year	:LOSS for Year

% of USE
% of FLOW

:FLOW (Use+Loss)
Loss as % of FLOW

2018

CLASS:	COM	IND	MFR	P.A	SFR	Special	other uses	TOTAL	% of Use	Avg. Daily Use
JAN	1,312,140	61,070	1,614,762	626,860	2,424,228	18,020	416,754	6,473,834	34.7%	208,833
FEB	1,236,460	75,520	1,683,748	602,090	2,294,360	16,927	409,718	6,318,823	33.9%	217,890
MAR	1,154,050	65,030	1,497,650	428,330	2,161,960	28,836	524,876	5,860,732	31.4%	189,056
APR								0	0.0%	0
MAY								0	0.0%	0
JUN								0	0.0%	0
JUL								0	0.0%	0
AUG								0	0.0%	0
SEP								0	0.0%	0
OCT								0	0.0%	0
NOV								0	0.0%	0
DEC								0	0.0%	0
TOTAL	3,702,650	201,620	4,796,160	1,657,280	6,880,548	63,783	1,351,348	18,653,389	100.0%	204,982
AVERAGE	1,234,217	67,207	1,598,720	552,427	2,293,516	21,261	112,612	18,653,389	:USE for Year	-2,313,611 :LOSS for Year

% of USE
% of FLOW

:FLOW (Use+Loss)
Loss as % of FLOW

Water - use MTD by LocationsourceDate

3 / 2018

Spe=Special, Sfr=Single Family Residential, P.A= Public Authority, Mfr=Multi-family, Ind=Industrial, Com=Commerc

Water Class	Accounts	Gallons
Location: IN		
Spe	3	28,836
Sfr	622	1,477,210
PA	69	338,540
Mfr	114	1,427,160
Ind	13	54,380
Com	214	1,081,980
	<hr/> 1,035	<hr/> 4,408,106
Location: Out		
Sfr	354	684,750
PA	6	89,790
Mfr	5	70,490
Ind	3	10,650
Com	4	72,070
	<hr/> 372	<hr/> 927,750
TOTAL	1,407	5,335,856

Water - use MTDsourceDate

3 / 2018

Spe=Special, Sfr=Single Family Residential, P.A= Public Authority, Mfr=Multi-family, Ind=Industrial, Com=Commerc

Water Class	Accounts	Gallons
Spe	3	28,836
Sfr	976	2,161,960
PA	75	428,330
Mfr	119	1,497,650
Ind	16	65,030
Com	218	1,154,050
TOTAL	1,407	5,335,856

Net Water Production - 2018

amounts in gallons

	Jan	Feb	Mar	Apr	May	Jun
Gross Production for billing period from WTP Chemical Weights & Finish Flow to Town Report	7,347,000	7,054,000	6,566,000	0	0	0
3% meter loss	181,712	177,273	160,076	0	0	0
Flushing	230,042	227,445	143,800			
SJC#3 FD use	5,000	5,000	5,000			
Leaks			216,000			
notes			University Road			
other non-metered use						
notes						
Additional water in storage						
notes						
Total other uses	-416,754	-409,718	-524,876	0	0	0
Net production	6,930,246	6,644,282	6,041,124	0	0	0

	Jul	Aug	Sep	Oct	Nov	Dec
Gross Production for billing period from WTP Chemical Weights & Finish Flow to Town Report	0	0	0	0	0	0
3% meter loss	0	0	0	0	0	0
Flushing						
SJC#3 FD use						
Leaks						
notes						
other non-metered use						
notes						
Total other uses	0	0	0	0	0	0
Net production	0	0	0	0	0	0

Finish Water Flow to Town
 source: Water Treatment Facility Monthly Report

Revised reporting period: per K. Anderson 03/06/17
 to reflect meter reading dates (?).
 Start/End dates may change monthly.

28 :count of days in reporting period.

Feb-18		Mar-18	
day	flow (total flow)	day	flow (total flow)
15	235	1	218
16	242	2	219
17	236	3	262
18	243	4	234
19	186	5	213
20	217	6	216
21	263	7	223
22	250	8	238
23	222	9	279
24	230	10	226
25	225	11	224
26	214	12	228
27	243	13	231
28	200	14	349
29			
30			
31			

<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right; border-bottom: 1px solid black;">days</td> <td style="width: 50%;"></td> </tr> <tr> <td style="text-align: right;">14</td> <td style="text-align: right; border-bottom: 1px solid black;">3206</td> </tr> </table>	days		14	3206	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right; border-bottom: 1px solid black;">days</td> <td style="width: 50%;"></td> </tr> <tr> <td style="text-align: right;">14</td> <td style="text-align: right; border-bottom: 1px solid black;">3360</td> </tr> </table>	days		14	3360
days									
14	3206								
days									
14	3360								
TOTAL DAYS	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right; border-bottom: 3px double black;">28</td> </tr> </table>	28							
28									
TOTAL FLOW	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right; border-bottom: 3px double black;">6566</td> </tr> </table>	6566							
6566									
	1,000's gallons								

Rainfall - Trout Lake Water Treatment Facility

source: Water Treatment Plant Weather Reports

all figures in inches

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	average (2005-14)
JAN	5.49	6.87	6.51	2.34	3.82	4.73	5.90	3.46	4.14	2.86	4.61
FEB	1.01	1.61	2.83	1.78	1.50	1.24	2.74	3.38	1.32	4.22	2.16
MAR	2.33	0.91	3.70	1.99	2.05	3.30	3.37	3.09	3.63	3.88	2.83
APR	1.37	2.23	1.49	1.32	2.07	1.47	2.96	1.91	2.70	1.94	1.95
MAY	1.08	1.24	0.78	1.26	1.69	2.09	3.07	1.09	2.20	1.05	1.56
JUN	1.63	0.56	1.03	1.16	0.35	1.10	0.68	2.60	0.83	0.52	1.05
JUL	0.70	0.26	1.56	0.21	0.45	0.11	0.84	1.04	0.00	0.36	0.55
AUG	1.60	0.03	0.64	1.88	0.81	0.72	0.29	0.00	0.95	0.49	0.74
SEP	0.94	1.15	0.54	0.84	1.58	4.35	0.72	0.12	5.08	1.34	1.67
OCT	3.50	1.89	2.12	1.83	5.24	1.38	2.29	6.40	1.42	4.00	3.01
NOV	4.28	10.43	2.32	5.15	6.76	2.94	4.50	3.32	2.49	4.00	4.62
DEC	2.89	3.74	4.59	3.70	1.80	6.55	1.88	4.79	2.28	3.37	3.56
Total	26.82	30.92	28.11	23.46	28.12	29.98	29.24	31.20	27.04	28.03	28.29

Cumulative thru

MAR	8.83	9.39	13.04	6.11	7.37	9.27	12.01	9.93	9.09	10.96
------------	-------------	-------------	--------------	-------------	-------------	-------------	--------------	-------------	-------------	--------------

all figures in inches

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
JAN	3.97	2.17	1.60	5.10						
FEB	2.95	4.83	2.99	3.80						
MAR	3.62	2.88	3.27	1.48						
APR	0.51	0.75	2.20							
MAY	0.30	0.48	1.61							
JUN	0.14	1.22	0.75							
JUL	0.36	0.32	0.15							
AUG	0.94	0.11	0.11							
SEP	1.28	1.40	0.71							
OCT	3.53	4.80	4.28							
NOV	6.19	3.47	4.32							
DEC	5.26	4.02	3.83							
Total	29.05	26.45	25.82	10.38	0.00	0.00	0.00	0.00	0.00	0.00

Cumulative thru

MAR	10.54	9.88	7.86	10.38	0.00	0.00	0.00	0.00	0.00	0.00
------------	--------------	-------------	-------------	--------------	-------------	-------------	-------------	-------------	-------------	-------------

Trout Lake Reservoir Level

Months with positive levels may reflect that a removable 7.25 inch riser has been added to the top of the original spillway.

end of	Inches above/(below) original spillway	end of	Inches above/(below) original spillway	end of	Inches above/(below) original spillway
Jan-12	-1.75	Jan-15	0.00	Jan-18	0.00
Feb-12	0.00	Feb-15	0.00	Feb-18	0.00
Mar-12	0.00	Mar-15	0.00	Mar-18	-8.75
Apr-12	8.00	Apr-15	6.50	Apr-18	
May-12	0.00	May-15	0.00	May-18	
Jun-12	7.00	Jun-15	-13.00	Jun-18	
Jul-12	-19.00	Jul-15	-29.50	Jul-18	
Aug-12	-32.75	Aug-15	-42.25	Aug-18	
Sep-12	-45.00	Sep-15	-49.50	Sep-18	
Oct-12	-48.00	Oct-15	-54.50	Oct-18	
Nov-12	-24.25	Nov-15	-17.25	Nov-18	
Dec-12	0.00	Dec-15	0.00	Dec-18	
Jan-13	0.00	Jan-16	0.00	Jan-19	
Feb-13	0.00	Feb-16	0.00	Feb-19	
Mar-13	0.00	Mar-16	0.00	Mar-19	
Apr-13	8.50	Apr-16	6.00	Apr-19	
May-13	3.75	May-16	-2.50	May-19	
Jun-13	-3.75	Jun-16	-11.00	Jun-19	
Jul-13	-21.00	Jul-16	-21.00	Jul-19	
Aug-13	-34.25	Aug-16	-36.50	Aug-19	
Sep-13	-39.25	Sep-16	-49.50	Sep-19	
Oct-13	-43.50	Oct-16	-51.00	Oct-19	
Nov-13	-44.75	Nov-16	-45.50	Nov-19	
Dec-13	-26.00	Dec-16	-10.35	Dec-19	
Jan-14	0.00	Jan-17	0.00	Jan-20	
Feb-14	0.00	Feb-17	0.00	Feb-20	
Mar-14	0.00	Mar-17	2.75	Mar-20	
Apr-14	8.25	Apr-17	9.00	Apr-20	
May-14	5.00	May-17	4.75	May-20	
Jun-14	7.00	Jun-17	-4.00	Jun-20	
Jul-14	-20.50	Jul-17	-19.00	Jul-20	
Aug-14	-30.25	Aug-17	-32.00	Aug-20	
Sep-14	-42.75	Sep-17	-43.00	Sep-20	
Oct-14	-45.25	Oct-17	-50.50	Oct-20	
Nov-14	-46.50	Nov-17	-48.00	Nov-20	
Dec-14	0.00	Dec-17	-11.50	Dec-20	

Prevention of Wastewater Facility Overloading

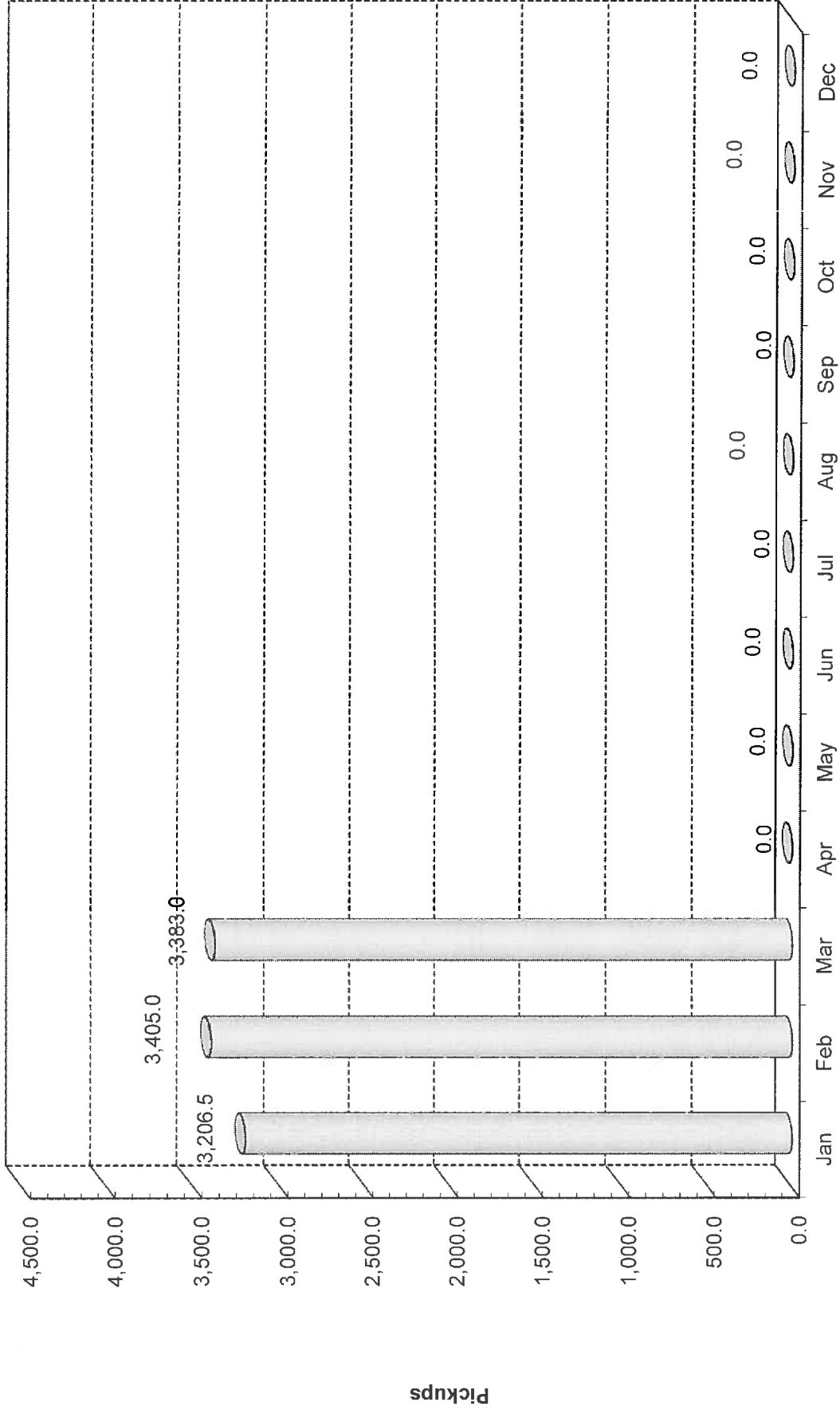
Period start: Apr-17
 Period end: Mar-18

INFLUENT BOD LOADING (pounds per day)	AVG. EFFLUENT FLOW (millions of gallons per day)	SUSPENDED SOLIDS LOADING (pounds per day)
Design Criteria (06/06 NPDES Permit #WA-002358-2, pg 12, paragraph S4.A) max.month 1,600	Design Criteria (06/06 NPDES Permit #WA-002358-2, pg 12, paragraph S4.A) max.month 0.69000	Design Criteria (06/06 NPDES Permit #WA-002358-2, pg 12, paragraph S4.A) max.month 1,110
85% Capacity Planning Threshold (06/06 NPDES Permit #WA-002358-2, pg 12, paragraph S4.B.1) 1,360	85% Capacity Planning Threshold (06/06 NPDES Permit #WA-002358-2, pg 12, paragraph S4.B.1) 0.58650	85% Capacity Planning Threshold (06/06 NPDES Permit #WA-002358-2, pg 12, paragraph S4.B.1) 944
Month with highest average loading in period Jul-16	Month with highest average flow in period Feb-16	Month with highest average loading in period Oct-16
Highest average monthly loading in period (pounds per day) 559	Highest average monthly flow in period (millions of gallons per day) 0.4088414	Highest average monthly loading in period (pounds per day) 488
% of Design Criteria 35%	% of Design Criteria 59%	% of Design Criteria 44%
exceeds Design Criteria? No	exceeds Design Criteria? No	exceeds Design Criteria? No
Previous month's loading 509	Previous month's flow 0.2541	Previous month's loading 319
Following month's loading 524	Following month's flow 0.2799	Following month's loading 245
exceeds Planning Threshold for 3 consecutive months? No	exceeds Planning Threshold for 3 consecutive months? No	exceeds Planning Threshold for 3 consecutive months? No

Water use MTD - accounts with sewersourceDate
3 / 2018

Sewer Class	Accounts	Gallons
Location: IN		
Mfr In/low Strength	62	476,600
Com In/lo Strength	159	569,890
Dot In/lo Strength	3	22,450
Ind In/hi Strength	1	14,070
Ind In/lo Strength	10	37,530
Lmf In/lo Strength	1	2,180
Com In/hi Strength	43	486,080
Mfr In/lo Strength	46	491,940
Mhp In/lo Strength	2	408,600
PA In/hi Strength	3	54,670
PA In/lo Strength	43	233,220
Sfr IN Town	604	1,457,910
Low Rate / IN Town	5	8,130
	<hr/> 982	<hr/> 4,263,270
Location: Out		
UW Out/hi Strength	1	46,600
Mfr Out/lo Strength	1	2,560
Sfr Out of Town	4	6,650
	<hr/> 6	<hr/> 55,810
TOTAL	988	4,319,080

Refuse Pickups by Month - 2018



Refuse Pickups - 2018 YTD

Account Type	SFR	Refuse Only	P.A	MFR	IND	COM	Other	Total
Jan	1,433.0	151.5	145.5	435.5	24.5	1,016.5		3,206.5
Feb	1,347.0	149.0	172.5	385.5	18.0	1,333.0		3,405.0
Mar	1,218.0	166.0	165.5	389.0	15.5	1,429.0		3,383.0
Apr								0.0
May								0.0
Jun								0.0
Jul								0.0
Aug								0.0
Sep								0.0
Oct								0.0
Nov								0.0
Dec								0.0
YTD	3,998.0	466.5	483.5	1,210.0	58.0	3,778.5	0.0	9,994.5

Refuse - pickups by ClasssourceDate
3 / 2018

Location	Class	Pickups
IN	Sfr	1,218.0
	RefuseOnly	166.0
	PA	165.5
	Mfr	386.0
	Ind	15.5
	Com	1,429.0
		<hr/> 3,380.0
Out	Sfr	0.0
	Mfr	3.0
		<hr/> 3.0
	TOTAL	3,383.0

Refuse - active accountssourceDate
3 / 2018

Location	Refuse Type	Accounts
IN		
	Small Dumpster	49
	PA	40
	Medium Dumpste	59
	Large Dumpster	69
	Compactors	3
	Cans Low Rate	5
	Cans	771
		<hr/>
		996
Out		
	Large Dumpster	1
	Cans	1
		<hr/>
		2
		<hr/>
	TOTAL	998

Recycle - pickups by ClasssourceDate
3 / 2018

Location	Class	Pickups
IN	Sfr	554
	RefuseOnly	13
	PA	0
	Mfr	41
	Ind	0
	Com	4
		<hr/> 612
Out	Sfr	0
	Mfr	0
		<hr/> 0
	TOTAL	612