Downriver Utility Wastewater Authority

Downriver Sewage Disposal System
System Monitoring Report for 2023

April 29, 2024

Applied Science, Inc.

VEOLIA

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1) INTRODUCTION

The Downriver Sewage Disposal System (DSDS) annual system monitoring report 2023 provides a summary of the best available flow monitoring data for January through December 2023.

This report supersedes and consolidates the information previously issued in the quarterly system monitoring reports for 2023. It is intended to provide the best available estimate of flow rates for the entire DSDS, each meter district and community during the dry and wet weather conditions that occurred in 2023. The flow monitoring data were reviewed and missing or erroneous data have been estimated using fill-in techniques to provide a complete data set.

Figure 1-1 is a map of the DSDS showing the flow meter and level sensor locations, incremental meter districts, the interceptor and tunnel system, and the location of rain gauges that may be used to evaluate the wet weather monitoring data.

2) SYSTEM SUMMARY

Major findings from the DSDS 2023 system monitoring are presented in the following subsections: subsection A lists noteworthy items, subsection B presents an overview of the DSDS performance, subsection C presents an overview of the controlled flow communities' performance, and subsection D presents an overview of the non-controlled flow communities' performance.

Rain Gage ID	Location	Address	Community
DTW	Detroit Wayne County Metropolitan Airport	Airport	Romulus
R-2	New Boston Yard Facility	19415 Sterling	New Boston
R-4	Sibley Yard Facility	21300 Sibley	Brownstown
R-6	Southgate-Wyandotte Pump Station #5	797 Central	Wyandotte
R-8	Goddard Basin Facility	20590 Goddard	Taylor
R-9	Wade-Trim Garage	25251 Northline	Taylor
R-10	Romulus City Hall	11111 Wayne	Romulus
R-15	Taylor Basin Facility	20195 Trolley	Taylor
R-16	Lincoln Park Retention Basin	91 Mill Street	Lincoln Park
R-17	Southgate DPW Facility	14719 Schaefer Court	Southgate
R-18	Belleville Fire Station	130 4th Street	Belleville

LEGEND

- RAIN GAGE LOCATION
- FLOW METER LOCATION
- LOCAL FLOW METER LOCATION
- OTHER DEVICE LOCATION
- OVERFLOW TO TUNNEL
- LOCAL SEWER
- DSDS SANITARY INTERCEPTOR
- DOWNRIVER REGIONAL STORAGE AND TRANSPORT SYSTEM (DRSTS)
- SERVICE AREA BOUNDARY
- COMMUNITY BOUNDARY
- WET WEATHER FACILITY (COMMUNITY OWNED AND OPERATED)
- WET WEATHER FACILITY (COMMUNITY OWNED COUNTY OPERATED)
- PS — PUMP STATION
- PS — LOCAL PUMP STATION
- SANITARY TO DSDS INTERCEPTOR STORM WATER TO SWRDDD
- COMBINED SEWER AREA
- DSDS — DOWNRIVER SEWAGE DISPOSAL SYSTEM
- SWRDDD — SOUTHGATE-WYANDOTTE RELIEF DRAINS DRAINAGE DISTRICT
- DWTF — DOWNRIVER WASTEWATER TREATMENT FACILITY
- IPS — INFLUENT PUMP STATION
- TPS — TUNNEL PUMP STATION
- CSO — COMBINED SEWER OVERFLOW
- RTB — RETENTION TREATMENT BASIN

GRAPHIC SCALE
4,000 0 4,000
1" = 4,000'

UPDATED: JUNE 8, 2023

F				
E				
D				
C				
B				
A				
	DESCRIPTION	CHECKED	APRVD	DATE
	REVISIONS			

DESIGN D. WIEBE
DRAFTING D. HEROLD-J
CHECKED D. WIEBE
APPROVED K. RIDGWAY
ISSUE DATE AUG 2017

DUWA

DOWNRIVER
SEWAGE DISPOSAL SYSTEM

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INCREMENTAL METER DISTRICTS & INTERCEPTOR & METER LOCATIONS & RAIN GAGES FOR 2023 SYSTEM MONITORING PLAN

SCALE: 1" = 4000'
JOB No. ASI #1819
FILE No.

FIGURE 1

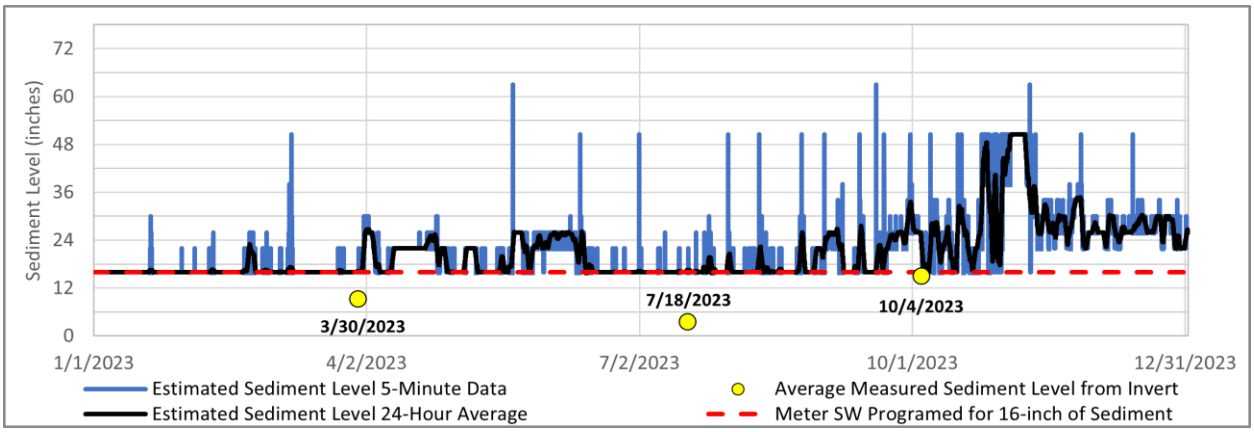
Jun 08, 2023 - 12:15pm
K:\DWGFiles\2018\1819\DSDS System Monitoring Plan.dwg

A) NOTEWORTHY ITEMS

1. The sediment profile was measured at Meter SW three times in 2023. The average sediment depth of the profile was 9 inches relative to the pipe invert at the metering location. Figure 2-1 shows the estimated sediment depths at Meter SW and the average measured sediment depths for the profiles for 2023. Detailed sediment profile measurements and the sediment estimation methodology are provided in Appendix E.

   In general, the 2023 sediment measurements are lower than the programmed 16-inch sediment level and the estimated sediment level based on velocity paths in service. It is unknown if this is a true indication that sediment is lower than estimated and programmed or if the sediment level is decreased through the act of preparing for a sediment measurement entry. If this general trend of lower sediment measurements continues, it may be appropriate to decrease the programmed sediment level.

Figure 2-1
Sediment Profile Measurements and Estimated Sediment Levels at Meter SW



2. In 2023, dye-dilution testing was conducted for Meters PD-1 and RD-1. The results of dye tests currently in-effect for DSDS meters are presented in Appendix F. The data presented in this report reflects the results of these dye dilution tests.

B) DSDS OVERVIEW

1. The total precipitation at DTW for year 2023 was 36.63 inches, which is 2.31 inches above normal.
2. The total annual precipitation at DTW has been above normal, which is 34.32 inches, for 2018-2021. The total precipitation above normal at DTW from 2018 through 2021 were 9.49, 2.06, 4.41 and 5.67 inches, respectively. The annual precipitation during 2022 was 24.31 inches, 10.01 inches below normal.
3. There were nine (9) significant storm events in 2023. Significant storm events are defined as those with at least 0.5 inches of rainfall occurring on a single day with an event total of at least 1.0 inch of rainfall. Significant storm events are separated by at least 2 consecutive days without precipitation over 0.1 inches. This storm event definition is based on the

arithmetic mean of the rainfall recorded by all rain gauges used in the analysis for that storm. Table 2-1 lists the average rainfall depths over the DSDS service area for the significant storm events for 2023.

Table 2-1
Average Rainfall Depths for Significant Storms during 2023 in the DSDS Service Area

Significant Storm Event	Event Dates	Average Total Rainfall Depth Over the Service Area (inches)
1	1/18-20/2023	1.18
2	2/22-23/2023	1.10
3	2/27-28/2023	1.37
4	3/3-7/2023	1.86
5	3/31/2023 – 4/1/2023	1.62
6	4/28-30/2023	1.12
7	6/25-27/2023	1.45
8	7/1-2/2023	1.68
9	8/23-25/2023	3.61

4. There were no major storm events in 2023. Major storm events are a subgroup of significant storm events which result in the peak hourly influent flow rate to the Downriver Wastewater Treatment Facility (DWTF) reaching or exceeding 175 million gallons per day (MGD), which is equivalent to 271 cubic feet per second (cfs).
5. The average rainfall depths and peak 24-hour rainfall depths at DTW for the significant/major storms are listed in Table 2-2.

Table 2-2
Rainfall Depths at DTW for Significant Storms during 2023 in the DSDS Service Area

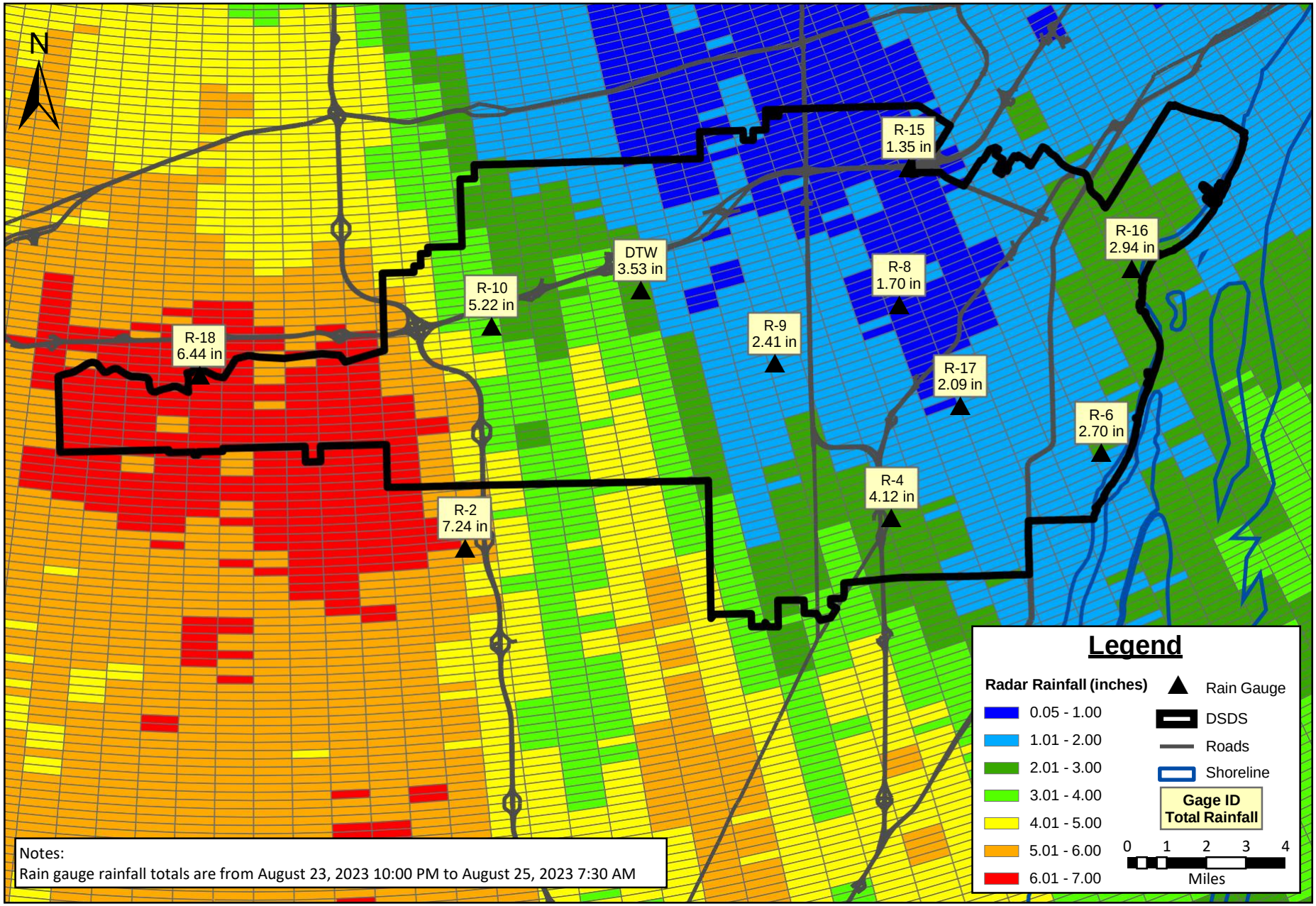
Major Storm Event	Significant Storm Event	Event Dates	Peak 24-hour Rainfall Depth (inches)	Total Rainfall Depth (inches)
-	1	1/18-20/2023	1.16	1.18
-	2	2/22-23/2023	0.99	0.98
-	3	2/27-28/2023	1.25	1.25
-	4	3/3-7/2023	1.11	1.73
-	5	3/31/2023 – 4/1/2023	1.35	1.74
-	6	4/28-30/2023	0.65	1.07
-	7	6/25-27/2023	1.43	1.47
-	8	7/1-2/2023	1.78	1.89
-	9	8/23-25/2023	3.51	3.53

6. Figure 2-2 shows a map of the DSDS service area with the DSDS rain gauge totals and the estimated NOAA radar rainfall for Significant Storm Event 9. This figure shows the spatial variability of the rainfall. In general, the DSDS service area to the west had the highest rainfall totals, and the DSDS service area to the east had the lowest rainfall totals.

   The rainfall totals at DSDS rain gauges R-2 and R-18 exceeded the 1000-year recurrence interval for a 3-hour duration, based on NOAA Atlas 14. However, the rainfall totals at DSDS rain gauges R-8, R-15 and R-17 did not exceed the 1-year recurrence interval for any duration, based on NOAA Atlas 14. (See Table B-2 for additional rain gauge information)

   The DSDS collection system performed well for this event. The DWTF peak hourly flow rate reached 215 cfs, which is 56 cfs below the threshold for classification as a major storm event.

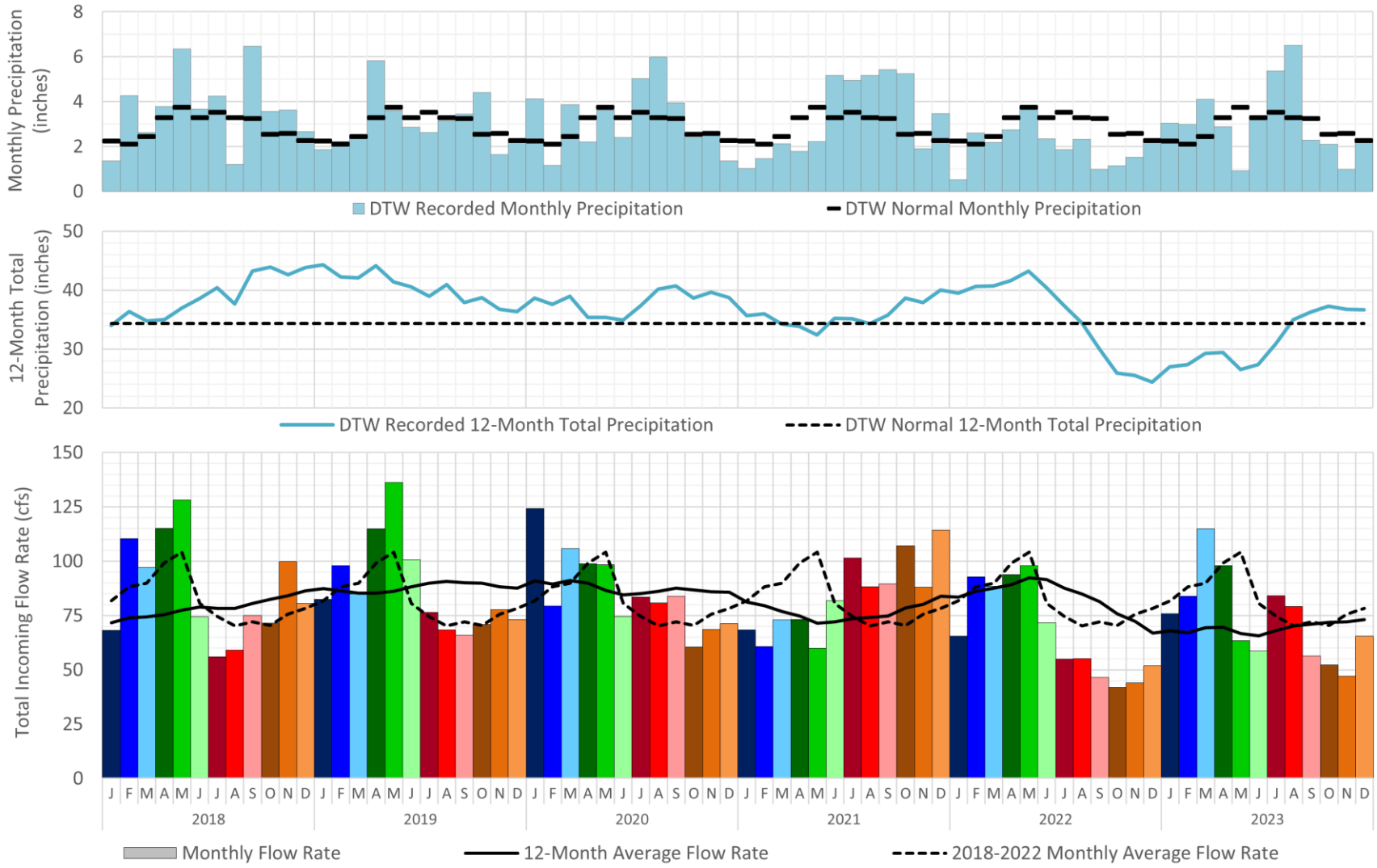
Figure 2-2
Rainfall Totals for the Storm Event of August 23-25, 2023



7. Figure 2-3 shows the long-term flow rate versus precipitation trends for the DSDS by month from 2018 through 2023. The incoming flow rate to the DWTF is based on the interceptor system flow meters, and the precipitation is at DTW. The figure shows the expected seasonal variations in flow rates, and the trend between precipitation and flow rates.

   On the top graph, the blue vertical bars show the monthly precipitation, and the black markers show the monthly normal precipitation. On the middle graph, the solid blue line shows the 12-month rolling total precipitation, and the gray dashed line shows the 12-month rolling total normal precipitation. On the bottom graph, the vertical bars show the average monthly flow rate, the solid black line shows the 12-month rolling average flow rate, and the black dashed line shows the 2018-2022 average monthly flow rate. The 5-year average from 2018-2022 provides a long-term high-quality dataset for comparison to current conditions.

Figure 2-3
Monthly Influent Flow Rate to DWTF versus Precipitation at DTW for 2018 through 2023



8. Tables 2-3 through 2-6 lists the average quarterly flow rate and total flow volume for years 2018 through 2023. The total incoming flow rate to the DWTF is based on the interceptor system flow meters. The DWTF flow rate is based on the IPS and TPS and includes recycle flow rate.

Table 2-3
Average Q1 Flow Rate and Total Volume for 2018 through 2023

Year	Total Precipitation at DTW (inches)	Average Flow Rate (cfs)			Total Flow Volume (MG)		
		Influent to DWTF	DWTF Including Recycle	DWTF Without Recycle	Influent to DWTF	DWTF Including Recycle	DWTF Without Recycle
2018 Q1	8.26	91.29	98.67	-	5,310	5,740	-
2019 Q1	6.54	88.15	86.82	-	5,130	5,050	-
2020 Q1	9.14	103.62	110.07	-	6,090	6,470	-
2021 Q1	4.63	67.49	68.76	64.52	3,930	4,000	3,750
2022 Q1	5.31	81.76	85.73	77.72	4,760	4,990	4,520
2023 Q1	10.15	91.68	98.39	92.55	5,330	5,720	5,380
2018-2022 Q1 Average	6.78	86.46	90.01	-	5,040	5,250	-

Notes:
1. DWTF recycle flows have been metered since April 2020. To provide a consistent comparison to previous years DWTF with recycle flow is presented. DWTF Including Recycle = IPS + TPS. DWTF without Recycle = IPS + TPS – Recycle.

Table 2-4
Average Q2 Flow Rate and Total Volume for 2018 through 2023

Year	Total Precipitation at DTW (inches)	Average Flow Rate (cfs)			Total Flow Volume (MG)		
		Influent to DWTF	DWTF Including Recycle	DWTF Without Recycle	Influent to DWTF	DWTF Including Recycle	DWTF Without Recycle
2018 Q2	13.80	106.03	121.62	-	6,240	7,150	-
2019 Q2	12.29	117.43	126.62	-	6,910	7,450	-
2020 Q2	8.23	90.64	98.25	-	5,330	5,780	-
2021 Q2	9.18	71.50	73.52	69.72	4,200	4,320	4,100
2022 Q2	8.91	87.87	92.00	83.11	5,170	5,410	4,890
2023 Q2	6.99	73.15	77.62	70.71	4,300	4,570	4,160
2018-2022 Q2 Average	10.48	94.69	102.40	-	5,570	6,020	-

Notes:
1. DWTF recycle flows have been metered since April 2020. To provide a consistent comparison to previous years DWTF with recycle flow is presented. DWTF Including Recycle = IPS + TPS. DWTF without Recycle = IPS + TPS – Recycle.

Table 2-5
Average Q3 Flow Rate and Total Volume for 2018 through 2023

Year	Total Precipitation at DTW (inches)	Average Flow Rate (cfs)			Total Flow Volume (MG)		
		Influent to DWTF	DWTF Including Recycle	DWTF Without Recycle	Influent to DWTF	DWTF Including Recycle	DWTF Without Recycle
2018 Q3	11.90	63.22	75.67	-	3,760	4,500	-
2019 Q3	9.21	70.32	78.50	-	4,180	4,670	-
2020 Q3	14.96	82.73	89.92	-	4,920	5,350	-
2021 Q3	15.55	93.07	95.66	90.37	5,530	5,690	5,370
2022 Q3	5.17	52.17	51.43	46.94	3,100	3,060	2,790
2023 Q3	14.15	73.36	77.16	71.17	4,360	4,590	4,230
2018-2022 Q3 Average	11.36	72.30	78.24	-	4,300	4,650	-

Notes:
1. DWTF recycle flows have been metered since April 2020. To provide a consistent comparison to previous years DWTF with recycle flow is presented. DWTF Including Recycle = IPS + TPS. DWTF without Recycle = IPS + TPS – Recycle.

Table 2-6
Average Q4 Flow Rate and Total Volume for 2018 through 2023

Year	Total Precipitation at DTW (inches)	Average Flow Rate (cfs)			Total Flow Volume (MG)		
		Influent to DWTF	DWTF Including Recycle	DWTF Without Recycle	Influent to DWTF	DWTF Including Recycle	DWTF Without Recycle
2018 Q4	9.85	83.73	90.38	-	4,980	5,370	-
2019 Q4	8.34	73.88	77.49	-	4,390	4,610	-
2020 Q4	6.40	66.78	67.74	-	3,970	4,030	-
2021 Q4	10.63	103.27	104.99	99.53	6,140	6,240	5,920
2022 Q4	5.01	45.94	47.01	42.65	2,730	2,800	2,540
2023 Q4	5.34	54.99	59.43	54.36	3,270	3,530	3,230
2018-2022 Q4 Average	8.05	74.72	77.52	-	4,440	4,610	-

Notes:
1. DWTF recycle flows have been metered since April 2020. To provide a consistent comparison to previous years DWTF with recycle flow is presented. DWTF Including Recycle = IPS + TPS. DWTF without Recycle = IPS + TPS – Recycle.

9. Table 2-7 lists the average annual flow rate and total flow volume for years 2018 through 2023. The total incoming flow rate to the DWTF is based on the interceptor system flow meters. The DWTF flow rate is based on the IPS and TPS and includes recycle flow rate.

Table 2-7
Average Annual Flow Rate and Total Volume for 2018 through 2023

Year	Total Precipitation at DTW (inches)	Average Flow Rate (cfs)			Total Flow Volume (MG)		
		Influent to DWTF	DWTF Including Recycle	DWTF Without Recycle	Influent to DWTF	DWTF Including Recycle	DWTF Without Recycle
2018	43.81	85.98	96.51	-	20,280	22,770	-
2019	36.38	87.36	92.29	-	20,610	21,770	-
2020	38.73	85.88	91.43	-	20,320	21,630	-
2021	39.99	83.96	85.86	81.15	19,810	20,250	19,140
2022	24.40	66.80	68.89	62.47	15,760	16,250	14,740
2023	36.63	73.20	78.04	72.09	17,270	18,410	17,010
2018-2022 Average	36.66	82.00	86.99	-	19,360	20,530	-

Notes:
1. DWTF recycle flows have been metered since April 2020. To provide a consistent comparison to previous years DWTF with recycle flow is presented. DWTF Including Recycle = IPS + TPS. DWTF without Recycle = IPS + TPS – Recycle.

10. Figures 2-4 through 2-7 plots the quarterly average influent flow rate (interceptor system flow meters) to the DWTF versus the quarterly total precipitation at DTW for years 2013 through 2023. This figure shows the trend between precipitation and DSDS flow rates. The total precipitation at DTW for quarters 1 and 3 were above normal while quarters 2 and 4 were below normal. The influent flow rate to the DWTF for 2023 was within the 95% confidence interval for the given precipitation.

Figure 2-4
Average Influent Flow Rate to DWTF versus Precipitation at DTW
Quarter 1 January – March for 2013 through 2023

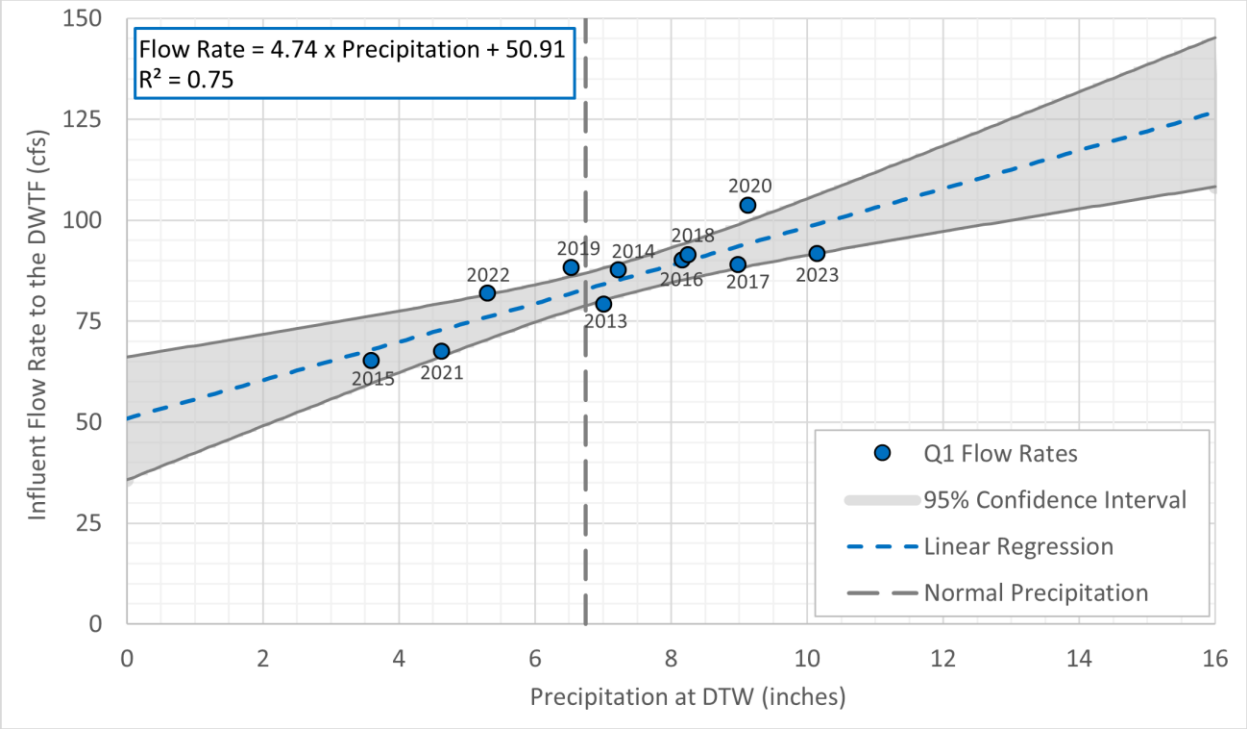


Figure 2-5
Average Influent Flow Rate to DWTF versus Precipitation at DTW
Quarter 2 April – June for 2013 through 2023

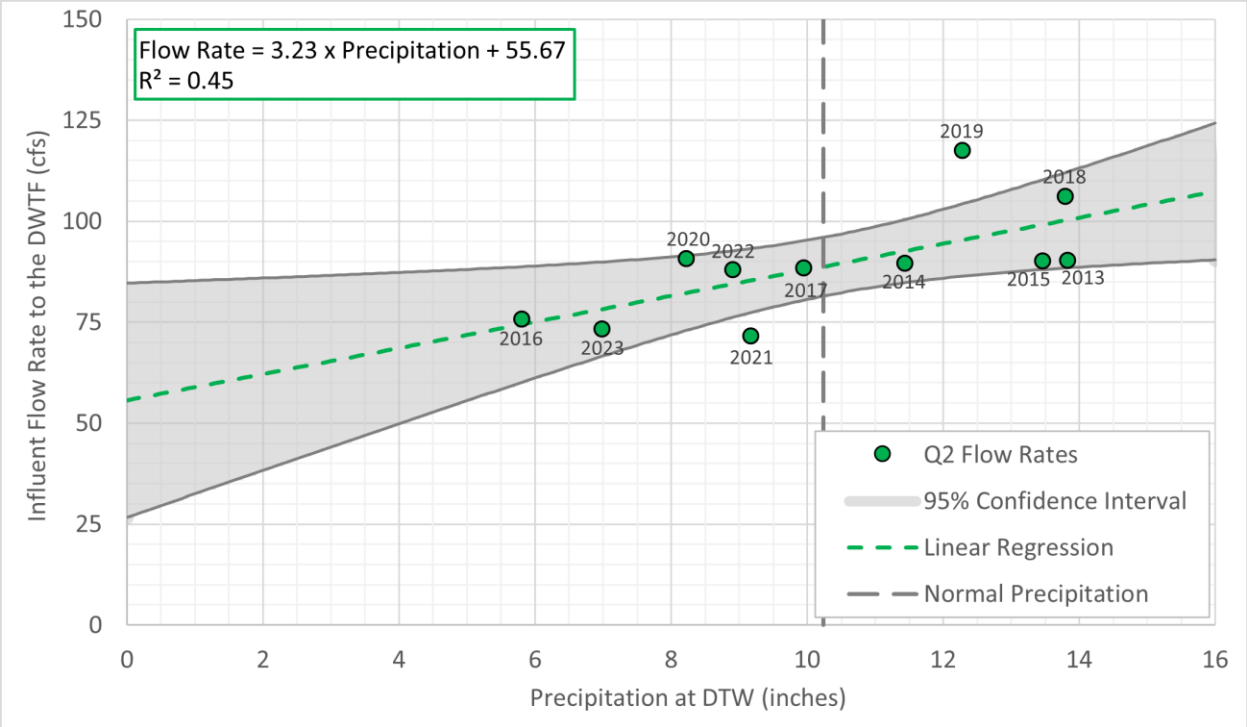


Figure 2-6
Average Influent Flow Rate to DWTF versus Precipitation at DTW
Quarter 3 July – September for 2013 through 2023

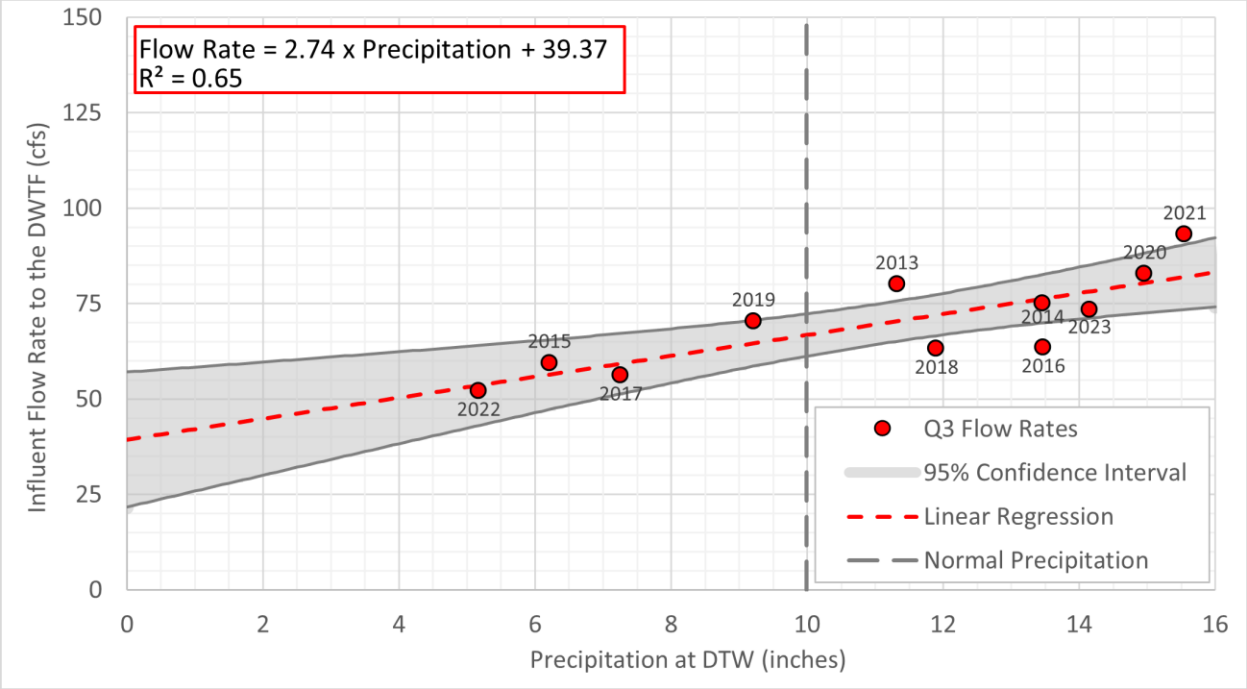
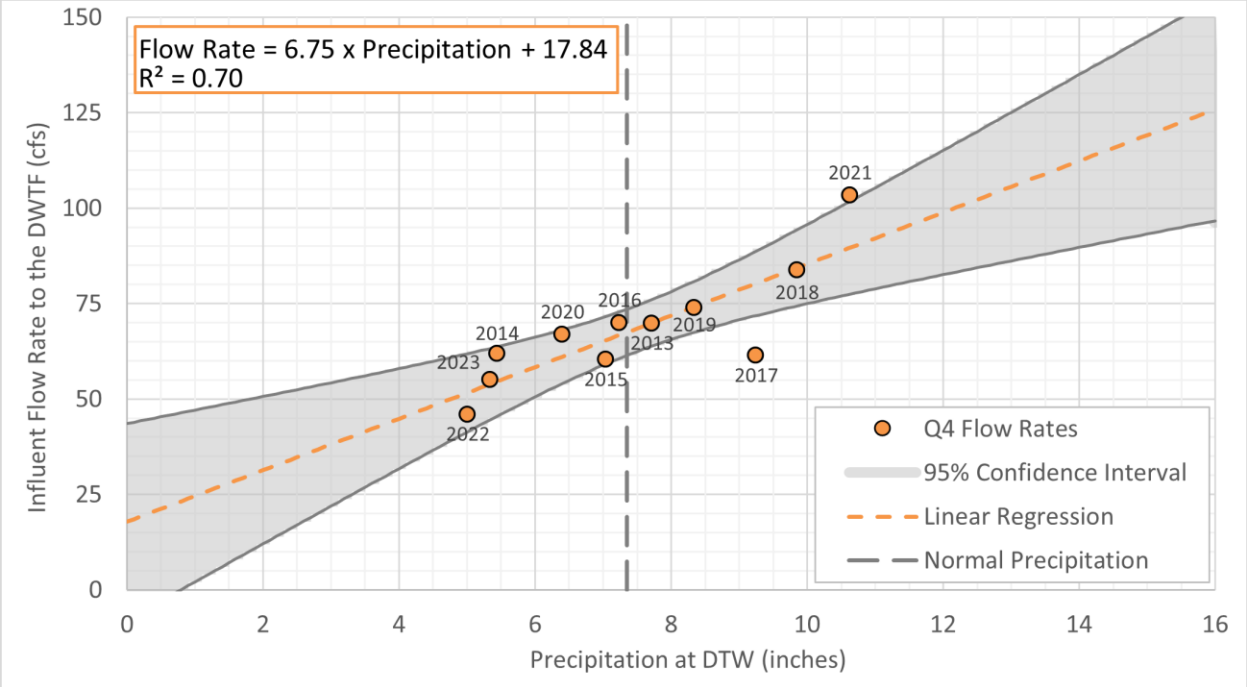


Figure 2-7
Average Influent Flow Rate to DWTF versus Precipitation at DTW
Quarter 4 October – December for 2013 through 2023



11. Figure 2-8 shows the long-term flow rate versus precipitation trends for the Controlled Flow Communities and Non-Controlled Flow Communities by month from 2018 through 2023. The flow rates are based on the interceptor system flow meters and the total precipitation is at DTW.

    On the top graph, the blue vertical bars show the monthly precipitation, and the black markers show the monthly normal precipitation. On the middle graph, the solid blue line shows the 12-month rolling total precipitation, and the gray dashed line shows the 12-month rolling total normal precipitation. On the bottom graph, the vertical bars show the average monthly flow rate and the solid lines show the 12-month rolling average flow rate.

    This figure shows the total flow contribution from the Controlled Flow Communities and Non-Controlled Flow Communities is generally about equal. From 2018 through 2022 the total flow contribution from the Controlled Flow Communities was about 51%, and from the Non-Controlled Flow Communities was about 49%. For 2023 the total flow contribution from the Controlled Flow Communities was about 49%, and from the Non-Controlled Flow Communities was about 51%.

12. For each community, the average Q1 through Q4 flow rate for years 2018 through 2023 are listed in Tables 2-8 through 2-11 and shown in Figures 2-9 through 2-12.

13. For each community, the average annual flow rate for years 2018 through 2023 are listed in Table 2-12 and shown in Figure 2-13. The differences between the 5-year average flow rates and 2023 annual average flow rates have been reviewed and confirmed.

Figure 2-8
Monthly Influent Flow Rate to DWTF versus Precipitation at DTW for 2018 through 2023
by Controlled Flow and Non-Controlled Flow Communities

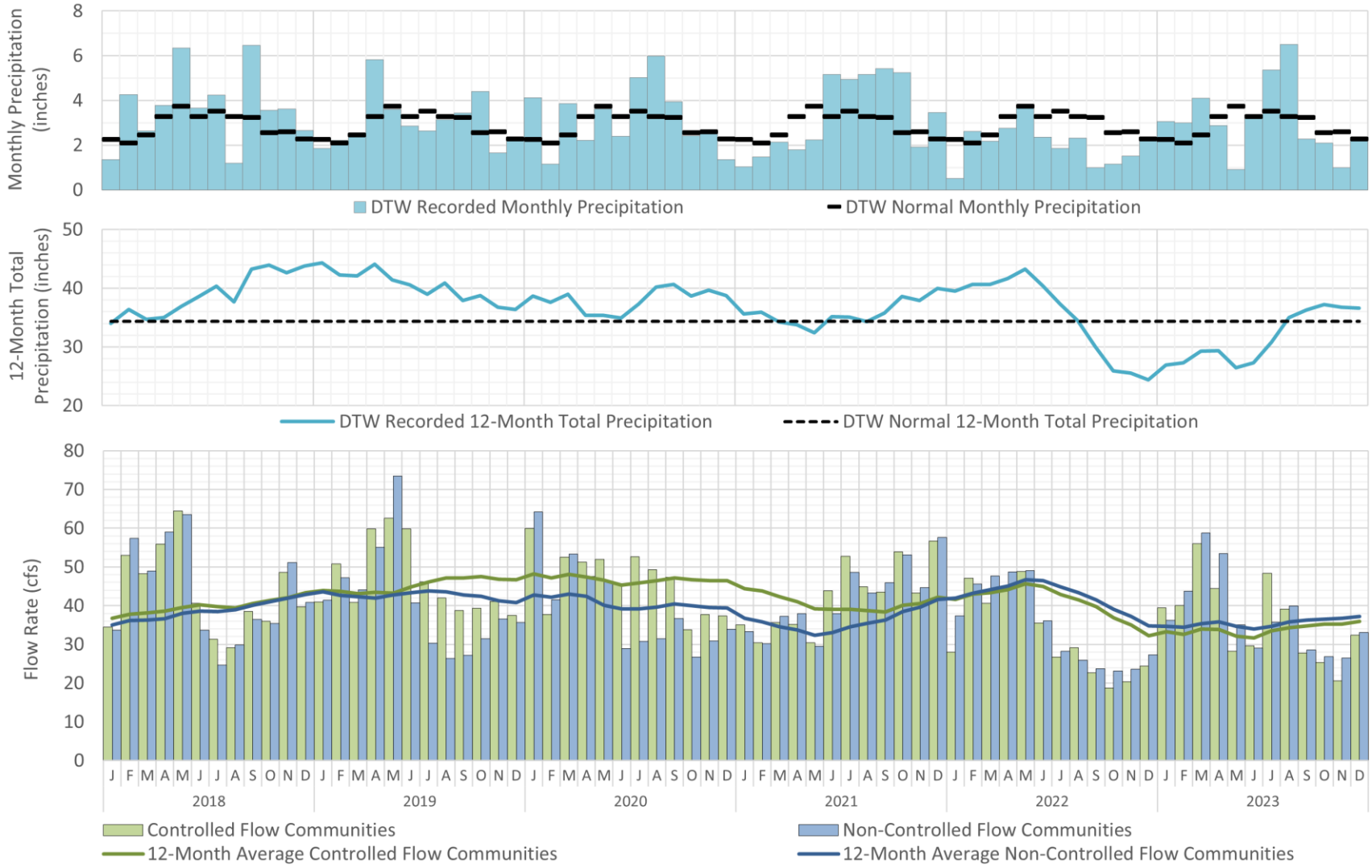


Table 2-8
Average Q1 Flow Rate by Community for 2018 through 2023

Community	Average Flow Rate (cfs)						2018-2022 Q1 Average Flow Rate (cfs)
	2018 Q1	2019 Q1	2020 Q1	2021 Q1	2022 Q1	2023 Q1	
Allen Park	8.81	7.55	9.30	4.70	6.81	7.98	7.43
Belleville	0.74	0.74	1.06	0.60	0.74	0.68	0.78
Brownstown Twp.	2.91	2.85	3.16	2.33	2.31	2.29	2.71
Dearborn Hts.	6.12	5.41	6.06	3.71	4.54	5.34	5.17
Ecorse	2.52	2.17	3.10	3.55	2.23	2.15	2.71
Lincoln Park	12.33	11.84	13.20	8.18	10.55	11.72	11.22
River Rouge	3.80	4.02	5.38	2.29	3.42	4.73	3.78
Riverview	3.22	2.88	3.40	2.61	2.76	3.33	2.98
Romulus	10.01	10.38	12.63	8.37	9.67	10.15	10.21
Southgate	11.63	11.48	13.48	9.12	10.22	12.00	11.19
Taylor	15.61	15.31	17.40	10.99	16.92	17.41	15.25
Van Buren Twp.	1.44	1.45	2.08	1.18	1.46	1.33	1.52
Wyandotte	12.16	12.08	13.37	9.85	10.14	12.60	11.52
Total Incoming Flow Rate	91.29	88.15	103.62	67.49	81.76	91.68	86.46
DWTF Including Recycle (IPS + TPS)	98.67	86.82	110.07	68.76	85.73	98.39	90.01
Total Precipitation DTW (inches) =	8.26	6.54	9.14	4.63	5.31	10.15	6.78

Note: DWTF recycle flows have been metered since April 2020. To provide a consistent comparison to previous years recycle flow has not been deducted from IPS+TPS data for 2020 through 2023.

Table 2-9
Average Q2 Flow Rate by Community for 2018 through 2023

Community	Average Flow Rate (cfs)						2018-2022 Q2 Average Flow Rate (cfs)
	2018 Q2	2019 Q2	2020 Q2	2021 Q2	2022 Q2	2023 Q2	
Allen Park	9.96	10.38	7.06	5.46	7.41	5.28	8.05
Belleville	0.84	0.93	0.75	0.70	0.74	0.71	0.79
Brownstown Twp.	3.17	3.02	2.58	2.41	2.43	2.04	2.72
Dearborn Hts.	6.42	6.62	4.74	3.82	4.88	3.92	5.30
Ecorse	2.94	2.76	3.34	3.16	2.74	2.27	2.99
Lincoln Park	14.22	15.18	11.43	9.05	11.58	7.92	12.29
River Rouge	5.61	6.81	6.48	2.98	3.84	3.58	5.14
Riverview	3.46	3.30	3.12	2.64	2.78	2.25	3.06
Romulus	13.43	14.54	10.19	9.22	10.72	9.33	11.62
Southgate	13.60	16.50	12.30	9.57	11.25	9.75	12.65
Taylor	16.27	18.40	13.22	10.74	16.39	14.70	15.01
Van Buren Twp.	1.65	1.82	1.47	1.38	1.45	1.39	1.55
Wyandotte	14.44	17.17	13.94	10.36	11.67	10.03	13.52
Total Incoming Flow Rate	106.03	117.43	90.64	71.50	87.87	73.15	94.69
DWTF Including Recycle (IPS + TPS)	121.62	126.62	98.25	73.52	92.00	77.62	102.40
Total Precipitation DTW (inches) =	13.80	12.29	8.23	9.18	8.91	6.99	10.48

Note: DWTF recycle flows have been metered since April 2020. To provide a consistent comparison to previous years recycle flow has not been deducted from IPS+TPS data for 2020 through 2023.

Table 2-10
Average Q3 Flow Rate by Community for 2018 through 2023

Community	Average Flow Rate (cfs)						2018-2022 Q3 Average Flow Rate (cfs)
	2018 Q3	2019 Q3	2020 Q3	2021 Q3	2022 Q3	2023 Q3	
Allen Park	4.99	5.73	7.11	8.63	3.98	5.64	6.09
Belleville	0.55	0.51	0.59	0.73	0.51	0.66	0.58
Brownstown Twp.	2.26	2.26	2.19	2.46	1.79	2.07	2.19
Dearborn Hts.	3.53	2.83	3.71	5.84	2.19	3.06	3.62
Ecorse	2.09	2.90	3.24	3.86	1.82	2.09	2.78
Lincoln Park	7.47	9.75	11.27	11.99	6.40	8.89	9.38
River Rouge	3.25	5.31	7.19	3.87	2.33	4.78	4.39
Riverview	2.04	2.14	2.96	3.02	1.77	2.36	2.39
Romulus	6.23	7.42	6.93	9.43	6.12	7.41	7.23
Southgate	9.19	9.90	11.43	13.17	7.11	9.97	10.16
Taylor	10.44	8.55	11.15	15.47	9.49	13.96	11.02
Van Buren Twp.	1.08	1.01	1.16	1.43	1.01	1.30	1.14
Wyandotte	10.08	12.03	13.79	13.18	7.65	11.17	11.34
Total Incoming Flow Rate	63.22	70.32	82.73	93.07	52.17	73.36	72.30
DWTF Including Recycle (IPS + TPS)	75.67	78.50	89.92	95.66	51.43	77.16	78.24
Total Precipitation DTW (inches) =	11.90	9.21	14.96	15.55	5.17	14.15	11.36

Note: DWTF recycle flows have been metered since April 2020. To provide a consistent comparison to previous years recycle flow has not been deducted from IPS+TPS data for 2020 through 2023.

Table 2-11
Average Q4 Flow Rate by Community for 2018 through 2023

Community	Average Flow Rate (cfs)						2018-2022 Q4 Average Flow Rate (cfs)
	2018 Q4	2019 Q4	2020 Q4	2021 Q4	2022 Q4	2023 Q4	
Allen Park	7.49	6.48	5.17	8.96	3.45	3.99	6.31
Belleville	0.73	0.61	0.53	0.78	0.42	0.57	0.61
Brownstown Twp.	2.70	2.48	2.19	3.00	1.62	1.86	2.40
Dearborn Hts.	5.62	3.84	3.22	6.62	2.05	2.50	4.27
Ecorse	2.16	2.00	2.48	3.24	1.20	1.42	2.22
Lincoln Park	11.49	10.32	8.62	13.39	5.36	6.21	9.83
River Rouge	3.35	3.80	3.20	4.43	2.10	2.40	3.38
Riverview	2.92	2.59	2.70	3.50	1.74	2.09	2.69
Romulus	9.99	8.61	7.15	11.27	5.93	6.46	8.59
Southgate	10.61	9.81	9.41	13.71	5.99	7.51	9.90
Taylor	14.04	11.25	10.18	18.48	9.29	10.94	12.65
Van Buren Twp.	1.43	1.20	1.05	1.53	0.82	1.11	1.21
Wyandotte	11.19	10.88	10.87	14.37	5.99	7.94	10.66
Total Incoming Flow Rate	83.73	73.88	66.78	103.27	45.94	54.99	74.72
DWTF Including Recycle (IPS + TPS)	90.38	77.49	67.74	104.99	47.01	59.43	77.52
Total Precipitation DTW (inches) =	9.85	8.34	6.40	10.63	5.01	5.34	8.05

Note: DWTF recycle flows have been metered since April 2020. To provide a consistent comparison to previous years recycle flow has not been deducted from IPS+TPS data for 2020 through 2023.

Figure 2-9
Average Q1 Flow Rate by Community for 2018 through 2023

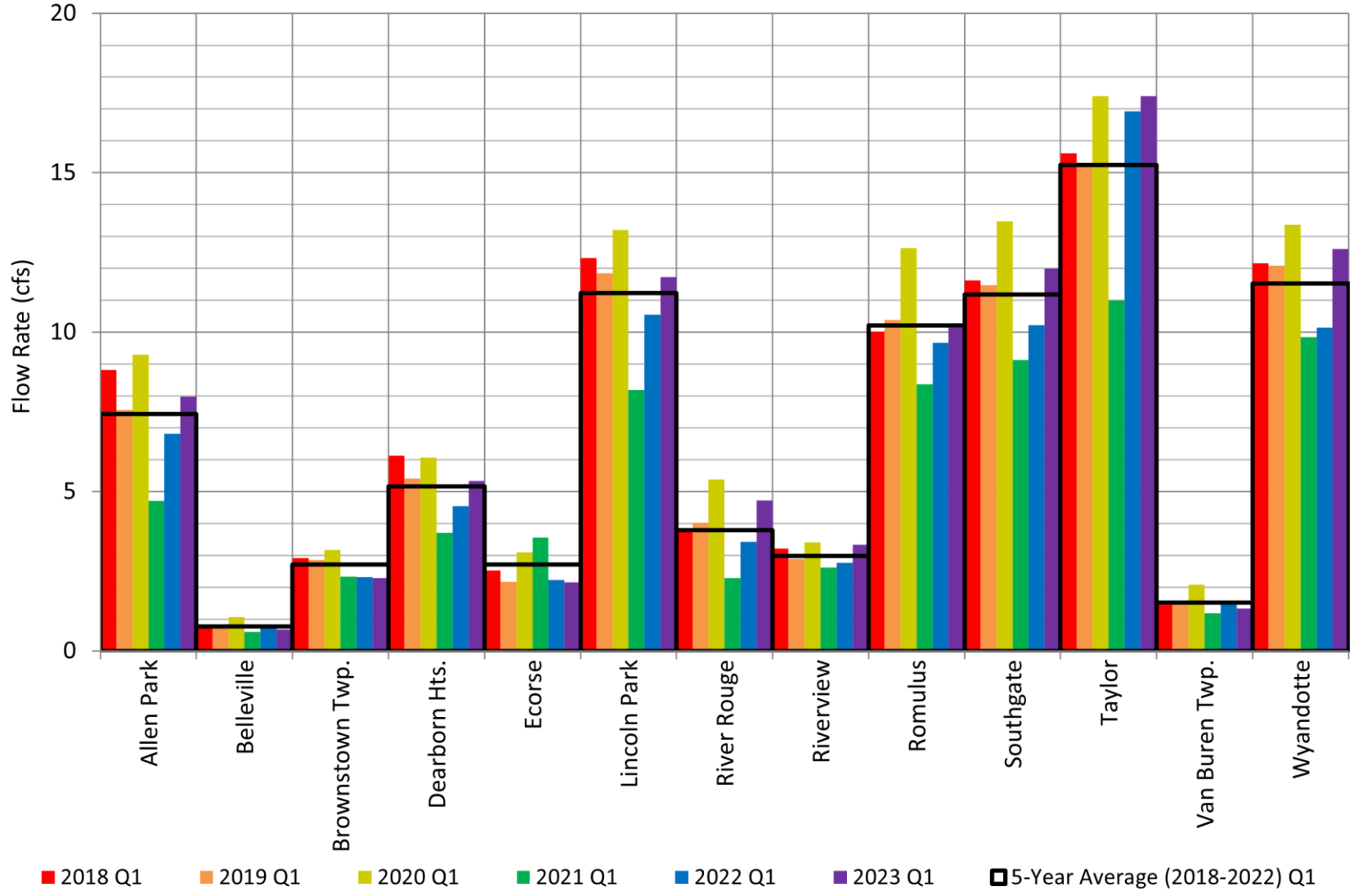


Figure 2-10
Average Q2 Flow Rate by Community for 2018 through 2023

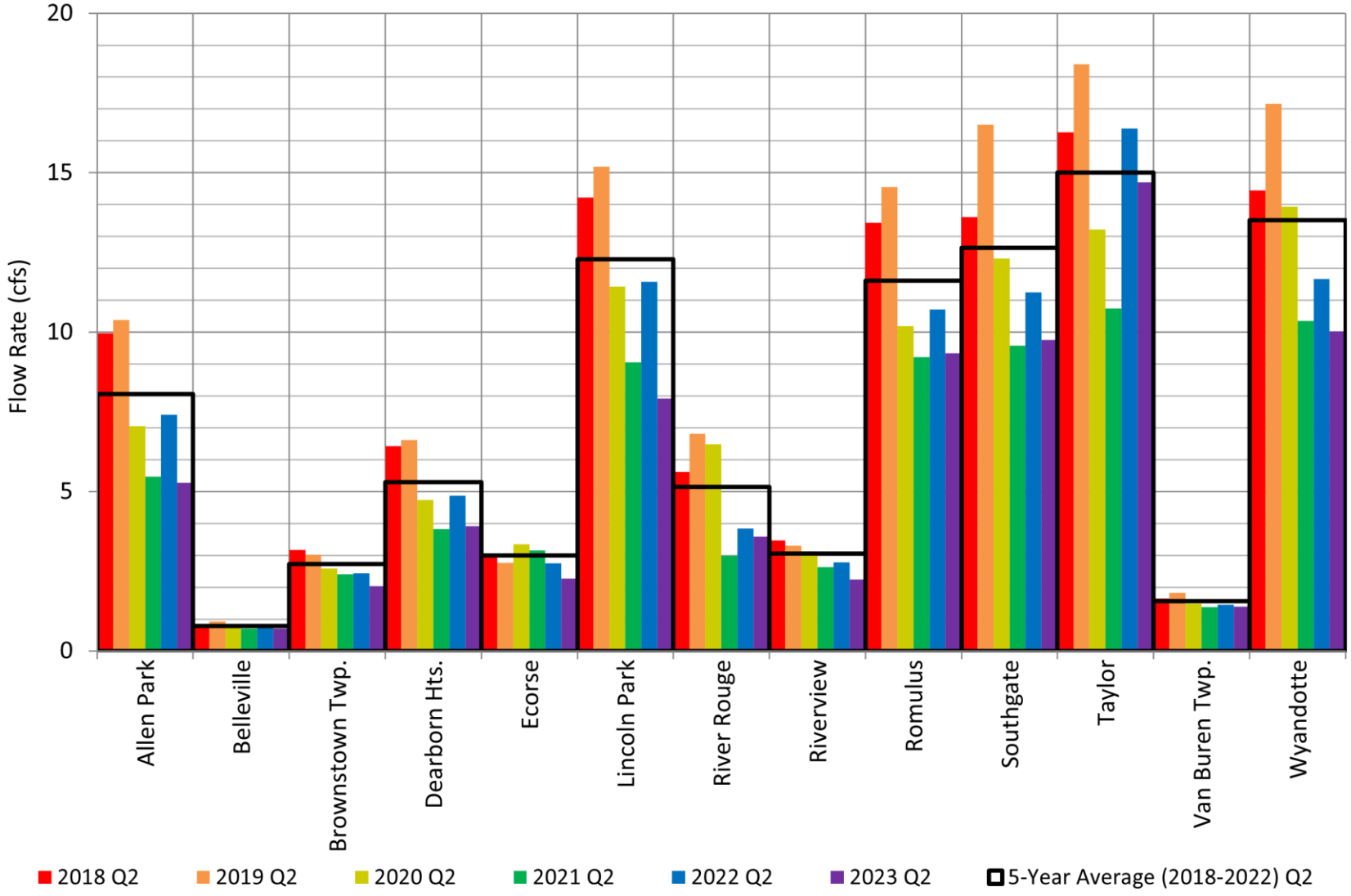


Figure 2-11
Average Q3 Flow Rate by Community for 2018 through 2023

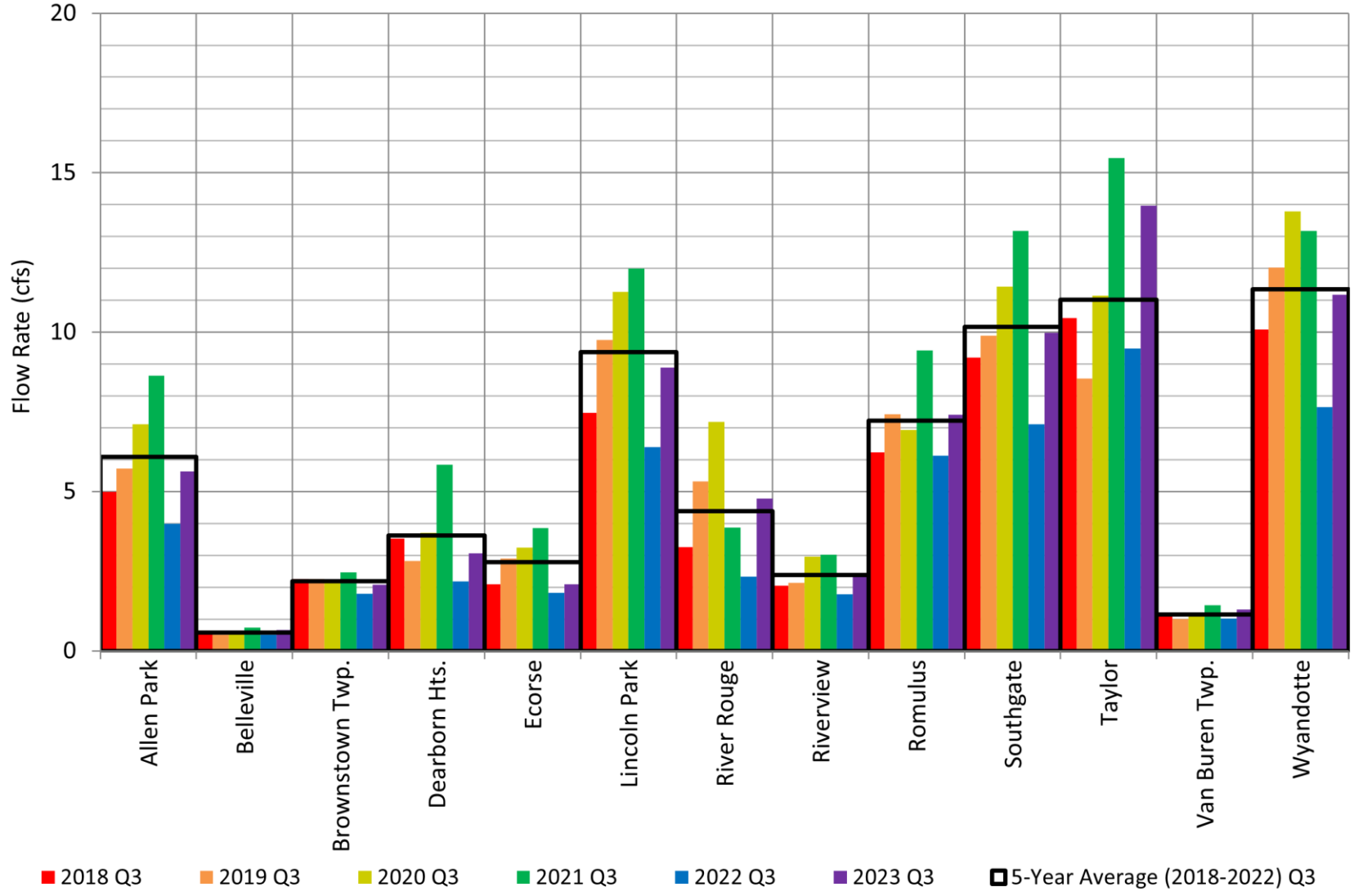


Figure 2-12
Average Q4 Flow Rate by Community for 2018 through 2023

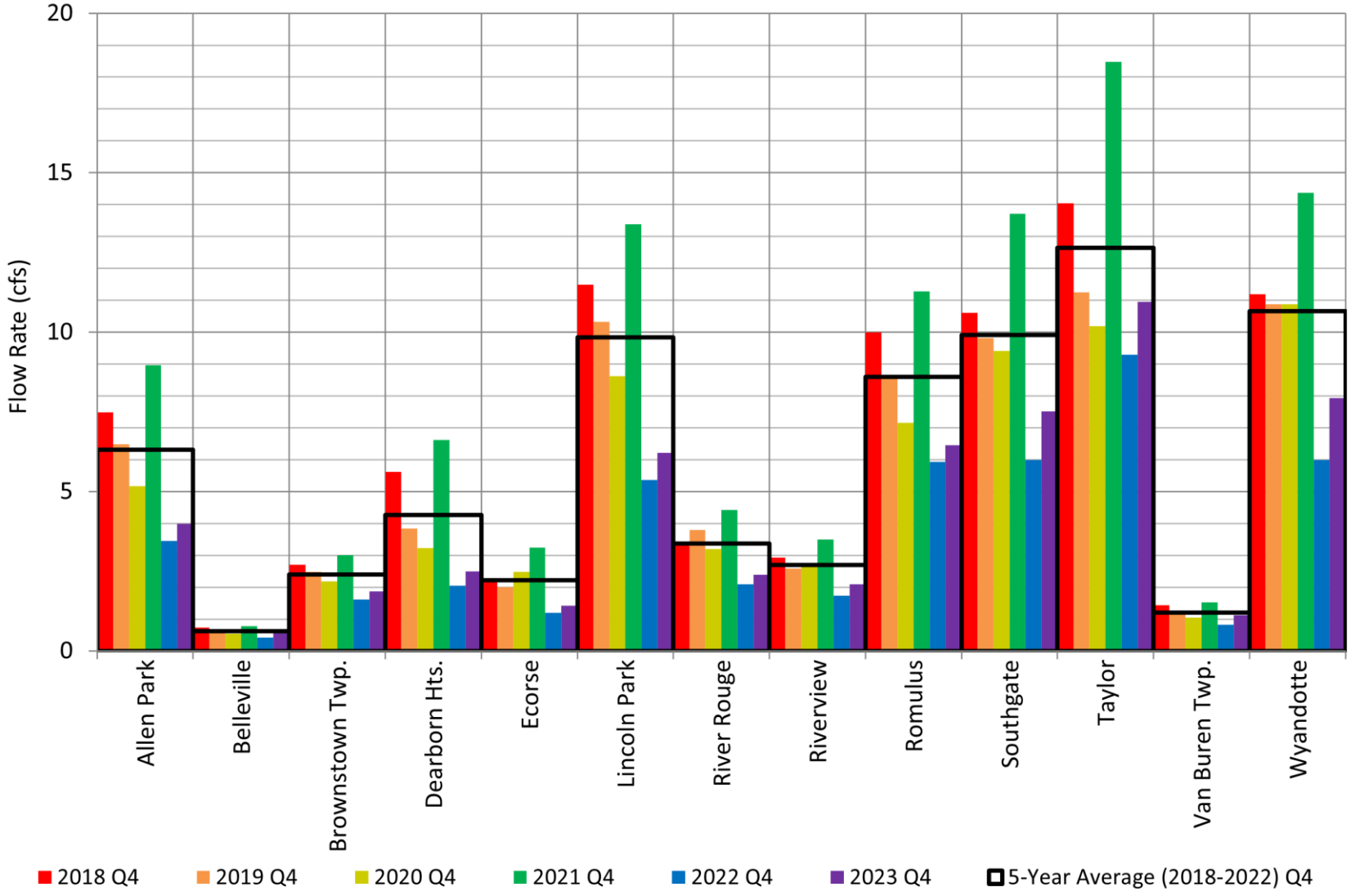
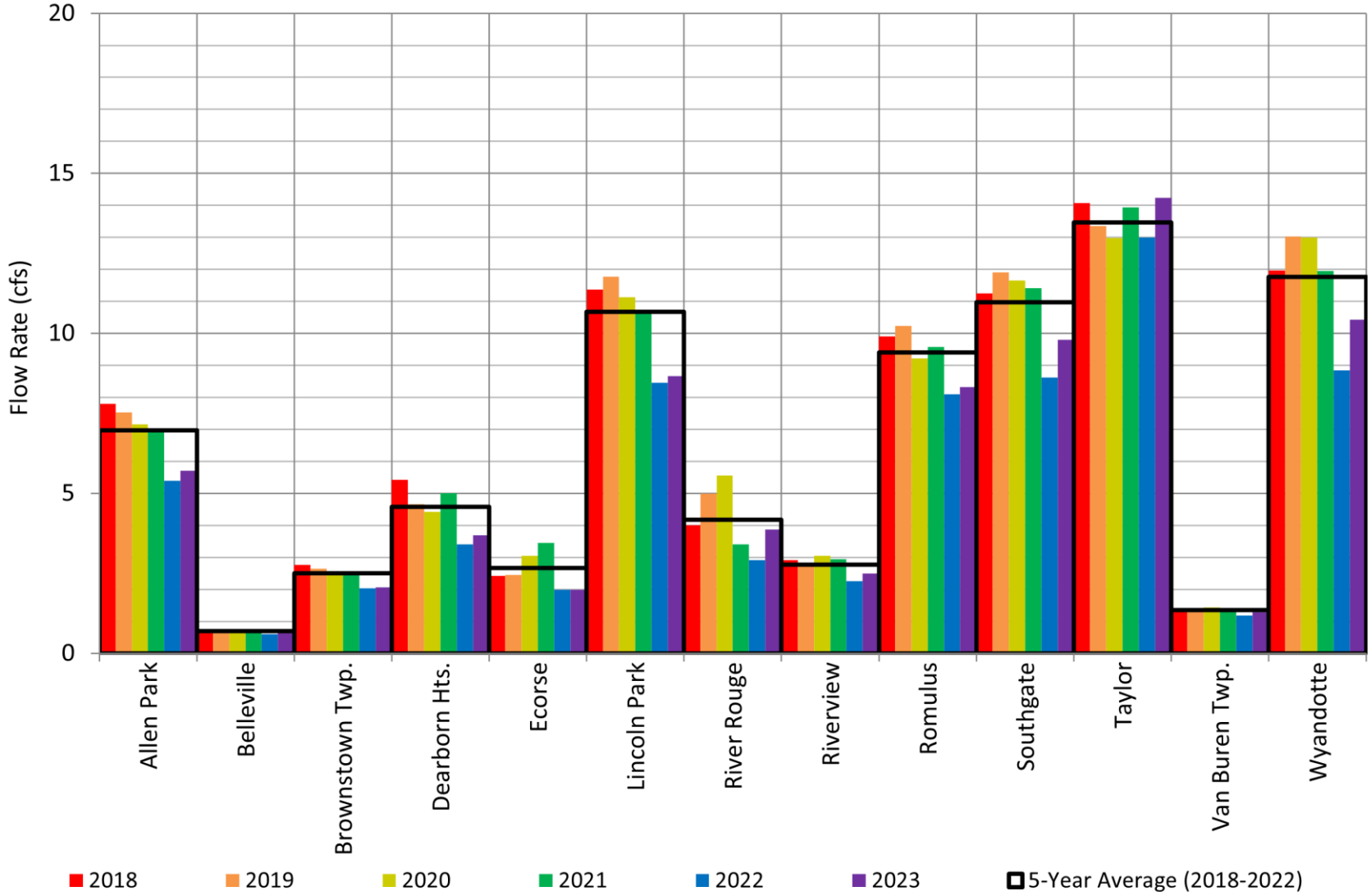


Table 2-12
Average Annual Flow Rate by Community for 2018 through 2023

Community	Average Flow Rate (cfs)						2018-2022 Average Flow Rate (cfs)
	2018	2018	2019	2020	2021	2023	
Allen Park	7.80	7.53	7.15	6.96	5.40	5.71	6.97
Belleville	0.71	0.70	0.73	0.70	0.60	0.65	0.69
Brownstown Twp.	2.76	2.65	2.53	2.55	2.04	2.06	2.50
Dearborn Hts.	5.42	4.67	4.43	5.01	3.40	3.69	4.58
Ecorse	2.43	2.46	3.04	3.45	1.99	1.98	2.67
Lincoln Park	11.36	11.76	11.12	10.67	8.45	8.67	10.67
River Rouge	4.00	4.98	5.56	3.40	2.92	3.87	4.17
Riverview	2.91	2.72	3.05	2.95	2.26	2.50	2.78
Romulus	9.91	10.23	9.21	9.58	8.09	8.32	9.40
Southgate	11.25	11.91	11.65	11.41	8.62	9.80	10.97
Taylor	14.08	13.35	12.98	13.94	12.99	14.23	13.47
Van Buren Twp.	1.40	1.37	1.44	1.38	1.18	1.28	1.35
Wyandotte	11.96	13.03	12.99	11.96	8.85	10.42	11.76
Total Incoming Flow Rate	85.98	87.36	85.88	83.96	66.80	73.20	82.00
DWTF Including Recycle (IPS + TPS)	96.51	92.29	91.43	85.86	68.89	78.04	86.99
Total Precipitation DTW (inches) =	43.81	36.38	38.73	39.99	24.40	36.63	36.66

Note: DWTF recycle flows have been metered since April 2020. To provide a consistent comparison to previous years recycle flow has not been deducted from IPS+TPS data for 2020 through 2023.

Figure 2-13
Average Annual Flow Rate by Community for 2018 through 2023



14. Interceptor inflow and infiltration has not been estimated and deducted from community flow rates.

15. Reverse flow at Meter SW occurs as hydraulically necessary for emergency operating conditions and/or storms greater than the design storm. Table 2-13 lists the estimated volume of reverse flow through Meter SW for the significant storm events in 2023. Reverse flow through Meter SW was estimated to have occurred for two out of the nine Significant Storm Events in 2023.

16. The DWTF primary and secondary treatment capacities are 150 and 137 MGD, respectively. The peak flow rate capacity of the DWTF is 237 MGD, with flow blending occurring at flow rates greater than 137 MGD. Under peak wet weather flow conditions, about 50 MGD receives both primary and secondary treatment, 100 MGD receives primary treatment only, and 87 MGD receives secondary treatment only. Table 2-13 lists the total volumes which bypassed primary and secondary treatment for each significant storm event. There was no bypass for Significant Storm Events in 2023.

Table 2-13
DWTF Primary and Secondary Treatment Bypass and Reverse Flow through Meter SW for Significant Storm Events for 2023

Major Storm Event	Significant Storm Event	Event Dates	Bypass of Primary Treatment (MG)	Bypass of Secondary Treatment (MG)	Reverse Flow through Meter SW (MG)
-	1	January 18-20, 2023	0	0	0
-	2	February 22-23, 2023	0	0	0
-	3	February 27-28, 2023	0	0	4.8
-	4	March 3-7, 2023	0	0	0
-	5	March 31-April 1, 2023	0	0	2.0
-	6	April 28-30, 2023	0	0	0
	7	June 25-27, 2023	0	0	0
	8	July 1-2, 2023	0	0	0
	9	August 23-25, 2023	0	0	0
Total			0	0	6.8

C) CONTROLLED FLOW COMMUNITIES OVERVIEW

1. The controlled flow communities are tributary to the Riverdrive Interceptor. Peak flow rates regulated to the MAFLs promote good performance of the Riverdrive Interceptor without surcharging at the monitoring locations. The peak hourly flow rates and peak depths for the flow meters along the Riverdrive Interceptor for the significant storm events are listed in Table 2-14. The total wet weather MAFLs are also given and are used to check whether the incoming flow rates are being regulated properly. The total wet weather MAFLs at the flow meter locations are the sum of the MAFLs for the upstream communities.

   Flow rates above the MAFL which occur after the peak of the storm event during dewatering operations of the Lincoln Park equalization basin or the Southgate Wyandotte Relief Drains Drainage District (SWRDDD) Combined Sewer Overflow (CSO) Retention Treatment Basin (RTB) and were coordinated with Veolia to minimize bypass operations at the DWTF and discharges to the Detroit River from SWRDDD, are not considered an exceedance.

Table 2-14
Peak Hourly Flow Rates and Depth for Controlled Flow Communities along the Riverdrive Interceptor for Significant Storms Events for 2023

Major Storm Event	Significant Storm Event	Peak Hourly Flow Rate (cfs)				Peak Depth (ft)			
		RR-1	EC-6	RD-1	SW+SWB	RR-1	EC-6	RD-1	SW
-	1	13.05	22.45	64.03	64.94	3.9	9.5	7.6	10.1
-	2	12.85	20.75	64.58	52.64	2.8	8.3	5.0[1]	10.5
-	3	13.00	29.52	66.37	73.06	6.7	11.7	10.0	14.4
-	4	12.30	26.07	59.75	77.61	2.6	8.8	7.4	10.9
-	5	13.12	27.48	53.68	58.38	5.6	9.4	8.8	13.3
-	6	10.85	19.14	51.26	61.38	2.4	4.4	3.2	9.4
-	7	12.19	21.64	54.69	81.21	2.7	3.4	4.7	10.2
-	8	12.37	30.84	65.69	71.23	6.3	10.4	8.6	11.5
-	9	13.33	29.70	64.12	49.68	7.3	11.1	9.2	11.6
MAFL (cfs)		11.26	23.46	65.82	31.73				
					Pipe Diameter (ft)	3.0	4.5	6.0	6.5
					Manhole Depth (ft)	16.0	24.8	27.2	40.0

Legend:

XX.XX	Exceeds wet weather MAFL by 0 to 5%
XX.XX	Exceeds wet weather MAFL by > 5%
XX.XX	Exceeds wet weather MAFL, coordinated with Veolia
XX.XX	Wastewater level exceeded sewer crown

Notes: 1) Meter RD-1 was out of service for the peak of Significant Storm Event 2.

2. The peak hourly flow rates at Meter RD-1 were below the total wet weather MAFL for eight significant storm events and exceeded the MAFL for one significant storm event in 2023. Flow meter RD-1 was out-of-service for Significant Storm Event 2 and the flow rate was estimated. These metrics indicate good performance of the Riverdrive Interceptor for the significant storm events in 2023.
3. The peak hourly flow rate at Meter SW was above the total wet weather MAFL during the nine significant storm events. However, the flow limit exceedances were operational decisions by Veolia to minimize discharges to the Detroit River from the SWRDDD.
4. Incremental flow rates are estimated for storm events when the metered peak hourly flow rate exceeded the MAFL by 5% or more. Table 2-15 lists the estimated incremental peak hourly flow rates for the flow meters along the Riverdrive Interceptor for these storm events. Incremental flow rates are used to check whether the incoming flow rates are being regulated properly.

Table 2-15
Estimated Incremental Peak Hourly Flow Rates for Controlled Flow Communities along the Riverdrive Interceptor for Significant Storms Events for 2023

Major Storm Event	Significant Storm Event	Incremental Peak Hourly Flow Rate (cfs)			
		RR-1	EC-6	RD-1	SW+SWB
-	1	13.05	14.66	48.35	64.94
-	2	12.85	8.07	44.37	52.64
-	3	13.00	19.28	44.71	73.06
-	4	12.30	13.81	44.76	77.61
-	5	13.12	15.76	42.49	58.38
-	6	10.85	9.94	40.00	61.38
-	7	12.19	13.57	47.91	81.21
-	8	12.37	21.28	51.45	71.23
-	9	13.33	24.45	48.90	49.68
Incremental MAFL (cfs)		11.26	12.20	42.36	31.73

Legend:

XX.XX	Exceeds wet weather MAFL by 0 to 5%
XX.XX	Exceeds wet weather MAFL by > 5%
XX.XX	Exceeds wet weather MAFL coordinated with Veolia

5. The Meter RR-1 district includes all of River Rouge. Wastewater from River Rouge is pumped from the River Rouge CSO RTB to the Riverdrive Interceptor. No flow meter exists on the pump station discharge pipe. The pumps are operated to maintain a maximum level in the Riverdrive Interceptor immediately downstream of the River Rouge CSO RTB. This sometimes results in an exceedance of the MAFL. The flow rates estimated for the Meter RR-1 district exceeded the MAFL for eight of the nine significant storm events in 2023.

6. The Meter EC-6 district includes all of Ecorse and a portion of Lincoln Park. The district has three connection points from Ecorse which flow by gravity and have orifice plates installed to regulate the flow rates. The district has two connection points from Lincoln Park. The larger connection flows by gravity and has a vortex valve installed to regulate the flow rate into the Riverdrive Interceptor, and the smaller connection serves the Libra Hospital of Southeastern Michigan on Outer Drive. The incremental flow rates estimated for the Meter EC-6 district exceeded the MAFL for seven of the nine significant storm events in 2023.

7. The Meter RD-1 district includes most of the portion of Allen Park served by DUWA (the northern portion of Allen Park is served by GLWA) and most of Lincoln Park. Flow from a portion of Allen Park flows through Lincoln Park to the Riverdrive Interceptor. The district has three connection points from Lincoln Park which flow by gravity and have either an orifice plate or vortex valve installed to regulate the flow rates. The Lincoln Park equalization basin dewatering pipe is controlled via a ball valve to regulate the flow rate into the Riverdrive Interceptor. Flow rates above the MAFL which occur after the peak of the storm event during dewatering operations of the Lincoln Park equalization basin, and were coordinated with Veolia to minimize bypass operations at the DWTF, are not considered an exceedance. The incremental flow rates estimated for the Meter RD-1 district exceeded the MAFL for eight of the nine significant storm events in 2023.

8. The Meter SW district serves the SWRDDD. The SWRDDD is a combined sewer area that includes part of Southgate and all of Wyandotte. Veolia coordinates operations of the SWRDDD facilities and the DWTF to minimize bypass of secondary treatment at the DWTF and discharges to the Detroit River from SWRDDD. As previously discussed, the peak hourly flow rate at Meter SW was above the total wet weather MAFL for all nine significant storm events in 2023. However, the flow limit exceedances were operational decisions by Veolia to minimize discharges to the Detroit River from the SWRDDD. Therefore, SWRDDD had permission to exceed its MAFL for these events.

D) NON-CONTROLLED FLOW COMMUNITIES OVERVIEW

1. The non-controlled flow communities are tributary to both the Pennsylvania Interceptor system and the Downriver Regional Storage and Transport System (DRSTS) and have allowable peak 96-hour volumes that were established for the 4.42-inch design storm. There were no major storm events in 2023. The estimated peak 96-hour total volumes for the 2023 major storm events are listed in Table 2-16.

Table 2-16
Peak 96-Hour Total Volumes for Non-Controlled Flow Communities
for Major Storms Events for 2023

Community	Total Volume (MG)	
	4.42 inch Design Storm	***No Major Storm Events***
Allen Park (part)	29.23	-
Belleville	4.86	-
Brownstown Twp.	20.90	-
Dearborn Heights	43.76	-
Riverview	28.30	-
Romulus	88.43	-
Southgate (part)	31.24	-
Taylor	164.45	-
Van Buren Twp.	7.04	-
Total	418.21	-

Legend:

XX.XX	Exceeds design storm volume by 0 to 20%
XX.XX	Exceeds design storm volume by > 20%

2. Monitoring devices indicated no issues with the DRSTS performance during all storm events for 2023.

3. The connections from the interceptor system to the DRSTS are termed as "overflows". These overflows are from one part of the DSDS to another part of the DSDS and are not overflows to the environment. Table 2-17 lists the monitored overflow structures that were indicated to have overflowed to the DRSTS for each significant storm event in 2023. At least one of the monitored overflow structures overflowed into the DRSTS during Significant Storm Events 1, 2, 3, 4, 5, 8 and 9. None of the monitored overflow structures overflowed into the DRSTS for Significant Storm Events 6 or 7.

Table 2-17
Downriver Regional Storage and Transport System Usage
for Significant Storm Events for 2023

Major Storm Event	Significant Storm Event	Event Dates	Meter									
			TPS	TSO	CHPO	CPO	PDO	ER-2	ER-1	APO-2	APO-1	PM-1
-	1	1/18-20/2023	✓	✓	✓	✓	×	×	×	✓	✓	×
-	2	2/22-23/2023	✓	✓	✓	✓	×	×	×	✓	✓	×
-	3	2/27-28/2023	✓	✓	✓	✓	×	✓	✓	✓	✓	✓
-	4	3/3-4/2023	✓	✓	✓	✓	×	✓	✓	✓	✓	×
-	5	3/31/2023 – 4/1/2023	✓	✓	✓	✓	×	✓	✓	✓	✓	✓
-	6	4/28-30/2023	×	×	×	×	×	×	×	×	×	×
-	7	6/25-27/2023	×	×	×	×	×	×	×	×	×	×
-	8	7/1-2/2023	✓	×	✓	✓	×	×	×	✓	✓	×
-	9	8/23-25/2023	✓	✓	✓	✓	×	✓	✓	✓	✓	×
Number of Overflow Events			7/9	6/9	7/9	7/9	0/9	4/9	4/9	7/9	7/9	2/9

Legend:

✓	Discharge to DRSTS
×	No discharge to DRSTS

4. Figures 2-14 and 2-15 plot the total 96-hour volume for the non-controlled flow communities versus precipitation for the major storm events from 2013 through 2023. Figure 2-14 shows the growing season events (those that occurred between May 1st and September 30th), and Figure 2-15 shows the non-growing season events (those that occurred between October 1st and April 30th). The 4.42-inch design storm volume is shown for comparison. There are no major storm events in 2023.

Figure 2-14
Total 96-Hour Volume for the Non-Controlled Flow Communities for Major Storms Events
Growing Season from 2013 through 2023

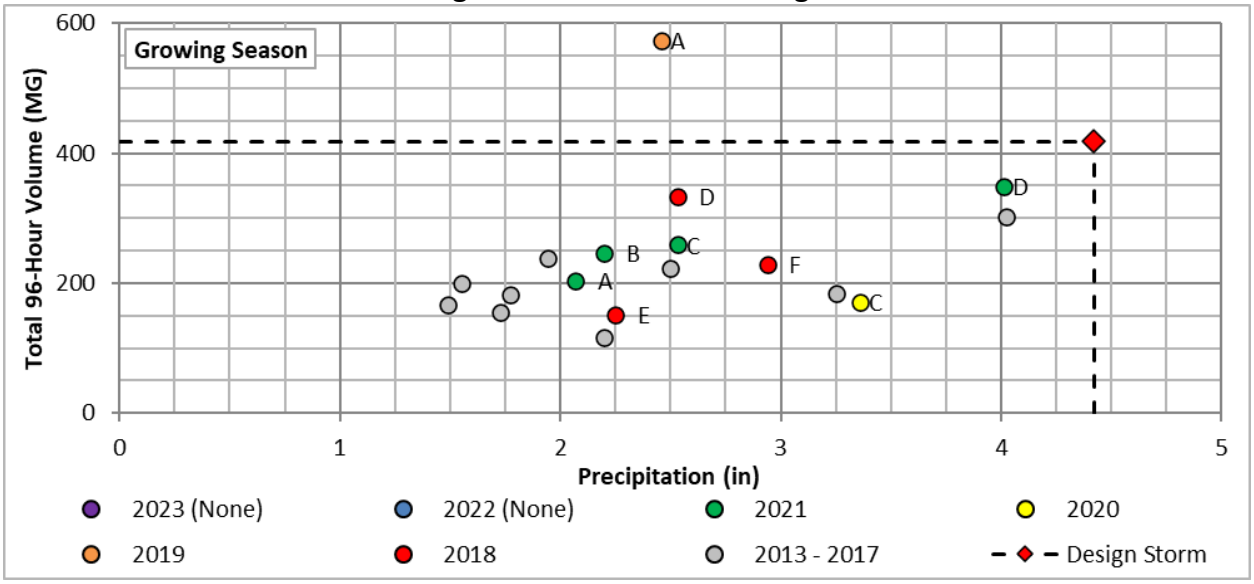
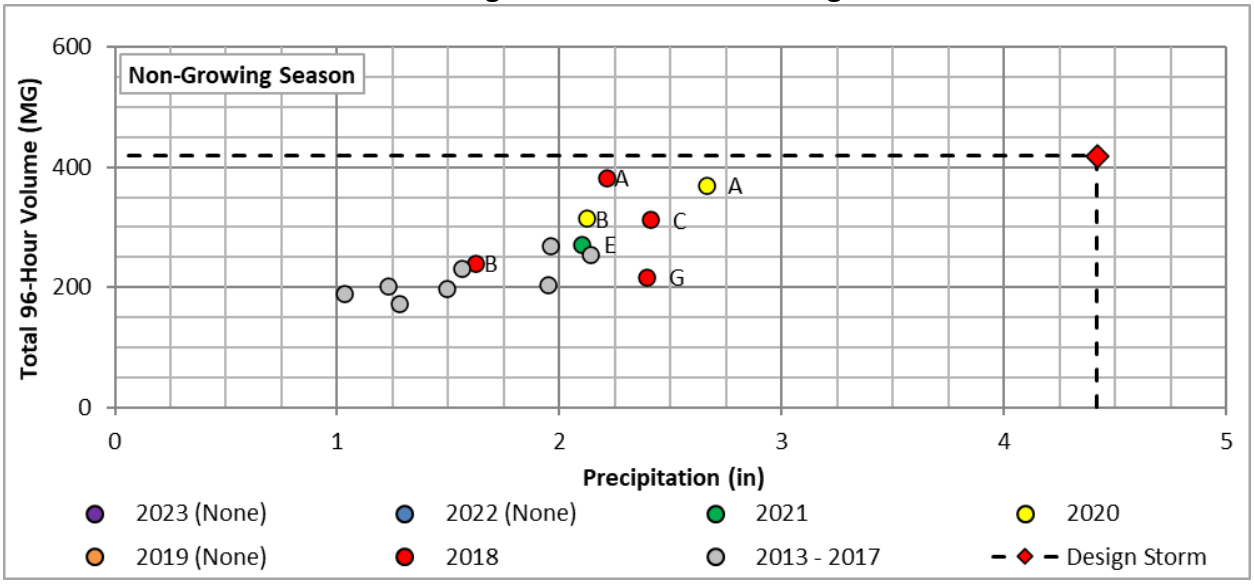


Figure 2-15
Total 96-Hour Volume for the Non-Controlled Flow Communities for Major Storms Events
Non-Growing Season from 2013 through 2023



5. The non-controlled flow communities have dry weather MAFLs. The portion of Meter District PA-2 in Taylor was estimated to have exceeded its proportion of the total Taylor dry weather MAFL for January through December 2023. No portion of any other meter district was estimated to have exceeded its dry weather MAFL for any month in 2023. No community was estimated to have exceeded its dry weather MAFL on a total community basis for any month in 2023.

3) SUMMARY BY COMMUNITY

Table 3-1 presents the estimated average monthly flow rate for each community in the DSDS for each month in 2023. The average monthly flow rate includes all days – both dry and wet weather. Table 3-1 also shows the percentages for each community of the incoming flow rate to the DWTF. The estimated average monthly flow rates are plotted on Figure 3-1, and the percentages are plotted on Figure 3-2.

The incoming flow rate to the DWTF is based on the interceptor system flow meters. It is given on Table 3-1 along with the average monthly influent pumping rate at the DWTF. The DWTF influent pumping rate includes recycle flow rates where the incoming flow rate measured by the interceptor system meters does not include DWTF recycle flow rates. Therefore, it is expected that the incoming flow rate measured by the sum of the interceptor system meters will be slightly less than the DWTF influent flow rate.

DWTF recycle flows have been metered since April 2020. To provide a consistent comparison to previous years, the table presents the IPS and TPS data with and without the recycle flow deducted.

The average monthly flow rates are subtotaled for controlled flow communities and for non-controlled flow communities. Tables 3-2 and 3-3 provide the breakdown of average monthly flow rates for controlled flow communities and non-controlled flow communities, respectively.

Table 3-1
Average Monthly Flow Rates by Community for 2023

Community	Flow Rate (cfs)												
	January	February	March	April	May	June	July	August	September	October	November	December	Average Annual
Allen Park	6.57	7.45	9.87	7.99	3.87	4.02	7.26	5.95	3.64	3.73	3.14	5.07	5.71
Belleville	0.52	0.63	0.88	0.91	0.66	0.56	0.60	0.71	0.68	0.55	0.54	0.61	0.65
Brownstown Twp.	2.02	2.24	2.60	2.36	1.97	1.79	1.98	2.34	1.89	1.86	1.77	1.96	2.06
Dearborn Hts.	3.78	4.92	7.27	6.34	3.05	2.39	3.39	3.48	2.28	2.25	2.16	3.09	3.69
Ecorse	1.58	2.00	2.84	2.64	2.13	2.06	2.39	2.38	1.49	1.36	1.39	1.49	1.98
Lincoln Park	10.15	10.62	14.28	11.16	6.12	6.53	11.44	9.43	5.70	5.83	4.90	7.87	8.67
River Rouge	3.91	4.40	5.83	5.04	2.99	2.73	6.25	5.21	2.81	2.19	2.05	2.94	3.87
Riverview	2.80	3.46	3.73	2.82	1.89	2.04	2.46	2.81	1.79	2.00	1.84	2.41	2.50
Romulus	8.83	9.57	11.99	12.71	8.75	6.55	7.65	8.46	6.08	5.91	5.66	7.78	8.32
Southgate	10.23	10.68	14.95	12.38	8.55	8.37	11.58	10.07	8.22	7.34	6.15	9.01	9.80
Taylor	13.00	15.95	23.13	19.58	13.38	11.18	14.24	16.26	11.29	10.12	10.40	12.28	14.23
Van Buren Twp.	1.02	1.23	1.72	1.78	1.29	1.10	1.18	1.39	1.32	1.09	1.06	1.19	1.28
Wyandotte	11.28	10.64	15.70	12.19	8.67	9.27	13.68	10.60	9.17	7.94	6.02	9.79	10.42
Subtotal Controlled Flow Communities	39.48	40.02	56.05	44.46	28.27	29.58	48.31	39.11	27.74	25.29	20.58	32.37	35.96
Subtotal Non-Controlled Flow Communities	36.22	43.79	58.74	53.44	35.04	29.00	35.77	39.97	28.61	26.88	26.48	33.11	37.23
Total Incoming Flow Rate	75.70	83.81	114.78	97.91	63.31	58.58	84.08	79.08	56.36	52.18	47.07	65.48	73.20
DWTF Including Recycle (IPS + TPS)	81.66	90.69	122.07	103.67	67.17	62.38	89.89	83.00	57.97	55.26	49.49	73.20	78.04
DWTF without Recycle (IPS + TPS - Recycle)	76.90	84.49	115.50	97.19	59.29	56.04	83.25	76.60	53.06	49.75	45.10	67.93	72.09
Recycle	4.76	6.20	6.58	6.48	7.88	6.34	6.64	6.40	4.91	5.51	4.39	5.27	5.95
Total Precipitation DTW (inches)	3.05	2.99	4.11	2.88	0.92	3.19	5.37	6.50	2.28	2.10	0.99	2.25	36.63
Normal Precipitation at DTW (inches)	2.23	2.08	2.43	3.26	3.72	3.26	3.51	3.26	3.22	2.53	2.57	2.25	34.32
Departure from Normal (inches)	+0.82	+0.91	+1.68	-0.38	-2.80	-0.07	+1.86	+3.24	-0.94	-0.43	-1.58	+0.00	+2.31

Percentage of Total Incoming Flow Rate by Community for 2023

Community	January	February	March	April	May	June	July	August	September	October	November	December	Average Annual
Allen Park	8.7%	8.9%	8.6%	8.2%	6.1%	6.9%	8.6%	7.5%	6.5%	7.1%	6.7%	7.7%	7.6%
Belleville	0.7%	0.7%	0.8%	0.9%	1.0%	1.0%	0.7%	0.9%	1.2%	1.1%	1.1%	0.9%	0.9%
Brownstown Twp.	2.7%	2.7%	2.3%	2.4%	3.1%	3.0%	2.4%	3.0%	3.3%	3.6%	3.8%	3.0%	2.9%
Dearborn Hts.	5.0%	5.9%	6.3%	6.5%	4.8%	4.1%	4.0%	4.4%	4.1%	4.3%	4.6%	4.7%	4.9%
Ecorse	2.1%	2.4%	2.5%	2.7%	3.4%	3.5%	2.8%	3.0%	2.6%	2.6%	3.0%	2.3%	2.7%
Lincoln Park	13.4%	12.7%	12.4%	11.4%	9.7%	11.1%	13.6%	11.9%	10.1%	11.2%	10.4%	12.0%	11.7%
River Rouge	5.2%	5.3%	5.1%	5.1%	4.7%	4.7%	7.4%	6.6%	5.0%	4.2%	4.3%	4.5%	5.2%
Riverview	3.7%	4.1%	3.2%	2.9%	3.0%	3.5%	2.9%	3.5%	3.2%	3.8%	3.9%	3.7%	3.5%
Romulus	11.7%	11.4%	10.4%	13.0%	13.8%	11.2%	9.1%	10.7%	10.8%	11.3%	12.0%	11.9%	11.4%
Southgate	13.5%	12.7%	13.0%	12.6%	13.5%	14.3%	13.8%	12.7%	14.6%	14.1%	13.1%	13.8%	13.5%
Taylor	17.2%	19.0%	20.1%	20.0%	21.1%	19.1%	16.9%	20.6%	20.0%	19.4%	22.1%	18.8%	19.5%
Van Buren Twp.	1.3%	1.5%	1.5%	1.8%	2.0%	1.9%	1.4%	1.8%	2.4%	2.1%	2.3%	1.8%	1.8%
Wyandotte	14.9%	12.7%	13.7%	12.5%	13.7%	15.8%	16.3%	13.4%	16.3%	15.2%	12.8%	14.9%	14.4%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure 3-1
Total Incoming Flow Rate to the DWTF for 2023

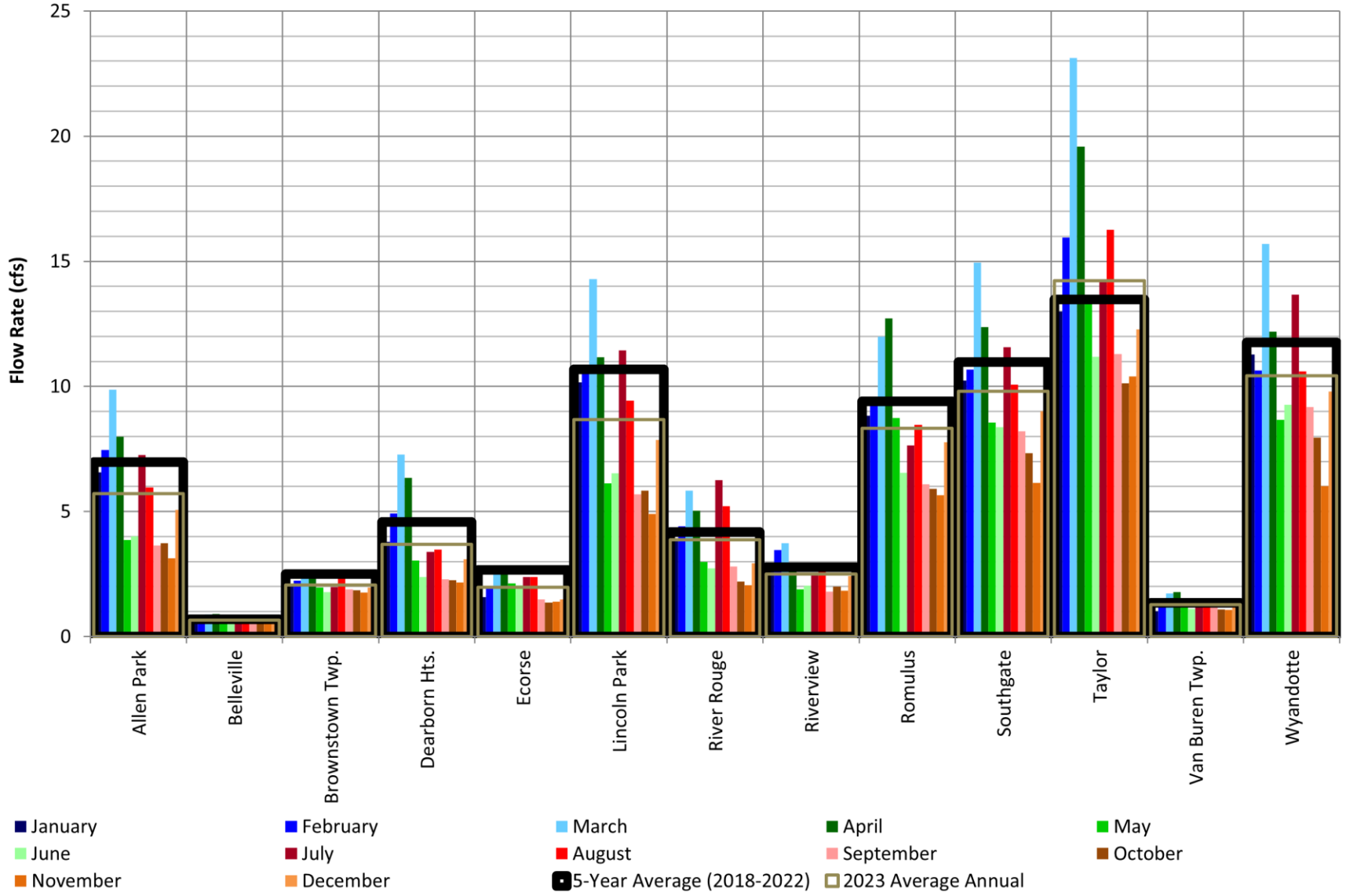


Figure 3-2
Percent of Total Incoming Flow Rate to the DWTF for 2023

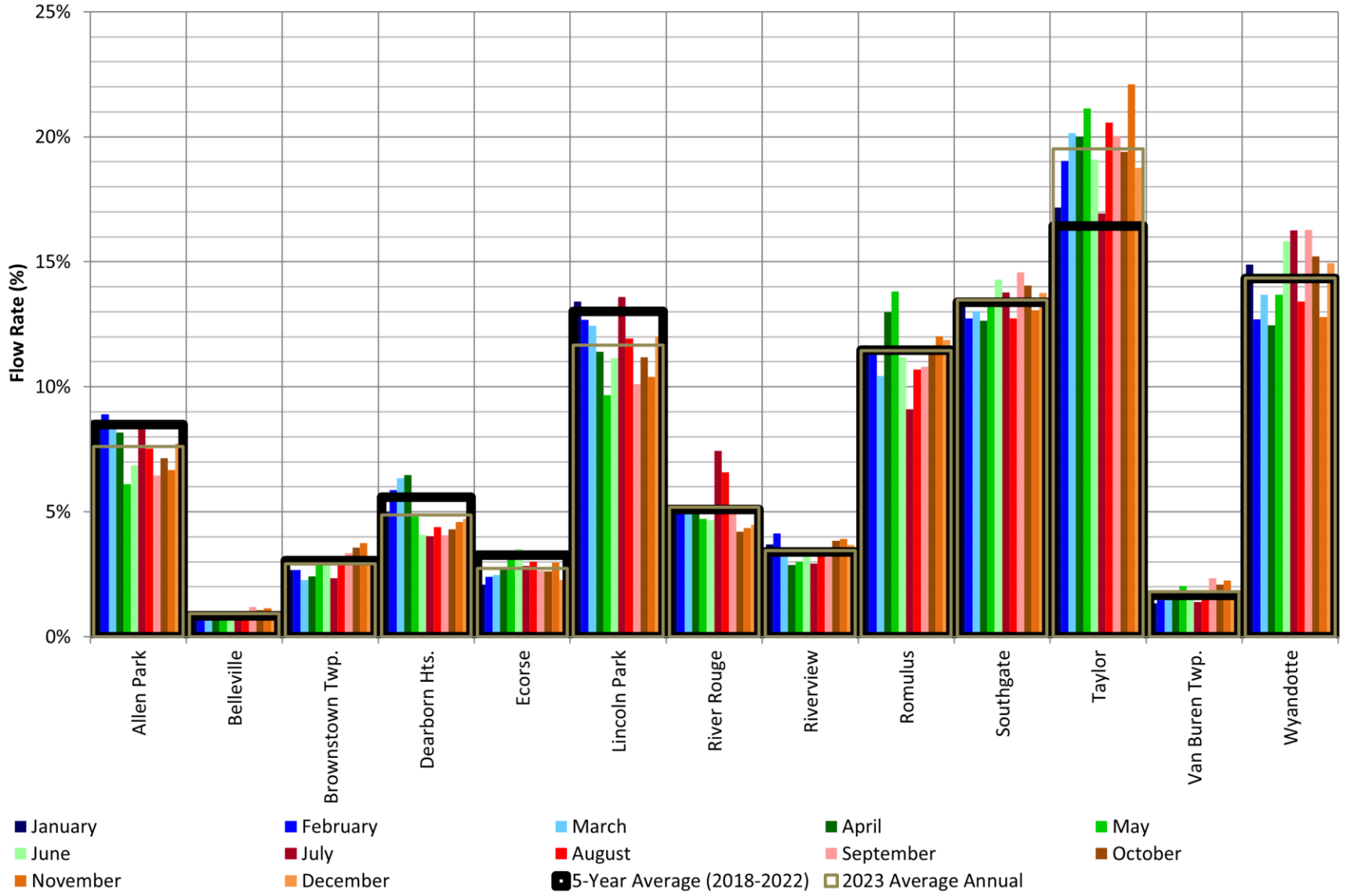


Table 3-2

Average Monthly Flow Rates for Controlled Flow Communities for 2023

Community	Flow Rate (cfs)												
	January	February	March	April	May	June	July	August	September	October	November	December	Average Annual
Allen Park (part)	5.81	5.98	7.99	6.13	3.18	3.45	6.37	5.14	3.09	3.21	2.63	4.42	4.78
Ecorse	1.58	2.00	2.84	2.64	2.13	2.06	2.39	2.38	1.49	1.36	1.39	1.49	1.98
Lincoln Park	10.15	10.62	14.28	11.16	6.12	6.53	11.44	9.43	5.70	5.83	4.90	7.87	8.67
River Rouge	3.91	4.40	5.83	5.04	2.99	2.73	6.25	5.21	2.81	2.19	2.05	2.94	3.87
Southgate - Wyandotte RDDD	18.03	17.01	25.10	19.49	13.86	14.82	21.86	16.94	14.66	12.70	9.62	15.65	16.66
Total	39.48	40.02	56.05	44.46	28.27	29.58	48.31	39.11	27.74	25.29	20.58	32.37	35.96
Total Precipitation DTW (inches)	3.05	2.99	4.11	2.88	0.92	3.19	5.37	6.50	2.28	2.10	0.99	2.25	36.63

Table 3-3

Average Monthly Flow Rates for Non-Controlled Flow Communities for 2023

Community	Flow Rate (cfs)												
	January	February	March	April	May	June	July	August	September	October	November	December	Average Annual
Allen Park (part)	0.76	1.48	1.88	1.86	0.70	0.57	0.89	0.81	0.55	0.52	0.51	0.64	0.93
Belleville	0.52	0.63	0.88	0.91	0.66	0.56	0.60	0.71	0.68	0.55	0.54	0.61	0.65
Brownstown Twp.	2.02	2.24	2.60	2.36	1.97	1.79	1.98	2.34	1.89	1.86	1.77	1.96	2.06
Dearborn Hts.	3.78	4.92	7.27	6.34	3.05	2.39	3.39	3.48	2.28	2.25	2.16	3.09	3.69
Riverview	2.80	3.46	3.73	2.82	1.89	2.04	2.46	2.81	1.79	2.00	1.84	2.41	2.50
Romulus	8.83	9.57	11.99	12.71	8.75	6.55	7.65	8.46	6.08	5.91	5.66	7.78	8.32
Southgate (part)	3.48	4.31	5.55	5.08	3.36	2.82	3.39	3.72	2.73	2.58	2.54	3.15	3.56
Taylor	13.00	15.95	23.13	19.58	13.38	11.18	14.24	16.26	11.29	10.12	10.40	12.28	14.23
Van Buren Twp.	1.02	1.23	1.72	1.78	1.29	1.10	1.18	1.39	1.32	1.09	1.06	1.19	1.28
Total	36.22	43.79	58.74	53.44	35.04	29.00	35.77	39.97	28.61	26.88	26.48	33.11	37.23
Total Precipitation DTW (inches)	3.05	2.99	4.11	2.88	0.92	3.19	5.37	6.50	2.28	2.10	0.99	2.25	36.63

4) DRY WEATHER SUMMARY

Table 4-1 lists the incremental monthly flow rates for each community summarized by meter district component. Incremental average daily flow rates are given along with an estimate of the average daily dry weather flow rates. The Year 2020 residential population is given on Table 4-1 and it is used to estimate per-capita dry weather flow rates. Appendix A contains a set of tables that further support the monthly flow rates presented on Tables 3-1, 3-2, 3-3 and 4-1. In addition, Table 4-1 lists MAFLs from the Downriver Utility Wastewater Authority Service Agreement (March 21, 2018).

A single set of dry days was used to estimate the dry weather flow rates for all of the meters, with the number of dry days in each month listed in Table 5-1. Daily average flow rates for Meters P-2, PA-1, PB-1, PC-1, RD-1, and RV-1 were used for screening out dry and wet weather days. These meters were chosen because they are near the downstream end of the interceptor system, include some dewatering flow rates, and provide a well-defined sort of dry/wet days. Details of the dry and wet weather day selection process are provided in the *Wayne County Downriver Sewage Disposal System - System Monitoring Plan* dated May 7, 2018.

Table 4-1
Monthly Incremental Flow Rates Summarized by Community

Community	Sewage Flow Meter Math	Meter District	Year 2020 Incremental Residential Population	January 2023			February 2023			March 2023			Dry Weather MAFLs for Controlled Flow Communities[1] (cfs)	Dry Weather MAFLs for Non-Controlled Flow Communities[1] (cfs)
				Total	Dry Weather		Total	Dry Weather		Total	Dry Weather			
				Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)		
Allen Park	2.7%([PC-1]+[CPO]+[CHPO]-[TB-1])	PC-1	716	0.17	0.14	128	0.21	0.16	145	0.28	0.23	209	-	0.43
	+ 17.4%([P-1]+[PM-1]-[P-2]-[PA-2]-[PB-1]-[PD-1]-[PC-1])	P-1	2,338	0.53	0.47	131	0.67	0.50	138	0.88	0.70	195	-	1.58
	+ 38.1%([RD-1]-[EC-6])	RD-1	22,170	5.81	3.93	115	5.98	3.27	95	7.99	4.42	129	17.20	-
	+ ([APO-1] + [APO-2])	APO-1 + APO-2	0	0.06	0.00	-	0.60	0.00	-	0.72	0.00	-	-	-
		Total	25,224	6.57	4.55	116	7.45	3.93	101	9.87	5.35	137	-	2.01
Belleville	33.8%[PA-4]	PA-4	4,008	0.52	0.50	80	0.63	0.56	90	0.88	0.82	132	-	1.32
Brownstown Twp.	99.9%[P-2]	P-2	11,002	2.01	1.90	112	2.23	1.93	114	2.59	2.28	134	-	3.91
	+ 0.2%([PA-2]+[ER-1]-[PA-3]-[ER-2])	PA-2	29	0.01	0.01	144	0.01	0.01	126	0.01	0.01	245	-	0.06
		Total	11,031	2.02	1.91	112	2.24	1.94	114	2.60	2.29	134	-	3.97
Dearborn Hts.	77.7%([TB-1]+[TSO])	TB-1	19,472	3.78	2.93	97	4.92	3.31	110	7.27	4.99	165	-	8.22
Ecorse	69.1%([EC-6]-[RR-1])	EC-6	9,305	1.58	1.45	101	2.00	1.55	107	2.84	2.40	166	9.20	-
Lincoln Park	30.9%([EC-6]-[RR-1])	EC-6	4,169	0.71	0.65	101	0.90	0.69	107	1.27	1.07	166	3.00	-
	+ 61.9%([RD-1]-[EC-6])	RD-1	36,076	9.45	6.40	115	9.73	5.32	95	13.01	7.19	129	25.16	-
		Total	40,245	10.15	7.05	113	10.62	6.01	97	14.28	8.26	133	28.16	-
River Rouge	[RR-1]	RR-1	7,224	3.91	2.93	262	4.40	3.03	271	5.83	4.00	358	11.26	-
Riverview	[RV-1]	RV-1	12,490	2.80	2.17	112	3.46	2.18	113	3.73	2.52	131	-	3.61
Romulus	([PA-3]+[ER-2]-[PA-4])	PA-3	14,420	3.55	3.44	154	4.27	3.83	172	5.21	4.56	204	-	6.39
	+ [DTW Pond 3 West]	DMA-2	0	1.95	1.85	-	1.65	1.56	-	2.14	2.18	-	-	9.02
	+ ([PD-2] - [DTW Pond 3 West])	PD-2	8,069	3.32	3.14	251	3.65	3.27	262	4.63	3.88	311	-	
		Total	22,489	8.83	8.43	242	9.57	8.67	249	11.99	10.61	305	-	15.41
Southgate	(82.6% + 5.4%)([P-1]+[PM-1]-[P-2]-[PA-2]-[PB-1]-[PD-1]-[PC-1])	P-1 & TPS+IPS	11,797	2.69	2.38	131	3.36	2.53	138	4.43	3.56	195	-	3.71
	+ 38.9%[PB-1]	PB-1	3,214	0.79	0.68	136	0.94	0.70	141	1.11	0.86	174	-	1.42
	+ 37.5%([SW]+[SWB])	SW	15,003	6.75	4.43	191	6.37	4.59	198	9.40	6.68	288	11.88	-
		Total	30,014	10.23	7.49	161	10.68	7.82	168	14.95	11.10	239	-	5.13
Taylor	0.1%[P-2]	P-2	10	0.00	0.00	112	0.00	0.00	114	0.00	0.00	134	-	0.08
	+ 99.8%([PA-2]+[ER-1]-[PA-3]-[ER-2])	PA-2	14,125	3.40	***3.14***	144	3.73	***2.75***	126	6.73	***5.36***	245	-	2.40
	+ 61.1%[PB-1]	PB-1	5,040	1.24	1.06	136	1.48	1.10	141	1.74	1.35	174	-	2.15
	+ 22.3%([TB-1]+[TSO])	TB-1	5,574	1.08	0.84	97	1.41	0.95	110	2.08	1.43	165	-	2.29
	+ 97.3%([PC-1]+[CPO]+[CHPO]-[TB-1])	PC-1	25,577	6.10	5.07	128	7.46	5.74	145	9.97	8.27	209	-	11.03
	+ ([PD-1]-[PD-2])	PD-1	13,083	1.17	1.02	50	1.87	1.36	67	2.60	2.03	100	-	4.01
		Total	63,409	13.00	11.13	113	15.95	11.90	121	23.13	18.44	188	-	21.96
Van Buren Twp.	66.2%[PA-4]	PA-4	7,865	1.02	0.98	80	1.23	1.09	90	1.72	1.60	132	-	2.37
Wyandotte	62.5%([SW]+[SWB])	SW	25,058	11.28	7.40	191	10.64	7.67	198	15.70	11.16	288	19.85	-

Subtotal Controlled Flow Communities	119,005	39.48	27.20	148	40.02	26.12	142	56.05	36.93	201	97.55	-
Subtotal Non-Controlled Flow Communities	158,829	36.16	31.73	129	43.19	33.52	136	58.01	46.63	190	-	64.00
Total Incoming Flow	277,834	75.70	58.93	137	83.81	59.64	139	114.78	83.56	194	-	-
DWTF Including Recycle (IPS + TPS)	277,834	81.66	61.83	144	90.69	61.75	144	122.07	86.71	202	-	-
DWTF without Recycle (IPS + TPS - Recycle)	277,834	76.90	57.39	134	84.49	58.03	135	115.50	81.34	189	-	-
Recycle	-	4.76	4.44	-	6.20	3.72	-	6.58	5.36	-	-	-

Note:
1) Dry weather MAFLs from the Downriver Utility Wastewater Authority Service Agreement (March 21, 2017).
2) The MAFL for each community component of Meter Distict SW is population weighted. Southgate and Wyandotte have MAFLs of 7.67 and 24.06 cfs, respectively. Therefore, the combined MAFL is 31.73 cfs.
The population weighted MAFL for Southgate and Wyandotte are allocated to be 11.88 and 19.85 cfs, respectively.
3) The meter district flow rates are split into community components based on relative 2020 residential population.

Legend:
XX.XX Exceeds the weighted proportion of the dry weather MAFL by 0 to 20%
XX.XX Exceeds the weighted proportion of the dry weather MAFL by greater than 20%

Table 4-1 Cont.
Monthly Incremental Flow Rates Summarized by Community

Community	Sewage Flow Meter Math	Meter District	Year 2020 Incremental Residential Population	April 2023			May 2023			June 2023			Dry Weather MAFLs for Controlled Flow Communities[1] (cfs)	Dry Weather MAFLs for Non-Controlled Flow Communities[1] (cfs)
				Total	Dry Weather		Total	Dry Weather		Total	Dry Weather			
				Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)		
Allen Park	2.7%([PC-1]+[CPO]+[CHPO]-[TB-1])	PC-1	716	0.24	0.18	165	0.17	0.16	141	0.14	0.12	112	-	0.43
	+ 17.4%([P-1]+[PM-1]-[P-2]-[PA-2]-[PB-1]-[PD-1]-[PC-1])	P-1	2,338	0.81	0.60	166	0.53	0.51	140	0.43	0.39	107	-	1.58
	+ 38.1%([RD-1]-[EC-6])	RD-1	22,170	6.13	3.23	94	3.18	2.70	79	3.45	2.35	68	17.20	-
	+ ([APO-1] + [APO-2])	APO-1 + APO-2	0	0.81	0.00	-	0.00	0.00	-	0.00	0.00	-	-	-
		Total	25,224	7.99	4.01	103	3.87	3.36	86	4.02	2.86	73	-	2.01
Belleville	33.8%[PA-4]	PA-4	4,008	0.91	0.79	128	0.66	0.63	102	0.56	0.53	86	-	1.32
Brownstown Twp.	99.9%[P-2]	P-2	11,002	2.35	2.08	122	1.96	1.89	111	1.78	1.69	99	-	3.91
	+ 0.2%([PA-2]+[ER-1]-[PA-3]-[ER-2])	PA-2	29	0.01	0.01	185	0.01	0.01	171	0.01	0.01	144	-	0.06
		Total	11,031	2.36	2.09	122	1.97	1.90	111	1.79	1.70	99	-	3.97
Dearborn Hts.	77.7%([TB-1]+[TSO])	TB-1	19,472	6.34	3.70	123	3.05	2.77	92	2.39	2.05	68	-	8.22
Ecorse	69.1%([EC-6]-[RR-1])	EC-6	9,305	2.64	2.13	148	2.13	2.14	149	2.06	2.02	140	9.20	-
Lincoln Park	30.9%([EC-6]-[RR-1])	EC-6	4,169	1.18	0.96	148	0.95	0.96	149	0.92	0.90	140	3.00	-
	+ 61.9%([RD-1]-[EC-6])	RD-1	36,076	9.98	5.25	94	5.17	4.39	79	5.61	3.82	68	25.16	-
		Total	40,245	11.16	6.21	100	6.12	5.35	86	6.53	4.72	76	28.16	-
River Rouge	[RR-1]	RR-1	7,224	5.04	3.34	299	2.99	2.69	240	2.73	2.28	204	11.26	-
Riverview	[RV-1]	RV-1	12,490	2.82	2.01	104	1.89	1.76	91	2.04	1.67	86	-	3.61
Romulus	([PA-3]+[ER-2]-[PA-4])	PA-3	14,420	4.79	4.02	180	3.82	3.74	167	3.27	3.17	142	-	6.39
	+ [DTW Pond 3 West]	DMA-2	0	3.50	3.45	-	2.04	2.12	-	0.80	0.00	-	-	9.02
	+ ([PD-2] - [DTW Pond 3 West])	PD-2	8,069	4.43	3.36	269	2.89	2.76	221	2.49	2.21	177	-	
		Total	22,489	12.71	10.83	311	8.75	8.62	248	6.55	5.38	155	-	15.41
Southgate	(82.6% + 5.4%)([P-1]+[PM-1]-[P-2]-[PA-2]-[PB-1]-[PD-1]-[PC-1])	P-1 & TPS+IPS	11,797	4.10	3.03	166	2.67	2.55	140	2.17	1.96	107	-	3.71
	+ 38.9%[PB-1]	PB-1	3,214	0.98	0.73	147	0.69	0.66	132	0.65	0.60	122	-	1.42
	+ 37.5%([SW]+[SWB])	SW	15,003	7.30	5.39	232	5.19	4.46	192	5.55	3.77	162	11.88	-
		Total	30,014	12.38	9.16	197	8.55	7.67	165	8.37	6.33	136	-	5.13
Taylor	0.1%[P-2]	P-2	10	0.00	0.00	122	0.00	0.00	111	0.00	0.00	99	-	0.08
	+ 99.8%([PA-2]+[ER-1]-[PA-3]-[ER-2])	PA-2	14,125	5.80	***4.05***	185	3.90	***3.74***	171	3.32	***3.14***	144	-	2.40
	+ 61.1%[PB-1]	PB-1	5,040	1.54	1.15	147	1.08	1.03	132	1.02	0.95	122	-	2.15
	+ 22.3%([TB-1]+[TSO])	TB-1	5,574	1.82	1.06	123	0.87	0.79	92	0.68	0.59	68	-	2.29
	+ 97.3%([PC-1]+[CPO]+[CHPO]-[TB-1])	PC-1	25,577	8.70	6.55	165	5.93	5.58	141	4.97	4.44	112	-	11.03
	+ ([PD-1]-[PD-2])	PD-1	13,083	1.72	1.30	64	1.60	1.51	75	1.18	1.43	71	-	4.01
		Total	63,409	19.58	14.11	144	13.38	12.65	129	11.18	10.55	108	-	21.96
Van Buren Twp.	66.2%[PA-4]	PA-4	7,865	1.78	1.56	128	1.29	1.24	102	1.10	1.05	86	-	2.37
Wyandotte	62.5%([SW]+[SWB])	SW	25,058	12.19	9.01	232	8.67	7.44	192	9.27	6.29	162	19.85	-

Subtotal Controlled Flow Communities	119,005	44.46	29.31	159	28.27	24.77	135	29.58	21.44	116	97.55	-
Subtotal Non-Controlled Flow Communities	158,829	52.64	39.63	161	35.04	33.45	136	29.00	26.00	106	-	64.00
Total Incoming Flow	277,834	97.91	68.93	160	63.31	58.22	135	58.58	47.43	110	-	-
DWTF Including Recycle (IPS + TPS)	277,834	103.67	71.87	167	67.17	61.34	143	62.38	49.57	115	-	-
DWTF without Recycle (IPS + TPS - Recycle)	277,834	97.19	66.11	154	59.29	53.67	125	56.04	43.51	101	-	-
Recycle	-	6.48	5.76	-	7.88	7.67	-	6.34	6.06	-	-	-

Note:
1) Dry weather MAFLs from the Downriver Utility Wastewater Authority Service Agreement (March 21, 2017).
2) The MAFL for each community component of Meter Distict SW is population weighted. Southgate and Wyandotte have MAFLs of 7.67 and 24.06 cfs, respectively. Therefore, the combined MAFL is 31.73 cfs.
The population weighted MAFL for Southgate and Wyandotte are allocated to be 11.88 and 19.85 cfs, respectively.
3) The meter district flow rates are split into community components based on relative 2020 residential population.

Legend:
XX.XX Exceeds the weighted proportion of the dry weather MAFL by 0 to 20%
XX.XX Exceeds the weighted proportion of the dry weather MAFL by greater than 20%

Table 4-1 Cont.
Monthly Incremental Flow Rates Summarized by Community

Community	Sewage Flow Meter Math	Meter District	Year 2020 Incremental Residential Population	July 2023			August 2023			September 2023			Dry Weather MAFLs for Controlled Flow Communities[1] (cfs)	Dry Weather MAFLs for Non-Controlled Flow Communities[1] (cfs)
				Total	Dry Weather		Total	Dry Weather		Total	Dry Weather			
				Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)		
Allen Park	2.7%([PC-1]+[CPO]+[CHPO]-[TB-1])	PC-1	716	0.19	0.15	138	0.18	0.14	131	0.12	0.12	107	-	0.43
	+ 17.4%([P-1]+[PM-1]-[P-2]-[PA-2]-[PB-1]-[PD-1]-[PC-1])	P-1	2,338	0.53	0.49	134	0.59	0.45	125	0.43	0.42	116	-	1.58
	+ 38.1%([RD-1]-[EC-6])	RD-1	22,170	6.37	3.45	101	5.14	2.58	75	3.09	2.55	74	17.20	-
	+ ([APO-1] + [APO-2])	APO-1 + APO-2	0	0.17	0.00	-	0.04	0.00	-	0.00	0.00	-	-	-
		Total	25,224	7.26	4.09	105	5.95	3.17	81	3.64	3.09	79	-	2.01
Belleville	33.8%[PA-4]	PA-4	4,008	0.60	0.62	100	0.71	0.59	96	0.68	0.67	108	-	1.32
Brownstown Twp.	99.9%[P-2]	P-2	11,002	1.97	1.89	111	2.33	1.97	116	1.88	1.86	109	-	3.91
	+ 0.2%([PA-2]+[ER-1]-[PA-3]-[ER-2])	PA-2	29	0.01	0.01	168	0.01	0.01	180	0.01	0.01	173	-	0.06
		Total	11,031	1.98	1.89	111	2.34	1.98	116	1.89	1.87	109	-	3.97
Dearborn Hts.	77.7%([TB-1]+[TSO])	TB-1	19,472	3.39	2.35	78	3.48	2.50	83	2.28	2.15	72	-	8.22
Ecorse	69.1%([EC-6]-[RR-1])	EC-6	9,305	2.39	1.74	121	2.38	2.14	148	1.49	1.44	100	9.20	-
Lincoln Park	30.9%([EC-6]-[RR-1])	EC-6	4,169	1.07	0.78	121	1.07	0.96	148	0.67	0.64	100	3.00	-
	+ 61.9%([RD-1]-[EC-6])	RD-1	36,076	10.37	5.62	101	8.37	4.20	75	5.03	4.15	74	25.16	-
		Total	40,245	11.44	6.40	103	9.43	5.15	83	5.70	4.79	77	28.16	-
River Rouge	[RR-1]	RR-1	7,224	6.25	3.65	327	5.21	3.74	335	2.81	2.54	227	11.26	-
Riverview	[RV-1]	RV-1	12,490	2.46	1.82	94	2.81	1.89	98	1.79	1.73	90	-	3.61
Romulus	([PA-3]+[ER-2]-[PA-4])	PA-3	14,420	3.69	3.57	160	5.17	3.61	162	3.63	3.63	163	-	6.39
	+ [DTW Pond 3 West]	DMA-2[4]	0	1.36	2.32	-	0.29	0.00	-	0.00	0.00	-	-	9.02
	+ ([PD-2] - [DTW Pond 3 West])	PD-2[5]	8,069	2.60	2.38	190	3.00	2.47	198	2.45	2.43	194	-	
		Total	22,489	7.65	8.27	238	8.46	6.08	175	6.08	6.05	174	-	15.41
Southgate	(82.6% + 5.4%)([P-1]+[PM-1]-[P-2]-[PA-2]-[PB-1]-[PD-1]-[PC-1])	P-1 & TPS+IPS	11,797	2.69	2.45	134	3.00	2.27	125	2.16	2.12	116	-	3.71
	+ 38.9%[PB-1]	PB-1	3,214	0.70	0.61	124	0.73	0.59	119	0.56	0.55	110	-	1.42
	+ 37.5%([SW]+[SWB])	SW	15,003	8.19	5.73	247	6.35	4.28	184	5.49	5.01	216	11.88	-
		Total	30,014	11.58	8.80	189	10.07	7.14	154	8.22	7.68	165	-	5.13
Taylor	0.1%[P-2]	P-2	10	0.00	0.00	111	0.00	0.00	116	0.00	0.00	109	-	0.08
	+ 99.8%([PA-2]+[ER-1]-[PA-3]-[ER-2])	PA-2	14,125	3.75	***3.66***	168	5.72	***3.94***	180	3.82	***3.78***	173	-	2.40
	+ 61.1%[PB-1]	PB-1	5,040	1.10	0.96	124	1.14	0.93	119	0.88	0.86	110	-	2.15
	+ 22.3%([TB-1]+[TSO])	TB-1	5,574	0.97	0.67	78	0.99	0.71	83	0.65	0.62	72	-	2.29
	+ 97.3%([PC-1]+[CPO]+[CHPO]-[TB-1])	PC-1	25,577	6.70	5.45	138	6.41	5.17	131	4.39	4.24	107	-	11.03
	+ ([PD-1]-[PD-2])	PD-1	13,083	1.72	1.59	79	2.00	1.68	83	1.55	1.52	75	-	4.01
		Total	63,409	14.24	12.34	126	16.26	12.43	127	11.29	11.02	112	-	21.96
Van Buren Twp.	66.2%[PA-4]	PA-4	7,865	1.18	1.21	100	1.39	1.16	96	1.32	1.32	108	-	2.37
Wyandotte	62.5%([SW]+[SWB])	SW	25,058	13.68	9.58	247	10.60	7.15	184	9.17	8.37	216	19.85	-

Subtotal Controlled Flow Communities	119,005	48.31	30.55	166	39.11	25.03	136	27.74	24.71	134	97.55	-
Subtotal Non-Controlled Flow Communities	158,829	35.60	32.21	131	39.93	30.09	122	28.61	28.02	114	-	64.00
Total Incoming Flow	277,834	84.08	62.75	146	79.08	55.13	128	56.36	52.73	123	-	-
DWTF Including Recycle (IPS + TPS)	277,834	89.89	67.04	156	83.00	54.59	127	57.97	54.15	126	-	-
DWTF without Recycle (IPS + TPS - Recycle)	277,834	83.25	60.69	141	76.60	49.44	115	53.06	49.22	115	-	-
Recycle	-	6.64	6.35	-	6.40	5.14	-	4.91	4.93	-	-	-

Note:
1) Dry weather MAFLs from the Downriver Utility Wastewater Authority Service Agreement (March 21, 2017).
2) The MAFL for each community component of Meter Distict SW is population weighted. Southgate and Wyandotte have MAFLs of 7.67 and 24.06 cfs, respectively. Therefore, the combined MAFL is 31.73 cfs.
The population weighted MAFL for Southgate and Wyandotte are allocated to be 11.88 and 19.85 cfs, respectively.
3) The meter district flow rates are split into community components based on relative 2020 residential population.

Legend:
XX.XX Exceeds the weighted proportion of the dry weather MAFL by 0 to 20%
XX.XX Exceeds the weighted proportion of the dry weather MAFL by greater than 20%

Table 4-1 Cont.
Monthly Incremental Flow Rates Summarized by Community

Community	Sewage Flow Meter Math	Meter District	Year 2020 Incremental Residential Population	October 2023			November 2023			December 2023			Dry Weather MAFLs for Controlled Flow Communities[1] (cfs)	Dry Weather MAFLs for Non-Controlled Flow Communities[1] (cfs)
				Total	Dry Weather		Total	Dry Weather		Total	Dry Weather			
				Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)		
Allen Park	2.7%([PC-1]+[CPO]+[CHPO]-[TB-1])	PC-1	716	0.12	0.11	99	0.12	0.12	104	0.15	0.13	118	-	0.43
	+ 17.4%([P-1]+[PM-1]-[P-2]-[PA-2]-[PB-1]-[PD-1]-[PC-1])	P-1	2,338	0.40	0.38	104	0.39	0.39	107	0.49	0.44	121	-	1.58
	+ 38.1%([RD-1]-[EC-6])	RD-1	22,170	3.21	2.36	69	2.63	2.25	66	4.42	2.62	76	17.20	-
	+ ([APO-1] + [APO-2])	APO-1 + APO-2	0	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	-	-
		Total	25,224	3.73	2.85	73	3.14	2.75	70	5.07	3.19	82	-	2.01
Belleville	33.8%[PA-4]	PA-4	4,008	0.55	0.55	89	0.54	0.53	86	0.61	0.59	95	-	1.32
Brownstown Twp.	99.9%[P-2]	P-2	11,002	1.85	1.78	105	1.76	1.74	102	1.95	1.81	106	-	3.91
	+ 0.2%([PA-2]+[ER-1]-[PA-3]-[ER-2])	PA-2	29	0.01	0.01	132	0.01	0.01	157	0.01	0.01	139	-	0.06
		Total	11,031	1.86	1.79	105	1.77	1.75	103	1.96	1.81	106	-	3.97
Dearborn Hts.	77.7%([TB-1]+[TSO])	TB-1	19,472	2.25	1.98	66	2.16	2.04	68	3.09	2.39	79	-	8.22
Ecorse	69.1%([EC-6]-[RR-1])	EC-6	9,305	1.36	1.32	92	1.39	1.38	96	1.49	1.41	98	9.20	-
Lincoln Park	30.9%([EC-6]-[RR-1])	EC-6	4,169	0.61	0.59	92	0.62	0.62	96	0.67	0.63	98	3.00	-
	+ 61.9%([RD-1]-[EC-6])	RD-1	36,076	5.22	3.84	69	4.27	3.66	66	7.20	4.26	76	25.16	-
		Total	40,245	5.83	4.44	71	4.90	4.28	69	7.87	4.89	79	28.16	-
River Rouge	[RR-1]	RR-1	7,224	2.19	1.64	146	2.05	1.82	163	2.94	2.16	193	11.26	-
Riverview	[RV-1]	RV-1	12,490	2.00	1.75	91	1.84	1.76	91	2.41	1.88	97	-	3.61
Romulus	([PA-3]+[ER-2]-[PA-4])	PA-3	14,420	3.42	3.36	151	3.06	3.06	137	3.40	3.27	146	-	6.39
	+ [DTW Pond 3 West]	DMA-2[4]	0	0.00	0.00	-	0.00	0.00	-	1.59	1.55	-	-	9.02
	+ ([PD-2] - [DTW Pond 3 West])	PD-2[5]	8,069	2.49	2.40	192	2.60	2.56	205	2.78	2.58	207	-	
		Total	22,489	5.91	5.76	166	5.66	5.62	162	7.78	7.40	213	-	15.41
Southgate	(82.6% + 5.4%)([P-1]+[PM-1]-[P-2]-[PA-2]-[PB-1]-[PD-1]-[PC-1])	P-1 & TPS+IPS	11,797	2.01	1.90	104	1.99	1.94	107	2.47	2.21	121	-	3.71
	+ 38.9%[PB-1]	PB-1	3,214	0.57	0.53	107	0.56	0.54	109	0.67	0.59	120	-	1.42
	+ 37.5%([SW]+[SWB])	SW	15,003	4.76	3.41	147	3.60	2.90	125	5.86	3.86	166	11.88	-
		Total	30,014	7.34	5.84	126	6.15	5.38	116	9.01	6.67	144	-	5.13
Taylor	0.1%[P-2]	P-2	10	0.00	0.00	105	0.00	0.00	102	0.00	0.00	106	-	0.08
	+ 99.8%([PA-2]+[ER-1]-[PA-3]-[ER-2])	PA-2	14,125	3.04	***2.89***	132	3.49	***3.42***	157	3.35	***3.03***	139	-	2.40
	+ 61.1%[PB-1]	PB-1	5,040	0.90	0.84	107	0.87	0.85	109	1.05	0.93	120	-	2.15
	+ 22.3%([TB-1]+[TSO])	TB-1	5,574	0.64	0.57	66	0.62	0.59	68	0.88	0.68	79	-	2.29
	+ 97.3%([PC-1]+[CPO]+[CHPO]-[TB-1])	PC-1	25,577	4.29	3.94	99	4.26	4.13	104	5.48	4.66	118	-	11.03
	+ ([PD-1]-[PD-2])	PD-1	13,083	1.25	1.20	59	1.16	1.14	56	1.51	1.41	69	-	4.01
		Total	63,409	10.12	9.43	96	10.40	10.13	103	12.28	10.72	109	-	21.96
Van Buren Twp.	66.2%[PA-4]	PA-4	7,865	1.09	1.09	89	1.06	1.05	86	1.19	1.15	95	-	2.37
Wyandotte	62.5%([SW]+[SWB])	SW	25,058	7.94	5.69	147	6.02	4.84	125	9.79	6.45	166	19.85	-

Subtotal Controlled Flow Communities	119,005	25.29	18.85	102	20.58	17.46	95	32.37	21.38	116	97.55	-
Subtotal Non-Controlled Flow Communities	158,829	26.88	25.27	103	26.48	25.87	105	33.11	29.32	119	-	64.00
Total Incoming Flow	277,834	52.18	44.12	103	47.07	43.33	101	65.48	50.70	118	-	-
DWTF Including Recycle (IPS + TPS)	277,834	55.26	46.54	108	49.49	47.15	110	73.20	55.96	130	-	-
DWTF without Recycle (IPS + TPS - Recycle)	277,834	49.75	41.01	95	45.10	42.70	99	67.93	50.63	118	-	-
Recycle	-	5.51	5.53	-	4.39	4.46	-	5.27	5.33	-	-	-

Note:
1) Dry weather MAFLs from the Downriver Utility Wastewater Authority Service Agreement (March 21, 2017).
2) The MAFL for each community component of Meter Distict SW is population weighted. Southgate and Wyandotte have MAFLs of 7.67 and 24.06 cfs, respectively. Therefore, the combined MAFL is 31.73 cfs. The population weighted MAFL for Southgate and Wyandotte are allocated to be 11.88 and 19.85 cfs, respectively.
3) The meter district flow rates are split into community components based on relative 2020 residential population.

Legend:
XX.XX Exceeds the weighted proportion of the dry weather MAFL by 0 to 20%
XX.XX Exceeds the weighted proportion of the dry weather MAFL by greater than 20%

5) PRECIPITATION DATA

Table 5-1 lists the monthly precipitation at DTW, the departure from normal, and the number of wet/dry days included for each month. Monthly precipitation data for the DSDS rain gauges is summarized on Table 5-2. Daily precipitation data for the DSDS rain gauges for each month in 2023 is summarized on Tables 5-3 through 5-14. Data for the rain gauge at DTW is included in these tables. The total precipitation for 2023 at DTW was 36.63 inches, which is 2.31 inches above normal.

Significant storm events are defined as those with at least 0.5 inches of rainfall occurring on a single day with an event total of at least 1.0 inch of rainfall. Significant storm events are separated by at least 2 consecutive days without precipitation over 0.1 inches. This storm event definition is based on the arithmetic mean of the rainfall recorded by all rain gauges used in the analysis for that storm. Major storm events are a subgroup of significant storm events which result in the peak hourly influent flow rate to the DWTF reaching or exceeding 175 MGD (271 cfs).

There were nine (9) significant storm events in 2023. The events were designated as Significant Storm Events 1 through 9 for year 2023. There were no major storm events in 2023. The precipitation data for the significant/major storm events are further summarized in Table 5-15 and Appendix B. None of these events equaled or exceeded the 25-year, 24-hour design storm rainfall total of 4.42 inches on which the DRSTS was based.

A quality assurance (QA) and quality control (QC) review of the DUWA rain gauge data was performed and involved a review of the maintenance logs and a comparison of the recorded precipitation to other nearby rain gauges. The maintenance logs identified rain gauge issues which were detected during site visits. In almost all cases, these issues were resolved during the site visit. In general, when a rain gauge had an issue, it recorded zero precipitation. All rain gauge data with documented maintenance log issues were flagged.

Table 5-1
Dry/Wet Weather Count by Month and Monthly Precipitation at DTW for 2023

Month	Number of Dry Weather Days	Number of Wet Weather Days	Monthly Total Precipitation (in)	
			DTW[1]	Departure From Normal[2]
January	15	16	3.05	+0.82
February	15	13	2.99	+0.91
March	11	20	4.11	+1.68
April	17	13	2.88	-0.38
May	24	7	0.92	-2.80
June	15	15	3.19	-0.07
July	5	26	5.37	+1.86
August	12	19	6.50	+3.24
September	24	6	2.28	-0.94
October	15	16	2.10	-0.43
November	22	8	0.99	-1.58
December	14	17	2.25	0.00
Total	189	176	36.63	+2.31

Note:
1) Detroit Metropolitan Wayne County Airport (DTW)
2) The National Centers for Environmental Information generates the official U.S. Climate Normals every 10-years and are calculated for a uniform 30-year period. Climate Normal precipitation values used in this report are from 1991-2020 and are the latest available.

Table 5-2
Monthly Precipitation for 2023

Date	Monthly Precipitation (inches)											DTW Monthly Temperature (°F)		
	R-18	R-02	R-10	DTW	R-09	R-04	R-08	R-15	R-17	R-06	R-16	Max.	Min.	Avg.
January	2.55	2.54	2.68	3.05	2.83	4.42	2.85	2.96	3.03	3.65	3.43	39	29	34
February	3.28	3.50	3.35	2.99	3.13	4.55	2.91	2.46	3.38	4.19	3.36	42	26	34
March	3.94	3.79	3.99	4.11	3.17	5.49	3.40	3.80	3.93	4.58	3.92	46	30	38
April	2.59	2.95	2.99	2.88	2.88	3.71	2.64	1.25*	2.52	3.22	3.06	61	40	50
May	0.84	0.79	0.82	0.92	0.84	1.01	0.80	0.00*	0.74	0.77	0.84	72	48	60
June	2.17	3.81	3.37	3.19	3.19	4.04	2.79	1.09*	2.75	1.68*	2.52	79	58	69
July	3.77	5.10	5.87	5.37	4.69	5.44	4.74	5.73	4.00	4.06*	7.09	82	65	74
August	9.07	9.46	8.00	6.50	4.78	7.64	4.27	3.82	4.38	5.50	5.23	79	62	70
September	1.06	1.76	1.62	2.28	1.62	1.60	1.51	1.12	1.08	1.52	3.27	75	58	66
October	2.01	2.46	2.29	2.10	1.95	2.78	0.80*	1.78	2.23	2.58	2.46	62	47	55
Novembert	0.80	0.82	0.97	0.99	0.83	1.11	0.93	0.98	1.00	0.98	1.18	50	32	41
December	1.90	1.57	2.30	2.25	2.10	2.50	2.12	2.34	2.21	2.36	2.52	43	34	39
Total	33.98	38.55	38.25	36.63	32.01	44.29	29.76*	26.24*	31.25	33.41*	38.88	61	44	52

Legend

X.XX*	Missing or suspect data.

Table 5-3
Daily Precipitation for January 2023

Date	Daily Precipitation (inches)											DTW Daily Temperature (°F)		
	R-18	R-02	R-10	DTW	R-09	R-04	R-08	R-15	R-17	R-06	R-16	Max.	Min.	Avg.
1/1/2023	0.10	0.07	0.10	0.10	0.08	0.07	0.08	0.07	0.08	0.07	0.09	46	36	41
1/2/2023	0	0	0	0	0	0	0	0	0	0	0	46	38	42
1/3/2023	0.44	0.47	0.50	0.45	0.48	0.65	0.44	0.46	0.46	0.53	0.50	44	39	42
1/4/2023	0	0	0.01	t	0	0	0	0.01	0.01	0.01	0.01	60	38	49
1/5/2023	0.04	0	0.01	0.02	0.03	0.07	0.03	0.06	0.05	0.05	0.07	42	33	38
1/6/2023	0	0	0	0.01	0	0.01	0	0	0	0.01	0	37	33	35
1/7/2023	0.01	0	0.03	0.04	0.06	0.06	0.01	0.01	0.04	0.03	0.01	33	30	32
1/8/2023	0	0	0	0	0	0	0	0	0	0	0	33	29	31
1/9/2023	0	0	0	0	0	0	0	0	0	0	0	40	26	33
1/10/2023	0	0	0	t	0	0	0	0	0	0	0	40	28	34
1/11/2023	0	0	0	t	0	0	0.01	0.02	0	0	0	45	31	38
1/12/2023	0	0	0	t	0.02	0.02	0.02	0.01	0.02	0.02	0.02	43	34	39
1/13/2023	0	0	0	t	0	0	0	0	0	0	0	34	25	30
1/14/2023	0	0	0	0	0	0	0	0	0	0	0	32	19	26
1/15/2023	0	0	0	0	0	0	0	0	0	0	0	36	18	27
1/16/2023	0.31	0.29	0.29	0.28	0.31	0.43	0.29	0.30	0.40	0.46	0.43	40	26	33
1/17/2023	0.01	0	0.02	0.05	0.05	0.03	0.05	0.07	0.04	0.04	0.06	49	36	43
1/18/2023	0.02	0.02	0.01	0.01	0.01	0.02	0.02	0.01	0.02	0.02	0.01	43	38	41
1/19/2023	0.90	1.01	1.03	1.15	1.01	1.58	1.08	1.12	1.08	1.34	1.33	48	36	42
1/20/2023	0.02	0.02	0.01	0.02	0.02	0.03	0.03	0.03	0.02	0.01	0.02	39	33	36
1/21/2023	0	0	0	0	0	0	0	0	0	0	0	34	31	33
1/22/2023	0.15	0.14	0.17	0.20	0.18	0.25	0.17	0.17	0.20	0.22	0.21	34	29	32
1/23/2023	0	0	0	t	0	0	0	0	0	0	0	34	28	31
1/24/2023	0	0	0	0	0	0	0	0	0	0	0	40	28	34
1/25/2023	0.44	0.44	0.39	0.52	0.44	1.01	0.50	0.50	0.46	0.68	0.51	33	32	33
1/26/2023	0.01	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0	33	24	29
1/27/2023	0.02	0	0.01	0.05	0.02	0.05	0	0.01	0.01	0.04	0.04	36	21	29
1/28/2023	0	0	0	0	0	0	0	0	0	0	0	37	23	30
1/29/2023	0.07	0.05	0.07	0.08	0.08	0.09	0.08	0.08	0.09	0.08	0.10	33	28	31
1/30/2023	0.01	0.02	0.02	0.05	0.02	0.03	0.03	0.02	0.03	0.02	0.02	28	11	20
1/31/2023	0	0	0	0	0	0	0	0	0	0	0	20	5	13
Total	2.55	2.54	2.68	3.05	2.83	4.42	2.85	2.96	3.03	3.65	3.43	39	29	34

X.XX*	Missing or suspect data.
t	Trace amount of precipitation (less than 0.01 inches)

Table 5-4
Daily Precipitation for February 2023

Date	Daily Precipitation (inches)											DTW Daily Temperature (°F)		
	R-18	R-02	R-10	DTW	R-09	R-04	R-08	R-15	R-17	R-06	R-16	Max.	Min.	Avg.
2/1/2023	0	0	0	0	0	0	0	0	0	0	0	25	8	17
2/2/2023	0	0	0	t	0	0	0	0	0	0	0	34	15	25
2/3/2023	0	0	0	0	0	0	0	0	0	0	0	17	6	12
2/4/2023	0	0	0	0	0	0	0	0	0	0	0	34	7	21
2/5/2023	0	0	0	t	0	0	0	0	0	0	0	42	34	38
2/6/2023	0	0*	0	0	0	0	0	0	0	0	0	34	29	32
2/7/2023	0	0	0	0	0	0	0	0	0	0	0	53	30	42
2/8/2023	0	0	0	0	0	0	0	0	0	0	0	46	31	39
2/9/2023	0.85	0.88	0.91	0.59	0.80	0.96	0.74	0.07	0.78	0.90	0.80	55	35	45
2/10/2023	0.01	0	0	t	0	0.01	0	0	0	0	0.01	43	28	36
2/11/2023	0	0	0	0	0	0	0	0	0	0	0	43	21	32
2/12/2023	0	0	0	0	0	0	0	0	0	0	0	52	25	39
2/13/2023	0	0	0	0	0	0	0	0	0	0	0	53	30	42
2/14/2023	0.02	0	0	t	0	0	0	0	0	0	0	52	26	39
2/15/2023	0	0	0.01	0.01	0	0.01	0	0	0	0.01	0.01	60	41	51
2/16/2023	0.10	0.05	0.04	0.07	0.06	0.12	0.09	0.07	0.11	0.09	0.10	41	30	36
2/17/2023	0	0	0	0.01	0.01	0.01	0.01	0.01	0	0	0.01	31	19	25
2/18/2023	0	0	0	0	0	0	0	0	0	0	0	45	20	33
2/19/2023	0	0	0	0	0	0	0	0	0	0	0	53	35	44
2/20/2023	0	0	0	0	0	0	0	0	0	0	0	46	30	38
2/21/2023	0	0	0	0	0	0	0	0	0	0	0	42	28	35
2/22/2023	1.11	1.15	1.07	0.98	0.96	1.52	0.89	0.98	1.09	1.28	1.06	33	31	32
2/23/2023	0	0	0	0.01	0.01	0.02	0	0	0.02	0.01	0.01	44	29	37
2/24/2023	0	0	0	t	0	0	0	0	0	0	0	34	21	28
2/25/2023	0.04	0.03	0.03	0.07	0.04	0.07	0.05	0.04	0.05	0.04	0.05	38	21	30
2/26/2023	0	0	0	0	0	0	0	0	0	0	0	50	30	40
2/27/2023	1.14	1.39	1.29	1.23	1.24	1.82	1.12	1.27	1.32	1.85	1.29	35	29	32
2/28/2023	0.01	0	0	0.02	0.01	0.01	0.01	0.02	0.01	0.01	0.02	48	34	41
Total	3.28	3.50	3.35	2.99	3.13	4.55	2.91	2.46	3.38	4.19	3.36	42	26	34

X.XX*	Missing or suspect data.
t	Trace amount of precipitation (less than 0.01 inches)

Table 5-5
Daily Precipitation for March 2023

Date	Daily Precipitation (inches)											DTW Daily Temperature (°F)		
	R-18	R-02	R-10	DTW	R-09	R-04	R-08	R-15	R-17	R-06	R-16	Max.	Min.	Avg.
3/1/2023	0.01	0	0.01	0	0	0	0	0.01	0	0	0	53	34	44
3/2/2023	0	0	0	0	0	0	0	0	0	0	0	43	32	38
3/3/2023	0.87	1.34	1.32	1.11	0.85	1.92	0.90	0.94	1.30	1.37	0.99	37	31	34
3/4/2023	0.22	0	0.01	0.01	0	0.01	0.11	0.24	0.06	0.02	0.03	41	31	36
3/5/2023	0	0	0	t	0	0	0	0	0	0	0	50	35	43
3/6/2023	0.53	0.49	0.52	0.48	0.42	0.64	0.40	0.46	0.47	0.60	0.48	45	34	40
3/7/2023	0.12	0.07	0.12	0.13	0.08	0.19	0.13	0.09	0.16	0.14	0.13	43	30	37
3/8/2023	0	0	0	0	0	0	0	0	0	0	0	45	28	37
3/9/2023	0	0	0	0	0	0	0	0	0	0	0	45	28	37
3/10/2023	0.24	0.30	0.22	0.36	0.28	0.61	0.34	0.25	0.32	0.42	0.30	36	30	33
3/11/2023	0	0	0	t	0	0	0	0	0	0	0	41	29	35
3/12/2023	0.02	0.02	0.01	0.05	0.02	0.05	0.02	0.02	0.02	0.02	0.02	34	26	30
3/13/2023	0.17	0.21	0.07	0.13	0.06	0.09	0.11	0.11	0.09	0.13	0.14	33	25	29
3/14/2023	0	0	0	t	0	0	0	0	0	0	0	36	20	28
3/15/2023	0	0	0	0	0	0	0	0	0	0	0	47	22	35
3/16/2023	0.04	0.02	0.05	0.03	0.04	0.03	0.02	0.04	0.03	0.03	0.04	56	32	44
3/17/2023	0.10	0.07	0.10	0.10	0.12	0.16	0.09	0.11	0.11	0.14	0.14	50	32	41
3/18/2023	0	0	0	t	0	0	0	0	0	0	0	33	21	27
3/19/2023	0	0	0	t	0	0	0	0	0	0	0	41	20	31
3/20/2023	0	0	0	0	0	0	0	0	0	0	0	50	26	38
3/21/2023	0	0	0	0	0	0	0	0	0	0	0	57	33	45
3/22/2023	0.07	0.02	0.08	0.10	0.04	0.02	0.05	0.08	0.02	0.01	0.07	50	41	46
3/23/2023	0.16	0.18	0.19	0.18	0.18	0.24	0.16	0.18	0.17	0.20	0.18	51	37	44
3/24/2023	0	0	0	t	0	0	0	0	0	0	0	44	34	39
3/25/2023	0.21	0.27	0.24	0.35	0.24	0.50	0.27	0.31	0.35	0.54	0.43	51	35	43
3/26/2023	0.03	0.01	0.01	0.04	0	0	0	0	0	0	0	57	30	44
3/27/2023	0.16	0.08	0.12	0.06	0.08	0.11	0.07	0.09	0.08	0.08	0.07	47	34	41
3/28/2023	0	0	0	0	0	0	0	0	0	0	0	51	29	40
3/29/2023	0	0	0	0.01	0	0.01	0.01	0	0	0	0.01	47	27	37
3/30/2023	0.01	0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	45	22	34
3/31/2023	0.98	0.71	0.91	0.96	0.75	0.90	0.71	0.86	0.74	0.87	0.88	57	37	47
Total	3.94	3.79	3.99	4.11	3.17	5.49	3.40	3.80	3.93	4.58	3.92	46	30	38

X.XX*	Missing or suspect data.
t	Trace amount of precipitation (less than 0.01 inches)

Table 5-6
Daily Precipitation for April 2023

Date	Daily Precipitation (inches)											DTW Daily Temperature (°F)		
	R-18	R-02	R-10	DTW	R-09	R-04	R-08	R-15	R-17	R-06	R-16	Max.	Min.	Avg.
4/1/2023	0.59	0.87	0.98	0.79	0.83	0.86	0.74	1.06	0.67	0.61	0.73	59	31	45
4/2/2023	0	0	0	0	0	0	0	0	0	0	0	44	28	36
4/3/2023	0.18	0.19	0.23	0.26	0.18	0.23	0.18	0.02	0.19*	0.23	0.25	64	36	50
4/4/2023	0.07	0.01	0.07	0.04	0.06	0	0.07	0.01	0.03	0.01	0.06	57	46	52
4/5/2023	0.25	0.49	0.26	0.36	0.25	0.53	0.25	0.10	0.33	0.47	0.38	77	48	63
4/6/2023	0	0	0	0	0	0	0	0	0	0	0	53	38	46
4/7/2023	0	0	0	0	0	0	0	0	0	0	0	52	33	43
4/8/2023	0	0	0	0	0	0	0	0	0	0	0	51	32	52
4/9/2023	0	0	0	0	0	0	0	0	0	0	0	58	33	46
4/10/2023	0	0	0	0	0	0	0	0	0	0	0	67	36	52
4/11/2023	0	0	0	0	0	0	0	0	0	0	0	77	44	61
4/12/2023	0	0	0	0	0	0	0	0	0	0	0	81	53	67
4/13/2023	0	0	0	0	0	0	0	0	0	0	0	83	56	70
4/14/2023	0	0	0	0	0	0	0	0	0	0	0	82	51	67
4/15/2023	0	0	0	0	0	0	0	0	0	0	0	83	55	69
4/16/2023	0.10	0.10	0.07	0.05	0.11	0.13	0.06	0.01	0.08	0.10	0.07	75	44	60
4/17/2023	0.03	0.01	0.03	0.05	0.03	0.10	0.03	0.01	0.02	0.09	0.04	44	36	40
4/18/2023	0	0	0	t	0	0	0	0	0	0	0	50	33	42
4/19/2023	0	0	0	t	0	0	0	0	0	0	0	55	29	42
4/20/2023	0	0	0	t	0	0	0	0	0	0	0	68	44	56
4/21/2023	0.12	0.08	0.09	0.08	0.12	0.10	0.10	0.04	0.08	0.07	0.07	61	46	54
4/22/2023	0.04	0.05	0.05	0.05	0.07	0.11	0.10	0*	0.06	0.18	0.11	54	36	45
4/23/2023	0	0	0.02	0.02	0.02	0.06	0.03	0*	0.02	0.01	0.03	52	35	44
4/24/2023	0.01	0	0	t	0	0	0	0*	0	0	0.01	50	34	42
4/25/2023	0.08	0.07	0.10	0.11	0.10	0.13	0.09	0*	0.12	0.11	0.11	44	30	37
4/26/2023	0	0	0	0	0	0	0	0*	0	0	0	54	30	42
4/27/2023	0	0	0	0	0	0	0	0*	0	0	0	59	34	47
4/28/2023	0.58	0.61	0.57	0.63	0.65	0.96	0.58	0*	0.55	0.96	0.78	53	45	49
4/29/2023	0.31	0.24	0.27	0.20	0.17	0.20	0.15	0*	0.13	0.13	0.15	65	47	56
4/30/2023	0.23	0.23	0.25	0.24	0.29	0.30	0.26	0*	0.24	0.25	0.27	56	42	49
Total	2.59	2.95	2.99	2.88	2.88	3.71	2.64	1.25*	2.52	3.22	3.06	61	40	50

Legend

X.XX*	Missing or suspect data
t	Trace amount of precipitation (less than 0.01 inches)

Table 5-7
Daily Precipitation for May 2023

Date	Daily Precipitation (inches)											DTW Daily Temperature (°F)		
	R-18	R-02	R-10	DTW	R-09	R-04	R-08	R-15	R-17	R-06	R-16	Max.	Min.	Avg.
5/1/2023	0.18	0.12	0.06	0.16	0.20	0.21	0.12	0*	0.20	0.12	0.16	50	37	44
5/2/2023	0.02	0.01	0.05	0.06	0.07	0.14	0.09	0*	0.04	0.08	0.07	45	37	41
5/3/2023	0	0	0	0.01	0	0.01	0.01	0*	0.01	0.04	0.06	56	38	47
5/4/2023	0	0	0	0	0	0	0	0*	0	0	0	65	40	53
5/5/2023	0	0	0	0	0	0	0	0*	0	0	0	68	42	55
5/6/2023	0	0	0	0	0	0	0	0*	0	0	0	69	45	57
5/7/2023	0.13	0.09	0.11	0.08	0.05	0.03	0.07	0*	0.03	0.02	0.04	81	56	69
5/8/2023	0.01	0.02	0.04	0.02	0.03	0.02	0.03	0*	0.02	0.02	0.01	64	52	58
5/9/2023	0	0	0	0	0	0	0	0*	0	0	0	70	49	60
5/10/2023	0	0	0	0	0	0	0	0*	0	0	0	75	47	61
5/11/2023	0	0	0	0	0	0	0	0*	0	0	0	79	50	65
5/12/2023	0	0	0	t	0	0	0	0*	0	0	0	80	54	67
5/13/2023	0	0	0.01	t	0	0	0	0*	0	0	0	78	59	69
5/14/2023	0	0	0	0	0	0	0	0*	0	0	0	67	52	61
5/15/2023	0	0	0	0	0	0	0	0*	0	0	0	74	44	59
5/16/2023	0	0	0	0	0	0	0	0*	0	0	0	79	48	64
5/17/2023	0	0	0	0	0	0	0	0*	0	0	0	60	42	51
5/18/2023	0	0	0	0	0	0	0	0*	0	0	0	65	37	51
5/19/2023	0.49	0.52	0.54	0.58	0.46	0.56	0.45	0*	0.41	0.45	0.46	79	43	61
5/20/2023	0.01	0.03	0.01	0.01	0.03	0.04	0.03	0*	0.03	0.04	0.04	62	51	57
5/21/2023	0	0	0	0	0	0	0	0*	0	0	0	76	48	62
5/22/2023	0	0	0	0	0	0	0	0*	0	0	0	75	51	63
5/23/2023	0	0	0	0	0	0	0	0*	0	0	0	79	51	65
5/24/2023	0	0	0	0	0	0	0	0*	0	0	0	71	44	58
5/25/2023	0	0	0	0	0	0	0	0*	0	0	0	65	43	54
5/26/2023	0	0	0	0	0	0	0	0*	0	0	0	72	42	57
5/27/2023	0	0	0	0	0	0	0	0*	0	0	0	78	45	62
5/28/2023	0	0	0	0	0	0	0	0*	0	0	0	82	51	67
5/29/2023	0	0	0	0	0	0	0	0*	0	0	0	86	55	71
5/30/2023	0	0	0	0	0	0	0	0*	0	0	0	86	59	73
5/31/2023	0	0	0	0	0	0	0	0*	0	0	0	86	64	75
Total	0.84	0.79	0.82	0.92	0.84	1.01	0.80	0.00*	0.74	0.77	0.84	72	48	60

Legend

X.XX*	Missing or suspect data
t	Trace amount of precipitation (less than 0.01 inches)

Table 5-8
Daily Precipitation for June 2023

Date	Daily Precipitation (inches)											DTW Daily Temperature (°F)		
	R-18	R-02	R-10	DTW	R-09	R-04	R-08	R-15	R-17	R-06	R-16	Max.	Min.	Avg.
6/1/2023	0	0	0	0	0	0	0	0*	0	0	0	88	60	74
6/2/2023	0	0	0	0	0	0	0	0*	0	0	0	90	62	76
6/3/2023	0	0	0	0	0	0	0	0*	0	0	0	89	66	78
6/4/2023	0	0	0	0	0	0	0	0*	0	0	0	77	55	66
6/5/2023	0	0	0	0	0	0	0	0*	0	0	0	80	54	67
6/6/2023	0	0	0	0	0	0	0	0*	0	0	0	78	55	67
6/7/2023	0	0	0	0	0	0	0	0	0	0	0	75	50	63
6/8/2023	0	0	0	0	0	0	0	0	0	0	0	77	49	63
6/9/2023	0	0	0	0	0	0	0	0	0	0	0	78	52	65
6/10/2023	0	0	0	0	0	0	0	0	0	0	0	85	54	70
6/11/2023	0.05	0.71	0.67	0.64	0.60	0.79	0.72	0.65	0.77	0.76	0.76	71	57	64
6/12/2023	0.01	0.02	0.02	t	0.02	0.02	0.02	0.02	0.03	0.02	0.03	65	52	59
6/13/2023	0.09	0.16	0.10	0.11	0.08	0.14	0.08	0.18	0.08	0.09	0.09	72	48	60
6/14/2023	0	0.01	0.03	0	0	0	0	0	0	0	0	75	51	63
6/15/2023	0.87	0.87	0.97	0.60	0.64	0.98	0.26	0.15	0.43	0.57	0.22	73	56	65
6/16/2023	0.01	0.01	0.02	0.08	0.01	0	0.02	0.09	0	0	0.01	70	57	64
6/17/2023	0	0	0	0	0	0	0	0	0	0	0	80	56	68
6/18/2023	0	0	0	0	0	0	0	0	0	0	0	80	55	68
6/19/2023	0	0	0	0	0	0	0	0	0	0	0	73	57	70
6/20/2023	0	0	0	0	0	0	0	0	0	0	0	85	65	75
6/21/2023	0	0	0	0	0	0	0	0	0	0	0	84	65	75
6/22/2023	0	0	0	t	0	0	0	0	0	0	0	78	65	72
6/23/2023	0.01	0.18	0.31	0.22	0.14	0.23	0.18	0*	0.15	0.24	0.18	70	65	68
6/24/2023	0	0	0	0	0	0	0	0*	0	0	0	88	66	77
6/25/2023	0.51	0.66	0.48	0.60	0.62	0.75	0.65	0*	0.50	0*	0.50	85	65	75
6/26/2023	0.46	1.06	0.68	0.87	1.05	1.08	0.82	0*	0.77	0*	0.65	74	64	69
6/27/2023	0.16	0.13	0.01	t	0.01	0.01	0.01	0*	0	0*	0.01	72	62	67
6/28/2023	0	0	0	0	0	0	0	0*	0	0*	0	79	58	69
6/29/2023	0	0	0.08	0.07	0.02	0.04	0.03	0*	0.02	0*	0.07	82	59	71
6/30/2023	0	0	0	0	0	0	0	0*	0	0*	0	87	65	76
Total	2.17	3.81	3.37	3.19	3.19	4.04	2.79	1.09*	2.75	1.68*	2.52	79	58	69

Legend

X.XX*	Missing or suspect data
t	Trace amount of precipitation (less than 0.01 inches)

Table 5-9
Daily Precipitation for July 2023

Date	Daily Precipitation (inches)											DTW Daily Temperature (°F)		
	R-18	R-02	R-10	DTW	R-09	R-04	R-08	R-15	R-17	R-06	R-16	Max.	Min.	Avg.
7/1/2023	0.51	0.80	0.63	0.70	0.60	0.32	0.68	0.02	0.21	0*	0.57	83	69	76
7/2/2023	0.56	1.05	1.00	1.19	0.86	1.54	0.72	1.73	1.31	0*	1.83	79	69	74
7/3/2023	0	0.02	0.42	0.03	0	0.01	0.01	0	0.01	0*	0	84	70	77
7/4/2023	0	0.01	0	0	0	0	0	0	0	0*	0	88	68	78
7/5/2023	0	0	0	0	0	0	0	0	0	0*	0	90	70	80
7/6/2023	0	0	0	t	0.01	0	0	0	0	0*	0	84	72	78
7/7/2023	0	0	0	0	0	0	0	0	0	0*	0	82	64	73
7/8/2023	0.06	0.42	0.35	0.29	0.40	0.46	0.24	0.27	0.21	0*	0.21	75	64	70
7/9/2023	0	0	0	0	0	0.01	0	0	0.01	0*	0.06	81	63	72
7/10/2023	0	0.01	0	0	0	0	0	0	0	0	0	84	63	74
7/11/2023	0.03	0	0.02	t	0.01	0.07	0.02	0.01	0.03	0.03	0.06	88	64	76
7/12/2023	0.03	0.15	0.20	0.21	0.18	0.13	0.19	0.15	0.09	0.10	0.16	75	64	70
7/13/2023	0.01	0.15	0.11	0.08	0.13	0.06	0.13	0.10	0.11	0.05	0.17	77	61	69
7/14/2023	0.16	0.16	0.04	0.06	0.01	0.01	0.17	0.10	0	0	0.74	82	63	73
7/15/2023	0.55	0.56	0.63	0.50	0.71	0.81	0.81	0.51	0.73	0.58	0.76	73	66	70
7/16/2023	0	0.01	0.01	0	0	0	0	0	0	0	0	82	64	73
7/17/2023	0	0	0	0	0	0	0	0	0	0	0	82	63	73
7/18/2023	0.26	0	0	0	0	0	0	0	0	0	0	79	59	69
7/19/2023	0	0	0	0	0	0	0	0	0	0	0	82	63	73
7/20/2023	0.51	0.34	1.03	1.09	0.59	0.54	0.87	0.89	0.32	0.40	0.82	88	66	77
7/21/2023	0	0	0	0	0	0	0	0	0	0	0	81	64	73
7/22/2023	0	0	0	0	0	0	0	0	0	0	0	82	63	73
7/23/2023	0	0.09	0.22	0.02	0	0.09	0	0	0.05	1.07	0.34	82	63	73
7/24/2023	0	0.04	0.18	0.05	0	0.01	0.10	0.50	0	0.02	0.11	82	63	73
7/25/2023	0	0.01	0	0	0	0	0	0.01	0.01	0	0	86	66	76
7/26/2023	0.96	1.13	0.87	1.03	1.06	1.23	0.64	1.02	0.76	0.81	0.93	84	66	75
7/27/2023	0.01	0	0	0	0	0	0.14	0.01	0	0	0	84	70	77
7/28/2023	0	0.01	0.01	0	0	0.01	0.01	0	0	0.80	0.02	88	70	79
7/29/2023	0.12	0.14	0.15	0.12	0.13	0.14	0	0.11	0.15	0.18	0.16	81	70	76
7/30/2023	0	0	0	0	0	0	0.01	0.30	0	0.02	0.15	81	64	73
7/31/2023	0	0	0	0	0	0	0	0	0	0	0	77	59	68
Total	3.77	5.10	5.87	5.37	4.69	5.44	4.74	5.73	4.00	4.06*	7.09	82	65	74

Legend

X.XX*	Missing or suspect data
t	Trace amount of precipitation (less than 0.01 inches)

Table 5-10
Daily Precipitation for August 2023

Date	Daily Precipitation (inches)											DTW Daily Temperature (°F)		
	R-18	R-02	R-10	DTW	R-09	R-04	R-08	R-15	R-17	R-06	R-16	Max.	Min.	Avg.
8/1/2023	0	0	0	0	0	0	0	0	0	0	0	79	63	71
8/2/2023	0	0	0	0	0	0	0	0	0	0	0	83	64	74
8/3/2023	0	0	0	0	0	0	0	0	0	0	0	86	64	75
8/4/2023	0	0	0	0.01	0	0	0.01	0.05	0	0	0.01	85	67	76
8/5/2023	0	0	0	0	0	0	0	0	0	0	0	82	64	73
8/6/2023	0.72	0.17	0.59	0.37	0.44	0.44	0.51	0.62	0.20	0.31	0.23	79	68	74
8/7/2023	0	0	0	t	0	0	0	0	0	0	0	75	63	69
8/8/2023	0	0.01	0	0	0	0	0	0	0	0	0	83	62	73
8/9/2023	0	0	0.34	0.34	0.05	0	0.23	0	0	0	0.01	82	64	73
8/10/2023	0.02	0	0.05	0.20	0.04	0.09	0.23	0.33	0.17	0.19	0.23	81	65	73
8/11/2023	0.43	0.21	0.49	0.37	0.35	0.98	0.32	0.13	0.47	0.69	0.36	78	59	69
8/12/2023	0	0.03	0	t	0.07	0.15	0.01	0.02	0.09	0.17	0.17	83	67	75
8/13/2023	0	0	0	t	0	0	0	0	0	0	0	83	63	73
8/14/2023	0.62	0.84	0.72	0.80	0.55	1.08	0.61	0.59	0.73	0.79	0.64	77	64	71
8/15/2023	0.39	0.17	0.09	0.33	0.35	0.17	0.25	0.25	0.12	0.13	0.13	72	62	67
8/16/2023	0	0.01	0.01	0	0	0.01	0	0	0	0	0	80	59	70
8/17/2023	0.42	0.64	0.46	0.53	0.50	0.59	0.38	0.48	0.50	0.52	0.50	76	61	69
8/18/2023	0	0	0	0	0	0	0	0	0	0	0	74	56	65
8/19/2023	0	0	0	0	0	0	0	0	0	0	0	76	54	65
8/20/2023	0	0	0	0	0	0	0	0	0	0	0	86	61	74
8/21/2023	0	0	0	0	0	0	0	0	0	0	0.01	84	64	74
8/22/2023	0	0	0	t	0	0	0	0	0	0	0	74	59	67
8/23/2023	0	0	0	0.02	0.13	0.19	0.17	0.03	0.34	0.40	0.30	83	66	75
8/24/2023	6.43	7.21	5.21	3.50	2.27	3.91	1.51	1.31	1.73	2.29	2.63	86	70	78
8/25/2023	0.01	0.03	0.01	0.01	0.02	0.02	0.02	0.01	0.02	0.01	0.01	77	68	73
8/26/2023	0.01	0.02	0.01	0	0	0	0	0	0	0	0	78	59	69
8/27/2023	0	0	0	0	0	0	0	0	0	0	0	74	54	64
8/28/2023	0	0	0	0	0	0	0	0	0	0	0	77	54	66
8/29/2023	0.02	0.12	0.02	0.02	0.01	0.01	0.01	0	0.01	0	0	79	58	69
8/30/2023	0	0	0	0	0	0	0	0	0	0	0	69	55	62
8/31/2023	0	0	0	0	0	0	0.01	0	0	0	0	73	50	62
Total	9.07	9.46	8.00	6.50	4.78	7.64	4.27	3.82	4.38	5.50	5.23	79	62	70

Legend

X.XX*	Missing or suspect data
t	Trace amount of precipitation (less than 0.01 inches)

Table 5-11
Daily Precipitation for September 2023

Date	Daily Precipitation (inches)											DTW Daily Temperature (°F)		
	R-18	R-02	R-10	DTW	R-09	R-04	R-08	R-15	R-17	R-06	R-16	Max.	Min.	Avg.
9/1/2023	0	0	0	0	0	0	0	0	0	0	0	77	53	65
9/2/2023	0	0	0	0	0	0	0	0	0	0	0	82	57	70
9/3/2023	0	0	0	0	0	0	0	0	0	0	0	88	66	77
9/4/2023	0	0	0	0	0	0	0	0	0	0	0	89	70	80
9/5/2023	0.16	0.28	0.22	0.53	0.15	0.17	0.13	0.09	0.08	0.07	0.04	89	71	80
9/6/2023	0.11	0.31	0.20	0.10	0.18	0.23	0.21	0.13	0.18	0.17	0.23	82	68	75
9/7/2023	0.10	0.12	0.22	0.15	0.26	0.09	0.24	0	0.08	0.26	0.13	76	64	70
9/8/2023	0	0	0	0.01	0	0	0	0	0	0	0.01	69	61	65
9/9/2023	0.01	0.01	0.03	t	0.01	0.02	0.01	0	0	0.01	0	73	59	66
9/10/2023	0	0	0	0	0	0	0	0	0	0	0	73	55	64
9/11/2023	0	0	0	0.01	0	0	0	0	0	0	0	74	56	65
9/12/2023	0.23	0.23	0.23	0.21	0.22	0.31	0.23	0.26	0.26	0.29	0.35	73	57	65
9/13/2023	0	0	0.01	0	0	0	0.01	0	0	0	0	69	50	60
9/14/2023	0	0	0	0	0	0	0	0	0	0	0	71	48	60
9/15/2023	0	0	0	0	0	0	0	0	0	0	0	72	51	62
9/16/2023	0	0	0.01	0	0	0	0	0	0	0	0	72	51	62
9/17/2023	0	0	0	0.40	0.08	0.04	0.12	0.02	0.02	0.28	1.88	72	59	66
9/18/2023	0	0	0	0	0	0	0.01	0	0	0	0	70	53	62
9/19/2023	0	0	0	0	0	0	0	0	0	0	0	72	49	61
9/20/2023	0	0	0	t	0	0	0	0	0	0	0	76	60	68
9/21/2023	0	0	0	0	0	0	0	0	0	0	0	79	57	68
9/22/2023	0	0	0	0	0	0	0	0	0	0	0	78	59	69
9/23/2023	0	0	0	0	0	0	0	0	0	0	0	73	55	64
9/24/2023	0	0	0	0	0	0	0	0	0	0	0	78	52	65
9/25/2023	0	0	0	0	0	0	0	0	0	0	0	69	60	65
9/26/2023	0.01	0	0.02	0.01	0	0.01	0	0	0	0	0	70	62	66
9/27/2023	0.32	0.53	0.43	0.64	0.37	0.28	0.26	0.35	0.20	0.36	0.55	64	59	62
9/28/2023	0.12	0.27	0.25	0.22	0.35	0.44	0.28	0.26	0.26	0.07	0.08	64	59	62
9/29/2023	0	0	0	0	0	0	0	0	0	0	0	70	59	65
9/30/2023	0	0.01	0	0	0	0.01	0.01	0.01	0	0.01	0	75	56	66
Total	1.06	1.76	1.62	2.28	1.62	1.60	1.51	1.12	1.08	1.52	3.27	75	58	66

Legend

X.XX*	Missing or suspect data
t	Trace amount of precipitation (less than 0.01 inches)

Table 5-12
Daily Precipitation for October 2023

Date	Daily Precipitation (inches)											DTW Daily Temperature (°F)		
	R-18	R-02	R-10	DTW	R-09	R-04	R-08	R-15	R-17	R-06	R-16	Max.	Min.	Avg.
10/1/2023	0	0	0.01	0	0.01	0	0	0	0.01	0.01	0	78	56	67
10/2/2023	0	0	0	0	0	0	0	0	0	0.01	0	81	58	70
10/3/2023	0	0	0	0	0	0.01	0	0	0	0	0.01	83	59	71
10/4/2023	0	0	0	0	0	0	0	0	0	0	0	82	64	73
10/5/2023	0.67	0.89	0.72	0.70	0.46	0.62	0.41	0.43	0.49	0.58	0.55	70	62	66
10/6/2023	0.03	0.04	0.03	0.01	0.03	0.02	0.03	0.04	0.01	0.02	0.02	68	48	58
10/7/2023	0.02	0.01	0	0.01	0.01	0	0	0	0.01	0	0	58	44	51
10/8/2023	0	0	0	0	0	0	0	0	0	0	0	57	39	48
10/9/2023	0	0	0	0	0	0	0	0	0	0	0	57	39	48
10/10/2023	0.01	0.02	0.02	0.02	0.03	0.05	0.03	0.02	0.03	0.03	0.04	53	41	47
10/11/2023	0	0	0	t	0	0	0	0	0	0	0	63	47	55
10/12/2023	0	0	0	t	0	0	0	0	0	0	0	60	47	54
10/13/2023	0.01	0.01	0.03	0.05	0.01	0.01	0	0.01	0	0.01	0	57	49	53
10/14/2023	0.23	0.35	0.33	0.32	0.35	0.68	0.31	0.30	0.45	0.57	0.49	52	48	50
10/15/2023	0.01	0.01	0.01	t	0	0.01	0.01	0	0	0.01	0	55	44	50
10/16/2023	0	0	0	t	0	0.02	0.01	0	0.01	0.01	0.02	55	47	51
10/17/2023	0	0	0	0	0	0	0	0	0	0	0	52	44	48
10/18/2023	0	0	0	0	0	0	0	0	0	0	0	63	41	52
10/19/2023	0.27	0.25	0.25	0.23	0.24	0.31	0*	0.23	0.24	0.24	0.23	57	50	54
10/20/2023	0.05	0.05	0.09	0.08	0.12	0.08	0*	0.05	0.15	0.24	0.10	58	50	54
10/21/2023	0.04	0.03	0.01	0.01	0	0.01	0*	0	0	0	0	53	44	49
10/22/2023	0	0	0	0	0	0	0*	0	0	0	0	52	37	45
10/23/2023	0	0	0	0	0	0	0*	0	0	0	0	57	33	45
10/24/2023	0	0	0	0	0	0	0*	0	0	0	0	77	47	62
10/25/2023	0.06	0.05	0.06	0.05	0.03	0.06	0*	0.05	0.01	0.03	0.03	68	61	65
10/26/2023	0.14	0.15	0.12	0.11	0.12	0.07	0*	0.13	0.13	0.11	0.18	74	60	67
10/27/2023	0.06	0.12	0.11	0.08	0.11	0.19	0*	0.09	0.13	0.13	0.17	76	62	69
10/28/2023	0.01	0.03	0.03	0.04	0.01	0.03	0*	0.02	0.01	0.02	0.03	67	45	56
10/29/2023	0.23	0.29	0.28	0.26	0.27	0.36	0*	0.23	0.33	0.33	0.35	48	42	45
10/30/2023	0.17	0.16	0.19	0.13	0.15	0.25	0*	0.18	0.22	0.23	0.24	46	30	38
10/31/2023	0	0	0	t	0	0	0*	0	0	0	0	41	27	34
Total	2.01	2.46	2.29	2.10	1.95	2.78	0.80*	1.78	2.23	2.58	2.46	62	47	55

Legend

X.XX*	Missing or suspect data
t	Trace amount of precipitation (less than 0.01 inches)

Table 5-13
Daily Precipitation for November 2023

Date	Daily Precipitation (inches)											DTW Daily Temperature (°F)		
	R-18	R-02	R-10	DTW	R-09	R-04	R-08	R-15	R-17	R-06	R-16	Max.	Min.	Avg.
11/1/2023	0	0	0	0	0	0	0*	0	0	0	0	44	26	35
11/2/2023	0	0	0	0	0	0	0	0	0	0	0	51	31	41
11/3/2023	0	0	0	t	0	0	0	0	0	0	0	57	40	49
11/4/2023	0.03	0.02	0.04	0.03	0.02	0.02	0.03	0.04	0.02	0.01	0.04	55	46	51
11/5/2023	0	0	0	0	0	0	0	0	0	0	0	56	39	48
11/6/2023	0	0	0	t	0	0	0	0	0.01	0.01	0	65	42	54
11/7/2023	0	0	0	0	0	0	0	0	0	0	0	58	41	50
11/8/2023	0.19	0.23	0.24	0.28	0.31	0.18	0.38	0.32	0.38	0.20	0.38	50	37	44
11/9/2023	0	0	0.01	t	0	0	0	0	0.01	0	0	56	43	50
11/10/2023	0	0	0	0	0	0	0	0	0	0	0	54	37	46
11/11/2023	0	0	0	0	0	0	0	0	0	0	0	51	33	42
11/12/2023	0	0	0	0	0	0	0	0	0	0	0	50	30	40
11/13/2023	0	0	0	0	0	0	0	0	0	0	0	61	36	49
11/14/2023	0	0	0	0	0	0	0	0	0	0	0	53	31	42
11/15/2023	0	0	0	0	0	0	0	0	0	0	0	62	31	47
11/16/2023	0	0	0	0	0	0	0	0	0	0	0	64	35	50
11/17/2023	0.01	0	0	t	0	0	0	0.01	0	0	0	61	31	46
11/18/2023	0	0	0	0	0	0	0	0	0	0	0	51	27	39
11/19/2023	0	0	0	0	0	0	0	0	0	0	0	53	31	42
11/20/2023	0	0	0	t	0	0	0	0	0	0	0	43	31	37
11/21/2023	0.43	0.36	0.48	0.44	0.34	0.50	0.33	0.40	0.42	0.51	0.49	50	38	44
11/22/2023	0	0	0	t	0	0	0	0	0	0	0.01	44	38	41
11/23/2023	0	0	0	0	0	0	0	0	0	0	0	49	32	41
11/24/2023	0	0	0	0	0	0	0	0	0	0	0	36	23	30
11/25/2023	0	0	0	0	0	0	0	0	0	0	0	38	21	30
11/26/2023	0.12	0.13	0.16	0.18	0.15	0.23	0.14	0.16	0.15	0.19	0.19	39	24	32
11/27/2023	0.02	0.05	0.04	0.06	0.01	0.11	0.05	0.03	0.01	0.05	0.07	34	24	29
11/28/2023	0	0.03	0	t	0	0.07	0	0.01	0	0.01	0	29	19	24
11/29/2023	0	0	0	0	0	0	0	0	0	0	0	34	18	26
11/30/2023	0	0	0	0	0	0	0	0.01	0	0	0	54	26	40
Total	0.80	0.82	0.97	0.99	0.83	1.11	0.93	0.98	1.00	0.98	1.18	50	32	41

Legend

X.XX*	Missing or suspect data
t	Trace amount of precipitation (less than 0.01 inches)

Table 5-14
Daily Precipitation for December 2023

Date	Daily Precipitation (inches)											DTW Daily Temperature (°F)		
	R-18	R-02	R-10	DTW	R-09	R-04	R-08	R-15	R-17	R-06	R-16	Max.	Min.	Avg.
12/1/2023	0.42	0.43	0.61	0.56	0.52	0.56	0.52	0.57	0.50	0.52	0.60	47	41	44
12/2/2023	0.04	0.05	0.09	0.07	0.06	0.09	0.07	0.08	0.08	0.08	0.08	43	39	41
12/3/2023	0.25	0.25	0.30	0.27	0.22	0.25	0.22	0.27	0.16	0.24	0.18	43	39	41
12/4/2023	0	0	0	0.01	0	0	0	0.01	0	0	0	40	35	38
12/5/2023	0.02	0	0.02	0.08	0.04	0.02	0.05	0.03	0.03	0.02	0	38	31	35
12/6/2023	0	0	0	t	0	0	0	0	0	0	0	40	27	34
12/7/2023	0	0	0	0	0	0	0	0	0	0	0	46	35	41
12/8/2023	0	0	0	0	0	0	0	0	0	0	0	53	37	45
12/9/2023	0.09	0.04	0.01	0.02	0.07	0.05	0.04	0.02	0.05	0.05	0.05	64	42	53
12/10/2023	0.01	0.01	0.01	0.01	0.01	0.03	0.01	0.01	0.01	0	0.01	42	34	38
12/11/2023	0	0	0	t	0	0	0	0	0	0	0	35	28	32
12/12/2023	0	0	0	0	0	0	0	0	0	0	0	44	26	35
12/13/2023	0	0	0	0	0	0	0	0	0	0	0	38	22	30
12/14/2023	0	0	0	0	0	0	0	0	0	0	0	48	24	36
12/15/2023	0	0	0	0	0	0	0	0	0	0	0	56	28	42
12/16/2023	0	0	0	0	0	0	0	0	0	0	0	51	37	44
12/17/2023	0.21	0.18	0.25	0.22	0.28	0.34	0.20	0.25	0.32	0.40	0.38	48	42	45
12/18/2023	0.05	0.05	0.04	0.07	0.07	0.15	0.09	0.06	0.07	0.08	0.10	42	30	36
12/19/2023	0	0	0	0	0	0	0	0	0	0	0	35	28	32
12/20/2023	0	0	0	0	0	0	0	0	0	0	0	43	28	36
12/21/2023	0	0	0	0	0	0	0	0	0	0	0	43	35	39
12/22/2023	0.08	0.04	0.09	0.10	0.05	0.04	0.06	0.07	0.05	0.05	0.06	40	36	38
12/23/2023	0.25	0.20	0.25	0.25	0.25	0.28	0.21	0.26	0.24	0.26	0.26	46	40	43
12/24/2023	0	0	0.01	t	0	0	0.01	0	0	0.01	0.02	47	44	46
12/25/2023	0.01	0	0	t	0	0.02	0.01	0.01	0.02	0.02	0.01	54	45	50
12/26/2023	0.06	0.11	0.17	0.16	0.15	0.14	0.10	0.12	0.12	0.12	0.13	56	49	53
12/27/2023	0.15	0.05	0.08	0.09	0.09	0.13	0.18	0.17	0.17	0.21	0.22	51	44	48
12/28/2023	0.18	0.12	0.29	0.28	0.23	0.31	0.27	0.32	0.29	0.23	0.33	45	40	43
12/29/2023	0.06	0.03	0.08	0.06	0.04	0.06	0.06	0.05	0.07	0.06	0.06	41	38	40
12/30/2023	0.01	0	0	t	0	0.01	0	0.01	0.01	0	0	40	30	35
12/31/2023	0.01	0.01	0	t	0.02	0.02	0.02	0.03	0.02	0.01	0.03	40	30	35
Total	1.90	1.57	2.30	2.25	2.10	2.50	2.12	2.34	2.21	2.36	2.52	43	34	39

Legend

X.XX*	Missing or suspect data
t	Trace amount of precipitation (less than 0.01 inches)

Table 5-15
Summary of Precipitation Data for Significant Storm Events

Period: 1/1/2023 through 12/31/2023

Significant Event No.[1]	Major Storm Event[2]	DWTF Peak Hourly Flow Rate (cfs)	Start Date	Stop Date	Preceding Week Rainfall (inches)	Event Precipitation Depth (inches)				Coefficient of Variation[4]
						Minimum	Average[3]	Maximum	Std. Dev	
1	-	201	1/18/2023	1/20/2023	0.40	0.94	1.18	1.62	0.19	16%
2	-	198	2/22/2023	2/23/2023	0.09	0.89	1.10	1.53	0.18	16%
3	-	216	2/27/2023	2/28/2023	1.14	1.13	1.37	1.86	0.25	18%
4	-	205	3/3/2023	3/7/2023	1.42	1.35	1.86	2.76	0.37	20%
5	-	213	3/31/2023	4/1/2023	0.45	1.39	1.62	1.89	0.17	11%
6	-	185	4/28/2023	4/30/2023	0.30	0.89	1.12	1.44	0.16	14%
7	-	182	6/25/2023	6/27/2023	0.18	1.13	1.45	1.85	0.29	20%
8	-	225	7/1/2023	7/2/2023	1.34	1.07	1.68	2.40	0.36	21%
9	-	217	8/23/2023	8/25/2023	0.50	1.35	3.61	7.24	1.94	54%

Notes:

1) Significant storm events are defined as those with at least 0.5 inches of rainfall occurring on a single day with an event total of at least 1.0 inch of rainfall. Significant storm events are separated by at least 2 consecutive days without precipitation over 0.1 inches. This storm event definition is based on the arithmetic mean of the rainfall recorded by all rain gauges used in the analysis for that storm.

2) Major storm events are a subgroup of significant storm events which result in the peak hourly influent flow rate to the DWTF reaching or exceeding 175 MGD (271 cfs).

3) The average precipitation value is an arithmetic average of the collection of point gauges.

4) The coefficient of variation is the ratio of the standard deviation to the average. It provides a normalized assessment of the degree of spatial variability for a given event. This allows comparisons to be made between events regarding their uniformity over the service area independent of the magnitude of each event. A low coefficient of variation means the storm event was spatially uniform over the district, high coefficient of variation means the storm event was highly variable over the district.

6) PEAK FLOW RATES FOR CONTROLLED FLOW COMMUNITIES

Table 6-1 lists the peak hourly flow rates for the flow meters along the Riverdrive Interceptor for each significant/major storm event. The wet weather MAFLs from the Downriver Utility Wastewater Authority Service Agreement (March 21, 2018) are also given. These MAFLs are used to check whether or not the incoming flow rates are being regulated properly for the significant/major storm events. Exceedances of the MAFLs are highlighted (if any).

Incremental peak hourly flow rates are estimated if the total peak hourly flow rates for the flow meters exceed the MAFLs by 5% or more. Table 6-2 lists the incremental peak hourly flow rates for the flow meters along the Riverdrive Interceptor for these events. The incremental wet weather MAFLs from the Downriver Utility Wastewater Authority Service Agreement (March 21, 2018) are also given. Exceedances of the incremental MAFLs are highlighted (if any).

Appendix D includes hydrographs at select locations for the major storm events.

Table 6-1
Downriver Sewage Disposal System
Peak Hourly Flow Rates by Meter for Controlled Flow Communities

Meter =		RR-1		EC-6		RD-1		SW	
Total Flow Formula =		[RR-1]		[EC-6]		[RD-1]		[SW] + [SWB]	
Location =		River Rouge CSO Basin Outlet		Riverdrive Interceptor South of Southfield Road		Riverdrive Interceptor North of Northline Road		SWRDDD Connection	
Communities Included in Total Flow =		River Rouge		River Rouge, Ecorse, & Lincoln Park (part)		River Rouge, Ecorse, Lincoln Park (part), & Allen Park (part)		Southgate (part) & Wyandotte	
Total Wet Weather MAFL =		11.26 cfs		23.46 cfs		65.82 cfs		31.73 cfs	
		Date/Time of Occurrence	Flow Rate / Volume	Date/Time of Occurrence	Flow Rate / Volume	Date/Time of Occurrence	Flow Rate / Volume	Date/Time of Occurrence	Flow Rate / Volume
Significant Storm Event 1 January 18-20, 2023 1.18 inches	Start of First Exceedence	1/19/23 20:50	--	--	--	--	--	1/19/23 0:55	--
	End of Last Exceedence	1/20/23 18:35	--	--	--	--	--	1/20/23 17:45	--
	Total Time of Exceedence	21:50	--	--	--	--	--	23:55	--
	Total Volume Above MAFL	--	0.57 MG	--	--	--	--	--	10.75 MG
	Peak Hourly Flow Rate	1/20/23 0:40	13.05 cfs	1/19/23 20:40	22.45 cfs	1/20/23 0:10	64.03 cfs	1/19/23 2:00	64.94 cfs
Significant Storm Event 2 February 22-23, 2023 1.10 inches	Start of First Exceedence	2/22/23 18:15	--	--	--	--	--	2/22/23 11:40	--
	End of Last Exceedence	2/23/23 10:20	--	--	--	--	--	2/25/23 4:00	--
	Total Time of Exceedence	16:00	--	--	--	--	--	51:25	--
	Total Volume Above MAFL	--	0.35 MG	--	--	--	--	--	9.30 MG
	Peak Hourly Flow Rate	2/22/23 22:45	12.85 cfs	2/22/23 23:40	20.75 cfs	2/23/23 0:15	64.58 cfs	2/22/23 12:35	52.64 cfs
Significant Storm Event 3 February 27-28, 2023 1.37 inches	Start of First Exceedence	2/27/23 13:00	--	2/27/23 15:45	--	2/27/23 15:10	--	2/27/23 10:10	--
	End of Last Exceedence	2/28/23 23:50	--	2/28/23 4:25	--	2/27/23 16:00	--	3/3/23 5:05	--
	Total Time of Exceedence	29:45	--	12:45	--	0:55	--	51:10	--
	Total Volume Above MAFL	--	0.62 MG	--	0.96 MG	--	0.01 MG	--	10.39 MG
	Peak Hourly Flow Rate	2/28/23 0:45	13.00 cfs	2/27/23 18:05	29.52 cfs	2/27/23 15:55	66.37 cfs	2/27/23 12:05	73.06 cfs
Significant Storm Event 4 March 3-7 1.86 inches	Start of First Exceedence	3/4/23 13:05	--	3/4/23 13:45	--	--	--	3/3/23 15:15	--
	End of Last Exceedence	3/7/23 9:15	--	3/4/23 19:10	--	--	--	3/13/23 20:35	--
	Total Time of Exceedence	38:30	--	5:30	--	--	--	115:45	--
	Total Volume Above MAFL	--	0.47 MG	--	0.24 MG	--	--	--	38.01 MG
	Peak Hourly Flow Rate	3/4/23 17:45	12.30 cfs	3/4/23 18:20	26.07 cfs	3/5/23 15:40	59.75 cfs	3/10/23 12:55	77.61 cfs
Significant Storm Event 5 March 31 - April 1, 2023 1.62 inches	Start of First Exceedence	3/31/23 13:10	--	3/31/23 23:15	--	--	--	3/31/23 6:20	--
	End of Last Exceedence	4/3/23 1:15	--	4/1/23 8:15	--	--	--	4/6/23 20:00	--
	Total Time of Exceedence	55:45	--	8:20	--	--	--	45:15	--
	Total Volume Above MAFL	--	1.30 MG	--	0.47 MG	--	--	--	4.62 MG
	Peak Hourly Flow Rate	4/2/23 3:05	13.12 cfs	4/1/23 7:50	27.48 cfs	3/31/23 11:15	53.68 cfs	3/31/23 7:20	58.38 cfs
Significant Storm Event 6 April 28-30, 2023 1.12 inches	Start of First Exceedence	--	--	--	--	--	--	4/28/23 9:50	--
	End of Last Exceedence	--	--	--	--	--	--	5/1/23 16:55	--
	Total Time of Exceedence	--	--	--	--	--	--	34:25	--
	Total Volume Above MAFL	--	--	--	--	--	--	--	5.93 MG
	Peak Hourly Flow Rate	4/29/23 1:25	10.85 cfs	4/29/23 0:05	19.14 cfs	4/28/23 22:55	51.26 cfs	4/28/23 22:25	61.38 cfs
Significant Storm Event 7 June 25-27 1.45 inches	Start of First Exceedence	6/26/23 13:55	--	--	--	--	--	6/25/23 17:50	--
	End of Last Exceedence	6/26/23 23:40	--	--	--	--	--	6/26/23 15:55	--
	Total Time of Exceedence	9:30	--	--	--	--	--	16:10	--
	Total Volume Above MAFL	--	0.13 MG	--	--	--	--	--	9.11 MG
	Peak Hourly Flow Rate	6/26/23 15:15	12.19 cfs	6/26/23 14:05	21.64 cfs	6/26/23 13:15	54.69 cfs	6/26/23 12:25	81.21 cfs
Significant Storm Event 8 July 1-2, 2023 1.68 inches	Start of First Exceedence	7/2/23 1:55	--	7/2/23 1:00	--	--	--	7/1/23 13:15	--
	End of Last Exceedence	7/2/23 19:55	--	7/2/23 23:30	--	--	--	7/3/23 12:15	--
	Total Time of Exceedence	13:40	--	12:20	--	--	--	25:10	--
	Total Volume Above MAFL	--	0.28 MG	--	0.84 MG	--	--	--	7.35 MG
	Peak Hourly Flow Rate	7/2/23 4:15	12.37 cfs	7/2/23 15:40	30.84 cfs	7/2/23 14:50	65.69 cfs	7/1/23 23:25	71.23 cfs
Significant Storm Event 9 August 23-25 3.61 inches	Start of First Exceedence	8/24/23 3:35	--	8/24/23 1:45	--	--	--	8/23/23 22:45	--
	End of Last Exceedence	8/25/23 20:00	--	8/25/23 7:10	--	--	--	8/27/23 13:05	--
	Total Time of Exceedence	29:45	--	16:15	--	--	--	22:50	--
	Total Volume Above MAFL	--	0.70 MG	--	1.51 MG	--	--	--	2.91 MG
	Peak Hourly Flow Rate	8/25/23 19:20	13.33 cfs	8/24/23 2:40	29.70 cfs	8/24/23 22:15	64.12 cfs	8/24/23 0:35	49.68 cfs

Notes:
1. The Wet Weather MAFLs for Controlled Flow Communities are from the Downriver Utility Wastewater Authority Service Agreement (March 21, 2017). The communities are responsible for regulating their flow rates to the Riverdrive Interceptor to the these flow limits. The MAFLs for each community are listed below:
   i. The MAFL for River Rouge at RR-1 is 11.26 cfs.
   ii. The MAFL for Ecorse at EC-6 is 9.20 cfs.
   iii. The MAFL for Lincoln Park is 28.16 cfs.
   iv. The MAFL for Lincoln Park is divided between two meters 3.00 cfs at EC-6 and 25.16 cfs at RD-1. The Reg-U-Flo Vortex Valve on the Applewood connection restricts Lincoln Parks flow rate to about 3.00 cfs.
   v. The MAFL for Allen Park at RD-1 (via Lincoln Park) is 17.20 cfs.
   vi. The MAFL for Southgate at SW is 7.67 cfs.
   vii. The MAFL for Wyandotte at SW is 24.06 cfs.

Legend:

XX.XX	Exceeds wet weather MAFL by 0 to 5%
XX.XX	Exceeds wet weather MAFL by > 5%
XX.XX	Exceeds wet weather MAFL, coordinated with Veolia

Table 6-2
Downriver Sewage Disposal System
Incremental Peak Hourly Flow Rates by Meter District for Controlled Flow Communities

Meter District =		RR-1		EC-6		RD-1		SW	
Incremental Flow Formula =		[RR-1]		[EC-6] - [RR-1r]		[RD-1] - [EC-6r]		[SW] + [SWB]	
Location =		River Rouge CSO Basin Outlet		Riverdrive Interceptor South of Southfield Road		Riverdrive Interceptor North of Northline Road		SWRDDD Connection	
Communities Included in Total Flow =		River Rouge		Ecorse & Lincoln Park (part)		Lincoln Park (part) & Allen Park (part)		Southgate (part) & Wyandotte	
Incremental Wet Weather MAFL =		11.26 cfs		12.20 cfs		42.36 cfs		31.73 cfs	
		Date/Time of Occurrence	Flow Rate / Volume	Date/Time of Occurrence	Flow Rate / Volume	Date/Time of Occurrence	Flow Rate / Volume	Date/Time of Occurrence	Flow Rate / Volume
Significant Storm Event 1 January 18-20, 2023 1.18 inches	Start of First Exceedence	1/19/23 20:50	--	1/19/23 20:10	--	1/19/23 19:35	--	1/19/23 0:55	--
	End of Last Exceedence	1/20/23 18:35	--	1/19/23 20:55	--	1/20/23 1:05	--	1/20/23 17:45	--
	Total Time of Exceedence	21:50	--	0:50	--	2:10	--	23:55	--
	Total Volume Above MAFL	--	0.57 MG	--	0.04 MG	--	0.13 MG	--	10.75 MG
	Peak Hourly Flow Rate	1/20/23 0:40	13.05 cfs	1/19/23 20:35	14.66 cfs	1/19/23 20:10	48.35 cfs	1/19/23 2:00	64.94 cfs
Significant Storm Event 2 February 22-23, 2023 1.10 inches	Start of First Exceedence	2/22/23 18:15	--	--	--	2/22/23 22:20	--	2/22/23 11:40	--
	End of Last Exceedence	2/23/23 10:20	--	--	--	2/23/23 1:50	--	2/25/23 4:00	--
	Total Time of Exceedence	16:00	--	--	--	3:35	--	51:25	--
	Total Volume Above MAFL	--	0.35 MG	--	--	--	0.12 MG	--	9.30 MG
	Peak Hourly Flow Rate	2/22/23 22:45	12.85 cfs	2/22/23 18:30	8.07 cfs	2/22/23 23:55	44.37 cfs	2/22/23 12:35	52.64 cfs
Significant Storm Event 3 February 27-28, 2023 1.37 inches	Start of First Exceedence	2/27/23 13:00	--	2/27/23 15:45	--	2/27/23 14:05	--	2/27/23 10:10	--
	End of Last Exceedence	2/28/23 23:50	--	2/28/23 4:25	--	2/27/23 16:00	--	3/3/23 5:05	--
	Total Time of Exceedence	29:45	--	12:45	--	1:55	--	51:10	--
	Total Volume Above MAFL	--	0.62 MG	--	0.87 MG	--	0.07 MG	--	10.39 MG
	Peak Hourly Flow Rate	2/28/23 0:45	13.00 cfs	2/27/23 18:10	19.28 cfs	2/27/23 14:55	44.71 cfs	2/27/23 12:05	73.06 cfs
Significant Storm Event 4 March 3-7 1.86 inches	Start of First Exceedence	3/4/23 13:05	--	3/4/23 13:40	--	3/5/23 15:05	--	3/3/23 15:15	--
	End of Last Exceedence	3/7/23 9:15	--	3/4/23 19:10	--	3/6/23 15:10	--	3/13/23 20:35	--
	Total Time of Exceedence	38:30	--	5:35	--	6:25	--	115:45	--
	Total Volume Above MAFL	--	0.47 MG	--	0.15 MG	--	0.19 MG	--	38.01 MG
	Peak Hourly Flow Rate	3/4/23 17:45	12.30 cfs	3/4/23 18:20	13.81 cfs	3/6/23 9:35	44.76 cfs	3/10/23 12:55	77.61 cfs
Significant Storm Event 5 March 31 - April 1, 2023 1.62 inches	Start of First Exceedence	3/31/23 13:10	--	3/31/23 23:15	--	3/31/23 11:15	--	3/31/23 6:20	--
	End of Last Exceedence	4/3/23 1:15	--	4/1/23 8:15	--	3/31/23 11:15	--	4/6/23 20:00	--
	Total Time of Exceedence	55:45	--	7:40	--	0:05	--	45:15	--
	Total Volume Above MAFL	--	1.30 MG	--	0.39 MG	--	0.00 MG	--	4.62 MG
	Peak Hourly Flow Rate	4/2/23 3:05	13.12 cfs	4/1/23 7:50	15.76 cfs	3/31/23 11:15	42.49 cfs	3/31/23 7:20	58.38 cfs
Significant Storm Event 6 April 28-30, 2023 1.12 inches	Start of First Exceedence	--	--	--	--	--	--	4/28/23 9:50	--
	End of Last Exceedence	--	--	--	--	--	--	5/1/23 16:55	--
	Total Time of Exceedence	--	--	--	--	--	--	34:25	--
	Total Volume Above MAFL	--	--	--	--	--	--	--	5.93 MG
	Peak Hourly Flow Rate	4/29/23 1:25	10.85 cfs	4/28/23 23:30	9.94 cfs	4/28/23 22:50	40.00 cfs	4/28/23 22:25	61.38 cfs
Significant Storm Event 7 June 25-27 1.45 inches	Start of First Exceedence	6/26/23 13:55	--	6/26/23 12:50	--	6/26/23 12:00	--	6/25/23 17:50	--
	End of Last Exceedence	6/26/23 23:40	--	6/26/23 14:05	--	6/26/23 13:15	--	6/26/23 15:55	--
	Total Time of Exceedence	9:30	--	1:20	--	1:20	--	16:10	--
	Total Volume Above MAFL	--	0.13 MG	--	0.03 MG	--	0.13 MG	--	9.11 MG
	Peak Hourly Flow Rate	6/26/23 15:15	12.19 cfs	6/26/23 13:05	13.57 cfs	6/26/23 12:40	47.91 cfs	6/26/23 12:25	81.21 cfs
Significant Storm Event 8 July 1-2, 2023 1.68 inches	Start of First Exceedence	7/2/23 1:55	--	7/2/23 0:25	--	7/1/23 23:50	--	7/1/23 13:15	--
	End of Last Exceedence	7/2/23 19:55	--	7/3/23 1:25	--	7/2/23 15:15	--	7/3/23 12:15	--
	Total Time of Exceedence	13:40	--	14:30	--	2:45	--	25:10	--
	Total Volume Above MAFL	--	0.28 MG	--	1.29 MG	--	0.38 MG	--	7.35 MG
	Peak Hourly Flow Rate	7/2/23 4:15	12.37 cfs	7/2/23 1:20	21.28 cfs	7/2/23 14:45	51.45 cfs	7/1/23 23:25	71.23 cfs
Significant Storm Event 9 August 23-25 3.61 inches	Start of First Exceedence	8/24/23 3:35	--	8/24/23 1:20	--	8/24/23 0:55	--	8/23/23 22:45	--
	End of Last Exceedence	8/25/23 20:00	--	8/25/23 8:20	--	8/24/23 23:05	--	8/27/23 13:05	--
	Total Time of Exceedence	29:45	--	15:45	--	3:00	--	22:50	--
	Total Volume Above MAFL	--	0.70 MG	--	1.74 MG	--	0.32 MG	--	2.91 MG
	Peak Hourly Flow Rate	8/25/23 19:20	13.33 cfs	8/24/23 2:10	24.45 cfs	8/24/23 22:15	48.90 cfs	8/24/23 0:35	49.68 cfs

Notes:
1. The Wet Weather MAFLs for Controlled Flow Communities are from the Downriver Utility Wastewater Authority Service Agreement (March 21, 2017). The communities are responsible for regulating their flow rates to the Riverdrive Interceptor to the these flow limits. The MAFLs for each community are listed below:
   i. The MAFL for River Rouge at RR-1 is 11.26 cfs.
   ii. The MAFL for Ecorse at EC-6 is 9.20 cfs.
   iii. The MAFL for Lincoln Park is 28.16 cfs.
   iv. The MAFL for Lincoln Park is divided between two meters 3.00 cfs at EC-6 and 25.16 cfs at RD-1. The Reg-U-Flo Vortex Valve on the Applewood connection restricts Lincoln Parks flow rate to about 3.00 cfs.
   v. The MAFL for Allen Park at RD-1 (via Lincoln Park) is 17.20 cfs.
   vi. The MAFL for Southgate at SW is 7.67 cfs.
   vii. The MAFL for Wyandotte at SW is 24.06 cfs.

Legend:

XX.XX	Exceeds wet weather MAFL by 0 to 5%
XX.XX	Exceeds wet weather MAFL by > 5%
XX.XX	Exceeds wet weather MAFL, coordinated with Veolia

WET WEATHER VOLUMES FOR NON-CONTROLLED FLOW COMMUNITIES

The peak 96-hour wet weather volumes for the non-controlled flow communities during the major storm events were estimated using the flow monitoring data set. These volumes were compared to those for the 4.42-inch storm event used in the design of the Downriver tunnel system as given on Table 7-1. Exceedances of the peak 96-hour volumes allocated to each community during the major storm events during this reporting period are highlighted (if any). Table 7-2 lists the peak 96-hour incremental volumes for each community by meter district component. Table 7-3 lists the peak 96-hour incremental volumes for each meter district by community component. Table 7-4 lists the peak hourly flow rates and 96-hour volumes at each meter, and Table 7-5 lists the peak hydraulic grade lines at each meter for the major storm event.

7) METER DATA SUMMARY

The flow monitoring data were reviewed and edited as summarized on Table 8-1. The flow monitoring data is summarized in more detail in Appendix C. This appendix includes: charts detailing data and meter maintenance issues that occurred during these months, and average daily flow rate plots for each meter. Data for each meter was carried through the analysis with the following exceptions:

- Flow rates are recalculated to account for sediment deposits for Meter SW. Details of the flow rate recalculation are provided in the Wayne County Downriver Sewage Disposal System Annual System Monitoring Report for 2013.
- The incremental flow rates for Meter TPS + IPS and P-1 districts cannot be confidently and accurately calculated because they are too small relative to the total flow rate. Therefore, the incremental flow rates for the Meter TPS+IPS and P-1 districts were estimated using a ratio of each district's incremental population to the cumulative population of the upstream meters (Meters PC-1, PD-1, PB-1, PA-2 and P-2) multiplied by the sum of the cumulative district flow rates for Meters PC-1, PD-1, PB-1, PA-2 and P-2.
- Overflows to the DRSTS were calculated using the level sensor data and the previously developed ratings curves except for Meter TSO. The flow rates calculated with the area-velocity measurements were used for Meter TSO.

Table 7-1
Peak 96 Hour Total Volumes for Non-Controlled Flow Communities

Community	Total Volume (MG)	
	4.42 inch Design Storm	***No Major Storm Events***
Allen Park (part)	29.23	*No Major Storm Events*
Belleville	4.86	
Brownstown Twp.	20.90	
Dearborn Heights	43.76	
Riverview	28.30	
Romulus	88.43	
Southgate (part)	31.24	
Taylor	164.45	
Van Buren Twp.	7.04	
Total	418.21	

Legend:

XX.XX	Exceeds design storm volume by 0 to 20%
XX.XX	Exceeds design storm volume by > 20%

Table 7-2
Peak 96 Hour Total Volumes for Major Storm Events Summarized by Community

Community	Meter District	*No Major Storm Events*	
		Total Peak 96 Hour Incremental Volume (MG)	**Peak 96 Hour Incremental Volume (MG)**
Allen Park	PC-1	*No Major Storm Events*	
	P-1		
	RD-1		
	APO-1 + APO-2		
	Total		
Belleville	PA-4		
Brownstown Twp.	P-2		
	PA-2		
	Total		
Dearborn Hts.	TB-1		
Ecorse	EC-6		
Lincoln Park	EC-6		
	RD-1		
	Total		
River Rouge	RR-1		
Riverview	RV-1		
Romulus	PA-3		
	PD-2		
	Total		
Southgate	P-1		
	PB-1		
	SW		
	TPS+IPS		
	Total		
Taylor	P-2		
	PA-2		
	PB-1		
	TB-1		
	PC-1		
	PD-1		
	Total		
Van Buren Twp.	PA-4		
Wyandotte	SW		

Table 7-3
Peak 96 Hour Total Volumes for Major Storm Events Summarized by Meter District

Meter District	Incremental Meter District Formula	Community	Year 2020 Incremental Residential Population	Meter District Percentage	*No Major Storm Events*	
					Meter District Peak 96 Hour Volume (MG)	Peak 96 Hour Incremental Volume (MG)
APO-1 + APO-2	[APO-1]+[APO-2]	Allen Park	0	100.0%	*No Major Storm Events*	
EC-6	[EC-6]-[RR-1]	Ecorse	9,305	69.1%		
		Lincoln Park	4,169	30.9%		
		Total	13,474	100%		
P-1	[P-1]+[PM-1]-[P-2] -[PA-2]-[PB-1]-[PD-1]-[PC-1]	Allen Park	2,338	17.4%		
		Southgate	11,079	82.6%		
		Total	13,417	100%		
P-2	[P-2]	Brownstown Twp.	11,002	99.9%		
		Taylor	10	0.1%		
		Total	11,012	100%		
PA-2	[PA-2]+[ER-1] -[PA-3]-[ER-2]	Brownstown Twp.	29	0.2%		
		Taylor	14,125	99.8%		
		Total	14,154	100%		
PA-3	[PA-3]+[ER-2] -[PA-4]	Romulus	14,420	100.0%		
PA-4	[PA-4]	Belleville	4,008	33.8%		
		Van Buren Twp.	7,865	66.2%		
		Total	11,873	100%		
PB-1	PD-2	Southgate	3,214	38.9%		
		Taylor	5,040	61.1%		
		Total	8,254	100%		
PC-1	[PC-1]+[CPO] +[CHPO]-[TB-1]	Allen Park	716	2.7%		
		Taylor	25,577	97.3%		
		Total	26,293	100%		
PD-1	[PD-1]-[PD-2]+[PDO]	Taylor	13,083	100.0%		
PD-2	[PD-2]	Romulus	8,069	100.0%		
RD-1	[RD-1]-[EC-6]	Allen Park	22,170	38.1%		
		Lincoln Park	36,076	61.9%		
		Total	58,246	100%		
RR-1	[RR-1]	River Rouge	7,224	100.0%		
RV-1	[RV-1]	Riverview	12,490	100.0%		
SW	[SW]+[SWB]	Southgate	15,003	37.5%		
		Wyandotte	25,058	62.5%		
		Total	40,061	100%		
TB-1	[TB-1]+[TSO]	Dearborn Hts.	19,472	77.7%		
		Taylor	5,574	22.3%		
		Total	25,046	100%		
TPS+IPS	Population Ratio of Meter District P-1	Southgate	718	100.0%		

Table 7-4
Peak Flow Rates for Major Storm Events

System	Meter	Location	*No Major Storm Events*			
			Peak Hour		Peak 96 Hour	
			Date/Time	Flow Rate (cfs)	Date/Time	Cumulative Volume (MG)
Tunnel (Non-Controlled)	TB-1	Taylor Basin	*No Major Storm Events*			
	PC-1	Pelham Interceptor North of Goddard Road				
	PD-2	Goddard Interceptor West of Inkster Road				
	PD-1	Goddard Interceptor West of Allen Road				
	PB-1	Northline Interceptor West of Fordline Road				
	PA-4	Eureka Interceptor near Hannan Road				
	PA-3	Eureka Interceptor at Inkster Road				
	PA-2	Eureka Interceptor at Allen Road				
	PA-1	Eureka Interceptor West of Fordline Road				
	P-2	Pennsylvania Interceptor East of Dix-Toledo Road				
	P-1	Pennsylvania Interceptor East of Fort Street				
	RV-1	Pennsylvania Interceptor West of Jefferson Avenue				
Riverdrive (Controlled)	RR-1	River Rouge CSO Basin Outlet Jefferson North of Victoria				
	EC-6	Riverdrive Interceptor South of Southfield Road				
	RD-1	Riverdrive Interceptor North of Northline Road				
	SW+SWB	Southgate-Wyandotte Connection				
Tunnel Connection Meters	TSO	At Pelham Basin				
	APO-1	Belmont and Rosedale				
	APO-2	Belmont and Quandt				
	CHPO	Pelham Road South of R.R.				
	PD-2	Pelham Road North of Haskell				
	PDO	Allen Road and Goddard				
	ER-2	Eureka Road and Inkster				
	ER-1	Allen Road and Eureka Road				
	PM-1	Pennsylvania Ave. at Fordline				
DWTF	IPS+TPS	DWTF Influent				

Table 7-5
Peak Hydraulic Grade Lines for Major Storm Events

System	Meter	Location	Rim Elevation (ft)	Invert Elevation (ft)	Diameter (ft)	*No Major Storm Events*		
						Date/Time of Occurrence	Peak Depth (ft)	Peak HGL (ft)
Tunnel (Non-Controlled)	PC-1	Pelham Interceptor North of Goddard Road	601.95	564.96	4.5	*No Major Storm Events*		
	PD-2	Goddard Interceptor West of Inkster Road	623.35	598.32	4.5			
	PD-1	Goddard Interceptor West of Allen Road	602.25	575.55	4.0			
	PB-1	Northline Interceptor West of Fordline Road	596.15	569.55	3.0			
	PA-4	Eureka Interceptor near Hannan Road	656.95	635.14	3.5			
	PA-3	Eureka Interceptor at Inkster Road	622.65	601.02	3.5			
	PA-2	Eureka Interceptor at Allen Road	601.55	576.18	4.0			
	PA-1	Eureka Interceptor West of Fordline Road	594.95	570.40	4.0			
	P-2	Pennsylvania Interceptor East of Dix-Toledo Road	598.95	577.35	3.0			
	P-1	Pennsylvania Interceptor East of Fort Street	591.45	545.45	6.5			
	RV-1	Pennsylvania Interceptor West of Jefferson Avenue	578.33	544.07	3.5			
Riverdrive (Controlled)	RR-1	Riverdrive Interceptor South of Visger Road	582.25	566.21	3.0			
	EC-6	Riverdrive Interceptor South of Southfield Road	579.35	554.54	4.5			
	RD-1	Riverdrive Interceptor North of Northline Road	577.85	550.66	6.0			
	SW	On Southgate-Wyandotte Connection	578.00	538.00	6.5			
Tunnel Connection Meters	TSO	Connection to Tunnel at Pelham Basin	609.16	585.34	4.0			
	APO-1	Allen Park Overflow at Belmont Road and Rosedale Road	594.56	565.46	3.0			
	APO-2	Allen Park Overflow at Belmont Road and Quandt Road	597.16	571.00	3.0			
	CHPO	Pelham Interceptor South of R.R.	602.96	566.46	4.5			
	CPO	Pelham Interceptor North of Haskell Road	601.46	568.00	4.5			
	PDO	Goddard Interceptor at Allen Road	601.96	569.97	4.0			
	ER-2	Eureka Relief Sewer Extention on Eureka Road at Inkster Road	623.73	591.48	4.5			
	ER-1	Eureka Relief Sewer at Allen Road	602.81	560.47	4.5			
	PM-1	Pennsylvania Interceptor at Fordline Road	593.06	548.92	6.5			
Tunnel Level Sensors	L-3	Allen and I-75 (North)	602.56	543.04	7.0			
	L-5	Pelham and Champaign	601.35	546.84	7.0			
	L-7	Rosedale and Belmont	593.21	552.86	6.5			
	L-8	Pennsylvania Ave. at Fordline	592.21	537.49	7.5			
DWTF	IPS	Main Influent Pump Station Wet Well	-	528.46	NA			
	TPS	Tunnel Pump Station Wet Well	-	524.71	NA			

Notes:

1) Elevations are referenced to the North American Vertical Datum of 1988 (NAVD 88).

Key

Within sewer: ○
Surcharging sewer, grade elevation unknown: ⊗
Surcharging sewer, surcharging level exceeded top of range for level sensor: ⊘
Surcharging sewer, grade elevation known: ⦿
Above grade: ●
Data not available: -

Table 8-1
Downriver Sewage Disposal System
Meter Data Review and Fixes for 2023

Meter	Start	Stop	Description of the Problem	Dry Period	Wet Period	Fix
ER-2	4/22/2023	4/27/2023	Ayyeka device was not transmitting data.	X		Estimated to be zero
L-5	10/21/2023	10/25/2023	Data unavailable due communication issues. Data was manually collected.	X		No fix, device used to monitor system performance but not used to compute system or community flow rates.
	7/10/2023	7/19/2023	Data unavailable due communication issues.	X		No fix, device used to monitor system performance but not used to compute system or community flow rates.
	8/23/2023	9/12/2023	The battery was replaced.	X	X	
L-7	10/1/2023	10/4/2023	Data unavailable due communication issues.	X		No fix, device used to monitor system performance but not used to compute system or community flow rates.
	11/3/2023	11/14/2023	Data was manually collected.	X		
	2/6/2023	2/16/2023	Data unavailable due communication issues.	X	X	
	3/6/2023	3/9/2023	The battery was replaced.	X	X	
	4/1/2023	4/3/2023	Ayyeka device was not transmitting data.	X	X	
	7/8/2023	7/11/2023	Data unavailable due communication issues. Data was manually collected.	X		
	7/16/2023	7/17/2023		X		
	7/19/2023	9/1/2023		X	X	
	9/23/2023	9/30/2023		X		
L-8	1/1/2023	1/26/2023	Data unavailable due communication issues. The battery was replaced.	X	X	No fix, device used to monitor system performance but not used to compute system or community flow rates.
	1/28/2023	2/4/2023		X	X	
	2/18/2023	3/9/2023		X	X	
	3/17/2023	3/21/2023		X	X	
	3/27/2023	4/13/2023		X	X	
	4/16/2023	5/9/2023		X	X	
	6/7/2023	6/22/2023		X	X	
	8/23/2023	9/1/2023		X	X	
P-1	1/1/2023	1/6/2023	Data unavailable. The UPS tripped causing the monitor to lose power. The UPS was reset.	X	X	Correlation to sum of upstream Meters [P-2] + [PA-1] + [PB-1] + [PC-1] + [PD-1]
P-2	10/27/2023	11/3/2023	Data unavailable due communication issues. The battery was replaced.	X	X	Correlation to P-1
	11/5/2023	11/14/2023		X	X	
	12/7/2023	12/25/2023		X	X	
	1/18/2023	1/20/2023			X	Correlation to PB-1
	3/8/2023	3/12/2023	Smart depth sensor covered with debris. Peak combo sensor covered by rags reulting in faulty upward and pressure depth.	X		Diurnal Pattern
	7/6/2023	7/17/2023	Data unavailable due communication issues. The battery was replaced.	X	X	Correlation to P-1
PA-1	1/1/2023	1/17/2023	Data unavailable due to dead battery. The battery was replaced	X	X	Correlation to PA-2
PA-2	2/2/2023	2/4/2023	Data unavailable due to dead battery. The battery was replaced	X		Diurnal Pattern
	2/22/2023	3/15/2023		X	X	Correlation to PA-1
PA-3	1/1/2023	1/17/2023	Data unavailable due to dead battery. The battery was replaced.	X	X	Correlation to PA-2
	2/2/2023	2/9/2023		X	X	Diurnal Pattern
	2/18/2023	3/20/2023		X	X	Correlation to PA-2
	4/1/2023	4/20/2023	Flow meter missing one 5-minute timestep every 30-minutes.	X	X	Linear Interpolation
	6/19/2023	7/6/2023	Ayyeka device was not transmitting data.	X	X	Correlation to PA-2
	7/10/2023	7/16/2023	Data unavailable due communication issues. Ayyeka device was reset and the battery was replaced.	X		
	7/20/2023	9/19/2023	All three depth sensors flatlined. New sensor components installed.	X	X	
PA-4	10/2/2023	10/7/2023	Data unavailable due communication issues. The battery was replaced.	X	X	Correlation to PA-2
	10/24/2023	10/29/2023		X	X	
	12/8/2023	12/24/2023		X	X	Correlation to PA-3
	1/2/2023	1/17/2023	Ayyeka device was set to manual collect. Ayyeka device was switched to auto transmit.	X	X	Diurnal Pattern
	5/5/2023	5/5/2023	Ayyeka device had intermittent periods of not transmitting data.	X		Diurnal Pattern
	5/23/2023	5/23/2023		X		
	5/26/2023	5/27/2023		X		
	6/6/2023	6/17/2023		X	X	Correlation to PA-3
	6/25/2023	6/26/2023		X	X	
	8/24/2023	9/6/2023	Data unavailable due communication issues. Ayyeka device was reset and the battery was replaced.	X	X	Correlation to PA-2
PB-1	5/26/2023	5/31/2023	Level sensor had frequent erroneous depth spikes.	X	X	Linear Interpolation
	6/10/2023	6/26/2023		X	X	
PD-1	1/1/2023	1/17/2023	Data unavailable due to dead battery. The battery was replaced.	X	X	Correlation to PD-1
	6/13/2023	6/27/2023	Ayyeka device transmitting erroneous data.	X	X	
PD-2	11/2/2023	12/5/2023	Data unavailable due communication issues. The battery was replaced.	X	X	Correlation to PD-1
	2/1/2023	2/15/2023	Ayyeka device was not transmitting data. Ayyeka device manually forced to transmit data.	X	X	
	3/20/2023	4/6/2023	Data unavailable due to dead battery. The battery was replaced	X	X	
	5/11/2023	6/5/2023	Ayyeka device transmitting erroneous data.	X	X	
PM-1	4/5/2023	4/8/2023	Ayyeka device was not transmitting data.	X		Estimated to be zero
	4/13/2023	4/17/2023		X		
	4/29/2023	5/9/2023		X		
RD-1	1/1/2023	1/10/2023	Data unavailable. The UPS tripped causing the monitor to lose power. The UPS was reset.	X	X	Correlation to EC-6 & Diurnal Pattern
	2/22/2023	2/23/2023	No data.		X	Correlation to RR-1 & EC-6
RR-1	10/1/2023	10/10/2023	Data unavailable due communication issues. The battery was replaced.	X	X	Correlation to EC-6
	10/25/2023	12/7/2023		X	X	
	12/28/2023	12/31/2023		X	X	
	4/10/2023	4/12/2023	Level sensor had frequent erroneous depth dropouts.	X	X	Linear Interpolation
	4/19/2023	4/20/2023	Ayyeka device was not transmitting data.	X		Diurnal Pattern
	5/1/2023	5/12/2023	Level sensor had frequent erroneous depth dropouts.	X	X	Linear Interpolation
	6/3/2023	6/6/2023	Ayyeka device was not transmitting data.	X		Correlation to EC-6
	9/5/2023	9/30/2023	Data unavailable due communication issues. Ayyeka device was reset and the battery was replaced.	X	X	Correlation to EC-6
TB-1	8/21/2023	8/28/2023	No data	X	X	Correlation to PC-1
	9/14/2023	9/24/2023	No data	X	X	
TSO	3/12/2023	3/13/2023	Data unavailable due to dead battery. The battery was replaced.	X	X	Estimated to be zero

Appendix A

Additional Monthly Summary Tables

Table A-1

Incremental Flow Rates Summarized by Meter District with Community Components

Meter District	Community	Year 2020 Incremental Residential Population	Meter District Percentage	January 2023			February 2023			March 2023			April 2023			May 2023			June 2023		
				Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather	
				Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)
TB-1	Dearborn Heights	19,472	77.7%	3.78	2.93		4.92	3.31		7.27	4.99		6.34	3.70		3.05	2.77		2.39	2.05	
	Taylor	5,574	22.3%	1.08	0.84	97	1.41	0.95	110	2.08	1.43	165	1.82	1.06	123	0.87	0.79	92	0.68	0.59	68
	Total	25,046	100.0%	4.86	3.77		6.33	4.25		9.35	6.41		8.16	4.76		3.92	3.57		3.07	2.63	
PC-1	Allen Park	716	2.7%	0.17	0.14		0.21	0.16		0.28	0.23		0.24	0.18		0.17	0.16		0.14	0.12	
	Taylor	25,577	97.3%	6.10	5.07	128	7.46	5.74	145	9.97	8.27	209	8.70	6.55	165	5.93	5.58	141	4.97	4.44	112
	Total	26,293	100.0%	6.27	5.21		7.67	5.90		10.25	8.50		8.94	6.73		6.09	5.73		5.11	4.57	
DMA-2	Romulus	0	100.0%	1.95	1.85	--	1.65	1.56	--	2.14	2.18	--	3.50	3.45	--	2.04	2.12	--	0.80	0.00	--
PD-2	Romulus	8,069	100.0%	3.32	3.14	251	3.65	3.27	262	4.63	3.88	311	4.43	3.36	269	2.89	2.76	221	2.49	2.21	177
PD-1	Taylor	13,083	100.0%	1.17	1.02	50	1.87	1.36	67	2.60	2.03	100	1.72	1.30	64	1.60	1.51	75	1.18	1.43	71
PB-1	Taylor	5,040	61.1%	1.24	1.06	136	1.48	1.10	141	1.74	1.35	174	1.54	1.15	147	1.08	1.03	132	1.02	0.95	122
	Southgate	3,214	38.9%	0.79	0.68	136	0.94	0.70	141	1.11	0.86	174	0.98	0.73	147	0.69	0.66	132	0.65	0.60	122
	Total	8,254	100.0%	2.03	1.74	136	2.42	1.80	141	2.86	2.22	174	2.52	1.88	147	1.77	1.68	132	1.67	1.55	122
PA-4	Belleville	4,008	33.8%	0.52	0.50		0.63	0.56		0.88	0.82		0.91	0.79		0.66	0.63		0.56	0.53	
	Van Buren Twp	7,865	66.2%	1.02	0.98	80	1.23	1.09	90	1.72	1.60	132	1.78	1.56	128	1.29	1.24	102	1.10	1.05	86
	Total	11,873	100.0%	1.54	1.48		1.85	1.64		2.60	2.42		2.69	2.35		1.94	1.88		1.66	1.58	
PA-3	Romulus	14,420	100.0%	3.55	3.44	154	4.27	3.83	172	5.21	4.56	204	4.79	4.02	180	3.82	3.74	167	3.27	3.17	142
PA-2	Taylor	14,125	99.8%	3.40	3.14		3.73	2.75		6.73	5.36		5.80	4.05		3.90	3.74		3.32	3.14	
	Brownstown Twp	29	0.2%	0.01	0.01	144	0.01	0.01	126	0.01	0.01	245	0.01	0.01	185	0.01	0.01	171	0.01	0.01	144
	Total	14,154	100.0%	3.41	3.14		3.74	2.75		6.75	5.37		5.81	4.06		3.90	3.74		3.33	3.15	
P-2	Brownstown Twp	11,002	99.9%	2.01	1.90		2.23	1.93		2.59	2.28		2.35	2.08		1.96	1.89		1.78	1.69	
	Taylor	10	0.1%	0.00	0.00	112	0.00	0.00	114	0.00	0.00	134	0.00	0.00	122	0.00	0.00	111	0.00	0.00	99
	Total	11,012	100.0%	2.01	1.91		2.23	1.94		2.59	2.28		2.35	2.08		1.96	1.89		1.78	1.69	
P-1	Allen Park	2,338	17.4%	0.53	0.47		0.67	0.50		0.88	0.70		0.81	0.60		0.53	0.51		0.43	0.39	
	Southgate	11,079	82.6%	2.53	2.24	131	3.16	2.37	138	4.16	3.34	195	3.85	2.85	166	2.51	2.40	140	2.04	1.84	107
	Total	13,417	100.0%	3.06	2.71		3.83	2.87		5.04	4.04		4.66	3.45		3.04	2.91		2.47	2.23	
RV-1	Riverview	12,490	100.0%	2.80	2.17	112	3.46	2.18	113	3.73	2.52	131	2.82	2.01	104	1.89	1.76	91	2.04	1.67	86
RR-1	River Rouge	7,224	100.0%	3.91	2.93	262	4.40	3.03	271	5.83	4.00	358	5.04	3.34	299	2.99	2.69	240	2.73	2.28	204
EC-6	Ecorse	9,305	69.1%	1.58	1.45		2.00	1.55		2.84	2.40		2.64	2.13		2.13	2.14		2.06	2.02	
	Lincoln Park	4,169	30.9%	0.71	0.65	101	0.90	0.69	107	1.27	1.07	166	1.18	0.96	148	0.95	0.96	149	0.92	0.90	140
	Total	13,474	100.0%	2.29	2.10		2.90	2.24		4.11	3.47		3.82	3.09		3.08	3.10		2.98	2.92	
RD-1	Allen Park	22,170	38.1%	5.81	3.93		5.98	3.27		7.99	4.42		6.13	3.23		3.18	2.70		3.45	2.35	
	Lincoln Park	36,076	61.9%	9.45	6.40	115	9.73	5.32	95	13.01	7.19	129	9.98	5.25	94	5.17	4.39	79	5.61	3.82	68
	Total	58,246	100.0%	15.25	10.33		15.70	8.58		21.00	11.61		16.11	8.48		8.34	7.08		9.06	6.17	
SW + SWB	Southgate	15,003	37.5%	6.75	4.43		6.37	4.59		9.40	6.68		7.30	5.39		5.19	4.46		5.55	3.77	
	Wyandotte	25,058	62.5%	11.28	7.40	191	10.64	7.67	198	15.70	11.16	288	12.19	9.01	232	8.67	7.44	192	9.27	6.29	162
	Total	40,061	100.0%	18.03	11.84		17.01	12.26		25.10	17.84		19.49	14.40		13.86	11.90		14.82	10.06	
APO-1 + APO-2	Allen Park	0	100.0%	0.06	0.00	--	0.60	0.00	--	0.72	0.00	--	0.81	0.00	--	0.00	0.00	--	0.00	0.00	--
TPS+IPS	Southgate	718	100.0%	0.16	0.15	131	0.20	0.15	138	0.27	0.22	195	0.25	0.18	166	0.16	0.16	140	0.13	0.12	107
Subtotal Controlled Flow Communities		119,005	42.8%	39.48	27.20	148	40.02	26.12	142	56.05	36.93	201	44.46	29.31	159	28.27	24.77	135	29.58	21.44	116
Subtotal Non-Controlled Flow Communities		158,829	57.2%	36.22	31.73	129	43.79	33.52	136	58.74	46.63	190	53.44	39.63	161	35.04	33.45	136	29.00	26.00	106
Total Incoming Flow		277,834	100.0%	75.70	58.93	137	83.81	59.64	139	114.78	83.56	194	97.91	68.93	160	63.31	58.22	135	58.58	47.43	110
DWTF Including Recycle (IPS + TPS)		277,834	100.0%	81.66	61.83	144	90.69	61.75	144	122.07	86.71	202	103.67	71.87	167	67.17	61.34	143	62.38	49.57	115
DWTF without Recycle (IPS + TPS - Recycle)		277,834	100.0%	76.90	57.39	134	84.49	58.03	135	115.50	81.34	189	97.19	66.11	154	59.29	53.67	125	56.04	43.51	101
Recycle		0	-	4.76	4.44	-	6.20	3.72	-	6.58	5.36	-	6.48	5.76	-	7.88	7.67	-	6.34	6.06	-

Notes:

Table A-1 Cont.

Incremental Flow Rates Summarized by Meter District with Community Components

Meter District	Community	Year 2020 Incremental Residential Population	Meter District Percentage	July 2023			August 2023			September 2023			October 2023			November 2023			December 2023		
				Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather	
				Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)
	Dearborn Heights	19,472	77.7%	3.39	2.35		3.48	2.50		2.28	2.15		2.25	1.98		2.16	2.04		3.09	2.39	
TB-1	Taylor	5,574	22.3%	0.97	0.67	78	0.99	0.71	83	0.65	0.62	72	0.64	0.57	66	0.62	0.59	68	0.88	0.68	79
	Total	25,046	100.0%	4.36	3.02		4.47	3.21		2.94	2.77		2.89	2.54		2.77	2.63		3.98	3.07	
	Allen Park	716	2.7%	0.19	0.15		0.18	0.14		0.12	0.12		0.12	0.11		0.12	0.12		0.15	0.13	
PC-1	Taylor	25,577	97.3%	6.70	5.45	138	6.41	5.17	131	4.39	4.24	107	4.29	3.94	99	4.26	4.13	104	5.48	4.66	118
	Total	26,293	100.0%	6.89	5.60		6.59	5.31		4.51	4.36		4.41	4.05		4.38	4.25		5.64	4.79	
DMA-2[1]	Romulus	0	100.0%	1.36	2.32	--	0.29	0.00	--	0.00	0.00	--	0.00	0.00	--	0.00	0.00	--	1.59	1.55	--
PD-2[2]	Romulus	8,069	100.0%	2.60	2.38	190	3.00	2.47	198	2.45	2.43	194	2.49	2.40	192	2.60	2.56	205	2.78	2.58	207
PD-1	Taylor	13,083	100.0%	1.72	1.59	79	2.00	1.68	83	1.55	1.52	75	1.25	1.20	59	1.16	1.14	56	1.51	1.41	69
	Taylor	5,040	61.1%	1.10	0.96	124	1.14	0.93	119	0.88	0.86	110	0.90	0.84	107	0.87	0.85	109	1.05	0.93	120
PB-1	Southgate	3,214	38.9%	0.70	0.61	124	0.73	0.59	119	0.56	0.55	110	0.57	0.53	107	0.56	0.54	109	0.67	0.59	120
	Total	8,254	100.0%	1.81	1.58	124	1.87	1.52	119	1.45	1.41	110	1.47	1.37	107	1.43	1.39	109	1.72	1.53	120
	Belleville	4,008	33.8%	0.60	0.62		0.71	0.59		0.68	0.67		0.55	0.55		0.54	0.53		0.61	0.59	
PA-4	Van Buren Twp	7,865	66.2%	1.18	1.21	100	1.39	1.16	96	1.32	1.32	108	1.09	1.09	89	1.06	1.05	86	1.19	1.15	95
	Total	11,873	100.0%	1.78	1.83		2.09	1.76		2.00	1.99		1.64	1.64		1.60	1.58		1.80	1.74	
PA-3	Romulus	14,420	100.0%	3.69	3.57	160	5.17	3.61	162	3.63	3.63	163	3.42	3.36	151	3.06	3.06	137	3.40	3.27	146
	Taylor	14,125	99.8%	3.75	3.66		5.72	3.94		3.82	3.78		3.04	2.89		3.49	3.42		3.35	3.03	
PA-2	Brownstown Twp	29	0.2%	0.01	0.01	168	0.01	0.01	180	0.01	0.01	173	0.01	0.01	132	0.01	0.01	157	0.01	0.01	139
	Total	14,154	100.0%	3.76	3.67		5.73	3.95		3.83	3.79		3.04	2.90		3.49	3.43		3.35	3.04	
	Brownstown Twp	11,002	99.9%	1.97	1.89		2.33	1.97		1.88	1.86		1.85	1.78		1.76	1.74		1.95	1.81	
P-2	Taylor	10	0.1%	0.00	0.00	111	0.00	0.00	116	0.00	0.00	109	0.00	0.00	105	0.00	0.00	102	0.00	0.00	106
	Total	11,012	100.0%	1.97	1.89		2.33	1.98		1.88	1.86		1.85	1.78		1.76	1.75		1.95	1.81	
	Allen Park	2,338	17.4%	0.53	0.49		0.59	0.45		0.43	0.42		0.40	0.38		0.39	0.39		0.49	0.44	
P-1	Southgate	11,079	82.6%	2.52	2.30	134	2.81	2.14	125	2.03	1.99	116	1.88	1.78	104	1.87	1.83	107	2.32	2.08	121
	Total	13,417	100.0%	3.05	2.79		3.41	2.59		2.46	2.41		2.28	2.16		2.26	2.21		2.81	2.52	
RV-1	Riverview	12,490	100.0%	2.46	1.82	94	2.81	1.89	98	1.79	1.73	90	2.00	1.75	91	1.84	1.76	91	2.41	1.88	97
RR-1	River Rouge	7,224	100.0%	6.25	3.65	327	5.21	3.74	335	2.81	2.54	227	2.19	1.64	146	2.05	1.82	163	2.94	2.16	193
	Ecorse	9,305	69.1%	2.39	1.74		2.38	2.14		1.49	1.44		1.36	1.32		1.39	1.38		1.49	1.41	
EC-6	Lincoln Park	4,169	30.9%	1.07	0.78	121	1.07	0.96	148	0.67	0.64	100	0.61	0.59	92	0.62	0.62	96	0.67	0.63	98
	Total	13,474	100.0%	3.46	2.51		3.45	3.09		2.16	2.08		1.97	1.91		2.02	2.00		2.16	2.04	
	Allen Park	22,170	38.1%	6.37	3.45		5.14	2.58		3.09	2.55		3.21	2.36		2.63	2.25		4.42	2.62	
RD-1	Lincoln Park	36,076	61.9%	10.37	5.62	101	8.37	4.20	75	5.03	4.15	74	5.22	3.84	69	4.27	3.66	66	7.20	4.26	76
	Total	58,246	100.0%	16.74	9.08		13.51	6.78		8.12	6.70		8.43	6.21		6.90	5.91		11.62	6.87	
	Southgate	15,003	37.5%	8.19	5.73		6.35	4.28		5.49	5.01		4.76	3.41		3.60	2.90		5.86	3.86	
SW + SWB	Wyandotte	25,058	62.5%	13.68	9.58	247	10.60	7.15	184	9.17	8.37	216	7.94	5.69	147	6.02	4.84	125	9.79	6.45	166
	Total	40,061	100.0%	21.86	15.31		16.94	11.42		14.66	13.39		12.70	9.10		9.62	7.73		15.65	10.31	
APO-1 + APO-2	Allen Park	0	100.0%	0.17	0.00	--	0.04	0.00	--	0.00	0.00	--	0.00	0.00	--	0.00	0.00	--	0.00	0.00	--
TPS+IPS	Southgate	718	100.0%	0.16	0.15	134	0.18	0.14	125	0.13	0.13	116	0.12	0.12	104	0.12	0.12	107	0.15	0.13	121
Subtotal Controlled Flow Communities		119,005	42.8%	48.31	30.55	166	39.11	25.03	136	27.74	24.71	134	25.29	18.85	102	20.58	17.46	95	32.37	21.38	116
Subtotal Non-Controlled Flow Communities		158,829	57.2%	35.77	32.21	131	39.97	30.09	122	28.61	28.02	114	26.88	25.27	103	26.48	25.87	105	33.11	29.32	119
Total Incoming Flow		277,834	100.0%	84.08	62.75	146	79.08	55.13	128	56.36	52.73	123	52.18	44.12	103	47.07	43.33	101	65.48	50.70	118
DWTF Including Recycle (IPS + TPS)		277,834	100.0%	89.89	67.04	156	83.00	54.59	127	57.97	54.15	126	55.26	46.54	108	49.49	47.15	110	73.20	55.96	130
DWTF without Recycle (IPS + TPS - Recycle)		277,834	100.0%	83.25	60.69	141	76.60	49.44	115	53.06	49.22	115	49.75	41.01	95	45.10	42.70	99	67.93	50.63	118
Recycle		0	-	6.64	6.35	-	6.40	5.14	-	4.91	4.93	-	5.51	5.53	-	4.39	4.46	-	5.27	5.33	-

Notes:

Table A-2
Incremental Flow Rates by Meter District

Meter District	Incremental Meter District Formula	Year 2020 Incremental Residential Population	January 2023			February 2023			March 2023			April 2023			May 2023			June 2023		
			Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather	
			Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)
TB-1	[TB-1]+[TSO]	25,046	4.86	3.77	97	6.33	4.25	110	9.35	6.41	165	8.16	4.76	123	3.92	3.57	92	3.07	2.63	68
PC-1	[PC-1]+[CPO] +[CHPO]-[TB-1]	26,293	6.27	5.21	128	7.67	5.90	145	10.25	8.50	209	8.94	6.73	165	6.09	5.73	141	5.11	4.57	112
DMA-2	[DTW Pond 3 West]	0	1.95	1.85	-	1.65	1.56	-	2.14	2.18	-	3.50	3.45	-	2.04	2.12	-	0.80	0.00	-
PD-2	[PD-2] - [DTW Pond 3 West]	8,069	3.32	3.14	251	3.65	3.27	262	4.63	3.88	311	4.43	3.36	269	2.89	2.76	221	2.49	2.21	177
PD-1	[PD-1]-[PD-2]+[PDO]	13,083	1.17	1.02	50	1.87	1.36	67	2.60	2.03	100	1.72	1.30	64	1.60	1.51	75	1.18	1.43	71
PB-1	[PB-1]	8,254	2.03	1.74	136	2.42	1.80	141	2.86	2.22	174	2.52	1.88	147	1.77	1.68	132	1.67	1.55	122
PA-4	[PA-4]	11,873	1.54	1.48	80	1.85	1.64	90	2.60	2.42	132	2.69	2.35	128	1.94	1.88	102	1.66	1.58	86
PA-3	[PA-3]+[ER-2] -[PA-4]	14,420	3.55	3.44	154	4.27	3.83	172	5.21	4.56	204	4.79	4.02	180	3.82	3.74	167	3.27	3.17	142
PA-2	[PA-2]+[ER-1] -[PA-3]-[ER-2]	14,154	3.41	3.14	144	3.74	2.75	126	6.75	5.37	245	5.81	4.06	185	3.90	3.74	171	3.33	3.15	144
P-2	[P-2]	11,012	2.01	1.91	112	2.23	1.94	114	2.59	2.28	134	2.35	2.08	122	1.96	1.89	111	1.78	1.69	99
P-1	[P-1]+[PM-1]-[P-2] -[PA-2]-[PB-1]-[PD-1]-[PC-1]	13,417	3.06	2.71	131	3.83	2.87	138	5.04	4.04	195	4.66	3.45	166	3.04	2.91	140	2.47	2.23	107
RV-1	[RV-1]	12,490	2.80	2.17	112	3.46	2.18	113	3.73	2.52	131	2.82	2.01	104	1.89	1.76	91	2.04	1.67	86
RR-1	[RR-1]	7,224	3.91	2.93	262	4.40	3.03	271	5.83	4.00	358	5.04	3.34	299	2.99	2.69	240	2.73	2.28	204
EC-6	[EC-6]-[RR-1]	13,474	2.29	2.10	101	2.90	2.24	107	4.11	3.47	166	3.82	3.09	148	3.08	3.10	149	2.98	2.92	140
RD-1	[RD-1]-[EC-6]	58,246	15.25	10.33	115	15.70	8.58	95	21.00	11.61	129	16.11	8.48	94	8.34	7.08	79	9.06	6.17	68
APO-1 + APO-2	[APO-1]+[APO-2]	0	0.06	0.00	-	0.60	0.00	-	0.72	0.00	-	0.81	0.00	-	0.00	0.00	-	0.00	0.00	-
SW+SWB	[SW]+[SWB]	40,061	18.03	11.84	191	17.01	12.26	198	25.10	17.84	288	19.49	14.40	232	13.86	11.90	192	14.82	10.06	162
TPS+IPS[1]	Population Ratio of Meter District P-1	718	0.16	0.15	131	0.20	0.15	138	0.27	0.22	195	0.25	0.18	166	0.16	0.16	140	0.13	0.12	107

Notes:
1) ([TPS+IPS] Inc. Flow Rate) = (TPS-IPS Inc. Pop. / P-1 Inc. Pop.) x ([P-1] Inc. Flow Rate)

Table A-2 Cont.
Incremental Flow Rates by Meter District

Meter District	Incremental Meter District Formula	Year 2020 Incremental Residential Population	July 2023			August 2023			September 2023			October 2023			November 2023			December 2023		
			Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather	
			Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)
TB-1	[TB-1]+[TSO]	25,046	4.36	3.02	78	4.47	3.21	83	2.94	2.77	72	2.89	2.54	66	2.77	2.63	68	3.98	3.07	79
PC-1	[PC-1]+[CPO] +[CHPO]-[TB-1]	26,293	6.89	5.60	138	6.59	5.31	131	4.51	4.36	107	4.41	4.05	99	4.38	4.25	104	5.64	4.79	118
DMA-2	[DTW Pond 3 West]	0	1.36	2.32	-	0.29	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	1.59	1.55	-
PD-2	[PD-2] - [DTW Pond 3 West]	8,069	2.60	2.38	190	3.00	2.47	198	2.45	2.43	194	2.49	2.40	192	2.60	2.56	205	2.78	2.58	207
PD-1	[PD-1]-[PD-2]+[PDO]	13,083	1.72	1.59	79	2.00	1.68	83	1.55	1.52	75	1.25	1.20	59	1.16	1.14	56	1.51	1.41	69
PB-1	[PB-1]	8,254	1.81	1.58	124	1.87	1.52	119	1.45	1.41	110	1.47	1.37	107	1.43	1.39	109	1.72	1.53	120
PA-4	[PA-4]	11,873	1.78	1.83	100	2.09	1.76	96	2.00	1.99	108	1.64	1.64	89	1.60	1.58	86	1.80	1.74	95
PA-3	[PA-3]+[ER-2] -[PA-4]	14,420	3.69	3.57	160	5.17	3.61	162	3.63	3.63	163	3.42	3.36	151	3.06	3.06	137	3.40	3.27	146
PA-2	[PA-2]+[ER-1] -[PA-3]-[ER-2]	14,154	3.76	3.67	168	5.73	3.95	180	3.83	3.79	173	3.04	2.90	132	3.49	3.43	157	3.35	3.04	139
P-2	[P-2]	11,012	1.97	1.89	111	2.33	1.98	116	1.88	1.86	109	1.85	1.78	105	1.76	1.75	102	1.95	1.81	106
P-1	[P-1]+[PM-1]-[P-2] -[PA-2]-[PB-1]-[PD-1]-[PC-1]	13,417	3.05	2.79	134	3.41	2.59	125	2.46	2.41	116	2.28	2.16	104	2.26	2.21	107	2.81	2.52	121
RV-1	[RV-1]	12,490	2.46	1.82	94	2.81	1.89	98	1.79	1.73	90	2.00	1.75	91	1.84	1.76	91	2.41	1.88	97
RR-1	[RR-1]	7,224	6.25	3.65	327	5.21	3.74	335	2.81	2.54	227	2.19	1.64	146	2.05	1.82	163	2.94	2.16	193
EC-6	[EC-6]-[RR-1]	13,474	3.46	2.51	121	3.45	3.09	148	2.16	2.08	100	1.97	1.91	92	2.02	2.00	96	2.16	2.04	98
RD-1	[RD-1]-[EC-6]	58,246	16.74	9.08	101	13.51	6.78	75	8.12	6.70	74	8.43	6.21	69	6.90	5.91	66	11.62	6.87	76
APO-1 + APO-2	[APO-1]+[APO-2]	0	0.17	0.00	-	0.04	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-
SW+SWB	[SW]+[SWB]	40,061	21.86	15.31	247	16.94	11.42	184	14.66	13.39	216	12.70	9.10	147	9.62	7.73	125	15.65	10.31	166
TPS+IPS[1]	Population Ratio of Meter District P-1	718	0.16	0.15	134	0.18	0.14	125	0.13	0.13	116	0.12	0.12	104	0.12	0.12	107	0.15	0.13	121

Notes:
1) ([TPS+IPS] Inc. Flow Rate) = (TPS-IPS Inc. Pop. / P-1 Inc. Pop.) x ([P-1] Inc. Flow Rate)

Table A-3
Monthly Flow Rates by Meter for 2023

System	Meter	Location	Year 2020 Cumulative Residential Population	Average Flow Rates (cfs)												
				January	February	March	April	May	June	July	August	September	October	November	December	Average Annual
Tunnel (Non-Controlled)	TB-1	Taylor Basin	25,046	4.86	6.33	9.34	8.08	3.92	3.07	4.36	4.47	2.94	2.89	2.77	3.98	4.74
	PC-1	Pelham Interceptor North of Goddard Road	51,339	11.08	13.59	19.25	16.55	10.02	8.18	11.13	11.00	7.45	7.30	7.16	9.61	11.02
	DTW Pond 3 West	Detroit Metro Airport	0	1.95	1.65	2.14	3.50	2.04	0.80	1.36	0.29	0.00	0.00	0.00	1.59	1.28
	PD-2	Goddard Interceptor West of Inkster Road	8,069	5.28	5.30	6.77	7.92	4.93	3.28	3.95	3.29	2.45	2.49	2.60	4.37	4.38
	PD-1	Goddard Interceptor West of Allen Road	21,152	6.45	7.17	9.37	9.65	6.52	4.46	5.67	5.29	4.00	3.75	3.76	5.89	5.99
	PB-1	Northline Interceptor West of Fordline Road	8,254	2.03	2.42	2.86	2.52	1.77	1.67	1.81	1.87	1.45	1.47	1.43	1.72	1.92
	PA-4	Eureka Interceptor near Hannan Road	11,873	1.54	1.85	2.60	2.69	1.94	1.66	1.78	2.09	2.00	1.64	1.60	1.80	1.93
	PA-3	Eureka Interceptor at Inkster Road	26,293	5.09	6.11	7.76	7.37	5.76	4.93	5.47	6.00	5.63	5.06	4.66	5.20	5.75
	PA-2	Eureka Interceptor at Allen Road	40,447	8.50	9.80	14.31	12.81	9.66	8.26	9.23	10.20	9.39	8.10	8.15	8.56	9.75
	PA-1	Eureka Interceptor West of Fordline Road	44,400	10.28	14.13	17.33	15.12	11.36	9.18	10.35	11.43	10.31	8.35	8.45	10.32	11.37
	P-2	Pennsylvania Interceptor East of Dix-Toledo Road	11,012	2.01	2.23	2.59	2.35	1.96	1.78	1.97	2.33	1.88	1.85	1.76	1.95	2.06
	P-1	Pennsylvania Interceptor East of Fort Street	145,621	33.13	38.89	53.42	48.52	32.98	26.82	32.86	34.10	26.63	24.76	24.52	30.55	33.92
	RV-1	Pennsylvania Interceptor West of Jefferson Avenue	12,490	2.80	3.46	3.73	2.82	1.89	2.04	2.46	2.81	1.79	2.00	1.84	2.41	2.50
Riverdrive (Controlled)	RR-1	River Rouge CSO Basin Outlet	7,224	3.91	4.40	5.83	5.04	2.99	2.73	6.25	5.21	2.81	2.19	2.05	2.94	3.87
	EC-6	Riverdrive Interceptor South of Southfield Road	20,698	6.20	7.31	9.95	8.86	6.07	5.71	9.71	8.66	4.97	4.16	4.06	5.10	6.73
	RD-1	Riverdrive Interceptor North of Northline Road	78,944	21.45	23.01	30.95	24.97	14.41	14.76	26.45	22.16	13.09	12.59	10.96	16.72	19.30
	SW	On Southgate-Wyandotte Connection	40,061	16.53	15.90	22.78	18.14	13.10	13.58	18.35	15.23	14.04	12.27	9.21	14.91	15.35
	SWB	Southgate-Wyandotte Basin	0	1.50	1.11	2.32	1.35	0.76	1.24	3.52	1.72	0.62	0.43	0.41		1.25
Tunnel Connection Meters	TSO	Connection to Tunnel at Pelham Basin	0	0.00	0.01	0.01	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	APO-1	Allen Park Connection to Tunnel at Belmont and Rosedale Road	0	0.02	0.15	0.07	0.28	0.00	0.00	0.07	0.02	0.00	0.00	0.00	0.00	0.05
	APO-2	Allen Park Connection to Tunnel at Belmont and Quandt Road	0	0.04	0.45	0.65	0.53	0.00	0.00	0.10	0.02	0.00	0.00	0.00	0.00	0.15
	CHPO	Pelham Interceptor Connection to Tunnel North of Haskell Road	0	0.04	0.29	0.32	0.34	0.00	0.00	0.09	0.05	0.00	0.00	0.00	0.00	0.09
	CPO	Pelham Interceptor Connection to Tunnel South of R.R.	0	0.02	0.13	0.01	0.14	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.03
	PDO	Goddard Interceptor Connection to Tunnel at Allen Road	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	ER-2	Eureka Relief Sewer Extention Connection to Tunnel at Inkster Road	0	0.00	0.01	0.05	0.11	0.00	0.00	0.00	1.26	0.00	0.00	0.00	0.00	0.12
	ER-1	Eureka Relief Sewer Connection to Tunnel at Allen Road	0	0.00	0.06	0.25	0.48	0.00	0.00	0.00	2.79	0.06	0.00	0.00	0.00	0.31
	PM-1	Pennsylvania Interceptor Connection to Tunnel at Fordline Road	0	0.00	0.14	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
DWTF	P-1+RD-1+RV-1+SW+SWB +Tunnel Connections	End of Interceptor System Meters	277,116	75.54	83.60	114.51	97.66	63.14	58.44	83.92	78.90	56.23	52.05	46.95	65.33	73.03
	(IPS + TPS)	DWTF Including Recycle	277,834	81.66	90.69	122.07	103.67	67.17	62.38	89.89	83.00	57.97	55.26	49.49	73.20	78.04
	(IPS + TPS - Recycle)	DWTF without Recycle	277,834	76.90	84.49	115.50	97.19	59.29	56.04	83.25	76.60	53.06	49.75	45.10	67.93	72.09
	Recycle	End of Interceptor System Meters	0	4.76	6.20	6.58	6.48	7.88	6.34	6.64	6.40	4.91	5.51	4.39	5.27	5.95

Table A-4
Average Flow Rates by Meter

System	Meter	Year 2020 Cumulative Residential Population	January 2023 Total Average Daily Flow Rate (cfs)	January 2023 Dry Weather Average Daily Flow Rate (cfs)	January 2023 Dry Weather Average Per Capita Flow Rate (gpcd)	February 2023 Total Average Daily Flow Rate (cfs)	February 2023 Dry Weather Average Daily Flow Rate (cfs)	February 2023 Dry Weather Average Per Capita Flow Rate (gpcd)	March 2023 Total Average Daily Flow Rate (cfs)	March 2023 Dry Weather Average Daily Flow Rate (cfs)	March 2023 Dry Weather Average Per Capita Flow Rate (gpcd)	April 2023 Total Average Daily Flow Rate (cfs)	April 2023 Dry Weather Average Daily Flow Rate (cfs)	April 2023 Dry Weather Average Per Capita Flow Rate (gpcd)	May 2023 Total Average Daily Flow Rate (cfs)	May 2023 Dry Weather Average Daily Flow Rate (cfs)	May 2023 Dry Weather Average Per Capita Flow Rate (gpcd)	June 2023 Total Average Daily Flow Rate (cfs)	June 2023 Dry Weather Average Daily Flow Rate (cfs)	June 2023 Dry Weather Average Per Capita Flow Rate (gpcd)
Tunnel (Non-Controlled)	TB-1	25,046	4.86	3.77	97	6.33	4.25	110	9.34	6.41	165	8.08	4.76	123	3.92	3.57	92	3.07	2.63	68
	PC-1	51,339	11.08	8.98	113	13.59	10.16	128	19.25	14.91	188	16.55	11.49	145	10.02	9.30	117	8.18	7.20	91
	DTW Pond 3 West	0	1.95	1.85	-	1.65	1.56	-	2.14	2.18	-	3.50	3.45	-	2.04	2.12	-	0.80	0.00	-
	PD-2	8,069	5.28	4.99	399	5.30	4.83	387	6.77	6.06	485	7.92	6.81	545	4.93	4.89	391	3.28	2.21	177
	PD-1	21,152	6.45	6.01	184	7.17	6.20	189	9.37	8.09	247	9.65	8.11	248	6.52	6.40	195	4.46	3.64	111
	PB-1	8,254	2.03	1.74	136	2.42	1.80	141	2.86	2.22	174	2.52	1.88	147	1.77	1.68	132	1.67	1.55	122
	PA-4	11,873	1.54	1.48	80	1.85	1.64	90	2.60	2.42	132	2.69	2.35	128	1.94	1.88	102	1.66	1.58	86
	PA-3	26,293	5.09	4.92	121	6.11	5.48	135	7.76	6.98	172	7.37	6.36	156	5.76	5.61	138	4.93	4.75	117
	PA-2	40,447	8.50	8.06	129	9.80	8.23	131	14.31	12.35	197	12.81	10.42	167	9.66	9.36	149	8.26	7.90	126
	PA-1	44,400	10.28	9.05	132	14.13	12.21	178	17.33	15.66	228	15.12	12.81	186	11.36	10.99	160	9.18	8.40	122
	P-2	11,012	2.01	1.91	112	2.23	1.94	114	2.59	2.28	134	2.35	2.08	122	1.96	1.89	111	1.78	1.69	99
	P-1[1]	145,621	33.13	29.41	131	38.89	31.19	138	53.42	43.89	195	48.52	37.43	166	32.98	31.54	140	26.82	24.21	107
	RV-1	12,490	2.80	2.17	112	3.46	2.18	113	3.73	2.52	131	2.82	2.01	104	1.89	1.76	91	2.04	1.67	86
Riverdrive (Controlled)	RR-1	7,224	3.91	2.93	262	4.40	3.03	271	5.83	4.00	358	5.04	3.34	299	2.99	2.69	240	2.73	2.28	204
	EC-6	20,698	6.20	5.03	157	7.31	5.27	165	9.95	7.47	233	8.86	6.43	201	6.07	5.79	181	5.71	5.21	163
	RD-1	78,944	21.45	15.36	126	23.01	13.86	113	30.95	19.08	156	24.97	14.91	122	14.41	12.87	105	14.76	11.37	93
	SW (with sludge depth)	40,061	16.53	11.79	190	15.90	12.25	198	22.78	16.67	269	18.14	12.84	207	13.10	11.72	189	13.58	10.06	162
	SWB	0	1.50	0.04	-	1.11	0.01	-	2.32	1.18	-	1.35	1.56	-	0.76	0.18	-	1.24	0.00	-
Tunnel Connection Meters	TSO	0	0.00	0.00	-	0.01	0.00	-	0.01	0.00	-	0.08	0.00	-	0.00	0.00	-	0.00	0.00	-
	APO-1	0	0.02	0.00	-	0.15	0.00	-	0.07	0.00	-	0.28	0.00	-	0.00	0.00	-	0.00	0.00	-
	APO-2	0	0.04	0.00	-	0.45	0.00	-	0.65	0.00	-	0.53	0.00	-	0.00	0.00	-	0.00	0.00	-
	CHPO	0	0.04	0.00	-	0.29	0.00	-	0.32	0.00	-	0.34	0.00	-	0.00	0.00	-	0.00	0.00	-
	CPO	0	0.02	0.00	-	0.13	0.00	-	0.01	0.00	-	0.14	0.00	-	0.00	0.00	-	0.00	0.00	-
	PDO	0	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-
	ER-2	0	0.00	0.00	-	0.01	0.00	-	0.05	0.00	-	0.11	0.00	-	0.00	0.00	-	0.00	0.00	-
	ER-1	0	0.00	0.00	-	0.06	0.00	-	0.25	0.00	-	0.48	0.00	-	0.00	0.00	-	0.00	0.00	-
	PM-1	0	0.00	0.00	-	0.14	0.00	-	0.00	0.00	-	0.02	0.00	-	0.00	0.00	-	0.00	0.00	-
	Total	0	0.12	0.00	-	1.23	0.00	-	1.32	0.00	-	1.86	0.00	-	0.00	0.00	-	0.00	0.00	-
DWTF	P-1+RV-1+RD-1+SW+SWB +Tunnel Connections	277,116	75.54	58.79	137	83.60	59.49	139	114.51	83.34	194	97.66	68.75	160	63.14	58.06	135	58.44	47.31	110
	DWTF Including Recycle (IPS + TPS)	277,834	81.66	61.83	144	90.69	61.75	144	122.07	86.71	202	103.67	71.87	167	67.17	61.34	143	62.38	49.57	115
	DWTF without Recycle (IPS + TPS - Recycle)	277,834	76.90	57.39	134	84.49	58.03	135	115.50	81.34	189	97.19	66.11	154	59.29	53.67	125	56.04	43.51	101
	Recycle	0	4.76	4.44	-	6.20	3.72	-	6.58	5.36	-	6.48	5.76	-	7.88	7.67	-	6.34	6.06	-

Notes:
1) [P-1] = [P-2] + [PA-2] + [PB-1] + [PC-1] + [PD-1] + (P-1 Inc. Pop. / (P-2 Cum. Pop. + PA-2 Cum. Pop. + PB-1 Cum. Pop. + PC-1 Cum. Pop. + PD-1 Cum. Pop.))
x ([P-2] + [PA-2] + [PB-1] + [PC-1] + [PD-1] + [TSO] + [CPO] + [CHPO] + [PDO] + [APO-1] + [APO-2] + [ER-1])

Table A-4 Cont.
Average Flow Rates by Meter

System	Meter	Year 2020 Cumulative Residential Population	July 2023			August 2023			September 2023			October 2023			November 2023			December 2023		
			Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather	
			Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)
Tunnel (Non-Controlled)	TB-1	25,046	4.36	3.02	78	4.47	3.21	83	2.94	2.77	72	2.89	2.54	66	2.77	2.63	68	3.98	3.07	79
	PC-1	51,339	11.13	8.62	109	11.00	8.52	107	7.45	7.13	90	7.30	6.59	83	7.16	6.87	87	9.61	7.86	99
	DTW Pond 3 West	0	1.36	2.32	-	0.29	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	1.59	1.55	-
	PD-2	8,069	3.95	4.70	376	3.29	2.47	198	2.45	2.43	194	2.49	2.40	192	2.60	2.56	205	4.37	4.14	331
	PD-1	21,152	5.67	6.29	192	5.29	4.15	127	4.00	3.94	120	3.75	3.60	110	3.76	3.70	113	5.89	5.54	169
	PB-1	8,254	1.81	1.58	124	1.87	1.52	119	1.45	1.41	110	1.47	1.37	107	1.43	1.39	109	1.72	1.53	120
	PA-4	11,873	1.78	1.83	100	2.09	1.76	96	2.00	1.99	108	1.64	1.64	89	1.60	1.58	86	1.80	1.74	95
	PA-3	26,293	5.47	5.40	133	6.00	5.22	128	5.63	5.61	138	5.06	5.00	123	4.66	4.64	114	5.20	5.00	123
	PA-2	40,447	9.23	9.07	145	10.20	8.77	140	9.39	9.32	149	8.10	7.90	126	8.15	8.07	129	8.56	8.04	129
	PA-1	44,400	10.35	9.99	145	11.43	9.59	140	10.31	10.16	148	8.35	7.96	116	8.45	8.41	122	10.32	9.16	133
	P-2	11,012	1.97	1.89	111	2.33	1.98	116	1.88	1.86	109	1.85	1.78	105	1.76	1.75	102	1.95	1.81	106
	P-1[1]	145,621	32.86	30.23	134	34.10	27.52	122	26.63	26.08	116	24.76	23.40	104	24.52	24.00	107	30.55	27.30	121
	RV-1	12,490	2.46	1.82	94	2.81	1.89	98	1.79	1.73	90	2.00	1.75	91	1.84	1.76	91	2.41	1.88	97
Riverdrive (Controlled)	RR-1	7,224	6.25	3.65	327	5.21	3.74	335	2.81	2.54	227	2.19	1.64	146	2.05	1.82	163	2.94	2.16	193
	EC-6	20,698	9.71	6.16	192	8.66	6.83	213	4.97	4.62	144	4.16	3.55	111	4.06	3.82	119	5.10	4.20	131
	RD-1	78,944	26.45	15.24	125	22.16	13.61	111	13.09	11.32	93	12.59	9.76	80	10.96	9.72	80	16.72	11.07	91
	SW (with sludge depth)	40,061	18.35	12.06	195	15.23	11.36	183	14.04	12.95	209	12.27	9.10	147	9.21	7.73	125	14.91	10.31	166
	SWB	0	3.52	3.25	-	1.72	0.07	-	0.62	0.44	-	0.43	0.00	-	0.41	0.00	-	0.73	0.00	-
Tunnel Connection Meters	TSO	0	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-
	APO-1	0	0.07	0.00	-	0.02	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-
	APO-2	0	0.10	0.00	-	0.02	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-
	CHPO	0	0.09	0.00	-	0.05	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-
	CPO	0	0.04	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-
	PDO	0	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-
	ER-2	0	0.00	0.00	-	1.26	0.15	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-
	ER-1	0	0.00	0.00	-	2.79	0.54	-	0.06	0.08	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-
	PM-1	0	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-
	Total	0	0.29	0.00	-	2.89	0.54	-	0.06	0.08	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-
DWTF	P-1+RV-1+RD-1+SW+SWB +Tunnel Connections	277,116	83.92	62.61	146	78.90	54.99	128	56.23	52.60	123	52.05	44.00	103	46.95	43.21	101	65.33	50.56	118
	DWTF Including Recycle (IPS + TPS)	277,834	89.89	67.04	156	83.00	54.59	127	57.97	54.15	126	55.26	46.54	108	49.49	47.15	110	73.20	55.96	130
	DWTF without Recycle (IPS + TPS - Recycle)	277,834	83.25	60.69	141	76.60	49.44	115	53.06	49.22	115	49.75	41.01	95	45.10	42.70	99	67.93	50.63	118
	Recycle	0	6.64	6.35	-	6.40	5.14	-	4.91	4.93	-	5.51	5.53	-	4.39	4.46	-	5.27	5.33	-

Notes:
1) [P-1] = [P-2] + [PA-2] + [PB-1] + [PC-1] + [PD-1] + (P-1 Inc. Pop. / (P-2 Cum. Pop. + PA-2 Cum. Pop. + PB-1 Cum. Pop. + PC-1 Cum. Pop. + PD-1 Cum. Pop.))
x ([P-2] + [PA-2] + [PB-1] + [PC-1] + [PD-1] + [TSO] + [CPO] + [CHPO] + [PDO] + [APO-1] + [APO-2] + [ER-1])

Appendix B

Precipitation Data for Significant/Major Storm Events

Table B-1
Rainfall Event Summary Table for Significant Storm Event 1

Start Date: 1/18/2023
Stop Date: 1/20/2023

Gauge ID	Peak Rainfall (in)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Event Total
R18	0.23	0.35	0.38	0.43	0.52	0.92	0.94	0.94	0.94
R02	0.30	0.46	0.52	0.52	0.54	1.03	1.05	1.05	1.05
R10	0.24	0.41	0.49	0.51	0.53	1.04	1.05	1.05	1.05
DTW	0.25	0.45	0.51	0.58	0.60	1.16	1.18	1.18	1.18
R09	0.29	0.47	0.54	0.58	0.60	1.02	1.04	1.04	1.04
R04	0.45	0.73	0.88	0.91	0.94	1.60	1.63	1.63	1.62
R08	0.28	0.50	0.60	0.65	0.67	1.10	1.13	1.13	1.13
R15	0.29	0.50	0.58	0.63	0.66	1.13	1.16	1.16	1.16
R17	0.29	0.47	0.57	0.60	0.62	1.10	1.12	1.12	1.12
R06	0.41	0.63	0.76	0.80	0.81	1.36	1.37	1.37	1.37
R16	0.35	0.64	0.76	0.83	0.85	1.34	1.36	1.36	1.36
Minimum (in):	0.23	0.35	0.38	0.43	0.52	0.92	0.94	0.94	0.94
Average (in):	0.31	0.51	0.60	0.64	0.67	1.16	1.18	1.18	1.18
Maximum (in):	0.45	0.73	0.88	0.91	0.94	1.60	1.63	1.63	1.62
								Standard Deviation (in):	0.19
								Coefficient of Variation:	16%

X.XX* Missing or suspect data (not used).

Gauge ID	Recurrence Interval (years)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Maximum
R18	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R02	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DTW	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R09	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R04	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R08	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R15	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R17	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R06	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R16	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Minimum:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Average:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Maximum:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1

\- Missing or suspect data (not used).

Notes:

1) Return periods determined from point precipitation frequency (PF) estimates from NOAA Atlas 14, Volume 8, Version 2 published in 2013. NOAA Atlas 14 is the current reference document for return frequency as of 2013.
2) Return periods calculated by linear interpolation between the published whole number month or year frequencies.

Table B-2
Rainfall Event Summary Table for Significant Storm Event 2

Start Date: 2/22/2023
Stop Date: 2/23/2023

Gauge ID	Peak Rainfall (in)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Event Total
R18	0.22	0.33	0.39	0.75	1.11	1.11	1.11	1.15	1.11
R02	0.24	0.34	0.39	0.72	1.15	1.15	1.15	1.18	1.15
R10	0.25	0.34	0.42	0.72	1.07	1.07	1.07	1.10	1.07
DTW	0.22	0.28	0.39	0.67	0.98	0.99	0.99	1.06	0.98
R09	0.20	0.29	0.36	0.62	0.96	0.97	0.97	1.01	0.96
R04	0.28	0.43	0.49	0.87	1.50	1.54	1.54	1.61	1.53
R08	0.18	0.26	0.32	0.58	0.88	0.89	0.89	0.91	0.89
R15	0.22	0.31	0.38	0.66	0.98	0.98	0.98	1.02	0.98
R17	0.22	0.32	0.36	0.67	1.08	1.11	1.11	1.16	1.10
R06	0.23	0.36	0.40	0.75	1.25	1.28	1.29	1.33	1.28
R16	0.21	0.31	0.37	0.68	1.06	1.07	1.07	1.12	1.07
Minimum (in):	0.18	0.26	0.32	0.58	0.88	0.89	0.89	0.91	0.89
Average (in):	0.22	0.32	0.39	0.70	1.09	1.11	1.11	1.15	1.10
Maximum (in):	0.28	0.43	0.49	0.87	1.50	1.54	1.54	1.61	1.53
								Standard Deviation (in):	0.18
								Coefficient of Variation:	16%

X.XX* Missing or suspect data (not used).

Gauge ID	Recurrence Interval (years)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Maximum
R18	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R02	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DTW	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R09	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R04	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R08	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R15	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R17	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R06	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R16	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Minimum:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Average:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Maximum:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1

\- Missing or suspect data (not used).

Notes:

1) Return periods determined from point precipitation frequency (PF) estimates from NOAA Atlas 14, Volume 8, Version 2 published in 2013. NOAA Atlas 14 is the current reference document for return frequency as of 2013.
2) Return periods calculated by linear interpolation between the published whole number month or year frequencies.

Table B-3
Rainfall Event Summary Table for Significant Storm Event 3

Start Date: 2/27/2023
Stop Date: 2/28/2023

Gauge ID	Peak Rainfall (in)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Event Total
R18	0.25	0.46	0.66	1.01	1.14	1.15	1.16	1.16	1.15
R02	0.27	0.47	0.64	1.12	1.39	1.39	1.39	1.39	1.39
R10	0.28	0.51	0.72	1.10	1.29	1.29	1.30	1.30	1.29
DTW	0.23	0.42	0.61	1.00	1.23	1.25	1.25	1.25	1.25
R09	0.28	0.40	0.56	1.01	1.24	1.25	1.25	1.25	1.25
R04	0.36	0.61	0.80	1.46	1.82	1.83	1.83	1.83	1.83
R08	0.22	0.36	0.51	0.91	1.12	1.13	1.13	1.13	1.13
R15	0.27	0.43	0.62	1.07	1.27	1.29	1.30	1.30	1.28
R17	0.23	0.45	0.61	1.01	1.31	1.33	1.33	1.33	1.33
R06	0.42	0.71	0.82	1.46	1.85	1.86	1.86	1.86	1.86
R16	0.24	0.45	0.63	1.00	1.29	1.31	1.31	1.31	1.31
Minimum (in):	0.22	0.36	0.51	0.91	1.12	1.13	1.13	1.13	1.13
Average (in):	0.28	0.48	0.65	1.10	1.36	1.37	1.37	1.37	1.37
Maximum (in):	0.42	0.71	0.82	1.46	1.85	1.86	1.86	1.86	1.86
								Standard Deviation (in):	0.25
								Coefficient of Variation:	18%

X.XX* Missing or suspect data (not used).

Gauge ID	Recurrence Interval (years)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Maximum
R18	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R02	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DTW	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R09	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R04	< 1	< 1	< 1	< 1	1	< 1	< 1	< 1	1
R08	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R15	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R17	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R06	< 1	< 1	< 1	< 1	1	< 1	< 1	< 1	1
R16	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Minimum:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Average:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Maximum:	< 1	< 1	< 1	< 1	1	< 1	< 1	< 1	1

\- Missing or suspect data (not used).

Notes:

1) Return periods determined from point precipitation frequency (PF) estimates from NOAA Atlas 14, Volume 8, Version 2 published in 2013. NOAA Atlas 14 is the current reference document for return frequency as of 2013.
2) Return periods calculated by linear interpolation between the published whole number month or year frequencies.

Table B-4
Rainfall Event Summary Table for Significant Storm Event 4

Start Date: 3/3/2023
Stop Date: 3/7/2023

Gauge ID	Peak Rainfall (in)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Event Total
R18	0.18	0.32	0.40	0.70	1.07	1.08	1.09	1.46	1.74
R02	0.33	0.56	0.78	1.22	1.34	1.34	1.34	1.56	1.90
R10	0.31	0.52	0.75	1.18	1.32	1.32	1.33	1.64	1.97
DTW	0.20	0.37	0.56	0.99	1.11	1.11	1.12	1.35	1.73
R09	0.26	0.38	0.48	0.71	0.85	0.85	0.85	1.07	1.35
R04	0.53	0.88	1.12	1.66	1.92	1.92	1.93	2.20	2.76
R08	0.21	0.32	0.41	0.70	1.00	1.00	1.01	1.22	1.54
R15	0.32	0.43	0.53	0.79	1.13	1.17	1.18	1.50	1.72
R17	0.31	0.47	0.61	1.04	1.35	1.35	1.36	1.57	1.99
R06	0.42	0.61	0.81	1.18	1.38	1.38	1.39	1.63	2.13
R16	0.30	0.42	0.52	0.82	1.01	1.01	1.02	1.32	1.63
Minimum (in):	0.18	0.32	0.40	0.70	0.85	0.85	0.85	1.07	1.35
Average (in):	0.31	0.48	0.63	1.00	1.23	1.23	1.24	1.50	1.86
Maximum (in):	0.53	0.88	1.12	1.66	1.92	1.92	1.93	2.20	2.76
								Standard Deviation (in):	0.37
								Coefficient of Variation:	20%

X.XX* Missing or suspect data (not used).

Gauge ID	Recurrence Interval (years)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Maximum
R18	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R02	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DTW	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R09	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R04	< 1	< 1	< 1	1	2	< 1	< 1	< 1	2
R08	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R15	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R17	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R06	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R16	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Minimum:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Average:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Maximum:	< 1	< 1	< 1	1	2	< 1	< 1	< 1	2

\- Missing or suspect data (not used).

Notes:

1) Return periods determined from point precipitation frequency (PF) estimates from NOAA Atlas 14, Volume 8, Version 2 published in 2013. NOAA Atlas 14 is the current reference document for return frequency as of 2013.
2) Return periods calculated by linear interpolation between the published whole number month or year frequencies.

Table B-5
Rainfall Event Summary Table for Significant Storm Event 5

Start Date: 3/31/2023
Stop Date: 4/1/2023

Gauge ID	Peak Rainfall (in)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Event Total
R18	0.38	0.40	0.43	0.68	0.80	1.22	1.57	1.57	1.57
R02	0.57	0.65	0.66	0.87	0.87	1.34	1.58	1.58	1.58
R10	0.40	0.52	0.55	0.75	0.95	1.34	1.89	1.89	1.89
DTW	0.39	0.53	0.54	0.81	0.83	1.35	1.75	1.75	1.74
R09	0.52	0.58	0.58	0.83	0.83	1.31	1.58	1.58	1.57
R04	0.53	0.56	0.56	0.93	0.93	1.46	1.76	1.76	1.74
R08	0.45	0.48	0.48	0.74	0.74	1.19	1.45	1.45	1.43
R15	0.53	0.59	0.61	0.91	0.97	1.46	1.92	1.92	1.89
R17	0.43	0.45	0.46	0.73	0.73	1.19	1.41	1.41	1.39
R06	0.41	0.44	0.45	0.82	0.82	1.32	1.48	1.48	1.46
R16	0.47	0.49	0.49	0.85	0.85	1.37	1.61	1.61	1.61
Minimum (in):	0.38	0.40	0.43	0.68	0.73	1.19	1.41	1.41	1.39
Average (in):	0.46	0.52	0.53	0.81	0.85	1.32	1.64	1.64	1.62
Maximum (in):	0.57	0.65	0.66	0.93	0.97	1.46	1.92	1.92	1.89

Standard Deviation (in):	0.17
Coefficient of Variation:	11%

X.XX* Missing or suspect data (not used).

Gauge ID	Recurrence Interval (years)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Maximum
R18	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R02	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DTW	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R09	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R04	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R08	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R15	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R17	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R06	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R16	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Minimum:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Average:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Maximum:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1

\- Missing or suspect data (not used).

Notes:

1) Return periods determined from point precipitation frequency (PF) estimates from NOAA Atlas 14, Volume 8, Version 2 published in 2013. NOAA Atlas 14 is the current reference document for return frequency as of 2013.
2) Return periods calculated by linear interpolation between the published whole number month or year frequencies.

Table B-6
Rainfall Event Summary Table for Significant Storm Event 6

Start Date: 4/28/2023
Stop Date: 4/30/2023

Gauge ID	Peak Rainfall (in)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Event Total
R18	0.17	0.29	0.29	0.29	0.51	0.60	1.07	1.21	1.12
R02	0.14	0.21	0.24	0.29	0.46	0.63	1.00	1.13	1.08
R10	0.17	0.25	0.25	0.27	0.47	0.59	1.03	1.11	1.09
DTW	0.12	0.17	0.21	0.30	0.45	0.65	0.98	1.15	1.07
R09	0.20	0.26	0.30	0.39	0.51	0.68	0.97	1.24	1.06
R04	0.22	0.32	0.37	0.59	0.78	0.99	1.32	1.52	1.44
R08	0.14	0.19	0.24	0.30	0.43	0.60	0.88	1.04	0.96
R15	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*
R17	0.09	0.17	0.22	0.28	0.39	0.56	0.80	0.97	0.89
R06	0.33	0.41	0.52	0.66	0.81	0.99	1.22	1.38	1.31
R16	0.29	0.33	0.38	0.47	0.62	0.81	1.07	1.29	1.15
Minimum (in):	0.09	0.17	0.21	0.27	0.39	0.56	0.80	0.97	0.89
Average (in):	0.19	0.26	0.30	0.38	0.54	0.71	1.03	1.20	1.12
Maximum (in):	0.33	0.41	0.52	0.66	0.81	0.99	1.32	1.52	1.44

Standard Deviation (in):	0.16
Coefficient of Variation:	14%

X.XX* Missing or suspect data (not used).

Gauge ID	Recurrence Interval (years)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Maximum
R18	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R02	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DTW	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R09	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R04	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R08	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R15	-	-	-	-	-	-	-	-	-
R17	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R06	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R16	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Minimum:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Average:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Maximum:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1

- Missing or suspect data (not used).

Notes:

1) Return periods determined from point precipitation frequency (PF) estimates from NOAA Atlas 14, Volume 8, Version 2 published in 2013. NOAA Atlas 14 is the current reference document for return frequency as of 2013.
2) Return periods calculated by linear interpolation between the published whole number month or year frequencies.

Table B-7
Rainfall Event Summary Table for Significant Storm Event 7

Start Date: 6/25/2023
Stop Date: 6/27/2023

Gauge ID	Peak Rainfall (in)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Event Total
R18	0.23	0.33	0.37	0.51	0.52	0.97	1.13	1.13	1.13
R02	0.56	0.61	0.70	1.02	1.05	1.71	1.85	1.85	1.85
R10	0.24	0.43	0.43	0.63	0.66	1.13	1.17	1.17	1.17
DTW	0.32	0.41	0.48	0.81	0.85	1.43	1.47	1.47	1.47
R09	0.39	0.47	0.51	0.97	1.03	1.61	1.68	1.68	1.67
R04	0.58	0.64	0.85	1.06	1.07	1.82	1.84	1.84	1.84
R08	0.36	0.51	0.59	0.73	0.80	1.41	1.48	1.48	1.48
R15	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*
R17	0.24	0.38	0.46	0.69	0.75	1.21	1.27	1.27	1.27
R06	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*
R16	0.27	0.33	0.35	0.59	0.63	1.11	1.16	1.16	1.16
Minimum (in):	0.23	0.33	0.35	0.51	0.52	0.97	1.13	1.13	1.13
Average (in):	0.35	0.46	0.53	0.78	0.82	1.38	1.45	1.45	1.45
Maximum (in):	0.58	0.64	0.85	1.06	1.07	1.82	1.85	1.85	1.85

Standard Deviation (in):	0.29
Coefficient of Variation:	20%

X.XX* Missing or suspect data (not used).

Gauge ID	Recurrence Interval (years)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Maximum
R18	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R02	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DTW	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R09	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R04	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R08	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R15	-	-	-	-	-	-	-	-	-
R17	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R06	-	-	-	-	-	-	-	-	-
R16	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Minimum:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Average:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Maximum:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1

- Missing or suspect data (not used).

Notes:

1) Return periods determined from point precipitation frequency (PF) estimates from NOAA Atlas 14, Volume 8, Version 2 published in 2013. NOAA Atlas 14 is the current reference document for return frequency as of 2013.
2) Return periods calculated by linear interpolation between the published whole number month or year frequencies.

Table B-8
Rainfall Event Summary Table for Significant Storm Event 8

Start Date: 7/1/2023
Stop Date: 7/2/2023

Gauge ID	Peak Rainfall (in)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Event Total
R18	0.53	0.53	0.54	0.55	0.56	1.00	1.07	1.07	1.07
R02	0.89	0.90	0.90	0.93	0.96	1.69	1.87	1.88	1.85
R10	0.88	0.92	0.92	0.96	0.97	1.53	2.05	2.05	1.63
DTW	1.04	1.07	1.08	1.12	1.19	1.78	1.89	1.89	1.89
R09	0.74	0.75	0.76	0.76	0.79	1.43	1.46	1.46	1.45
R04	1.09	1.09	1.09	1.11	1.15	1.81	1.87	1.87	1.86
R08	0.82	0.83	0.83	0.83	0.90	1.35	1.41	1.41	1.40
R15	1.18	1.57	1.59	1.70	1.73	1.74	1.74	1.74	1.74
R17	0.62	0.63	0.63	0.71	0.87	1.50	1.53	1.53	1.52
R06	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*
R16	1.19	1.20	1.20	1.22	1.31	2.06	2.40	2.40	2.40
Minimum (in):	0.53	0.53	0.54	0.55	0.56	1.00	1.07	1.07	1.07
Average (in):	0.90	0.95	0.95	0.99	1.04	1.59	1.73	1.73	1.68
Maximum (in):	1.19	1.57	1.59	1.70	1.73	2.06	2.40	2.40	2.40
								Standard Deviation (in):	0.36
X.XX*	Missing or suspect data (not used).							Coefficient of Variation:	21%

Gauge ID	Recurrence Interval (years)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Maximum
R18	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R02	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DTW	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1
R09	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R04	2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	2
R08	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R15	2	3	2	2	< 1	< 1	< 1	< 1	3
R17	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R06	-	-	-	-	-	-	-	-	-
R16	2	1	< 1	< 1	< 1	1	1	< 1	2
Minimum:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Average:	1	1	< 1	< 1	< 1	< 1	< 1	< 1	1
Maximum:	2	3	2	2	< 1	1	1	< 1	3

-	Missing or suspect data (not used).

Notes:

1) Return periods determined from point precipitation frequency (PF) estimates from NOAA Atlas 14, Volume 8, Version 2 published in 2013. NOAA Atlas 14 is the current reference document for return frequency as of 2013.
2) Return periods calculated by linear interpolation between the published whole number month or year frequencies.

Table B-9
Rainfall Event Summary Table for Significant Storm Event 9

Start Date: 8/23/2023
Stop Date: 8/25/2023

Gauge ID	Peak Rainfall (in)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Event Total
R18	2.32	4.16	5.63	5.91	5.92	6.44	6.44	6.45	6.44
R02	2.55	4.35	6.01	6.69	6.75	7.23	7.24	7.26	7.24
R10	2.14	2.84	3.97	4.76	4.77	5.22	5.22	5.23	5.22
DTW	1.66	1.96	2.41	3.08	3.11	3.51	3.53	3.53	3.53
R09	0.83	1.12	1.53	1.99	2.08	2.39	2.42	2.42	2.41
R04	1.47	1.96	2.58	3.34	3.65	4.08	4.12	4.12	4.12
R08	0.53	0.56	0.70	1.03	1.13	1.66	1.70	1.70	1.70
R15	0.56	0.59	0.59	0.68	0.75	1.31	1.35	1.35	1.35
R17	0.51	0.75	1.08	1.38	1.55	2.04	2.09	2.09	2.09
R06	0.72	1.01	1.39	1.78	2.04	2.63	2.70	2.70	2.70
R16	1.17	1.32	1.64	1.88	2.02	2.88	2.94	2.94	2.94
Minimum (in):	0.51	0.56	0.59	0.68	0.75	1.31	1.35	1.35	1.35
Average (in):	1.31	1.87	2.50	2.96	3.07	3.58	3.61	3.62	3.61
Maximum (in):	2.55	4.35	6.01	6.69	6.75	7.23	7.24	7.26	7.24
								Standard Deviation (in):	1.94
X.XX*	Missing or suspect data (not used).							Coefficient of Variation:	54%

Gauge ID	Recurrence Interval (years)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Maximum
R18	47	467	> 1000	773	422	415	216	161	> 1000
R02	85	709	> 1000	> 1000	957	870	487	392	> 1000
R10	31	47	176	208	120	112	59	42	208
DTW	9	8	14	22	14	14	8	5	22
R09	< 1	< 1	2	3	2	2	1	< 1	3
R04	6	8	19	34	30	30	18	12	34
R08	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R15	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R17	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R06	< 1	< 1	1	2	2	4	2	1	4
R16	2	2	3	3	2	5	3	2	5
Minimum:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Average:	17	113	201	186	141	132	72	56	207
Maximum:	85	709	> 1000	> 1000	957	870	487	392	> 1000

-	Missing or suspect data (not used).

Notes:

1) Return periods determined from point precipitation frequency (PF) estimates from NOAA Atlas 14, Volume 8, Version 2 published in 2013. NOAA Atlas 14 is the current reference document for return frequency as of 2013.

2) Return periods calculated by linear interpolation between the published whole number month or year frequencies.

Appendix C

Meter Data Summaries

Figure C-1
Data Flags for 2023

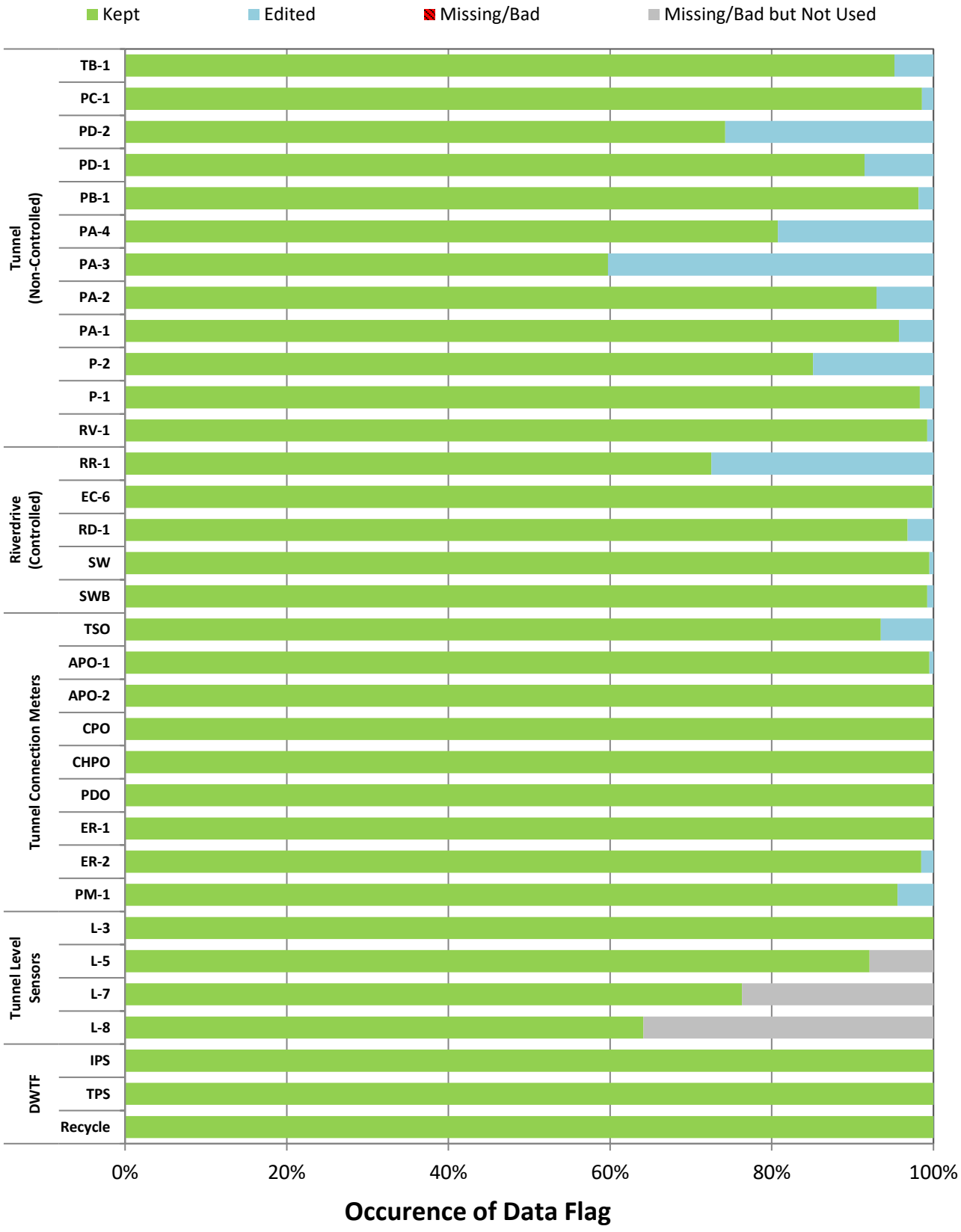
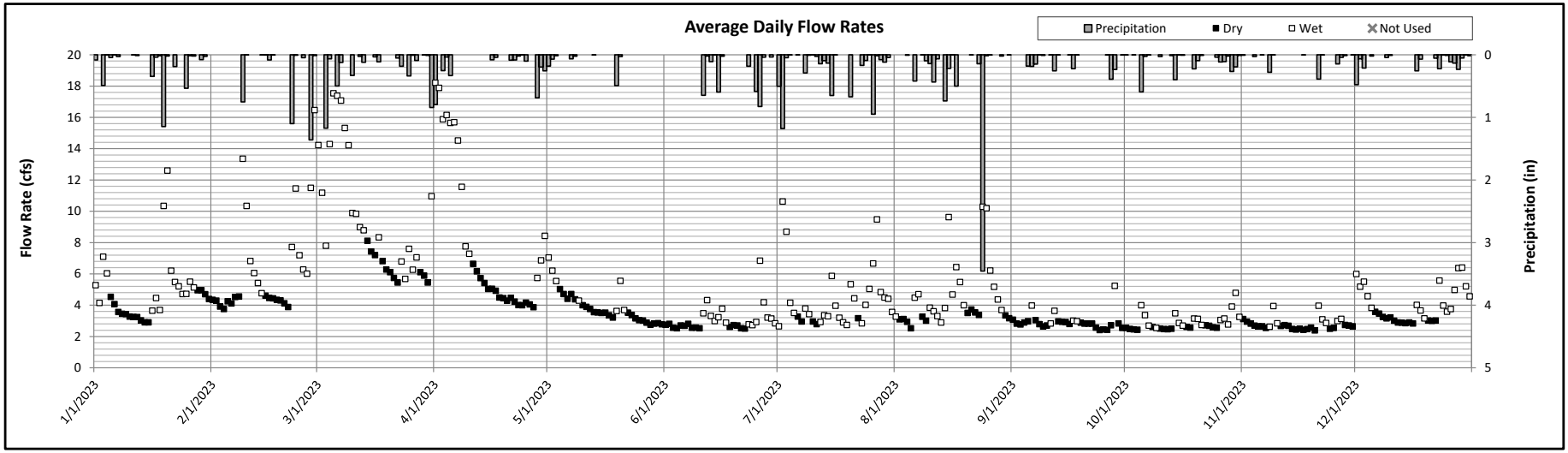
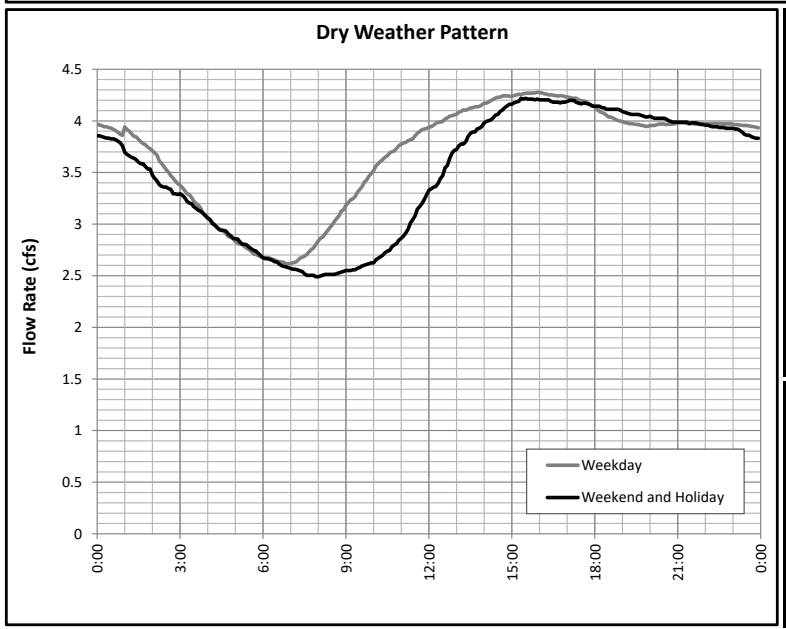


Figure C-2
Meter Report

Meter: TB-1 **Location: Taylor Basin** **Period: 1/1/2023 through 12/31/2023**

Type: Magmeter **System Meter Type: Interceptor Flow Meter**





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-23	4.9	97.4	3.8	75.6	15	16
Feb-23	6.3	114.5	4.3	77.0	15	13
Mar-23	9.3	187.2	6.4	128.5	11	20
Apr-23	8.1	156.7	4.8	92.3	17	13
May-23	3.9	78.6	3.6	71.5	24	7
Jun-23	3.1	59.5	2.6	51.0	15	15
Jul-23	4.4	87.4	3.0	60.6	5	26
Aug-23	4.5	89.5	3.2	64.3	12	19
Sep-23	2.9	57.0	2.8	53.7	24	6
Oct-23	2.9	57.9	2.5	50.9	15	16
Nov-23	2.8	53.8	2.6	51.0	22	8
Dec-23	4.0	79.6	3.1	61.5	14	17

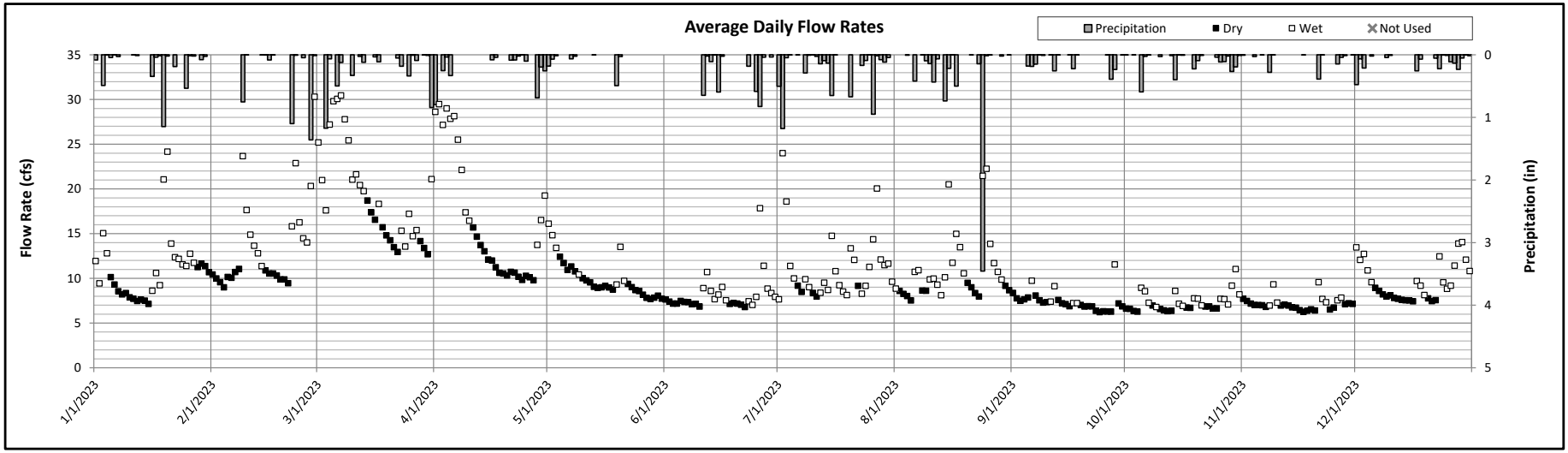
Statistics for Major Wet Weather Events

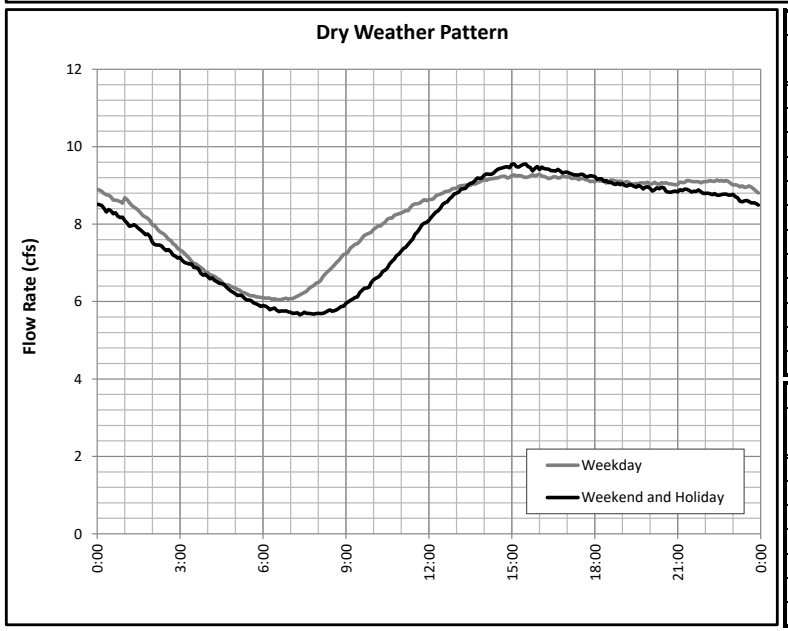
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Figure C-3
Meter Report

Meter: PC-1 **Location: Pelham Interceptor North of Goddard Road** **Period: 1/1/2023 through 12/31/2023**

Type: ADS Triton+ **System Meter Type: Interceptor Flow Meter**





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-23	11.1	221.9	9.0	180.0	15	16
Feb-23	13.6	245.8	10.2	183.8	15	13
Mar-23	19.3	385.8	14.9	298.7	11	20
Apr-23	16.5	320.8	11.5	222.8	17	13
May-23	10.0	200.7	9.3	186.3	24	7
Jun-23	8.2	158.5	7.2	139.6	15	15
Jul-23	11.1	222.9	8.6	172.8	5	26
Aug-23	11.0	220.4	8.5	170.7	12	19
Sep-23	7.4	144.4	7.1	138.3	24	6
Oct-23	7.3	146.3	6.6	132.0	15	16
Nov-23	7.2	138.8	6.9	133.3	22	8
Dec-23	9.6	192.6	7.9	157.6	14	17

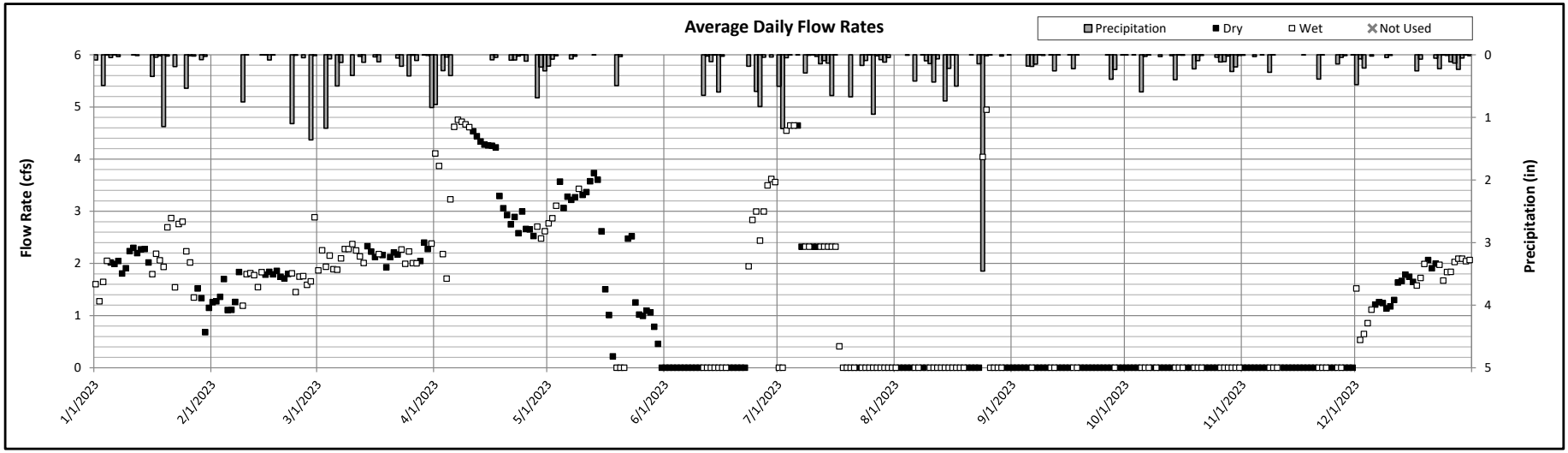
Statistics for Major Wet Weather Events

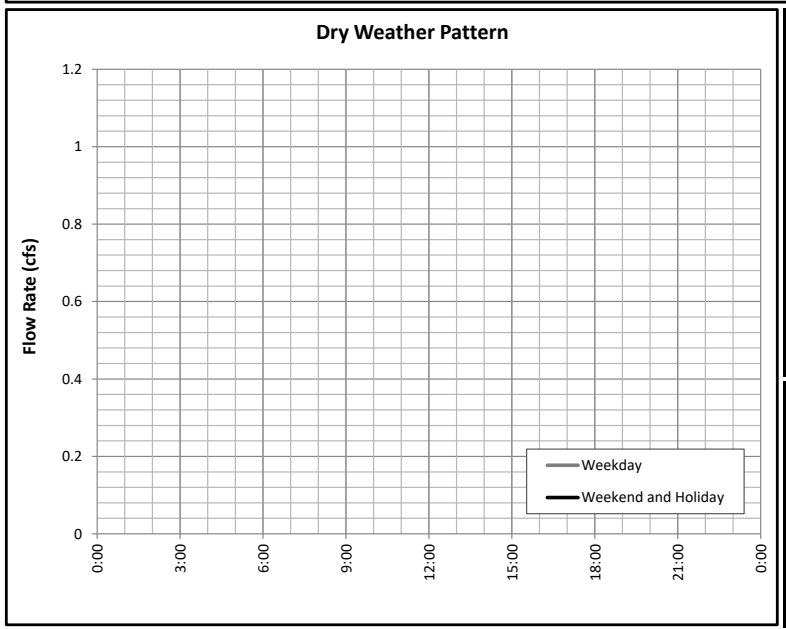
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Figure C-4
Meter Report

Meter: Pond 3W to DSDS | **Location: Detroit Metro Airport** | **Period: 1/1/2023 through 12/31/2023**

Type: Magmeter | **System Meter Type: WCAA**





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-23	2.0	39.1	1.8	37.0	15	16
Feb-23	1.7	29.9	1.6	28.2	15	13
Mar-23	2.1	42.9	2.2	43.7	11	20
Apr-23	3.5	67.8	3.4	66.9	17	13
May-23	2.0	40.8	2.1	42.6	24	7
Jun-23	0.8	15.4	0.0	0.0	15	15
Jul-23	1.4	27.2	2.3	46.5	5	26
Aug-23	0.3	5.8	0.0	0.0	12	19
Sep-23	0.0	0.0	0.0	0.0	24	6
Oct-23	0.0	0.0	0.0	0.0	15	16
Nov-23	0.0	0.0	0.0	0.0	22	8
Dec-23	1.6	31.9	1.6	31.1	14	17

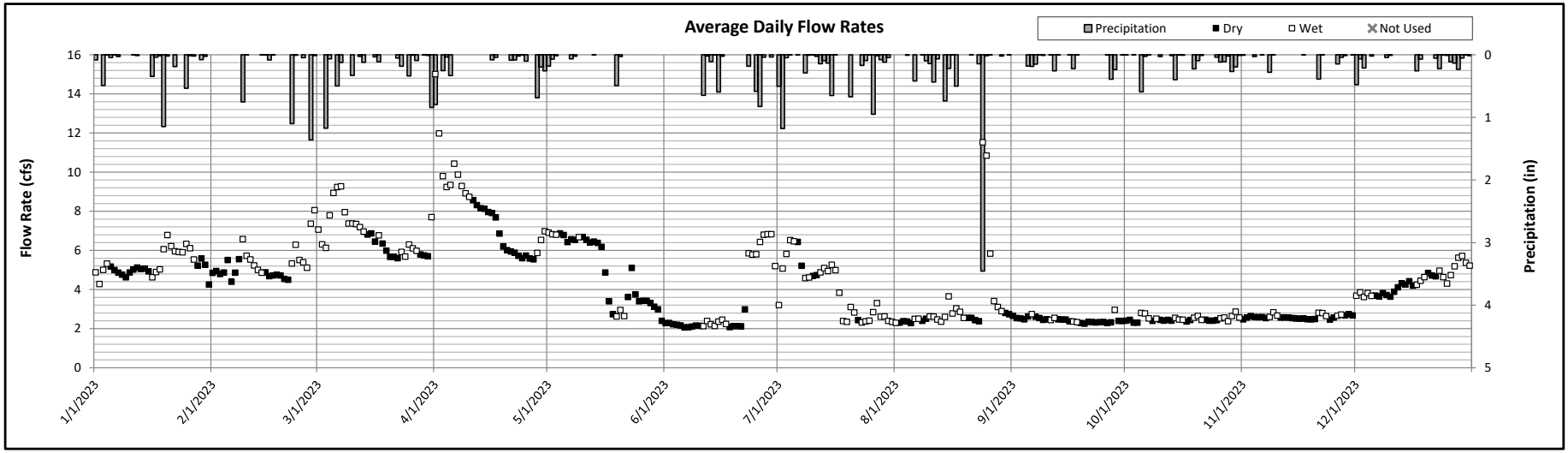
Statistics for Major Wet Weather Events

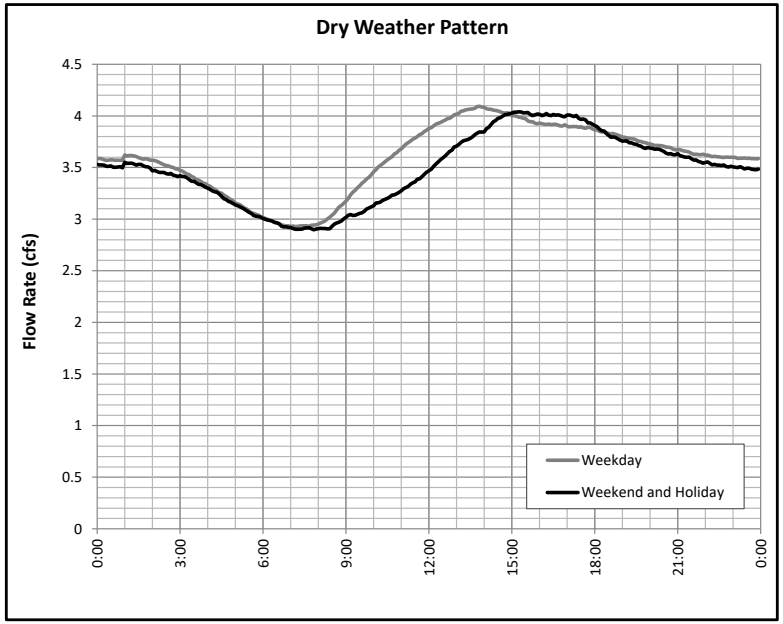
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Figure C-5
Meter Report

Meter: PD-2 | **Location: Goddard Interceptor West of Inkster Road** | **Period: 1/1/2023 through 12/31/2023**

Type: ADS Triton+ | **System Meter Type: Interceptor Flow Meter**





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-23	5.3	105.7	5.0	99.9	15	16
Feb-23	5.3	96.0	4.8	87.5	15	13
Mar-23	6.8	135.7	6.1	121.4	11	20
Apr-23	7.9	153.6	6.8	132.0	17	13
May-23	4.9	98.7	4.9	97.9	24	7
Jun-23	3.3	63.7	2.2	42.8	15	15
Jul-23	4.0	79.2	4.7	94.1	5	26
Aug-23	3.3	66.0	2.5	49.5	12	19
Sep-23	2.5	47.6	2.4	47.0	24	6
Oct-23	2.5	49.9	2.4	48.1	15	16
Nov-23	2.6	50.4	2.6	49.6	22	8
Dec-23	4.4	87.6	4.1	82.9	14	17

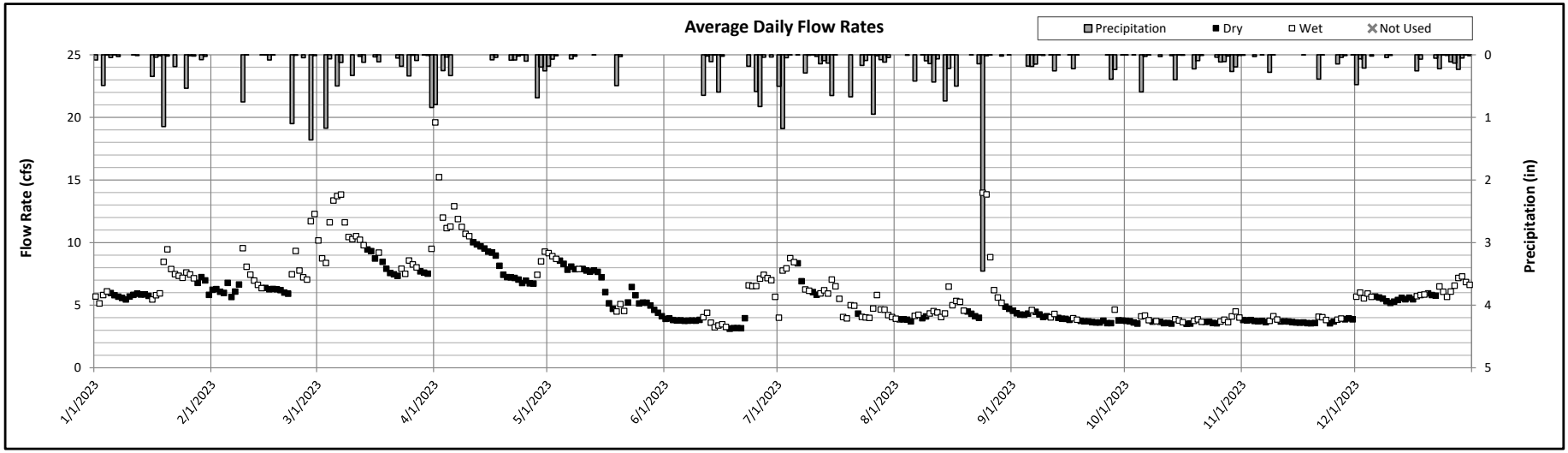
Statistics for Major Wet Weather Events

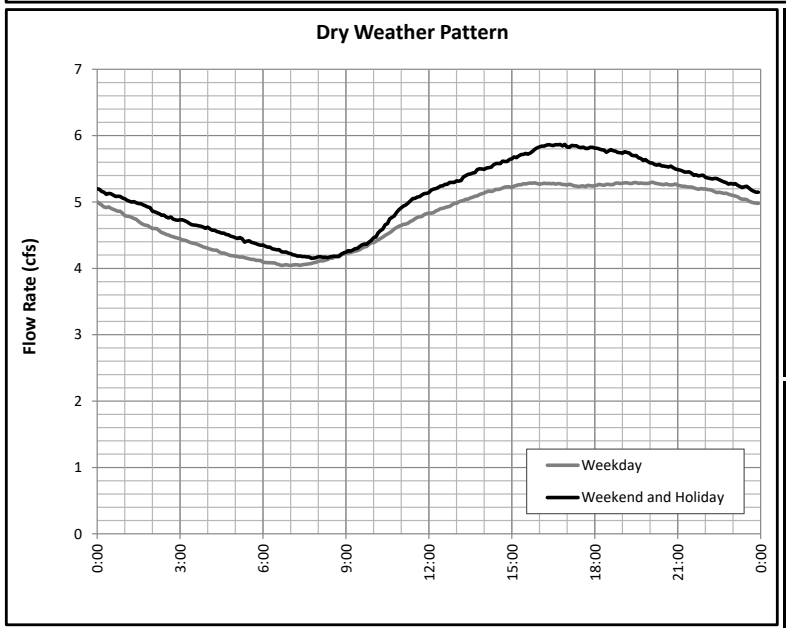
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Figure C-6
Meter Report

Meter: PD-1 | **Location: Goddard Interceptor West of Allen Road** | **Period: 1/1/2023 through 12/31/2023**

Type: ADS Triton+ | **System Meter Type: Interceptor Flow Meter**





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-23	6.5	129.3	6.0	120.4	15	16
Feb-23	7.2	129.7	6.2	112.2	15	13
Mar-23	9.4	187.7	8.1	162.1	11	20
Apr-23	9.6	187.1	8.1	157.3	17	13
May-23	6.5	130.7	6.4	128.2	24	7
Jun-23	4.5	86.5	3.6	70.5	15	15
Jul-23	5.7	113.6	6.3	126.0	5	26
Aug-23	5.3	106.0	4.1	83.1	12	19
Sep-23	4.0	77.5	3.9	76.4	24	6
Oct-23	3.7	75.1	3.6	72.2	15	16
Nov-23	3.8	72.8	3.7	71.7	22	8
Dec-23	5.9	118.0	5.5	111.0	14	17

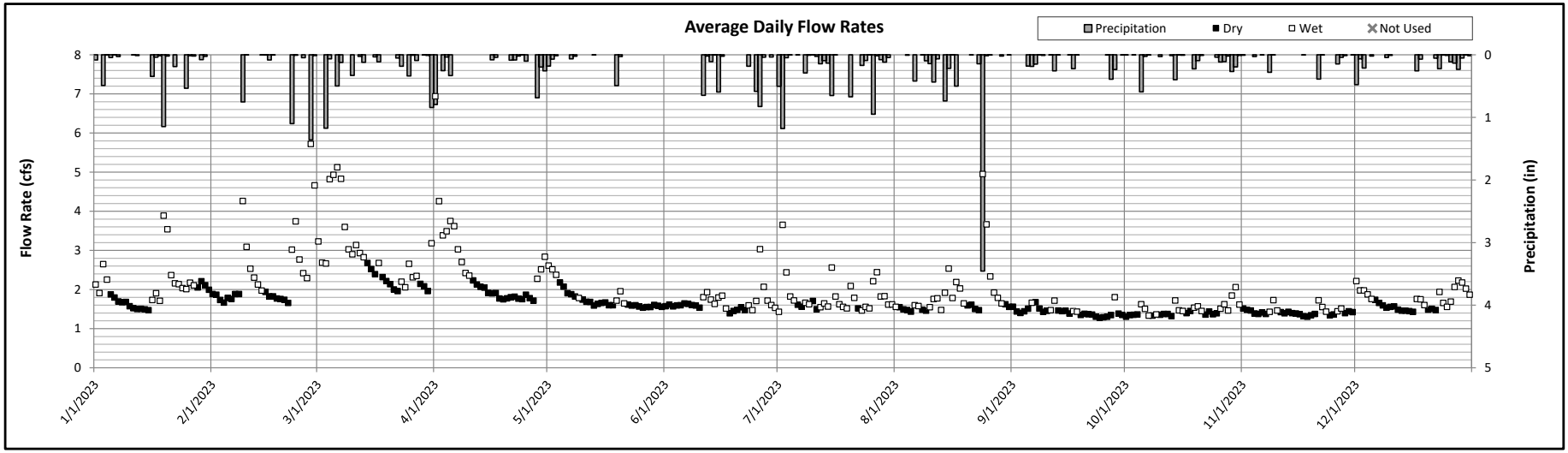
Statistics for Major Wet Weather Events

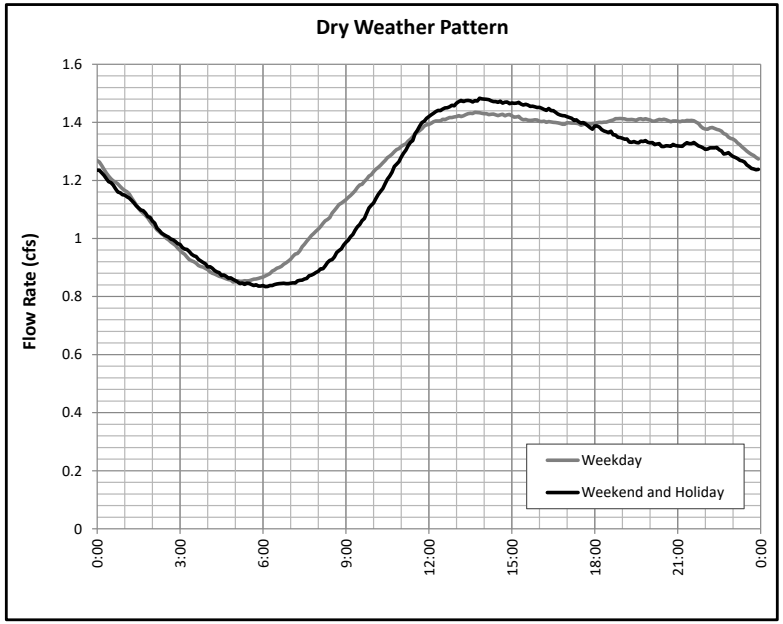
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Figure C-7
Meter Report

Meter: PB-1 **Location: Northline Interceptor West of Fordline Road** **Period: 1/1/2023 through 12/31/2023**

Type: ADS Triton **System Meter Type: Interceptor Flow Meter**





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-23	2.0	40.6	1.7	34.9	15	16
Feb-23	2.4	43.8	1.8	32.5	15	13
Mar-23	2.9	57.2	2.2	44.4	11	20
Apr-23	2.5	48.8	1.9	36.5	17	13
May-23	1.8	35.6	1.7	33.8	24	7
Jun-23	1.7	32.5	1.6	30.1	15	15
Jul-23	1.8	36.2	1.6	31.6	5	26
Aug-23	1.9	37.4	1.5	30.4	12	19
Sep-23	1.4	28.0	1.4	27.4	24	6
Oct-23	1.5	29.5	1.4	27.4	15	16
Nov-23	1.4	27.8	1.4	27.0	22	8
Dec-23	1.7	34.6	1.5	30.6	14	17

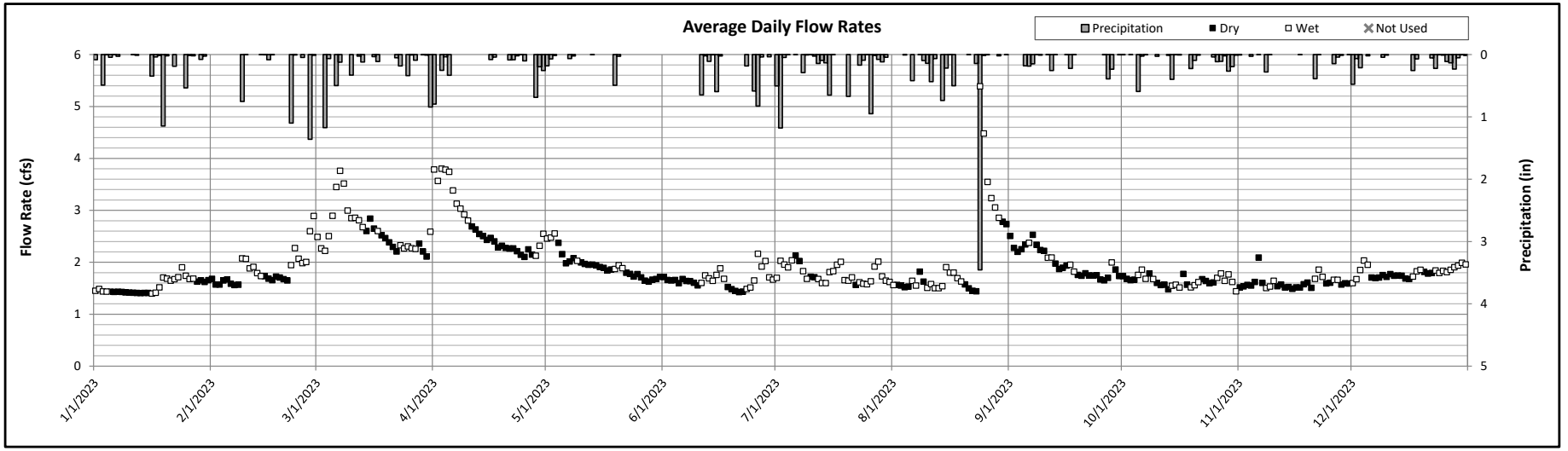
Statistics for Major Wet Weather Events

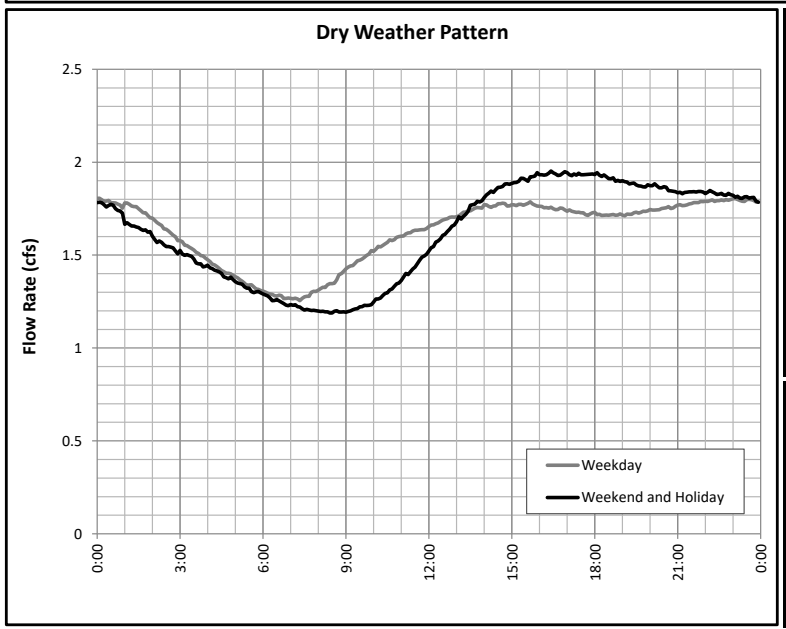
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Figure C-8
Meter Report

Meter: PA-4 | **Location: Eureka Interceptor near Hannan Road** | **Period: 1/1/2023 through 12/31/2023**

Type: ADS Triton+ | **System Meter Type: Interceptor Flow Meter**





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-23	1.5	30.8	1.5	29.6	15	16
Feb-23	1.9	33.5	1.6	29.8	15	13
Mar-23	2.6	52.0	2.4	48.5	11	20
Apr-23	2.7	52.2	2.3	45.5	17	13
May-23	1.9	38.9	1.9	37.6	24	7
Jun-23	1.7	32.2	1.6	30.6	15	15
Jul-23	1.8	35.6	1.8	36.6	5	26
Aug-23	2.1	41.9	1.8	35.2	12	19
Sep-23	2.0	38.8	2.0	38.5	24	6
Oct-23	1.6	32.8	1.6	32.8	15	16
Nov-23	1.6	31.0	1.6	30.6	22	8
Dec-23	1.8	36.0	1.7	34.8	14	17

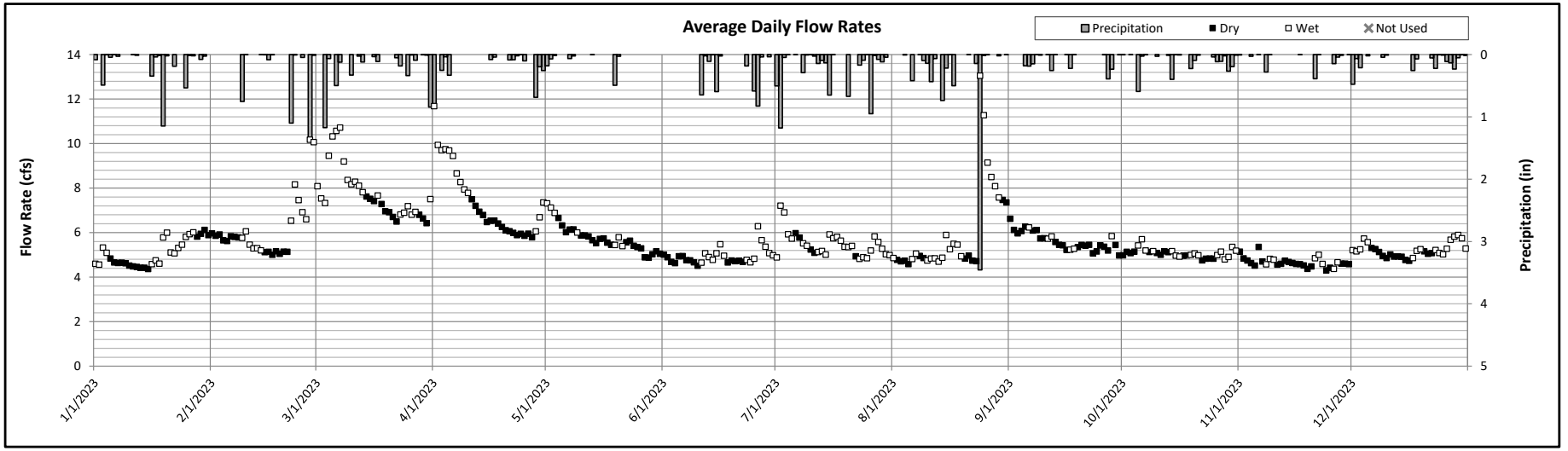
Statistics for Major Wet Weather Events

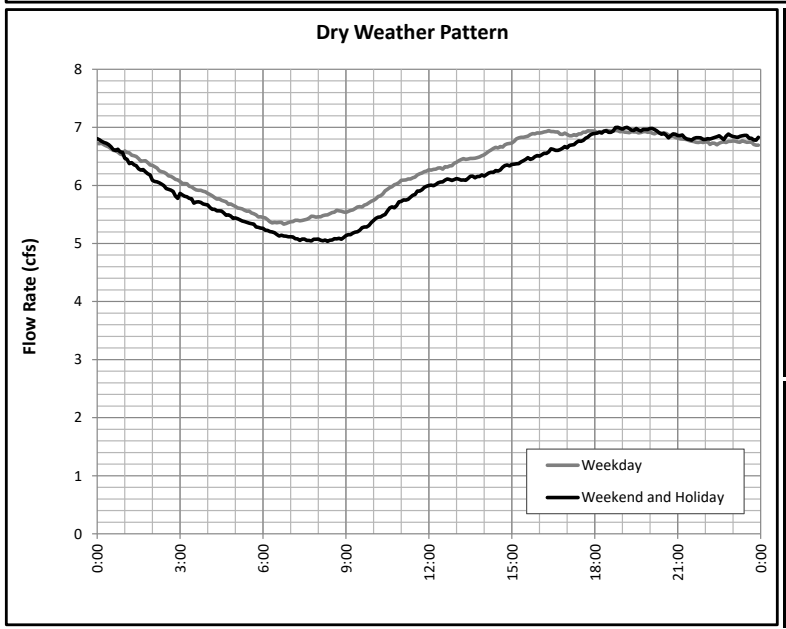
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Figure C-9
Meter Report

Meter: PA-3 | **Location: Eureka Interceptor at Inkster Road** | **Period: 1/1/2023 through 12/31/2023**

Type: ADS Triton+ | **System Meter Type: Interceptor Flow Meter**





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-23	5.1	101.9	4.9	98.6	15	16
Feb-23	6.1	110.6	5.5	99.1	15	13
Mar-23	7.8	155.4	7.0	139.8	11	20
Apr-23	7.4	142.9	6.4	123.4	17	13
May-23	5.8	115.4	5.6	112.4	24	7
Jun-23	4.9	95.5	4.8	92.1	15	15
Jul-23	5.5	109.5	5.4	108.2	5	26
Aug-23	6.0	120.2	5.2	104.6	12	19
Sep-23	5.6	109.1	5.6	108.8	24	6
Oct-23	5.1	101.4	5.0	100.1	15	16
Nov-23	4.7	90.4	4.6	90.0	22	8
Dec-23	5.2	104.2	5.0	100.2	14	17

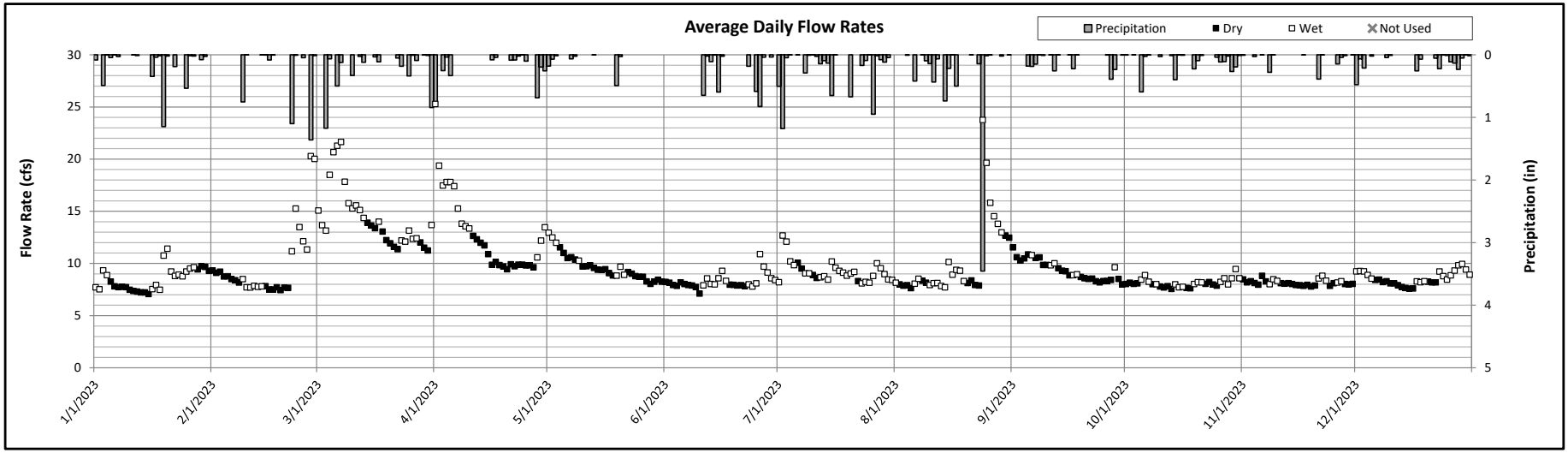
Statistics for Major Wet Weather Events

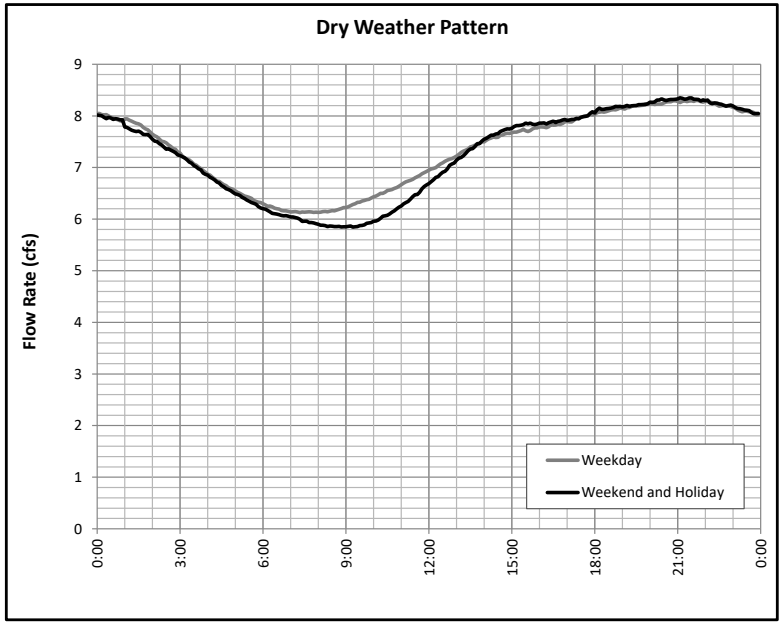
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Figure C-10
Meter Report

Meter: PA-2 **Location: Eureka Interceptor at Allen Road** **Period: 1/1/2023 through 12/31/2023**

Type: ADS Triton+ **System Meter Type: Interceptor Flow Meter**





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-23	8.5	170.3	8.1	161.6	15	16
Feb-23	9.8	177.3	8.2	148.9	15	13
Mar-23	14.3	286.6	12.3	247.4	11	20
Apr-23	12.8	248.4	10.4	202.0	17	13
May-23	9.7	193.6	9.4	187.4	24	7
Jun-23	8.3	160.1	7.9	153.2	15	15
Jul-23	9.2	184.9	9.1	181.7	5	26
Aug-23	10.2	204.4	8.8	175.8	12	19
Sep-23	9.4	182.2	9.3	180.8	24	6
Oct-23	8.1	162.4	7.9	158.2	15	16
Nov-23	8.2	158.1	8.1	156.6	22	8
Dec-23	8.6	171.4	8.0	161.2	14	17

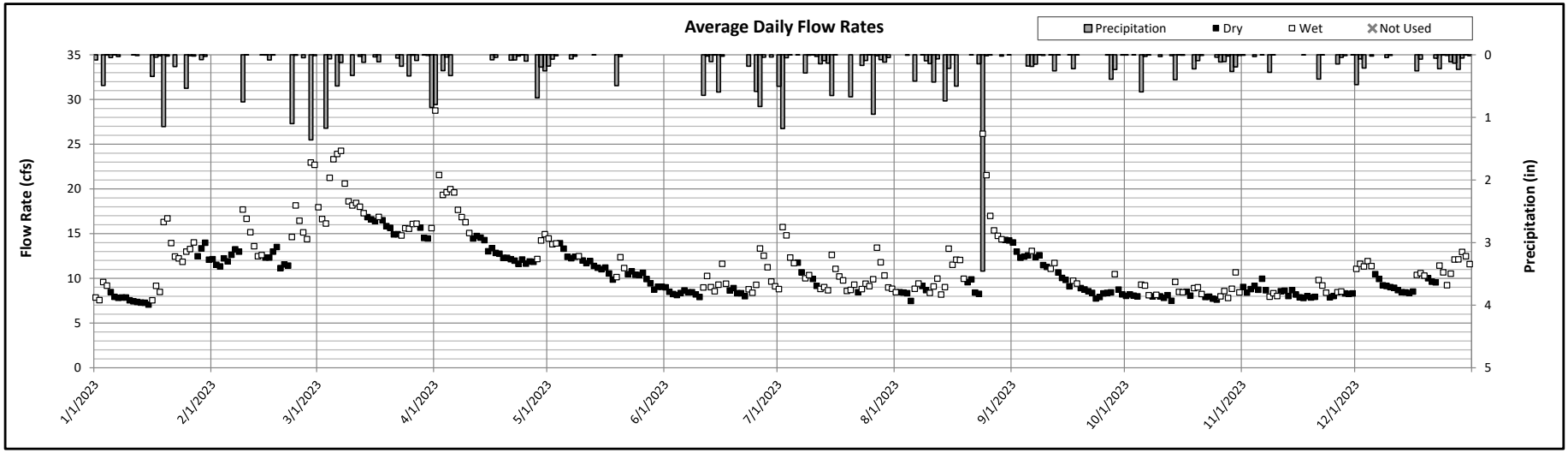
Statistics for Major Wet Weather Events

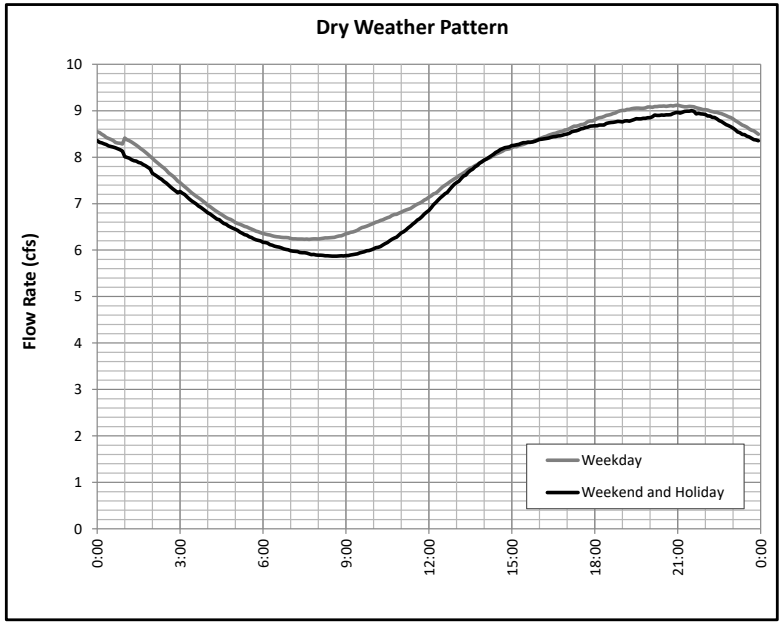
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Figure C-11
Meter Report

Meter: PA-1 | **Location: Eureka Interceptor West of Fordline Road** | **Period: 1/1/2023 through 12/31/2023**

Type: ADS Triton+ | **System Meter Type: Interceptor Flow Meter**





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-23	10.3	206.0	9.0	181.2	15	16
Feb-23	14.1	255.7	12.2	221.0	15	13
Mar-23	17.3	347.2	15.7	313.7	11	20
Apr-23	15.1	293.2	12.8	248.3	17	13
May-23	11.4	227.5	11.0	220.2	24	7
Jun-23	9.2	177.9	8.4	162.9	15	15
Jul-23	10.3	207.3	10.0	200.1	5	26
Aug-23	11.4	229.0	9.6	192.1	12	19
Sep-23	10.3	199.9	10.2	196.9	24	6
Oct-23	8.4	167.4	8.0	159.4	15	16
Nov-23	8.5	163.8	8.4	163.0	22	8
Dec-23	10.3	206.7	9.2	183.5	14	17

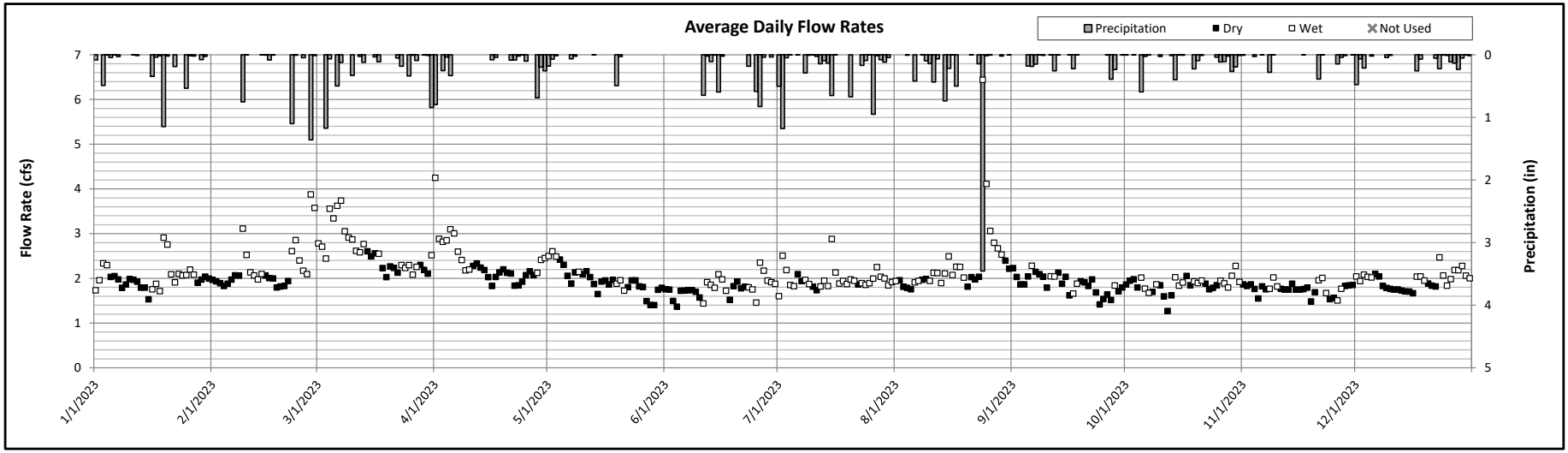
Statistics for Major Wet Weather Events

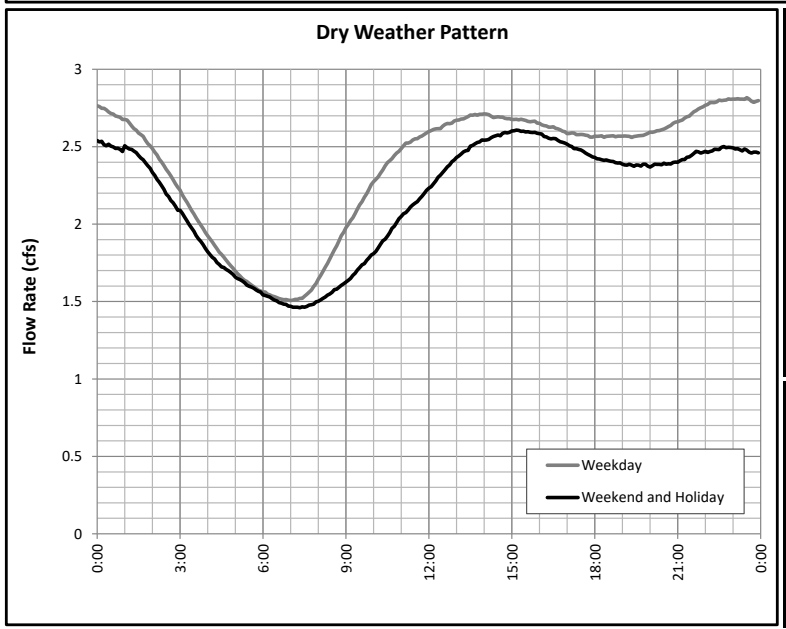
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Figure C-12
Meter Report

Meter: P-2 | **Location: Pennsylvania Interceptor East of Dix-Toledo Road** | **Period: 1/1/2023 through 12/31/2023**

Type: ADS Triton+ | **System Meter Type: Interceptor Flow Meter**





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-23	2.0	40.3	1.9	38.2	15	16
Feb-23	2.2	40.4	1.9	35.0	15	13
Mar-23	2.6	51.9	2.3	45.7	11	20
Apr-23	2.4	45.6	2.1	40.3	17	13
May-23	2.0	39.2	1.9	37.9	24	7
Jun-23	1.8	34.5	1.7	32.8	15	15
Jul-23	2.0	39.5	1.9	37.8	5	26
Aug-23	2.3	46.8	2.0	39.6	12	19
Sep-23	1.9	36.5	1.9	36.1	24	6
Oct-23	1.9	37.2	1.8	35.8	15	16
Nov-23	1.8	34.2	1.7	33.9	22	8
Dec-23	2.0	39.1	1.8	36.3	14	17

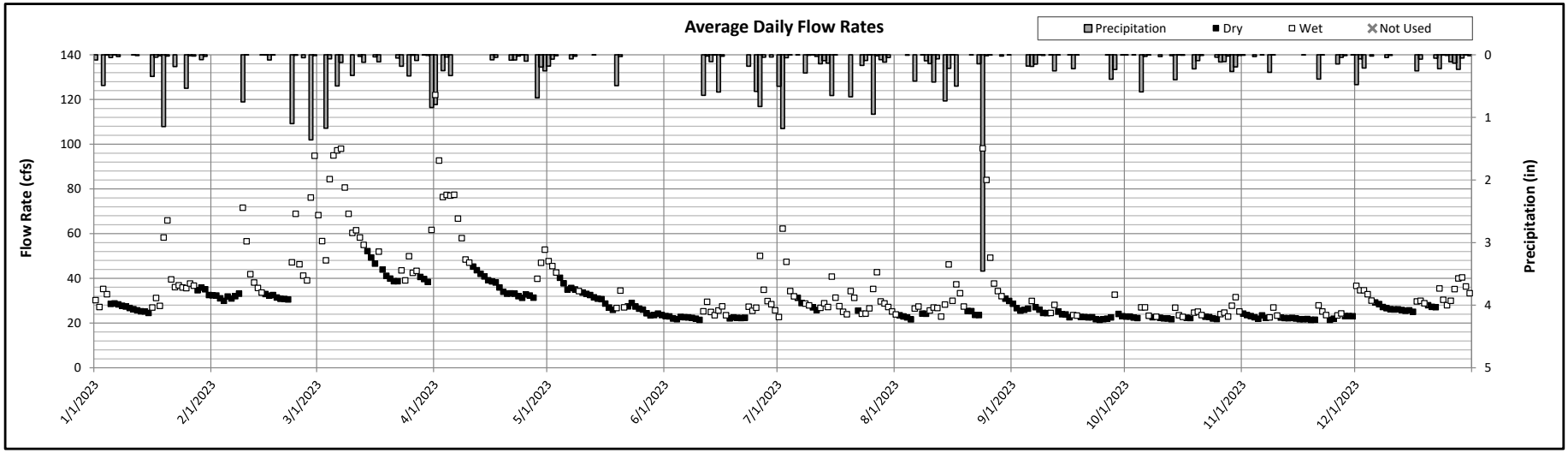
Statistics for Major Wet Weather Events

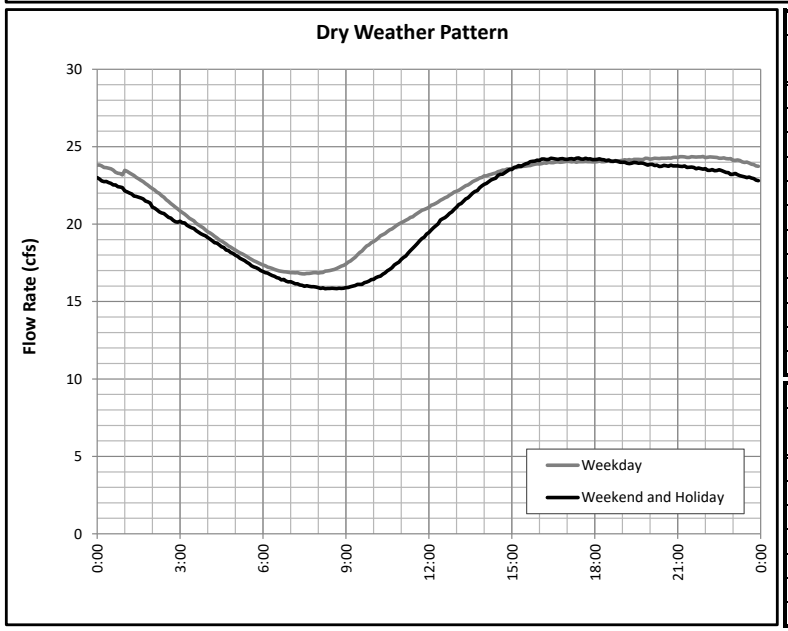
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Figure C-13
Meter Report

Meter: P-1 | **Location: Pennsylvania Interceptor East of Fort Street** | **Period: 1/1/2023 through 12/31/2023**

Type: Accusonic 7510 | **System Meter Type: Interceptor Flow Meter**





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-23	33.1	662.8	28.8	577.1	15	16
Feb-23	41.6	753.1	31.6	572.5	15	13
Mar-23	55.9	1119.5	42.6	853.8	11	20
Apr-23	50.0	968.6	36.3	703.0	17	13
May-23	31.3	627.2	29.7	594.7	24	7
Jun-23	25.4	492.6	22.3	432.3	15	15
Jul-23	30.8	616.4	27.7	555.0	5	26
Aug-23	32.7	655.9	24.8	496.6	12	19
Sep-23	24.6	477.6	24.0	466.2	24	6
Oct-23	23.8	476.2	22.3	447.2	15	16
Nov-23	23.0	445.5	22.4	434.0	22	8
Dec-23	30.3	607.3	26.7	535.0	14	17

Statistics for Major Wet Weather Events

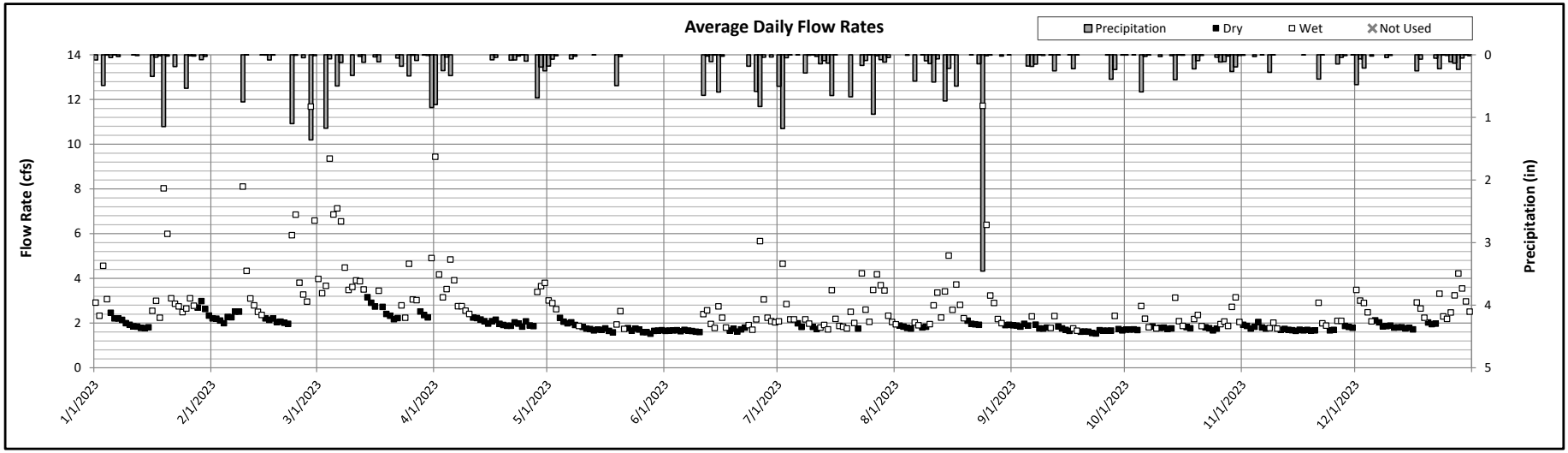
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

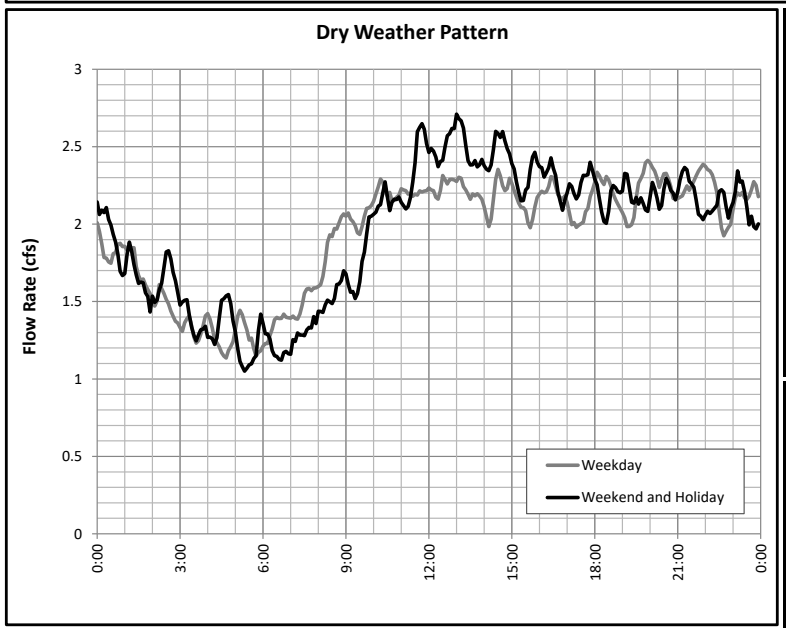
Figure C-14
Meter Report

Meter: RV-1
Type: ADS Triton+

Location: Pennsylvania Interceptor West of Jefferson Avenue
System Meter Type: Interceptor Flow Meter

Period: 1/1/2023 through 12/31/2023





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-23	2.8	56.2	2.2	43.5	15	16
Feb-23	3.5	62.6	2.2	39.4	15	13
Mar-23	3.7	74.7	2.5	50.6	11	20
Apr-23	2.8	54.6	2.0	39.0	17	13
May-23	1.9	38.0	1.8	35.2	24	7
Jun-23	2.0	39.6	1.7	32.3	15	15
Jul-23	2.5	49.3	1.8	36.5	5	26
Aug-23	2.8	56.2	1.9	37.8	12	19
Sep-23	1.8	34.7	1.7	33.6	24	6
Oct-23	2.0	40.1	1.8	35.1	15	16
Nov-23	1.8	35.6	1.8	34.1	22	8
Dec-23	2.4	48.3	1.9	37.7	14	17

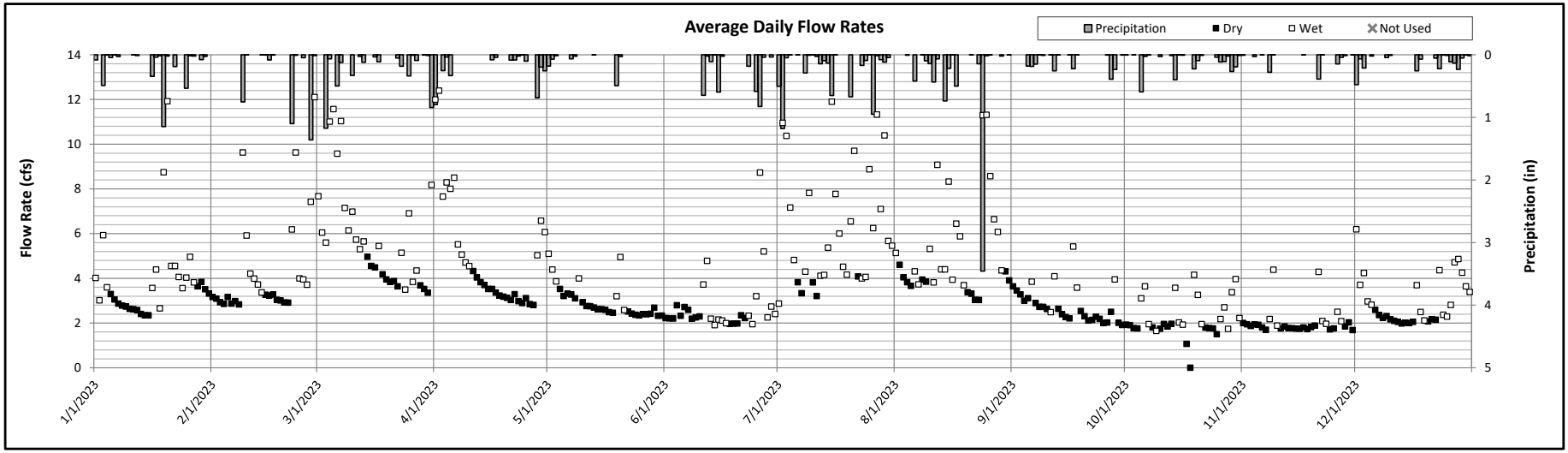
Statistics for Major Wet Weather Events

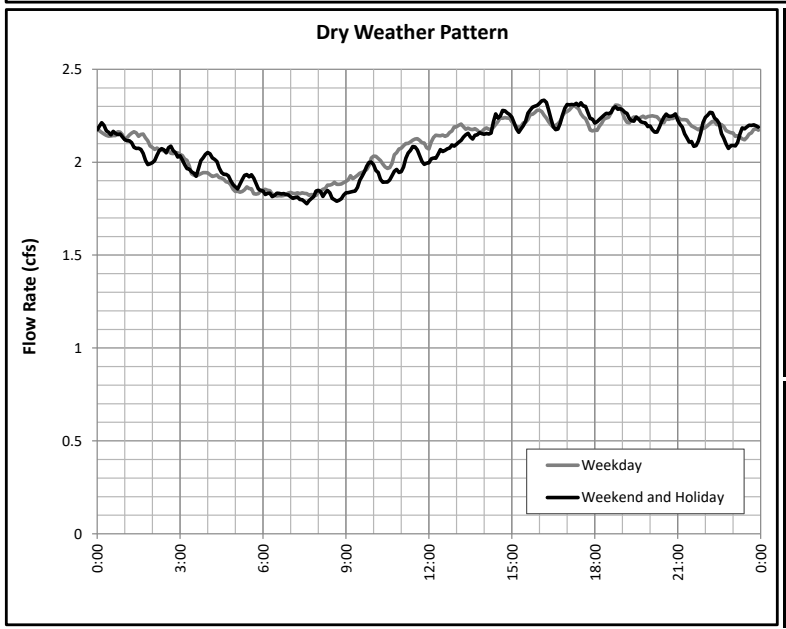
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Figure C-15
Meter Report

Meter: RR-1 **Location: 17th Street near Visger Road** **Period: 1/1/2023 through 12/31/2023**

Type: ADS Triton **System Meter Type: Interceptor Flow Meter**





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-23	3.9	78.4	2.9	58.7	15	16
Feb-23	4.4	79.7	3.0	54.9	15	13
Mar-23	5.8	116.9	4.0	80.2	11	20
Apr-23	5.0	97.7	3.3	64.8	17	13
May-23	3.0	59.8	2.7	53.8	24	7
Jun-23	2.7	52.9	2.3	44.3	15	15
Jul-23	6.3	125.3	3.6	73.1	5	26
Aug-23	5.2	104.4	3.7	74.9	12	19
Sep-23	2.8	54.5	2.5	49.2	24	6
Oct-23	2.2	43.9	1.6	32.8	15	16
Nov-23	2.0	39.7	1.8	35.3	22	8
Dec-23	2.9	58.9	2.2	43.2	14	17

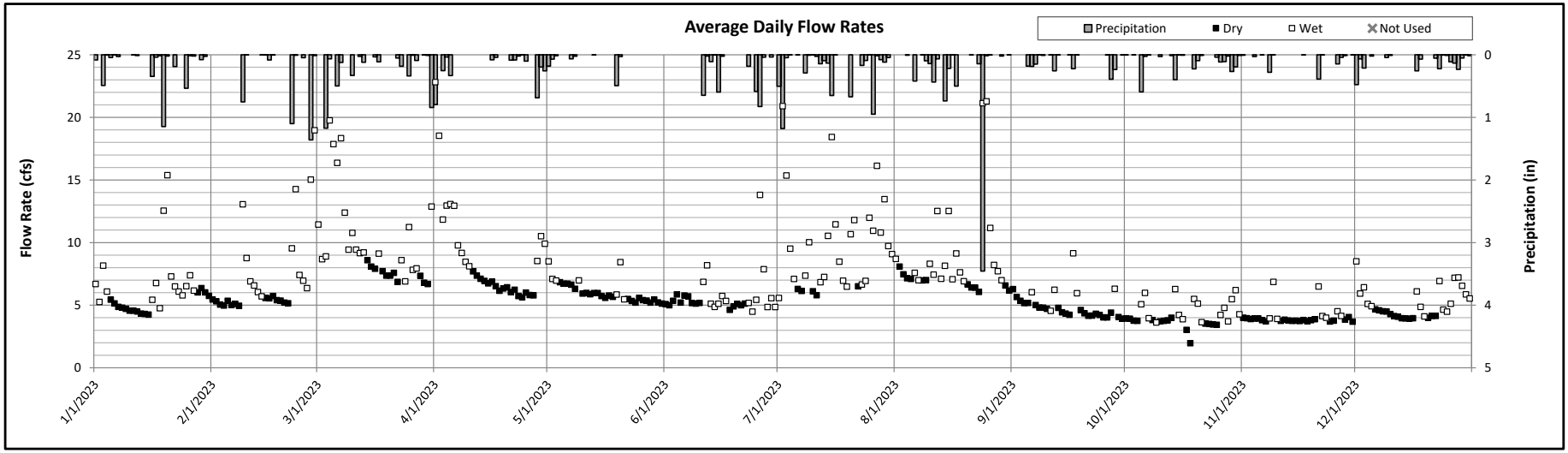
Statistics for Major Wet Weather Events

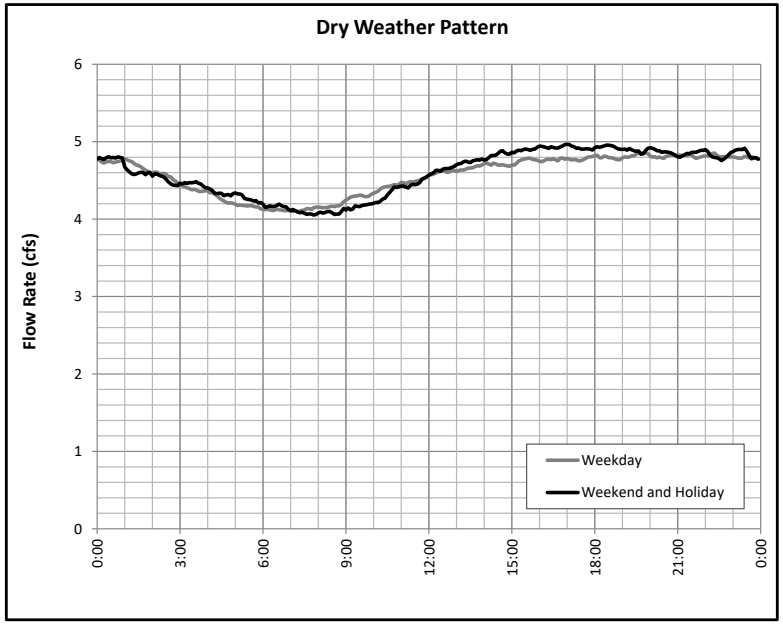
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Figure C-16
Meter Report

Meter: EC-6 **Location: Riverdrive Interceptor South of Southfield Road** **Period: 1/1/2023 through 12/31/2023**

Type: ADS Triton **System Meter Type: Interceptor Flow Meter**





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-23	6.2	124.2	5.0	100.9	15	16
Feb-23	7.3	132.2	5.3	95.4	15	13
Mar-23	9.9	199.3	7.5	149.8	11	20
Apr-23	8.9	171.8	6.4	124.6	17	13
May-23	6.1	121.6	5.8	116.0	24	7
Jun-23	5.7	110.7	5.2	101.0	15	15
Jul-23	9.7	194.6	6.2	123.5	5	26
Aug-23	8.7	173.5	6.8	136.9	12	19
Sep-23	5.0	96.3	4.6	89.6	24	6
Oct-23	4.2	83.4	3.5	71.1	15	16
Nov-23	4.1	78.8	3.8	74.0	22	8
Dec-23	5.1	102.2	4.2	84.1	14	17

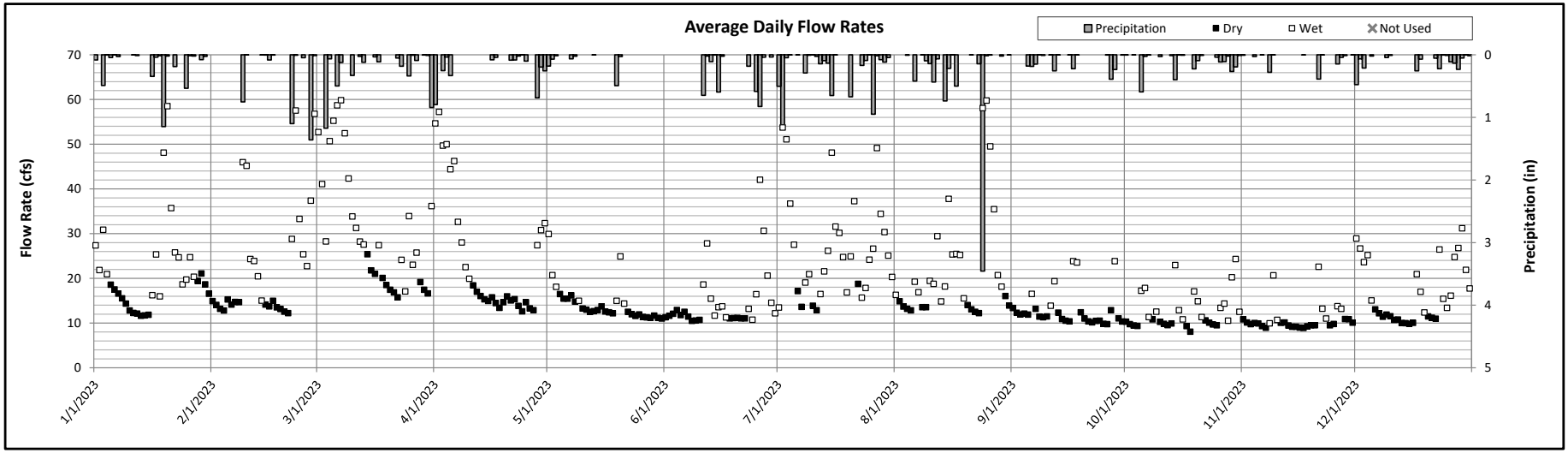
Statistics for Major Wet Weather Events

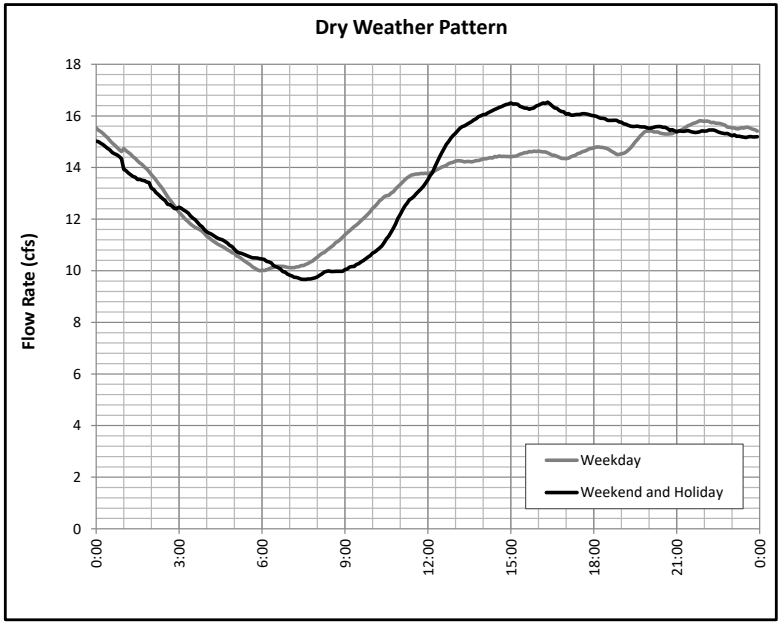
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Figure C-17
Meter Report

Meter: RD-1 **Location: Riverdrive Interceptor North of Northline Road** **Period: 1/1/2023 through 12/31/2023**

Type: Accusonic 7510 **System Meter Type: Interceptor Flow Meter**





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-23	21.5	429.8	15.4	307.8	15	16
Feb-23	23.0	416.4	13.9	250.7	15	13
Mar-23	30.9	620.0	19.1	382.3	11	20
Apr-23	25.0	484.1	14.9	289.0	17	13
May-23	14.4	288.8	12.9	257.9	24	7
Jun-23	14.8	286.3	11.4	220.5	15	15
Jul-23	26.4	529.9	15.2	305.3	5	26
Aug-23	22.2	444.1	13.6	272.6	12	19
Sep-23	13.1	253.7	11.3	219.5	24	6
Oct-23	12.6	252.3	9.8	195.5	15	16
Nov-23	11.0	212.5	9.7	188.5	22	8
Dec-23	16.7	335.0	11.1	221.8	14	17

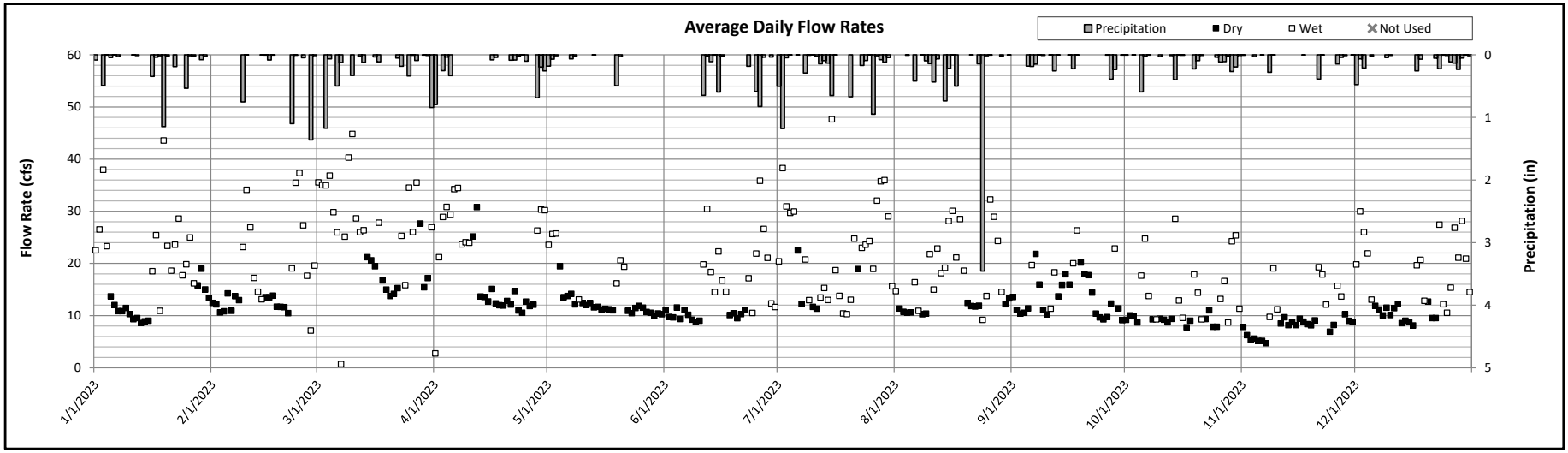
Statistics for Major Wet Weather Events

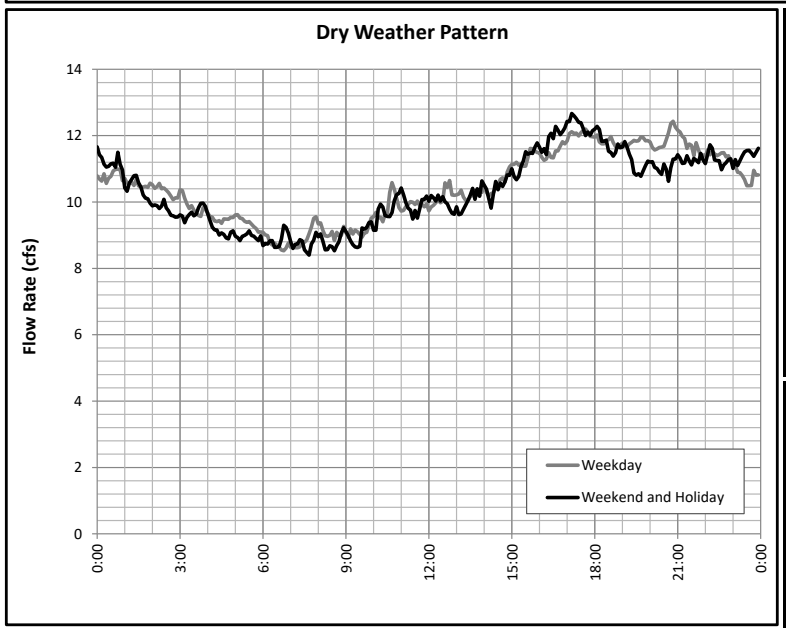
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Figure C-18
Meter Report

Meter: [SW] + [SWB] **Location: Southgate / Wyandotte** **Period: 1/1/2023 through 12/31/2023**

Type: Accusonic 7510 (SW) & Magmeter (SWB) **System Meter Type: Total for SWDDD**





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-23	18.0	361.2	11.8	237.2	15	16
Feb-23	17.0	307.8	12.3	221.9	15	13
Mar-23	25.1	502.8	17.8	357.5	11	20
Apr-23	19.5	378.0	14.4	279.2	17	13
May-23	13.9	277.6	11.9	238.3	24	7
Jun-23	14.8	287.3	10.1	195.1	15	15
Jul-23	21.9	438.1	15.3	306.8	5	26
Aug-23	16.9	339.5	11.4	228.9	12	19
Sep-23	14.7	284.2	13.4	259.6	24	6
Oct-23	12.7	254.4	9.1	182.3	15	16
Nov-23	9.6	186.6	7.7	149.9	22	8
Dec-23	15.6	313.5	10.3	206.6	14	17

Statistics for Major Wet Weather Events

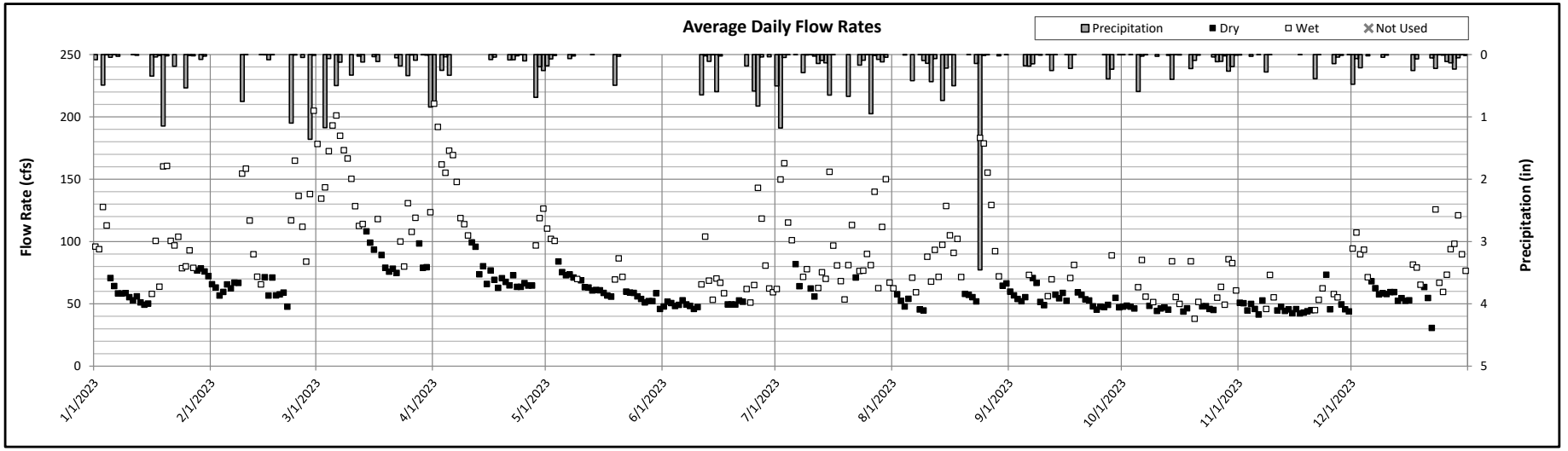
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Figure C-19
Meter Report

Meter: [IPS] + [TPS]
Type: Magmeters

Location: Main Influent Pump Station and Tunnel Pump Station
System Meter Type: DWTF

Period: 1/1/2023 through 12/31/2023



Dry weather pattern not applicable to this meter

Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-23	81.7	1636.0	61.8	1238.8	15	16
Feb-23	90.7	1641.1	61.7	1117.4	15	13
Mar-23	122.1	2445.8	86.7	1737.2	11	20
Apr-23	103.7	2010.1	71.9	1393.5	17	13
May-23	67.2	1345.7	61.3	1228.9	24	7
Jun-23	62.4	1209.5	49.6	961.1	15	15
Jul-23	89.9	1801.1	67.0	1343.2	5	26
Aug-23	83.0	1662.9	54.6	1093.6	12	19
Sep-23	58.0	1123.9	54.2	1049.9	24	6
Oct-23	55.3	1107.2	46.5	932.5	15	16
Nov-23	49.5	959.6	47.2	914.3	22	8
Dec-23	73.2	1466.6	56.0	1121.2	14	17

Statistics for Major Wet Weather Events

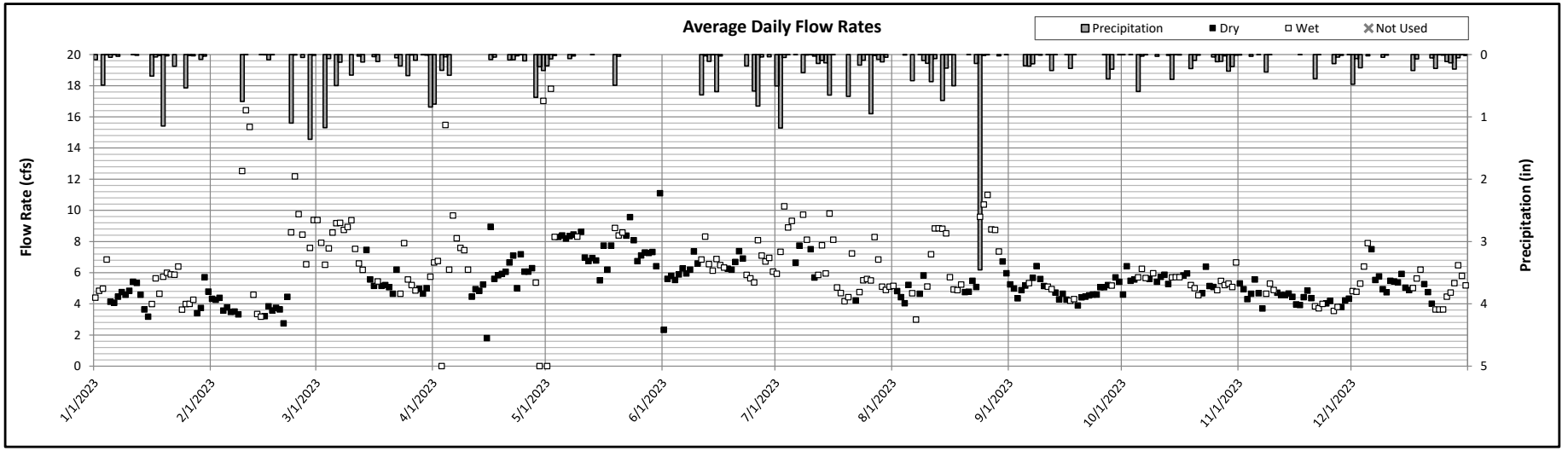
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Figure C-20
Meter Report

Meter: DWTF Recycle
Type: HydroRanger 200

Location: Main Influent Pump Station
System Meter Type: Parshall Flume

Period: 1/1/2023 through 12/31/2023



Dry weather pattern not applicable to this meter

Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-23	4.8	95.4	4.4	88.9	15	16
Feb-23	6.2	112.2	3.7	67.2	15	13
Mar-23	6.6	131.8	5.4	107.5	11	20
Apr-23	6.5	125.7	5.8	111.7	17	13
May-23	7.9	157.9	7.7	153.7	24	7
Jun-23	6.3	122.9	6.1	117.4	15	15
Jul-23	6.6	133.0	6.4	127.3	5	26
Aug-23	6.4	128.2	5.1	103.0	12	19
Sep-23	4.9	95.2	4.9	95.5	24	6
Oct-23	5.5	110.4	5.5	110.8	15	16
Nov-23	4.4	85.2	4.5	86.4	22	8
Dec-23	5.3	105.6	5.3	106.7	14	17

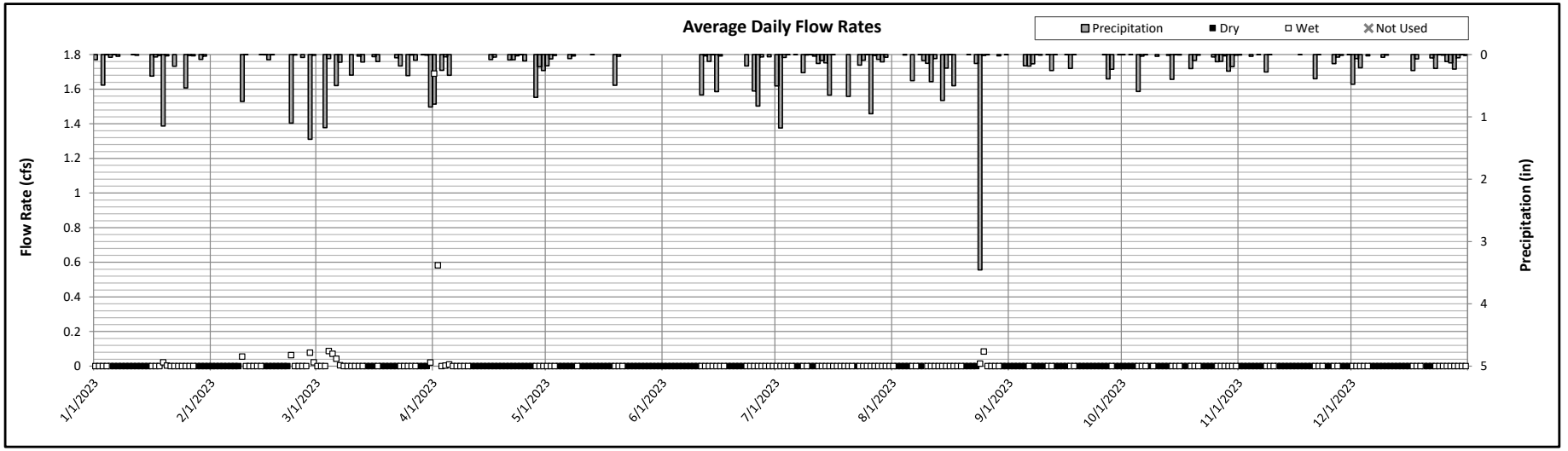
Statistics for Major Wet Weather Events

Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Figure C-21
Meter Report

Meter: TSO **Location: At Pelham Basin** **Period: 1/1/2023 through 12/31/2023**

Type: ADS Triton+ **System Meter Type: Tunnel System Flow Meter**



Dry weather pattern not applicable to this meter

Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-23	0.0	0.0	0.0	0.0	15	16
Feb-23	0.0	0.1	0.0	0.0	15	13
Mar-23	0.0	0.1	0.0	0.0	11	20
Apr-23	0.1	1.5	0.0	0.0	17	13
May-23	0.0	0.0	0.0	0.0	24	7
Jun-23	0.0	0.0	0.0	0.0	15	15
Jul-23	0.0	0.0	0.0	0.0	5	26
Aug-23	0.0	0.1	0.0	0.0	12	19
Sep-23	0.0	0.0	0.0	0.0	24	6
Oct-23	0.0	0.0	0.0	0.0	15	16
Nov-23	0.0	0.0	0.0	0.0	22	8
Dec-23	0.0	0.0	0.0	0.0	14	17

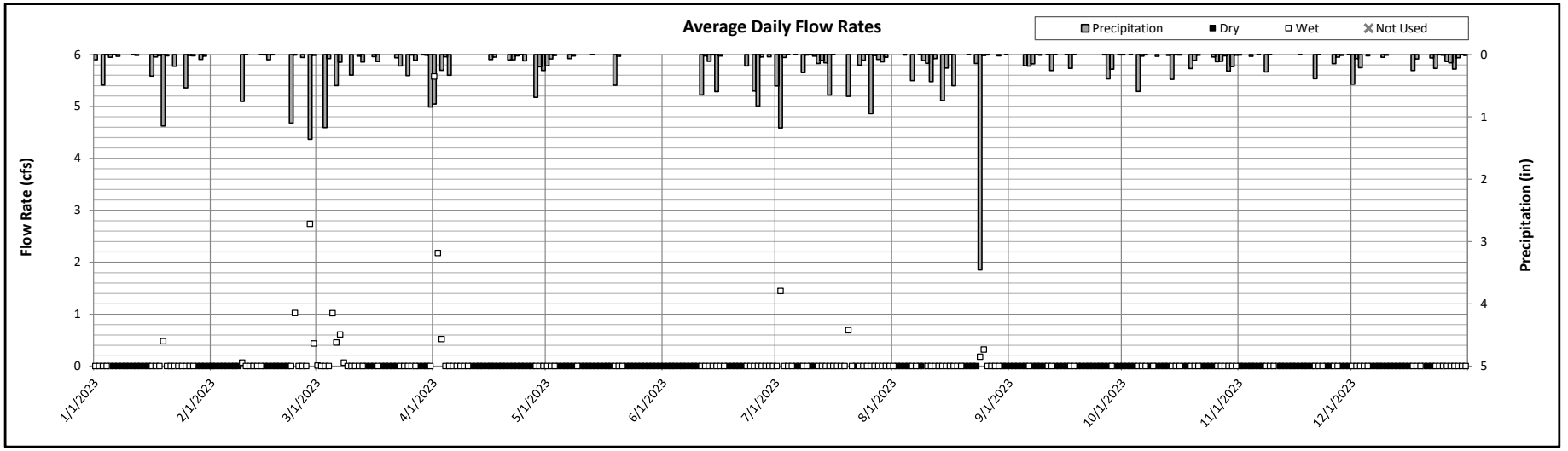
Statistics for Major Wet Weather Events

Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Figure C-22
Meter Report

Meter: APO-1 **Location: Belmont and Rosedale** **Period: 1/1/2023 through 12/31/2023**

Type: Siemems Hydroranger **System Meter Type: Tunnel Diversion Chamber Level Sensor**



Dry weather pattern not applicable to this meter

Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-23	0.0	0.3	0.0	0.0	15	16
Feb-23	0.2	2.8	0.0	0.0	15	13
Mar-23	0.1	1.4	0.0	0.0	11	20
Apr-23	0.3	5.3	0.0	0.0	17	13
May-23	0.0	0.0	0.0	0.0	24	7
Jun-23	0.0	0.0	0.0	0.0	15	15
Jul-23	0.1	1.4	0.0	0.0	5	26
Aug-23	0.0	0.3	0.0	0.0	12	19
Sep-23	0.0	0.0	0.0	0.0	24	6
Oct-23	0.0	0.0	0.0	0.0	15	16
Nov-23	0.0	0.0	0.0	0.0	22	8
Dec-23	0.0	0.0	0.0	0.0	14	17

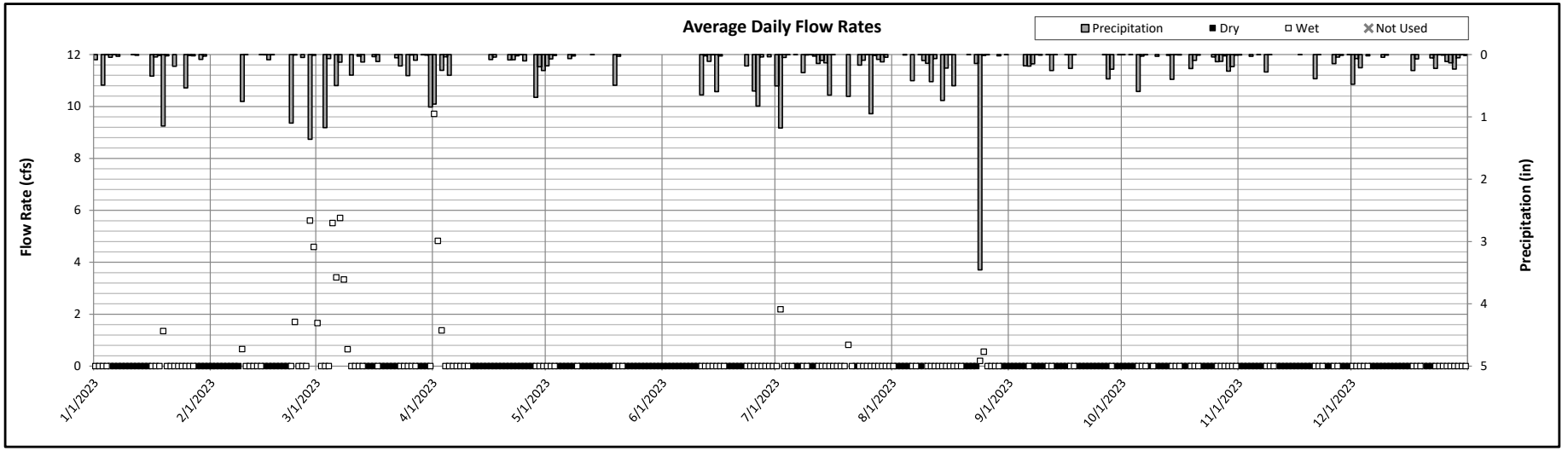
Statistics for Major Wet Weather Events

Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Figure C-23
Meter Report

Meter: APO-2 **Location: Belmont and Quandt** **Period: 1/1/2023 through 12/31/2023**

Type: Milltronics Downlooker **System Meter Type: Tunnel Diversion Chamber Level Sensor**



Dry weather pattern not applicable to this meter

Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-23	0.0	0.9	0.0	0.0	15	16
Feb-23	0.4	8.1	0.0	0.0	15	13
Mar-23	0.7	13.1	0.0	0.0	11	20
Apr-23	0.5	10.3	0.0	0.0	17	13
May-23	0.0	0.0	0.0	0.0	24	7
Jun-23	0.0	0.0	0.0	0.0	15	15
Jul-23	0.1	1.9	0.0	0.0	5	26
Aug-23	0.0	0.5	0.0	0.0	12	19
Sep-23	0.0	0.0	0.0	0.0	24	6
Oct-23	0.0	0.0	0.0	0.0	15	16
Nov-23	0.0	0.0	0.0	0.0	22	8
Dec-23	0.0	0.0	0.0	0.0	14	17

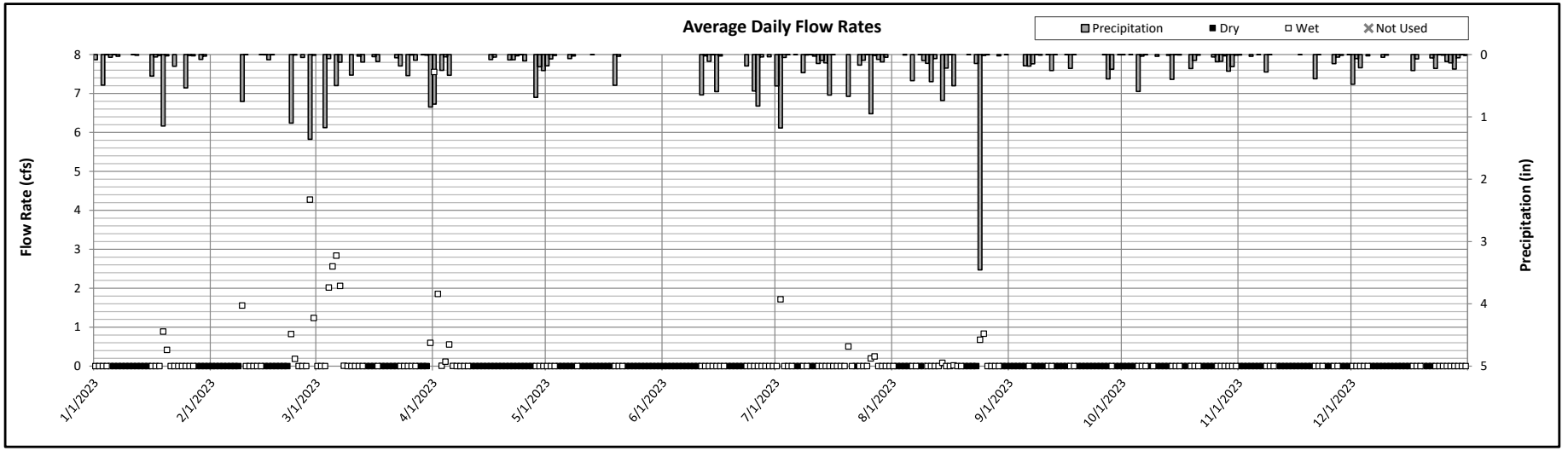
Statistics for Major Wet Weather Events

Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Figure C-24
Meter Report

Meter: CHPO **Location: Pelham Road North of Haskell** **Period: 1/1/2023 through 12/31/2023**

Type: Milltronics Downlooker **System Meter Type: Tunnel Diversion Chamber Level Sensor**



Dry weather pattern not applicable to this meter

Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-23	0.0	0.8	0.0	0.0	15	16
Feb-23	0.3	5.2	0.0	0.0	15	13
Mar-23	0.3	6.5	0.0	0.0	11	20
Apr-23	0.3	6.5	0.0	0.0	17	13
May-23	0.0	0.0	0.0	0.0	24	7
Jun-23	0.0	0.0	0.0	0.0	15	15
Jul-23	0.1	1.7	0.0	0.0	5	26
Aug-23	0.1	1.0	0.0	0.0	12	19
Sep-23	0.0	0.0	0.0	0.0	24	6
Oct-23	0.0	0.0	0.0	0.0	15	16
Nov-23	0.0	0.0	0.0	0.0	22	8
Dec-23	0.0	0.0	0.0	0.0	14	17

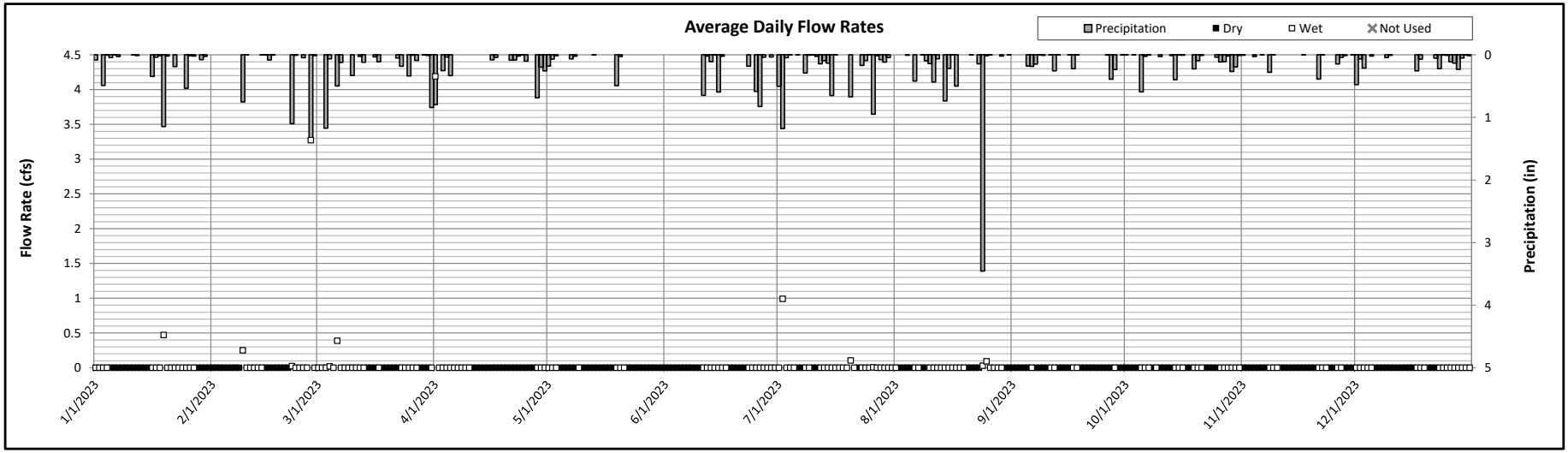
Statistics for Major Wet Weather Events

Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Figure C-25
Meter Report

Meter: CPO **Location: Pelham Road South of R.R.** **Period: 1/1/2023 through 12/31/2023**

Type: Milltronics Downlooker **System Meter Type: Tunnel Diversion Chamber Level Sensor**



Dry weather pattern not applicable to this meter

Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-23	0.0	0.3	0.0	0.0	15	16
Feb-23	0.1	2.3	0.0	0.0	15	13
Mar-23	0.0	0.3	0.0	0.0	11	20
Apr-23	0.1	2.7	0.0	0.0	17	13
May-23	0.0	0.0	0.0	0.0	24	7
Jun-23	0.0	0.0	0.0	0.0	15	15
Jul-23	0.0	0.7	0.0	0.0	5	26
Aug-23	0.0	0.1	0.0	0.0	12	19
Sep-23	0.0	0.0	0.0	0.0	24	6
Oct-23	0.0	0.0	0.0	0.0	15	16
Nov-23	0.0	0.0	0.0	0.0	22	8
Dec-23	0.0	0.0	0.0	0.0	14	17

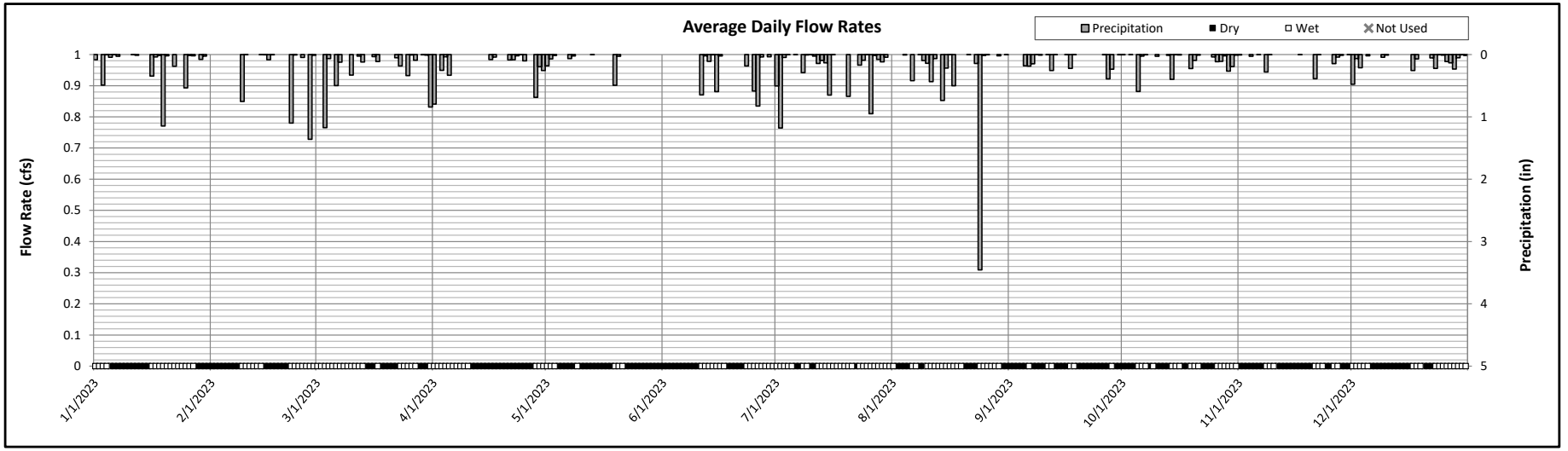
Statistics for Major Wet Weather Events

Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Figure C-26
Meter Report

Meter: PDO **Location: Allen Road and Goddard** **Period: 1/1/2023 through 12/31/2023**

Type: Milltronics Downlooker **System Meter Type: Tunnel Diversion Chamber Level Sensor**



Dry weather pattern not applicable to this meter

Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-23	0.0	0.0	0.0	0.0	15	16
Feb-23	0.0	0.0	0.0	0.0	15	13
Mar-23	0.0	0.0	0.0	0.0	11	20
Apr-23	0.0	0.0	0.0	0.0	17	13
May-23	0.0	0.0	0.0	0.0	24	7
Jun-23	0.0	0.0	0.0	0.0	15	15
Jul-23	0.0	0.0	0.0	0.0	5	26
Aug-23	0.0	0.0	0.0	0.0	12	19
Sep-23	0.0	0.0	0.0	0.0	24	6
Oct-23	0.0	0.0	0.0	0.0	15	16
Nov-23	0.0	0.0	0.0	0.0	22	8
Dec-23	0.0	0.0	0.0	0.0	14	17

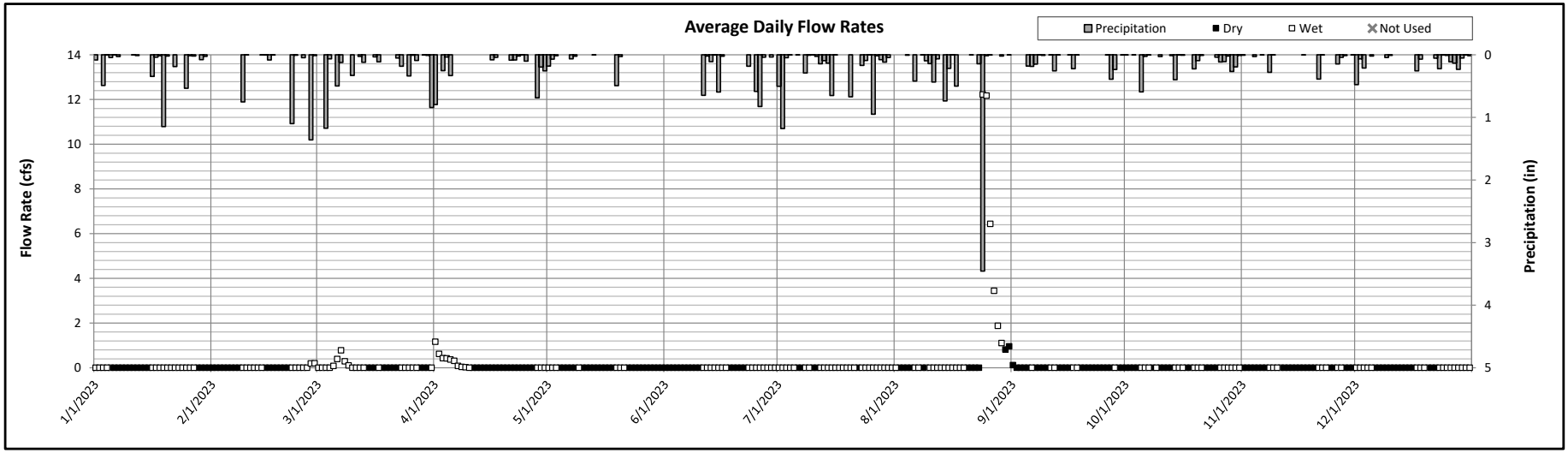
Statistics for Major Wet Weather Events

Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Figure C-27
Meter Report

Meter: ER-2 **Location: Eureka Road and Inkster** **Period: 1/1/2023 through 12/31/2023**

Type: ADS Triton+ **System Meter Type: Tunnel System Flow Meter**



Dry weather pattern not applicable to this meter

Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-23	0.0	0.0	0.0	0.0	15	16
Feb-23	0.0	0.3	0.0	0.0	15	13
Mar-23	0.1	1.1	0.0	0.0	11	20
Apr-23	0.1	2.2	0.0	0.0	17	13
May-23	0.0	0.0	0.0	0.0	24	7
Jun-23	0.0	0.0	0.0	0.0	15	15
Jul-23	0.0	0.0	0.0	0.0	5	26
Aug-23	1.3	25.2	0.1	3.0	12	19
Sep-23	0.0	0.1	0.0	0.1	24	6
Oct-23	0.0	0.0	0.0	0.0	15	16
Nov-23	0.0	0.0	0.0	0.0	22	8
Dec-23	0.0	0.0	0.0	0.0	14	17

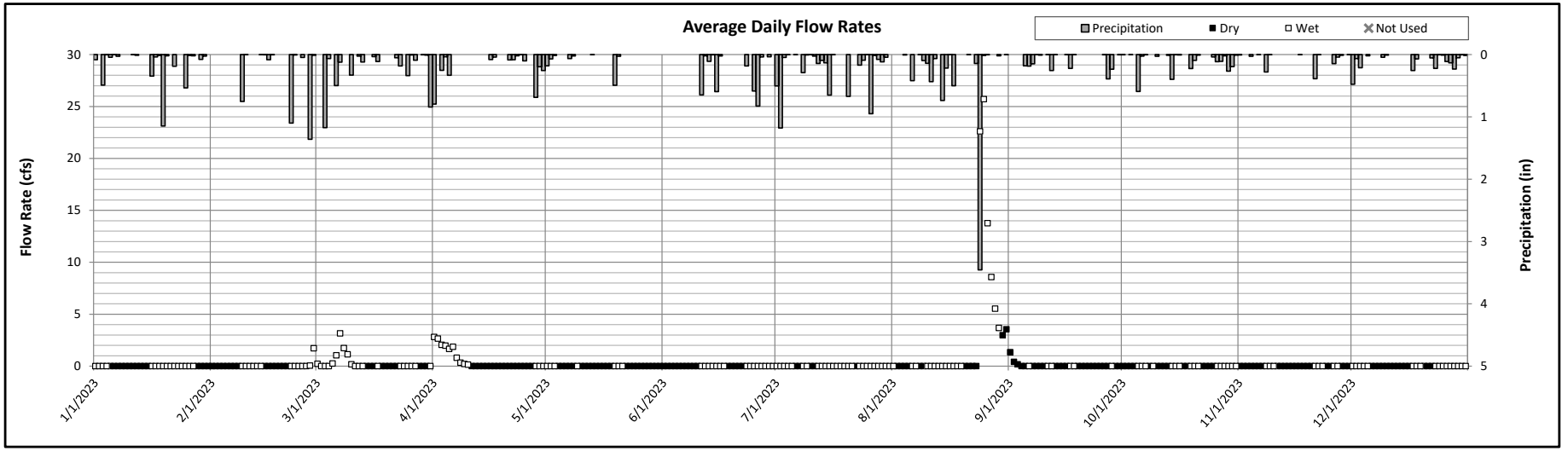
Statistics for Major Wet Weather Events

Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Figure C-28
Meter Report

Meter: ER-1 **Location: Allen Road and Eureka Road** **Period: 1/1/2023 through 12/31/2023**

Type: ADS Triton+ **System Meter Type: Tunnel System Flow Meter**



Dry weather pattern not applicable to this meter

Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-23	0.0	0.0	0.0	0.0	15	16
Feb-23	0.1	1.1	0.0	0.0	15	13
Mar-23	0.2	5.0	0.0	0.0	11	20
Apr-23	0.5	9.3	0.0	0.0	17	13
May-23	0.0	0.0	0.0	0.0	24	7
Jun-23	0.0	0.0	0.0	0.0	15	15
Jul-23	0.0	0.0	0.0	0.0	5	26
Aug-23	2.8	55.8	0.5	10.9	12	19
Sep-23	0.1	1.2	0.1	1.5	24	6
Oct-23	0.0	0.0	0.0	0.0	15	16
Nov-23	0.0	0.0	0.0	0.0	22	8
Dec-23	0.0	0.0	0.0	0.0	14	17

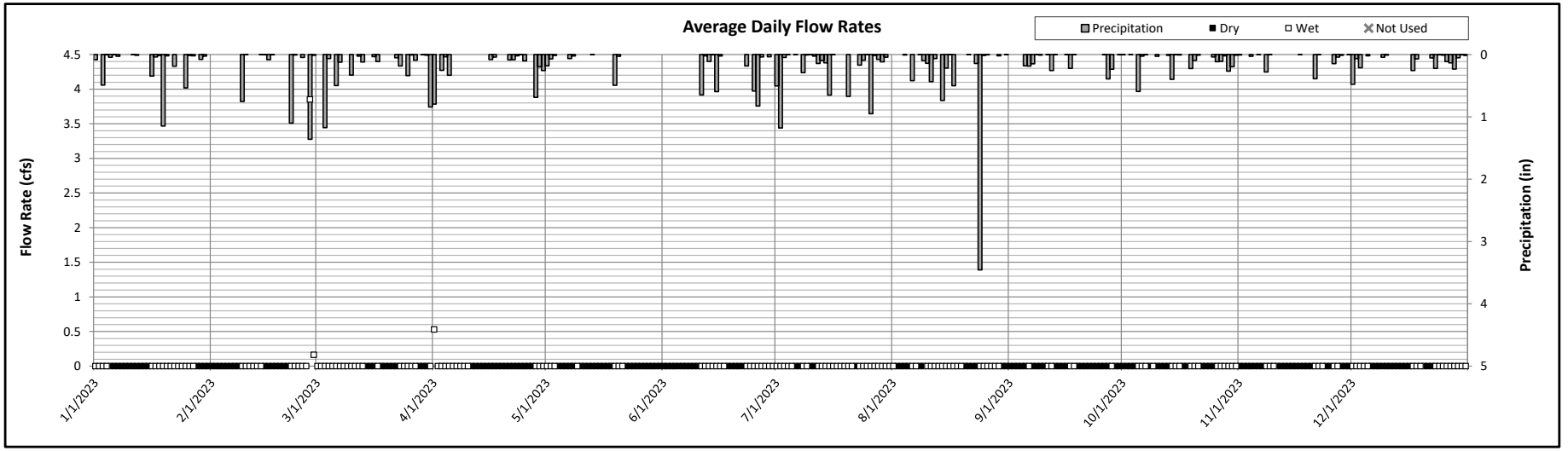
Statistics for Major Wet Weather Events

Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Figure C-29
Meter Report

Meter: PM-1 **Location: Pennsylvania Ave. at Fordline** **Period: 1/1/2023 through 12/31/2023**

Type: Milltronics Downlooker **System Meter Type: Tunnel Diversion Chamber Level Sensor**



Dry weather pattern not applicable to this meter

Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-23	0.0	0.0	0.0	0.0	15	16
Feb-23	0.1	2.6	0.0	0.0	15	13
Mar-23	0.0	0.0	0.0	0.0	11	20
Apr-23	0.0	0.3	0.0	0.0	17	13
May-23	0.0	0.0	0.0	0.0	24	7
Jun-23	0.0	0.0	0.0	0.0	15	15
Jul-23	0.0	0.0	0.0	0.0	5	26
Aug-23	0.0	0.0	0.0	0.0	12	19
Sep-23	0.0	0.0	0.0	0.0	24	6
Oct-23	0.0	0.0	0.0	0.0	15	16
Nov-23	0.0	0.0	0.0	0.0	22	8
Dec-23	0.0	0.0	0.0	0.0	14	17

Statistics for Major Wet Weather Events

Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Appendix D

Major Storm Event Wet Weather Summary Figures

No Major Storm Events

Appendix E

Sediment at Meter SW

Methodology for Estimating Sediment Depth at Meter SW using Flow Meter Velocity Paths

Meter SW has four levels of crossed path velocity sensors, for a total of eight velocity sensors. As the sediment depth at Meter SW increases, the lower velocity paths become buried in sediment or blinded by sediment suspended in the flow, and the sensors record zero velocity. The estimated sediment depth at Meter SW is based on which velocity sensors are recording zero velocity. Table E-1 lists the estimated sediment depths at Meter SW based on the sensors recording zero velocity.

When all submerged velocity sensors are active, the estimated sediment depth is 1.33 feet. This depth is based on the average sludge depth from previous sludge profiles measurements and is estimated to be a minimum sludge depth at this location. If velocity paths are submerged but recording a value of zero for velocity, it is assumed that the velocity path is buried in sediment and the path heights are used to estimate sediment depth. For example:

- When one of the lowest velocity path sensors (velocity paths 1 or 2) are submerged and records zero velocity, it is estimated that the sludge depth is at the lowest velocity path height of 1.83 feet.
- When both lowest velocity path sensors (velocity paths 1 or 2) are submerged and records zero velocity, it is estimated that the sludge depth is halfway between lowest velocity path height (1.83 feet) and second lowest velocity path height (2.50 feet).

Sediment depths are estimated for each 5-minute meter recording interval. Typically, the increased flow rates and velocities during a storm event will reduce the sludge depth at Meter SW, uncovering the buried velocity paths, which results in a lower estimated sludge depth and higher flow rate.

On September 18, 2019, Meter SW was reprogrammed to account for 16-inches of sediment. There is a long-term record of sediment profiles at this location which support an assumed stable depth of sediment of 16-inches. This programming change greatly improved the real-time flow rate readings for Meter SW. This is important because Meter SW is used to control a gate which throttles the SWRDDD flow rate to its contract capacity of 20.5 MGD.

At the end of each calendar month, the flow rate for Meter SW is recalculated using the estimated sediment depths. The recalculated flow rate is the best estimate of Meter SW flow rates.

Table E-1

Estimated Sediment Depths at Meter SW Based on Velocity Sensor Data

Velocity Path Height (ft)	Velocity Sensor	Sensors Recording Zero Velocity								
1.83	1	-	1 or 2	1 & 2	1 & 2	1 & 2	1 & 2	1 & 2	1 & 2	1 & 2
	2									
2.50	3	-	-	-	3 or 4	3 & 4	3 & 4	3 & 4	3 & 4	3 & 4
	4									
3.17	5	-	-	-	-	-	5 or 6	5 & 6	5 & 6	5 & 6
	6									
5.25	7	-	-	-	-	-	-	-	7 or 8	7 & 8
	8									
Estimated Sediment Depth (ft)		1.33	1.83	2.17	2.50	2.84	3.17	4.21	5.25	5.88

Sediment Profile Measurements

Sediment profiles at the Meter SW location have been taken since 2013. These profiles measure the sediment depth every 6 inches across the pipe cross section. Table E-2 lists the sediment profile measurements. The equivalent sediment level from invert is also listed for each measurement. This value represents the depth of sediment from the pipe invert if the sediment was perfectly flat (horizontal). Figure E-1 shows the pipe cross section at Meter SW with the sediment profiles from 2013 to date.

The variability in the sediment profile measurements highlight the dynamic nature of sediment accretion/reduction at this location. The historical average sediment depth at Meter SW is about 16-inches.

Since Veolia took over operations of the Downriver Wastewater Treatment Facility (DWTF), the Interceptor Pump Station (IPS) wet well has been pumped down more frequently. The frequent wet well drawdowns are assumed to have helped mobilize and clear the sediment from this location.

Table E-2
Meter SW Sediment Profile Measurements

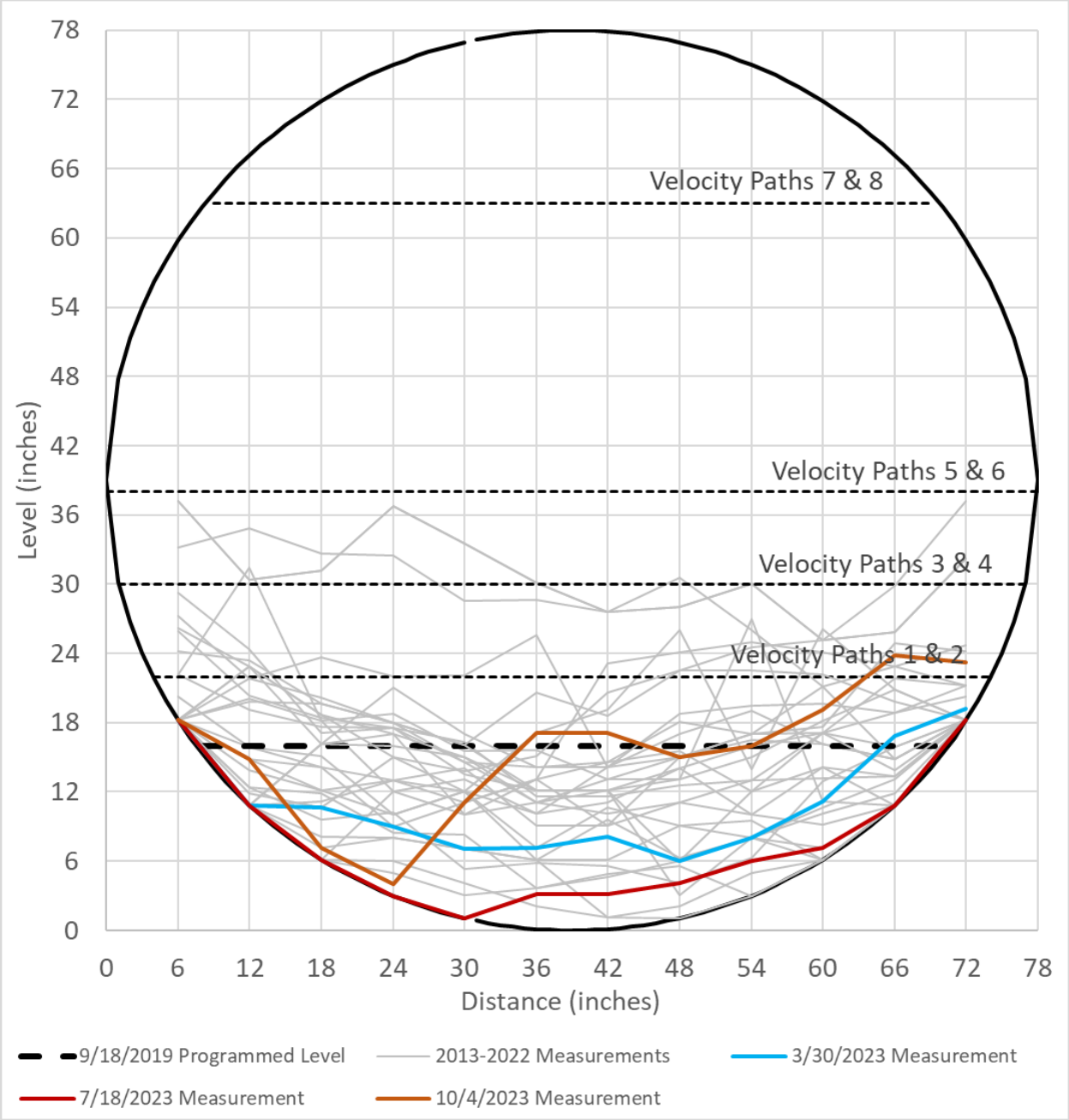
Date	Equivalent Sediment Level from Invert		Distance from Pipe Wall (inches)											
			6	12	18	24	30	36	42	48	54	60	66	72
	(inches)	(feet)	Sediment Level from Invert (inches)											
12/19/2013	21.3	1.8	27.2	21.9	23.6	22.0	22.1	25.6	14.1	18.8	19.5	19.6	18.9	21.2
5/9/2014	30.6	2.5	37.2	30.4	31.1	36.8	33.6	30.1	27.6	28.1	30.0	25.1	25.9	32.2
7/25/2014	30.6	2.5	37.2	30.4	31.1	36.8	33.6	30.1	27.6	28.1	30.0	25.1	25.9	32.2
9/24/2014	17.8	1.5	22.2	31.5	18.1	18.8	15.6	15.6	13.1	15.1	16.5	16.1	14.9	18.2
2/27/2015	28.6	2.4	33.2	34.9	32.6	32.5	28.6	28.6	27.6	30.6	26.0	21.1	22.9	24.7
5/27/2015	15.8	1.3	22.2	19.1	17.6	17.5	13.6	12.1	12.1	13.1	27.0	11.1	10.9	18.2
8/26/2015	17.0	1.4	24.2	23.4	19.6	18.0	14.6	14.1	14.6	15.6	12.0	17.1	15.9	18.2
11/20/2015	15.6	1.3	26.0	20.4	18.4	17.5	16.3	11.6	11.6	12.6	13.0	13.1	13.4	18.2
11/18/2016	10.7	0.9	18.2	14.9	14.1	13.0	12.1	6.1	9.6	6.3	8.0	10.6	13.1	18.2
12/21/2016	14.7	1.2	29.2	24.4	17.1	17.5	14.6	11.1	10.1	11.1	10.0	9.1	10.9	18.2
5/24/2017	14.0	1.2	18.2	13.9	12.1	10.0	12.1	10.1	14.1	17.1	19.0	16.1	14.9	18.2
8/23/2017	17.5	1.5	18.2	15.9	15.1	10.0	12.1	17.1	19.1	26.1	14.0	26.1	20.9	18.2
2/13/2018	13.7	1.1	18.2	20.1	18.1	12.0	13.1	10.1	11.1	14.1	10.0	14.1	13.4	18.2
2/28/2020	6.6	0.6	18.2	12.4	11.9	8.5	8.3	3.6	4.9	5.6	3.0	6.1	10.9	18.2
6/12/2020	17.9	1.5	18.2	22.9	18.6	17.0	10.1	13.1	14.6	18.1	17.0	17.6	24.9	24.2
9/21/2020	8.3	0.7	18.2	12.4	9.6	10.3	5.3	5.9	5.6	4.1	6.3	12.9	15.9	18.2
12/21/2020	18.5	1.5	20.2	15.9	14.1	9.0	11.1	13.1	23.1	24.1	25.0	24.1	22.9	21.2
2/12/2021	19.1	1.6	30.2	23.4	18.1	15.8	16.1	20.6	21.6	20.6	19.0	15.1	10.9	18.2
4/27/2021	22.8	1.9	18.2	21.9	20.1	18.0	16.1	20.6	18.6	22.6	24.5	25.1	29.9	37.2
5/21/2021	5.8	0.5	18.2	10.9	6.1	5.0	3.1	3.6	4.6	6.1	8.0	10.1	11.9	18.2
6/24/2021	7.2	0.6	18.2	10.9	7.1	8.0	7.1	6.1	6.1	9.1	8.0	6.1	10.9	18.2
8/5/2021	14.3	1.2	18.2	14.9	12.1	13.0	14.1	9.1	9.1	15.1	17.0	17.1	18.9	20.2
9/30/2021	5.2	0.4	18.2	10.9	8.1	8.0	7.1	6.1	1.1	2.1	5.0	6.1	10.9	18.2
1/14/2022	10.1	0.8	18.2	11.9	10.6	15.0	12.1	7.1	10.6	9.1	9.5	6.1	10.9	18.2
2/16/2022	13.2	1.1	26.2	22.9	16.1	17.0	15.1	11.1	12.1	3.1	8.0	7.1	10.9	18.2
3/10/2022	2.8	0.2	18.2	10.9	6.1	6.0	4.1	2.1	1.1	1.1	3.0	6.1	10.9	18.2
5/24/2022	14.1	1.2	18.2	19.9	19.6	18.0	16.1	12.1	12.1	6.1	12.0	14.1	10.9	18.2
6/23/2022	14.4	1.2	18.2	10.9	16.1	16.0	15.1	12.1	12.1	14.1	16.0	17.1	13.9	18.2
7/14/2022	16.1	1.3	18.2	10.9	16.1	21.0	17.1	14.1	14.1	15.1	17.0	21.1	14.9	18.2
10/19/2022	13.5	1.1	18.2	10.9	11.1	13.0	11.1	13.1	9.1	11.1	13.0	17.1	21.9	21.2
11/22/2022	13.1	1.1	18.2	10.9	6.1	12.0	10.1	11.1	13.1	13.1	15.0	18.1	20.9	18.2
3/30/2023	9.3	0.8	18.2	10.9	10.6	9.0	7.1	7.1	8.1	6.1	8.0	11.1	16.9	19.2
7/18/2023	3.4	0.3	18.2	10.9	6.1	3.0	1.1	3.1	3.1	4.1	6.0	7.1	10.9	18.2
10/4/2023	15.1	1.3	18.2	14.9	7.1	4.0	11.1	17.1	17.1	15.1	16.0	19.1	23.9	23.2
Assumed	16.0	1.3	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0

Legend

Equivalent sediment level less than meter programmed level of 16 inches

Equivalent sediment level greater than meter programmed level of 16 inches

Figure E-1
Sediment Profiles at Meter SW from 2013 through 2023



Appendix F

Dye-Dilution Test Adjustment Factors

Table F-1
Dye Dilution Test Summary

Meter	Date	Adjustment Factor	Period Adjustment Factor
EC-6	2/18/2014	0.70	0.75
	11/18/2021	0.79	
P-1	9/16/2013	0.99	0.98
	8/7/2018	0.96	
P-2	9/18/2017	0.89	0.83
	7/20/2022	0.76	
PA-1	11/6/2013	0.93	0.93
PA-2	9/18/2017	0.94	0.98
	1/24/2020	1.02	
PA-3	1/29/2020	0.96	0.85
	7/6/2022	0.72	
PA-4	4/4/2018	0.90	0.93
	7/20/2022	0.96	
PB-1	1/23/2020	1.14	1.14
PC-1	9/25/2014	0.93	0.95
	8/9/2018	0.93	
	9/27/2022	1.02	
PD-1	8/18/2015	0.76	0.77
	7/31/2018	0.76	
	11/8/2023	0.79	
PD-2	1/30/2020	0.99	0.98
	7/15/2022	0.97	
RD-1	4/6/2018	1.02	1.03
	2/6/2023	1.04	
RR-1	2/19/2014	0.97	1.06
	1/28/2020	1.16	
	7/15/2022	1.07	
RV-1	12/11/2019	1.00	0.98
	8/17/2022	0.95	
SW	11/12/2013	1.00 (with sediment accounted for)	1.00
	1/27/2020	1.00 (with sediment accounted for)	
	12/20/2022	1.05 (with sediment accounted for)	
TB-1	11/10/2014	1.05	0.99
	1/28/2020	0.97	
	12/19/2022	0.93	