Wayne County Rouge Valley Sewage Disposal System
Annual Flow Monitoring Report
January through December 2014

Prepared: April 22, 2015

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Section 1

Noteworthy Items

Noteworthy Items

This annual report provides a summary of the flow monitoring data for Wayne County's Rouge Valley Sewage Disposal System (RVSDS) for January through December 2014. This report supersedes the four (4) quarterly reports previously issued for 2014 and is intended to provide the best available estimate of flow rates for each meter district and community during the dry and wet weather conditions that occurred in 2014. For some meter districts and communities, the data have been revised from the quarterly reports. Any monitoring plan updates made in the annual period and major findings from the RVSDS 2014 system monitoring plan are presented below.

1. Figure 2-1 shows a schematic of the RVSDS interceptors and the locations of the flow meters and level sensors. Figure 2-2 shows the RVSDS incremental meter district and interceptor line connection areas. Figure 2-3 shows the location of rain gages within and surrounding the RVSDS service area. All of these figures have been updated to reflect changes to the RVSDS monitoring network which occurred during the year. These changes include the revision of meter district boundaries and inclusion of additional rain gages.

2. The meter district boundaries were recently updated as part of the Long-Term Corrective Action Plan (LTCAP). In addition, the district characteristics were also updated with the year 2010 Census and Year 2008 Southeast Michigan Council of Governments (SEMCOG) land use datasets. These updates are reflected in the population and land area values listed in Tables 3-1, 3-2, 4-1, 4-1 and 12-2. Details of this analysis are provided in the RVSDS Updated District Characteristics for Service Agreement Renewals dated April 1, 2015.

3. During the annual reporting period, the sewage flow meter math, which is used for estimating community flow rates, was updated. The meter math was changed from cumulative meter math to incremental meter math. This change is reflected in Tables 3-1, 3-2, 4-1, 4-2, 5-1, 5-2, 5-3 and 5-4. Cumulative meter math relies on the assumption that all communities tributary to a meter contribute flow in proportion to population. In reality, there are several factors that determine a community's flow rate and population is only one of these factors. Incremental meter math subtracts upstream metered flow rates from downstream metered flow rates to estimate incremental flow rates between sets of meters. The total inflow between meters can then be assigned to communities along that reach. Incremental meter math provides a better estimate of community flow rates than the previous cumulative meter math approach. Incremental meter math can be further improved once the updates to the hydrologic/hydraulic model of the RVSDS are completed in 2015. The updated RVSDS hydrologic/hydraulic model will be used to route and attenuate the upstream metered flow rates before subtraction from the downstream meter flow rates, to account for travel time effects.

4. Dye-dilution testing to verify meter accuracy has been conducted for Meters LV-Basin, P-1, P-9, P-10, P-11, P-12, P-13, P-14, P-17, P-19, P-20, P-24 and P-25. The dye test results provided important information that was used to adjust the flow meter data. These adjustments provide more

reasonable estimates of flow rates for the meters, meter districts, and communities. The results of these dye tests are shown in Table 1-1.

Table 1-1
Rouge Valley Sewage Disposal System
Dye-Dilution Test Summary

Meter	Test Date	Period Adjustment Factor
LV-Basin	11/26/2013	0.92
P-1	11/7/2013	1.08
P-9	10/8/2014	1.12
P-10	4/23/2013	1.03
P-11	4/23/2013	0.93
P-12	4/22/2013	0.90
P-13	5/2/2013	1.04
P-14	5/2/2013	1.01
P-17	12/2/2013	0.90
P-19	11/25/2013	0.96
P-20	11/25/2013	0.98
P-24	12/4/2014	0.83
P-25	5/6/2013	1.07

5. The total precipitation at the Detroit Metropolitan Wayne County Airport (DTW) for the year was 37.57 inches, which is 4.10 inches above normal. Events where the average rainfall depth exceeds 1 inch are considered significant events and are numbered. There were seven significant storm events during this annual reporting period. A summary of these events is presented in Table 6-1. Total rainfall values for each rain gage and each event are presented in Tables 8-1 through 8-7.

6. Table 1-2 lists the peak flow rates and estimated flood frequencies on the Middle and Lower Rouge Rivers for each storm event. The peak flow rates and return frequencies on the Middle and Lower Rouge Rivers occurred during Event 5, on August 11, 2014. The estimated flood frequencies for the Middle and Lower Rouge Rivers for this event were 107 months (8.9 years) and 40 months (3.3 years), respectively. The United States Geological Survey (USGS) Gage #04167000 is located on the Middle Rouge River just downstream of Inkster Road in Dearborn Heights. USGS Gage #04168000 is located on the Lower Rouge River just downstream of John Daly Road in Inkster.

Table 1-2
Rouge Valley Sewage Disposal System
Rouge River Flood Frequency in the 2014 Monitoring Period

Event No.	Start Date	End Date	Peak 15-minute Flow Rate (cfs)		Estimated Flood Frequency (months)	
			Middle Rouge USGS Gage #04167000	Lower Rouge USGS Gage #04168000	Middle Rouge USGS Gage #04167000	Lower Rouge USGS Gage #04168000
1	4/29/2014	5/1/2014	343	344	1	1
2	5/12/2014	5/17/2014	925	742	11	4
3	5/27/2014	5/29/2014	497	715	3	4
4	6/18/2014	6/20/2014	722	776	6	5
5	8/11/2014	8/13/2014	1,890	1,590	107	40
6	9/10/2014	9/11/2014	627	801	5	5
7	11/22/2014	11/25/2014	463	643	3	3
Estimated Flood Frequency		1-month	315	352	-	-
		6-month	734	954	-	-
		1-year	944	1,212	-	-
		2-year	1,066	1,317	-	-
		5-year	1,549	1,938	-	-
		10-year	1,988	2,507	-	-
		100-year	3,255	4,171	-	-

7. A summary of maximum allowable flow limit exceedences by community during significant storm events for 2014 are listed in Table 1-3. At least one community exceeded the maximum allowable flow limit for each significant storm event. Plymouth City, Garden City, Romulus and Inkster exceeded the maximum allowable flow limits most frequently. Northville City, Livonia, Westland, Redford Township and Van Buren Township did not exceed the maximum allowable flow limits for any of the significant storm events in 2014.

8. Over the year, the flow meters and level sensors in the RVSDS operated and provided useful data for 97.97% of the period.

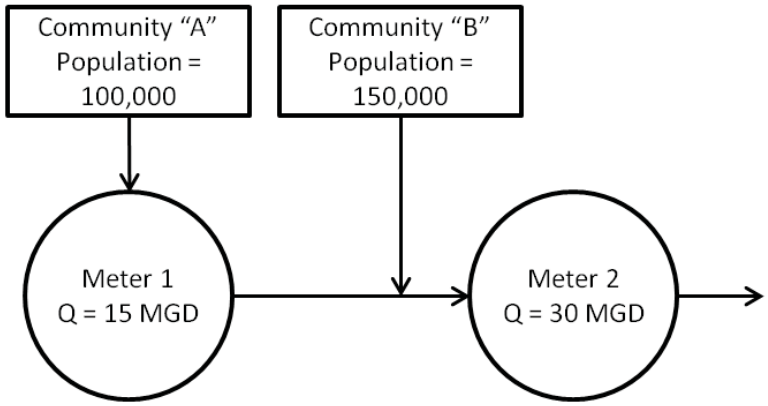
Table 1-3
Rouge Valley Sewage Disposal System
Maximum Allowable Flow Limit Exceedences during 2014 Significant Storm Events

Event	Date	Precipitation (inches)	Community												
			Novi	Plymouth City	Northville City	Garden City	Livonia	Westland	Redford Twp	Dearborn Heights	Van Buren Twp	Romulus	Wayne	Inkster	WTUA
1	4/29-30/2014	1.11	×	✓	×	✓	×	×	×	×	×	×	×	✓	×
2	5/12-15/2014	1.83	×	✓	×	×	×	×	×	×	×	✓	×	✓	×
3	5/27-28/2014	1.21	×	✓	×	✓	×	×	×	×	×	✓	×	✓	×
4	6/18-19/2014	1.73	×	✓	×	×	×	×	×	✓	×	✓	×	✓	×
5	8/11-12/2014	3.91	✓	✓	×	✓	×	×	×	✓	×	✓	✓	✓	✓
6	9/10-11/2014	1.56	×	✓	×	✓	×	×	×	✓	×	×	×	✓	×
7	11/22-24/2014	1.21	×	×	×	✓	×	×	×	×	×	✓	×	✓	×
Total			1 / 7	6 / 7	0 / 7	5 / 7	0 / 7	0 / 7	0 / 7	3 / 7	0 / 7	5 / 7	1 / 7	7 / 7	1 / 7

Meter Math Examples

Example 1:

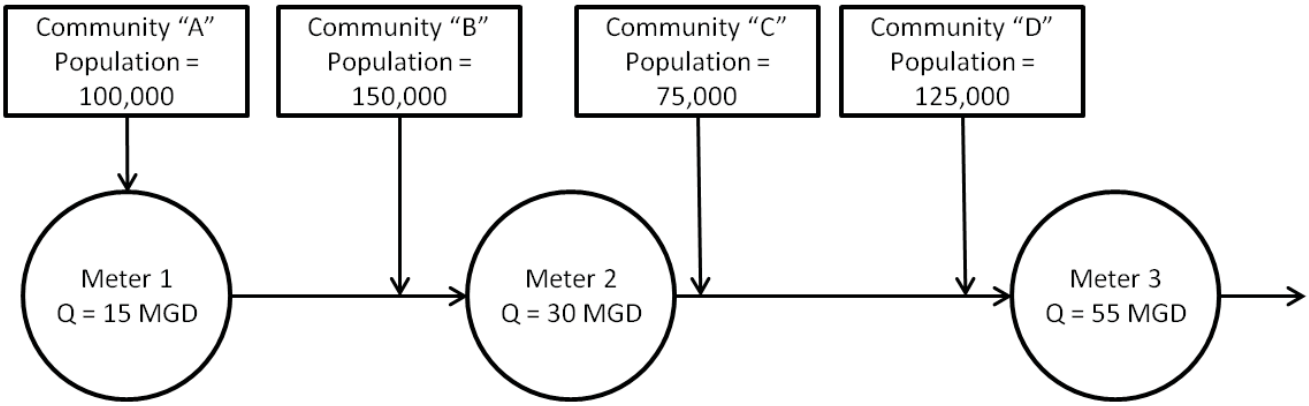
The following example illustrates how cumulative and incremental flow meter math are calculated. In this example, there are two communities and two flow meters.



	Cumulative Meter Math	Incremental Meter Math
Community A	$Q_A = Q_{Meter1}$ $Q_A = 15\,MGD$ $Q_A = \frac{150\,MGD}{100,000} = 150\,gpcd$	$Q_A = Q_{Meter1}$ $Q_A = 15\,MGD$ $Q_A = \frac{150\,MGD}{100,000} = 150\,gpcd$
Community B	$Q_B = \frac{Pop_B}{Pop_A + Pop_B} \times Q_{Meter2}$ $Q_B = \frac{150,000}{100,000 + 150,000} \times 30\,MGD$ $Q_B = 18\,MGD$ $Q_B = \frac{18\,MGD}{150,000} = 120\,gpcd$	$Q_B = Q_{Meter2} - Q_{Meter1}$ $Q_B = 30\,MGD - 15\,MGD$ $Q_B = 15\,MGD$ $Q_B = \frac{15\,MGD}{150,000} = 100\,gpcd$

Example 2:

For some communities and interceptor reaches, population based proration of the metered flow rate is still required in the incremental meter math. In this example, Community "C" and "D" both contribute flow between Meters 2 and Meter 3.



	Cumulative Meter Math	Incremental Meter Math
Community C	$Q_C = \frac{Pop_C}{Pop_A + Pop_B + Pop_C + Pop_D} \times Q_{Meter3}$ $Q_C = \frac{75{,}000}{100{,}000 + 150{,}000 + 75{,}000 + 125{,}000} \times 55\,MGD$ $Q_C = 9.2\,MGD$ $Q_C = \frac{9.2\,MGD}{75{,}000} = 122\,gpcd$	$Q_C = \frac{Pop_C}{Pop_C + Pop_D} \times (Q_{Meter3} - Q_{Meter2})$ $Q_C = \frac{75{,}000}{75{,}000 + 125{,}000} \times (55\,MGD - 30\,MGD)$ $Q_C = 9.4\,MGD$ $Q_C = \frac{9.4\,MGD}{75{,}000} = 125\,gpcd$
Community D	$Q_D = \frac{Pop_D}{Pop_A + Pop_B + Pop_C + Pop_D} \times Q_{Meter3}$ $Q_D = \frac{125{,}000}{100{,}000 + 150{,}000 + 75{,}000 + 125{,}000} \times 55\,MGD$ $Q_D = 15.3\,MGD$ $Q_D = \frac{15.3\,MGD}{125{,}000} = 122\,gpcd$	$Q_D = \frac{Pop_D}{Pop_C + Pop_D} \times (Q_{Meter3} - Q_{Meter2})$ $Q_D = \frac{125{,}000}{75{,}000 + 125{,}000} \times (55\,MGD - 30\,MGD)$ $Q_D = 15.6\,MGD$ $Q_D = \frac{15.6\,MGD}{125{,}000} = 125\,gpcd$

Section 2

Monitoring Network

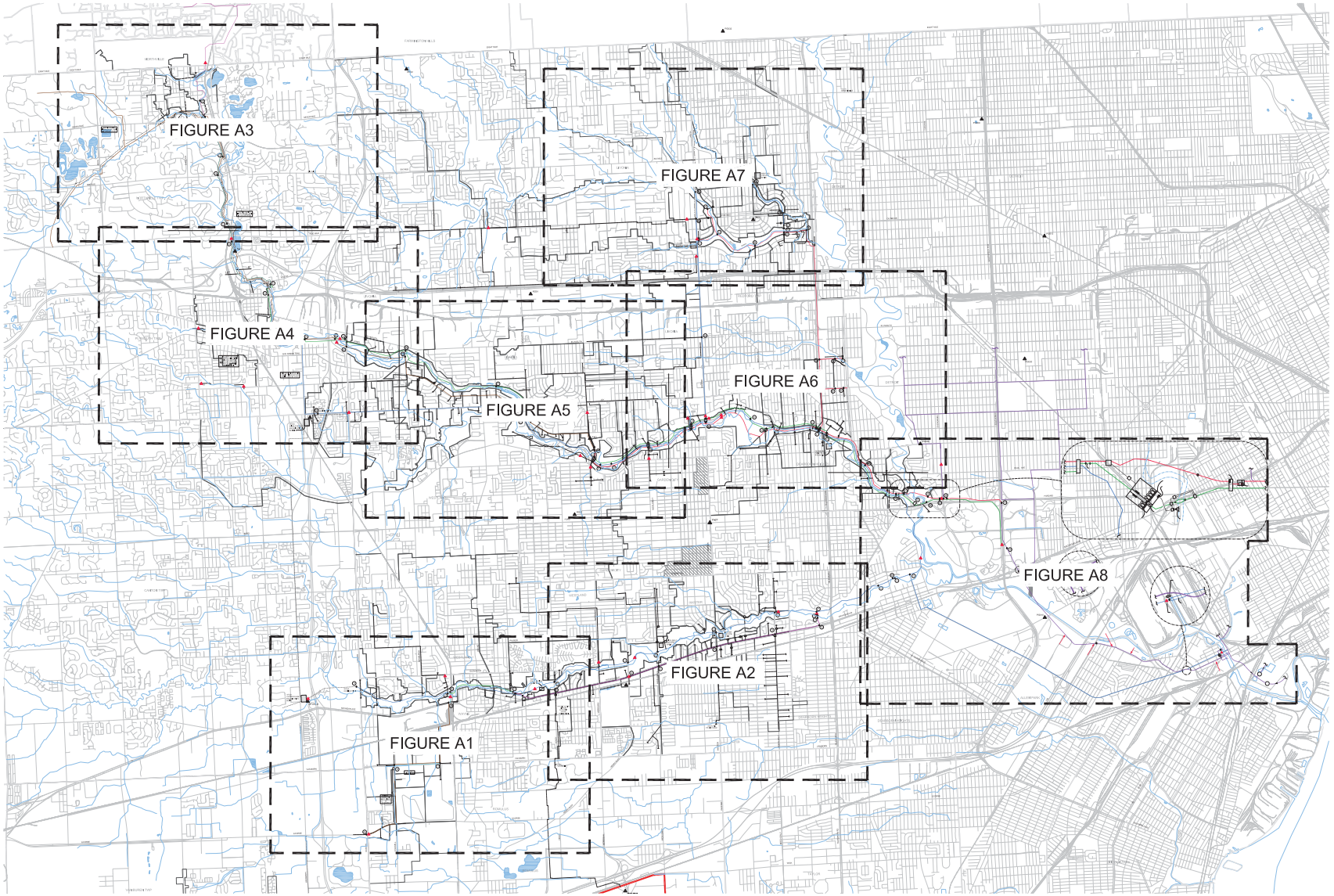
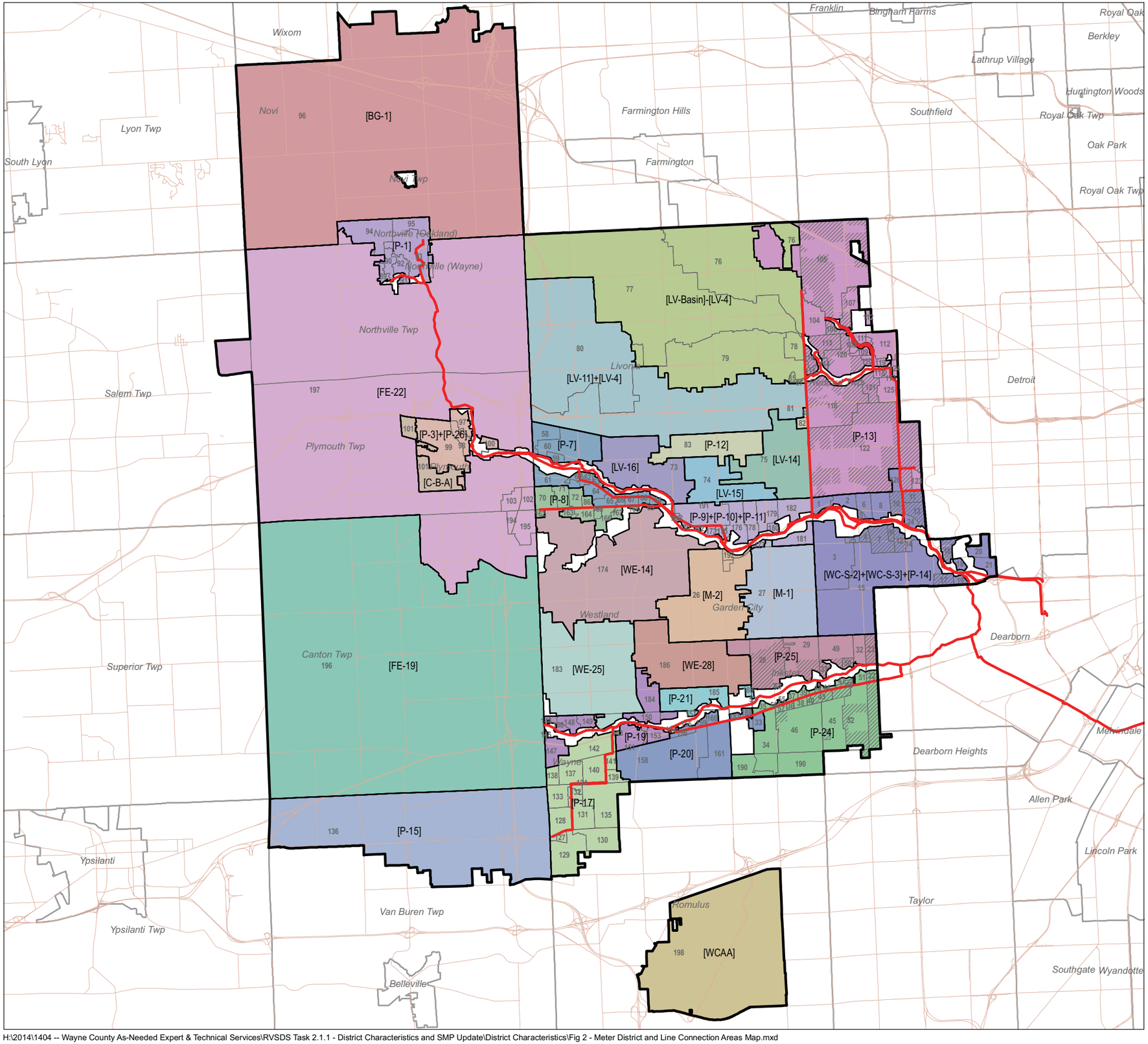


FIGURE 2-1
ROUGE VALLEY SEWAGE DISPOSAL SYSTEM
INTERCEPTOR SCHEMATIC

SYSTEM
MONITORING
INDEX SHEET

Rouge Valley Sewage Disposal System



N
W E
S

0 0.5 1 2 3 4 Miles

Legend

- Interceptor
- Meter District
- Line Connection Area
- Combined Area
- Community Boundary
- Service Area Boundary
- Roads

Figure 2-2
Meter District and Line Connection Areas

Prepared By:

Applied Science, Inc.

Date: 4/22/2015

H:\2014\1404 -- Wayne County As-Needed Expert & Technical Services\RVSDS Task 2.1.1 - District Characteristics and SMP Update\District Characteristics\Fig 2 - Meter District and Line Connection Areas Map.mxd

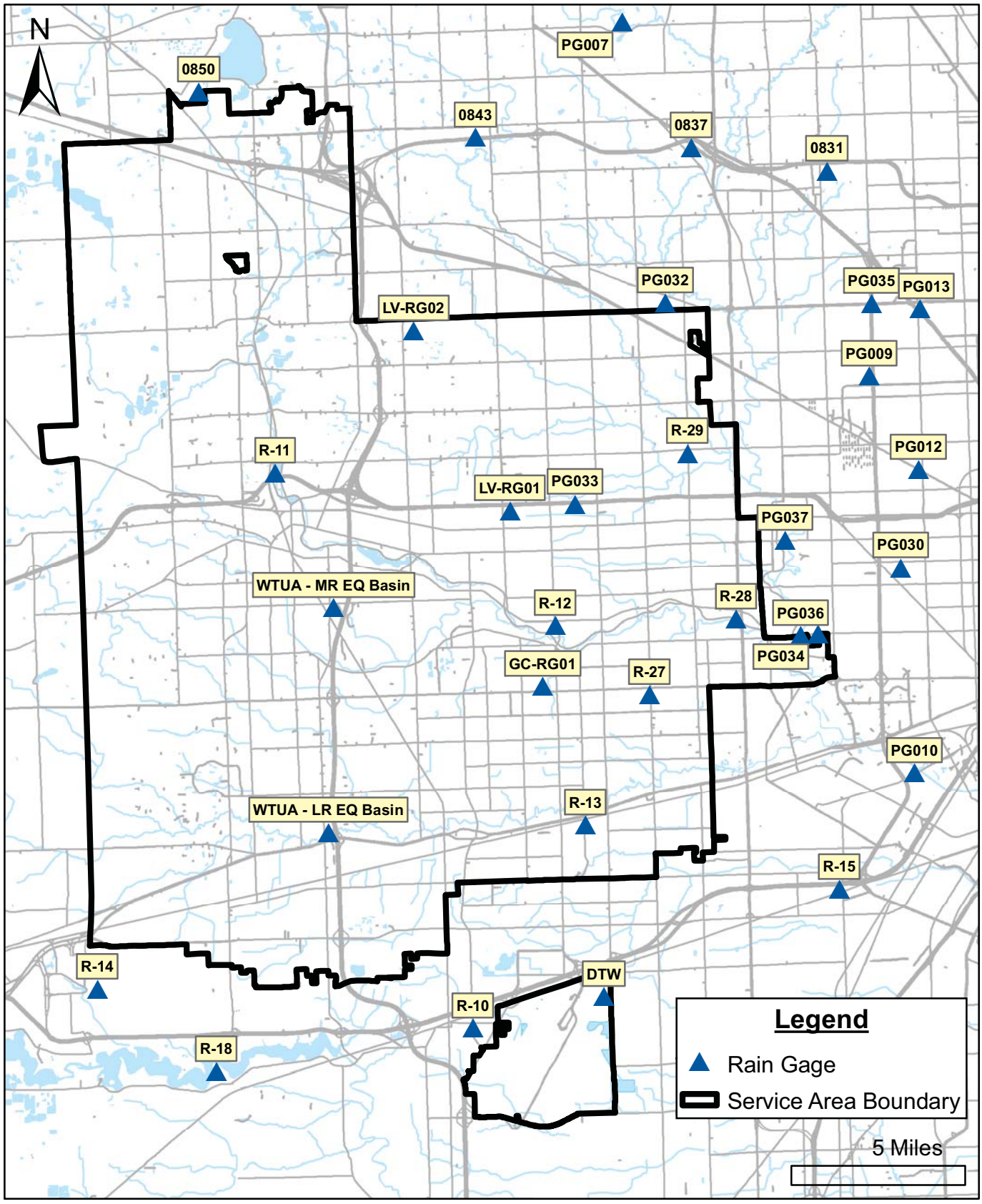


Figure 2-3
Rouge Valley Sewage Disposal System
Rain Gage Location Map

Table 2-1
Rouge Valley Sewage Disposal System
Flow Monitoring Meters

Wayne County Meters	P-1, P-3, P-7, P-8, P-9, P-10, P-11, P-12, P-13, P-14, P-15, P-17, P-19, P-20, P-21, P-24, P-25, P-26, LV-Basin, M-22A, M-22B, WE-14, WE-25 & WE-28	
Community Meters	City of Livonia	LV-4, LV-11, LV-14, LV-15, LV-1, & LV-20
	Garden City	M-1 & M-2
	City of Novi	BG-1
	WTUA*	FE-19, FE-22, A, B & C
DWSD Meters	WC-S-1, WC-S-2 & WC-S-3	

*Western Townships Utility Authority (WTUA)

Table 2-2
Rouge Valley Sewage Disposal System
Rain Gages

Rain Gage	Operated By	Location
R-10	Wayne County	11111 Wayne Road, Romulus
R-11	Wayne County	14973 Northville Road, Northville Township
R-12	Wayne County	7651 Merriman Road, Westland
R-13	Wayne County	3501 Henry Ruff Road, Inkster
R-14	Wayne County	Willow Run Airport, Van Buren Township
R-15	Wayne County	20195 Trolley, Taylor
R-18	Wayne County	130 4th Street, Belleville
R-27	Wayne County	2001 Inkster Road, Inkster
R-28	Wayne County	23800 Hines Drive, Dearborn Heights
R-29	Wayne County	15145 Beech Daly Road, Redford
PG007	DWSD	7404 Inkster Rd, West Bloomfield Township
PG009	DWSD	Curtis and Southfield Freeway, Detroit
PG010	DWSD	16540 Rotunda Drive, Dearborn
PG012	DWSD	15600 West Grand River Avenue, Detroit
PG013	DWSD	20440 James Couzens Street, Detroit
PG030	DWSD	Stoepel Park and W. Chicago, Detroit
PG032	DWSD	20920 East Street, Southfield
PG033	DWSD	30365 Schoolcraft, Livonia
PG034	DWSD	20650 West Warren, Detroit
PG035	DWSD	8 Mile Road & Southfield Fwy, Detroit
PG036	DWSD	Rouge River & Warren Ave, Dearborn Heights
PG037	DWSD	Rouge River & Plymouth Road, Detroit
Livonia RG01	Livonia	Schoolcraft Road, Livonia
Livonia RG02	Livonia	Whispering Willows Golf Course, Livonia
DTW	NOAA	Wayne County Metro Airport, Romulus
Garden City RG01	Garden City	Moeller Park, Garden City
WTUA LR EQ Basin	WTUA	3501 Haggerty Road, Canton
WTUA MR EQ Basin	WTUA	40905 Joy Road, Plymouth
0831	Oakland County WRC	19625 Middlesex Street, Southfield
0837	Oakland County WRC	25515 Clara Lane, Southfield
0843	Oakland County WRC	34189 12 Mile Road, Farmington Hills
0850	Oakland County WRC	46351 West Road, Walled Lake

Section 3

Flow Summaries for System Meters

Table 3-1

Rouge Valley Sewage Disposal System

Average Flow Summary based on System Flow Meters, Prorated by Community Tributary Population

Branch	Sewage Flow Meter	Year 2010 Residential Population	Total Developed Land (acres)	Maximum Allowable Flow Limit (MGD)	Average Flow Rate (MGD)												Annual Average Flow Rate		Maximum Monthly Flow Rate (MGD)
					Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14	(MGD)	(gal / capita / day)	
Middle Rouge at Inkster Road	[P-9] + [P-10] + [P-11] - [FE-22] + [C] - [B] - [A]	223,281	38,468	132.12	31.1	27.6	39.1	36.2	38.7	33.5	25.1	30.6	31.5	26.3	25.5	27.5	31.1	139	39.1
Middle Rouge Outlet	[WC-S-2] + [WC-S-3] + [P-14] - [FE-22] + [C] - [B] - [A]	308,764	46,337	205.98	47.1	40.8	59.4	55.0	59.1	49.7	35.9	48.2	47.2	38.5	36.5	39.8	46.5	150	59.4
Lower Rouge Outlet	[P-24]+[P-25]-[FE-19]	96,019	20,858	68.96	15.8	14.3	19.0	16.1	19.3	15.6	11.3	12.8	14.7	11.6	11.3	12.3	14.5	151	19.3
RVSDS Outlet	[WC-S-1] + [WC-S-2] + [WC-S-3] - [FE-22] + [C] - [B] - [A] - [FE-19]	404,783	67,195	274.94	63.9	55.5	80.0	72.6	79.0	66.1	47.8	62.3	62.7	50.0	47.8	51.0	61.6	152	80.0

Table 3-2

Rouge Valley Sewage Disposal System

Average Dry Weather Flow Summary based on System Flow Meters, Prorated by Community Tributary Population

Branch	Sewage Flow Meter	Year 2010 Residential Population	Total Developed Land (acres)	Maximum Allowable Flow Limit (MGD)	Average Flow Rate (MGD)												Annual Average Flow Rate		Maximum Monthly Flow Rate (MGD)
					Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14	(MGD)	(gal / capita / day)	
Middle Rouge at Inkster Road	[P-9] + [P-10] + [P-11] - [FE-22] + [C] - [B] - [A]	223,281	38,468	132.12	28.6	26.3	35.2	34.1	33.3	30.4	23.7	25.5	28.6	25.4	23.6	26.2	28.2	126	35.2
Middle Rouge Outlet	[WC-S-2] + [WC-S-3] + [P-14] - [FE-22] + [C] - [B] - [A]	308,764	46,337	205.98	42.4	37.7	52.3	50.7	49.2	43.6	33.4	36.8	41.2	36.4	32.7	37.8	40.8	132	52.3
Lower Rouge Outlet	[P-24]+[P-25]-[FE-19]	96,019	20,858	68.96	13.9	13.1	16.2	14.8	15.1	13.3	10.1	9.9	12.5	10.9	10.0	11.5	12.5	130	16.2
RVSDS Outlet	[WC-S-1] + [WC-S-2] + [WC-S-3] - [FE-22] + [C] - [B] - [A] - [FE-19]	404,783	67,195	274.94	57.1	51.2	69.8	66.9	65.4	57.7	43.5	47.6	53.8	47.2	42.3	48.1	53.7	133	69.8

Notes:

1. The maximum allowable flow limits are from the 1988 service agreement adjusted for transfers between communities.

Section 4

Community Flow Summaries

Table 4-1
Rouge Valley Sewage Disposal System
Average Flow Summary by Community
Using Incremental Sewage Flow Meter Math

Community	Sewage Flow Meter Math[2]	Year 2010 Residential Population	Total Developed Land (acres)	Maximum Allowable Flow Limit (MGD)	Average Monthly Flow Rate (MGD)												Average Flow Rate (MGD)	Average Per Capita Flow Rate (GPCD)	Maximum Monthly Flow Rate (MGD)
					Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14			
Novi	[BG-1]	43,217	12,473	13.24	4.66	4.54	5.32	4.91	5.17	5.18	4.56	4.64	4.75	4.53	4.64	4.73	*4.80*	*111*	*5.32*
Plymouth City	[P-3] + [P-26] - [P-1] + [C-B-A]	9,022	968	3.10	2.28	1.98	2.03	2.36	2.69	2.30	1.93	2.26	2.21	1.84	1.68	2.05	*2.13*	*237*	*2.69*
Northville City	97.3%{[P-1] - [BG-1]} + 0.3%{[FE-22] - [C-B-A]}	5,765	871	4.92	0.55	0.47	0.64	0.70	0.72	0.77	0.55	0.51	0.55	0.51	0.47	0.51	*0.58*	*100*	*0.77*
Garden City	99.4%[M-1] + 93.1%[M-2]	27,647	2,796	15.77	4.64	4.06	6.44	5.47	5.98	4.46	3.23	4.95	4.17	3.45	3.31	3.71	*4.49*	*162*	*6.44*
Livonia	[P-7] - [P-26] + [P-12] + 4.4%[P-13] + 51.5%{[P-8] - [FE-22]} + [LV-14] + 99.7%[LV-15] + [LV-16]	96,949	16,928	68.84	14.77	12.39	18.56	18.62	19.72	16.90	12.27	15.02	16.23	12.99	12.44	13.18	*15.26*	*157*	*19.72*
Westland[1]	48.5%{[P-8] - [FE-22]} + 14.9%{[P-24] + [P-25] - [P-20] - [P-21]} + 29.5%{[P-20] + [P-21] - [P-17] - [WE-25] - [WE-28] - [FE-19]} +0.3%[LV-15] + 0.6%[M-1] + 6.9%[M-2] + 147.7%[WE-14] + 95.7%[WE-25] + [WE-28]	84,123	9,274	51.73	11.35	10.15	13.53	12.35	13.55	11.84	9.16	11.26	11.02	9.43	9.18	9.69	*11.04*	*131*	*13.55*
Redford Twp	0.9%{[WC-S-2] + [WC-S-3] + [P-14] - [P-9] - [P-10] - [P-11] - [P-13]} + 95.6%[P-13]	47,040	4,703	34.18	8.04	6.87	10.14	10.29	10.16	7.23	4.67	6.71	7.23	6.65	6.12	6.93	*7.59*	*161*	*10.29*
Dearborn Heights	99.1%{[WC-S-2] + [WC-S-3] + [P-14] - [P-9] - [P-10] - [P-11] - [P-13]} + 7.5%{[P-24] + [P-25] - [P-20] - [P-21]}	38,720	3,157	42.31	8.03	6.38	10.23	8.42	10.35	9.06	6.21	10.87	8.57	5.60	4.99	5.40	*7.84*	*203*	*10.87*
Van Buren Twp	[P-15]	6,938	4,471	3.23	0.98	0.90	1.25	1.02	1.04	0.78	0.68	0.72	0.80	0.71	0.72	0.75	*0.86*	*124*	*1.25*
Romulus	90.0%{[P-17] - [P-15]}	2,362	6,444	2.33	0.75	0.72	0.88	0.71	0.84	0.98	0.69	0.60	0.78	0.68	0.66	0.73	*0.75*	*318*	*0.98*
Wayne	69.7%{[P-20] + [P-21] - [P-17] - [WE-25] - [WE-28] - [FE-19]} + 10.0%{[P-17] - [P-15]} + 4.3%[WE-25]	17,597	2,517	18.04	3.64	3.38	4.30	4.06	4.05	3.35	2.42	2.83	2.83	2.13	2.03	2.17	*3.10*	*176*	*4.30*
Inkster	77.7%{[P-24] + [P-25] - [P-20] - [P-21]} + 0.8%{[P-20] + [P-21] - [P-17] - [WE-25] - [WE-28] - [FE-19]}	25,242	2,578	17.23	4.62	4.20	5.48	4.15	6.08	4.53	3.24	3.29	4.74	3.60	3.61	4.06	*4.30*	*170*	*6.08*
WTUA	[FE-19] + 2.7%{[P-1] - [BG-1]} + 99.7%{[FE-22] - [C-B-A]}	146,319	31,498	21.44	4.48	3.74	6.59	5.31	6.05	5.17	3.26	3.68	3.89	3.28	2.97	3.16	*4.30*	--	*6.59*
Row A) Sum of Community Flow Rates (MGD):					**68.80**	**59.79**	**85.37**	**78.38**	**86.41**	**72.55**	**52.87**	**67.34**	**67.78**	**55.40**	**52.81**	**57.07**	**67.05**	**--**	--
Row B) Sum of Outlet Meter Flow Rates (MGD):					**68.38**	**59.27**	**86.63**	**77.92**	**85.03**	**71.30**	**51.06**	**65.94**	**66.63**	**53.32**	**50.79**	**54.18**	**65.87**	**--**	--

Notes:

1. Sewage flow meter math based on 2010 Census populations.
2. The maximum allowable flow limits are from the 1988 service agreement adjusted for transfers between communities.

Table 4-2
Rouge Valley Sewage Disposal System
Dry Weather Flow Summary by Community
Using Incremental Sewage Flow Meter Math

Community	Sewage Flow Meter Math[2]	Year 2010 Residential Population	Total Developed Land (acres)	Maximum Allowable Flow Limit (MGD)	Average Monthly Dry Weather Flow Rate (MGD)												Average Flow Rate (MGD)	Average Per Capita Flow Rate (GPCD)	Maximum Monthly Flow Rate (MGD)
					Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14			
Novi	[BG-1]	43,217	12,473	13.24	4.55	4.50	5.03	4.82	4.87	4.94	4.48	4.50	4.61	4.50	4.48	4.67	*4.66*	*108*	*5.03*
Plymouth City	[P-3] + [P-26] - [P-1] + [C-B-A]	9,022	968	3.10	2.20	1.96	2.01	2.34	2.41	2.23	1.90	2.09	2.13	1.83	1.67	2.02	*2.07*	*229*	*2.41*
Northville City	97.3%{[P-1] - [BG-1]} + 0.3%{[FE-22] - [C-B-A]}	5,765	871	4.92	0.54	0.45	0.60	0.67	0.68	0.70	0.52	0.48	0.54	0.50	0.44	0.48	*0.55*	*95*	*0.70*
Garden City	99.4%[M-1] + 93.1%[M-2]	27,647	2,796	15.77	3.86	3.54	5.15	4.83	4.68	3.90	2.86	3.14	3.40	3.14	2.76	3.31	*3.71*	*134*	*5.15*
Livonia	[P-7] - [P-26] + [P-12] + 4.4%[P-13] + 51.5%{[P-8] - [FE-22]} + [LV-14] + 99.7%[LV-15] + [LV-16]	96,949	16,928	68.84	13.69	11.78	17.00	17.47	17.53	15.60	11.57	12.75	14.71	12.46	11.49	12.51	*14.05*	*145*	*17.53*
Westland[1]	48.5%{[P-8] - [FE-22]} + 14.9%{[P-24] + [P-25] - [P-20] - [P-21]} + 29.5%{[P-20] + [P-21] - [P-17] - [WE-25] - [WE-28] - [FE-19]} +0.3%[LV-15] + 0.6%[M-1] + 6.9%[M-2] + 147.7%[WE-14] + 95.7%[WE-25] + [WE-28]	84,123	9,274	51.73	10.53	9.68	12.40	11.76	11.74	10.85	8.54	9.26	10.08	9.17	8.59	9.38	*10.16*	*121*	*12.40*
Redford Twp	0.9%{[WC-S-2] + [WC-S-3] + [P-14] - [P-9] - [P-10] - [P-11] - [P-13]} + 95.6%[P-13]	47,040	4,703	34.18	7.30	6.45	9.47	9.64	9.17	6.42	4.38	5.04	6.63	6.22	5.32	6.35	*6.87*	*146*	*9.64*
Dearborn Heights	99.1%{[WC-S-2] + [WC-S-3] + [P-14] - [P-9] - [P-10] - [P-11] - [P-13]} + 7.5%{[P-24] + [P-25] - [P-20] - [P-21]}	38,720	3,157	42.31	6.58	4.99	7.57	6.88	6.71	6.80	5.30	6.23	6.09	4.84	3.87	5.26	*5.93*	*153*	*7.57*
Van Buren Twp	[P-15]	6,938	4,471	3.23	0.89	0.86	1.08	0.95	0.92	0.72	0.64	0.67	0.75	0.68	0.68	0.73	*0.80*	*115*	*1.08*
Romulus	90.0%{[P-17] - [P-15]}	2,362	6,444	2.33	0.69	0.68	0.79	0.68	0.74	0.89	0.69	0.55	0.71	0.62	0.66	0.68	*0.70*	*296*	*0.89*
Wayne	69.7%{[P-20] + [P-21] - [P-17] - [WE-25] - [WE-28] - [FE-19]} + 10.0%{[P-17] - [P-15]} + 4.3%[WE-25]	17,597	2,517	18.04	3.36	3.22	3.91	3.92	3.51	2.90	2.21	2.18	2.39	2.02	1.78	2.04	*2.79*	*158*	*3.92*
Inkster	77.7%{[P-24] + [P-25] - [P-20] - [P-21]} + 0.8%{[P-20] + [P-21] - [P-17] - [WE-25] - [WE-28] - [FE-19]}	25,242	2,578	17.23	3.77	3.63	4.23	3.47	4.03	3.64	2.72	2.40	3.81	3.28	3.07	3.63	*3.47*	*138*	*4.23*
WTUA	[FE-19] + 2.7%{[P-1] - [BG-1]} + 99.7%{[FE-22] - [C-B-A]}	146,319	31,498	21.44	3.87	3.40	5.74	4.73	4.64	4.27	3.01	2.90	3.34	2.96	2.38	2.83	*3.67*	--	*5.74*
Row A) Sum of Community Flow Rates (MGD):					**61.85**	**55.13**	**74.98**	**72.16**	**71.64**	**63.86**	**48.81**	**52.19**	**59.21**	**52.21**	**47.20**	**53.90**	**59.43**	**--**	--
Row B) Sum of Outlet Meter Flow Rates (MGD):					**61.01**	**54.60**	**75.49**	**71.66**	**70.05**	**61.99**	**46.50**	**50.53**	**57.15**	**50.16**	**44.70**	**50.90**	**57.90**	**--**	--

Notes:

1. Sewage flow meter math based on 2010 Census populations.
2. The maximum allowable flow limits are from the 1988 service agreement adjusted for transfers between communities.

Section 5

Maximum Hourly Flow Rates by Community

Table 5-1
Rouge Valley Sewage Disposal System
Estimated Maximum Hourly Flow Rates by Community - January through December 2014
Using Incremental Sewage Flow Meter Math

Community	Sewage Flow Meter Math	Maximum Allowable Flow Limit (MGD)	Event 1 4/29-30/2014 1.11 in			Event 2 5/12-15/2014 1.83 in		
			Average Dry Weather Flow Rate for April 2014 (MGD)	Maximum Hourly Flow Rate (MGD)	Peaking Factor	Average Dry Weather Flow Rate for May 2014 (MGD)	Maximum Hourly Flow Rate (MGD)	Peaking Factor
Novi	[BG-1]	13.24	4.8	7.7	1.6	4.9	11.3	2.3
Plymouth City	[P-3] + [P-26] - [P-1] + [C-B-A]	3.10	2.3	3.5	1.5	2.4	11.7	4.9
Northville City	97.3%{[P-1] - [BG-1]} + 0.3%{[FE-22] - [C-B-A]}	4.92	0.7	1.6	2.4	0.7	2.1	3.1
Garden City	99.4%[M-1] + 93.1%[M-2]	15.77	4.8	15.8	3.3	4.7	13.3	2.8
Livonia	[P-7] - [P-26] + [P-12] + 4.4%[P-13] + 51.5%{[P-8] - [FE-22]}	68.84	17.5	29.2	1.7	17.5	38.1	2.2
Westland	48.5%{[P-8] - [FE-22]} + 14.9%{[P-24] + [P-25] - [P-20] - [P-21]} + 29.5%{[P-20] + [P-21] - [P-17] - [WE-25] - [WE-28] - [FE-19]} +0.3%[LV-15] + 0.6%[M-1] + 6.9%[M-2] + 147.7%[WE-14] + 95.7%[WE-25] + [WE-28]	51.73	11.8	19.2	1.6	11.7	23.2	2.0
Redford Twp	0.9%{[WC-S-2] + [WC-S-3] + [P-14] - [P-9] - [P-10] - [P-11] - [P-13]} + 95.6%[P-13]	34.18	9.6	21.3	2.2	9.2	22.5	2.5
Dearborn Heights	99.1%{[WC-S-2] + [WC-S-3] + [P-14] - [P-9] - [P-10] - [P-11] - [P-13]} + 7.5%{[P-24] + [P-25] - [P-20] - [P-21]}	42.31	6.9	35.5	5.2	6.7	36.7	5.5
Van Buren Twp	[P-15]	3.23	1.0	1.5	1.5	0.9	2.5	2.7
Romulus	90.0%{[P-17] - [P-15]}	2.33	0.7	2.3	3.4	0.7	2.4	3.3
Wayne	69.7%{[P-20] + [P-21] - [P-17] - [WE-25] - [WE-28] - [FE-19]} + 10.0%{[P-17] - [P-15]}	18.04	3.9	8.7	2.2	3.5	8.8	2.5
Inkster	77.7%{[P-24] + [P-25] - [P-20] - [P-21]} + 0.8%{[P-20] + [P-21] - [P-17] - [WE-25] - [WE-28] - [FE-19]}	17.23	3.5	18.6	5.4	4.0	19.7	4.9
WTUA	[FE-19] + 2.7%{[P-1] - [BG-1]}	21.44	4.7	10.5	2.2	4.6	15.7	3.4

Legend:

xx.x	Exceeds the Maximum Allowable Flow Limit by 0 to 10%
xx.x	Exceeds the Maximum Allowable Flow Limit by more than 10%

Notes:

1. The peaking factor is a ratio of the maximum flow rate observed during the event to the average monthly dry weather flow rate.
2. The maximum allowable flow limits are from the 1988 service agreement adjusted for transfers between communities.

Table 5-2
Rouge Valley Sewage Disposal System
Estimated Maximum Hourly Flow Rates by Community - January through December 2014
Using Incremental Sewage Flow Meter Math

Community	Sewage Flow Meter Math	Maximum Allowable Flow Limit (MGD)	Event 3 5/27-28/2014 1.21 in			Event 4 6/18-19/2014 1.73 in		
			Average Dry Weather Flow Rate for May 2014 (MGD)	Maximum Hourly Flow Rate (MGD)	Peaking Factor	Average Dry Weather Flow Rate for June 2014 (MGD)	Maximum Hourly Flow Rate (MGD)	Peaking Factor
Novi	[BG-1]	13.24	4.9	7.6	1.6	4.9	10.8	2.2
Plymouth City	[P-3] + [P-26] - [P-1] + [C-B-A]	3.10	2.4	5.8	2.4	2.2	5.5	2.4
Northville City	97.3%{[P-1] - [BG-1]} + 0.3%{[FE-22] - [C-B-A]}	4.92	0.7	1.4	2.1	0.7	2.1	3.0
Garden City	99.4%[M-1] + 93.1%[M-2]	15.77	4.7	16.6	3.6	3.9	15.8	4.1
Livonia	[P-7] - [P-26] + [P-12] + 4.4%[P-13] + 51.5%{[P-8] - [FE-22]}	68.84	17.5	36.4	2.1	15.6	35.5	2.3
Westland	48.5%{[P-8] - [FE-22]} + 14.9%{[P-24] + [P-25] - [P-20] - [P-21]} + 29.5%{[P-20] + [P-21] - [P-17] - [WE-25] - [WE-28] - [FE-19]} +0.3%[LV-15] + 0.6%[M-1] + 6.9%[M-2] + 147.7%[WE-14] + 95.7%[WE-25] + [WE-28]	51.73	11.7	24.8	2.1	10.8	25.2	2.3
Redford Twp	0.9%{[WC-S-2] + [WC-S-3] + [P-14] - [P-9] - [P-10] - [P-11] - [P-13]} + 95.6%[P-13]	34.18	9.2	21.5	2.3	6.4	23.2	3.6
Dearborn Heights	99.1%{[WC-S-2] + [WC-S-3] + [P-14] - [P-9] - [P-10] - [P-11] - [P-13]} + 7.5%{[P-24] + [P-25] - [P-20] - [P-21]}	42.31	6.7	41.4	6.2	6.8	43.6	6.4
Van Buren Twp	[P-15]	3.23	0.9	1.2	1.3	0.7	1.8	2.5
Romulus	90.0%{[P-17] - [P-15]}	2.33	0.7	3.2	4.3	0.9	2.9	3.3
Wayne	69.7%{[P-20] + [P-21] - [P-17] - [WE-25] - [WE-28] - [FE-19]} + 10.0%{[P-17] - [P-15]}	18.04	3.5	12.3	3.5	2.9	12.9	4.4
Inkster	77.7%{[P-24] + [P-25] - [P-20] - [P-21]} + 0.8%{[P-20] + [P-21] - [P-17] - [WE-25] - [WE-28] - [FE-19]}	17.23	4.0	24.0	6.0	3.6	22.7	6.3
WTUA	[FE-19] + 2.7%{[P-1] - [BG-1]}	21.44	4.6	14.6	3.1	4.3	16.9	4.0

Legend:

xx.x	Exceeds the Maximum Allowable Flow Limit by 0 to 10%
xx.x	Exceeds the Maximum Allowable Flow Limit by more than 10%

Notes:

1. The peaking factor is a ratio of the maximum flow rate observed during the event to the average monthly dry weather flow rate.
2. The maximum allowable flow limits are from the 1988 service agreement adjusted for transfers between communities.

Table 5-3
Rouge Valley Sewage Disposal System
Estimated Maximum Hourly Flow Rates by Community - January through December 2014
Using Incremental Sewage Flow Meter Math

Community	Sewage Flow Meter Math	Maximum Allowable Flow Limit (MGD)	Event 5 8/11-12/2014 3.91 in			Event 6 9/10-11/2014 1.56 in		
			Average Dry Weather Flow Rate for August 2014 (MGD)	Maximum Hourly Flow Rate (MGD)	Peaking Factor	Average Dry Weather Flow Rate for September 2014 (MGD)	Maximum Hourly Flow Rate (MGD)	Peaking Factor
Novi	[BG-1]	13.24	4.5	13.3	3.0	4.6	9.6	2.1
Plymouth City	[P-3] + [P-26] - [P-1] + [C-B-A]	3.10	2.1	12.8	6.1	2.1	5.9	2.8
Northville City	97.3%{[P-1] - [BG-1]} + 0.3%{[FE-22] - [C-B-A]}	4.92	0.5	1.9	3.9	0.5	1.5	2.9
Garden City	99.4%[M-1] + 93.1%[M-2]	15.77	3.1	51.8	16.5	3.4	30.4	8.9
Livonia	[P-7] - [P-26] + [P-12] + 4.4%[P-13] + 51.5%{[P-8] - [FE-22]}	68.84	12.7	48.7	3.8	14.7	42.9	2.9
Westland	48.5%{[P-8] - [FE-22]} + 14.9%{[P-24] + [P-25] - [P-20] - [P-21]} + 29.5%{[P-20] + [P-21] - [P-17] - [WE-25] - [WE-28] - [FE-19]} +0.3%[LV-15] + 0.6%[M-1] + 6.9%[M-2] + 147.7%[WE-14] + 95.7%[WE-25] + [WE-28]	51.73	9.3	45.5	4.9	10.1	34.2	3.4
Redford Twp	0.9%{[WC-S-2] + [WC-S-3] + [P-14] - [P-9] - [P-10] - [P-11] - [P-13]} + 95.6%[P-13]	34.18	5.0	30.0	5.9	6.6	23.8	3.6
Dearborn Heights	99.1%{[WC-S-2] + [WC-S-3] + [P-14] - [P-9] - [P-10] - [P-11] - [P-13]} + 7.5%{[P-24] + [P-25] - [P-20] - [P-21]}	42.31	6.2	107.6	17.2	6.1	53.6	8.8
Van Buren Twp	[P-15]	3.23	0.7	2.3	3.4	0.7	2.2	3.0
Romulus	90.0%{[P-17] - [P-15]}	2.33	0.5	3.6	6.6	0.7	2.2	3.1
Wayne	69.7%{[P-20] + [P-21] - [P-17] - [WE-25] - [WE-28] - [FE-19]} + 10.0%{[P-17] - [P-15]}	18.04	2.2	18.6	8.5	2.4	15.5	6.5
Inkster	77.7%{[P-24] + [P-25] - [P-20] - [P-21]} + 0.8%{[P-20] + [P-21] - [P-17] - [WE-25] - [WE-28] - [FE-19]}	17.23	2.4	23.3	9.7	3.8	18.5	4.9
WTUA	[FE-19] + 2.7%{[P-1] - [BG-1]}	21.44	2.9	22.1	7.6	3.4	18.5	5.5

Legend:

xx.x	Exceeds the Maximum Allowable Flow Limit by 0 to 10%
xx.x	Exceeds the Maximum Allowable Flow Limit by more than 10%

Notes:

1. The peaking factor is a ratio of the maximum flow rate observed during the event to the average monthly dry weather flow rate.
2. The maximum allowable flow limits are from the 1988 service agreement adjusted for transfers between communities.

Table 5-4
Rouge Valley Sewage Disposal System
Estimated Maximum Hourly Flow Rates by Community - January through December 2014
Using Incremental Sewage Flow Meter Math

Community	Sewage Flow Meter Math	Maximum Allowable Flow Limit (MGD)	Event 7 11/22-24/2014 1.21 in		
			Average Dry Weather Flow Rate for November 2014 (MGD)	Maximum Hourly Flow Rate (MGD)	Peaking Factor
Novi	[BG-1]	13.24	4.5	8.7	1.9
Plymouth City	[P-3] + [P-26] - [P-1] + [C-B-A]	3.10	1.7	2.8	1.7
Northville City	97.3%{[P-1] - [BG-1]} + 0.3%{[FE-22] - [C-B-A]}	4.92	0.4	1.7	3.9
Garden City	99.4%[M-1] + 93.1%[M-2]	15.77	2.8	16.7	6.0
Livonia	[P-7] - [P-26] + [P-12] + 4.4%[P-13] + 51.5%{[P-8] - [FE-22]}	68.84	11.5	29.7	2.6
Westland	48.5%{[P-8] - [FE-22]} + 14.9%{[P-24] + [P-25] - [P-20] - [P-21]} + 29.5%{[P-20] + [P-21] - [P-17] - [WE-25] - [WE-28] - [FE-19]} +0.3%[LV-15] + 0.6%[M-1] + 6.9%[M-2] + 147.7%[WE-14] + 95.7%[WE-25] + [WE-28]	51.73	8.6	18.1	2.1
Redford Twp	0.9%{[WC-S-2] + [WC-S-3] + [P-14] - [P-9] - [P-10] - [P-11] - [P-13]} + 95.6%[P-13]	34.18	5.3	23.3	4.4
Dearborn Heights	99.1%{[WC-S-2] + [WC-S-3] + [P-14] - [P-9] - [P-10] - [P-11] - [P-13]} + 7.5%{[P-24] + [P-25] - [P-20] - [P-21]}	42.31	3.9	26.8	6.9
Van Buren Twp	[P-15]	3.23	0.7	1.3	1.9
Romulus	90.0%{[P-17] - [P-15]}	2.33	0.7	2.6	4.0
Wayne	69.7%{[P-20] + [P-21] - [P-17] - [WE-25] - [WE-28] - [FE-19]} + 10.0%{[P-17] - [P-15]}	18.04	1.8	8.3	4.7
Inkster	77.7%{[P-24] + [P-25] - [P-20] - [P-21]} + 0.8%{[P-20] + [P-21] - [P-17] - [WE-25] - [WE-28] - [FE-19]}	17.23	3.1	20.4	6.7
WTUA	[FE-19] + 2.7%{[P-1] - [BG-1]}	21.44	2.4	10.8	4.5

Legend:

xx.x	Exceeds the Maximum Allowable Flow Limit by 0 to 10%
xx.x	Exceeds the Maximum Allowable Flow Limit by more than 10%

Notes:

1. The peaking factor is a ratio of the maximum flow rate observed during the event to the average monthly dry weather flow rate.
2. The maximum allowable flow limits are from the 1988 service agreement adjusted for transfers between communities.

Section 6

Summary of Rainfall Events

Table 6-1
Rouge Valley Sewage Disposal System
Summary of Rainfall Events

Period: 1/1/2014 through 12/31/2014

Significant Event No.[1]	Start Date/Time	Stop Date/Time	Duration (hours)	Preceeding Week Rainfall (inches)	Rainfall Depth (inches)				Coefficient of Variation[2]
					Minimum	Average	Maximum	Std. Dev	
1	4/29/2014 0:00	4/30/2014 6:00	30	0.20	0.59	1.11	1.56	0.25	22%
2	5/12/2014 6:00	5/15/2014 12:00	78	0.51	0.31	1.83	3.06	0.58	32%
3	5/27/2014 12:00	5/28/2014 18:00	30	0.10	0.24	1.21	2.03	0.48	39%
4	6/18/2014 0:00	6/19/2014 6:00	30	0.51	0.14	1.73	2.63	0.59	34%
5	8/11/2014 6:00	8/13/2014 0:00	42	0.54	1.64	3.91	6.07	1.15	29%
6	9/10/2014 6:00	9/11/2014 0:00	18	0.78	1.32	1.56	1.79	0.14	9%
7	11/23/2014 18:00	11/24/2014 18:00	24	0.17	0.99	1.21	1.54	0.14	11%

Notes:

1. Average rainfall values are the arithmetic mean of the total rainfall at each RVSDS rain gage. Events where the average rainfall depth exceeds 1 inch are considered significant events and are numbered.

2. The coefficient of variation (CV) 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 CV means the storm event's rainfall was evenly distributed over the district, a high CV means the storm event had pockets of intense rainfall within the district.

3. The values presented in Table 6-1 are a summary of RVSDS rain gages. Individual rain gage data are summarized in Tables 8-1 through 8-7.

Section 7

Peak Hydraulic Gradeline Summary

Table 7-1
Rouge Valley Sewage Disposal System
Peak Hydraulic Gradeline Summary

Branch	Meter	Interceptor	Interceptor Height (inches)	Interceptor Rim (feet, NAVD88)	Interceptor Invert (feet, NAVD88)	Event 1 4/29/2014 - 4/30/2014 1.11 in						Event 2 5/12/2014 - 5/15/2014 1.83 in					
						Peak Recorded Hourly Flow Rate (MGD)	Time	Peak Recorded Depth (feet)			Time	Peak Recorded Hourly Flow Rate (MGD)	Time	Peak Recorded Depth (feet)			Time
								Elevation (NAVD88)	Above Invert	--				Elevation (NAVD88)	Above Invert	--	
Middle Rouge	BG-1	HRTS	42	821.59	797.17	7.66	4/29/14 9:25	--	--	--	--	11.31	5/12/14 17:45	--	--	--	--
	P-1	NAI	48	740.82	716.31	8.34	4/29/14 10:20	717.58	1.27	○	4/29/14 10:45	11.23	5/15/14 10:20	717.84	1.53	○	5/15/14 11:15
	P-3	MRIR	36	681.37	652.48	9.01	4/29/14 11:40	653.82	1.34	○	4/29/14 11:40	12.07	5/12/14 19:45	654.11	1.63	○	5/12/14 19:45
	P-26	PWI	30	649.24	647.86	0.47	4/29/14 11:35	648.23	0.37	○	4/29/14 11:55	1.66	5/12/14 20:05	648.44	0.58	○	5/12/14 20:10
	P-7	PWI	48	649.09	625.23	2.32	4/29/14 13:25	626.41	1.18	○	4/29/14 13:55	3.43	5/15/14 13:20	626.60	1.37	○	5/15/14 14:00
	LV-16	CS	48	--	--	3.84	4/29/14 8:35	--	1.11	○	4/29/14 9:00	3.51	5/15/14 7:50	--	1.08	○	5/12/14 17:45
	FE-22	RVI	48	685.04	644.88	12.26	4/29/14 10:20	646.66	1.78	○	4/29/14 10:55	17.78	5/15/14 10:20	646.94	2.06	○	5/15/14 11:05
	A	CS	21	--	--	0.69	4/29/14 8:05	--	0.48	○	4/29/14 9:00	2.29	5/13/14 14:05	--	0.87	○	5/13/14 15:00
	B	CS	36	--	--	1.88	4/29/14 8:05	--	0.64	○	4/29/14 9:00	3.71	5/13/14 14:05	--	0.92	○	5/13/14 15:00
	C	CS	30	--	--	3.92	4/29/14 9:05	--	0.87	○	4/29/14 9:00	12.53	5/13/14 15:05	--	1.22	○	5/13/14 16:00
	P-8	RVI	48	646.54	622.41	13.06	4/29/14 11:00	624.00	1.59	○	4/29/14 11:40	17.43	5/15/14 15:25	624.27	1.86	○	5/15/14 11:30
	WE-14	CS	42	--	--	5.66	4/29/14 9:15	--	1.58	○	4/29/14 9:30	6.42	5/15/14 9:50	--	1.80	○	5/15/14 10:55
	LV-15	CS	60	--	--	2.93	4/29/14 21:05	--	2.78	○	4/29/14 11:00	4.28	5/12/14 17:35	--	3.33	○	5/15/14 13:00
	M-22A	CS	42	--	--	--	--	--	6.14	⊗	4/29/14 22:15	--	--	--	9.12	⊗	5/15/14 17:20
	M-22B	CS	42	--	--	--	--	--	5.76	⊗	4/29/14 11:10	--	--	--	6.35	⊗	5/15/14 13:15
	M-2	CS	27	--	--	6.62	4/29/14 9:35	--	1.65	○	4/29/14 10:00	6.83	5/15/14 10:20	--	1.66	○	5/15/14 10:30
	M-1	CS	72	--	--	9.75	4/29/14 9:20	--	4.68	○	4/29/14 11:00	7.68	5/15/14 7:20	--	8.63	⊗	5/14/14 6:45
	LV-14	CS	60	--	--	4.94	4/29/14 9:35	--	1.22	○	4/29/14 10:00	4.35	5/12/14 18:05	--	1.17	○	5/12/14 18:30
	LV-20	CS	54	--	--	0.11	4/30/14 13:00	--	0.22	○	4/29/14 16:40	0.15	5/14/14 12:00	--	0.42	○	5/14/14 12:05
	LV-BASIN	RVI	54	632.00	602.01	13.31	4/29/14 10:35	605.69	3.68	○	4/29/14 11:15	18.79	5/15/14 13:00	607.13	5.12	◉	5/15/14 12:45
	LV-4	CS	30	--	--	5.36	4/29/14 9:05	--	1.75	○	4/29/14 9:30	6.99	5/15/14 9:35	--	2.19	○	5/15/14 10:00
	LV-11	CS	42	629.53	607.90	4.96	4/29/14 9:35	609.00	1.10	○	4/29/14 10:15	7.03	5/15/14 11:35	609.20	1.30	○	5/15/14 12:15
	P-12	RVI	60	613.41	597.67	17.33	4/29/14 11:35	600.21	2.54	○	4/29/14 12:00	25.10	5/15/14 13:10	600.86	3.19	○	5/15/14 13:15
	P-9	MRIR	42	610.36	597.01	11.70	4/29/14 12:00	599.22	2.21	○	4/29/14 11:55	17.67	5/15/14 11:35	600.12	3.11	○	5/15/14 13:00
	P-10	RVI	66	607.65	595.62	37.31	4/29/14 11:55	598.49	2.87	○	4/29/14 12:35	51.22	5/15/14 13:05	599.31	3.69	○	5/15/14 13:05
	P-11	MRPIE	48	607.91	596.68	19.15	4/29/14 11:35	599.49	2.81	○	4/29/14 11:40	23.44	5/15/14 13:05	600.10	3.42	○	5/15/14 12:40
	P-13	MRPIE	54	613.22	586.85	22.21	4/29/14 11:00	589.70	2.85	○	4/29/14 11:25	23.63	5/12/14 19:25	589.81	2.96	○	5/12/14 19:50
	P-14	RVI	78	604.91	570.93	58.08	4/29/14 11:30	575.01	4.08	○	4/29/14 11:50	68.14	5/15/14 13:50	575.29	4.36	○	5/15/14 13:55
Lower Rouge	P-15	WRVI	24	667.57	651.67	1.47	4/29/14 14:00	652.60	0.93	○	4/29/14 13:00	2.47	5/15/14 11:30	652.97	1.30	○	5/15/14 12:05
	P-17	LRIR	30	641.21	632.39	3.82	4/29/14 9:55	633.48	1.09	○	4/29/14 10:25	4.38	5/14/14 17:15	633.51	1.12	○	5/16/14 10:35
	FE-19	CS	--	--	--	0.00	4/29/14 0:00	--	--	--	--	3.26	5/15/14 11:05	--	--	--	--
	WE-25	CS	27	--	--	3.40	4/29/14 10:20	--	1.08	○	4/29/14 10:45	5.10	5/15/14 11:35	--	1.37	○	5/15/14 11:15
	P-19	RVI	48	630.34	621.54	8.47	4/29/14 9:35	623.15	1.61	○	4/29/14 9:55	12.75	5/15/14 12:30	623.56	2.02	○	5/15/14 13:05
	WE-28	CS	30	--	--	3.14	4/29/14 9:45	--	0.89	○	4/29/14 9:55	3.29	5/15/14 9:50	--	0.90	○	5/15/14 10:15
	P-21	RVI	54	620.17	608.14	13.64	4/29/14 10:10	609.75	1.61	○	4/29/14 10:15	17.61	5/15/14 13:30	609.99	1.85	○	5/15/14 13:10
	P-25	RVI	60	598.36	588.06	28.71	4/30/14 1:45	590.30	2.24	○	4/29/14 12:25	35.66	5/15/14 16:05	590.65	2.59	○	5/15/14 16:20
	P-20	WI	48	630.66	619.72	8.79	4/29/14 9:35	622.21	2.49	○	4/29/14 10:05	7.81	5/13/14 16:25	622.22	2.50	○	5/13/14 16:55
	P-24	RVI	36	594.24	584.52	10.91	4/29/14 10:10	585.97	1.45	○	4/29/14 10:10	10.85	5/13/14 17:50	586.02	1.50	○	5/15/14 16:45
RVSDS Outlet	WC-S-1	RVI	66	586.88	500.94	98.64	4/29/14 16:55	--	--	--	--	109.95	5/15/14 19:35	--	--	--	--
	WC-S-2	MRPIE	66	619.47	564.01	23.42	4/29/14 12:45	--	--	--	--	29.13	5/15/14 13:20	--	--	--	--
	WC-S-3	MRIR	48	599.79	561.87	39.04	4/29/14 12:55	--	--	--	--	41.48	5/15/14 13:15	--	--	--	--

Key	
CS	Community Sewer
HRTS	Huron Rouge Trunk Sewer
LRIR	Lower Rouge Interceptor Relief
NWI	Northwest Interceptor
MRPIE	Middle Rouge Parkway Interceptor Extension
MRIR	Middle Rouge Interceptor Relief
NAI	Northville Arm Interceptor
PWI	Parkway Interceptor
RVI	Rouge Valley Interceptor
WI	Wayne Interceptor
WRVI	Wayne-Romulus-Van Buren Interceptor

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 7-2
Rouge Valley Sewage Disposal System
Peak Hydraulic Gradeline Summary

Branch	Meter	Interceptor	Interceptor Height (inches)	Interceptor Rim (feet, NAVD88)	Interceptor Invert (feet, NAVD88)	Event 3 5/27/2014 - 5/28/2014 1.21 in						Event 4 6/18/2014 - 6/19/2014 1.73 in					
						Peak Recorded Hourly Flow Rate (MGD)	Time	Peak Recorded Depth (feet)			Time	Peak Recorded Hourly Flow Rate (MGD)	Time	Peak Recorded Depth (feet)			Time
								Elevation (NAVD88)	Above Invert	--				Elevation (NAVD88)	Above Invert	--	
Middle Rouge	BG-1	HRTS	42	821.59	797.17	7.62	5/28/14 14:15	--	--	--	--	10.82	6/18/14 7:40	--	--	--	--
	P-1	NAI	48	740.82	716.31	8.74	5/28/14 14:35	717.60	1.29	○	5/28/14 14:45	11.58	6/18/14 8:05	717.87	1.56	○	6/18/14 8:30
	P-3	MRIR	36	681.37	652.48	8.75	5/28/14 15:35	653.77	1.29	○	5/28/14 14:50	11.36	6/18/14 9:25	654.04	1.56	○	6/18/14 9:40
	P-26	PWI	30	649.24	647.86	0.54	5/28/14 16:30	648.27	0.41	○	5/28/14 15:40	1.64	6/18/14 9:25	648.45	0.59	○	6/18/14 9:50
	P-7	PWI	48	649.09	625.23	2.65	5/28/14 17:25	626.48	1.25	○	5/28/14 18:25	3.36	6/18/14 11:05	626.63	1.40	○	6/18/14 11:25
	LV-16	CS	48	--	--	4.00	5/27/14 19:05	--	1.24	○	5/27/14 19:30	4.07	6/18/14 4:50	--	1.21	○	6/18/14 5:15
	FE-22	RVI	48	685.04	644.88	18.61	5/28/14 14:40	646.94	2.06	○	5/28/14 14:40	19.47	6/18/14 8:55	646.98	2.10	○	6/18/14 9:45
	A	CS	21	--	--	1.33	5/28/14 12:05	--	0.81	○	5/28/14 14:00	1.36	6/18/14 7:05	--	0.80	○	6/18/14 7:00
	B	CS	36	--	--	3.29	5/28/14 13:05	--	0.83	○	5/28/14 14:00	2.91	6/18/14 6:05	--	0.80	○	6/18/14 7:00
	C	CS	30	--	--	9.28	5/28/14 13:05	--	1.10	○	5/28/14 14:00	7.07	6/18/14 6:05	--	1.14	○	6/18/14 7:00
	P-8	RVI	48	646.54	622.41	18.08	5/28/14 15:25	624.35	1.94	○	5/28/14 15:35	18.25	6/18/14 9:35	624.36	1.95	○	6/18/14 10:05
	WE-14	CS	42	--	--	7.08	5/28/14 13:35	--	1.90	○	5/27/14 20:35	6.07	6/18/14 23:00	--	1.70	○	6/18/14 23:20
	LV-15	CS	60	--	--	4.73	5/27/14 19:05	--	3.32	○	5/28/14 17:15	4.96	6/18/14 11:50	--	3.83	○	6/18/14 9:45
	M-22A	CS	42	--	--	--	--	--	7.66	⊗	5/29/14 0:15	--	--	--	8.70	⊗	6/18/14 22:45
	M-22B	CS	42	--	--	--	--	--	6.33	⊗	5/28/14 17:15	--	--	--	6.84	⊗	6/18/14 10:00
	M-2	CS	27	--	--	9.00	5/27/14 20:20	--	1.98	○	5/27/14 21:00	7.94	6/18/14 7:20	--	1.86	○	6/18/14 7:30
	M-1	CS	72	--	--	8.92	5/27/14 19:35	--	7.19	⊗	5/27/14 22:00	8.46	6/18/14 7:05	--	8.02	⊗	6/19/14 5:30
	LV-14	CS	60	--	--	5.27	5/28/14 12:50	--	1.24	○	5/28/14 13:15	7.18	6/18/14 7:35	--	1.47	○	6/18/14 8:00
	LV-20	CS	54	--	--	0.10	5/28/14 19:30	--	0.24	○	5/28/14 11:50	0.08	6/18/14 7:00	--	0.22	○	6/20/14 9:20
	LV-BASIN	RVI	54	632.00	602.01	17.47	5/28/14 15:50	606.49	4.48	○	5/28/14 16:00	17.55	6/18/14 9:05	606.62	4.61	◉	6/18/14 10:00
	LV-4	CS	30	--	--	6.34	5/28/14 13:35	--	1.98	○	5/28/14 14:15	5.91	6/18/14 6:50	--	2.11	○	6/18/14 7:30
	LV-11	CS	42	629.53	607.90	6.07	5/28/14 14:35	609.11	1.21	○	5/28/14 15:00	5.81	6/18/14 7:35	609.09	1.19	○	6/18/14 8:00
	P-12	RVI	60	613.41	597.67	23.20	5/28/14 16:20	600.60	2.93	○	5/28/14 16:40	23.59	6/18/14 10:20	600.54	2.87	○	6/18/14 10:20
	P-9	MRIR	42	610.36	597.01	15.93	5/28/14 16:30	599.81	2.80	○	5/28/14 16:55	14.88	6/18/14 10:35	599.72	2.71	○	6/18/14 10:30
	P-10	RVI	66	607.65	595.62	46.39	5/28/14 16:45	599.06	3.44	○	5/28/14 17:10	44.99	6/19/14 0:30	598.99	3.37	○	6/19/14 0:55
	P-11	MRPIE	48	607.91	596.68	22.53	5/28/14 16:45	599.93	3.25	○	5/28/14 16:55	22.79	6/18/14 23:50	600.04	3.36	○	6/19/14 1:00
	P-13	MRPIE	54	613.22	586.85	22.51	5/28/14 14:25	589.81	2.96	○	5/28/14 15:15	24.15	6/18/14 8:35	590.09	3.24	○	6/18/14 9:05
	P-14	RVI	78	604.91	570.93	65.12	5/28/14 19:40	575.77	4.84	○	5/28/14 16:45	62.42	6/18/14 19:05	579.31	8.38	◉	6/19/14 4:40
Lower Rouge	P-15	WRVI	24	667.57	651.67	1.22	5/28/14 21:40	652.51	0.84	○	5/28/14 22:10	1.78	6/18/14 20:40	652.72	1.05	○	6/18/14 20:40
	P-17	LRIR	30	641.21	632.39	4.63	5/27/14 23:10	633.61	1.22	○	5/27/14 23:20	4.61	6/18/14 9:35	633.55	1.16	○	6/18/14 10:25
	FE-19	CS	--	--	--	0.04	5/28/14 2:05	--	--	--	--	0.00	6/18/14 0:00	--	--	--	--
	WE-25	CS	27	--	--	5.09	5/28/14 1:50	--	1.37	○	5/28/14 1:30	5.32	6/18/14 8:40	--	1.42	○	6/18/14 8:45
	P-19	RVI	48	630.34	621.54	14.18	5/28/14 0:05	623.84	2.30	○	5/28/14 0:30	14.64	6/18/14 7:05	622.47	0.93	○	6/18/14 0:00
	WE-28	CS	30	--	--	4.70	5/28/14 0:30	--	1.11	○	5/28/14 0:30	5.22	6/18/14 7:45	--	1.20	○	6/18/14 8:15
	P-21	RVI	54	620.17	608.14	21.04	5/28/14 0:35	610.31	2.17	○	5/28/14 0:55	21.68	6/18/14 7:35	610.22	2.08	○	6/18/14 7:55
	P-25	RVI	60	598.36	588.06	41.71	5/28/14 1:50	590.87	2.81	○	5/28/14 1:55	39.39	6/19/14 9:25	590.63	2.57	○	6/18/14 23:35
	P-20	WI	48	630.66	619.72	8.93	5/28/14 0:00	622.50	2.78	○	5/28/14 0:20	9.64	6/18/14 6:30	622.71	2.99	○	6/18/14 5:25
	P-24	RVI	36	594.24	584.52	12.33	5/28/14 1:25	586.47	1.95	○	5/28/14 2:20	12.56	6/18/14 8:20	586.15	1.63	○	6/18/14 9:05
RVSDS Outlet	WC-S-1	RVI	66	586.88	500.94	107.55	5/28/14 19:15	--	--	--	--	108.59	6/19/14 9:40	--	--	--	--
	WC-S-2	MRPIE	66	619.47	564.01	23.76	5/28/14 16:55	--	--	--	--	35.97	6/19/14 1:45	--	--	--	--
	WC-S-3	MRIR	48	599.79	561.87	39.39	5/28/14 18:00	--	--	--	--	43.12	6/19/14 1:50	--	--	--	--

Key	
CS	Community Sewer
HRTS	Huron Rouge Trunk Sewer
LRIR	Lower Rouge Interceptor Relief
NWI	Northwest Interceptor
MRPIE	Middle Rouge Parkway Interceptor Extension
MRIR	Middle Rouge Interceptor Relief
NAI	Northville Arm Interceptor
PWI	Parkway Interceptor
RVI	Rouge Valley Interceptor
WI	Wayne Interceptor
WRVI	Wayne-Romulus-Van Buren Interceptor

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 7-3
Rouge Valley Sewage Disposal System
Peak Hydraulic Gradeline Summary

Branch	Meter	Interceptor	Interceptor Height (inches)	Interceptor Rim (feet, NAVD88)	Interceptor Invert (feet, NAVD88)	Event 5 8/11-12/2014 3.91 in						Event 6 9/10-11/2014 1.56 in					
						Peak Recorded Hourly Flow Rate (MGD)	Time	Peak Recorded Depth (feet)			Time	Peak Recorded Hourly Flow Rate (MGD)	Time	Peak Recorded Depth (feet)			Time
								Elevation (NAVD88)	Above Invert	--				Elevation (NAVD88)	Above Invert	--	
Middle Rouge	BG-1	HRTS	42	821.59	797.17	13.29	8/11/14 17:40	--	--	--	--	9.60	9/10/14 15:20	--	--	--	--
	P-1	NAI	48	740.82	716.31	13.07	8/11/14 18:10	718.07	1.76	○	8/11/14 18:30	10.13	9/10/14 15:50	717.74	1.43	○	9/10/14 16:00
	P-3	MRIR	36	681.37	652.48	13.99	8/11/14 19:20	654.31	1.83	○	8/11/14 20:00	9.98	9/10/14 16:45	653.91	1.43	○	9/10/14 17:10
	P-26	PWI	30	649.24	647.86	2.68	8/11/14 19:35	648.61	0.75	○	8/11/14 20:05	1.20	9/10/14 16:50	648.38	0.52	○	9/10/14 17:25
	P-7	PWI	48	649.09	625.23	5.21	8/11/14 17:40	629.39	4.16	⦿	8/11/14 21:15	3.19	9/10/14 18:40	626.56	1.33	○	9/10/14 18:40
	LV-16	CS	48	--	--	7.96	8/11/14 17:55	--	3.41	○	8/11/14 18:00	5.12	9/10/14 15:05	--	1.38	○	9/10/14 16:00
	FE-22	RVI	48	685.04	644.88	22.23	8/11/14 21:00	647.19	2.31	○	8/11/14 18:05	20.35	9/10/14 16:00	647.02	2.14	○	9/10/14 16:30
	A	CS	21	--	--	1.49	8/11/14 16:32	--	0.68	○	8/11/14 17:00	1.13	9/10/14 13:05	--	0.61	○	9/10/14 15:00
	B	CS	36	--	--	4.02	8/11/14 16:32	--	0.91	○	8/11/14 17:00	2.78	9/10/14 14:05	--	0.76	○	9/10/14 15:00
	C	CS	30	--	--	13.68	8/11/14 16:32	--	1.53	○	8/11/14 17:00	8.41	9/10/14 14:05	--	1.07	○	9/10/14 15:00
	P-8	RVI	48	646.54	622.41	22.53	8/11/14 20:00	630.29	7.88	⦿	8/11/14 21:07	19.15	9/10/14 17:05	624.45	2.04	○	9/10/14 17:05
	WE-14	CS	42	--	--	9.40	8/11/14 17:10	--	8.88	⊗	8/11/14 20:00	9.99	9/10/14 15:55	--	3.78	⊗	9/10/14 18:55
	LV-15	CS	60	--	--	7.87	8/11/14 15:25	--	7.61	⊗	8/11/14 20:00	5.74	9/10/14 16:05	--	4.53	○	9/10/14 19:30
	M-22A	CS	42	--	--	--	--	--	≥ 8.62	⊘	8/11/2014 17:50 - 8/12/2014 05:50	--	--	--	8.22	⊗	9/11/14 3:05
	M-22B	CS	42	--	--	--	--	--	≥ 8.70	⊘	8/11/2014 18:00 - 8/12/2014 18:25	--	--	--	7.49	⊗	9/10/14 20:05
	M-2	CS	27	--	--	14.24	8/12/14 18:25	--	11.40	⊗	8/11/14 19:45	11.20	9/10/14 15:35	--	4.11	⊗	9/10/14 19:15
	M-1	CS	72	--	--	40.20	8/11/14 17:55	--	11.57	⊗	8/11/14 18:15	20.13	9/10/14 15:20	--	8.36	⊗	9/10/14 15:45
	LV-14	CS	60	--	--	9.26	8/11/14 18:25	--	5.94	⊗	8/12/14 6:30	8.92	9/10/14 15:20	--	2.96	○	9/10/14 19:30
	LV-20	CS	54	--	--	0.16	8/11/14 18:10	--	0.27	○	8/11/14 7:55	0.09	9/10/14 15:20	--	0.25	○	9/11/14 9:55
	LV-BASIN	RVI	54	632.00	602.01	17.97	8/12/14 5:00	614.85	12.84	⦿	8/12/14 0:00	18.32	9/10/14 21:00	610.36	8.35	⦿	9/10/14 19:00
	LV-4	CS	30	--	--	7.09	8/11/14 20:10	--	4.96	⊗	8/11/14 18:15	5.75	9/10/14 15:05	--	2.22	○	9/10/14 16:00
	LV-11	CS	42	629.53	607.90	17.41	8/11/14 19:25	617.17	9.27	⦿	8/11/14 23:15	11.44	9/10/14 15:50	611.58	3.68	⦿	9/10/14 18:45
	P-12	RVI	60	613.41	597.67	25.35	8/11/14 21:40	610.60	12.93	⦿	8/11/14 19:15	26.03	9/10/14 19:50	605.55	7.88	⦿	9/10/14 19:05
	P-9	MRIR	42	610.36	597.01	17.32	8/11/14 18:25	≥ 608.62	≥ 11.61	⊘	8/11/2014 18:15 - 8/12/2014 02:25	17.67	9/10/14 16:40	604.82	7.81	⦿	9/10/14 19:05
	P-10	RVI	66	607.65	595.62	57.58	8/12/14 0:10	≥ 605.43	≥ 9.81	⊘	8/11/2014 18:05 - 8/13/2014 01:35	60.01	9/10/14 20:35	604.16	8.54	⦿	9/10/14 19:10
	P-11	MRPIE	48	607.91	596.68	23.46	8/11/14 16:25	≥ 604.99	≥ 8.31	⊘	8/11/2014 18:00 - 8/13/2014 02:10	24.59	9/10/14 16:10	604.28	7.60	⦿	9/10/14 19:10
	P-13	MRPIE	54	613.22	586.85	31.05	8/11/14 17:40	600.79	13.94	⦿	8/11/14 18:10	25.07	9/10/14 14:55	594.99	8.14	⦿	9/10/14 18:50
	P-14	RVI	78	604.91	570.93	68.01	8/13/14 0:35	586.92	15.99	⦿	8/11/14 23:25	55.74	9/10/14 18:50	583.71	12.78	⦿	9/10/14 18:55
Lower Rouge	P-15	WRVI	24	667.57	651.67	2.27	8/11/14 18:25	653.06	1.39	○	8/11/14 18:55	2.24	9/10/14 16:20	653.01	1.34	○	9/10/14 16:40
	P-17	LRIR	30	641.21	632.39	5.81	8/11/14 19:00	633.72	1.33	○	8/11/14 18:27	4.08	9/10/14 16:05	633.62	1.23	○	9/10/14 16:45
	FE-19	CS	--	--	--	4.37	8/11/14 20:32	--	--	--	--	3.06	9/10/14 17:05	--	--	--	--
	WE-25	CS	27	--	--	8.06	8/11/14 18:45	--	3.45	⊗	8/11/14 19:15	5.33	9/10/14 15:55	--	1.46	○	9/10/14 17:00
	P-19	RVI	48	630.34	621.54	30.35	8/11/14 19:05	≥ 625.54	≥ 4.00	⊘	8/11/2014 18:30 - 8/11/2014 23:50	16.14	9/10/14 16:30	625.43	3.89	○	9/10/14 0:00
	WE-28	CS	30	--	--	8.72	8/11/14 18:40	--	1.67	○	8/11/14 19:02	7.13	9/10/14 15:40	--	1.40	○	9/10/14 16:10
	P-21	RVI	54	620.17	608.14	41.81	8/11/14 19:25	617.32	9.18	⦿	8/11/14 22:45	27.99	9/10/14 15:30	610.60	2.46	○	9/10/14 15:55
	P-25	RVI	60	598.36	588.06	40.63	8/11/14 19:45	600.34	12.28	●	8/11/14 21:10	34.72	9/10/14 16:35	591.67	3.61	○	9/10/14 18:50
	P-20	WI	48	630.66	619.72	9.64	8/11/14 15:25	627.60	7.88	⦿	8/11/14 18:30	9.69	9/10/14 14:35	622.84	3.12	○	9/10/14 15:40
	P-24	RVI	36	594.24	584.52	17.58	8/11/14 16:25	591.29	6.77	⦿	8/12/14 17:20	16.39	9/10/14 18:30	589.84	5.32	⦿	9/10/14 18:40
RVSDS Outlet	WC-S-1	RVI	66	586.88	500.94	107.02	8/12/14 6:55	--	--	--	--	97.71	9/10/14 17:45	--	--	--	--
	WC-S-2	MRPIE	66	619.47	564.01	71.03	8/12/14 10:05	--	--	--	--	63.23	9/10/14 20:00	--	--	--	--
	WC-S-3	MRIR	48	599.79	561.87	63.33	8/12/14 14:40	--	--	--	--	57.27	9/10/14 20:05	--	--	--	--

Key	
CS	Community Sewer
HRTS	Huron Rouge Trunk Sewer
LRIR	Lower Rouge Interceptor Relief
NWI	Northwest Interceptor
MRPIE	Middle Rouge Parkway Interceptor Extension
MRIR	Middle Rouge Interceptor Relief
NAI	Northville Arm Interceptor
PWI	Parkway Interceptor
RVI	Rouge Valley Interceptor
WI	Wayne Interceptor
WRVI	Wayne-Romulus-Van Buren Interceptor

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 7-4
Rouge Valley Sewage Disposal System
Peak Hydraulic Gradeline Summary

Branch	Meter	Interceptor	Interceptor Height (inches)	Interceptor Rim (feet, NAVD88)	Interceptor Invert (feet, NAVD88)	Event 7 11/22-24/2014 1.21 in					
						Peak Recorded Hourly Flow Rate (MGD)	Time	Peak Recorded Depth (feet)			Time
								Elevation (NAVD88)	Above Invert	--	
Middle Rouge	BG-1	HRTS	42	821.59	797.17	8.74	11/24/14 1:05	--	--	--	--
	P-1	NAI	48	740.82	716.31	9.29	11/24/14 1:50	717.68	1.37	○	11/24/14 2:45
	P-3	MRIR	36	681.37	652.48	8.67	11/24/14 2:35	653.78	1.30	○	11/24/14 3:15
	P-26	PWI	30	649.24	647.86	0.89	11/24/14 2:45	648.29	0.43	○	11/24/14 3:05
	P-7	PWI	48	649.09	625.23	2.16	11/24/14 4:45	626.39	1.16	○	11/24/14 5:10
	LV-16	CS	48	--	--	3.21	11/24/14 1:50	--	0.97	○	11/24/14 2:15
	FE-22	RVI	48	685.04	644.88	12.13	11/24/14 1:30	646.64	1.76	○	11/24/14 1:40
	A	CS	21	--	--	0.76	11/23/14 23:05	--	0.52	○	11/24/14 1:00
	B	CS	36	--	--	2.28	11/24/14 0:05	--	0.68	○	11/24/14 1:00
	C	CS	30	--	--	4.91	11/24/14 0:05	--	0.81	○	11/24/14 2:00
	P-8	RVI	48	646.54	622.41	12.21	11/24/14 2:25	623.93	1.52	○	11/24/14 2:35
	WE-14	CS	42	--	--	5.11	11/24/14 0:30	--	1.52	○	11/24/14 1:05
	LV-15	CS	60	--	--	3.28	11/23/14 23:35	--	3.26	○	11/24/14 5:30
	M-22A	CS	42	--	--	--	--	--	7.90	⊗	11/24/14 15:15
	M-22B	CS	42	--	--	--	--	--	6.24	⊗	11/24/14 5:15
	M-2	CS	27	--	--	7.66	11/24/14 0:50	--	1.89	○	11/24/14 1:30
	M-1	CS	72	--	--	9.76	11/24/14 0:05	--	5.32	○	11/24/14 2:30
	LV-14	CS	60	--	--	4.38	11/24/14 1:20	--	1.17	○	11/24/14 1:45
	LV-20	CS	54	--	--	0.13	11/23/14 12:40	--	0.40	○	11/24/14 12:05
	LV-BASIN	RVI	54	632.00	602.01	12.54	11/24/14 2:10	605.60	3.59	○	11/24/14 2:15
	LV-4	CS	30	--	--	5.02	11/24/14 0:35	--	1.71	○	11/24/14 1:00
	LV-11	CS	42	629.53	607.90	5.13	11/24/14 1:20	609.01	1.11	○	11/24/14 1:15
	P-12	RVI	60	613.41	597.67	17.76	11/24/14 3:25	600.24	2.57	○	11/24/14 3:25
	P-9	MRIR	42	610.36	597.01	12.37	11/24/14 3:00	599.34	2.33	○	11/24/14 4:20
	P-10	RVI	66	607.65	595.62	39.26	11/24/14 4:05	598.70	3.08	○	11/24/14 4:45
	P-11	MRPIE	48	607.91	596.68	20.89	11/24/14 2:00	599.77	3.09	○	11/24/14 2:10
	P-13	MRPIE	54	613.22	586.85	24.28	11/24/14 2:00	590.09	3.24	○	11/24/14 2:35
	P-14	RVI	78	604.91	570.93	41.77	11/24/14 7:20	579.30	8.37	◉	11/24/14 2:45
Lower Rouge	P-15	WRVI	24	667.57	651.67	1.33	11/24/14 8:40	652.61	0.94	○	11/24/14 8:05
	P-17	LRIR	30	641.21	632.39	4.13	11/24/14 10:50	633.44	1.05	○	11/24/14 11:10
	FE-19	CS	--	--	--	0.00	11/22/14 0:00	--	--	--	--
	WE-25	CS	27	--	--	3.21	11/24/14 1:45	--	1.06	○	11/24/14 2:05
	P-19	RVI	48	630.34	621.54	8.45	11/24/14 11:40	623.17	1.63	○	11/24/14 11:50
	WE-28	CS	30	--	--	3.01	11/24/14 1:20	--	0.86	○	11/24/14 1:35
	P-21	RVI	54	620.17	608.14	12.77	11/24/14 1:45	609.72	1.58	○	11/24/14 2:10
	P-25	RVI	60	598.36	588.06	32.72	11/24/14 13:20	590.34	2.28	○	11/24/14 13:20
	P-20	WI	48	630.66	619.72	7.76	11/24/14 0:50	622.25	2.53	○	11/24/14 1:30
	P-24	RVI	36	594.24	584.52	11.48	11/24/14 1:40	585.99	1.47	○	11/24/14 1:20
RVSDS Outlet	WC-S-1	RVI	66	586.88	500.94	79.76	11/24/14 1:35	--	--	--	--
	WC-S-2	MRPIE	66	619.47	564.01	38.98	11/24/14 3:00	--	--	--	--
	WC-S-3	MRIR	48	599.79	561.87	39.65	11/24/14 5:55	--	--	--	--

Key	
CS	Community Sewer
HRTS	Huron Rouge Trunk Sewer
LRIR	Lower Rouge Interceptor Relief
NWI	Northwest Interceptor
MRPIE	Middle Rouge Parkway Interceptor Extension
MRIR	Middle Rouge Interceptor Relief
NAI	Northville Arm Interceptor
PWI	Parkway Interceptor
RVI	Rouge Valley Interceptor
WI	Wayne Interceptor
WRVI	Wayne-Romulus-Van Buren Interceptor

Section 8

Rainfall Event Summary Tables

Table 8-1
Rouge Valley Sewage Disposal System
Rainfall Event Summary Table

Start Date/Time: 4/29/2014 0:00

Stop Date/Time: 4/30/2014 6:00

Gage ID	Peak Hour (in)	Peak 3 Hour (in)	Peak 6 Hour (in)	Peak 12 Hour (in)	Peak 24 Hour (in)	Event Total (in)
R10	0.25	0.43	0.52	0.71	0.96	0.97
R11	0.25	0.54	0.59	0.76	0.98	0.98
R12	0.36	0.50	0.56	0.79	1.21	1.23
R13	-	-	-	-	-	-
R14	0.20	0.42	0.45	0.70	0.95	0.95
R15	0.49	0.53	0.67	0.89	1.24	1.25
R18	0.15	0.29	0.33	0.52	0.79	0.80
R27	0.48	0.59	0.69	0.95	1.31	1.32
R28	0.44	0.57	0.69	0.87	1.28	1.28
R29	0.50	0.61	0.69	0.88	1.26	1.26
PG007	0.39	0.59	0.85	1.08	1.35	1.36
PG009	0.52	0.62	0.86	1.02	1.34	1.34
PG010	0.31	0.46	0.67	0.85	1.10	1.12
PG012	0.44	0.65	0.86	1.05	1.56	1.56
PG013	0.60	0.68	0.90	1.04	1.29	1.29
PG030	0.33	0.60	0.82	1.00	1.52	1.52
PG032	0.36	0.56	0.66	0.72	1.26	1.26
PG033	0.46	0.55	0.61	0.80	1.20	1.20
PG034	0.32	0.44	0.61	0.85	1.32	1.35
PG035	-	-	-	-	-	-
PG036	-	-	-	-	-	-
PG037	-	-	-	-	-	-
WTUA LR	0.14	0.29	0.32	0.53	0.77	0.78
WTUA MR	0.17	0.32	0.35	0.54	0.75	0.75
0831	0.42	0.50	0.61	0.82	1.19	1.19
0837	0.48	0.55	0.61	0.84	1.11	1.11
0843	0.26	0.33	0.33	0.36	0.57	0.59
0850	0.27	0.52	0.62	0.78	0.97	0.98
Garden City-RG1	0.36	0.50	0.57	0.76	1.10	1.10
Livonia-RG1	0.35	0.42	0.44	0.47	0.71	0.71
Livonia-RG2	0.28	0.40	0.44	0.65	0.87	0.87
DTW	-	-	-	-	-	1.10

Minimum (in):	**0.59**
Average (in):	**1.11**
Maximum (in):	**1.56**
Standard Deviation (in):	**0.25**
Coefficient of Variation:	**22%**

\- Missing or suspect data (not used).

Table 8-2
Rouge Valley Sewage Disposal System
Rainfall Event Summary Table

Start Date/Time: 5/12/2014 6:00

Stop Date/Time: 5/15/2014 12:00

Gage ID	Peak Hour (in)	Peak 3 Hour (in)	Peak 6 Hour (in)	Peak 12 Hour (in)	Peak 24 Hour (in)	Event Total (in)
R10	1.06	1.11	1.17	1.21	1.43	2.54
R11	1.05	1.08	1.09	1.21	1.99	3.06
R12	0.26	0.38	0.39	0.48	0.64	1.50
R13	-	-	-	-	-	-
R14	0.20	0.48	0.52	0.66	0.71	1.72
R15	0.32	0.67	0.73	0.89	0.91	1.76
R18	0.40	0.55	0.58	0.62	0.77	1.66
R27	0.51	0.56	0.58	0.71	0.99	1.95
R28	0.42	0.46	0.48	0.53	0.71	1.66
R29	0.33	0.50	0.66	0.85	0.85	1.85
PG007	0.32	0.38	0.54	0.62	0.62	1.37
PG009	0.24	0.30	0.38	0.54	0.55	1.41
PG010	-	-	-	-	-	-
PG012	0.47	0.49	0.53	0.72	0.83	1.72
PG013	0.24	0.28	0.30	0.41	0.56	1.20
PG030	0.36	0.41	0.56	0.72	0.72	1.66
PG032	0.66	0.68	0.71	0.77	1.01	1.72
PG033	0.80	0.87	0.90	1.00	1.16	1.93
PG034	-	-	-	-	-	-
PG035	-	-	-	-	-	-
PG036	-	-	-	-	-	-
PG037	-	-	-	-	-	-
WTUA LR	0.42	0.47	0.49	0.55	0.75	1.75
WTUA MR	0.47	0.53	0.56	0.69	0.80	1.69
0831	0.02	0.06	0.10	0.19	0.22	0.31
0837	0.26	0.33	0.34	0.51	0.62	1.44
0843	0.59	0.84	0.89	1.22	1.45	2.62
0850	0.87	1.14	1.32	1.76	1.77	2.61
Garden City-RG1	0.36	0.40	0.41	0.45	0.64	1.44
Livonia-RG1	0.72	0.80	0.83	0.94	0.98	1.81
Livonia-RG2	0.94	1.00	1.01	1.10	1.77	2.89
DTW	-	-	-	-	-	2.34

Minimum (in):	**0.31**
Average (in):	**1.83**
Maximum (in):	**3.06**
Standard Deviation (in):	**0.58**
Coefficient of Variation:	**32%**

\- Missing or suspect data (not used).

Table 8-3
Rouge Valley Sewage Disposal System
Rainfall Event Summary Table

Start Date/Time: 5/27/2014 12:00

Stop Date/Time: 5/28/2014 18:00

Gage ID	Peak Hour (in)	Peak 3 Hour (in)	Peak 6 Hour (in)	Peak 12 Hour (in)	Peak 24 Hour (in)	Event Total (in)
R10	0.40	0.42	0.63	1.01	1.07	1.07
R11	0.32	0.44	0.46	0.52	0.91	0.97
R12	0.77	0.86	1.02	1.03	1.50	1.50
R13	-	-	-	-	-	-
R14	0.49	0.49	0.49	0.66	0.71	0.71
R15	0.55	1.09	1.27	1.27	1.53	1.53
R18	0.08	0.09	0.14	0.15	0.24	0.24
R27	0.74	1.12	1.47	1.73	2.01	2.03
R28	0.44	0.60	0.60	0.61	1.20	1.20
R29	0.40	0.61	0.73	0.90	1.16	1.52
PG007	0.26	0.42	0.49	0.34	0.73	0.83
PG009	0.31	0.66	0.74	0.84	1.15	1.57
PG010	0.15	0.16	0.26	0.28	0.29	0.29
PG012	0.32	0.46	0.63	0.63	1.00	1.19
PG013	0.44	0.70	0.90	0.90	1.33	1.49
PG030	0.42	0.75	0.84	0.84	0.94	0.94
PG032	0.37	0.65	0.88	0.88	1.20	1.23
PG033	0.44	0.64	0.83	0.83	1.23	1.24
PG034	-	-	-	-	-	-
PG035	-	-	-	-	-	-
PG036	-	-	-	-	-	-
PG037	-	-	-	-	-	-
WTUA LR	0.55	0.60	0.71	0.72	1.01	1.01
WTUA MR	0.76	1.07	1.16	1.19	1.91	1.91
0831	0.94	1.07	1.39	1.59	1.60	1.60
0837	0.16	0.18	0.18	0.18	0.36	0.36
0843	0.33	0.78	0.91	0.91	1.05	1.05
0850	0.31	0.37	0.37	0.38	0.74	0.74
Garden City-RG1	0.63	1.10	1.23	1.24	1.77	1.77
Livonia-RG1	0.43	0.69	0.78	0.78	1.38	1.39
Livonia-RG2	0.36	0.75	0.90	0.90	1.55	1.57
DTW	-	-	-	-	-	1.75
					Minimum (in):	**0.24**
-	Missing or suspect data (not used).				**Average (in):**	**1.21**
					Maximum (in):	**2.03**
					Standard Deviation (in):	**0.48**
					Coefficient of Variation:	**39%**

Table 8-4
Rouge Valley Sewage Disposal System
Rainfall Event Summary Table

Start Date/Time: 6/18/2014 0:00

Stop Date/Time: 6/19/2014 6:00

Gage ID	Peak Hour (in)	Peak 3 Hour (in)	Peak 6 Hour (in)	Peak 12 Hour (in)	Peak 24 Hour (in)	Event Total (in)
R10	0.02	0.04	0.07	0.11	0.14	0.14
R11	0.62	1.07	1.23	1.39	1.78	1.78
R12	0.44	0.99	1.12	1.34	1.88	1.88
R13	-	-	-	-	-	-
R14	0.42	0.52	0.57	0.94	1.51	1.52
R15	0.70	1.32	1.68	1.68	2.51	2.54
R18	0.48	0.54	0.57	0.97	1.19	1.20
R27	0.60	1.19	1.60	1.60	2.37	2.37
R28	0.64	1.25	1.33	1.73	2.24	2.24
R29	0.80	1.63	2.06	2.06	2.63	2.63
PG007	0.47	0.66	0.76	0.76	1.27	1.27
PG009	0.42	0.83	1.11	1.25	1.75	1.75
PG010	-	-	-	-	-	-
PG012	0.45	0.95	1.07	1.42	1.77	1.77
PG013	0.46	0.80	1.02	1.07	1.48	1.48
PG030	0.49	0.99	1.03	1.04	1.73	1.75
PG032	0.32	0.65	0.83	0.83	1.26	1.26
PG033	0.56	1.19	1.36	1.60	1.97	1.97
PG034	0.25	0.54	0.73	0.94	1.14	1.16
PG035	-	-	-	-	-	-
PG036	-	-	-	-	-	-
PG037	-	-	-	-	-	-
WTUA LR	0.67	1.36	1.77	1.77	2.51	2.51
WTUA MR	0.46	1.13	1.36	1.43	1.96	1.96
0831	0.86	1.32	1.51	1.76	2.15	2.16
0837	0.22	0.42	0.42	0.42	0.42	0.42
0843	0.21	0.52	0.91	1.15	1.70	1.70
0850	-	-	-	-	-	-
Garden City-RG1	0.37	0.86	1.03	1.05	1.66	1.67
Livonia-RG1	0.46	0.94	1.14	1.35	1.76	1.76
Livonia-RG2	0.65	1.13	1.48	1.48	1.99	1.99
DTW	-	-	-	-	-	2.02
					Minimum (in):	**0.14**
-	Missing or suspect data (not used).				**Average (in):**	**1.73**
					Maximum (in):	**2.63**
					Standard Deviation (in):	**0.59**
					Coefficient of Variation:	**34%**

Table 8-5
Rouge Valley Sewage Disposal System
Rainfall Event Summary Table

Start Date/Time: 8/11/2014 6:00

Stop Date/Time: 8/13/2014 0:00

Gage ID	Peak Hour (in)	Peak 3 Hour (in)	Peak 6 Hour (in)	Peak 12 Hour (in)	Peak 24 Hour (in)	Event Total (in)
R10	1.42	2.31	3.61	4.03	4.04	4.26
R11	1.68	2.25	2.62	2.89	2.89	3.09
R12	1.07	2.58	3.46	3.94	3.94	4.74
R13	-	-	-	-	-	-
R14	0.60	1.15	1.55	1.80	1.80	2.52
R15	2.09	2.88	3.96	4.62	4.62	4.73
R18	0.71	1.24	1.61	1.97	1.97	2.20
R27	2.43	3.92	5.26	5.78	5.79	6.07
R28	2.09	3.73	4.52	5.13	5.13	6.05
R29	0.84	2.30	2.87	3.32	3.32	3.53
PG007	1.13	1.83	2.30	2.66	2.74	2.94
PG009	1.53	3.08	4.06	4.45	4.54	5.25
PG010	1.12	2.13	2.82	3.38	3.39	3.46
PG012	1.97	3.59	4.02	4.53	4.53	4.99
PG013	-	-	-	-	-	-
PG030	1.95	3.71	4.25	4.87	4.87	5.12
PG032	0.64	1.65	2.42	2.78	2.78	3.12
PG033	0.74	2.10	2.93	3.38	3.38	3.58
PG034	1.90	3.71	4.30	4.90	4.90	4.90
PG035	1.29	2.33	2.75	3.13	3.13	3.57
PG036	0.93	1.68	1.95	2.17	2.17	2.47
PG037	1.59	3.21	3.59	4.24	4.24	4.56
WTUA LR	0.74	1.52	2.18	2.52	2.52	2.94
WTUA MR	2.41	3.46	4.00	4.24	4.24	4.35
0831	1.38	2.51	2.93	3.31	3.31	3.79
0837	-	-	-	-	-	-
0843	1.54	1.97	2.41	2.71	2.87	3.11
0850	0.24	0.52	0.95	1.17	1.17	1.64
Garden City-RG1	1.65	2.89	3.49	3.91	3.94	5.11
Livonia-RG1	0.61	1.74	2.35	2.73	2.73	2.80
Livonia-RG2	1.96	2.74	3.09	3.40	3.40	3.66
DTW	-	-	-	-	-	4.85
					Minimum (in):	**1.64**
-	Missing or suspect data (not used).				**Average (in):**	**3.91**
					Maximum (in):	**6.07**
					Standard Deviation (in):	**1.15**
					Coefficient of Variation:	**29%**

Table 8-6
Rouge Valley Sewage Disposal System
Rainfall Event Summary Table

Start Date/Time: 9/10/2014 6:00

Stop Date/Time: 9/11/2014 0:00

Gage ID	Peak Hour (in)	Peak 3 Hour (in)	Peak 6 Hour (in)	Peak 12 Hour (in)	Peak 24 Hour (in)	Event Total (in)
R10	0.44	1.08	1.49	1.54	1.54	1.54
R11	0.39	1.02	1.34	1.36	1.36	1.36
R12	0.49	1.08	1.60	1.60	1.60	1.60
R13	0.51	1.31	1.66	1.66	1.66	1.66
R14	0.68	1.34	1.68	1.79	1.79	1.79
R15	0.54	1.17	1.62	1.74	1.77	1.77
R18	0.48	1.27	1.75	1.77	1.77	1.77
R27	0.50	1.33	1.70	1.70	1.70	1.70
R28	0.53	1.39	1.71	1.71	1.71	1.71
R29	0.40	1.01	1.46	1.57	1.57	1.57
PG007	-	-	-	-	-	-
PG009	-	-	-	-	-	-
PG010	-	-	-	-	-	-
PG012	-	-	-	-	-	-
PG013	-	-	-	-	-	-
PG030	-	-	-	-	-	-
PG032	-	-	-	-	-	-
PG033	-	-	-	-	-	-
PG034	-	-	-	-	-	-
PG035	-	-	-	-	-	-
PG036	-	-	-	-	-	-
PG037	-	-	-	-	-	-
WTUA LR	0.49	1.13	1.51	1.51	1.51	1.51
WTUA MR	0.51	1.13	1.56	1.56	1.56	1.56
0831	0.35	0.95	1.44	1.44	1.46	1.46
0837	-	-	-	-	-	-
0843	0.33	0.87	1.17	1.28	1.43	1.43
0850	0.35	0.86	1.37	1.39	1.43	1.43
Garden City-RG1	0.52	1.14	1.63	1.63	1.63	1.63
Livonia-RG1	0.40	1.01	1.51	1.52	1.52	1.52
Livonia-RG2	0.43	0.98	1.31	1.32	1.32	1.32
DTW	-	-	-	-	-	1.39
					Minimum (in):	**1.32**
-	Missing or suspect data (not used).				**Average (in):**	**1.56**
					Maximum (in):	**1.79**
					Standard Deviation (in):	**0.14**
					Coefficient of Variation:	**9%**

Notes:

1. The Detroit Water and Sewerage Department (DWSD) rain gages were not included for this event. The inclusion of the DWSD rain gages in the flow monitoring reports is being evaluated as Wayne County has an extensive network of rain gages which provide sufficient coverage of the RVSDS.

Table 8-7
Rouge Valley Sewage Disposal System
Rainfall Event Summary Table

Start Date/Time: 11/23/2014 18:00

Stop Date/Time: 11/24/2014 18:00

Gage ID	Peak Hour (in)	Peak 3 Hour (in)	Peak 6 Hour (in)	Peak 12 Hour (in)	Peak 24 Hour (in)	Event Total (in)
R10	0.24	0.54	0.89	1.07	1.21	1.21
R11	0.25	0.61	0.97	1.21	1.24	1.24
R12	0.24	0.58	0.89	1.11	1.16	1.16
R13	0.25	0.58	0.93	1.14	1.23	1.23
R14	0.24	0.55	0.88	1.11	1.20	1.20
R15	0.30	0.70	1.05	1.17	1.47	1.47
R18	0.22	0.52	0.83	1.05	1.11	1.11
R27	0.25	0.64	0.93	1.10	1.24	1.24
R28	0.29	0.71	1.00	1.16	1.34	1.34
R29	0.25	0.66	1.01	1.22	1.27	1.27
PG007	-	-	-	-	-	-
PG009	-	-	-	-	-	-
PG010	-	-	-	-	-	-
PG012	-	-	-	-	-	-
PG013	-	-	-	-	-	-
PG030	-	-	-	-	-	-
PG032	-	-	-	-	-	-
PG033	-	-	-	-	-	-
PG034	-	-	-	-	-	-
PG035	-	-	-	-	-	-
PG036	-	-	-	-	-	-
PG037	-	-	-	-	-	-
WTUA LR	0.17	0.43	0.72	0.95	1.04	1.04
WTUA MR	0.24	0.55	0.86	1.07	1.10	1.10
0831	0.27	0.63	0.98	1.17	1.19	1.19
0837	0.23	0.60	0.90	1.05	1.07	1.07
0843	-	-	-	-	-	-
0850	0.27	0.69	1.18	1.42	1.54	1.54
Garden City-RG1	0.26	0.61	0.94	1.17	1.23	1.23
Livonia-RG1	0.20	0.48	0.77	0.95	0.99	0.99
Livonia-RG2	0.22	0.56	0.89	1.12	1.15	1.15
DTW	-	-	-	-	-	1.30
					Minimum (in):	**0.99**
-	Missing or suspect data (not used).				**Average (in):**	**1.21**
					Maximum (in):	**1.54**
					Standard Deviation (in):	**0.14**
					Coefficient of Variation:	**11%**

Notes:

1. The Detroit Water and Sewerage Department (DWSD) rain gages were not included for this event. The inclusion of the DWSD rain gages in the flow monitoring reports is being evaluated as Wayne County has an extensive network of rain gages which provide sufficient coverage of the RVSDS.

Section 9

Dry/Wet Weather Day Count by Month

Table 9-1
Rouge Valley Sewage Disposal System
Dry/Wet Weather Day Count by Month

Month	Number of Dry Weather Days	Number of Wet Weather Days
Jan-14	25	6
Feb-14	22	6
Mar-14	16	15
Apr-14	22	8
May-14	17	14
Jun-14	20	10
Jul-14	21	10
Aug-14	19	12
Sep-14	16	14
Oct-14	22	9
Nov-14	22	8
Dec-14	24	7
Total	246	119

Notes:

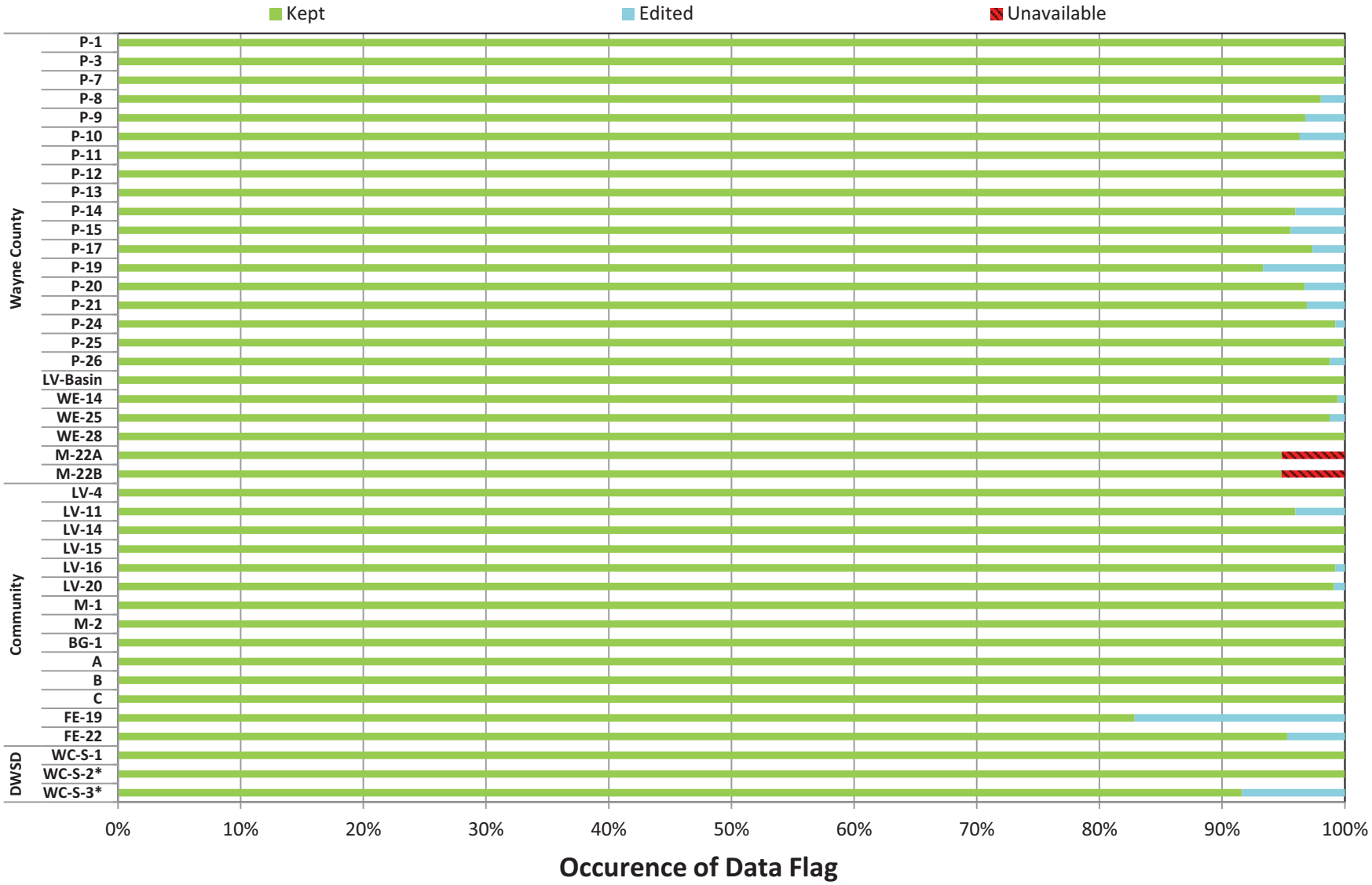
1) Three statistical passes were used for screening out dry and wet weather days using daily average flow rate traces for the end of system Meters P-9, P-10, P-11, P-13, P-24, and P-25. These meters were chosen because they are near the downstream end of the interceptor system, include some dewatering flow rates, and provide a well defined sort of dry/wet days. The first pass was designed to flag days that exhibited abrupt changes in average flow from the preceding or following days. This criterion was selected because storm events that cause a wet weather response will raise the daily average by an observable amount when compared to the preceding day. Likewise, the daily average flow rate on the day following a storm event will exhibit a decrease as the flow rates subside. Through trial and error, a 10% increase or a 10% decrease were selected as the threshold values for the determination of a wet day. The second and third passes were designed to flag wet days that remained after the first pass. For these passes, the daily average flow rate was constrained to remain below one and a half standard deviations of the quarterly average. Any day with a daily average above this was flagged as a wet day. The second pass threshold value was calculated from all days in the quarter, and the third pass threshold value was calculated from the dry days remaining after the first two passes. Lastly, the sort of dry and wet weather days were visually checked and adjusted.

2) The same set of dry days was used to estimate the dry weather flow rates for all of the meters.

Section 10

Flow Rate Data Flags

Figure 10-1
Rouge Valley Sewage Disposal System
2014 Flow Rate Flags



*DWSD has noted a possible issue with the proper recording of reverse flows at these sites. Reverse flow is believe to only occur rarely. Once this is resolved, data may be updated.

Section 11

Data Edits

Table 11-1
Rouge Valley Sewage Disposal System
Notable Data Edits

Meter	Period		Fix Applied
	Start	Stop	
LV-11	1/1/2014	1/14/2014	Correlation to LV-14
	12/11/2014	12/11/2014	Diurnal Pattern
LV-16	6/1/2014	6/3/2014	Correlation to LV-15
LV-20	2/10/2014	2/12/2014	Diurnal Pattern
	2/15/2014	2/15/2014	Diurnal Pattern
	11/14/2014	11/14/2014	Diurnal Pattern
P-7	1/3/2014	1/3/2014	Rating Curve to Depth
P-8	6/3/2014	6/10/2014	Correlation to FE-22
P-9	2/21/2014	3/3/2014	Correlation to P-10
	9/15/2014	9/16/2014	Correlation to P-10
P-10	1/11/2014	1/15/2014	Correlation to P-9 & P-11
	1/19/2014	1/29/2014	Correlation to P-9 & P-11
P-14	1/1/2014	1/15/2014	Correlation to P-9, P-10, P-11, & P-13
P-15	1/1/2014	1/9/2014	Diurnal Pattern
	1/15/2014	1/15/2014	Diurnal Pattern
	8/1/2014	8/7/2014	Diurnal Pattern
P-17	12/22/14	12/31/14	Correlation to P-19
P-19[1]	6/18/2014	6/25/2014	Correlation to P-21
	9/8/2014	9/30/2014	Correlation to P-21
	10/1/2014	10/3/2014	Correlation to P-21
	10/24/2014	10/28/2014	Correlation to P-21
P-20	7/24/2014	8/4/2014	Correlation to P-24
P-21	2/17/2014	2/27/2014	Correlation P-19
P-24	6/2/2014	6/4/2014	Correlation to P-20
P-26	1/5/2014	1/9/2014	Diurnal Pattern
WC-S-3[2]	1/1/2014	1/31/2014	Correlation to WC-S-2 and P-14
WE-25	4/4/2014	4/8/2014	Correlation to P-15

Notes:

1. Meter P-19 required occasional data editing between 9/8/2014 and 9/31/2014 due to bad depth data. For the month of September only 23.8% percent of the data was edited.
2. Meter WC-S-3 was out of service for almost all of January 2014. Missing Meter WC-S-3 data were filled-in by DWSD using the GDRSS Trend method. Trend will match the expected meter volume fairly well, but will not reflect any wet weather events. Therefore, for the purposes of the RVSDS Annual report, Meter WC-S-3 was correlated to Meters WC-S-2 and P-14 for the missing January 2014 period to show wet/dry weather variability.

Section 12

System Flow Rate Checks

Table 12-1

Rouge Valley Sewage Disposal System

Flow Rate Continuity Check

Meter Grouping	Relative Location	Monthly Average Dry Weather Flow Rate (MGD)												Annual Average (MGD)
		Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14	
Comparison 1														
[WC-S-1]	Downstream	48.4	43.8	58.3	53.2	57.5	49.8	38.8	45.5	47.3	40.0	38.2	40.8	46.8
[P-14]+[P-24]+[P-25]	Upstream	47.3	43.3	56.7	51.7	56.9	48.8	38.1	44.2	46.5	40.1	38.2	41.8	46.2
	Incremental	1.1	0.4	1.6	1.5	0.6	0.9	0.6	1.3	0.8	-0.1	0.0	-1.1	0.7
Comparison 2														
[WC-S-2] + [WC-S-3] + [P-14]	Downstream	51.6	44.5	66.0	60.3	65.1	54.8	39.1	51.8	51.1	41.8	39.5	42.9	50.8
[P-9] + [P-10] + [P-11] + [P-13]	Upstream	43.9	38.5	56.2	52.2	55.3	46.1	33.2	41.1	42.9	36.5	34.8	37.9	43.2
	Incremental	7.7	6.0	9.8	8.1	9.9	8.7	6.0	10.7	8.2	5.3	4.7	5.1	7.5
Comparison 3														
[P-12]	Downstream	8.7	7.0	10.7	11.2	12.1	10.4	7.5	8.9	9.4	7.8	7.6	8.0	9.1
[LV-Basin] + [LV-11]	Upstream	9.8	8.4	12.6	11.9	12.4	10.9	7.7	9.4	9.9	8.2	7.8	8.8	9.8
	Incremental	-1.2	-1.5	-1.8	-0.7	-0.3	-0.5	-0.3	-0.4	-0.5	-0.4	-0.2	-0.8	-0.7
Comparison 4														
[P-3] + [P-26]	Downstream	6.4	6.1	6.6	6.6	7.0	6.7	5.8	5.9	6.0	5.6	5.6	5.9	6.2
[P-1]	Upstream	5.2	5.0	6.0	5.6	5.9	6.0	5.1	5.2	5.3	5.0	5.1	5.2	5.4
	Incremental	1.2	1.1	0.6	0.9	1.1	0.8	0.7	0.8	0.7	0.6	0.5	0.7	0.8
Comparison 5														
[P-1]	Downstream	5.2	5.0	6.0	5.6	5.9	6.0	5.1	5.2	5.3	5.0	5.1	5.2	5.4
[BG-1]	Upstream	4.7	4.5	5.3	4.9	5.2	5.2	4.6	4.6	4.8	4.5	4.6	4.7	4.8
	Incremental	0.6	0.5	0.6	0.7	0.7	0.8	0.6	0.5	0.6	0.5	0.5	0.5	0.6
Comparison 6														
[P-24] + [P-25]	Downstream	15.8	14.3	19.0	16.1	19.3	15.6	11.3	12.8	14.7	11.6	11.3	12.3	14.5
[P-20] + [P-21]	Upstream	9.9	8.9	12.0	10.9	11.6	9.8	7.2	8.6	8.7	7.0	6.7	7.1	9.0
	Incremental	5.9	5.4	7.0	5.3	7.8	5.8	4.1	4.2	6.1	4.6	4.6	5.2	5.5
Comparison 7														
[P-21]	Downstream	6.7	5.9	8.3	7.0	7.9	6.8	4.8	6.2	6.0	4.9	4.8	5.2	6.2
[P-19] + [WE-28]	Upstream	5.7	5.1	7.2	6.0	6.7	5.7	4.0	5.3	5.6	5.0	4.9	5.1	5.5
	Incremental	1.0	0.8	1.1	0.9	1.1	1.1	0.9	0.9	0.4	-0.1	-0.1	0.1	0.7
Comparison 8														
[P-19]	Downstream	4.8	4.2	5.9	4.9	5.3	4.5	3.2	3.9	4.1	3.9	3.9	4.0	4.4
[P-17] + [WE-25] + [FE-19]	Upstream	3.9	3.5	4.8	4.2	4.6	4.1	3.1	3.4	3.4	3.0	2.9	3.2	3.7
	Incremental	0.9	0.7	1.1	0.8	0.7	0.4	0.1	0.5	0.7	0.9	0.9	0.8	0.7

Table 12-2

Rouge Valley Sewage Disposal System

Monthly Average Dry Weather Flow Rate Versus Residential Population Check

Meter Grouping	Year 2010 Residential Population	Metric	Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14	Average Annual	Percent of Area as Residential	Residential Area (acres)	Total Developed Land (Acres)
[BG-1]	43,217	MGD	4.6	4.5	5.0	4.8	4.9	4.9	4.5	4.5	4.6	4.5	4.5	4.7	4.6	62%	7,768	12,473
		GPCD	*105.3*	*104.1*	*116.4*	*111.5*	*112.7*	*114.3*	*103.7*	*104.1*	*106.7*	*104.1*	*103.7*	*108.1*	*107.6*			
[P-1]	49,143	MGD	5.1	5.0	5.6	5.5	5.6	5.7	5.0	5.0	5.2	5.0	4.9	5.2	5.2	63%	8,421	13,361
		GPCD	*103.6*	*100.7*	*114.6*	*111.7*	*112.9*	*115.0*	*101.9*	*101.3*	*104.8*	*101.7*	*100.1*	*104.8*	*105.7*			
[P-3] + [P-26]	55,091	MGD	6.3	6.0	6.3	6.4	6.6	6.4	5.7	5.7	5.8	5.6	5.4	5.8	6.0	63%	8,762	13,982
		GPCD	*114.2*	*108.7*	*114.0*	*116.9*	*119.6*	*116.4*	*103.6*	*103.6*	*106.0*	*101.3*	*98.6*	*105.5*	*108.8*			
[LV-16]	5,147	MGD	1.2	1.1	1.4	1.5	1.4	1.3	1.0	1.1	1.3	1.0	0.9	1.0	1.2	62%	599	963
		GPCD	*227.3*	*213.7*	*272.0*	*287.5*	*273.9*	*242.9*	*186.5*	*213.7*	*244.8*	*198.2*	*169.0*	*186.5*	*223.7*			
[C] - [B] - [A]	3,074	MGD	1.0	0.9	1.4	1.4	1.4	1.5	1.2	1.4	1.4	1.3	1.2	1.4	1.3	72%	250	347
		GPCD	*325.3*	*299.3*	*442.4*	*452.2*	*445.7*	*478.2*	*390.4*	*442.4*	*468.4*	*406.6*	*377.4*	*442.4*	*410.0*			
[LV-15]	6,570	MGD	1.4	1.3	1.8	1.8	1.8	1.5	1.0	1.2	1.6	1.2	1.1	1.3	1.4	81%	484	596
		GPCD	*219.2*	*193.3*	*277.0*	*269.4*	*272.5*	*220.7*	*158.3*	*182.6*	*235.9*	*182.6*	*170.5*	*193.3*	*211.8*			
[WE-14]	26,724	MGD	3.7	3.4	4.1	4.0	4.0	3.8	3.2	3.4	3.5	3.3	3.2	3.4	3.6	60%	2,000	3,348
		GPCD	*137.0*	*127.2*	*153.8*	*150.4*	*149.3*	*143.7*	*119.0*	*128.3*	*132.1*	*123.5*	*117.9*	*126.1*	*133.3*			
[M-2]	13,739	MGD	2.2	1.9	2.9	2.8	2.8	2.4	1.7	2.0	2.1	1.8	1.6	1.9	2.1	81%	1,143	1,409
		GPCD	*159.4*	*139.7*	*210.4*	*203.1*	*204.5*	*171.0*	*123.0*	*144.1*	*155.0*	*133.2*	*114.3*	*136.1*	*155.7*			
[M-1]	14,943	MGD	1.8	1.8	2.5	2.3	2.1	1.7	1.3	1.3	1.4	1.4	1.3	1.6	1.7	81%	1,181	1,453
		GPCD	*122.5*	*117.8*	*165.3*	*150.6*	*139.2*	*115.1*	*86.3*	*87.0*	*95.7*	*96.4*	*87.7*	*105.7*	*113.3*			
[LV-14]	7,738	MGD	1.2	1.1	1.7	1.6	1.6	1.2	0.9	1.1	1.4	1.1	1.0	1.1	1.2	56%	573	1,029
		GPCD	*159.0*	*140.9*	*213.2*	*202.9*	*202.9*	*160.2*	*116.3*	*138.3*	*183.5*	*143.4*	*125.4*	*135.7*	*157.6*			
[LV-11] + [LV-4]	39,591	MGD	4.9	4.3	5.8	5.8	5.5	5.0	4.0	4.5	5.1	4.3	4.0	4.3	4.7	49%	2,439	5,018
		GPCD	*123.0*	*107.3*	*147.5*	*145.2*	*138.7*	*126.8*	*101.0*	*114.7*	*128.8*	*108.9*	*99.8*	*108.4*	*119.7*			
[LV-11] + [LV-Basin]	28,266	MGD	9.2	8.2	11.5	11.3	10.9	10.0	7.3	8.1	9.1	7.9	7.3	8.4	9.0	64%	7,708	11,998
		GPCD	*324.4*	*289.0*	*407.9*	*400.1*	*383.9*	*354.1*	*257.6*	*285.1*	*320.9*	*279.5*	*256.5*	*295.8*	*318.1*			
[P-12]	68,311	MGD	8.1	6.7	9.9	10.6	10.7	9.7	7.0	7.7	8.7	7.5	7.0	7.6	8.3	61%	7,733	12,722
		GPCD	*118.4*	*98.7*	*144.3*	*154.9*	*157.1*	*142.4*	*102.9*	*112.9*	*126.8*	*110.2*	*102.3*	*111.4*	*122.2*			
[P-9] + [P-10] + [P-11] - [FE-22]	223,281	MGD	27.6	25.4	33.8	32.7	31.9	29.0	22.5	24.2	27.1	24.1	22.4	24.9	26.9	64%	24,438	38,468
		GPCD	*123.5*	*113.5*	*151.5*	*146.3*	*143.0*	*129.7*	*100.9*	*108.3*	*121.6*	*108.1*	*100.4*	*111.4*	*120.5*			
[P-13]	48,847	MGD	7.6	6.7	9.8	10.0	9.5	6.7	4.5	5.2	6.9	6.5	5.5	6.6	7.1	73%	3,636	4,961
		GPCD	*155.2*	*137.2*	*201.4*	*205.1*	*195.1*	*136.1*	*92.7*	*106.9*	*140.8*	*132.2*	*113.2*	*135.1*	*144.5*			
[WC-S-2] + [WC-S-3] + [P-14] - [FE-22]	308,764	MGD	41.4	36.7	50.9	49.3	47.8	42.1	32.2	35.5	39.8	35.2	31.6	36.4	39.5	66%	30,460	46,337
		GPCD	*134.2*	*119.0*	*164.8*	*159.7*	*154.9*	*136.4*	*104.1*	*114.8*	*128.9*	*113.9*	*102.2*	*118.0*	*128.1*			
[P-15]	6,938	MGD	0.9	0.9	1.1	1.0	0.9	0.7	0.6	0.7	0.8	0.7	0.7	0.7	0.8	36%	1,626	4,471
		GPCD	*128.3*	*124.0*	*155.7*	*136.9*	*132.6*	*103.8*	*92.2*	*96.6*	*108.1*	*98.0*	*98.0*	*105.2*	*114.3*			
[P-17]	9,561	MGD	1.7	1.6	2.0	1.7	1.7	1.7	1.4	1.3	1.5	1.4	1.4	1.5	1.6	37%	2,476	6,748
		GPCD	*173.6*	*168.4*	*205.0*	*178.9*	*182.0*	*178.9*	*147.5*	*133.9*	*161.1*	*143.3*	*147.5*	*154.8*	*163.7*			
[WE-25]	16,269	MGD	2.0	1.7	2.4	2.3	2.3	2.0	1.5	1.6	1.6	1.5	1.4	1.6	1.8	70%	1,503	2,141
		GPCD	*119.9*	*104.5*	*147.5*	*138.3*	*138.9*	*124.8*	*93.4*	*98.3*	*99.6*	*90.4*	*84.8*	*97.7*	*110.5*			
[P-19] - [FE-19]	32,127	MGD	4.3	4.0	5.3	4.7	4.5	3.9	3.0	3.2	3.7	3.7	3.6	3.9	4.0	46%	4,454	9,630
		GPCD	*135.1*	*123.9*	*164.0*	*145.0*	*140.1*	*122.6*	*91.8*	*99.3*	*116.1*	*115.8*	*113.3*	*121.7*	*123.5*			
[WE-28]	14,096	MGD	0.8	0.8	1.1	1.1	1.2	1.0	0.7	1.0	1.3	1.1	1.0	1.0	1.0	72%	931	1,294
		GPCD	*59.6*	*53.2*	*78.7*	*74.5*	*83.0*	*70.9*	*49.7*	*72.4*	*89.4*	*80.2*	*67.4*	*72.4*	*70.0*			
[P-21] - [FE-19]	51,271	MGD	6.1	5.5	7.3	6.5	6.6	6.0	4.5	4.8	5.3	4.7	4.4	5.0	5.5	50%	5,665	11,264
		GPCD	*118.0*	*107.7*	*141.8*	*127.4*	*127.8*	*116.6*	*87.0*	*93.2*	*103.2*	*91.5*	*86.4*	*97.1*	*107.3*			
[P-25] - [FE-19]	66,119	MGD	9.0	8.2	10.3	9.1	10.0	8.8	6.2	6.0	8.2	7.2	6.8	7.9	8.1	54%	6,687	12,479
		GPCD	*136.6*	*123.6*	*155.2*	*137.6*	*151.7*	*133.7*	*93.0*	*90.0*	*124.0*	*108.7*	*102.7*	*119.9*	*122.3*			
[P-20]	12,503	MGD	3.0	3.0	3.5	3.9	3.4	2.7	2.1	2.1	2.4	2.0	1.7	1.8	2.6	12%	731	6,147
		GPCD	*239.1*	*235.9*	*282.3*	*307.9*	*271.9*	*212.7*	*170.4*	*164.8*	*188.0*	*159.2*	*133.6*	*146.4*	*207.3*			
[P-24]	29,900	MGD	4.8	4.9	5.9	5.7	5.1	4.4	3.9	4.0	4.3	3.7	3.2	3.5	4.4	66%	2,294	3,498
		GPCD	*161.2*	*164.5*	*198.3*	*190.3*	*169.2*	*148.5*	*130.8*	*132.1*	*144.1*	*123.1*	*108.4*	*118.1*	*147.7*			
[WC-S-1] + [WC-S-2] + [WC-S-3] - [FE-19] - [FE-22] + [C] - [B] - [A]	404,783	MGD	57.1	51.2	69.8	66.9	65.4	57.7	43.5	47.6	53.8	47.2	42.3	48.1	53.7	59%	39,441	67,195
		GPCD	*141.2*	*126.5*	*172.3*	*165.3*	*161.6*	*142.6*	*107.5*	*117.7*	*132.9*	*116.6*	*104.5*	*118.8*	*132.7*			

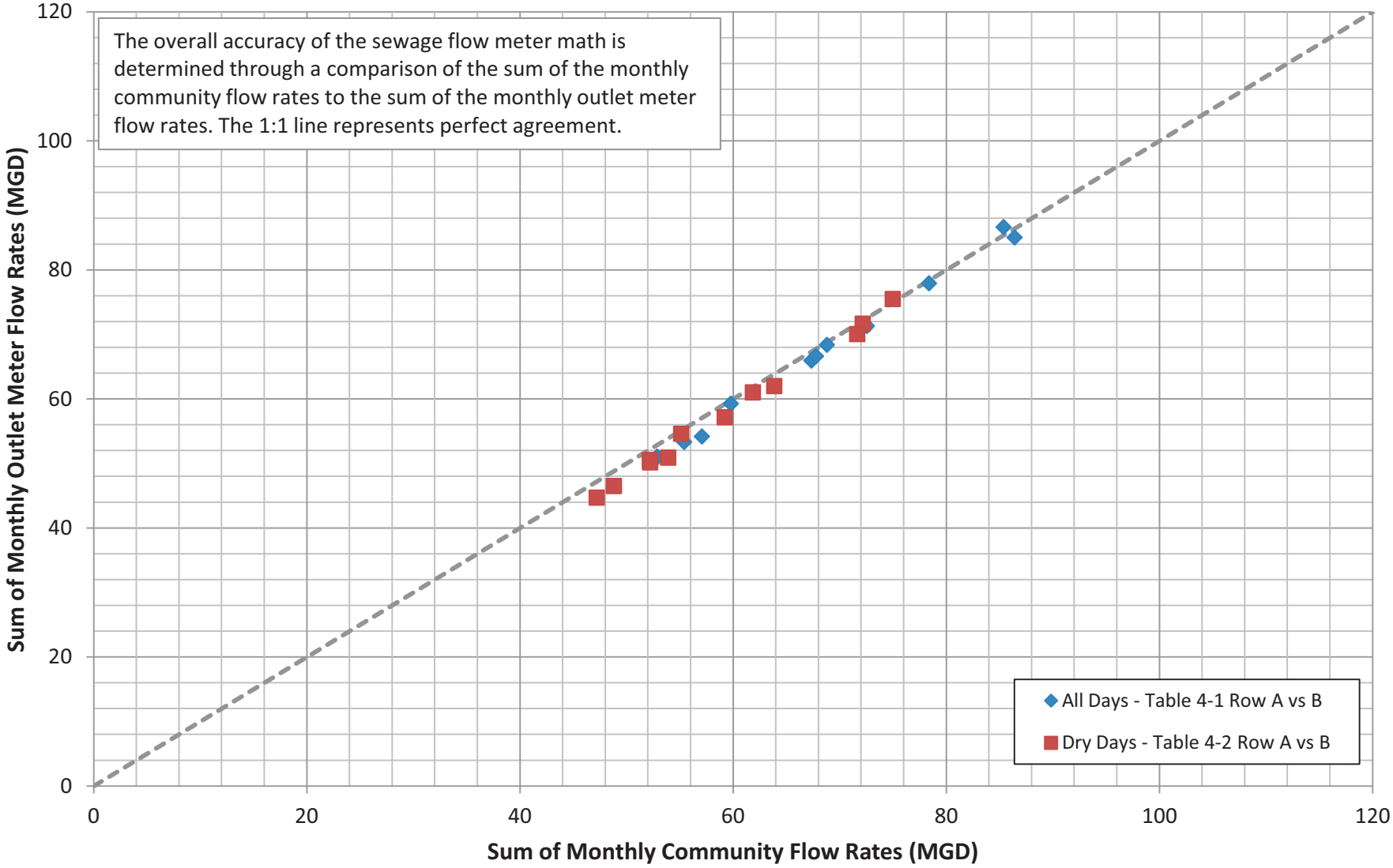
Legend:

xx.x	Per capita flow rates are greater than the district-wide average by 20% or more.
xx.x	Per capita flow rates are less than the district-wide average by 20% or more.

Figure 12-1

Rouge Valley Sewage Disposal System

End of System Monthly Flow Rate Comparison



Section 13

Annual Meter Reports

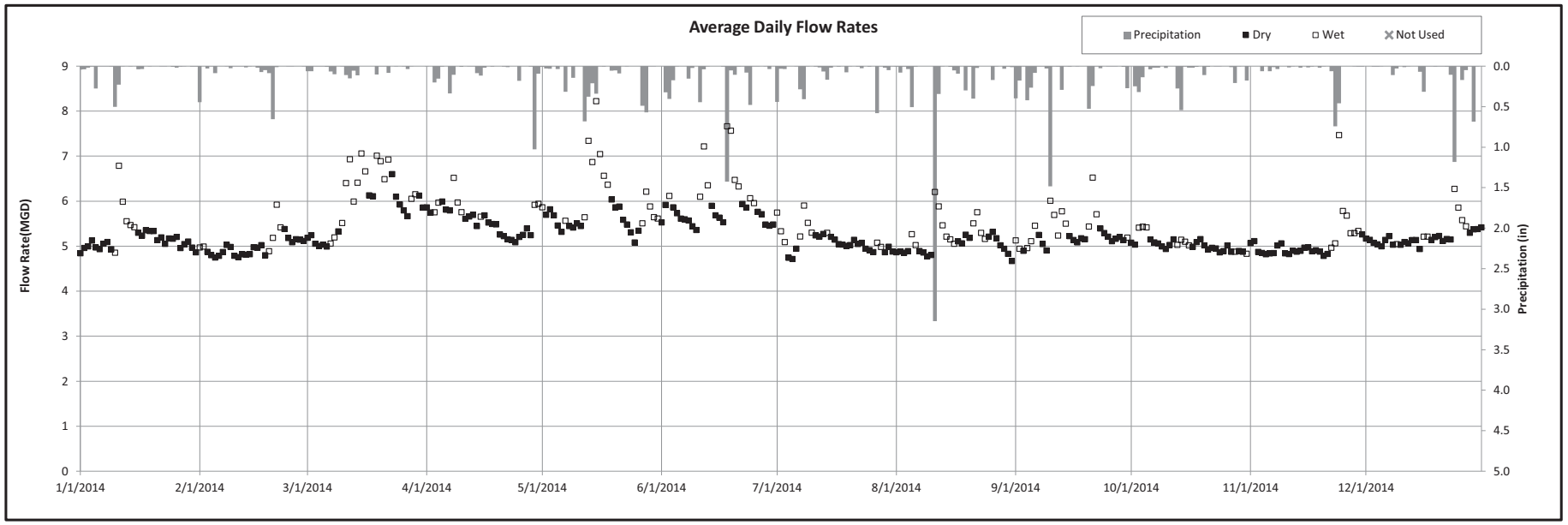
Rouge Valley Sewage Disposal System

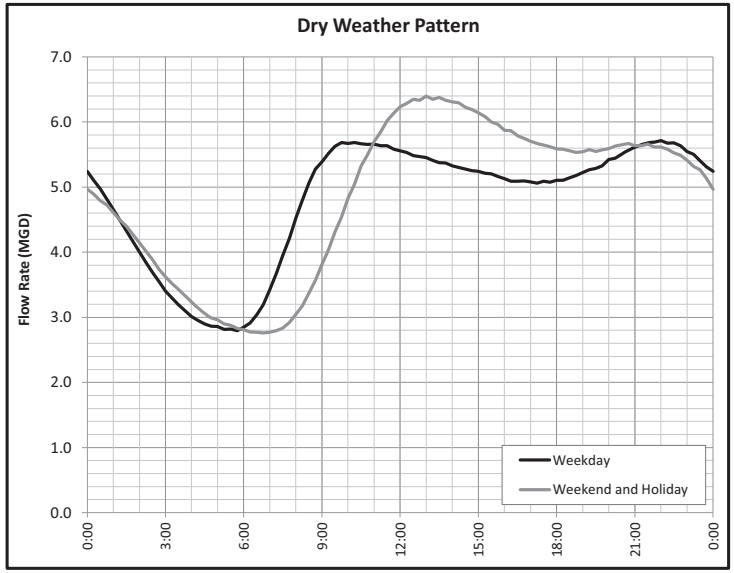
2014 Annual Meter Report

Meter: P-1
Interceptor Manhole ID: NAI 1-13A

Location: 5 Mile Road and Hines Drive
Interceptor Branch: Middle Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	5.2	161.5	5.1	157.8	25	6
Feb-14	5.0	140.3	5.0	138.6	22	6
Mar-14	6.0	184.8	5.6	174.5	16	15
Apr-14	5.6	168.3	5.5	164.7	22	8
May-14	5.9	182.6	5.6	172.1	17	14
Jun-14	6.0	178.8	5.7	169.5	20	10
Jul-14	5.1	158.7	5.0	155.3	21	10
Aug-14	5.2	159.7	5.0	154.4	19	12
Sep-14	5.3	159.0	5.2	154.5	16	14
Oct-14	5.0	156.2	5.0	155.0	22	9
Nov-14	5.1	153.3	4.9	147.6	22	8
Dec-14	5.2	162.4	5.2	159.7	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	8.34	4/29/14 10:20	1.27	4/29/14 10:45
2	1.90	5/12/14 6:00	5/15/14 12:00	11.23	5/15/14 10:20	1.53	5/15/14 11:15
3	1.25	5/27/14 12:00	5/28/14 18:00	8.74	5/28/14 14:35	1.29	5/28/14 14:45
4	1.84	6/18/14 0:00	6/19/14 18:00	11.58	6/18/14 8:05	1.56	6/18/14 8:30
5	4.06	8/11/14 6:00	8/13/14 0:00	13.07	8/11/14 18:10	1.76	8/11/14 18:30
6	1.61	9/10/14 6:00	9/11/14 0:00	10.13	9/10/14 15:50	1.43	9/10/14 16:00
7	1.32	11/22/14 6:00	11/24/14 18:00	9.29	11/24/14 1:50	1.37	11/24/14 2:45

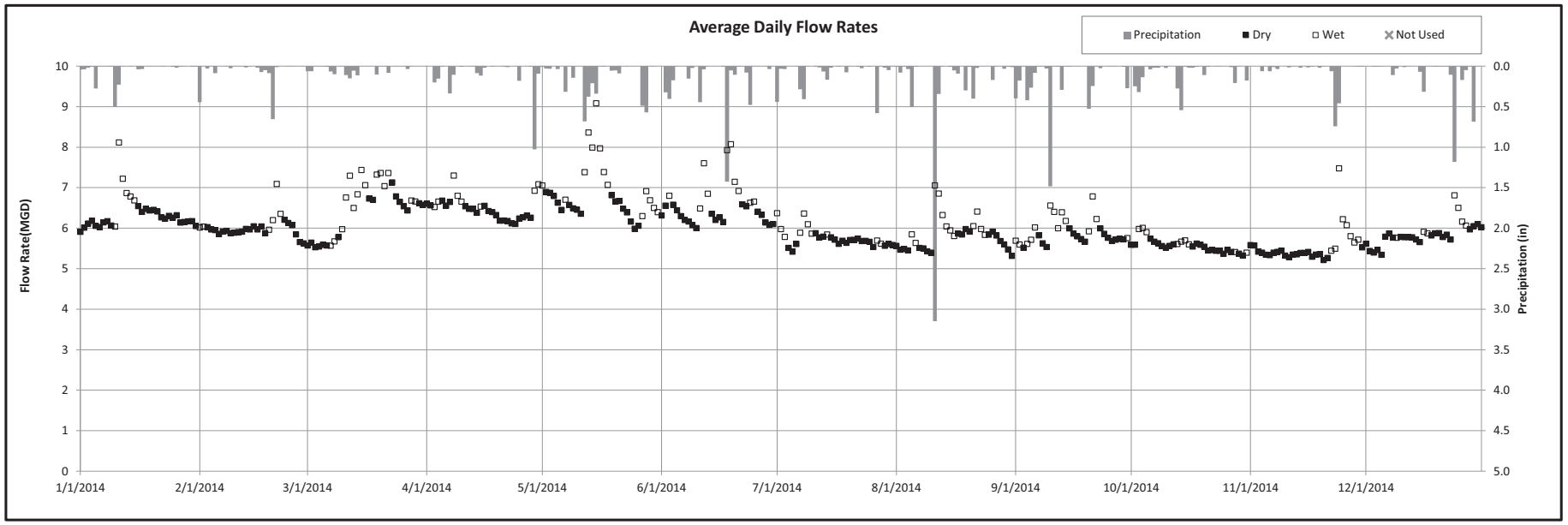
Rouge Valley Sewage Disposal System

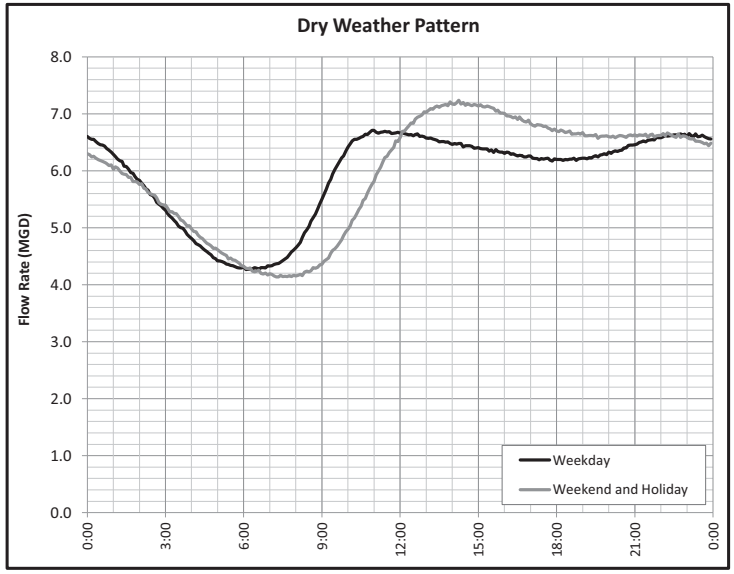
2014 Annual Meter Report

Meter: P-3
Interceptor Manhole ID: MRIR 5C-01

Location: Plymouth Road East of I-275
Interceptor Branch: Middle Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	6.4	197.2	6.2	192.8	25	6
Feb-14	6.0	168.3	5.9	166.3	22	6
Mar-14	6.5	200.9	6.2	192.5	16	15
Apr-14	6.5	195.0	6.4	191.4	22	8
May-14	6.9	212.7	6.5	201.8	17	14
Jun-14	6.6	196.8	6.3	188.7	20	10
Jul-14	5.8	178.3	5.7	175.5	21	10
Aug-14	5.8	180.7	5.6	174.5	19	12
Sep-14	5.9	177.0	5.8	172.5	16	14
Oct-14	5.6	172.7	5.5	171.1	22	9
Nov-14	5.5	166.2	5.4	161.4	22	8
Dec-14	5.9	181.4	5.8	178.6	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	9.01	4/29/14 11:40	1.34	4/29/14 11:40
2	1.90	5/12/14 6:00	5/15/14 12:00	12.07	5/12/14 19:45	1.63	5/12/14 19:45
3	1.25	5/27/14 12:00	5/28/14 18:00	8.75	5/28/14 15:35	1.29	5/28/14 14:50
4	1.84	6/18/14 0:00	6/19/14 18:00	11.36	6/18/14 9:25	1.56	6/18/14 9:40
5	4.06	8/11/14 6:00	8/13/14 0:00	13.99	8/11/14 19:20	1.83	8/11/14 20:00
6	1.61	9/10/14 6:00	9/11/14 0:00	9.98	9/10/14 16:45	1.43	9/10/14 17:10
7	1.32	11/22/14 6:00	11/24/14 18:00	8.67	11/24/14 2:35	1.30	11/24/14 3:15

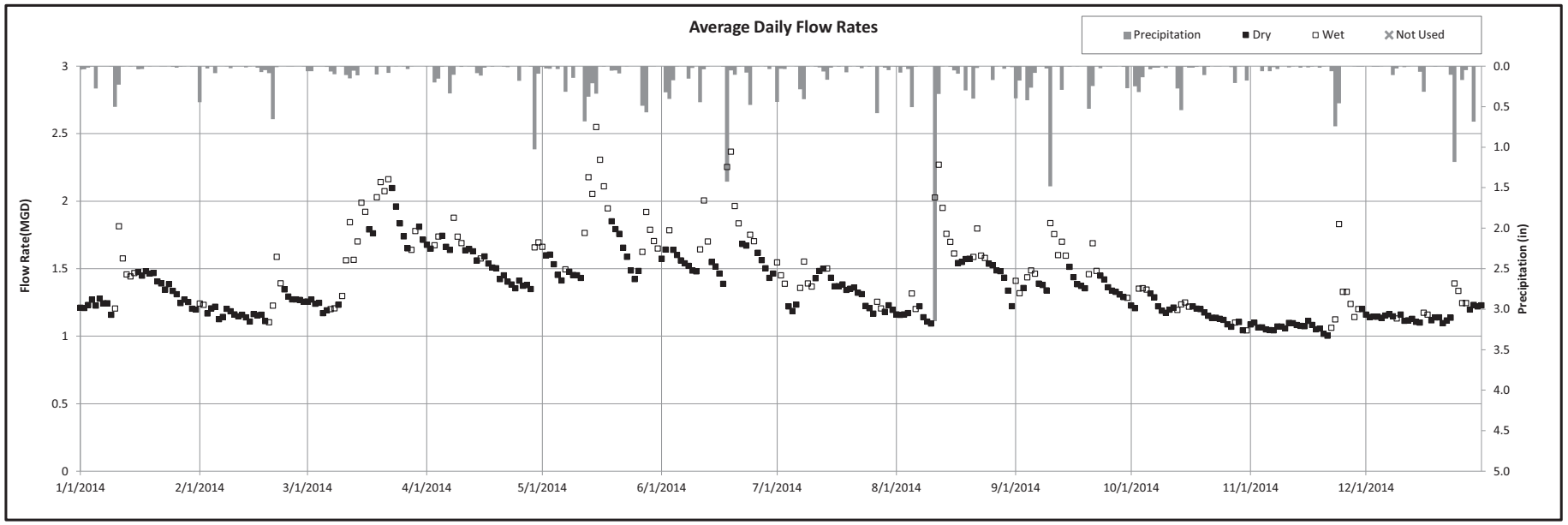
Rouge Valley Sewage Disposal System

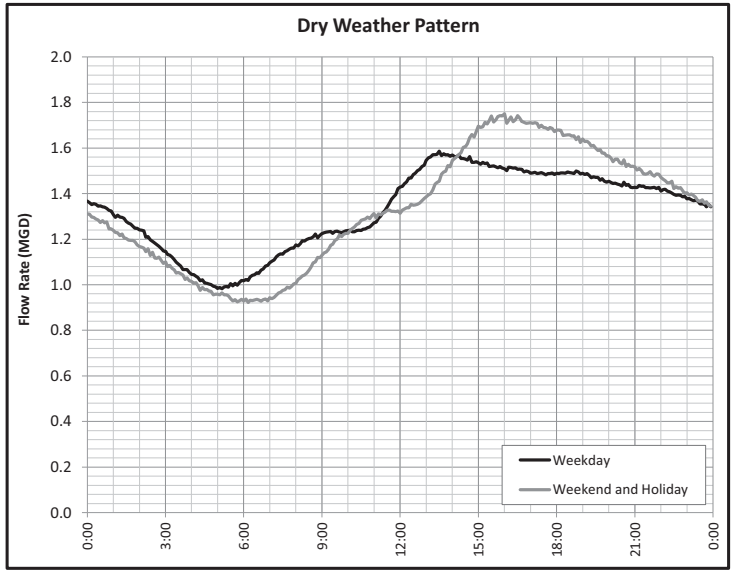
2014 Annual Meter Report

Meter: P-7
Interceptor Manhole ID: PWI I-03

Location: Joy Road West of Farmington Road
Interceptor Branch: Middle Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	1.4	41.9	1.3	40.6	25	6
Feb-14	1.2	34.2	1.2	33.3	22	6
Mar-14	1.7	51.2	1.6	48.4	16	15
Apr-14	1.6	47.1	1.5	45.6	22	8
May-14	1.7	53.3	1.6	48.4	17	14
Jun-14	1.7	49.8	1.5	46.2	20	10
Jul-14	1.3	41.5	1.3	40.6	21	10
Aug-14	1.5	45.9	1.3	41.5	19	12
Sep-14	1.5	43.5	1.4	41.4	16	14
Oct-14	1.2	36.9	1.2	36.3	22	9
Nov-14	1.1	33.9	1.1	32.1	22	8
Dec-14	1.2	36.3	1.2	35.7	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	2.32	4/29/14 13:25	1.18	4/29/14 13:55
2	1.90	5/12/14 6:00	5/15/14 12:00	3.43	5/15/14 13:20	1.37	5/15/14 14:00
3	1.25	5/27/14 12:00	5/28/14 18:00	2.65	5/28/14 17:25	1.25	5/28/14 18:25
4	1.84	6/18/14 0:00	6/19/14 18:00	3.36	6/18/14 11:05	1.40	6/18/14 11:25
5	4.06	8/11/14 6:00	8/13/14 0:00	5.21	8/11/14 17:40	4.16	8/11/14 21:15
6	1.61	9/10/14 6:00	9/11/14 0:00	3.19	9/10/14 18:40	1.33	9/10/14 18:40
7	1.32	11/22/14 6:00	11/24/14 18:00	2.16	11/24/14 4:45	1.16	11/24/14 5:10

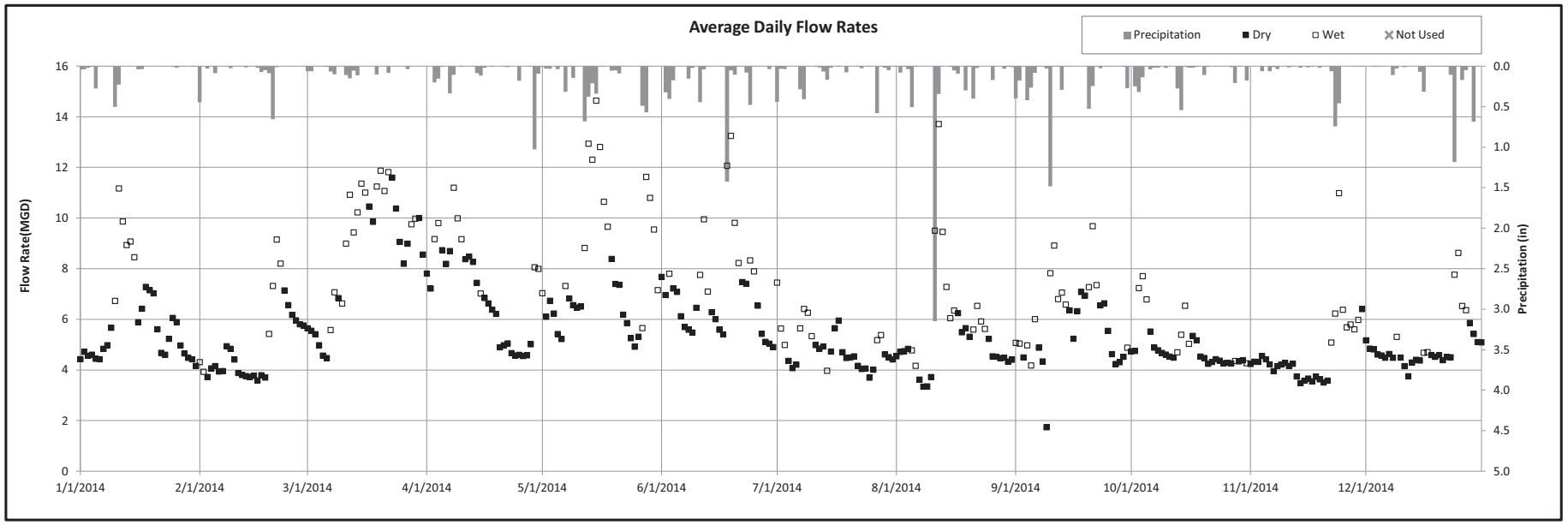
Rouge Valley Sewage Disposal System

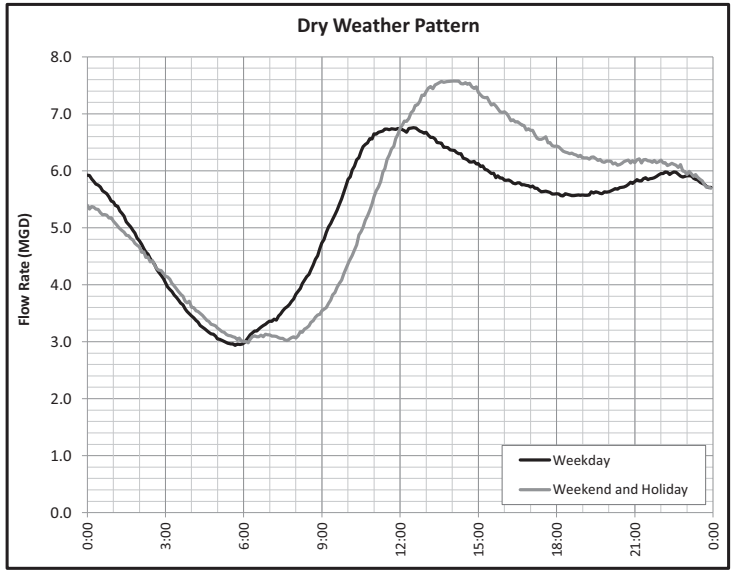
2014 Annual Meter Report

Meter: P-8
Interceptor Manhole ID: RVI 9-20

Location: Joy Road West of Farmington Road
Interceptor Branch: Middle Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	6.0	185.4	5.3	162.8	25	6
Feb-14	5.0	139.7	4.6	129.1	22	6
Mar-14	8.8	271.6	7.8	241.2	16	15
Apr-14	7.2	214.5	6.5	193.8	22	8
May-14	8.0	247.7	6.3	194.7	17	14
Jun-14	7.2	215.7	6.2	185.1	20	10
Jul-14	4.9	151.6	4.5	140.7	21	10
Aug-14	5.6	172.4	4.6	142.9	19	12
Sep-14	5.9	175.5	5.2	157.2	16	14
Oct-14	5.0	153.5	4.6	142.9	22	9
Nov-14	4.7	141.6	4.1	122.7	22	8
Dec-14	5.0	155.6	4.7	144.2	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	13.06	4/29/14 11:00	1.59	4/29/14 11:40
2	1.90	5/12/14 6:00	5/15/14 12:00	17.43	5/15/14 15:25	1.86	5/15/14 11:30
3	1.25	5/27/14 12:00	5/28/14 18:00	18.08	5/28/14 15:25	1.94	5/28/14 15:35
4	1.84	6/18/14 0:00	6/19/14 18:00	18.25	6/18/14 9:35	1.95	6/18/14 10:05
5	4.06	8/11/14 6:00	8/13/14 0:00	22.53	8/11/14 20:00	7.88	8/11/14 21:07
6	1.61	9/10/14 6:00	9/11/14 0:00	19.15	9/10/14 17:05	2.04	9/10/14 17:05
7	1.32	11/22/14 6:00	11/24/14 18:00	12.21	11/24/14 2:25	1.52	11/24/14 2:35

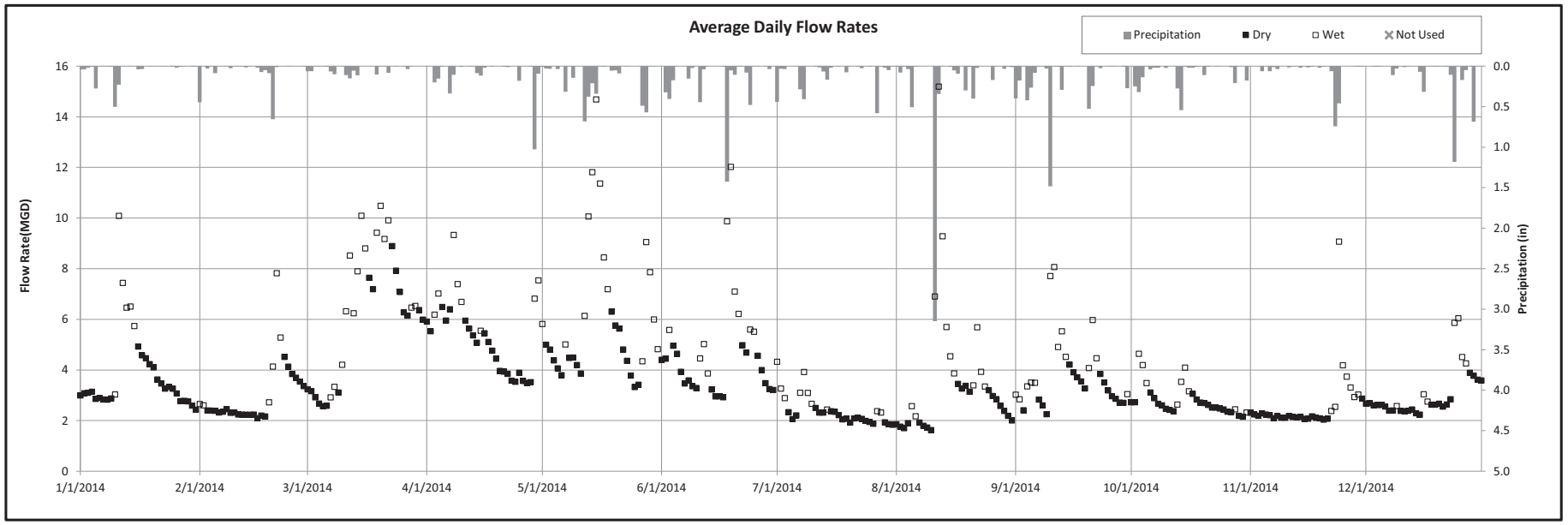
Rouge Valley Sewage Disposal System

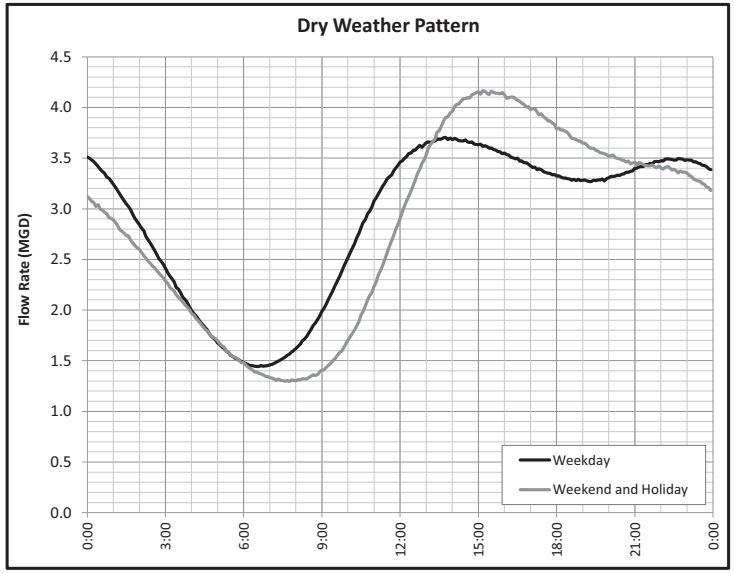
2014 Annual Meter Report

Meter: P-9
Interceptor Manhole ID: NHV 3-34

Location: Hines Drive East of Inkster Road
Interceptor Branch: Middle Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	3.9	121.5	3.3	102.0	25	6
Feb-14	3.0	84.8	2.7	75.9	22	6
Mar-14	6.3	194.1	5.2	162.1	16	15
Apr-14	5.4	162.0	4.8	143.7	22	8
May-14	6.1	189.1	4.5	139.5	17	14
Jun-14	4.7	141.6	3.8	114.3	20	10
Jul-14	2.4	74.7	2.1	65.4	21	10
Aug-14	3.6	112.2	2.4	74.4	19	12
Sep-14	3.8	114.9	3.2	94.8	16	14
Oct-14	2.8	87.4	2.6	80.0	22	9
Nov-14	2.6	79.2	2.2	65.7	22	8
Dec-14	3.1	94.6	2.7	84.6	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	11.70	4/29/14 12:00	2.21	4/29/14 11:55
2	1.90	5/12/14 6:00	5/15/14 12:00	17.67	5/15/14 11:35	3.11	5/15/14 13:00
3	1.25	5/27/14 12:00	5/28/14 18:00	15.93	5/28/14 16:30	2.80	5/28/14 16:55
4	1.84	6/18/14 0:00	6/19/14 18:00	14.88	6/18/14 10:35	2.71	6/18/14 10:30
5	4.06	8/11/14 6:00	8/13/14 0:00	17.32	8/11/14 18:25	≥ 11.61	8/11/2014 18:15 - 8/12/2014 02:25
6	1.61	9/10/14 6:00	9/11/14 0:00	17.67	9/10/14 16:40	7.81	9/10/14 19:05
7	1.32	11/22/14 6:00	11/24/14 18:00	12.37	11/24/14 3:00	2.33	11/24/14 4:20

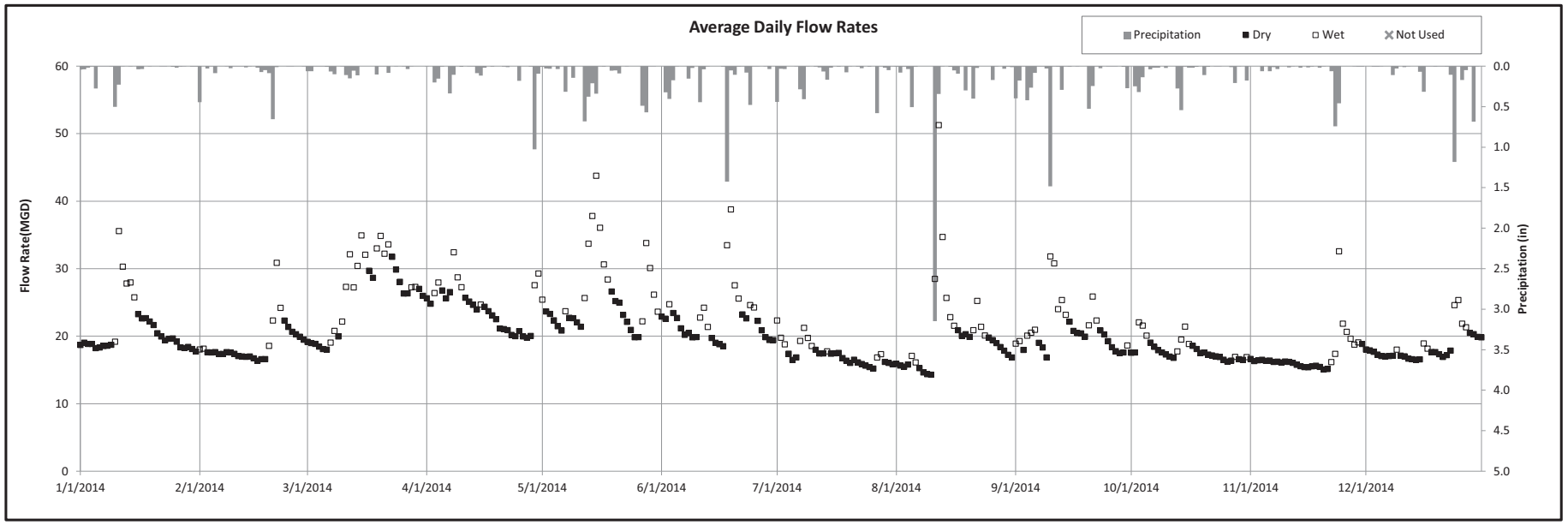
Rouge Valley Sewage Disposal System

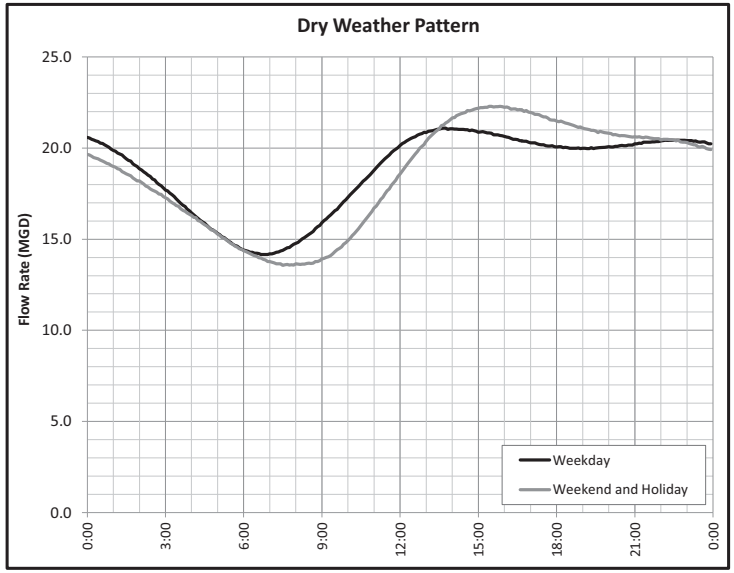
2014 Annual Meter Report

Meter: P-10
Interceptor Manhole ID: RVI 6-50

Location: Hines Drive East of Inkster Road
Interceptor Branch: Middle Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	21.2	656.0	19.6	607.0	25	6
Feb-14	19.0	530.6	18.1	507.1	22	6
Mar-14	26.4	819.3	24.1	746.2	16	15
Apr-14	24.4	730.5	23.0	690.3	22	8
May-14	25.9	804.1	22.5	698.7	17	14
Jun-14	22.8	684.3	20.9	625.5	20	10
Jul-14	17.4	539.7	16.6	514.0	21	10
Aug-14	20.5	636.4	17.4	540.3	19	12
Sep-14	21.0	630.9	19.2	576.6	16	14
Oct-14	18.0	556.8	17.3	537.5	22	9
Nov-14	17.3	519.6	16.1	482.1	22	8
Dec-14	18.5	572.9	17.7	548.7	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	37.31	4/29/14 11:55	2.87	4/29/14 12:35
2	1.90	5/12/14 6:00	5/15/14 12:00	51.22	5/15/14 13:05	3.69	5/15/14 13:05
3	1.25	5/27/14 12:00	5/28/14 18:00	46.39	5/28/14 16:45	3.44	5/28/14 17:10
4	1.84	6/18/14 0:00	6/19/14 18:00	44.99	6/19/14 0:30	3.37	6/19/14 0:55
5	4.06	8/11/14 6:00	8/13/14 0:00	57.58	8/12/14 0:10	≥ 9.81	8/11/2014 18:05 - 8/13/2014 01:35
6	1.61	9/10/14 6:00	9/11/14 0:00	60.01	9/10/14 20:35	8.54	9/10/14 19:10
7	1.32	11/22/14 6:00	11/24/14 18:00	39.26	11/24/14 4:05	3.08	11/24/14 4:45

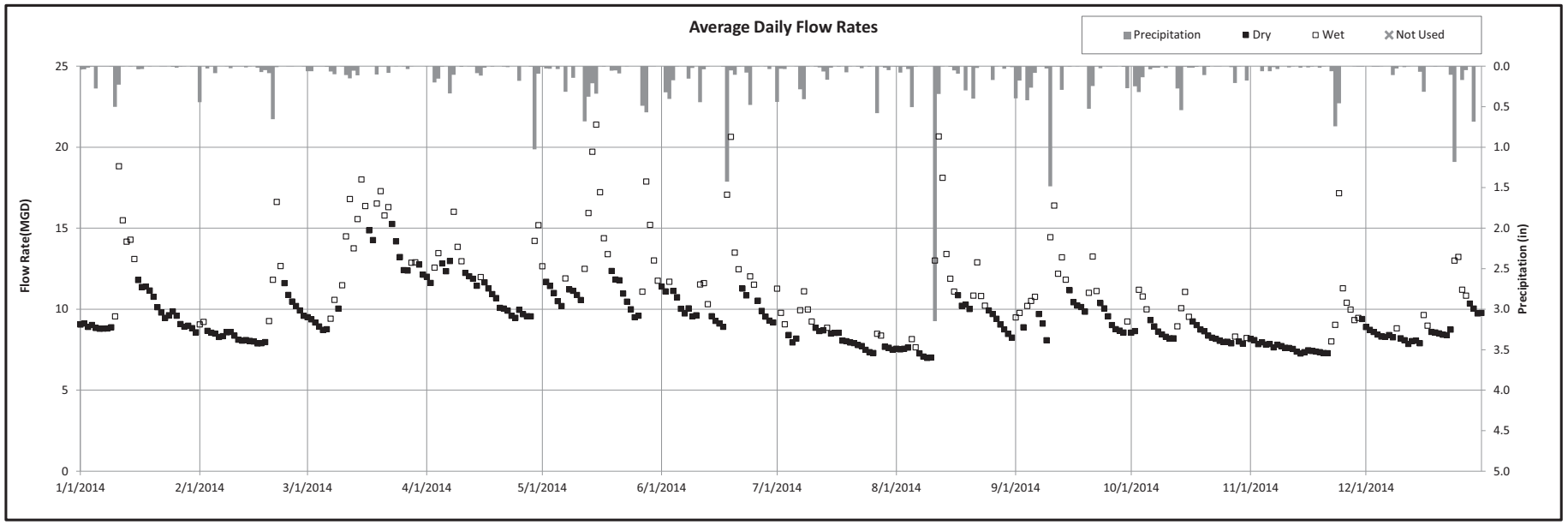
Rouge Valley Sewage Disposal System

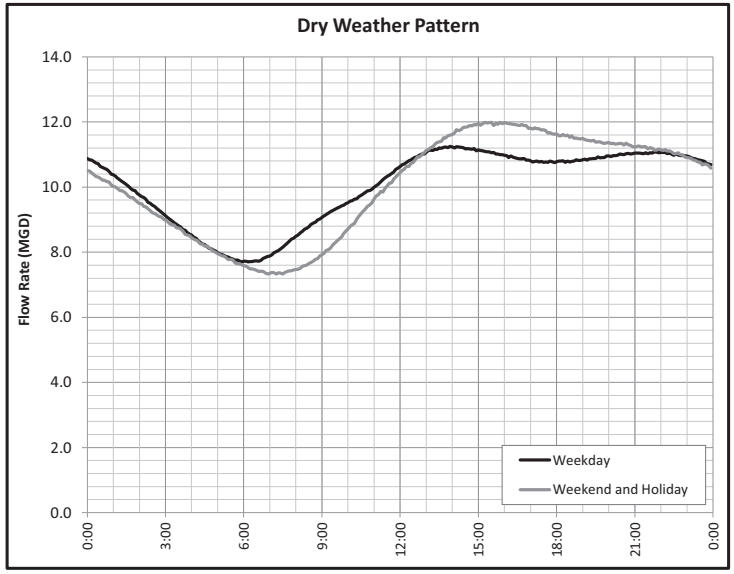
2014 Annual Meter Report

Meter: P-11
Interceptor Manhole ID: MR II-18

Location: Hines Drive East of Inkster Road
Interceptor Branch: Middle Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	10.5	324.9	9.6	297.0	25	6
Feb-14	9.4	263.2	8.9	247.8	22	6
Mar-14	13.0	403.9	11.6	360.2	16	15
Apr-14	11.7	351.9	11.0	329.7	22	8
May-14	12.7	393.1	10.9	337.6	17	14
Jun-14	11.1	333.0	10.0	301.2	20	10
Jul-14	8.5	264.7	8.0	248.9	21	10
Aug-14	10.1	312.2	8.6	266.9	19	12
Sep-14	10.5	315.9	9.5	286.2	16	14
Oct-14	8.8	273.4	8.4	261.3	22	9
Nov-14	8.5	253.8	7.7	230.7	22	8
Dec-14	9.1	283.0	8.6	267.5	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	19.15	4/29/14 11:35	2.81	4/29/14 11:40
2	1.90	5/12/14 6:00	5/15/14 12:00	23.44	5/15/14 13:05	3.42	5/15/14 12:40
3	1.25	5/27/14 12:00	5/28/14 18:00	22.53	5/28/14 16:45	3.25	5/28/14 16:55
4	1.84	6/18/14 0:00	6/19/14 18:00	22.79	6/18/14 23:50	3.36	6/19/14 1:00
5	4.06	8/11/14 6:00	8/13/14 0:00	23.46	8/11/14 16:25	≥ 8.31	8/11/2014 18:00 - 8/13/2014 02:10
6	1.61	9/10/14 6:00	9/11/14 0:00	24.59	9/10/14 16:10	7.60	9/10/14 19:10
7	1.32	11/22/14 6:00	11/24/14 18:00	20.89	11/24/14 2:00	3.09	11/24/14 2:10

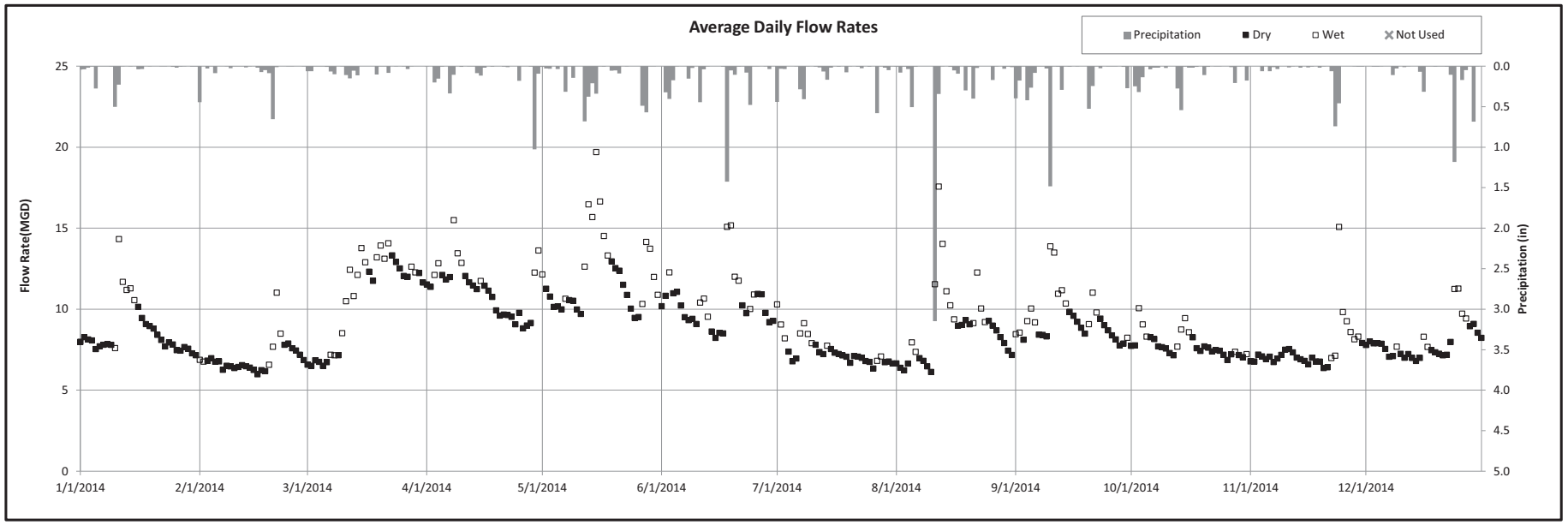
Rouge Valley Sewage Disposal System

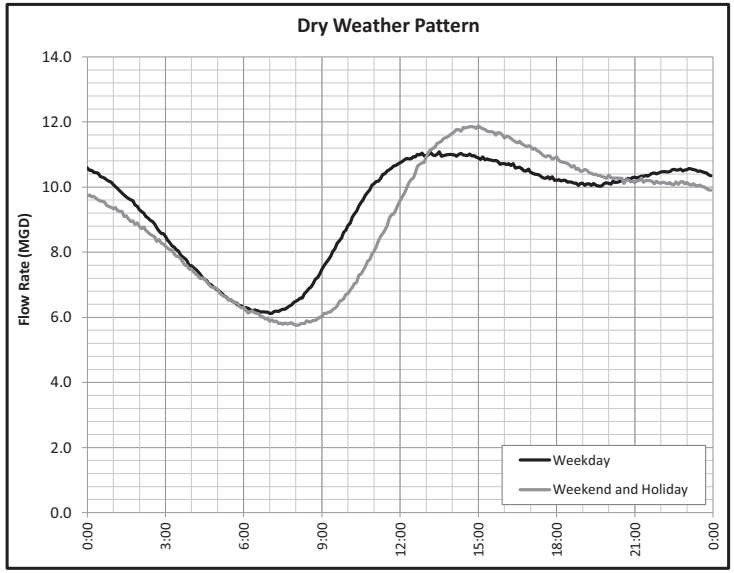
2014 Annual Meter Report

Meter: P-12
Interceptor Manhole ID: RVI 12-01

Location: Inkster Road North of Hines Drive
Interceptor Branch: Middle Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	8.7	268.8	8.1	250.8	25	6
Feb-14	7.0	195.7	6.7	188.7	22	6
Mar-14	10.7	332.3	9.9	305.7	16	15
Apr-14	11.2	337.2	10.6	317.4	22	8
May-14	12.1	375.1	10.7	332.6	17	14
Jun-14	10.4	312.3	9.7	291.9	20	10
Jul-14	7.5	231.0	7.0	217.9	21	10
Aug-14	8.9	276.2	7.7	239.0	19	12
Sep-14	9.4	282.0	8.7	259.8	16	14
Oct-14	7.8	242.1	7.5	233.4	22	9
Nov-14	7.6	227.1	7.0	209.7	22	8
Dec-14	8.0	248.0	7.6	235.9	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	17.33	4/29/14 11:35	2.54	4/29/14 12:00
2	1.90	5/12/14 6:00	5/15/14 12:00	25.10	5/15/14 13:10	3.19	5/15/14 13:15
3	1.25	5/27/14 12:00	5/28/14 18:00	23.20	5/28/14 16:20	2.93	5/28/14 16:40
4	1.84	6/18/14 0:00	6/19/14 18:00	23.59	6/18/14 10:20	2.87	6/18/14 10:20
5	4.06	8/11/14 6:00	8/13/14 0:00	25.35	8/11/14 21:40	12.93	8/11/14 19:15
6	1.61	9/10/14 6:00	9/11/14 0:00	26.03	9/10/14 19:50	7.88	9/10/14 19:05
7	1.32	11/22/14 6:00	11/24/14 18:00	17.76	11/24/14 3:25	2.57	11/24/14 3:25

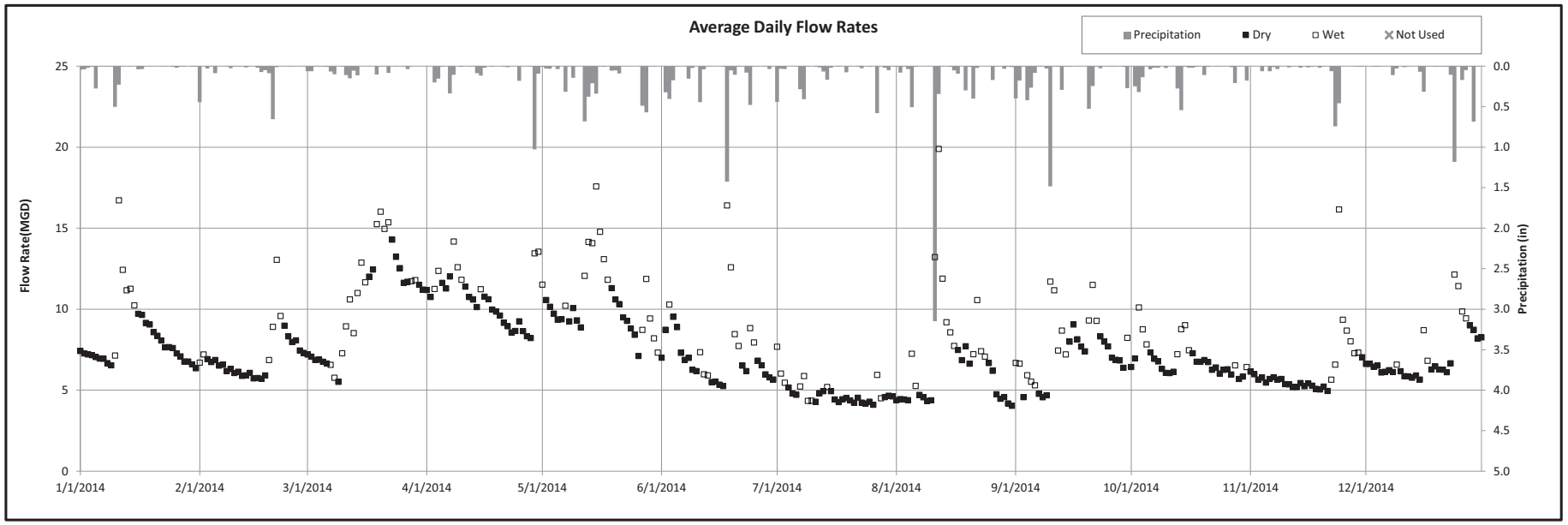
Rouge Valley Sewage Disposal System

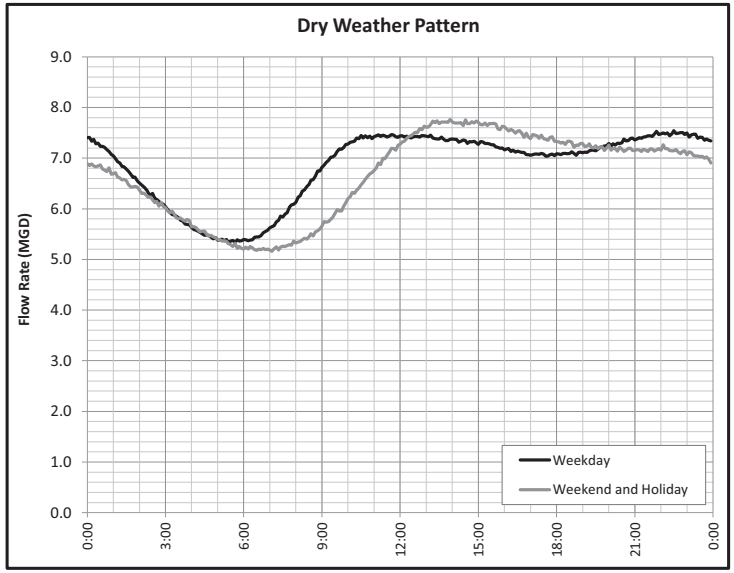
2014 Annual Meter Report

Meter: P-13
Interceptor Manhole ID: MR IV -07

Location: Telegraph Road North of Joy Road
Interceptor Branch: Middle Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	8.3	258.5	7.6	235.0	25	6
Feb-14	7.1	199.6	6.7	187.6	22	6
Mar-14	10.5	325.8	9.8	305.0	16	15
Apr-14	10.7	320.7	10.0	300.6	22	8
May-14	10.5	326.7	9.5	295.4	17	14
Jun-14	7.5	224.4	6.7	199.5	20	10
Jul-14	4.8	149.7	4.5	140.4	21	10
Aug-14	6.9	214.5	5.2	161.8	19	12
Sep-14	7.5	224.7	6.9	206.4	16	14
Oct-14	6.9	214.2	6.5	200.3	22	9
Nov-14	6.4	190.8	5.5	165.9	22	8
Dec-14	7.2	223.2	6.6	204.6	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	22.21	4/29/14 11:00	2.85	4/29/14 11:25
2	1.90	5/12/14 6:00	5/15/14 12:00	23.63	5/12/14 19:25	2.96	5/12/14 19:50
3	1.25	5/27/14 12:00	5/28/14 18:00	22.51	5/28/14 14:25	2.96	5/28/14 15:15
4	1.84	6/18/14 0:00	6/19/14 18:00	24.15	6/18/14 8:35	3.24	6/18/14 9:05
5	4.06	8/11/14 6:00	8/13/14 0:00	31.05	8/11/14 17:40	13.94	8/11/14 18:10
6	1.61	9/10/14 6:00	9/11/14 0:00	25.07	9/10/14 14:55	8.14	9/10/14 18:50
7	1.32	11/22/14 6:00	11/24/14 18:00	24.28	11/24/14 2:00	3.24	11/24/14 2:35

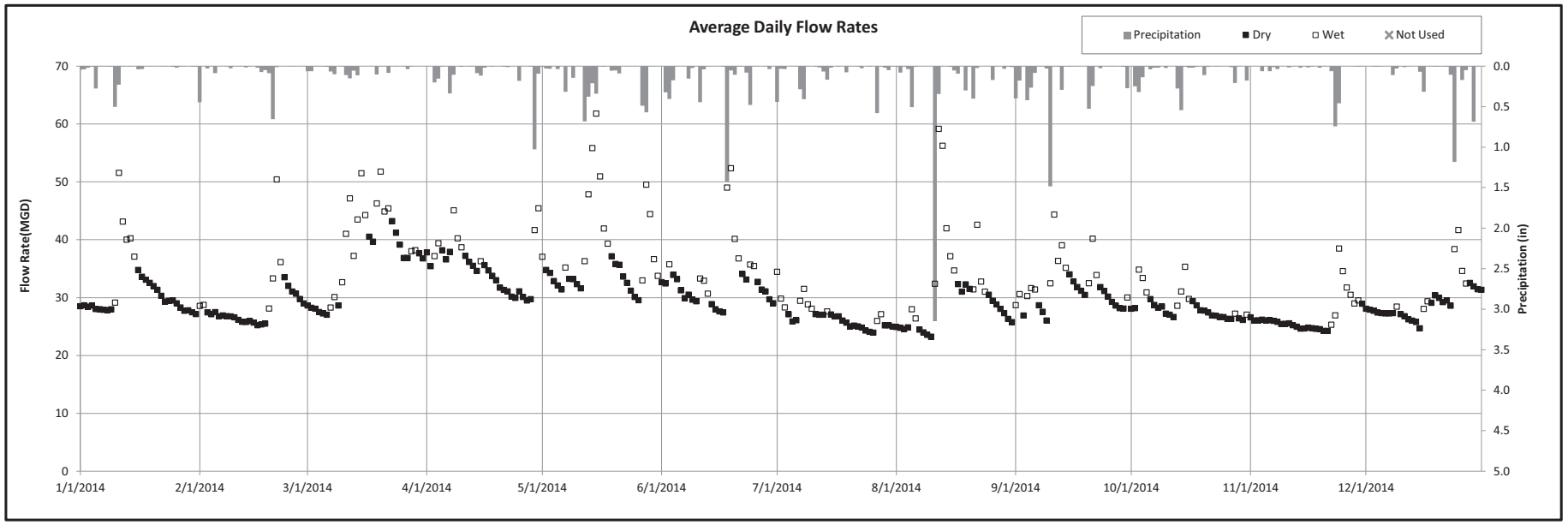
Rouge Valley Sewage Disposal System

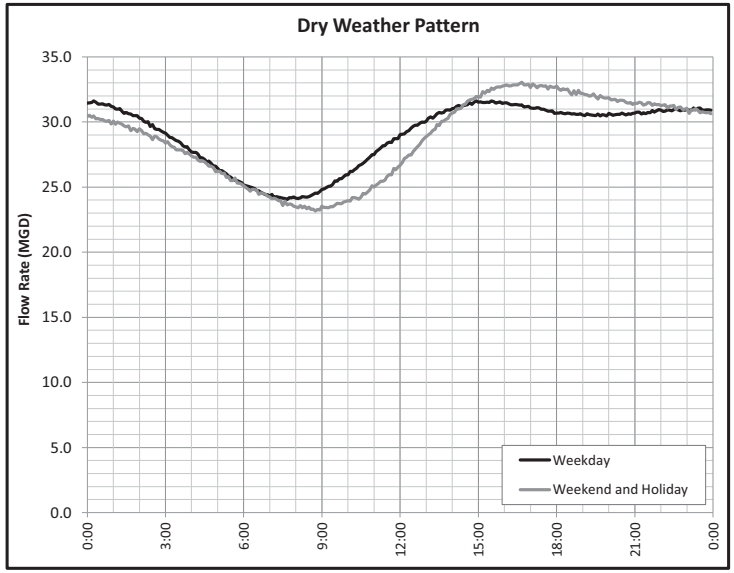
2014 Annual Meter Report

Meter: P-14
Interceptor Manhole ID: RVI 4-16A

Location: Brady Road near Willoway Road
Interceptor Branch: Lower Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	31.6	978.7	29.5	914.5	25	6
Feb-14	29.0	812.8	27.6	773.1	22	6
Mar-14	37.7	1167.5	34.2	1060.5	16	15
Apr-14	35.5	1065.3	33.7	1010.7	22	8
May-14	37.6	1165.0	33.0	1023.9	17	14
Jun-14	33.3	998.1	30.8	924.0	20	10
Jul-14	26.8	831.7	25.7	797.6	21	10
Aug-14	31.3	971.5	27.3	844.8	19	12
Sep-14	31.8	953.4	29.8	894.0	16	14
Oct-14	28.5	883.8	27.5	853.4	22	9
Nov-14	26.9	807.0	25.5	765.0	22	8
Dec-14	29.5	914.2	28.4	879.8	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	58.08	4/29/14 11:30	4.08	4/29/14 11:50
2	1.90	5/12/14 6:00	5/15/14 12:00	68.14	5/15/14 13:50	4.36	5/15/14 13:55
3	1.25	5/27/14 12:00	5/28/14 18:00	65.12	5/28/14 19:40	4.84	5/28/14 16:45
4	1.84	6/18/14 0:00	6/19/14 18:00	62.42	6/18/14 19:05	8.38	6/19/14 4:40
5	4.06	8/11/14 6:00	8/13/14 0:00	68.01	8/13/14 0:35	15.99	8/11/14 23:25
6	1.61	9/10/14 6:00	9/11/14 0:00	55.74	9/10/14 18:50	12.78	9/10/14 18:55
7	1.32	11/22/14 6:00	11/24/14 18:00	41.77	11/24/14 7:20	8.37	11/24/14 2:45

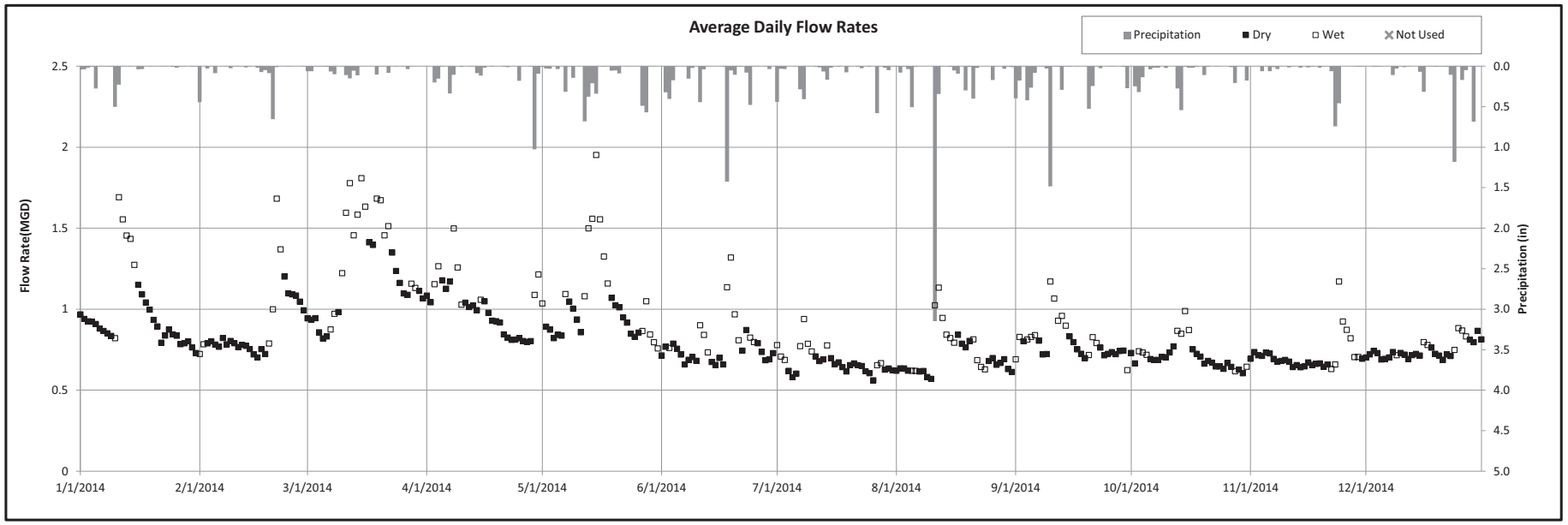
Rouge Valley Sewage Disposal System

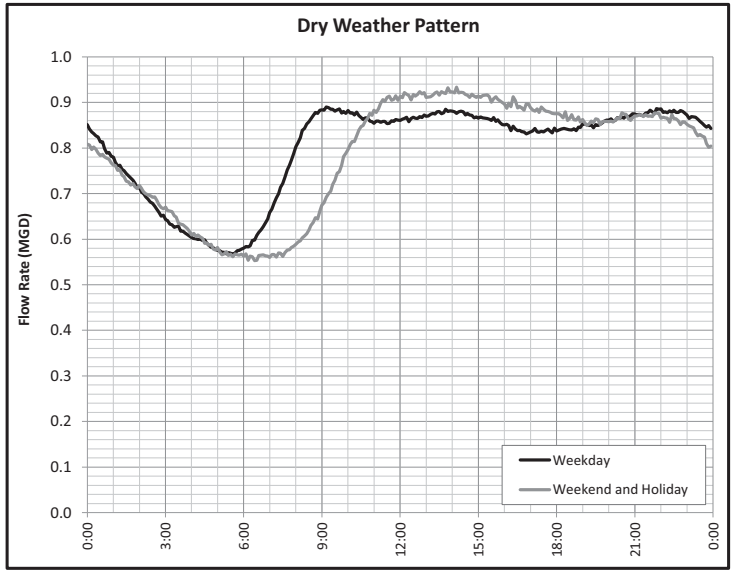
2014 Annual Meter Report

Meter: P-15
Interceptor Manhole ID: WRVI - 54

Location: Ecorse Road and Hannan Road
Interceptor Branch: Lower Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	1.0	30.4	0.9	27.6	25	6
Feb-14	0.9	25.2	0.9	24.1	22	6
Mar-14	1.3	38.8	1.1	33.5	16	15
Apr-14	1.0	30.6	1.0	28.5	22	8
May-14	1.0	32.2	0.9	28.5	17	14
Jun-14	0.8	23.4	0.7	21.6	20	10
Jul-14	0.7	21.1	0.6	19.8	21	10
Aug-14	0.7	22.3	0.7	20.8	19	12
Sep-14	0.8	24.0	0.8	22.5	16	14
Oct-14	0.7	22.0	0.7	21.1	22	9
Nov-14	0.7	21.6	0.7	20.4	22	8
Dec-14	0.8	23.3	0.7	22.6	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	1.47	4/29/14 14:00	0.93	4/29/14 13:00
2	1.90	5/12/14 6:00	5/15/14 12:00	2.47	5/15/14 11:30	1.30	5/15/14 12:05
3	1.25	5/27/14 12:00	5/28/14 18:00	1.22	5/28/14 21:40	0.84	5/28/14 22:10
4	1.84	6/18/14 0:00	6/19/14 18:00	1.78	6/18/14 20:40	1.05	6/18/14 20:40
5	4.06	8/11/14 6:00	8/13/14 0:00	2.27	8/11/14 18:25	1.39	8/11/14 18:55
6	1.61	9/10/14 6:00	9/11/14 0:00	2.24	9/10/14 16:20	1.34	9/10/14 16:40
7	1.32	11/22/14 6:00	11/24/14 18:00	1.33	11/24/14 8:40	0.94	11/24/14 8:05

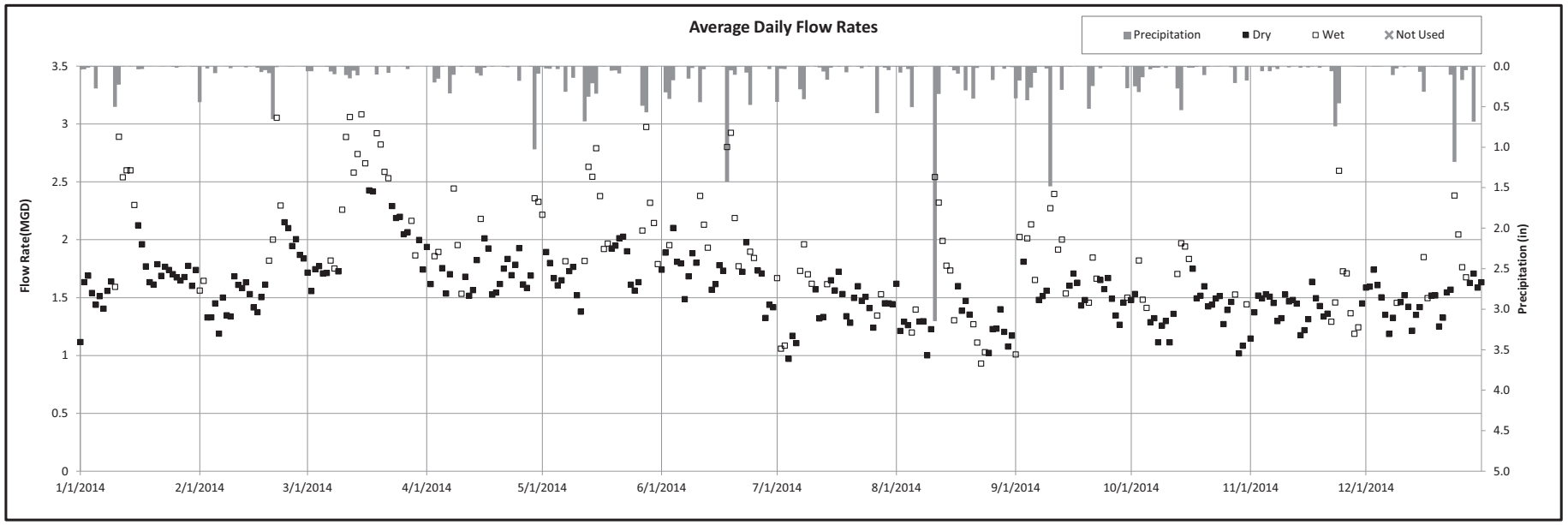
Rouge Valley Sewage Disposal System

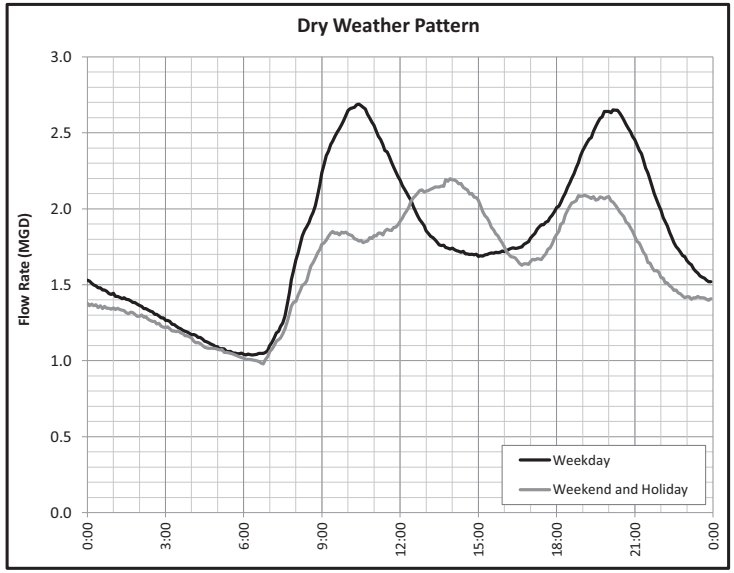
2014 Annual Meter Report

Meter: P-17
Interceptor Manhole ID: LRIR 9-17

Location: North of Michigan Avenue along Railroad
Interceptor Branch: Lower Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	1.8	56.1	1.7	51.5	25	6
Feb-14	1.7	47.6	1.6	45.1	22	6
Mar-14	2.2	69.1	2.0	60.8	16	15
Apr-14	1.8	54.3	1.7	51.3	22	8
May-14	2.0	61.1	1.7	53.9	17	14
Jun-14	1.9	56.1	1.7	51.3	20	10
Jul-14	1.5	45.0	1.4	43.7	21	10
Aug-14	1.4	43.1	1.3	39.7	19	12
Sep-14	1.7	50.1	1.5	46.2	16	14
Oct-14	1.5	45.3	1.4	42.5	22	9
Nov-14	1.5	43.5	1.4	42.3	22	8
Dec-14	1.6	48.4	1.5	45.9	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	3.82	4/29/14 9:55	1.09	4/29/14 10:25
2	1.90	5/12/14 6:00	5/15/14 12:00	4.38	5/14/14 17:15	1.12	5/16/14 10:35
3	1.25	5/27/14 12:00	5/28/14 18:00	4.63	5/27/14 23:10	1.22	5/27/14 23:20
4	1.84	6/18/14 0:00	6/19/14 18:00	4.61	6/18/14 9:35	1.16	6/18/14 10:25
5	4.06	8/11/14 6:00	8/13/14 0:00	5.81	8/11/14 19:00	1.33	8/11/14 18:27
6	1.61	9/10/14 6:00	9/11/14 0:00	4.08	9/10/14 16:05	1.23	9/10/14 16:45
7	1.32	11/22/14 6:00	11/24/14 18:00	4.13	11/24/14 10:50	1.05	11/24/14 11:10

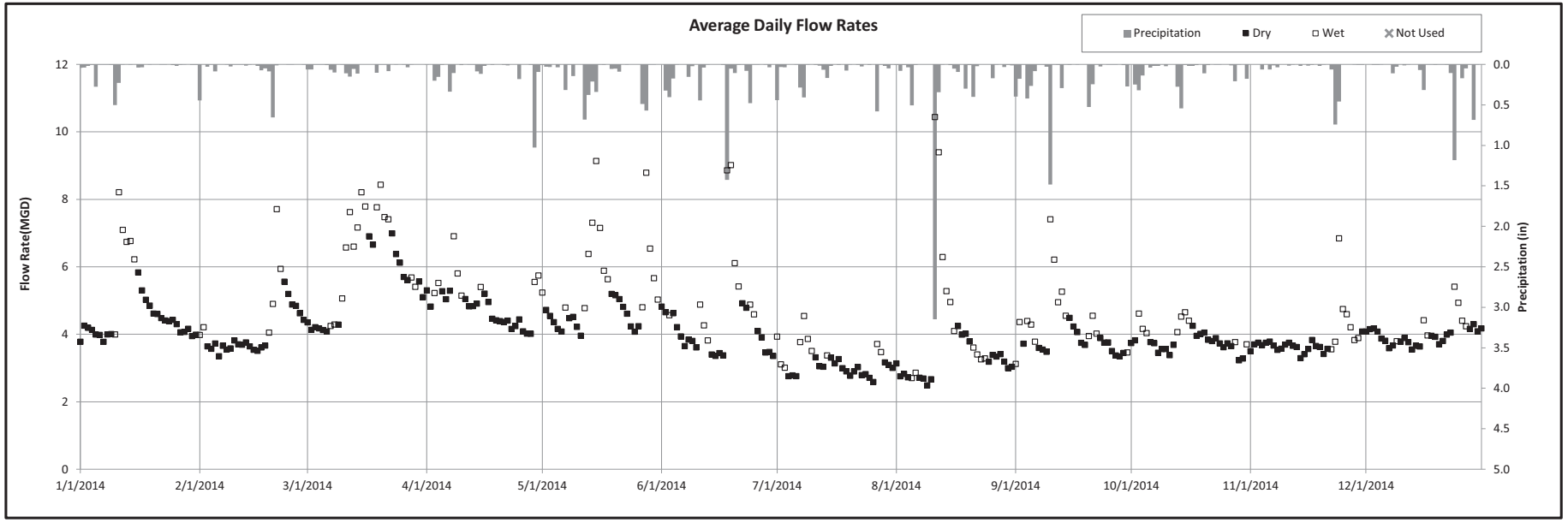
Rouge Valley Sewage Disposal System

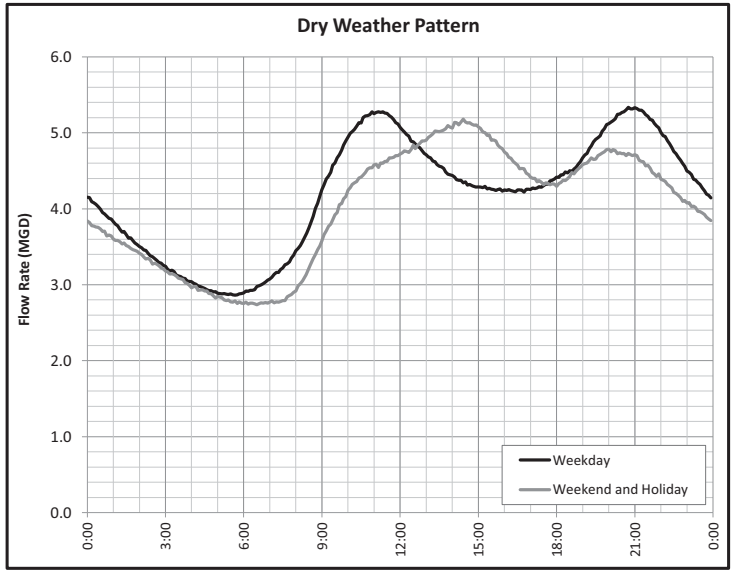
2014 Annual Meter Report

Meter: P-19
Interceptor Manhole ID: RVI 15-17

Location: Josephine Street and Lower Rouge River
Interceptor Branch: Lower Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	4.8	147.6	4.3	134.5	25	6
Feb-14	4.2	118.4	4.0	111.4	22	6
Mar-14	5.9	184.1	5.3	163.4	16	15
Apr-14	4.9	147.9	4.7	139.8	22	8
May-14	5.3	163.7	4.5	139.5	17	14
Jun-14	4.5	135.0	3.9	118.2	20	10
Jul-14	3.2	98.6	3.0	91.8	21	10
Aug-14	3.9	120.3	3.2	98.9	19	12
Sep-14	4.1	123.9	3.7	111.9	16	14
Oct-14	3.9	119.7	3.7	115.3	22	9
Nov-14	3.9	115.5	3.6	109.2	22	8
Dec-14	4.0	124.9	3.9	121.2	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	8.47	4/29/14 9:35	1.61	4/29/14 9:55
2	1.90	5/12/14 6:00	5/15/14 12:00	12.75	5/15/14 12:30	2.02	5/15/14 13:05
3	1.25	5/27/14 12:00	5/28/14 18:00	14.18	5/28/14 0:05	2.30	5/28/14 0:30
4	1.84	6/18/14 0:00	6/19/14 18:00	14.64	6/18/14 7:05	0.93	6/18/14 0:00
5	4.06	8/11/14 6:00	8/13/14 0:00	30.35	8/11/14 19:05	≥ 4	8/11/2014 18:30 - 8/11/2014 23:50
6	1.61	9/10/14 6:00	9/11/14 0:00	16.14	9/10/14 16:30	3.89	9/10/14 0:00
7	1.32	11/22/14 6:00	11/24/14 18:00	8.45	11/24/14 11:40	1.63	11/24/14 11:50

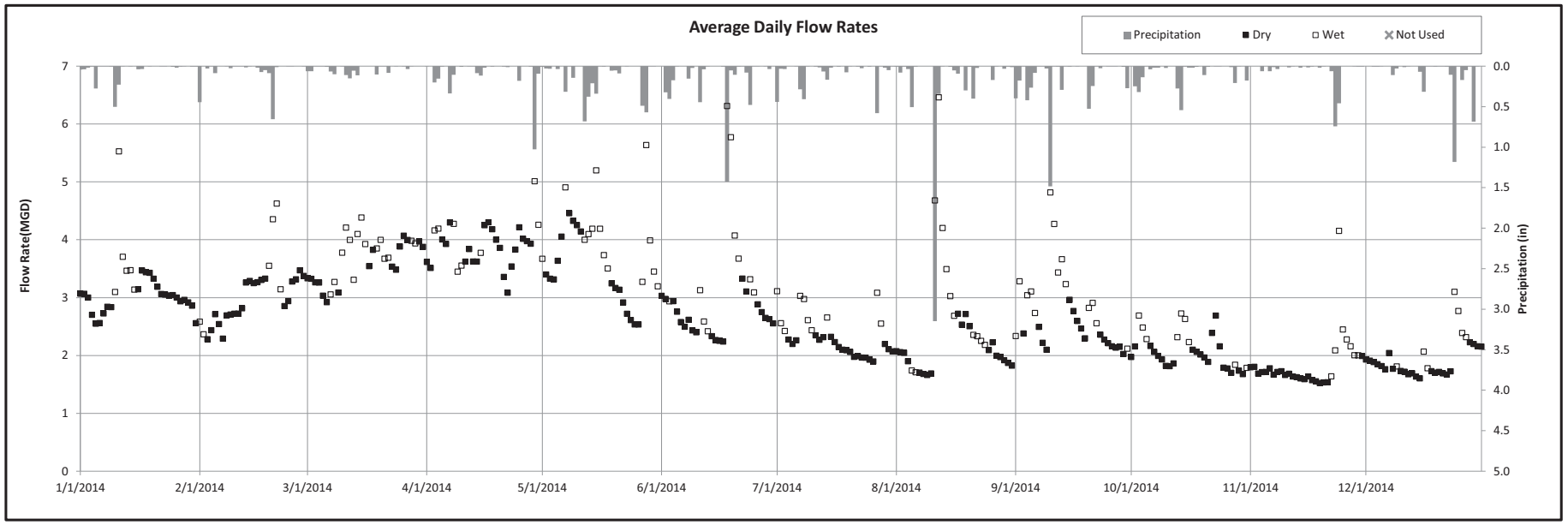
Rouge Valley Sewage Disposal System

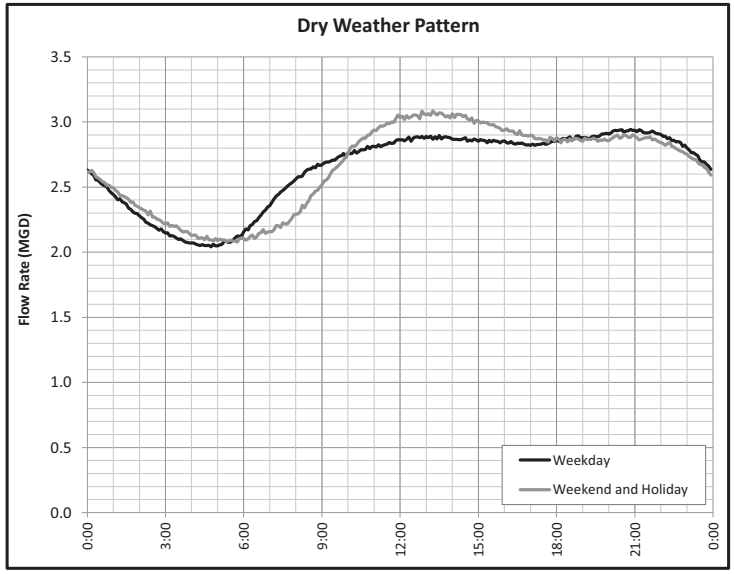
2014 Annual Meter Report

Meter: P-20
Interceptor Manhole ID: WI E-35

Location: Michigan Avenue and Henry Ruff Road
Interceptor Branch: Lower Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	3.1	97.0	3.0	92.7	25	6
Feb-14	3.1	85.4	3.0	82.6	22	6
Mar-14	3.7	113.5	3.5	109.4	16	15
Apr-14	3.9	117.3	3.9	115.5	22	8
May-14	3.7	114.7	3.4	105.4	17	14
Jun-14	3.0	90.6	2.7	79.8	20	10
Jul-14	2.3	72.2	2.1	66.0	21	10
Aug-14	2.5	76.3	2.1	63.9	19	12
Sep-14	2.7	81.9	2.4	70.5	16	14
Oct-14	2.1	64.8	2.0	61.7	22	9
Nov-14	1.9	55.5	1.7	50.1	22	8
Dec-14	1.9	60.1	1.8	56.7	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	8.79	4/29/14 9:35	2.49	4/29/14 10:05
2	1.90	5/12/14 6:00	5/15/14 12:00	7.81	5/13/14 16:25	2.50	5/13/14 16:55
3	1.25	5/27/14 12:00	5/28/14 18:00	8.93	5/28/14 0:00	2.78	5/28/14 0:20
4	1.84	6/18/14 0:00	6/19/14 18:00	9.64	6/18/14 6:30	2.99	6/18/14 5:25
5	4.06	8/11/14 6:00	8/13/14 0:00	9.64	8/11/14 15:25	7.88	8/11/14 18:30
6	1.61	9/10/14 6:00	9/11/14 0:00	9.69	9/10/14 14:35	3.12	9/10/14 15:40
7	1.32	11/22/14 6:00	11/24/14 18:00	7.76	11/24/14 0:50	2.53	11/24/14 1:30

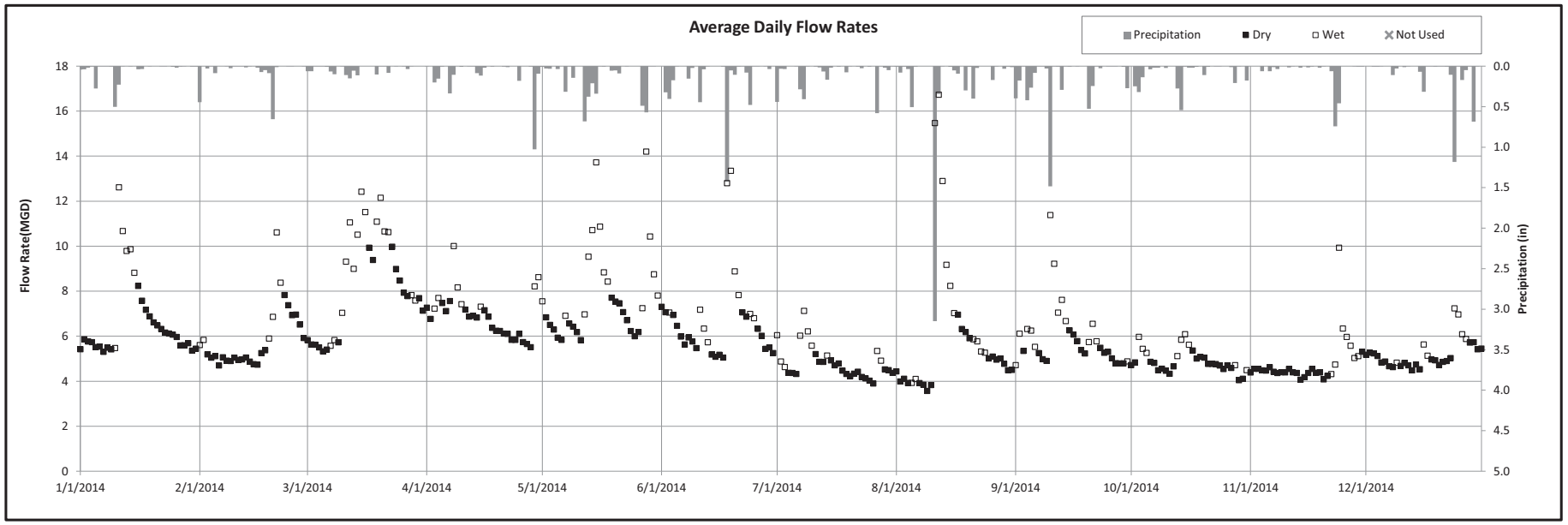
Rouge Valley Sewage Disposal System

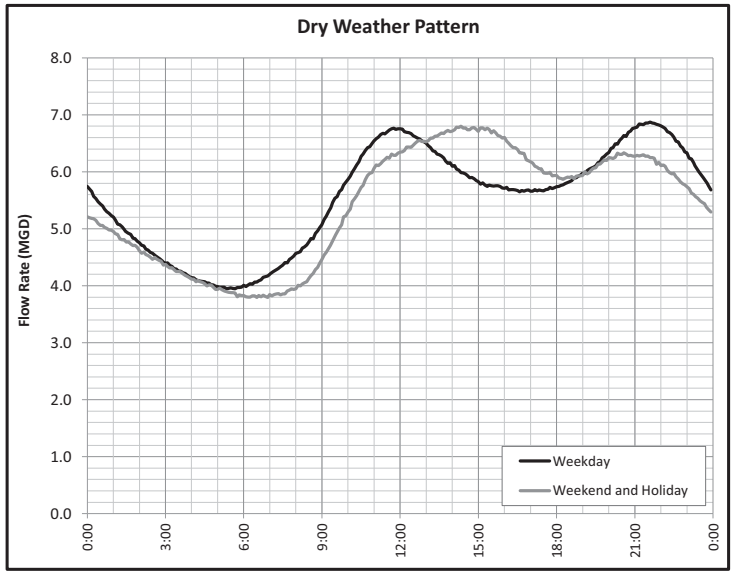
2014 Annual Meter Report

Meter: P-21
Interceptor Manhole ID: RVI 14-19

Location: Merriman Road and Lower Rouge River
Interceptor Branch: Lower Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	6.7	208.6	6.1	187.6	25	6
Feb-14	5.9	164.6	5.5	154.6	22	6
Mar-14	8.3	258.5	7.3	225.4	16	15
Apr-14	7.0	208.5	6.5	195.9	22	8
May-14	7.9	243.4	6.6	203.1	17	14
Jun-14	6.8	202.5	6.0	179.4	20	10
Jul-14	4.8	149.7	4.5	138.6	21	10
Aug-14	6.2	190.7	4.8	148.2	19	12
Sep-14	6.0	178.5	5.3	158.7	16	14
Oct-14	4.9	151.9	4.7	145.4	22	9
Nov-14	4.8	144.6	4.4	132.9	22	8
Dec-14	5.2	161.2	5.0	154.4	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	13.64	4/29/14 10:10	1.61	4/29/14 10:15
2	1.90	5/12/14 6:00	5/15/14 12:00	17.61	5/15/14 13:30	1.85	5/15/14 13:10
3	1.25	5/27/14 12:00	5/28/14 18:00	21.04	5/28/14 0:35	2.17	5/28/14 0:55
4	1.84	6/18/14 0:00	6/19/14 18:00	21.68	6/18/14 7:35	2.08	6/18/14 7:55
5	4.06	8/11/14 6:00	8/13/14 0:00	41.81	8/11/14 19:25	9.18	8/11/14 22:45
6	1.61	9/10/14 6:00	9/11/14 0:00	27.99	9/10/14 15:30	2.46	9/10/14 15:55
7	1.32	11/22/14 6:00	11/24/14 18:00	12.77	11/24/14 1:45	1.58	11/24/14 2:10

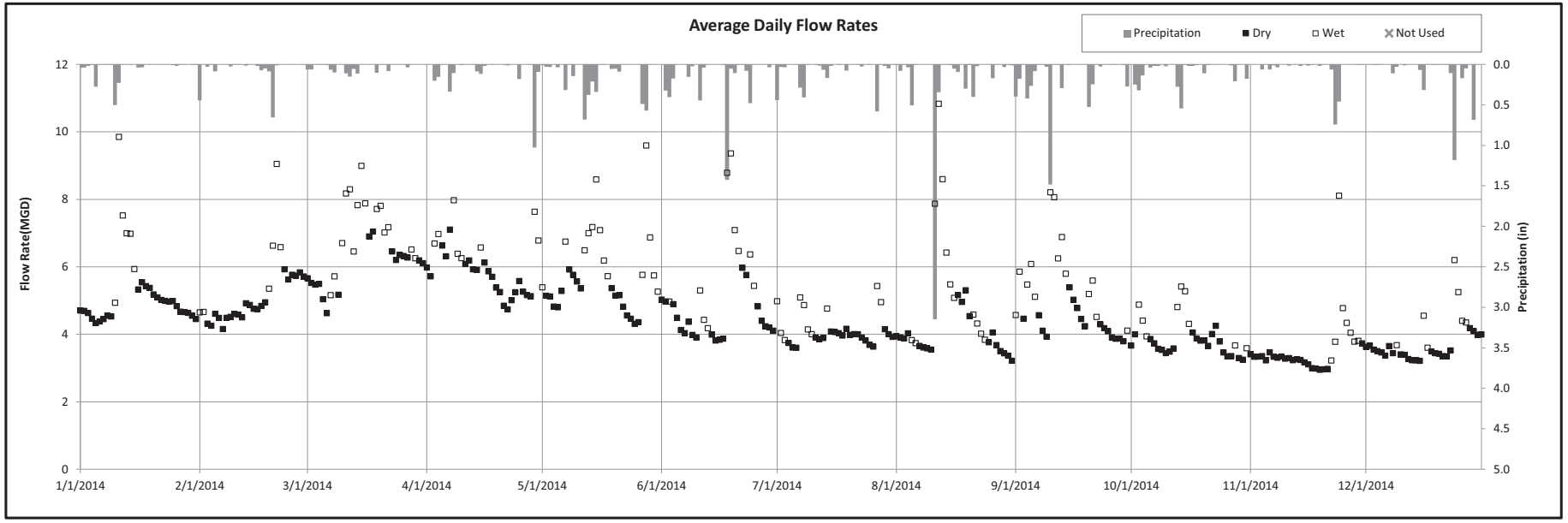
Rouge Valley Sewage Disposal System

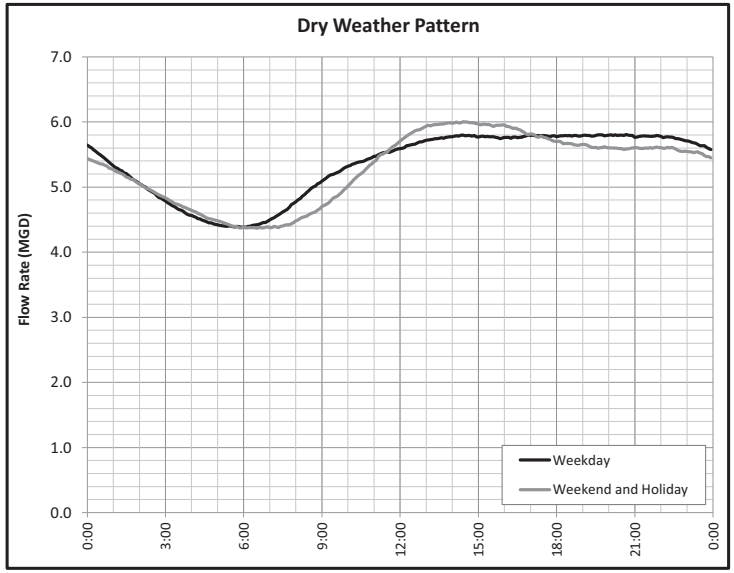
2014 Annual Meter Report

Meter: P-24
Interceptor Manhole ID: WI E-08

Location: Michigan Avenue West of Beech Daly Road
Interceptor Branch: Lower Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	5.3	162.8	4.8	149.4	25	6
Feb-14	5.2	145.0	4.9	137.8	22	6
Mar-14	6.5	202.4	5.9	183.8	16	15
Apr-14	6.0	180.3	5.7	170.7	22	8
May-14	5.8	179.5	5.1	156.9	17	14
Jun-14	5.0	151.2	4.4	133.2	20	10
Jul-14	4.1	128.0	3.9	121.2	21	10
Aug-14	4.6	143.8	4.0	122.5	19	12
Sep-14	5.0	150.6	4.3	129.3	16	14
Oct-14	3.9	121.2	3.7	114.1	22	9
Nov-14	3.6	107.1	3.2	97.2	22	8
Dec-14	3.8	116.9	3.5	109.4	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	10.91	4/29/14 10:10	1.45	4/29/14 10:10
2	1.90	5/12/14 6:00	5/15/14 12:00	10.85	5/13/14 17:50	1.50	5/15/14 16:45
3	1.25	5/27/14 12:00	5/28/14 18:00	12.33	5/28/14 1:25	1.95	5/28/14 2:20
4	1.84	6/18/14 0:00	6/19/14 18:00	12.56	6/18/14 8:20	1.63	6/18/14 9:05
5	4.06	8/11/14 6:00	8/13/14 0:00	17.58	8/11/14 16:25	6.77	8/12/14 17:20
6	1.61	9/10/14 6:00	9/11/14 0:00	16.39	9/10/14 18:30	5.32	9/10/14 18:40
7	1.32	11/22/14 6:00	11/24/14 18:00	11.48	11/24/14 1:40	1.47	11/24/14 1:20

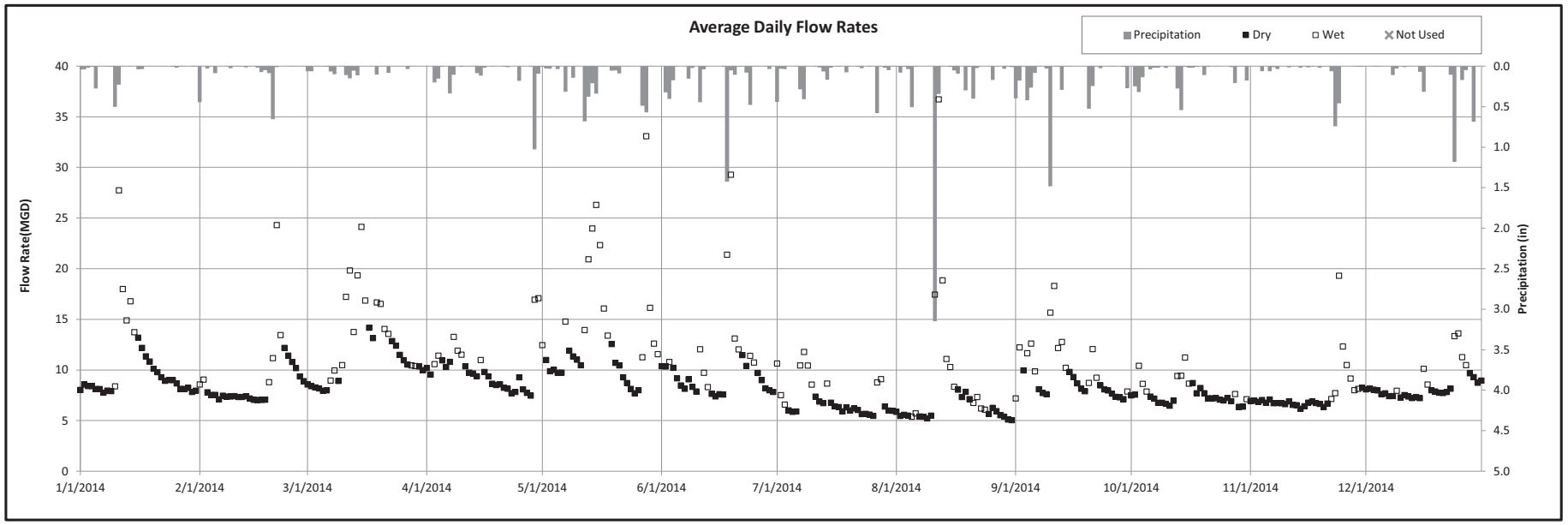
Rouge Valley Sewage Disposal System

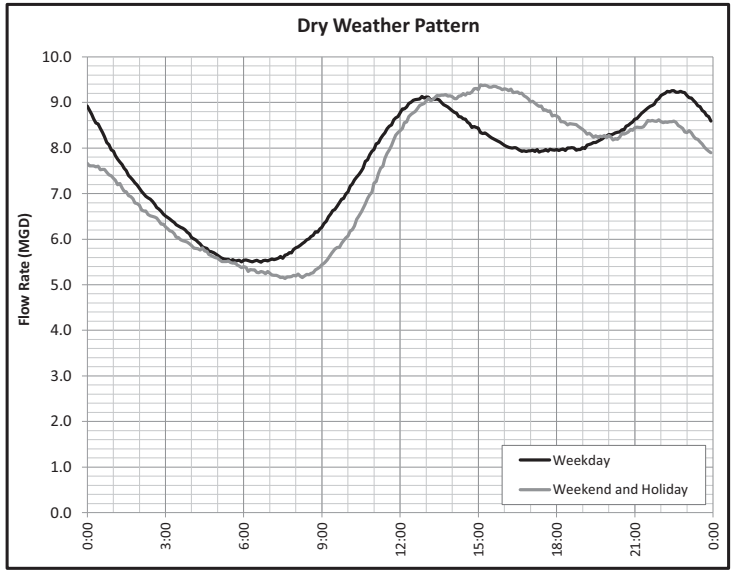
2014 Annual Meter Report

Meter: P-25
Interceptor Manhole ID: RVI 5-14

Location: Lower Rouge River West of Beech Daly Road
Interceptor Branch: Lower Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	10.5	325.5	9.0	279.9	25	6
Feb-14	9.1	255.1	8.2	228.8	22	6
Mar-14	12.5	386.3	10.3	318.1	16	15
Apr-14	10.1	303.9	9.1	273.0	22	8
May-14	13.5	419.4	10.0	310.9	17	14
Jun-14	10.5	315.6	8.8	265.2	20	10
Jul-14	7.2	222.0	6.2	191.0	21	10
Aug-14	8.2	253.3	6.0	184.5	19	12
Sep-14	9.7	291.6	8.2	246.0	16	14
Oct-14	7.7	238.4	7.2	222.9	22	9
Nov-14	7.7	231.6	6.8	203.7	22	8
Dec-14	8.6	265.7	7.9	245.8	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	28.71	4/30/14 1:45	2.24	4/29/14 12:25
2	1.90	5/12/14 6:00	5/15/14 12:00	35.66	5/15/14 16:05	2.59	5/15/14 16:20
3	1.25	5/27/14 12:00	5/28/14 18:00	41.71	5/28/14 1:50	2.81	5/28/14 1:55
4	1.84	6/18/14 0:00	6/19/14 18:00	39.39	6/19/14 9:25	2.57	6/18/14 23:35
5	4.06	8/11/14 6:00	8/13/14 0:00	40.63	8/11/14 19:45	12.28	8/11/14 21:10
6	1.61	9/10/14 6:00	9/11/14 0:00	34.72	9/10/14 16:35	3.61	9/10/14 18:50
7	1.32	11/22/14 6:00	11/24/14 18:00	32.72	11/24/14 13:20	2.28	11/24/14 13:20

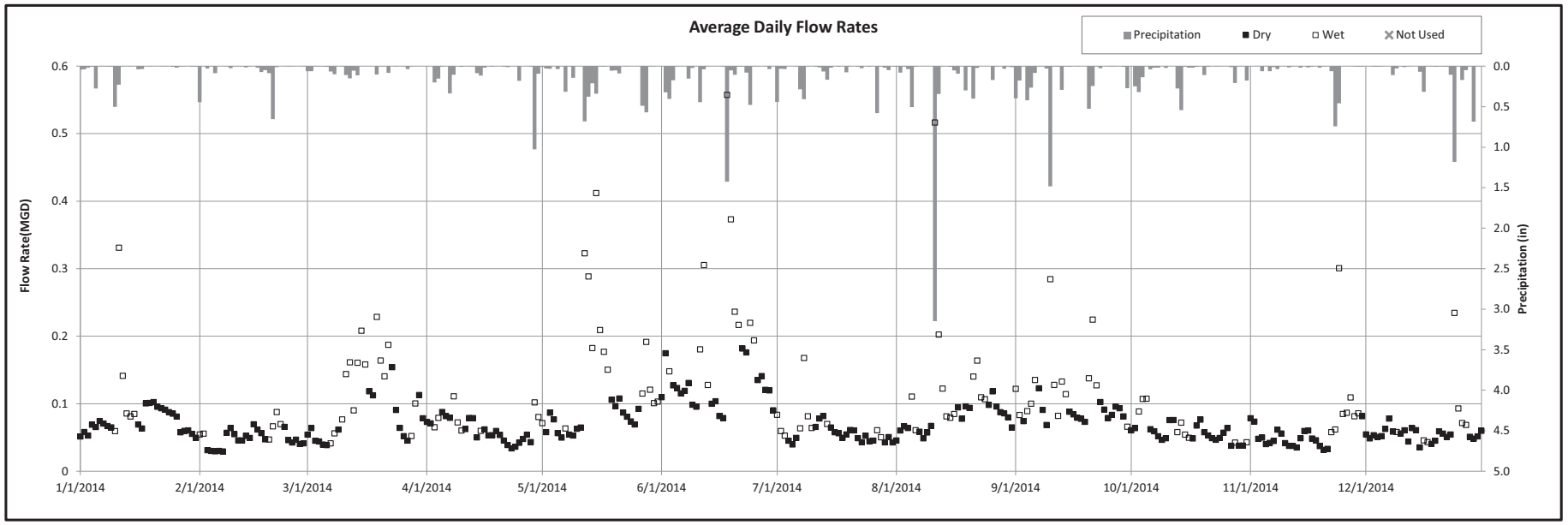
Rouge Valley Sewage Disposal System

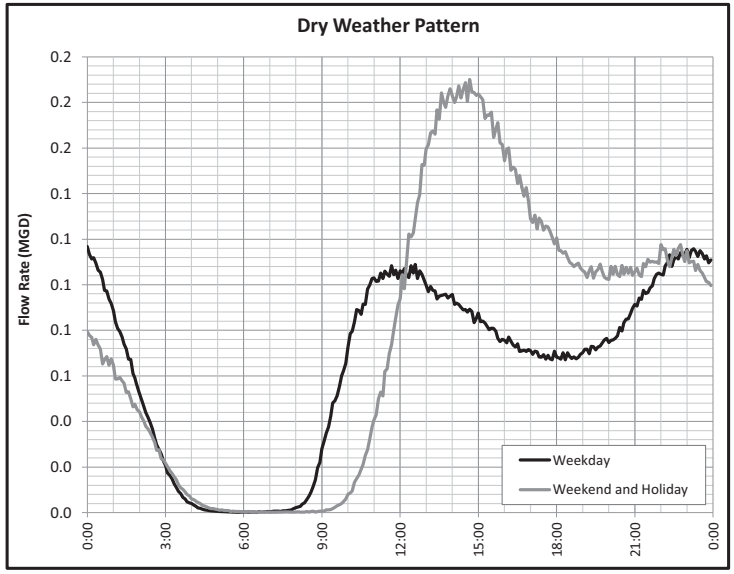
2014 Annual Meter Report

Meter: P-26
Interceptor Manhole ID: PWI 2-05

Location: Plymouth Road East of I-275
Interceptor Branch: Middle Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	0.1	2.5	0.1	2.2	25	6
Feb-14	0.1	1.4	0.1	1.4	22	6
Mar-14	0.1	3.1	0.1	2.2	16	15
Apr-14	0.1	1.8	0.1	1.8	22	8
May-14	0.1	3.7	0.1	2.5	17	14
Jun-14	0.2	5.1	0.1	3.6	20	10
Jul-14	0.1	1.9	0.1	1.6	21	10
Aug-14	0.1	3.1	0.1	2.5	19	12
Sep-14	0.1	3.3	0.1	2.7	16	14
Oct-14	0.1	1.9	0.1	1.9	22	9
Nov-14	0.1	2.1	0.1	1.5	22	8
Dec-14	0.1	1.9	0.1	1.6	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	0.47	4/29/14 11:35	0.37	4/29/14 11:55
2	1.90	5/12/14 6:00	5/15/14 12:00	1.66	5/12/14 20:05	0.58	5/12/14 20:10
3	1.25	5/27/14 12:00	5/28/14 18:00	0.54	5/28/14 16:30	0.41	5/28/14 15:40
4	1.84	6/18/14 0:00	6/19/14 18:00	1.64	6/18/14 9:25	0.59	6/18/14 9:50
5	4.06	8/11/14 6:00	8/13/14 0:00	2.68	8/11/14 19:35	0.75	8/11/14 20:05
6	1.61	9/10/14 6:00	9/11/14 0:00	1.20	9/10/14 16:50	0.52	9/10/14 17:25
7	1.32	11/22/14 6:00	11/24/14 18:00	0.89	11/24/14 2:45	0.43	11/24/14 3:05

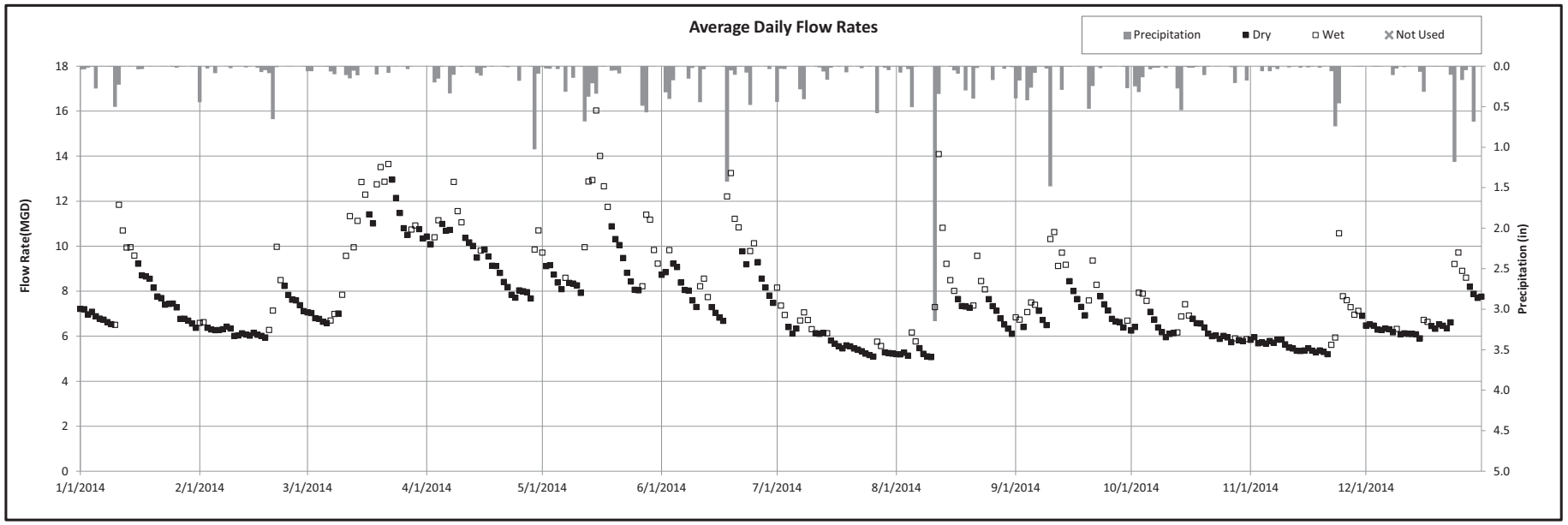
Rouge Valley Sewage Disposal System

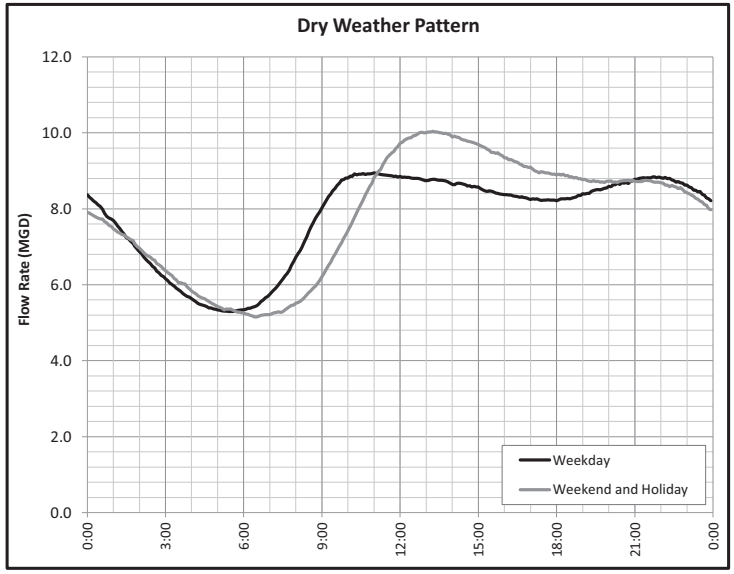
2014 Annual Meter Report

Meter: LV-Basin
Interceptor Manhole ID: RVI 12-12

Location: Inkster Road and Oakley Street
Interceptor Branch: Middle Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	7.8	242.1	7.3	227.5	25	6
Feb-14	6.8	189.6	6.6	184.0	22	6
Mar-14	10.1	312.5	9.3	289.2	16	15
Apr-14	9.7	290.7	9.2	277.2	22	8
May-14	10.0	308.8	8.9	274.4	17	14
Jun-14	8.8	265.2	8.2	245.1	20	10
Jul-14	6.0	185.1	5.6	174.5	21	10
Aug-14	7.2	222.3	6.3	194.4	19	12
Sep-14	7.7	230.4	7.1	213.6	16	14
Oct-14	6.4	199.3	6.2	192.8	22	9
Nov-14	6.1	182.4	5.6	168.6	22	8
Dec-14	6.9	213.6	6.6	203.4	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	13.31	4/29/14 10:35	3.68	4/29/14 11:15
2	1.90	5/12/14 6:00	5/15/14 12:00	18.79	5/15/14 13:00	5.12	5/15/14 12:45
3	1.25	5/27/14 12:00	5/28/14 18:00	17.47	5/28/14 15:50	4.48	5/28/14 16:00
4	1.84	6/18/14 0:00	6/19/14 18:00	17.55	6/18/14 9:05	4.61	6/18/14 10:00
5	4.06	8/11/14 6:00	8/13/14 0:00	17.97	8/12/14 5:00	12.84	8/12/14 0:00
6	1.61	9/10/14 6:00	9/11/14 0:00	18.32	9/10/14 21:00	8.35	9/10/14 19:00
7	1.32	11/22/14 6:00	11/24/14 18:00	12.54	11/24/14 2:10	3.59	11/24/14 2:15

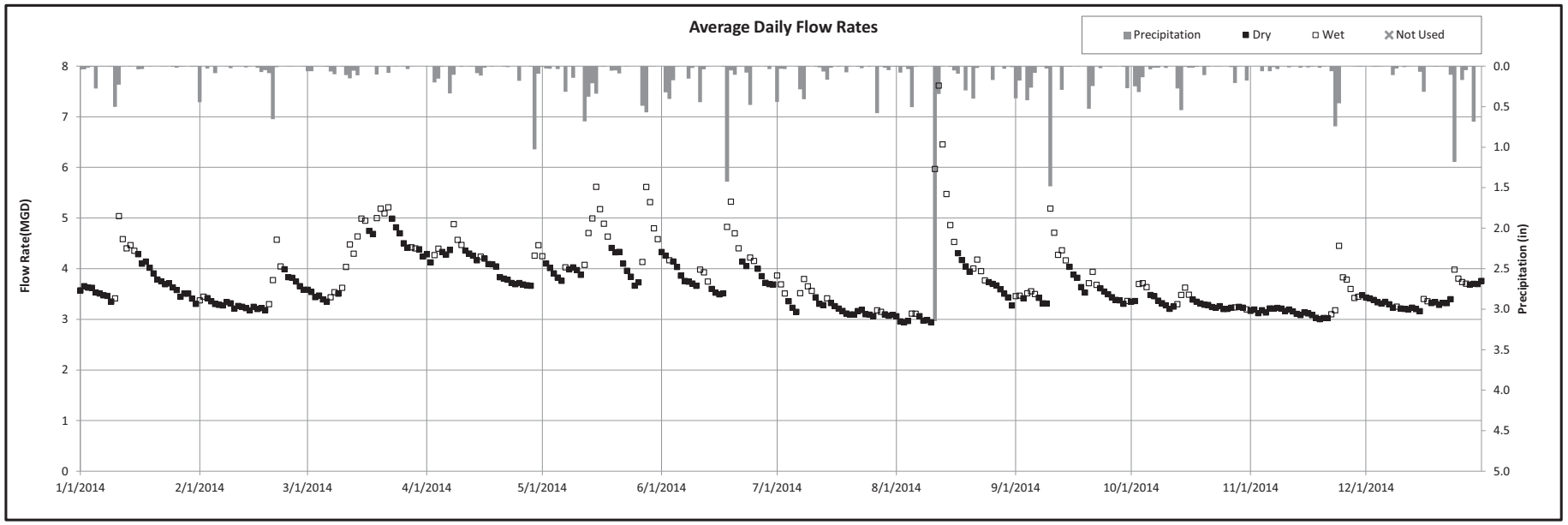
Rouge Valley Sewage Disposal System

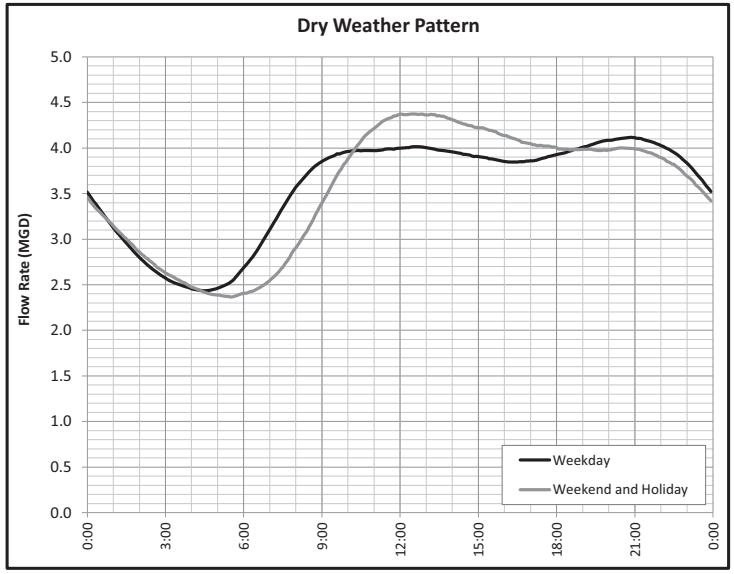
2014 Annual Meter Report

Meter: WE-14
Interceptor Manhole ID: --

Location: Hines Drive West of Merriman
Interceptor Branch: Middle Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	3.8	117.8	3.7	113.5	25	6
Feb-14	3.5	97.4	3.4	95.2	22	6
Mar-14	4.3	133.0	4.1	127.4	16	15
Apr-14	4.1	123.9	4.0	120.6	22	8
May-14	4.3	134.5	4.0	123.7	17	14
Jun-14	4.0	120.3	3.8	115.2	20	10
Jul-14	3.3	102.3	3.2	98.6	21	10
Aug-14	3.9	122.1	3.4	106.3	19	12
Sep-14	3.7	111.3	3.5	105.9	16	14
Oct-14	3.4	103.9	3.3	102.3	22	9
Nov-14	3.3	98.1	3.2	94.5	22	8
Dec-14	3.4	106.0	3.4	104.5	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	5.66	4/29/14 9:15	1.58	4/29/14 9:30
2	1.90	5/12/14 6:00	5/15/14 12:00	6.42	5/15/14 9:50	1.80	5/15/14 10:55
3	1.25	5/27/14 12:00	5/28/14 18:00	7.08	5/28/14 13:35	1.90	5/27/14 20:35
4	1.84	6/18/14 0:00	6/19/14 18:00	6.07	6/18/14 23:00	1.70	6/18/14 23:20
5	4.06	8/11/14 6:00	8/13/14 0:00	9.40	8/11/14 17:10	8.88	8/11/14 20:00
6	1.61	9/10/14 6:00	9/11/14 0:00	9.99	9/10/14 15:55	3.78	9/10/14 18:55
7	1.32	11/22/14 6:00	11/24/14 18:00	5.11	11/24/14 0:30	1.52	11/24/14 1:05

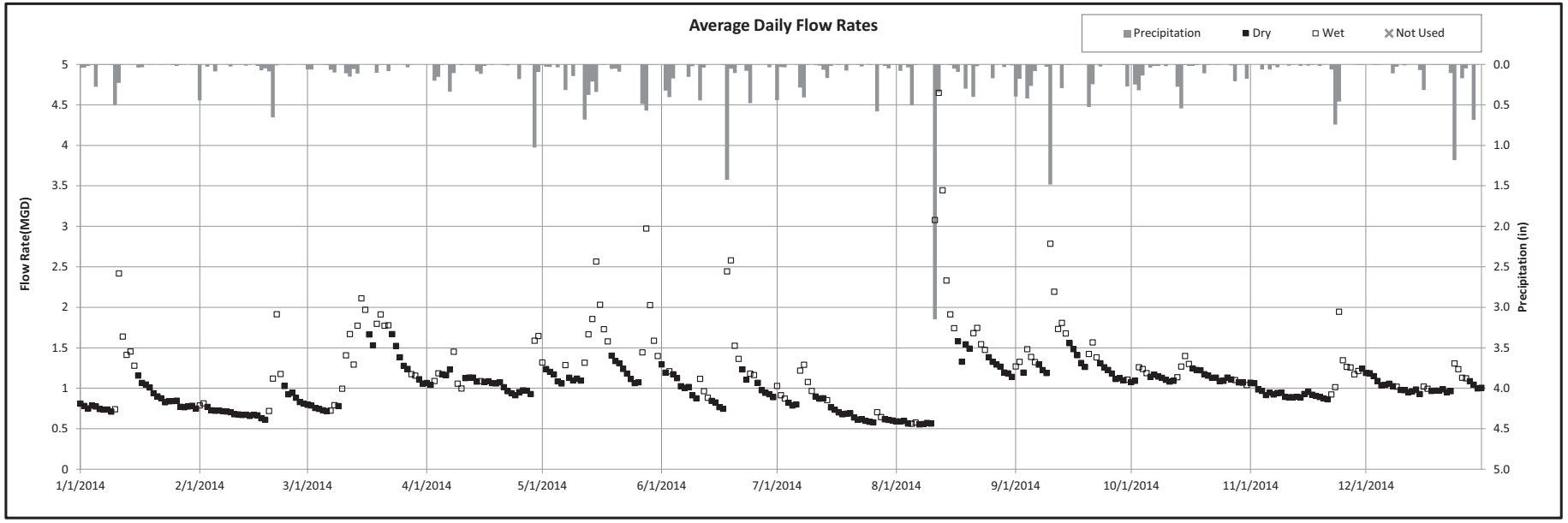
Rouge Valley Sewage Disposal System

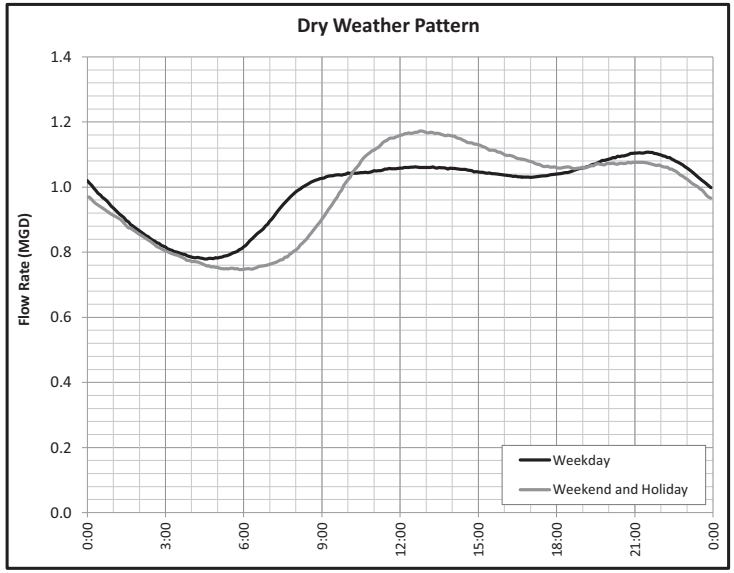
2014 Annual Meter Report

Meter: WE-28
Interceptor Manhole ID: --

Location: Merriman Road and Lower Rouge River
Interceptor Branch: Lower Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	1.0	30.1	0.8	26.0	25	6
Feb-14	0.8	23.0	0.8	21.0	22	6
Mar-14	1.3	40.0	1.1	34.4	16	15
Apr-14	1.1	33.3	1.1	31.5	22	8
May-14	1.4	44.6	1.2	36.3	17	14
Jun-14	1.2	34.5	1.0	30.0	20	10
Jul-14	0.8	24.5	0.7	21.7	21	10
Aug-14	1.4	44.0	1.0	31.6	19	12
Sep-14	1.4	42.6	1.3	37.8	16	14
Oct-14	1.2	36.0	1.1	35.0	22	9
Nov-14	1.0	30.9	1.0	28.5	22	8
Dec-14	1.0	32.2	1.0	31.6	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	3.14	4/29/14 9:45	0.89	4/29/14 9:55
2	1.90	5/12/14 6:00	5/15/14 12:00	3.29	5/15/14 9:50	0.90	5/15/14 10:15
3	1.25	5/27/14 12:00	5/28/14 18:00	4.70	5/28/14 0:30	1.11	5/28/14 0:30
4	1.84	6/18/14 0:00	6/19/14 18:00	5.22	6/18/14 7:45	1.20	6/18/14 8:15
5	4.06	8/11/14 6:00	8/13/14 0:00	8.72	8/11/14 18:40	1.67	8/11/14 19:02
6	1.61	9/10/14 6:00	9/11/14 0:00	7.13	9/10/14 15:40	1.40	9/10/14 16:10
7	1.32	11/22/14 6:00	11/24/14 18:00	3.01	11/24/14 1:20	0.86	11/24/14 1:35

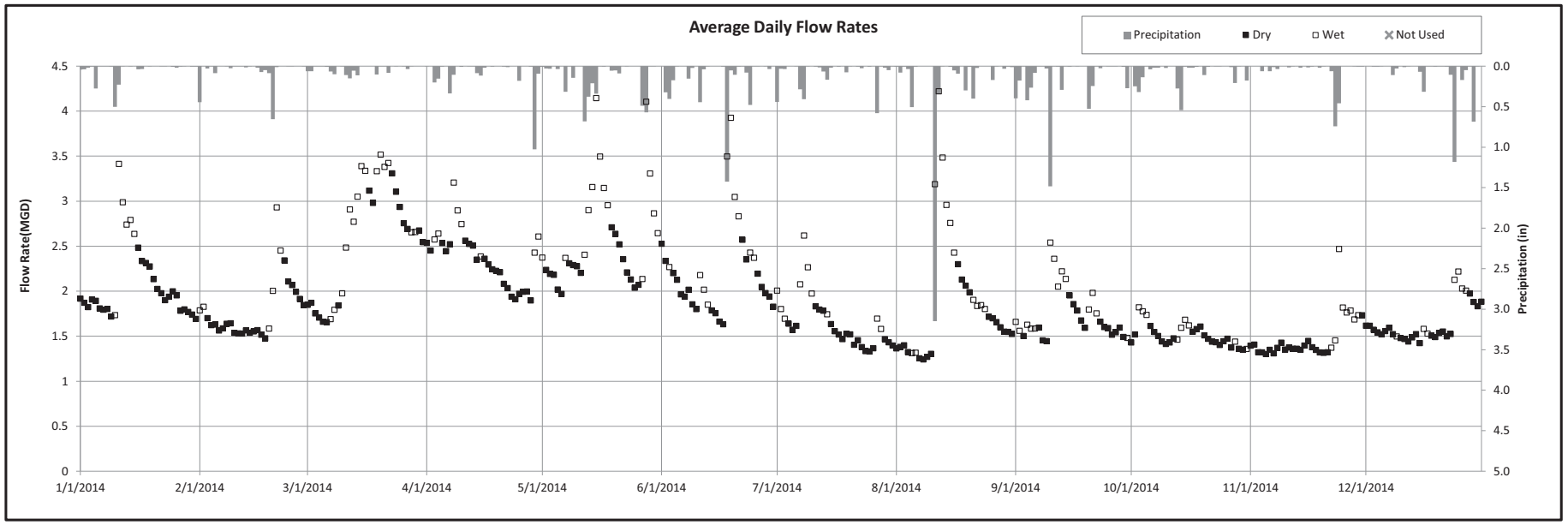
Rouge Valley Sewage Disposal System

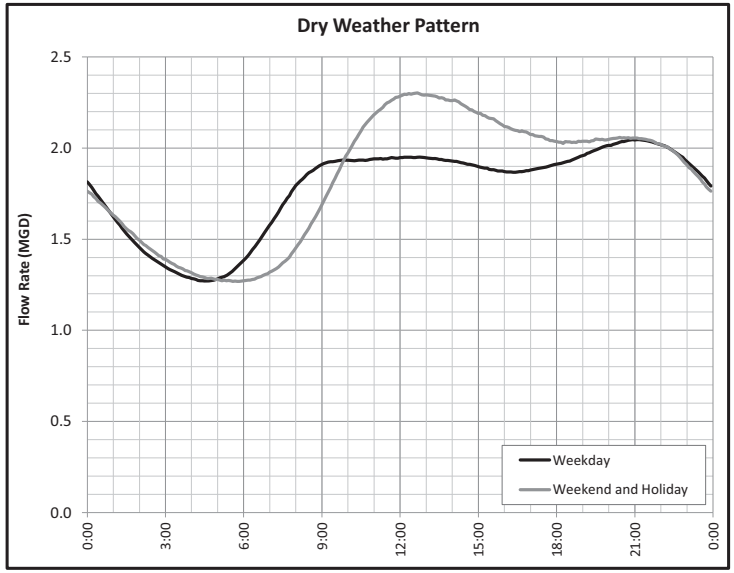
2014 Annual Meter Report

Meter: WE-25
Interceptor Manhole ID: --

Location: Thinbark Road at Lower Rouge River
Interceptor Branch: Lower Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	2.1	65.1	2.0	60.5	25	6
Feb-14	1.8	50.1	1.7	47.6	22	6
Mar-14	2.6	80.9	2.4	74.4	16	15
Apr-14	2.4	71.1	2.3	67.5	22	8
May-14	2.6	80.3	2.3	70.1	17	14
Jun-14	2.2	66.9	2.0	60.9	20	10
Jul-14	1.7	51.5	1.5	47.1	21	10
Aug-14	1.9	59.5	1.6	49.6	19	12
Sep-14	1.7	52.2	1.6	48.6	16	14
Oct-14	1.5	46.8	1.5	45.6	22	9
Nov-14	1.5	44.4	1.4	41.4	22	8
Dec-14	1.7	51.2	1.6	49.3	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	3.40	4/29/14 10:20	1.08	4/29/14 10:45
2	1.90	5/12/14 6:00	5/15/14 12:00	5.10	5/15/14 11:35	1.37	5/15/14 11:15
3	1.25	5/27/14 12:00	5/28/14 18:00	5.09	5/28/14 1:50	1.37	5/28/14 1:30
4	1.84	6/18/14 0:00	6/19/14 18:00	5.32	6/18/14 8:40	1.42	6/18/14 8:45
5	4.06	8/11/14 6:00	8/13/14 0:00	8.06	8/11/14 18:45	3.45	8/11/14 19:15
6	1.61	9/10/14 6:00	9/11/14 0:00	5.33	9/10/14 15:55	1.46	9/10/14 17:00
7	1.32	11/22/14 6:00	11/24/14 18:00	3.21	11/24/14 1:45	1.06	11/24/14 2:05

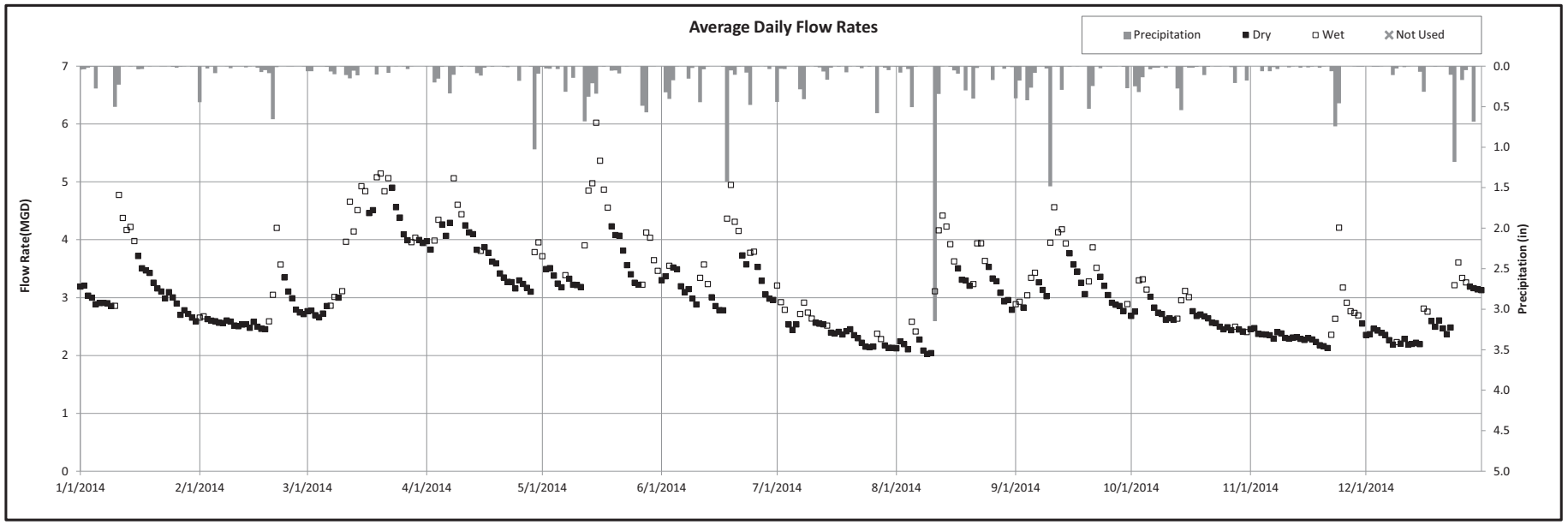
Rouge Valley Sewage Disposal System

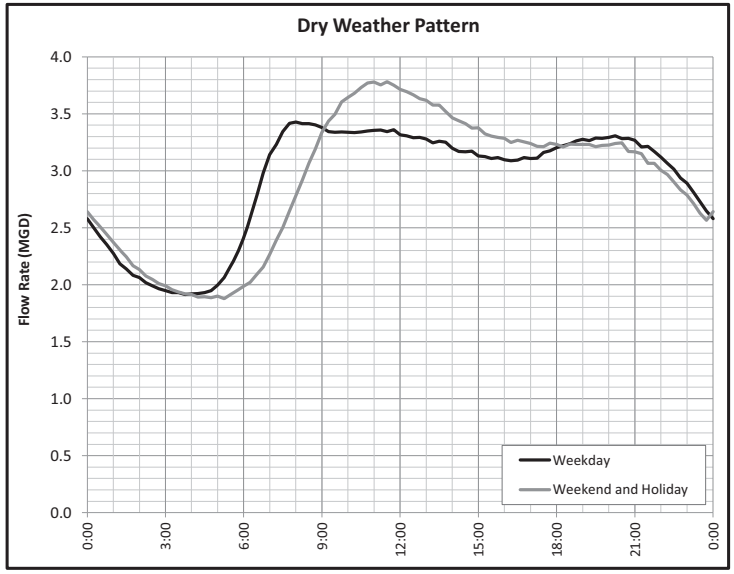
2014 Annual Meter Report

Meter: LV-4
Interceptor Manhole ID: --

Location: Alpine Road and 5 Mile Road
Interceptor Branch: Middle Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	3.2	100.4	3.0	94.2	25	6
Feb-14	2.8	77.3	2.7	74.2	22	6
Mar-14	4.0	122.5	3.6	112.8	16	15
Apr-14	3.8	114.9	3.7	110.4	22	8
May-14	3.9	119.7	3.5	108.2	17	14
Jun-14	3.4	102.6	3.2	95.4	20	10
Jul-14	2.5	76.6	2.4	72.9	21	10
Aug-14	3.1	95.5	2.8	85.3	19	12
Sep-14	3.3	100.2	3.2	94.5	16	14
Oct-14	2.7	84.3	2.6	81.5	22	9
Nov-14	2.5	74.4	2.3	69.6	22	8
Dec-14	2.6	80.9	2.5	77.2	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	5.36	4/29/14 9:05	1.75	4/29/14 9:30
2	1.90	5/12/14 6:00	5/15/14 12:00	6.99	5/15/14 9:35	2.19	5/15/14 10:00
3	1.25	5/27/14 12:00	5/28/14 18:00	6.34	5/28/14 13:35	1.98	5/28/14 14:15
4	1.84	6/18/14 0:00	6/19/14 18:00	5.91	6/18/14 6:50	2.11	6/18/14 7:30
5	4.06	8/11/14 6:00	8/13/14 0:00	7.09	8/11/14 20:10	4.96	8/11/14 18:15
6	1.61	9/10/14 6:00	9/11/14 0:00	5.75	9/10/14 15:05	2.22	9/10/14 16:00
7	1.32	11/22/14 6:00	11/24/14 18:00	5.02	11/24/14 0:35	1.71	11/24/14 1:00

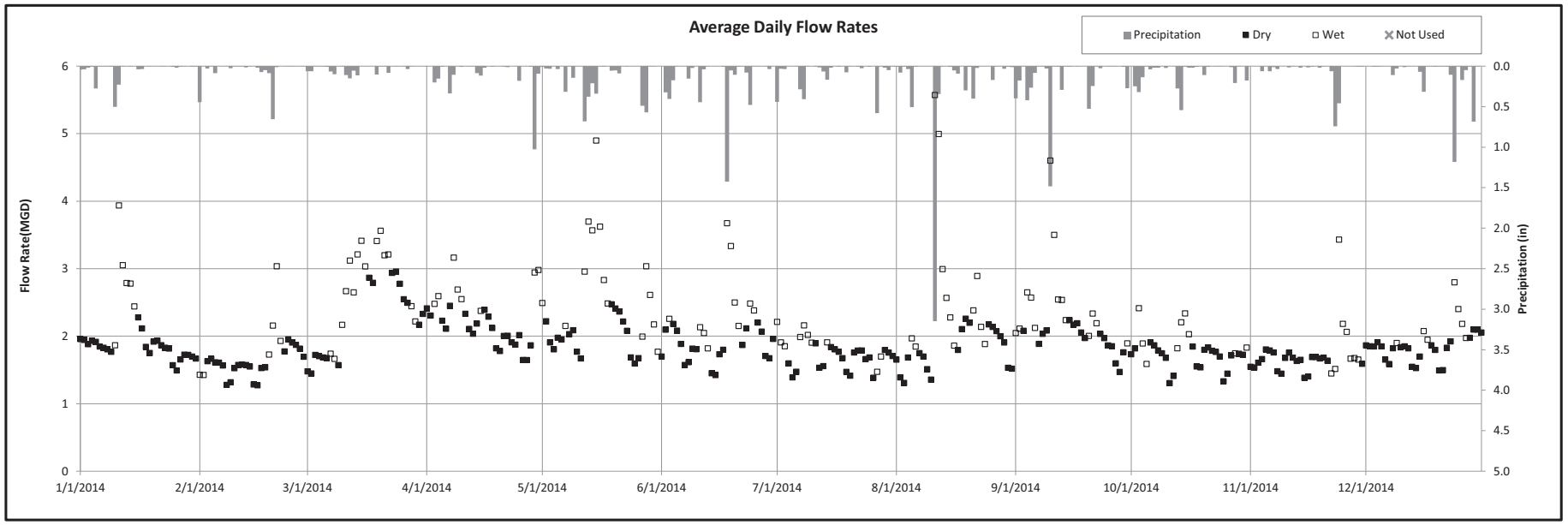
Rouge Valley Sewage Disposal System

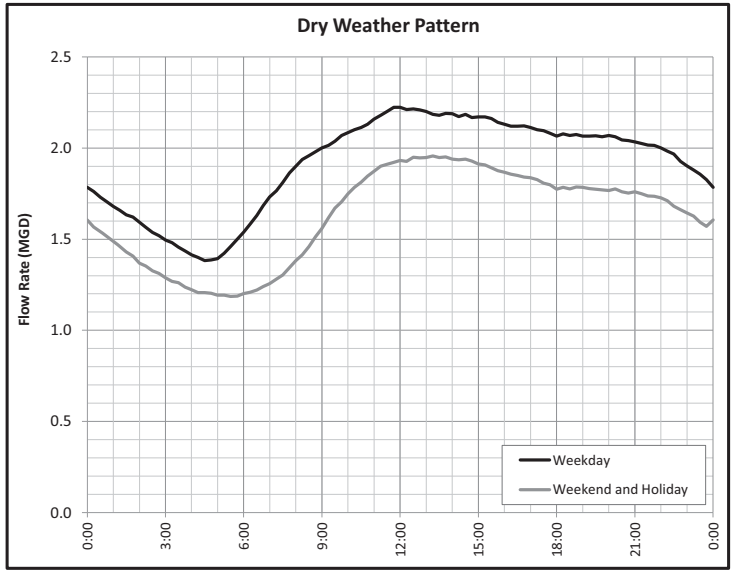
2014 Annual Meter Report

Meter: LV-11
Interceptor Manhole ID: --

Location: Lyndon Road and Inkster Road
Interceptor Branch: Middle Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	2.0	62.6	1.8	56.7	25	6
Feb-14	1.7	46.8	1.6	44.8	22	6
Mar-14	2.5	76.9	2.2	68.2	16	15
Apr-14	2.2	67.2	2.1	62.1	22	8
May-14	2.4	74.1	2.0	62.0	17	14
Jun-14	2.1	61.5	1.8	55.2	20	10
Jul-14	1.7	53.9	1.7	51.2	21	10
Aug-14	2.2	67.6	1.8	55.5	19	12
Sep-14	2.2	66.6	2.0	58.5	16	14
Oct-14	1.8	54.9	1.7	52.1	22	9
Nov-14	1.7	51.3	1.6	48.9	22	8
Dec-14	1.9	58.6	1.8	55.8	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	4.96	4/29/14 9:35	1.10	4/29/14 10:15
2	1.90	5/12/14 6:00	5/15/14 12:00	7.03	5/15/14 11:35	1.30	5/15/14 12:15
3	1.25	5/27/14 12:00	5/28/14 18:00	6.07	5/28/14 14:35	1.21	5/28/14 15:00
4	1.84	6/18/14 0:00	6/19/14 18:00	5.81	6/18/14 7:35	1.19	6/18/14 8:00
5	4.06	8/11/14 6:00	8/13/14 0:00	17.41	8/11/14 19:25	9.27	8/11/14 23:15
6	1.61	9/10/14 6:00	9/11/14 0:00	11.44	9/10/14 15:50	3.68	9/10/14 18:45
7	1.32	11/22/14 6:00	11/24/14 18:00	5.13	11/24/14 1:20	1.11	11/24/14 1:15

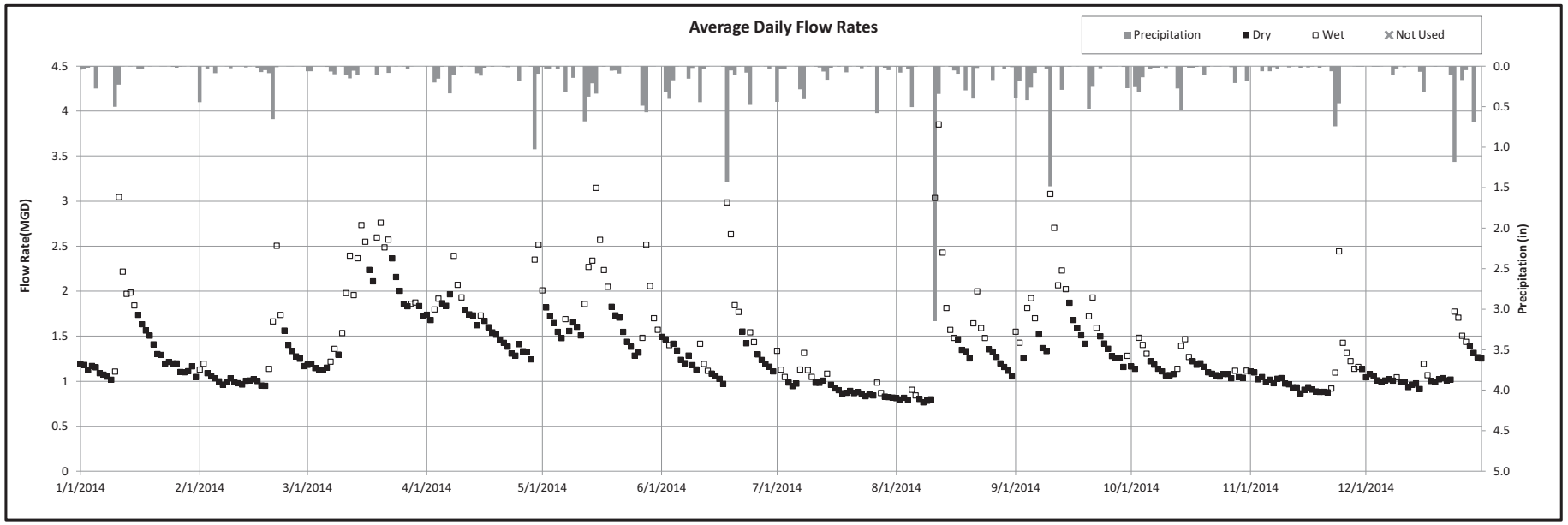
Rouge Valley Sewage Disposal System

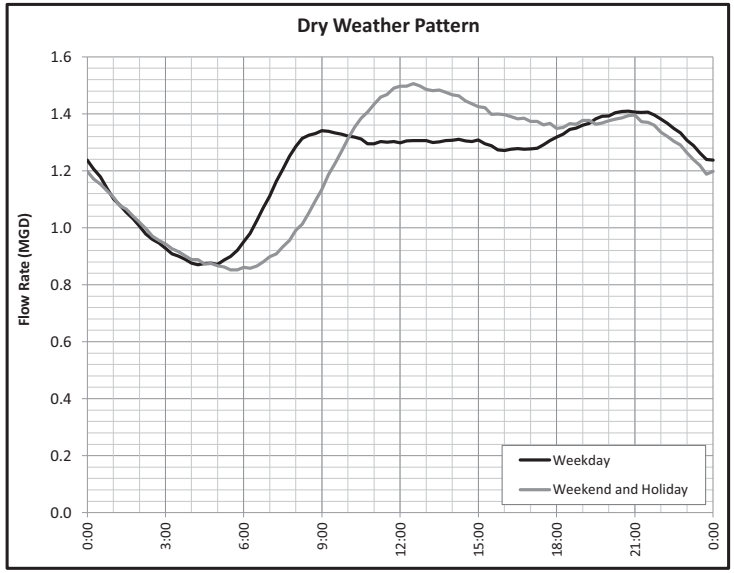
2014 Annual Meter Report

Meter: LV-14
Interceptor Manhole ID: --

Location: West of Cavell South of Ann Arbor Trail
Interceptor Branch: Middle Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	1.4	43.1	1.2	38.1	25	6
Feb-14	1.2	33.3	1.1	30.5	22	6
Mar-14	1.9	58.6	1.7	51.2	16	15
Apr-14	1.7	51.3	1.6	47.1	22	8
May-14	1.8	56.1	1.6	48.7	17	14
Jun-14	1.4	42.3	1.2	37.2	20	10
Jul-14	1.0	30.1	0.9	27.9	21	10
Aug-14	1.4	42.8	1.1	33.2	19	12
Sep-14	1.7	49.8	1.4	42.6	16	14
Oct-14	1.2	36.3	1.1	34.4	22	9
Nov-14	1.1	32.1	1.0	29.1	22	8
Dec-14	1.1	35.0	1.1	32.6	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	4.94	4/29/14 9:35	1.22	4/29/14 10:00
2	1.90	5/12/14 6:00	5/15/14 12:00	4.35	5/12/14 18:05	1.17	5/12/14 18:30
3	1.25	5/27/14 12:00	5/28/14 18:00	5.27	5/28/14 12:50	1.24	5/28/14 13:15
4	1.84	6/18/14 0:00	6/19/14 18:00	7.18	6/18/14 7:35	1.47	6/18/14 8:00
5	4.06	8/11/14 6:00	8/13/14 0:00	9.26	8/11/14 18:25	5.94	8/12/14 6:30
6	1.61	9/10/14 6:00	9/11/14 0:00	8.92	9/10/14 15:20	2.96	9/10/14 19:30
7	1.32	11/22/14 6:00	11/24/14 18:00	4.38	11/24/14 1:20	1.17	11/24/14 1:45

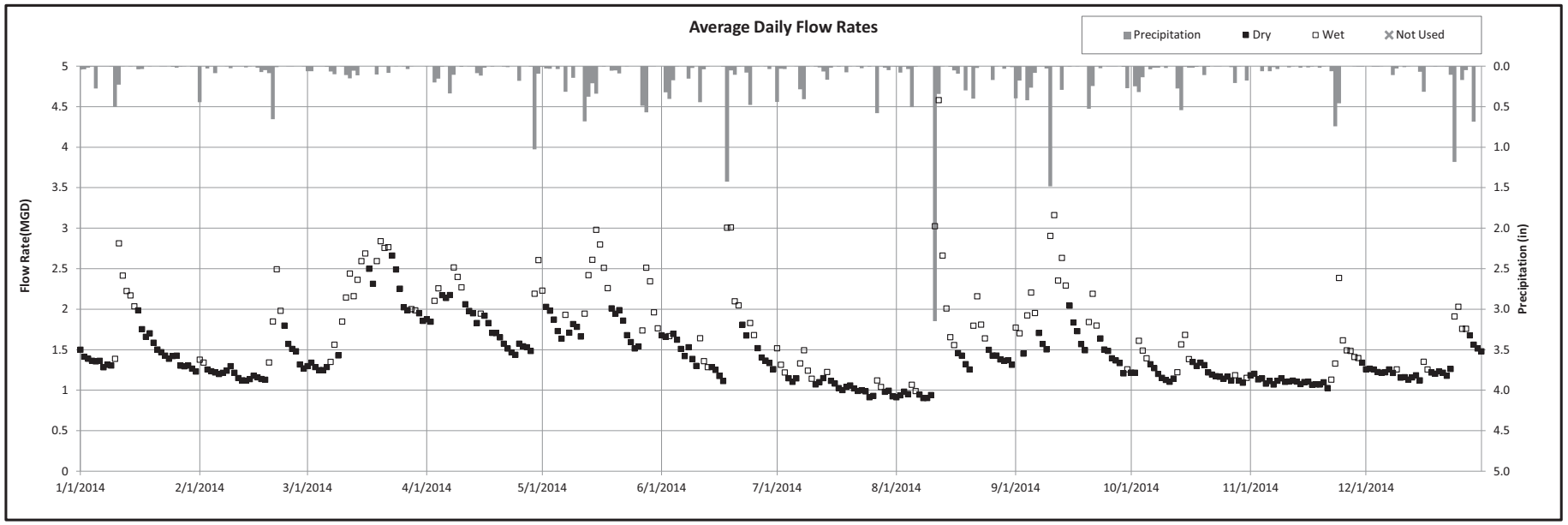
Rouge Valley Sewage Disposal System

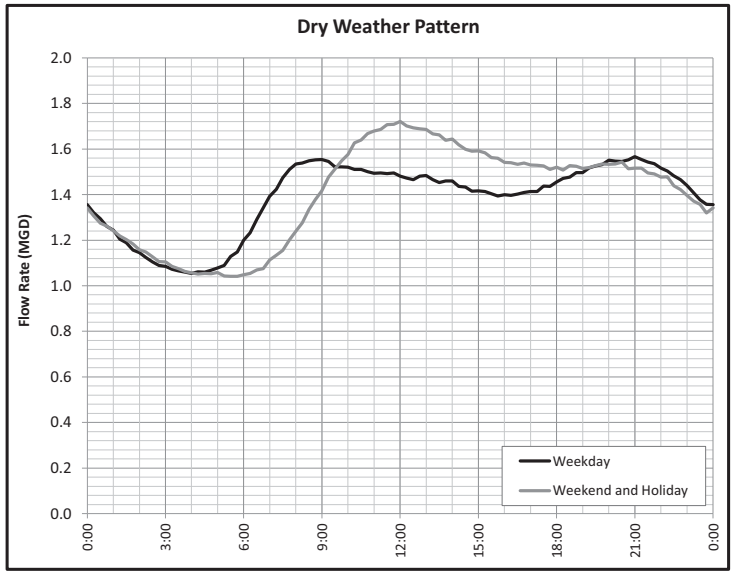
2014 Annual Meter Report

Meter: LV-15
Interceptor Manhole ID: --

Location: Merriman Road at Geraldine Street
Interceptor Branch: Middle Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	1.6	49.0	1.4	44.6	25	6
Feb-14	1.4	38.4	1.3	35.6	22	6
Mar-14	2.0	63.2	1.8	56.4	16	15
Apr-14	1.9	57.3	1.8	53.1	22	8
May-14	2.0	62.3	1.8	55.5	17	14
Jun-14	1.6	48.6	1.5	43.5	20	10
Jul-14	1.1	34.4	1.0	32.2	21	10
Aug-14	1.5	47.7	1.2	37.2	19	12
Sep-14	1.8	54.9	1.6	46.5	16	14
Oct-14	1.3	39.1	1.2	37.2	22	9
Nov-14	1.2	36.9	1.1	33.6	22	8
Dec-14	1.3	41.5	1.3	39.4	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	2.93	4/29/14 21:05	2.78	4/29/14 11:00
2	1.90	5/12/14 6:00	5/15/14 12:00	4.28	5/12/14 17:35	3.33	5/15/14 13:00
3	1.25	5/27/14 12:00	5/28/14 18:00	4.73	5/27/14 19:05	3.32	5/28/14 17:15
4	1.84	6/18/14 0:00	6/19/14 18:00	4.96	6/18/14 11:50	3.83	6/18/14 9:45
5	4.06	8/11/14 6:00	8/13/14 0:00	7.87	8/11/14 15:25	7.61	8/11/14 20:00
6	1.61	9/10/14 6:00	9/11/14 0:00	5.74	9/10/14 16:05	4.53	9/10/14 19:30
7	1.32	11/22/14 6:00	11/24/14 18:00	3.28	11/23/14 23:35	3.26	11/24/14 5:30

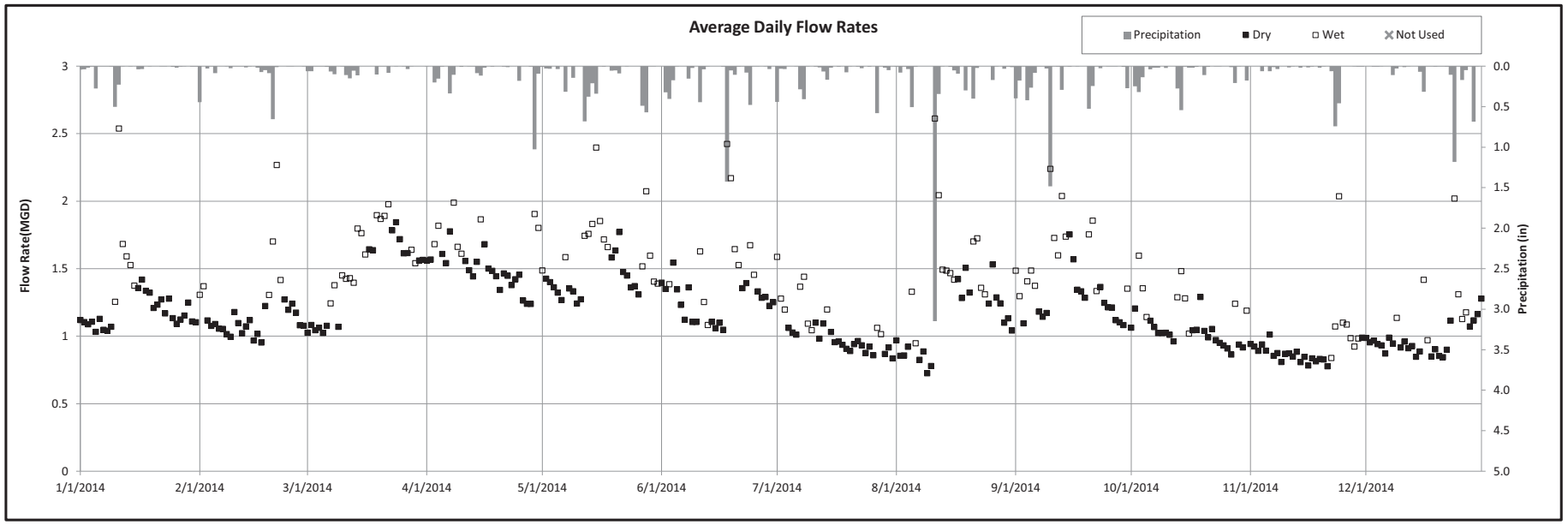
Rouge Valley Sewage Disposal System

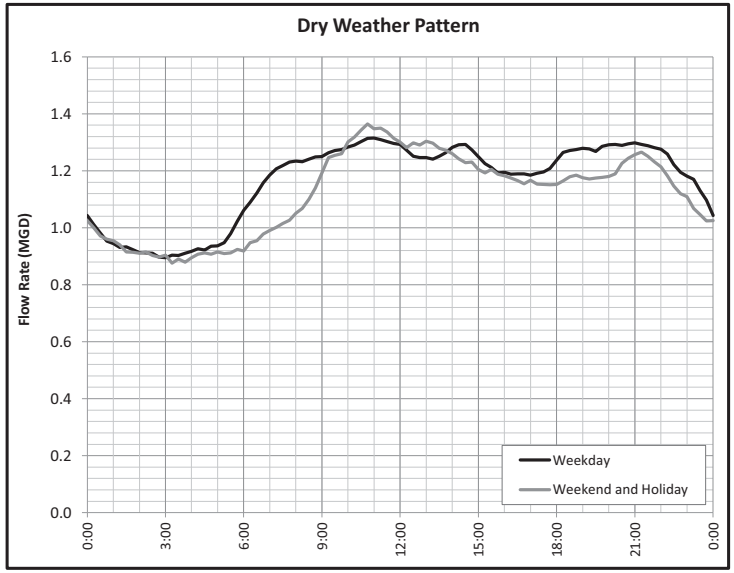
2014 Annual Meter Report

Meter: LV-16
Interceptor Manhole ID: --

Location: 8914 Farmington Road
Interceptor Branch: Middle Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	1.3	39.4	1.2	36.3	25	6
Feb-14	1.2	33.6	1.1	30.8	22	6
Mar-14	1.5	46.8	1.4	43.4	16	15
Apr-14	1.6	46.8	1.5	44.4	22	8
May-14	1.6	48.1	1.4	43.7	17	14
Jun-14	1.4	41.4	1.3	37.5	20	10
Jul-14	1.0	32.2	1.0	29.8	21	10
Aug-14	1.3	39.7	1.1	34.1	19	12
Sep-14	1.4	42.9	1.3	37.8	16	14
Oct-14	1.1	34.1	1.0	31.6	22	9
Nov-14	0.9	28.2	0.9	26.1	22	8
Dec-14	1.0	32.2	1.0	29.8	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	3.84	4/29/14 8:35	1.11	4/29/14 9:00
2	1.90	5/12/14 6:00	5/15/14 12:00	3.51	5/15/14 7:50	1.08	5/12/14 17:45
3	1.25	5/27/14 12:00	5/28/14 18:00	4.00	5/27/14 19:05	1.24	5/27/14 19:30
4	1.84	6/18/14 0:00	6/19/14 18:00	4.07	6/18/14 4:50	1.21	6/18/14 5:15
5	4.06	8/11/14 6:00	8/13/14 0:00	7.96	8/11/14 17:55	3.41	8/11/14 18:00
6	1.61	9/10/14 6:00	9/11/14 0:00	5.12	9/10/14 15:05	1.38	9/10/14 16:00
7	1.32	11/22/14 6:00	11/24/14 18:00	3.21	11/24/14 1:50	0.97	11/24/14 2:15

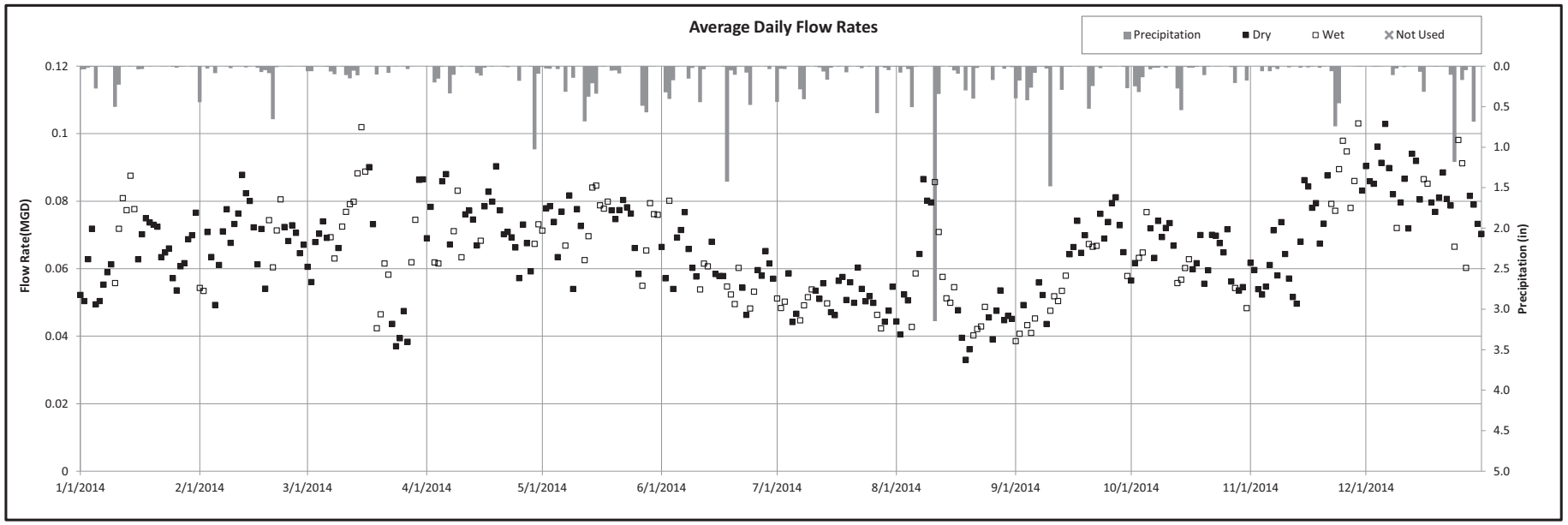
Rouge Valley Sewage Disposal System

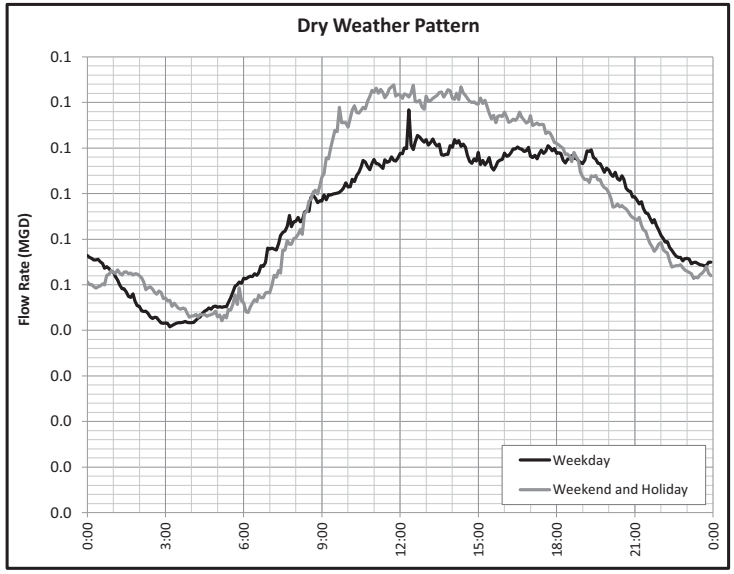
2014 Annual Meter Report

Meter: LV-20
Interceptor Manhole ID: --

Location: Middlebelt Road & Roycroft Street
Interceptor Branch: Middle Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	0.1	2.2	0.1	1.9	25	6
Feb-14	0.1	2.0	0.1	2.0	22	6
Mar-14	0.1	2.2	0.1	1.9	16	15
Apr-14	0.1	2.1	0.1	2.1	22	8
May-14	0.1	2.2	0.1	2.2	17	14
Jun-14	0.1	1.8	0.1	1.8	20	10
Jul-14	0.1	1.6	0.1	1.6	21	10
Aug-14	0.1	1.6	0.1	1.6	19	12
Sep-14	0.1	1.8	0.1	2.1	16	14
Oct-14	0.1	1.9	0.1	1.9	22	9
Nov-14	0.1	2.1	0.1	2.1	22	8
Dec-14	0.1	2.5	0.1	2.5	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	0.11	4/30/14 13:00	0.22	4/29/14 16:40
2	1.90	5/12/14 6:00	5/15/14 12:00	0.15	5/14/14 12:00	0.42	5/14/14 12:05
3	1.25	5/27/14 12:00	5/28/14 18:00	0.10	5/28/14 19:30	0.24	5/28/14 11:50
4	1.84	6/18/14 0:00	6/19/14 18:00	0.08	6/18/14 7:00	0.22	6/20/14 9:20
5	4.06	8/11/14 6:00	8/13/14 0:00	0.16	8/11/14 18:10	0.27	8/11/14 7:55
6	1.61	9/10/14 6:00	9/11/14 0:00	0.09	9/10/14 15:20	0.25	9/11/14 9:55
7	1.32	11/22/14 6:00	11/24/14 18:00	0.13	11/23/14 12:40	0.40	11/24/14 12:05

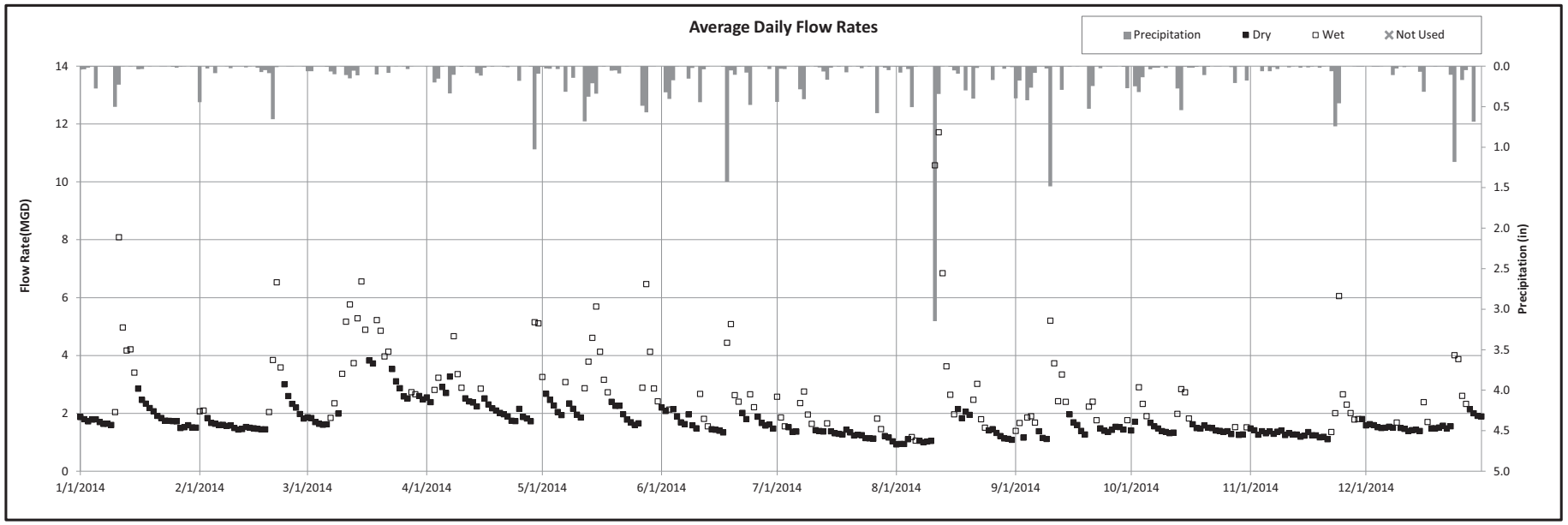
Rouge Valley Sewage Disposal System

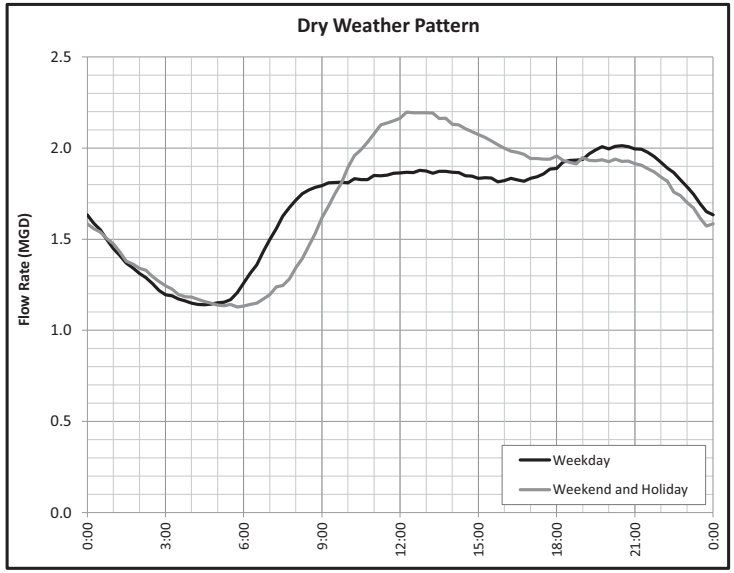
2014 Annual Meter Report

Meter: M-1
Interceptor Manhole ID: --

Location: Middlebelt Road North of Rush
Interceptor Branch: Middle Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	2.3	72.5	1.8	56.7	25	6
Feb-14	2.1	58.8	1.8	49.3	22	6
Mar-14	3.3	102.0	2.5	76.6	16	15
Apr-14	2.7	79.5	2.3	67.5	22	8
May-14	2.8	87.4	2.1	64.5	17	14
Jun-14	2.1	61.8	1.7	51.6	20	10
Jul-14	1.5	46.8	1.3	40.0	21	10
Aug-14	2.4	73.2	1.3	40.3	19	12
Sep-14	1.9	56.7	1.4	42.9	16	14
Oct-14	1.7	51.2	1.4	44.6	22	9
Nov-14	1.6	48.9	1.3	39.3	22	8
Dec-14	1.8	56.7	1.6	49.0	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	9.75	4/29/14 9:20	4.68	4/29/14 11:00
2	1.90	5/12/14 6:00	5/15/14 12:00	7.68	5/15/14 7:20	8.63	5/14/14 6:45
3	1.25	5/27/14 12:00	5/28/14 18:00	8.92	5/27/14 19:35	7.19	5/27/14 22:00
4	1.84	6/18/14 0:00	6/19/14 18:00	8.46	6/18/14 7:05	8.02	6/19/14 5:30
5	4.06	8/11/14 6:00	8/13/14 0:00	40.20	8/11/14 17:55	11.57	8/11/14 18:15
6	1.61	9/10/14 6:00	9/11/14 0:00	20.13	9/10/14 15:20	8.36	9/10/14 15:45
7	1.32	11/22/14 6:00	11/24/14 18:00	9.76	11/24/14 0:05	5.32	11/24/14 2:30

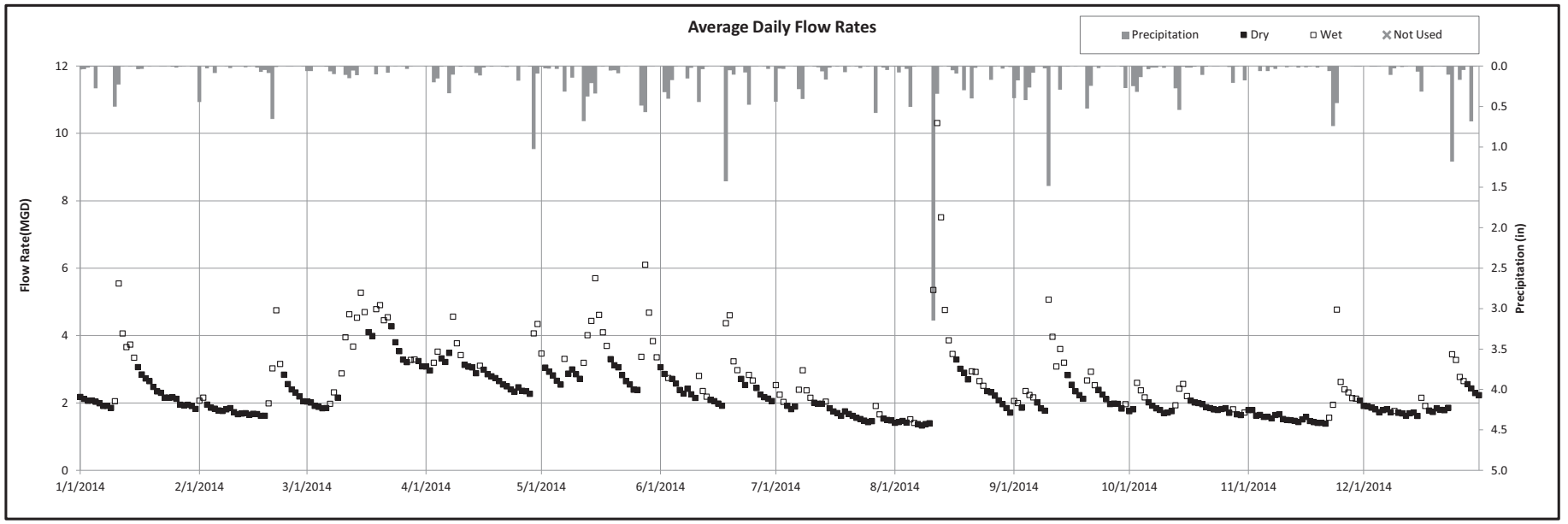
Rouge Valley Sewage Disposal System

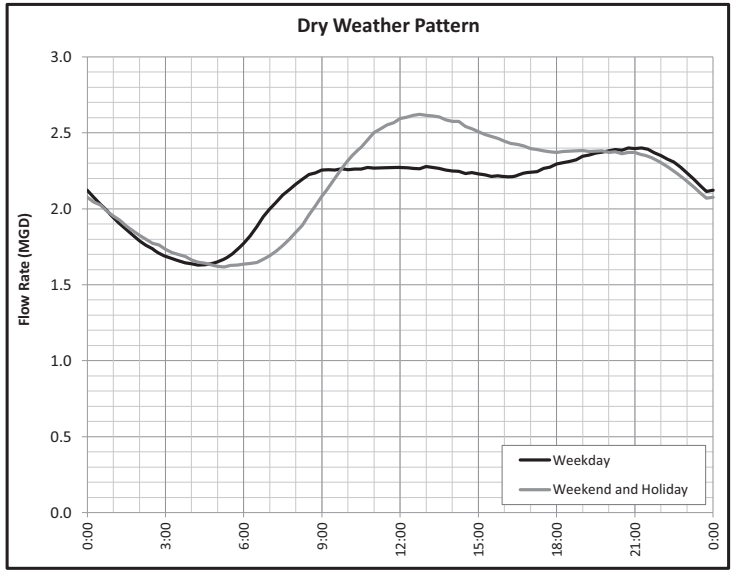
2014 Annual Meter Report

Meter: M-2
Interceptor Manhole ID: --

Location: Merriman Road South of Hines Drive
Interceptor Branch: Middle Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	2.5	77.2	2.2	67.9	25	6
Feb-14	2.1	59.4	1.9	53.8	22	6
Mar-14	3.4	105.4	2.9	89.6	16	15
Apr-14	3.1	91.5	2.8	83.7	22	8
May-14	3.4	105.7	2.8	87.1	17	14
Jun-14	2.6	77.7	2.4	70.5	20	10
Jul-14	1.9	57.7	1.7	52.4	21	10
Aug-14	2.8	86.8	2.0	61.4	19	12
Sep-14	2.5	73.8	2.1	63.9	16	14
Oct-14	1.9	60.1	1.8	56.7	22	9
Nov-14	1.8	54.3	1.6	47.1	22	8
Dec-14	2.0	62.9	1.9	58.0	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	6.62	4/29/14 9:35	1.65	4/29/14 10:00
2	1.90	5/12/14 6:00	5/15/14 12:00	6.83	5/15/14 10:20	1.66	5/15/14 10:30
3	1.25	5/27/14 12:00	5/28/14 18:00	9.00	5/27/14 20:20	1.98	5/27/14 21:00
4	1.84	6/18/14 0:00	6/19/14 18:00	7.94	6/18/14 7:20	1.86	6/18/14 7:30
5	4.06	8/11/14 6:00	8/13/14 0:00	14.24	8/12/14 18:25	11.40	8/11/14 19:45
6	1.61	9/10/14 6:00	9/11/14 0:00	11.20	9/10/14 15:35	4.11	9/10/14 19:15
7	1.32	11/22/14 6:00	11/24/14 18:00	7.66	11/24/14 0:50	1.89	11/24/14 1:30

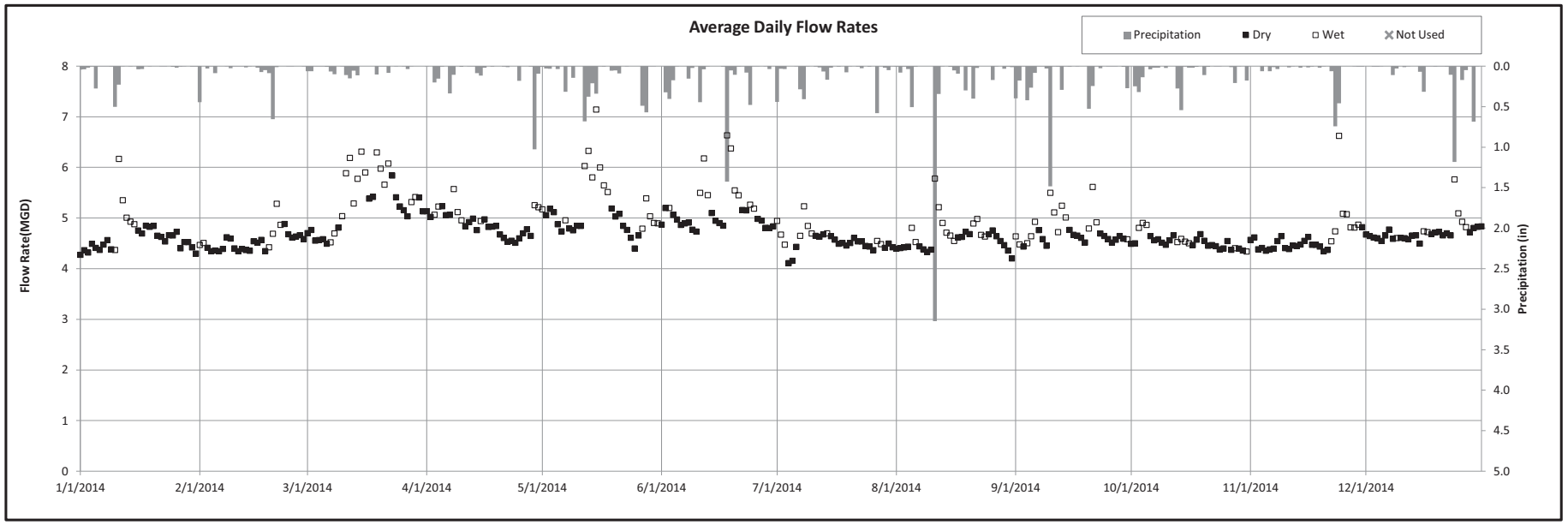
Rouge Valley Sewage Disposal System

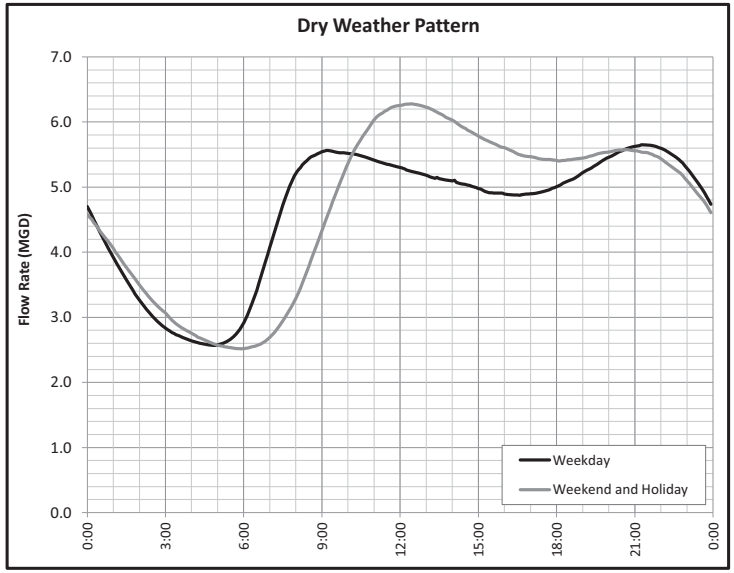
2014 Annual Meter Report

Meter: BG-1
Interceptor Manhole ID: NT 25

Location: 8 Mile Road
Interceptor Branch: Middle Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	4.7	144.5	4.6	141.1	25	6
Feb-14	4.5	127.1	4.5	126.0	22	6
Mar-14	5.3	164.9	5.0	155.9	16	15
Apr-14	4.9	147.3	4.8	144.6	22	8
May-14	5.2	160.3	4.9	151.0	17	14
Jun-14	5.2	155.4	4.9	148.2	20	10
Jul-14	4.6	141.4	4.5	138.9	21	10
Aug-14	4.6	143.8	4.5	139.5	19	12
Sep-14	4.8	142.5	4.6	138.3	16	14
Oct-14	4.5	140.4	4.5	139.5	22	9
Nov-14	4.6	139.2	4.5	134.4	22	8
Dec-14	4.7	146.6	4.7	144.8	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	7.66	4/29/14 9:25	--	--
2	1.90	5/12/14 6:00	5/15/14 12:00	11.31	5/12/14 17:45	--	--
3	1.25	5/27/14 12:00	5/28/14 18:00	7.62	5/28/14 14:15	--	--
4	1.84	6/18/14 0:00	6/19/14 18:00	10.82	6/18/14 7:40	--	--
5	4.06	8/11/14 6:00	8/13/14 0:00	13.29	8/11/14 17:40	--	--
6	1.61	9/10/14 6:00	9/11/14 0:00	9.60	9/10/14 15:20	--	--
7	1.32	11/22/14 6:00	11/24/14 18:00	8.74	11/24/14 1:05	--	--

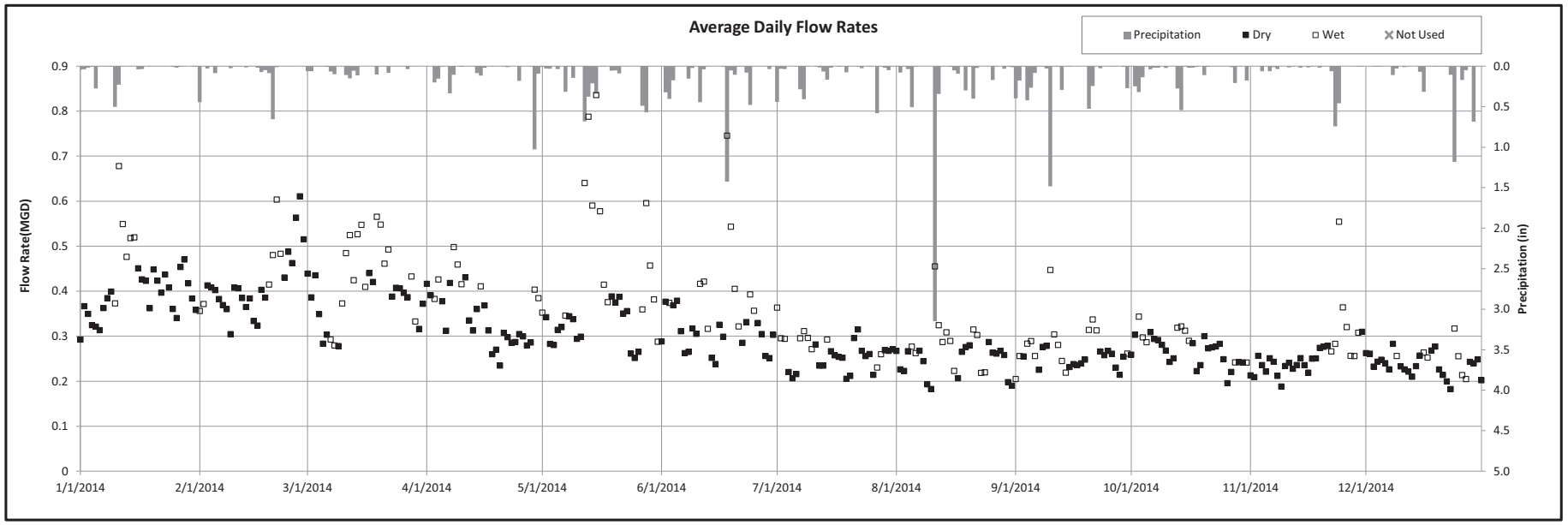
Rouge Valley Sewage Disposal System

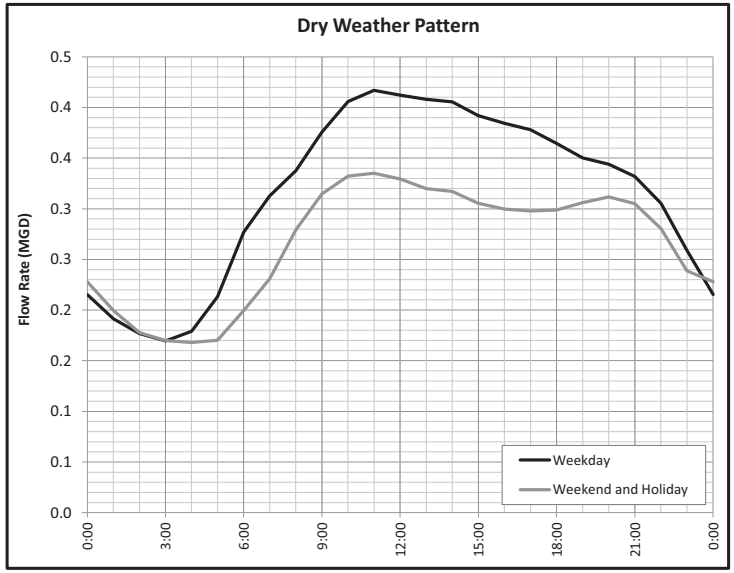
2014 Annual Meter Report

Meter: A
Interceptor Manhole ID: --

Location: Sheldon Road South of North Territorial
Interceptor Branch: Middle Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	0.4	12.7	0.4	12.1	25	6
Feb-14	0.4	11.8	0.4	11.5	22	6
Mar-14	0.4	12.7	0.4	11.8	16	15
Apr-14	0.4	10.5	0.3	9.6	22	8
May-14	0.4	12.4	0.3	9.9	17	14
Jun-14	0.3	10.2	0.3	9.0	20	10
Jul-14	0.3	8.1	0.3	7.8	21	10
Aug-14	0.3	8.1	0.2	7.4	19	12
Sep-14	0.3	8.1	0.3	7.5	16	14
Oct-14	0.3	8.4	0.3	8.1	22	9
Nov-14	0.3	7.8	0.2	7.2	22	8
Dec-14	0.2	7.4	0.2	7.4	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	0.69	4/29/14 8:05	0.48	4/29/14 9:00
2	1.90	5/12/14 6:00	5/15/14 12:00	2.29	5/13/14 14:05	0.87	5/13/14 15:00
3	1.25	5/27/14 12:00	5/28/14 18:00	1.33	5/28/14 12:05	0.81	5/28/14 14:00
4	1.84	6/18/14 0:00	6/19/14 18:00	1.36	6/18/14 7:05	0.80	6/18/14 7:00
5	4.06	8/11/14 6:00	8/13/14 0:00	1.49	8/11/14 16:32	0.68	8/11/14 17:00
6	1.61	9/10/14 6:00	9/11/14 0:00	1.13	9/10/14 13:05	0.61	9/10/14 15:00
7	1.32	11/22/14 6:00	11/24/14 18:00	0.76	11/23/14 23:05	0.52	11/24/14 1:00

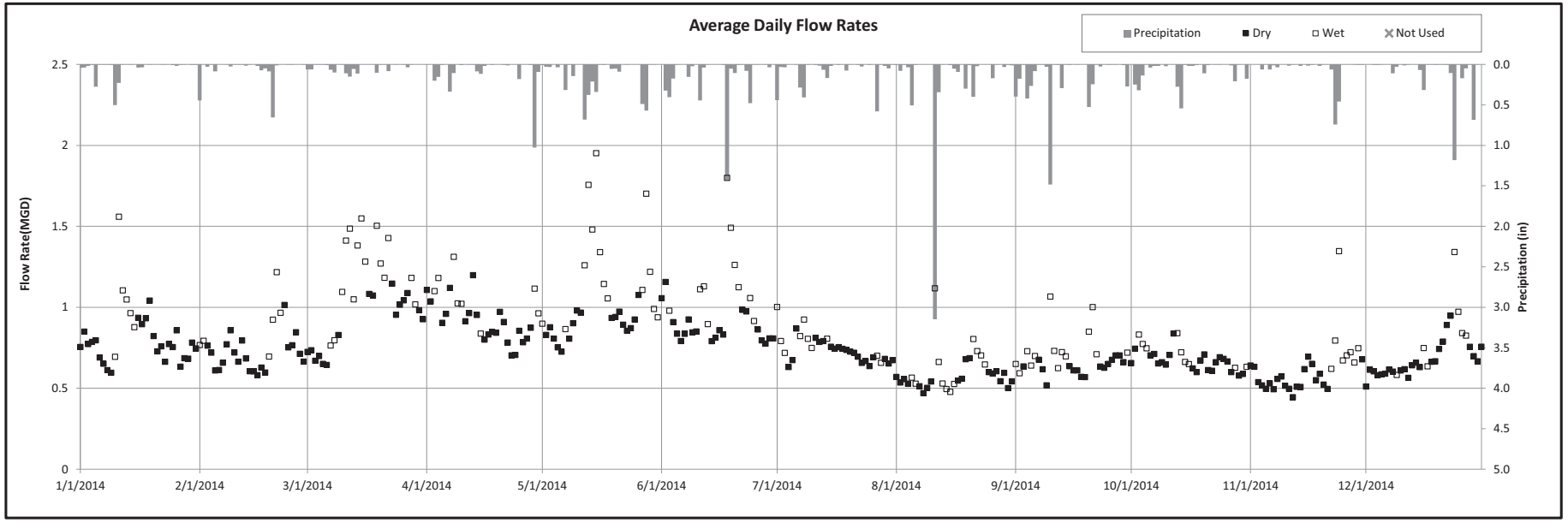
Rouge Valley Sewage Disposal System

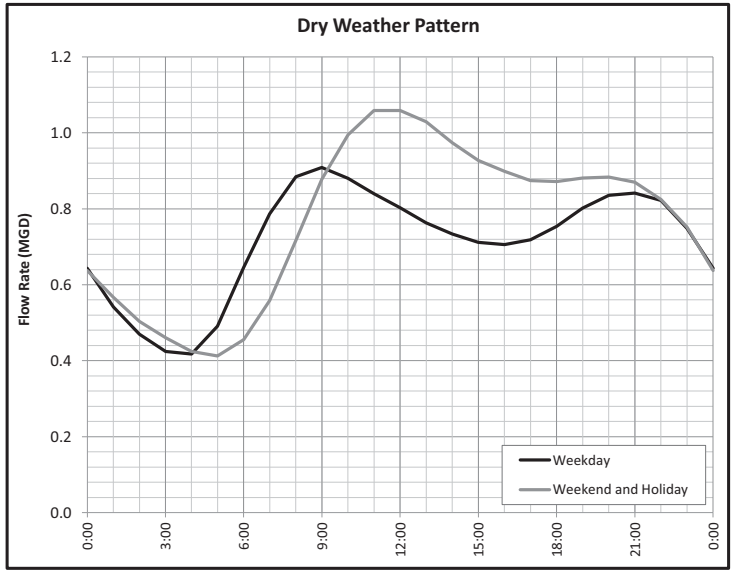
2014 Annual Meter Report

Meter: B
Interceptor Manhole ID: --

Location: Sheldon Road North of Ann Arbor Road
Interceptor Branch: Middle Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	0.8	25.4	0.8	23.9	25	6
Feb-14	0.8	21.0	0.7	19.9	22	6
Mar-14	1.1	32.6	0.9	27.6	16	15
Apr-14	1.0	28.5	0.9	27.0	22	8
May-14	1.1	32.9	0.9	27.6	17	14
Jun-14	1.0	29.4	0.9	26.4	20	10
Jul-14	0.7	22.9	0.7	22.3	21	10
Aug-14	0.6	18.6	0.6	17.4	19	12
Sep-14	0.7	20.4	0.6	18.9	16	14
Oct-14	0.7	21.1	0.7	20.5	22	9
Nov-14	0.6	18.6	0.6	16.8	22	8
Dec-14	0.7	22.0	0.7	20.8	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	1.88	4/29/14 8:05	0.64	4/29/14 9:00
2	1.90	5/12/14 6:00	5/15/14 12:00	3.71	5/13/14 14:05	0.92	5/13/14 15:00
3	1.25	5/27/14 12:00	5/28/14 18:00	3.29	5/28/14 13:05	0.83	5/28/14 14:00
4	1.84	6/18/14 0:00	6/19/14 18:00	2.91	6/18/14 6:05	0.80	6/18/14 7:00
5	4.06	8/11/14 6:00	8/13/14 0:00	4.02	8/11/14 16:32	0.91	8/11/14 17:00
6	1.61	9/10/14 6:00	9/11/14 0:00	2.78	9/10/14 14:05	0.76	9/10/14 15:00
7	1.32	11/22/14 6:00	11/24/14 18:00	2.28	11/24/14 0:05	0.68	11/24/14 1:00

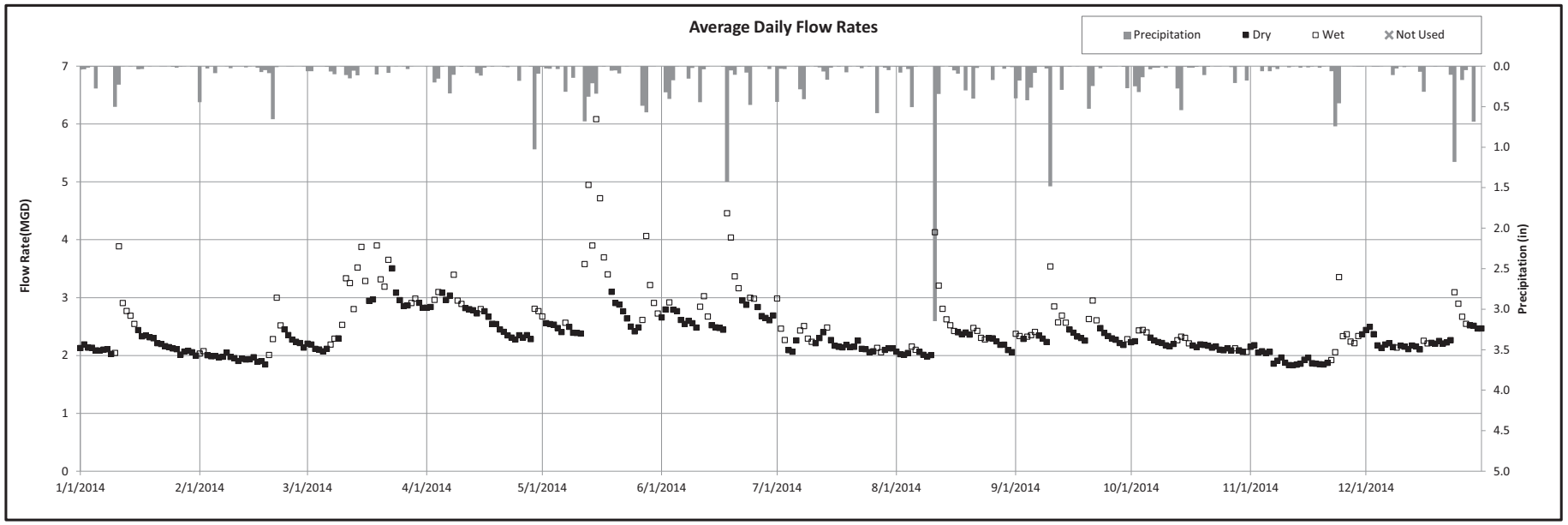
Rouge Valley Sewage Disposal System

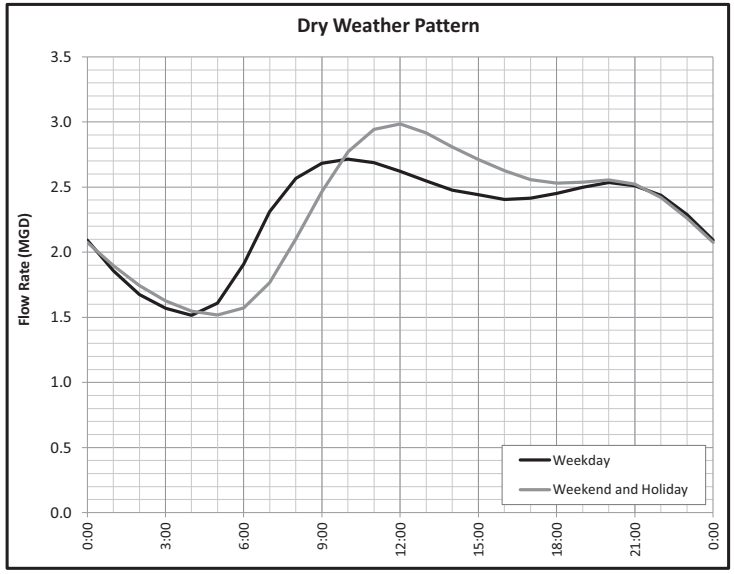
2014 Annual Meter Report

Meter: C
Interceptor Manhole ID: --

Location: Ann Arbor Road West of Lilley Road
Interceptor Branch: Middle Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	2.3	70.7	2.2	67.0	25	6
Feb-14	2.1	58.8	2.0	57.1	22	6
Mar-14	2.9	89.0	2.6	81.5	16	15
Apr-14	2.7	81.3	2.6	78.3	22	8
May-14	3.1	94.9	2.6	80.0	17	14
Jun-14	2.9	85.5	2.7	79.5	20	10
Jul-14	2.2	69.4	2.2	67.3	21	10
Aug-14	2.3	72.5	2.2	67.0	19	12
Sep-14	2.5	73.5	2.3	69.6	16	14
Oct-14	2.2	68.2	2.2	67.3	22	9
Nov-14	2.1	61.8	2.0	58.8	22	8
Dec-14	2.3	72.2	2.3	70.4	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	3.92	4/29/14 9:05	0.87	4/29/14 9:00
2	1.90	5/12/14 6:00	5/15/14 12:00	12.53	5/13/14 15:05	1.22	5/13/14 16:00
3	1.25	5/27/14 12:00	5/28/14 18:00	9.28	5/28/14 13:05	1.10	5/28/14 14:00
4	1.84	6/18/14 0:00	6/19/14 18:00	7.07	6/18/14 6:05	1.14	6/18/14 7:00
5	4.06	8/11/14 6:00	8/13/14 0:00	13.68	8/11/14 16:32	1.53	8/11/14 17:00
6	1.61	9/10/14 6:00	9/11/14 0:00	8.41	9/10/14 14:05	1.07	9/10/14 15:00
7	1.32	11/22/14 6:00	11/24/14 18:00	4.91	11/24/14 0:05	0.81	11/24/14 2:00

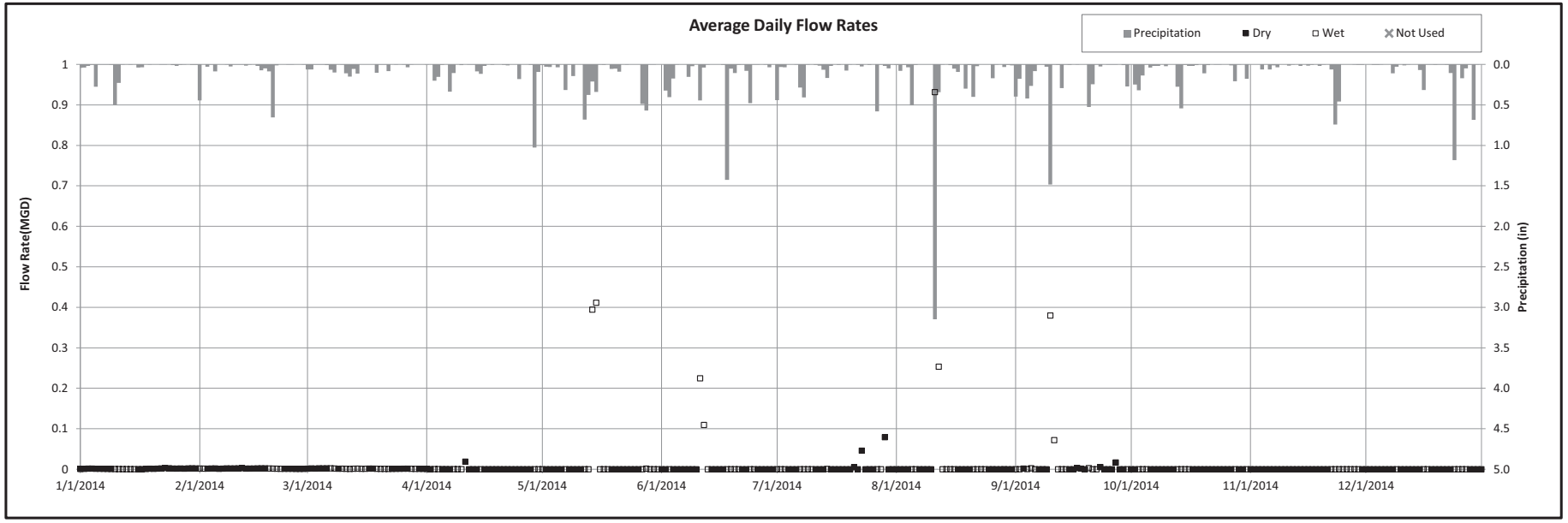
Rouge Valley Sewage Disposal System

2014 Annual Meter Report

Meter: FE-19
Interceptor Manhole ID: --

Location: Haggerty Road North of Michigan Avenue
Interceptor Branch: Lower Rouge

Period: 1/1/2014 through 12/31/2014



Dry weather pattern not applicable to this meter

Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	0.0	0.0	0.0	0.0	25	6
Feb-14	0.0	0.0	0.0	0.0	22	6
Mar-14	0.0	0.0	0.0	0.0	16	15
Apr-14	0.0	0.0	0.0	0.0	22	8
May-14	0.0	0.9	0.0	0.0	17	14
Jun-14	0.0	0.3	0.0	0.0	20	10
Jul-14	0.0	0.0	0.0	0.3	21	10
Aug-14	0.0	1.2	0.0	0.0	19	12
Sep-14	0.0	0.6	0.0	0.0	16	14
Oct-14	0.0	0.0	0.0	0.0	22	9
Nov-14	0.0	0.0	0.0	0.0	22	8
Dec-14	0.0	0.0	0.0	0.0	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	0.00	4/29/14 0:00	--	--
2	1.90	5/12/14 6:00	5/15/14 12:00	3.26	5/15/14 11:05	--	--
3	1.25	5/27/14 12:00	5/28/14 18:00	0.04	5/28/14 2:05	--	--
4	1.84	6/18/14 0:00	6/19/14 18:00	0.00	6/18/14 0:00	--	--
5	4.06	8/11/14 6:00	8/13/14 0:00	4.37	8/11/14 20:32	--	--
6	1.61	9/10/14 6:00	9/11/14 0:00	3.06	9/10/14 17:05	--	--
7	1.32	11/22/14 6:00	11/24/14 18:00	0.00	11/22/14 0:00	--	--

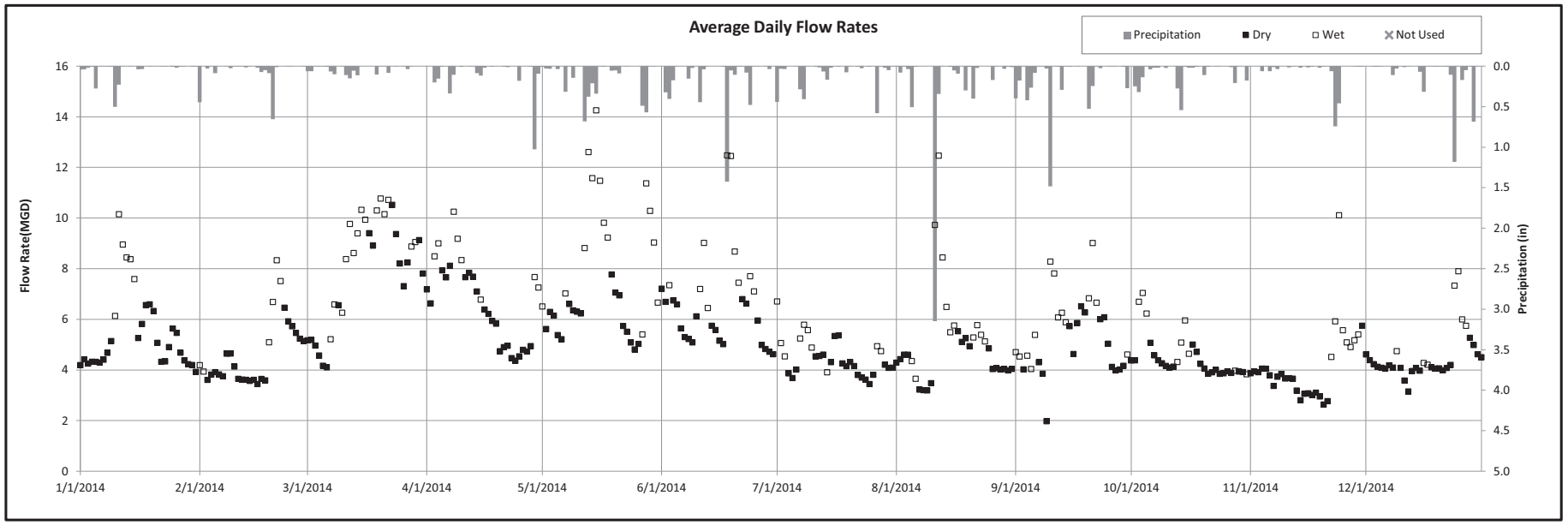
Rouge Valley Sewage Disposal System

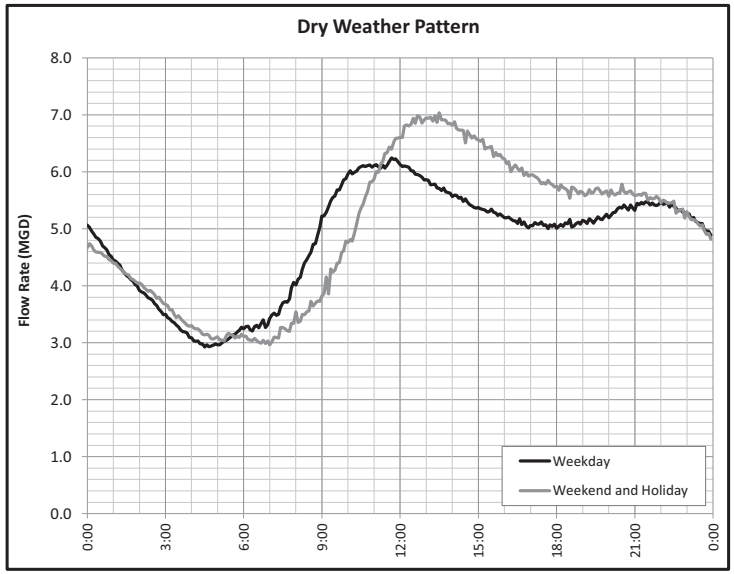
2014 Annual Meter Report

Meter: FE-22
Interceptor Manhole ID: RVI 10-11

Location: Eckles Road and Joy Road
Interceptor Branch: Middle Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	5.5	171.4	4.9	151.0	25	6
Feb-14	4.7	130.8	4.3	121.0	22	6
Mar-14	8.0	248.0	7.1	220.1	16	15
Apr-14	6.7	201.6	6.1	183.6	22	8
May-14	7.6	236.2	6.0	186.3	17	14
Jun-14	6.7	200.4	5.7	171.9	20	10
Jul-14	4.5	139.2	4.2	129.9	21	10
Aug-14	5.1	158.7	4.3	132.1	19	12
Sep-14	5.4	161.1	4.8	143.4	16	14
Oct-14	4.5	140.4	4.2	130.5	22	9
Nov-14	4.2	124.5	3.5	106.2	22	8
Dec-14	4.5	140.7	4.2	129.9	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	12.26	4/29/14 10:20	1.78	4/29/14 10:55
2	1.90	5/12/14 6:00	5/15/14 12:00	17.78	5/15/14 10:20	2.06	5/15/14 11:05
3	1.25	5/27/14 12:00	5/28/14 18:00	18.61	5/28/14 14:40	2.06	5/28/14 14:40
4	1.84	6/18/14 0:00	6/19/14 18:00	19.47	6/18/14 8:55	2.10	6/18/14 9:45
5	4.06	8/11/14 6:00	8/13/14 0:00	22.23	8/11/14 21:00	2.31	8/11/14 18:05
6	1.61	9/10/14 6:00	9/11/14 0:00	20.35	9/10/14 16:00	2.14	9/10/14 16:30
7	1.32	11/22/14 6:00	11/24/14 18:00	12.13	11/24/14 1:30	1.76	11/24/14 1:40

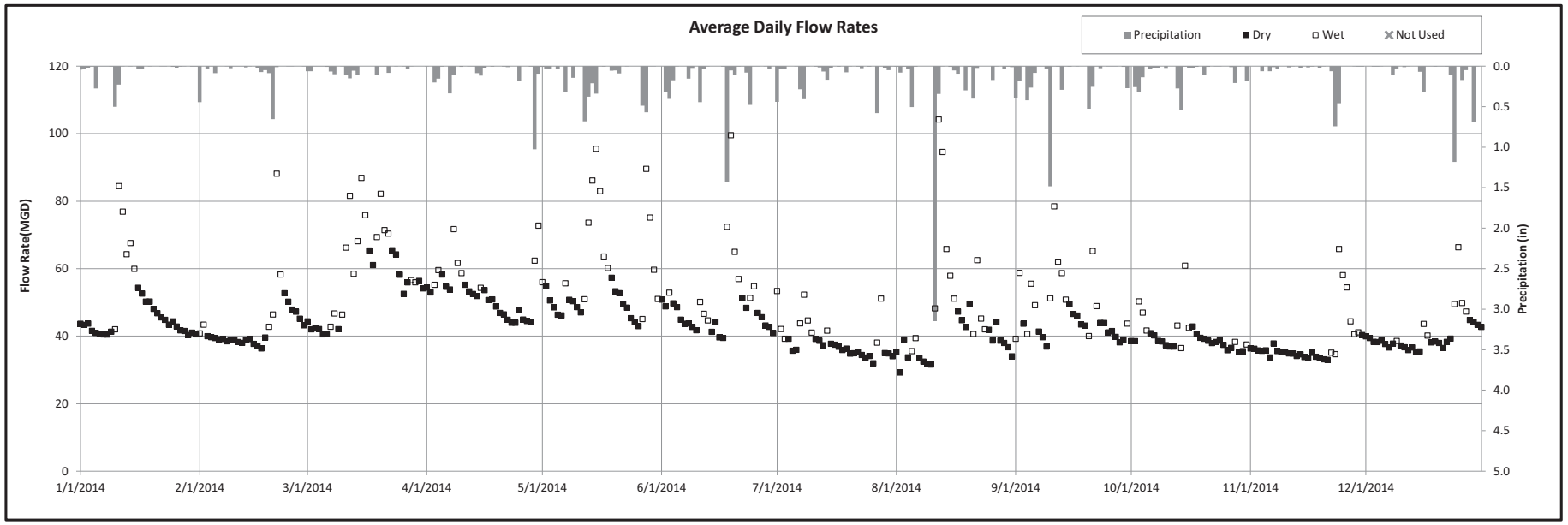
Rouge Valley Sewage Disposal System

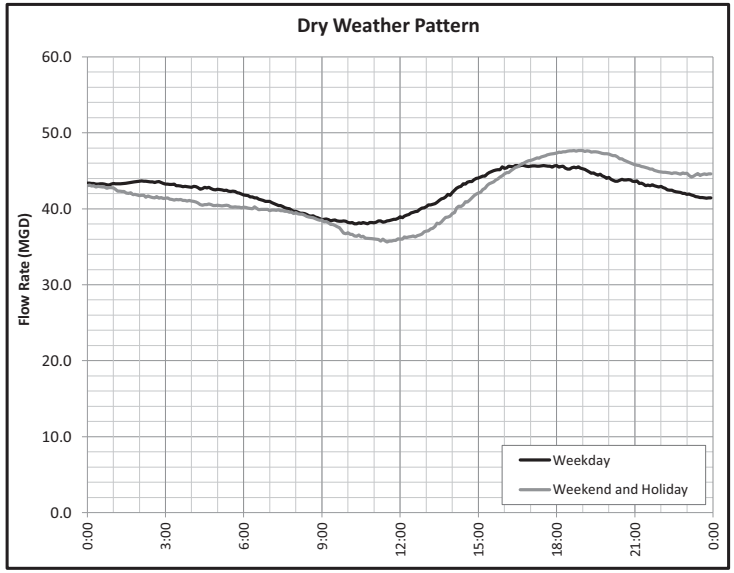
2014 Annual Meter Report

Meter: WC-S-1
Interceptor Manhole ID: MR I 05B

Location: Fort Street and Bayside Street
Interceptor Branch: Lower Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	48.4	1500.1	44.2	1370.2	25	6
Feb-14	43.8	1225.3	41.2	1152.2	22	6
Mar-14	58.3	1806.4	51.7	1603.0	16	15
Apr-14	53.2	1594.8	49.9	1497.9	22	8
May-14	57.5	1782.2	49.2	1526.4	17	14
Jun-14	49.8	1492.8	44.9	1347.9	20	10
Jul-14	38.8	1201.3	35.9	1112.6	21	10
Aug-14	45.5	1410.2	38.1	1179.9	19	12
Sep-14	47.3	1420.2	42.4	1271.1	16	14
Oct-14	40.0	1240.6	38.3	1187.6	22	9
Nov-14	38.2	1146.6	35.1	1053.3	22	8
Dec-14	40.8	1263.3	38.7	1198.5	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	98.64	4/29/14 16:55	--	--
2	1.90	5/12/14 6:00	5/15/14 12:00	109.95	5/15/14 19:35	--	--
3	1.25	5/27/14 12:00	5/28/14 18:00	107.55	5/28/14 19:15	--	--
4	1.84	6/18/14 0:00	6/19/14 18:00	108.59	6/19/14 9:40	--	--
5	4.06	8/11/14 6:00	8/13/14 0:00	107.02	8/12/14 6:55	--	--
6	1.61	9/10/14 6:00	9/11/14 0:00	97.71	9/10/14 17:45	--	--
7	1.32	11/22/14 6:00	11/24/14 18:00	79.76	11/24/14 1:35	--	--

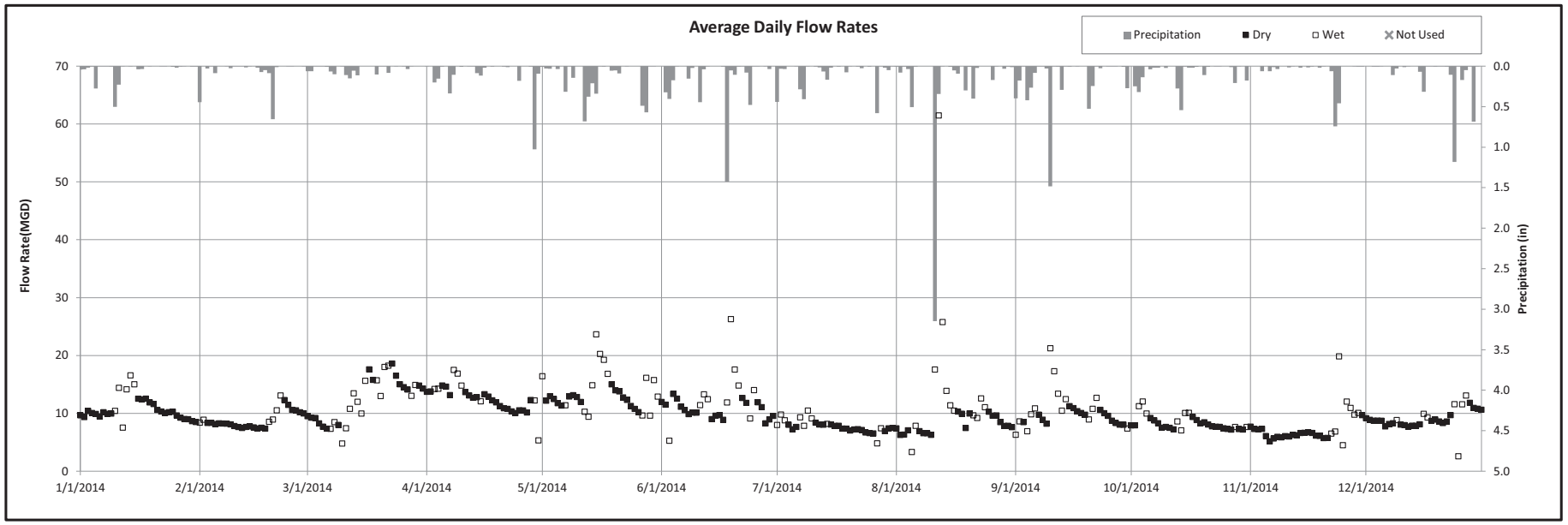
Rouge Valley Sewage Disposal System

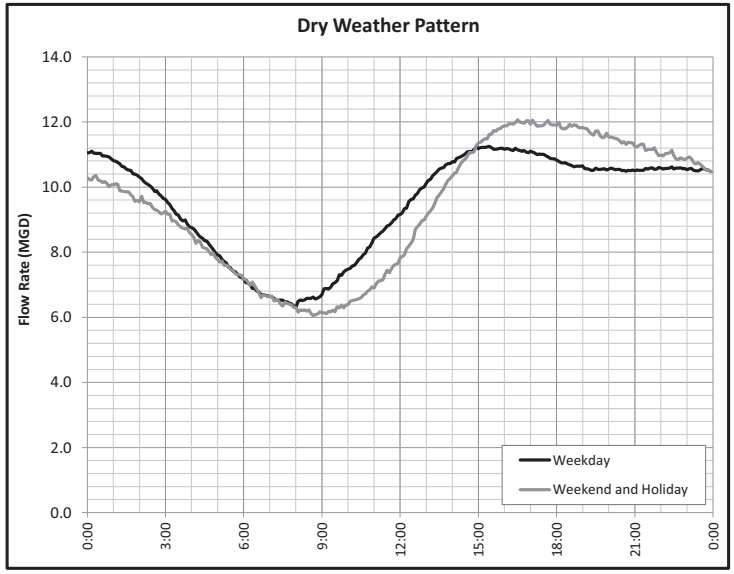
2014 Annual Meter Report

Meter: WC-S-2
Interceptor Manhole ID: MR 1A-C2

Location: Ford Road West of Evergreen Road
Interceptor Branch: Middle Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	10.8	333.6	10.2	316.8	25	6
Feb-14	8.9	249.5	8.7	243.0	22	6
Mar-14	12.4	383.5	12.5	388.4	16	15
Apr-14	12.6	376.8	12.3	367.5	22	8
May-14	13.5	418.2	12.5	386.3	17	14
Jun-14	11.6	348.9	10.6	318.9	20	10
Jul-14	7.7	239.9	7.4	230.6	21	10
Aug-14	11.2	346.6	8.0	248.6	19	12
Sep-14	10.3	308.4	9.4	283.2	16	14
Oct-14	8.4	258.9	7.9	246.1	22	9
Nov-14	7.5	223.5	6.5	194.7	22	8
Dec-14	9.0	279.9	8.9	275.3	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	23.42	4/29/14 12:45	--	--
2	1.90	5/12/14 6:00	5/15/14 12:00	29.13	5/15/14 13:20	--	--
3	1.25	5/27/14 12:00	5/28/14 18:00	23.76	5/28/14 16:55	--	--
4	1.84	6/18/14 0:00	6/19/14 18:00	35.97	6/19/14 1:45	--	--
5	4.06	8/11/14 6:00	8/13/14 0:00	71.03	8/12/14 10:05	--	--
6	1.61	9/10/14 6:00	9/11/14 0:00	63.23	9/10/14 20:00	--	--
7	1.32	11/22/14 6:00	11/24/14 18:00	38.98	11/24/14 3:00	--	--

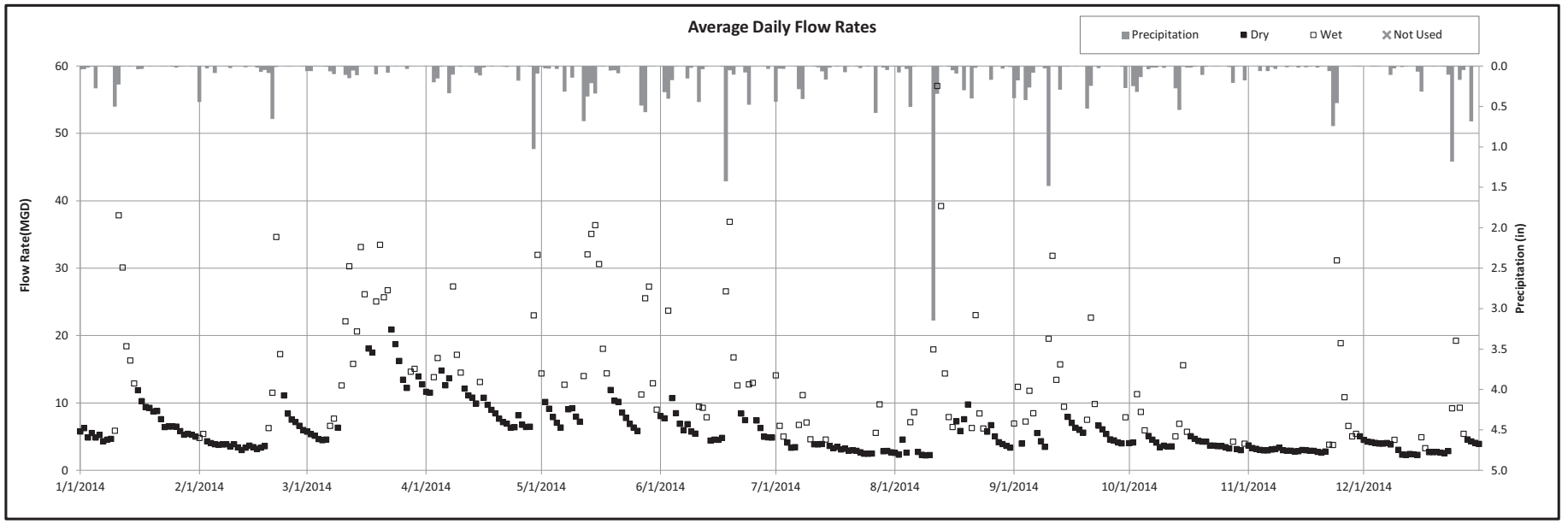
Rouge Valley Sewage Disposal System

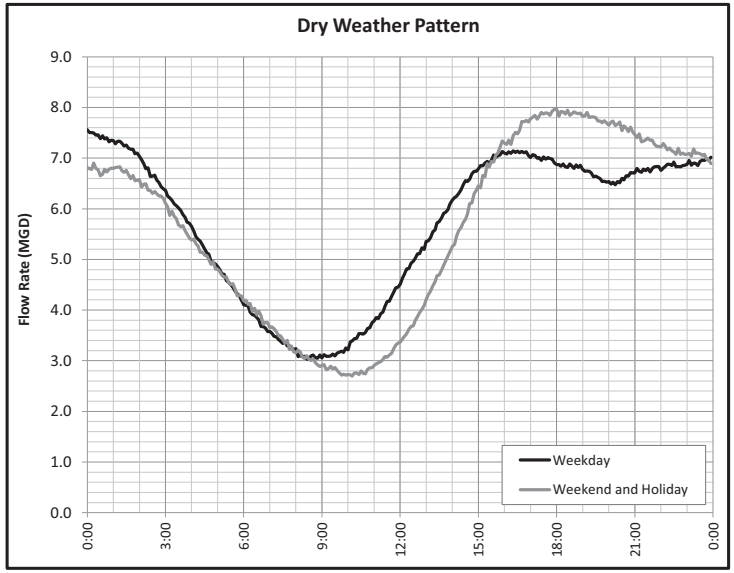
2014 Annual Meter Report

Meter: WC-S-3
Interceptor Manhole ID: MRIR 1-01B

Location: Southfield Road and Mercury Drive
Interceptor Branch: Middle Rouge

Period: 1/1/2014 through 12/31/2014





Monthly Statistics

Month	All Days		Dry Days			
	Avg. (MGD)	Vol. (MG)	Avg. (MGD)	Vol. (MG)	# Dry Days	# Wet Days
Jan-14	9.2	286.1	6.6	204.3	25	6
Feb-14	6.6	184.8	4.8	133.6	22	6
Mar-14	16.0	495.7	11.3	348.8	16	15
Apr-14	12.2	366.0	9.5	284.4	22	8
May-14	14.1	435.6	8.4	258.9	17	14
Jun-14	9.9	297.3	6.4	192.9	20	10
Jul-14	4.6	141.7	3.2	98.3	21	10
Aug-14	9.3	287.4	4.5	138.0	19	12
Sep-14	9.0	270.3	5.3	160.2	16	14
Oct-14	5.0	153.5	3.9	121.2	22	9
Nov-14	5.1	153.6	3.1	93.0	22	8
Dec-14	4.4	136.4	3.4	104.2	24	7

Statistics for Significant Wet Weather Events

Event No.	Rainfall (in)	Start Date/Time	End Date/Time	Flow Rate		Depth	
				Max. Hour (MGD)	Date/Time	Max. (ft)	Date/Time
1	1.16	4/29/14 0:00	4/30/14 6:00	39.04	4/29/14 12:55	--	--
2	1.90	5/12/14 6:00	5/15/14 12:00	41.48	5/15/14 13:15	--	--
3	1.25	5/27/14 12:00	5/28/14 18:00	39.39	5/28/14 18:00	--	--
4	1.84	6/18/14 0:00	6/19/14 18:00	43.12	6/19/14 1:50	--	--
5	4.06	8/11/14 6:00	8/13/14 0:00	63.33	8/12/14 14:40	--	--
6	1.61	9/10/14 6:00	9/11/14 0:00	57.27	9/10/14 20:05	--	--
7	1.32	11/22/14 6:00	11/24/14 18:00	39.65	11/24/14 5:55	--	--

Appendix A

System Reach Maps

WESTLAND
WAYNE
ROMULUS
PALMER
GLENWOOD
MICHIGAN AVE
VAN BORN
ECORSE
ANNAPOLIS
HANNAN
NEWBURGH
HAGGERTY
4TH STREET
VENOY
HENRY RUFF
COGWELL

WTUA LOWER ROUGE EQUALIZATION BASIN
FE-19
TO RVSDS
TO YCUA
WTUA-LR
WTUA CONNECTION
WE-25
P-17
P-19
P-15
WAYNE EQUALIZATION BASIN
Reg 53 (L-35)
Reg 52 (L-34)
Reg 51 (L-37)
Reg 50 (L-36)
WAYNE COUNTY AIRPORT AUTHORITY (WCAA) CONNECTION
WCAA FORCEMAIN
24 INDIVIDUAL LEADS ON BOTH SIDES OF COGSWELL
MATCH LINE - FIGURE A2

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

LEGEND

- REGULATOR
- FLOW METER
- JUNCTION
- (1) JUNCTION ID
- [X-XX] LINE CONNECTION ID
- COMMUNITY SEWER
- WAYNE-ROMULUS-VAN BUREN INTERCEPTOR (W-R-V I)
- WAYNE INTERCEPTOR (WI-1)
- WAYNE INTERCEPTOR EXTENSION (WIE)
- LOWER ROUGE INTERCEPTOR RELIEF (LRIR)
- ROUGE VALLEY INTERCEPTOR (RVI)
- WAYNE COUNTY SEWER
- WTUA INTERCEPTOR SYSTEM
- COMMUNITY BOUNDARY
- RETENTION TREATMENT BASIN (RTB)

ROUGE VALLEY SEWAGE DISPOSAL SYSTEM

LOWER ROUGE INTERCEPTOR SCHEMATIC HANNAN TO VENOY

SYSTEM MONITORING PLAN
FIGURE A1 OF 8

K:\DWGFiles\2014\1404RVSDS\RVSDS SYSTEM MONITORING PLAN (to WWTP).dwg Apr 14, 2015 - 4:37pm

GARDEN CITY
CHERRY HILL
WESTLAND
INKSTER
DEARBORN HEIGHTS
VENOY
MERRIMAN
MIDDLEBELT
TELEGRAPH
MICHIGAN AVE
BEECH DALY
VAN BORN
HENRY RUFF
INKSTER CSO RTB BASIN
MIDDLEBELT CSO RTB BASIN
Reg I-2
Reg 18 (L-46)
Reg 20 (L-48)
Reg 19 (L-47)
Reg I-3 (L-40)
Reg I-8 (L-44)
Reg 63 (L-45)
Reg 11 (L-42)
Reg 12 (L-43)
Reg 13 (L-41)
Reg 21 (L-39)
Reg 22 (L-38)
Reg 51 (L-37)
Reg 50 (L-36)
P-21
P-20
P-25
P-24
WE-28
2 - 20" SIPHON
WESTLAND PS DISCHARGE
WAYNE COUNTY AIRPORT AUTHORITY (WCAA) CONNECTION
WCAA FORCEMAIN
12" C.I.F.M.
2'-8" x 4'-0"
3'-0" x 4'-6"
MATCH LINE - FIGURE A1
MATCH LINE - FIGURE A8

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

LEGEND

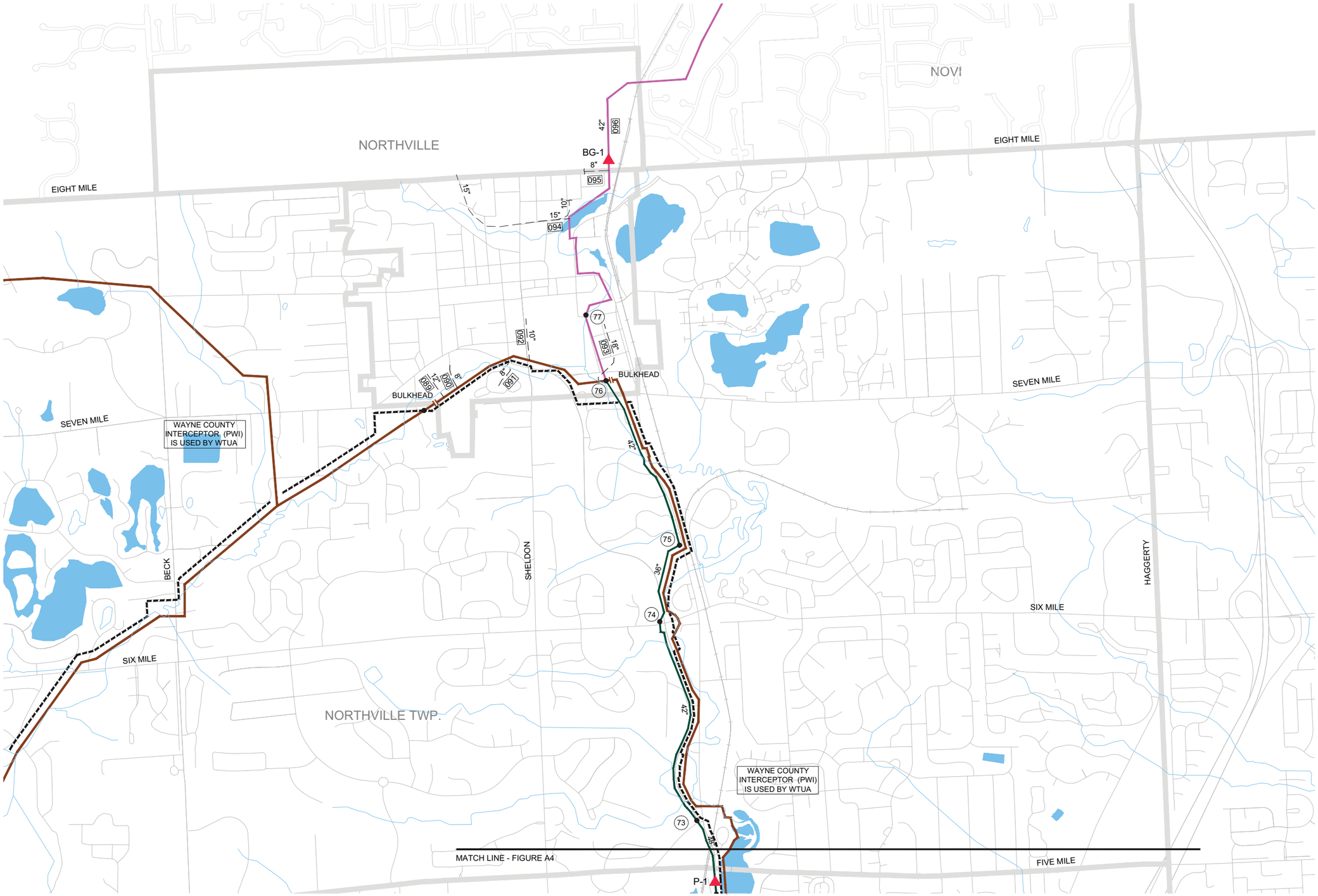
- REGULATOR
- FLOW METER
- JUNCTION
- (1) JUNCTION ID
- [X-XX] LINE CONNECTION ID
- COMMUNITY SEWER
- WAYNE-ROMULUS-VAN BUREN INTERCEPTOR (W-R-V I)
- WAYNE INTERCEPTOR (WI-1)
- WAYNE INTERCEPTOR EXTENSION (WIE)
- LOWER ROUGE INTERCEPTOR RELIEF (LRIR)
- ROUGE VALLEY INTERCEPTOR (RVI)
- WAYNE COUNTY SEWER
- WTUA INTERCEPTOR SYSTEM
- COMMUNITY BOUNDARY
- RETENTION TREATMENT BASIN (RTB)

ROUGE VALLEY SEWAGE DISPOSAL SYSTEM

LOWER ROUGE INTERCEPTOR SCHEMATIC VENOY TO TELEGRAPH

SYSTEM MONITORING PLAN
FIGURE A2 OF 8

K:\DWGFiles\2014\140410\RVSDS\RVSDS SYSTEM MONITORING PLAN (to WWTP).dwg Apr 14, 2015 - 4:46pm

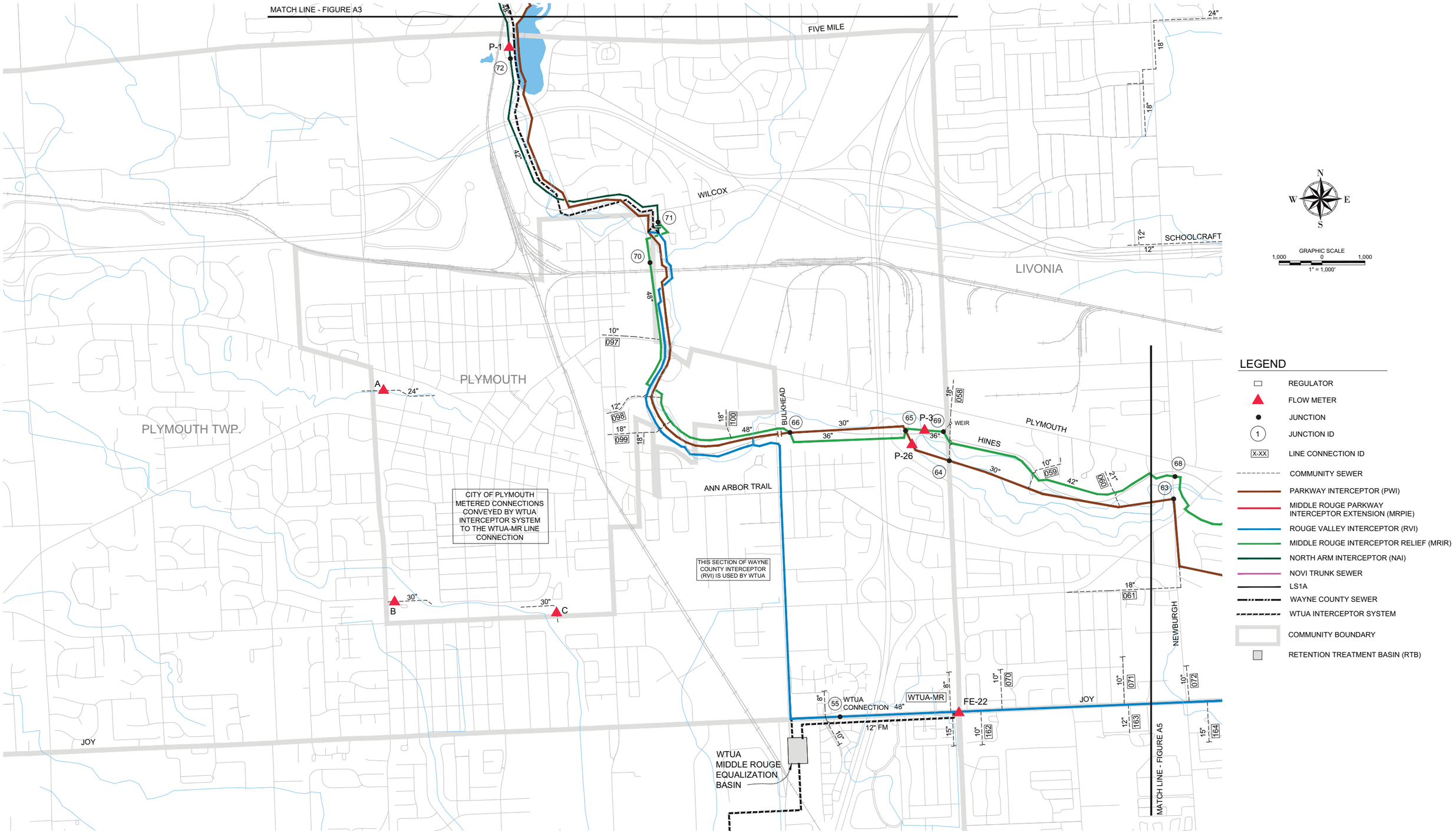


K:\DWGFiles\2014\184\RV\SDS\RVSDS SYSTEM MONITORING PLAN (to WWTP).dwg Apr 14, 2015 - 4:44pm

ROUGE VALLEY SEWAGE DISPOSAL SYSTEM

MIDDLE ROUGE INTERCEPTOR SCHEMATIC NORTHVILLE TO 5 MILE ROAD

SYSTEM MONITORING PLAN
FIGURE A3 OF 8



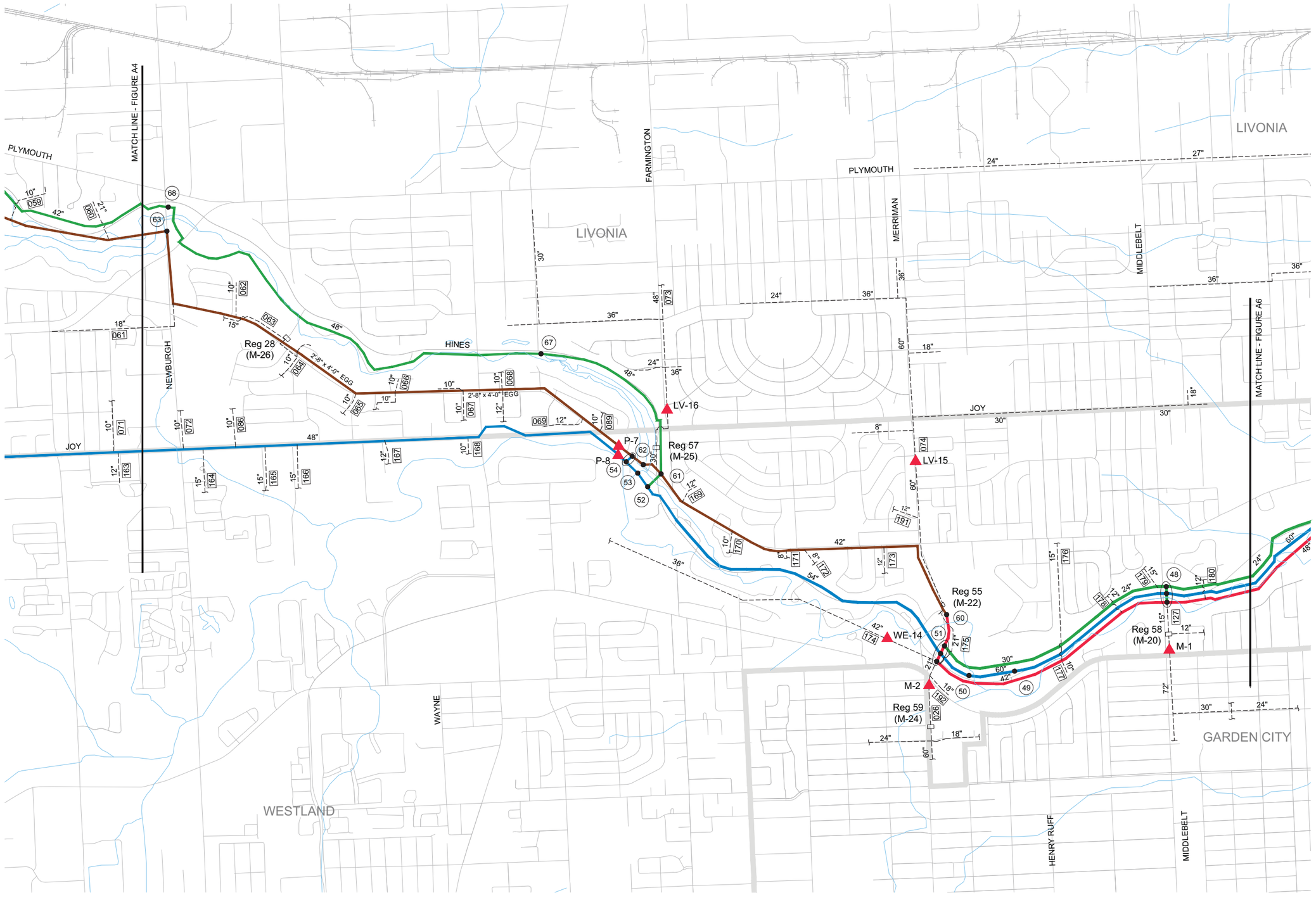
ROUGE VALLEY SEWAGE DISPOSAL SYSTEM

MIDDLE ROUGE INTERCEPTOR SCHEMATIC
5 MILE ROAD TO NEWBURGH

SYSTEM MONITORING PLAN

FIGURE A4 OF 8

K:\DWGFiles\2014\1404\RVSDS\RVSDS SYSTEM MONITORING PLAN (to WWTP).dwg Apr 14, 2015 - 4:41pm



N
W E
S

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

LEGEND

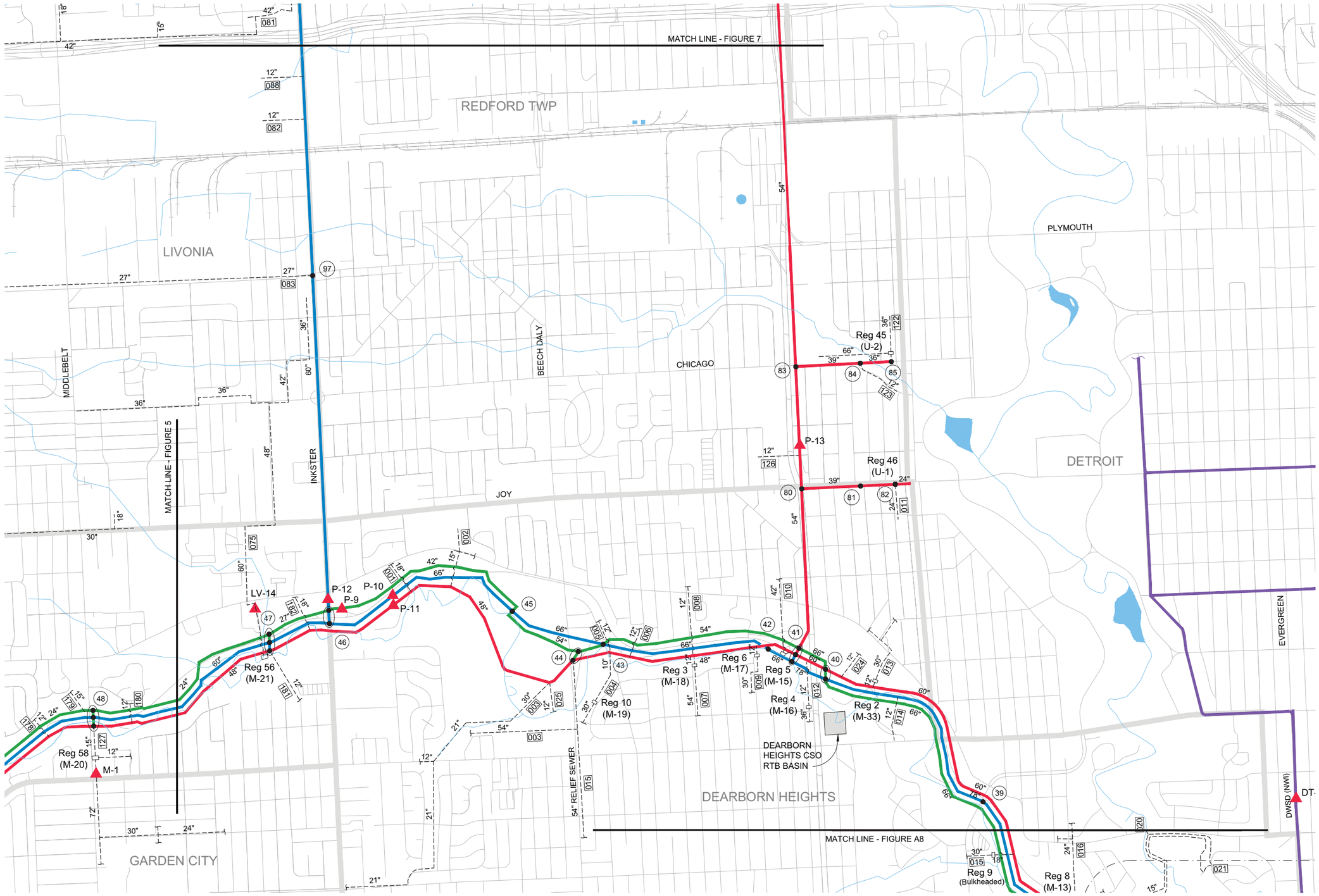
- REGULATOR
- FLOW METER
- JUNCTION
- 1 — JUNCTION ID
- X-XX — LINE CONNECTION ID
- COMMUNITY SEWER
- PARKWAY INTERCEPTOR (PWI)
- MIDDLE ROUGE PARKWAY INTERCEPTOR EXTENSION (MRPIE)
- ROUGE VALLEY INTERCEPTOR (RVI)
- MIDDLE ROUGE INTERCEPTOR RELIEF (MRIR)
- NORTH ARM INTERCEPTOR (NAI)
- NOVI TRUNK SEWER
- LS1A
- WAYNE COUNTY SEWER
- WTUA INTERCEPTOR SYSTEM
- COMMUNITY BOUNDARY
- RETENTION TREATMENT BASIN (RTB)

ROUGE VALLEY SEWAGE DISPOSAL SYSTEM

MIDDLE ROUGE INTERCEPTOR SCHEMATIC NEWBURGH TO MIDDLEBELT

SYSTEM MONITORING PLAN
FIGURE A5 OF 8

K:\DWGFiles\2014\04RVSDS\RVSDS SYSTEM MONITORING PLAN (to WWTP).dwg Apr 14, 2015 - 4:38pm



N
W E
S

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

LEGEND

- REGULATOR
- FLOW METER
- JUNCTION
- (1) JUNCTION ID
- [X-XX] LINE CONNECTION ID
- COMMUNITY SEWER
- PARKWAY INTERCEPTOR (PWI)
- MIDDLE ROUGE PARKWAY INTERCEPTOR EXTENSION (MRPIE)
- ROUGE VALLEY INTERCEPTOR (RVI)
- MIDDLE ROUGE INTERCEPTOR RELIEF (MRIR)
- NORTH ARM INTERCEPTOR (NAI)
- NOVI TRUNK SEWER
- LS1A
- WAYNE COUNTY SEWER
- WTUA INTERCEPTOR SYSTEM
- COMMUNITY BOUNDARY
- RETENTION TREATMENT BASIN (RTB)

ROUGE VALLEY SEWAGE DISPOSAL SYSTEM

MIDDLE ROUGE INTERCEPTOR SCHEMATIC
MIDDLEBELT TO OUTER DRIVE

SYSTEM MONITORING PLAN
FIGURE A6 OF 8

K:\DWGFiles\2014\1404RVSD\SRVSDS SYSTEM MONITORING PLAN (to WWTP).dwg Apr 14, 2015 - 4:42pm

MERRIMAN
MIDDLEBELT
INKSTER
BEECH DALY
TELEGRAPH RD
SEVEN MILE
MC NICHOLS
FIVE MILE
SIX MILE
LIVONIA
REDFORD TWP
DETROIT
FENKELL
IA
SCHOOLCRAFT
BELLS BRANCH

42" 077
54" 076
48" 078
30" 099
100
42" 079
36" 098
54" 115
24" 114
12" 090
36" 113
Reg 39 (U-5)
Reg 40 (U-3)
LV-20
LV- BASIN
LIVONIA EQUALIZATION BASIN
085 10"
087 10"
Reg 41 (U-4)
091
LV-11
42" 081
18" 104
12"
24" 105
60"
24" 107
Reg 36 (U-6)
96
Reg 38 (U-8)
REDFORD CSO RTB BASIN
95
20" 106
Reg 37 (U-7)
12"
10" 108
10" 111
24"
30"
10" 109
94
10" 110
18" 112
30"
42"
24"
120 30"
36"
93
12" 119
Reg 43 (U-9)
36"
30"
92
54"
12"
87
Reg 44 (U-10)
24" 121
86
12" 118
12" 117
124
12"
15" 125
24" 116
Reg 42 (U-11)
42"
24"
88
89
42"
30"
12"
36"
54"
36"
12"
12"
12"
18"
15"
42"
36"

MATCH LINE - FIGURE A6

N
W E
S

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

LEGEND

- REGULATOR
- FLOW METER
- JUNCTION
- 1 JUNCTION ID
- X-XX LINE CONNECTION ID
- COMMUNITY SEWER
- PARKWAY INTERCEPTOR (PWI)
- MIDDLE ROUGE PARKWAY INTERCEPTOR EXTENSION (MRPIE)
- ROUGE VALLEY INTERCEPTOR (RVI)
- MIDDLE ROUGE INTERCEPTOR RELIEF (MRIR)
- NORTH ARM INTERCEPTOR (NAI)
- NOVI TRUNK SEWER
- LS1A
- WAYNE COUNTY SEWER
- WTUA INTERCEPTOR SYSTEM
- COMMUNITY BOUNDARY
- RETENTION TREATMENT BASIN (RTB)

ROUGE VALLEY SEWAGE DISPOSAL SYSTEM

MIDDLE ROUGE INTERCEPTOR SCHEMATIC INKSTER AND REDFORD ARMS

SYSTEM MONITORING PLAN
FIGURE A7 OF 8

K:\DWGFiles\2014\1404RVSDS\RVSDS SYSTEM MONITORING PLAN (to WWTP).dwg Apr 14, 2015 - 4:38pm

MATCH LINE - FIGURE A6

MATCH LINE - FIGURE A2

Reg 9 (Bulkheaded)

Reg 8 (M-13)

Reg 7 (M-14)

LS1A

RIVER SIPHONS
(2 - 36" CONSTRUCTED UNDER MRIR)
(2 - 42" CONSTRUCTED UNDER STCAP)

JC I-18A

WC-S-2

L-133

DT-S-1

DWSD (NWI)

PAUL AVE

FORD RD

WC-S-3

P-14

L-132

DEARBORN

HUBBELL-SOUTHFIELD FACILITY

HUBBELL-SOUTHFIELD

INFLATABLE DAM

MICHIGAN AVE

I-94

2 BBL @ 160" x 171"

RVI (OAKWOOD)
102"

W OUTER DRIVE

120" DWSD (NWI)

ALLEN PARK AP-S-2

ALLEN PARK AP-S-1

L-131

DEARBORN DN-S-2

MELVINDALE ME-S-1

ALLEN PARK

I-94

MASTER CONTROL

60"Ø MRPIE

78"Ø RVI

66"Ø MRIR

JC 2-8

SIPHON S-4

54"Ø

BAR RACK

ROUGE RIVER

WET WELL

SL-2

CHANNEL

SL-3

WET WELL

SL-1

LS1A

FLAP GATE (TYP OF 6)

ELEVATED DISCHARGE BOX
6'x6' SLIDE GATE
(NORMALLY OPEN)

DROP HOLE

JC 2

2-42"Ø SIPHONS

JC 3

JC 4

2-36"Ø SIPHONS

EMERGENCY RELIEF

FLAP GATE

66"Ø MRPIE

72"Ø MRIR

JC 1-18A

METER WC-S-2

54"Ø

75"Ø

66"Ø MRPIE

93"Ø MRPIE

FLAP GATE

72"Ø MRIR

GRAPHIC SCALE
1,250 0 1,250
1" = 1,250'

STOP LOG IN SIPHON CHAMBER CREST = 571.4 ft (NAVD88)

10'Ø

RVI

NWI

8'-6"Ø

S-6
(2)6'-6"Ø
SIPHONS

PROPOSED NEW LOCATION FOR METER WC-S-1

DEARBORN MILLER ROAD PS CONNECTION (DN-S-8)

DETROIT BABY CREEK CONNECTION (BC-S-2)

WC-S-1

ONWI

B050

DWSD CSO OUTFALL 054

OAKWOOD PS

PS#2 DWWTP

PS#1 DWWTP

LEGEND

- REGULATOR
- FLOW METER
- JUNCTION
- 1 JUNCTION ID
- X-XX LINE CONNECTION ID
- COMMUNITY SEWER
- WAYNE INTERCEPTOR (WI-1)
- LOWER ROUGE INTERCEPTOR RELIEF (LRIR)
- PARKWAY INTERCEPTOR (PWI)
- MIDDLE ROUGE PARKWAY INTERCEPTOR EXTENSION (MRPIE)
- ROUGE VALLEY INTERCEPTOR (RVI)
- MIDDLE ROUGE INTERCEPTOR RELIEF (MRIR)
- NORTH ARM INTERCEPTOR (NAI)
- LS1A
- DWSD INTERCEPTOR
- COMMUNITY BOUNDARY
- RETENTION TREATMENT BASIN (RTB)

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ROUGE VALLEY SEWAGE DISPOSAL SYSTEM

INTERCEPTOR SYSTEM SCHEMATIC DOWNSTREAM END OF SYSTEM

SYSTEM MONITORING PLAN
FIGURE A8 OF 8