

**2013 MUNICIPAL WASTELOAD MANAGEMENT REPORT  
(CH. 94 REPORT)**

**WEST NORRITON TOWNSHIP  
MONTGOMERY COUNTY, PENNSYLVANIA**

RETTEW Project No. 057702019  
MARCH 2014



**RETTEW**<sup>SM</sup>

Prepared by  
RETTEW Associates, Inc.  
5031 Richard Lane, Suite 111  
Mechanicsburg, PA 17055  
717.697.3551  
rettew.com

## **TABLE OF CONTENTS**

Chapter 94 Narrative .....	4 pages
----------------------------	---------

## **APPENDICES**

Appendix A	CAP Plan Attachment
Appendix B	Connection Management Plan
Appendix C	Approved Developments
Appendix D	Developments in Progress or in Planning
Appendix E	Pump Station Information
Appendix F	Pump Station Monthly ADF
Appendix G	Monthly ADF Flows to Norristown
Appendix H	Average Daily Flow to NMWA 2013
Appendix I	Sanitary Sewer Repair 2013
Appendix J	Hydraulic Loading and Wet Weather Flow Data Calendar Days 1-inch Rainfall Plus
Appendix K	Flow Meter Calibration Reports
Appendix L	Pump Station Monthly Reports
Appendix M	PA DEP Monthly Hydraulic Loading Data
Appendix N	2013 Sanitary Sewer System Inflow and Infiltration Study
Appendix O	Drawings

**PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION 2013  
MUNICIPAL WASTELOAD MANAGEMENT (“CHAPTER 94”) REPORT**

**WEST NORRITON TOWNSHIP SEWER SYSTEM**

1. Estimated numbers of residential, commercial, and industrial equivalent dwelling units (EDUs) connected to the public sewer system as of December 31, 2013.

*Residential.....7,490 EDUs*  
*Commercial .....545 EDUs*  
*Public/Institutional .....95 EDUs*

*Industrial EDUs are not tracked separately. They are included in the commercial total. The Township uses an EDU flow equivalent of 285 gpd.*

2. The projected increases to the average daily hydraulic and organic loadings from the municipality for each year 2014– 2018.

*2013 .....7,500 gpd*  
*2014 .....25,675 gpd*  
*2015 .....8,375 gpd*  
*2016 ..... 0 gpd until capacity is app.*  
*2017 .....0 gpd until capacity is app.*  
*2018 .....0 gpd until capacity is app.*

*Organic loadings are not measured. See Attached Table 1 in Appendix A for more detailed information.*

3. A list of any areas in the public sewer system that are overloaded or nearing capacity. Include description and frequency of any flooding or bypassing that occurred during 2013. Describe any plans for reducing any overloads projected within the next three years (if applicable).

**Pump Stations within WNT Sewer System**

*The Rittenhouse Pump Station has been experiencing overloads during heavy wet weather flows since 2008. The overload is due to by-passing flows from the Jackson Street Interception connection to the Norristown sewer system as described in the Pennsylvania Department of Environmental Protection (PADEP) Correction Action Plan (CAP) submission back in July 2008. Water Quality Management (WQM) permit application was submitted for PA DEP review in August 2013. Project is scheduled to be out for bid as soon as the township receives WQM approval from PADEP.*

*Twenty-five (25) permanent flow meters have been installed within the Jackson Street Drainage Basin during 2013.*

**Flood and Bypassing problems**

*Flood happened after storm in July 2013*

*No flooding has been recorded within the Township system.*

**Combined Sewer Overflows**

***There are no combined sewers within the West Norriton Township Sewer System. West Norriton experienced SSOs at Forrest Ave pump station due to a broken air release valve DEP was out and monitored repair and clean up. A minor SSO occurred on Main Street due to a blocked gravity sewer line, SSO was reported to DEP and line was cleared same day and cleanup occurred.***

**Ongoing and Future I&I Remediation**

***West Norriton Township understands that it is obligated to remove I&I from the sanitary sewer system. The Township has prepared a comprehensive plan for remediation work and is attached to this Chapter 94 Plan. The Corrective Action Plan (CAP) can be found within Appendix A of this report.***

**Future Connections**

***A Connection Management Plan (CAP) for the next three (3) years was complete and being reviewed by PADEP. The plan is to allow development to continue on a limited basis with in the Township. See CAP and list of EDUs being within Appendix B.***

4. Provide a description and plot plan or map of all sewer extension constructed in 2012, those approved for construction but not yet completed, and all other proposed projects which will require connection into the public sewer system but are still in the preliminary planning stages. Include the following applicable information, where available:
  - a. Name of extension or project.
  - b. Population or EDUs projected for each project or sewer extension.
  - c. Flows projected for each project or extension.
  - d. Total area served by project or extension. Also list length, size and type of pipe installed or to be installed.

***No sewer extensions were permitted in 2013. See attached Table 2 in and attached map for projects that have been approved in previous years and projects in the planning stages that require connection to the public sewer system. Currently, all projects are on hold until PADEP allows future connections.***

5. Discuss any ongoing or proposed programs for sewer system monitoring, maintenance, repair and rehabilitation. Specifically describe in detail all routine and special I/I repair and rehabilitation activities including personnel and equipment used, frequency of inspections, linear feet of sewer repaired, cleaned, replaced, etc. or any other activities relative to operation and maintenance of the collection system.

***West Norriton Township televised the entire Lower Jackson Street Drainage Basin (see attached plans sheet) which included all sanitary sewers and laterals within this area. A list of sewers and laterals has been developed for repair. See the attached comprehensive plan for future sanitary repairs to the system.***

***The Township is proceeding with repairs to the Lower Jackson Street Basin. The repairs to the Lower Jackson Street Basin are proceeding with the worst sections being the first phase. This***

*portion of the repairs has been completed in the spring 2010. The second phase was completed in the January 2013. The third phase will be completed in early March 2014.*

*The Township cleaned the Upper Jackson Street Basin and performed repairs in the Chestnut Avenue Pump Station area. This work was completed and flows are being monitored to determine the extent of flow reduction. See Summary of Repairs (Appendix I) to the existing sewer system. A flowmeter was added to the Jackson Street diversion chamber to monitor flows diverted to Rittenhouse Pump Station. All flowmeters within the Township are calibrated on a regular basis. The calibration reports have been included.*

6. List any problems experienced within the collection system not addressed above.

***None.***

7. Discuss the condition of all public sewage pumping stations contributing flow directly or indirectly to the Norristown Municipal Waste Authority wastewater treatment plant. Include:
  - a. Name of station
  - b. Location of station
  - c. Delineation of all existing areas and project extensions tributary to the station, including current average and peak flows, additional EDUs to be connected to station over next two years; and assumed unit gpd/EDU value.
  - d. Design data for station, including number capacity of all pumps, alternate power sources, emergency procedures or by-pass capability.
  - e. See attached maintenance reports for condition of pumping stations and maintenance completed during 2013.

#### **Sewage Pump Stations**

***The Township owns and maintains six (6) pump stations within the existing collection system: Rittenhouse Pump Station, Whitehall Pump Station, Forrest Avenue Pump Station, Port Indian Pump Station, Chestnut Avenue Pump Station, and Halford Hills Pump Station.***

1. ***Rittenhouse Pump Station: Constructed in 1965, is comprised of three (3)-75 hp pumps, each capable of 1,750 gpm. This station was upgraded in 1965 with enlarged pumps rated at 100 HP, each capable of 2,700 gpm as part of an upgrade to the system. A new pump station is proposed for this station. PA DEP Water Quality Management (WQM) permit application is currently under reviewed.***
2. ***Whitehall Pump Station: Constructed in 1965, is comprised of three (3)-60 hp pumps, each capable of 950 gpm. This station was upgraded in the 1980s with pumps relocated from Rittenhouse Pump Station, each pump is 75 hp and capable of 1,750 gpm as part of the upgrade. PA DEP Water Quality Management (WQM) permit application for Whitehall Pump Station is approved. Project is currently on hold until funding is available.***
3. ***Forrest Avenue Pump Station: Constructed in the 1960s, is comprised of two (2)-50 hp pumps, each capable of 600 gpm. This station was upgraded in the 1980s with the addition of an emergency generator. Pumps have been rebuilt in 2013.***
4. ***Port Indian Pump Station: Constructed in the 1980s, is comprised of two (2)-40 hp pumps, each capable of 1,000 gpm. Pumps have been rebuilt in 2013.***
5. ***Chestnut Avenue Pump Station: Constructed in the 1970s, is comprised of two (2)-15 hp pumps, each capable of 150 gpm. This pump station was replaced in 2004 with a new***

*station with two (2)-20 pumps, capable of 180 gpm. An emergency generator was also installed at this time. yes*

6. ***Halford Hills Pump Station: Constructed in the 1970s, is comprised of two (2)-5 hp pumps, each capable of 25 gpm. This station has never been upgraded.***

***Appendix E represents pump run times and flows for the six (6) collection system pump stations operated by the Township. Flow data has been included in the appendices to show the five (5) year summary of pump station flows for each pumping station.***

8. Number of copies of final Waste Load Management Report needed by Municipality.

***Three (3) copies are required.***

**Appendix A**  
**CAP Plan Attachment**

## **Introduction**

West Norriton Township (WNT) is currently under a Corrective Action Plan (CAP) for inflow and infiltration (I&I) abatement to its sanitary sewer system. The CAP was implemented upon notification by the PA Department of Environmental Protection (DEP) in April 2007 that WNT must decrease the volume and duration of I&I flows discharged to its sewer collection and conveyance system. WNT conveys flows to the Norristown Municipal Waste Authority's (NWMA) Wastewater Treatment Plant (WWTP) via the Rittenhouse Pumping Station and the Jackson Street Interceptor. The Whitehall Pumping Station collects gravity flow in the northeast area of the collection system and discharges flow to a manhole which conveys flows by gravity to the Jackson Street Interceptor. Appendix A shows the WNT collection system, with the pumping stations and the collection basin areas.

Work to improve the I&I problems has been completed in the system on an annual basis. Currently, WNT is completing a project which will line 141 sewer laterals.

In order to quantify improvements in I&I in WNT, two types of data are being analyzed in comparison with precipitation amounts in this report:

1. Peak and average daily flows.
2. Peak flows on an hourly basis.

## **WORK COMPLETED**

Several collection system repair projects were completed in the Jackson/Montgomery Basins. The map in Appendix A shows where the major repairs such as lining and replacement were completed. The sewer repairs are summarized below.

2010

- 800 feet of 8" pipe was lined on Glen Oak Road in the summer.
- 100 feet of 8" pipe was lined on Hoover Ave in the summer.
- 850 feet of 8" pipe was lined on Oxford Circle in the summer.
- 200 feet of 15" pipe was lined on Oxford Circle in the summer.
- 610 feet of 8" pipe was lined on Colonial Ave. in the summer.
- 850 feet of 8" pipe was lined on Avondale Road in the fall.
- 650 feet of 8" pipe was replaced on Chesnut Avenue in the summer.
- 600 feet of 8" pipe was lined on Chesnut Avenue in the summer.
- 650 feet of 15" pipe was lined in the summer
- 11 laterals were repaired along Avondale Road in the fall.
- 10 laterals were repaired in the fall along Colonial Avenue.
- 5 laterals were replaced along Chesnut Avenue in the summer.
- 2 laterals were repaired, on Larken Drive and Potts Avenue in the fall.
- 50 spot repairs were completed, including joints, cracks and holes in the Jackson/Montgomery Basin.
- 50 sump pumps and 75 rain leaders were removed from the system in the Whitehall Basin, flows go to Jackson/Montgomery.
- 3 manholes rehabilitated.

2011

- 700 feet of 8" pipe relined on Highland Ave.
- 3 laterals repaired on Christopher Street in December.
- 35 spot repairs.

2012

- 250 feet of 12" pipe on South Whitehall Street being replaced.
- 1 manhole replaced.
- 5 manholes Rehabbed on Williams Way (Manhole #235 to manhole #239)
- 2 manholes Rehabbed on Montgomery Avenue (Manhole #22 and #23)
- Montgomery Avenue Lined = 1310 feet
- Forest Avenue lined = 950 feet
- Centre Avenue lined = 705 feet
- Christopher Street line = 580 feet
- William Way lined = 470 feet
- Marshall Street lined = 1500 feet

2013

1. The following are number of sanitary lateral lined by CIPP lining during 2013. 66 laterals were lined. Additional 75 laterals will be lined during the beginning of 2014.
  - A. William Way: 6
    - House Number: 1717,1718,1706,1642, 1627, 1711
  - B. David Lane: 2
    - House Number:103, 116
  - C. Sheridan Lane: 9
    - House Number:1653, 1649 ,1633, 1637, 1615, 1650, 1610, 1616, 1630
  - D. Hartranfth Avenue: 3
    - House Number: 1640, 1646, 1650
  - E. Prospect Avenue: 29
    - House Number:5, 8, 10, 14, 15, 16, 19, 20, 23, 24, 27, 31, 32, 35, 36, 39, 40, 42, 43, 47, 48, 50, 55, 56, 58, 64, 66, 67
  - F. Colonial Avenue: 16
    - House Number: 5, 10, 11, 16, 21, 22, 30, 31, 40, 41, 46, 51, 52, 58, 59, 75
  - G. Forrest Avenue: 6
    - House Number: 303, 305, 307, 421
  - H. Centre Avenue: 1
    - House Number: 75
2. Laterals have been replaced:
  - 65 Montgomery Avenue
  - 70 Montgomery Avenue
  - 86 Montgomery Avenue
  - 26a Centre Avenue
  - 74 Centre Avenue

- 1710 Williams Way
- 1715a Williams Way
- 1747 Williams Way
- 1657 Sheridan Lane
- 28 Prospect Avenue
- 63 Prospect Avenue
- 76 Prospect Avenue

**ANNUAL PRECIPITATION**

The annual precipitation for 2010-2013 is shown in Table 1, below. The years 2010 and 2012 have had similar amounts of precipitation, varying only by 0.9 inches. 2011 had approximately 10 inches more rain than the other two years, or 123% more rain. The year 2013 had approximately 7 inches, or 14% less rain than 2012. This has made the quantification of I&I improvements less difficult, as the less precipitation in 2013 would most likely correlate into lower groundwater levels than in years with higher precipitation.

Additionally, the precipitation has been distributed very differently throughout each year. In 2013, the precipitation between the first half of the year and the second half of the year did not vary a lot. Table 2 shows the semi-annual precipitation from 2010 to 2013, and the percent of the total annual precipitation for each 6 month period. In 2013, rain fall amount were distributed very evenly with only 2% difference in precipitation amounts between the first and second half of the year, see Table 2. The precipitation record also indicates that June and July have the most amount of precipitation during 2013. Figure 1 shows the graph of the monthly precipitation from 2010-2013, which illustrates the distribution of precipitation throughout each year.

It should also be noted, that during Tropical Storm Sandy in November 2012, there were several hours with no precipitation measured, likely due to power outages, and therefore, the total precipitation for November was likely higher.

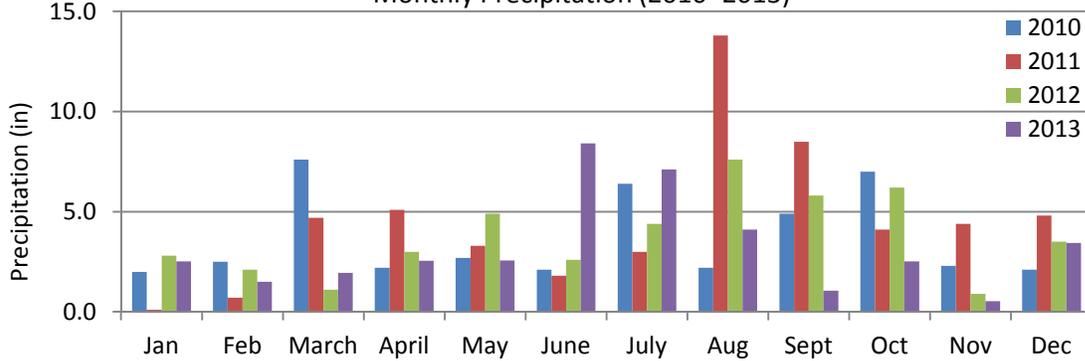
Table 1: Monthly Precipitation from Eagleville Monitoring Station

	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
Jan	2.0	0.1	2.8	2.5
Feb	2.5	0.7	2.1	1.5
March	7.6	4.7	1.1	1.9
April	2.2	5.1	3.0	2.6
May	2.7	3.3	4.9	2.6
June	2.1	1.8	2.6	8.4
July	6.4	3.0	4.4	7.1
Aug	2.2	13.8	7.6	4.1
Sept	4.9	8.5	5.8	1.1
Oct	7.0	4.1	6.2	2.5
Nov	2.3	4.4	0.9	0.5
Dec	2.1	4.8	3.5	3.4
<b>TOTAL</b>	<b>44.0</b>	<b>54.3</b>	<b>44.9</b>	<b>38.3</b>

Table 2: Semi – Annual Precipitation Comparison

	2010		2011		2012		2013	
	Flow (gpm)	% of Annual Precipitation						
Jan.-June Subtotal	19.1	43.4	15.7	28.9	16.5	36.7	19.5	51.0
July – Dec. Subtotal	24.9	56.6	38.6	71.1	28.4	62.3	18.7	48.9

Figure 1  
West Norriton Township  
Monthly Precipitation (2010 -2013)



**DAILY PEAK AND AVERAGE FLOWS**

The daily peak and average flows are graphed for both the Rittenhouse pump station and the combined Jackson and Montgomery metering, which together collect wastewater from the eastern portion of West Norriton. The Rittenhouse PS receives flows from the Rittenhouse collection area and also from the Montgomery Bypass. For this section, the total flows to the Rittenhouse pump station were used.

Jackson and Montgomery

Flows from the Jackson Street basin go to the Jackson Street Diversion Chamber, where the base flow goes to the Jackson Street Meter and the remainder of the flows are diverted to the Rittenhouse Pumping Station via the Montgomery Bypass. I&I work has been performed in the Jackson Street Basin since 2010 . A list of sewer line and sewer laterals repairs are listed in the perious section.

Figures J.1 – J.12 shows each month compared. The data from both the diversion chamber meter and the Jackson Street meter were added to determine the overall peak and average flows from the entire basin.

## Rittenhouse PS

The Rittenhouse PS should see some flow improvements due to work completed in the Jackson Street Basin, since it receives flows over a set amount from the basin. Figures R.1 – R.12, compare monthly flows from 2011 to 2013.

## **GROUNDWATER LEVELS**

In order to help interpret the dry weather and wet weather flows, which will be discussed in the following sections for estimation of infiltration, groundwater level data from the general area was pulled from the USGS website. There was no data in the immediate vicinity of WNT, so the three closest wells with data from 2011-2013 north, east and south of WNT were used. The wells are in Chester, Delaware and Montgomery Counties. The levels from the USGS website are measured as the depth to water level (from the surface). A summary of the low and high levels from each year are shown in Table 3. Graphs for each year are shown in Figures 2-4.

Table 3: Summary of Groundwater Levels beneath the Surface from the USGS website

	Year	Montgomery		Chester		Delaware	
		Level (ft)	Month	Level (ft)	Month	Level (ft)	Month
Low	2011	9.8	July	14	Aug	7.5	Jul/Aug
	2012	9.6	July	14.6	Oct	8.2	Aug/Sep
	2013	10.0	Nov	13.7	Jun	7.4	Nov
High	2011	6.6-6.7	Mar/Apr/Dec	8.5-8.8	Mar/Oct/Dec	3.4-3.7	Mar/Sep/Oct
	2012	6.6-6.9	Jan/Oct/Dec	9.5	Jan	4.9	Jan
	2013	6.6-6.9	Jul	9.8	Aug/Dec	3.7	Jun

## **INFILTRATION**

The infiltration for the system can be calculated by subtracting the average dry weather flows from the average wet weather flow. Therefore, the dry weather and wet weather flows were calculated for the Rittenhouse and Jackson/Montgomery Basins.

### Dry Weather

In order to help determine the infiltration into the WNT collection system, dry weather flows were determined for both the Jackson Street/Montgomery area and the Rittenhouse collection areas, with the Rittenhouse area flows being determined by subtracting the Montgomery bypass flows from the flows measured at the Rittenhouse PS.

The dry weather flows for each basin were determined by calculating the minimum 7 day average flow throughout the basin on an annual basis. Table 4 summarizes the calculated dry weather flows for each Basin. Flow for December 2013 for Montgomery area and flow for Jackson/Montgomery beginning November 14, 2013 to the end of December 2013 are not available. The month of the dry weather flows corresponds well to the months that groundwater levels in the area were lowest based on the USGS data in Table 3.

Groundwater levels were the lowest in 2011, but the dry weather flows were the lowest in 2011, which imply there could be some improvement in the WNT system after the 2010 work completed in the fall. The combined dry weather flows for each basin represent the total dry weather flow to Norritown, the dry

weather flows from 2011 to 2013 increased from 728 gpm to 950 gpm. Flows within Jackson/Montgomery area have been sent to Rittenhouse Basin before sending to NMWA.

Table 4: WNT Dry Weather Flows

	Rittenhouse Collection Area		Jackson Street/Montgomery Area	
	Flow (gpm)	Month	Flow (gpm)	Month
<b>2011</b>	262	July	466	July
<b>2012</b>	345	April	585	April
<b>2013</b>	415	May	535	Nov

Wet Weather Flows

The wet weather flows for the Rittenhouse collection area and Jackson Street/Montgomery Area were calculated by excluding the peak average daily flows (which represent inflow rather than infiltration) and the average daily flows for the wettest three months were averaged to determine the infiltration into the system.

Montgomery flows seem to exceed the maximum measureable flow of 1000 gpm during extreme rain events, which affects determining actual wet weather flows from the Rittenhouse Basin because the Montgomery flows cannot be properly subtracted out. Part of this problem is due to the Jackson Street interceptor having a blockage of varying origin (eg. plastic soda bottles and tree limbs), which tends to happen particularly during large precipitation events, and inundates the Montgomery Bypass with additional flows. Data from the Rittenhouse PS was included, without subtracting Montgomery flows, for the following reasons:

- a. Due to the Montgomery Bypass not being able to record flows over 1000 gpm, all of the flow contributions from the Bypass were not being subtracted from the Rittenhouse PS flows, which means the Rittenhouse Basin flows were overrepresented by an unquantifiable amount.

Table 5 summarizes the wet weather flows.

	Rittenhouse Basin		Rittenhouse PS		Jackson/Montgomery	
	Flow (gpm)	Months	Flow (gpm)	Months	Flow (gpm)	Month
2011	630	Feb, Mar, April	1180	Sept, Oct, Dec	1220	Feb, Mar, Dec
2012 <sup>1</sup>	590	Jan, May, June	1050	Jan, May, Sept	830	Jan, Feb, May
2013 <sup>2</sup>	103	Jun, Jul, Aug	1063	Jun, Jul, Aug	960	Jun, Jul, Aug

<sup>1</sup>2012 – Available data from Jan – mid-June only for Montgomery. Therefore, Rittenhouse Basin and Jackson/ Montgomery June-Dec data is not included.

<sup>2</sup>2013 – Available data from Jan – mid November only for Montgomery.

**HOURLY FLOWS AND PRECIPITATION**

In order to try to quantify the inflow to the WNT system, several precipitation events throughout each year, representing the beginning and end of each year were graphed on an hourly basis for the peak flows versus precipitation. The graphs are shown in Figures R.12 – R. 20 for the Rittenhouse PS. The Rittenhouse PS and the Montgomery Bypass are plotted together for the figures, due to the Montgomery Bypass peak flow measurement peaking at 1000 gpm, even when the actual flows are higher.

The Jackson/Montgomery Basin graphs are shown in Figures J. 12- J.20, and these charts show the Jackson Meter flows, the Montgomery Bypass Flows, and the combined flows. The dates in 2013 all show that the Jackson meter was clogged, as can visually be seen by the sudden dropoff in flows and a flat peak flow.

The inflow was determined by measuring difference between the peak flow rate before the precipitation event started and the peak flow rate after the start of the precipitation event. A summary of the inflow is shown in Table 6.

One problem in the data that should be pointed out, is that when the Montgomery meter is not measuring all of the flows, the peak flows are not truly being measured for the Jackson/Montgomery Basin. Additionally, the Rittenhouse PS flows are difficult to compare, due to additional flows being sent to the PS when the Jackson Street flows are clogged and sent to the PS via the Montgomery Bypass. Therefore, it is difficult to correlate any improvements to the system.

Table 6: WNT Inflow Amounts

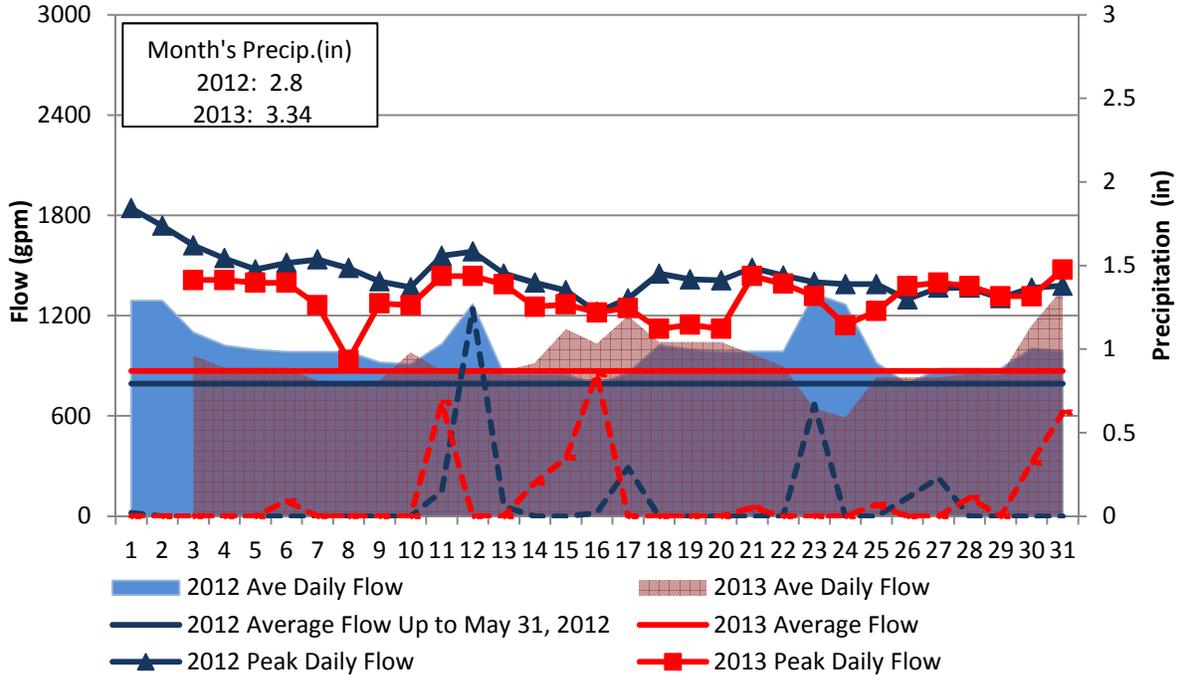
	Precipitation	Inflow (gpm)	
		Rittenhouse PS	Jackson/Mont
March 5-8, 2011	1.5	3200	1400
November 21-25, 2011	2.2	4200	2400
January 12, 2012	1.3	4500	--
April 21-24, 2012	2.7	3500	--
October 28-30, 2012	>3.7	3800	--
June 7, 2013	2.33	3950	433
June 10, 2013	2.71	2750	531
July 23, 2013	1.67	1400	52

**CONCLUSIONS**

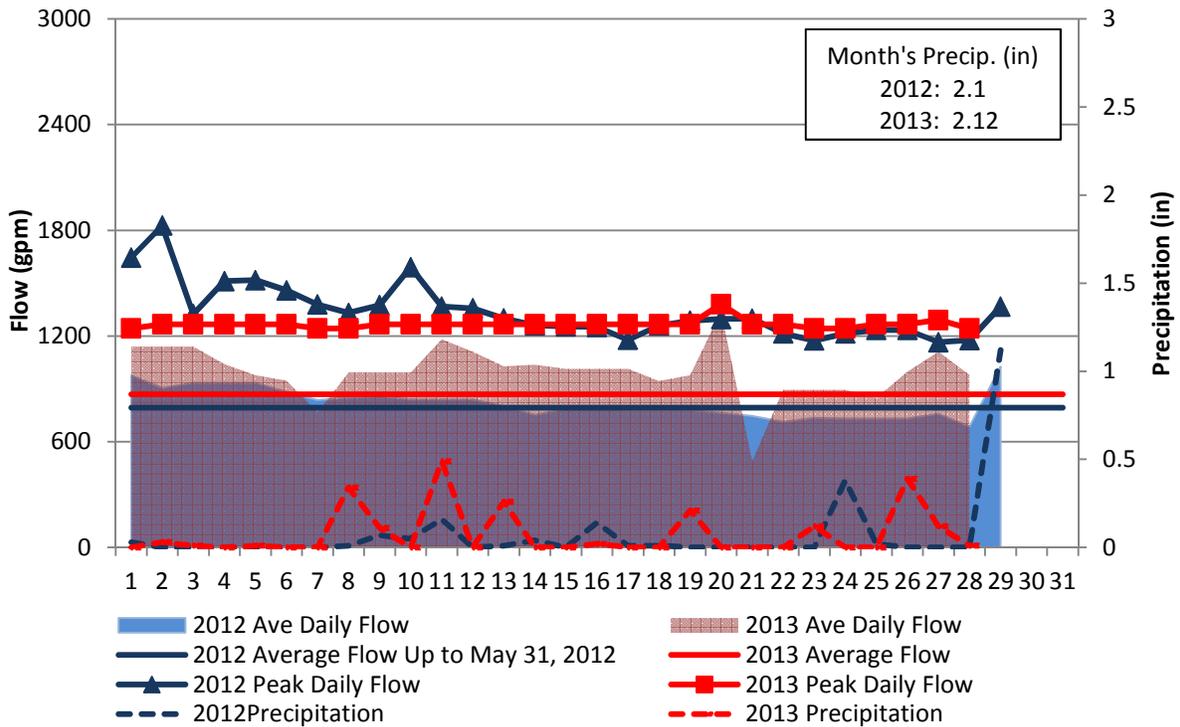
West Norriton Township have been performing different projects to improve I&I problems in the lower Jackson Drainage Basin since 2009. The projects including manhole repair/replacement, sanitary sewer main repairs and lining and lateral linings have been taken place on an annual basis based on the township funding for each yea. A project consisting of 141 laterals were lined and 34 will have been replaced will be complete at the beginning of April 2014. The next phase of I & I repair will started during Fall of 2014.

There is a definite improvement in the daily flows with the township based on meter recording, if not for the two major named rain events in June and July flows would be down approximately 150,000 gpd. WNT plans to continue tracking the flows to determine improvements in the system.

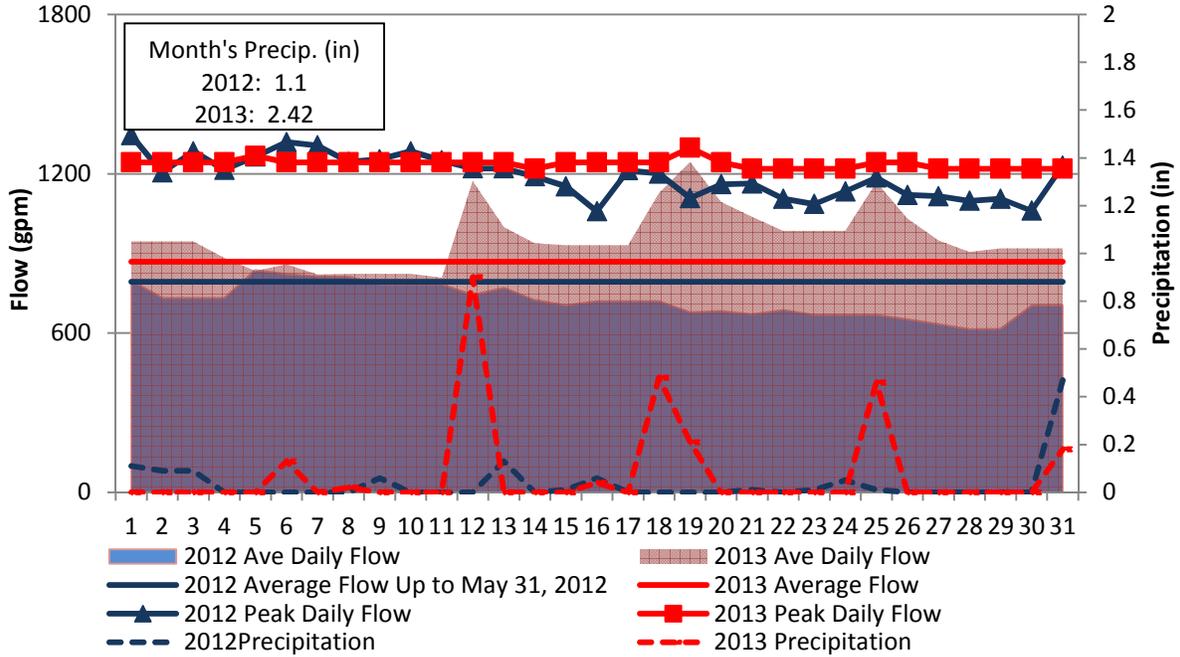
**Figure J.1: West Norriton I&I Evaluation: Jackson Street PS and Montgomery Bypass  
January 2012 & 2013**



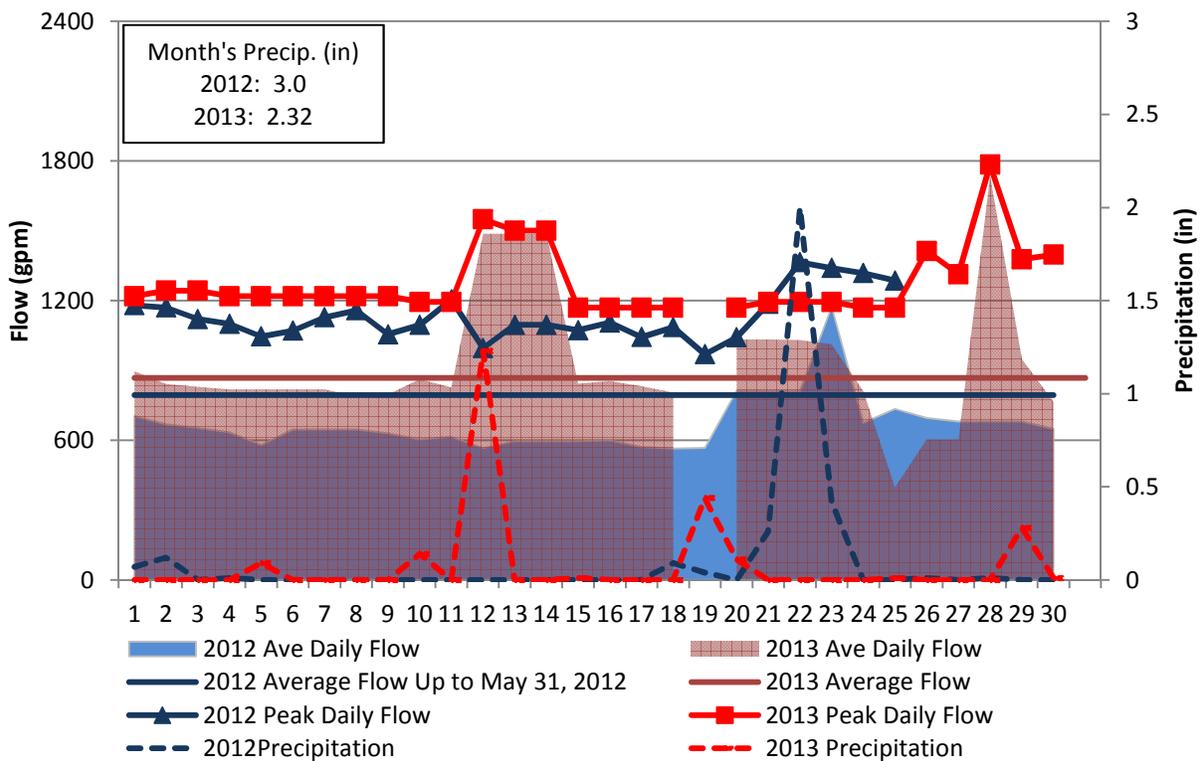
**Figure J.2: West Norriton I&I Evaluation: Jackson Street PS and Montgomery Bypass  
February 2012 & 2013**



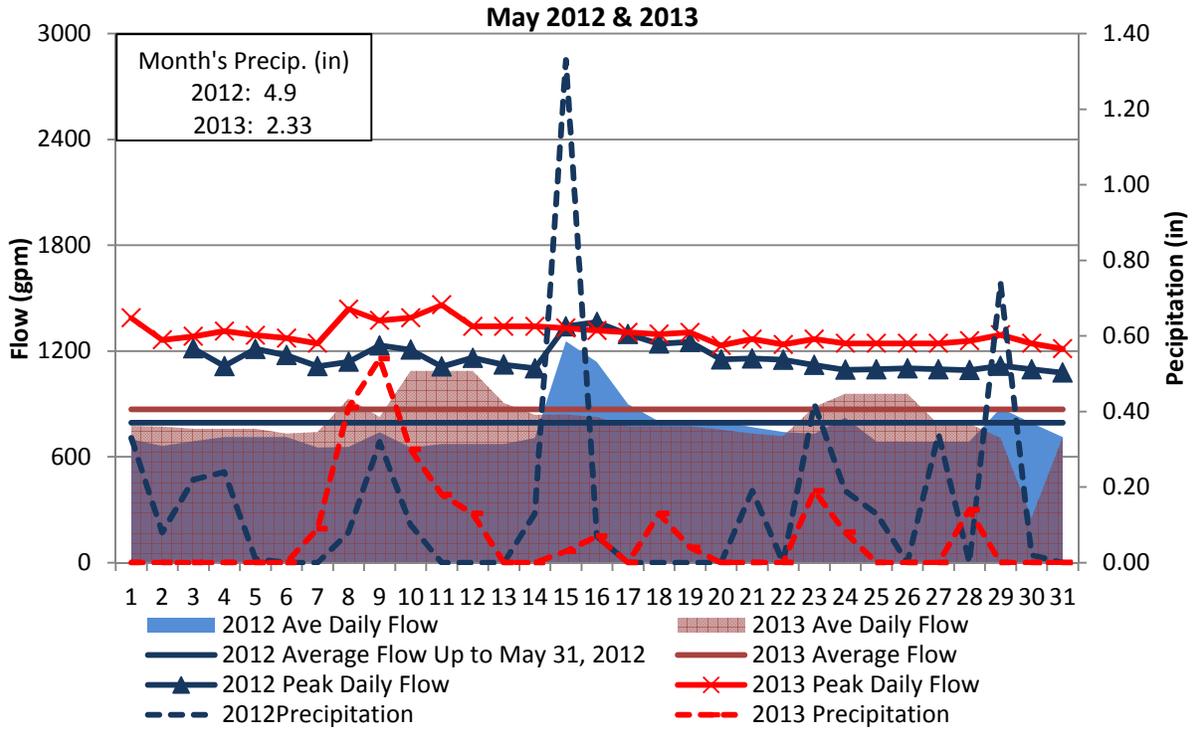
**Figure J.3: West Norriton I&I Evaluation: Jackson Street PS and Montgomery Bypass  
March 2012 & 2013**



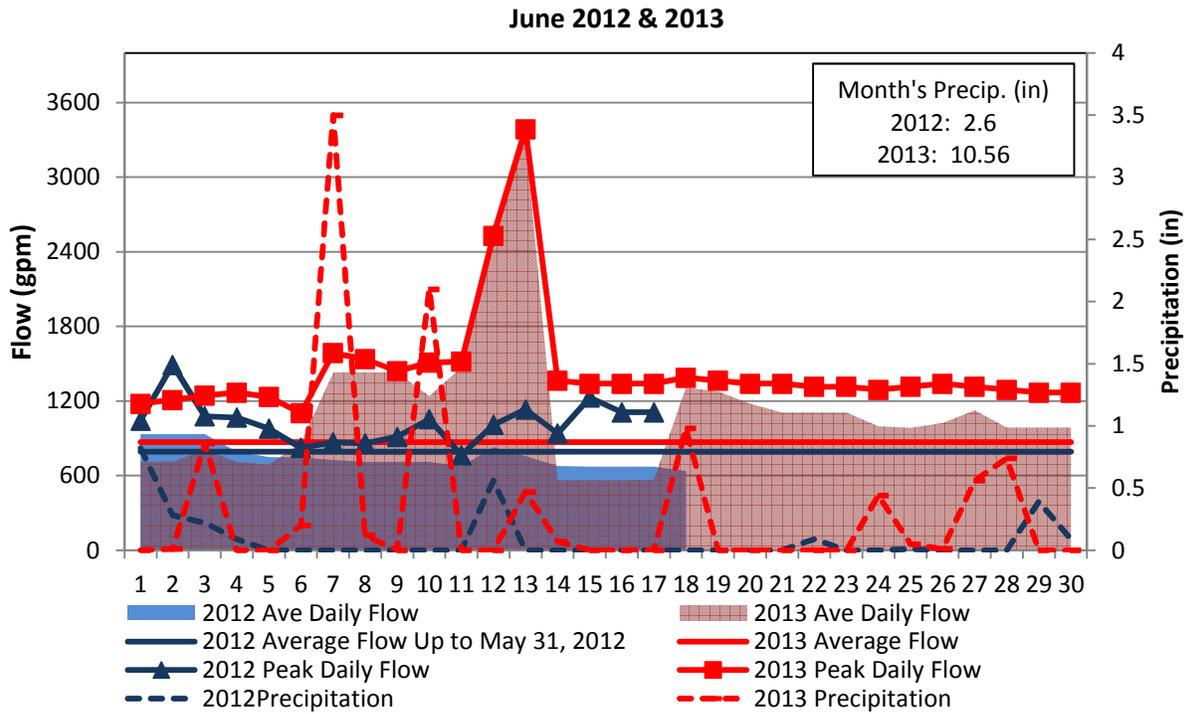
**Figure J.4: West Norriton I&I Evaluation: Jackson Street PS and Montgomery Bypass  
April 2012 & 2013**



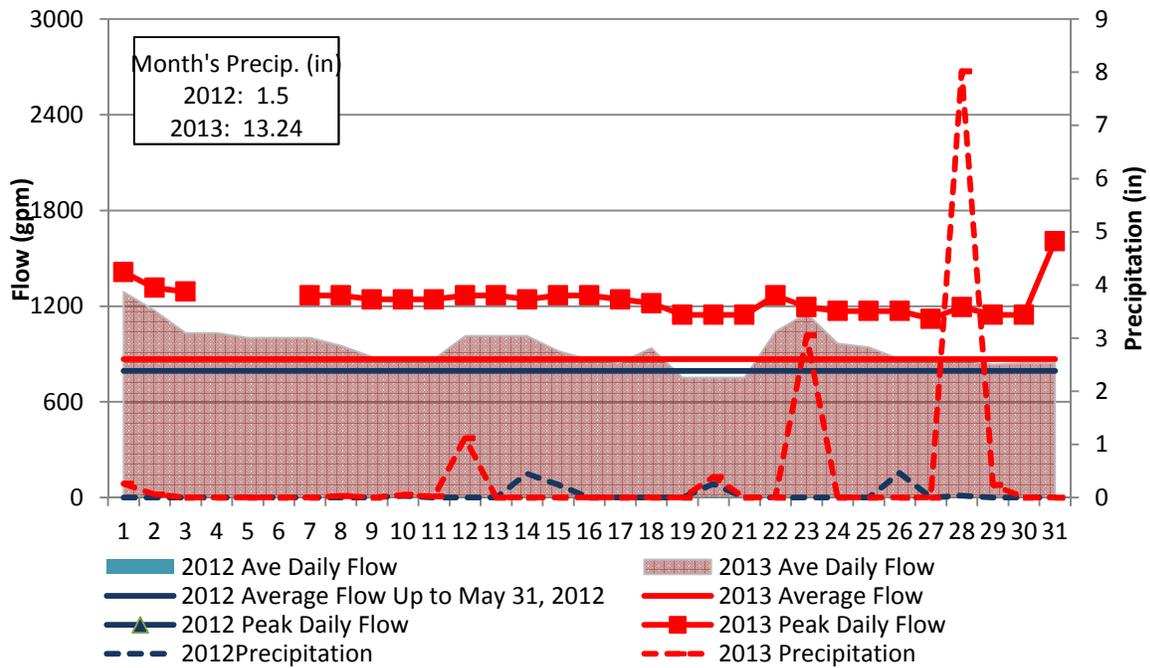
**Figure J.5: West Norriton I&I Evaluation: Jackson Street PS and Montgomery Bypass**



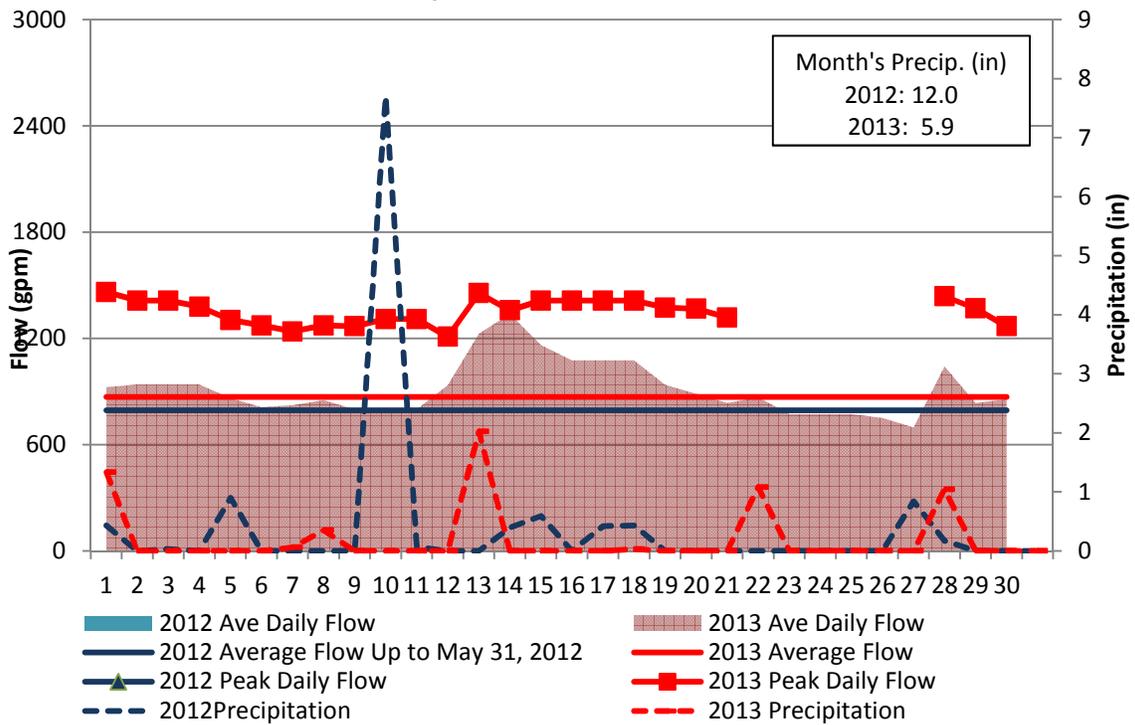
**Figure J.6: West Norriton I&I Evaluation: Jackson Street PS and Montgomery Bypass**



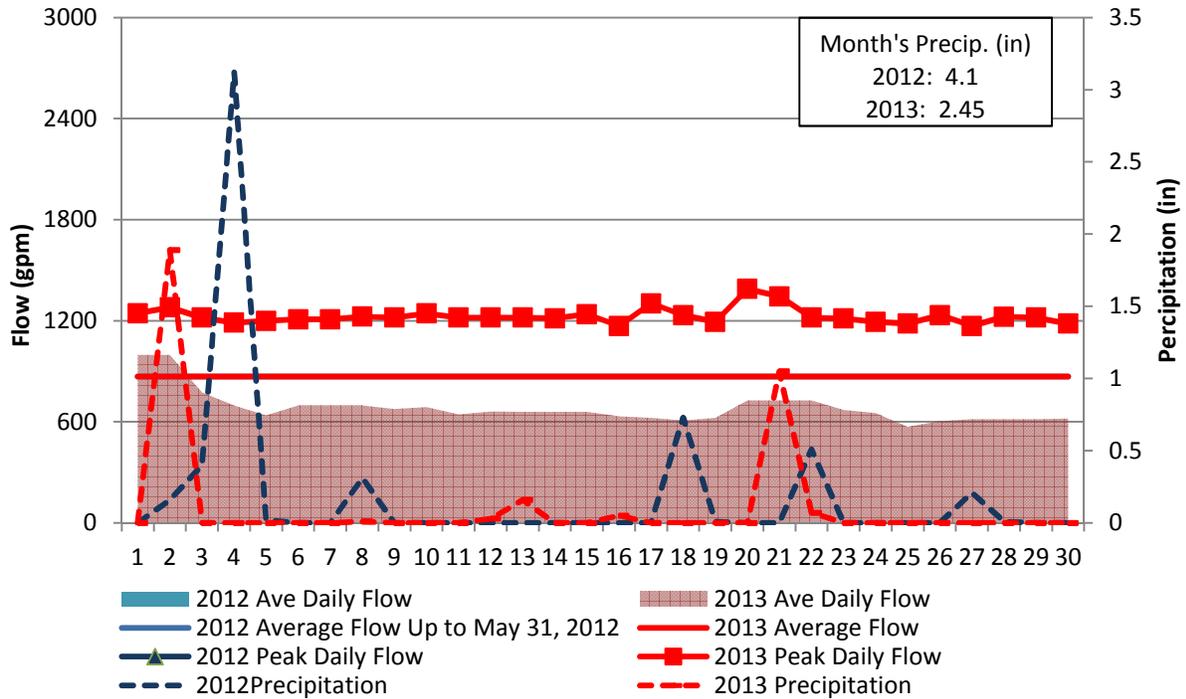
**Figure J.7: West Norriton I&I Evaluation: Jackson Street PS and Montgomery Bypass  
July 2012 & 2013**



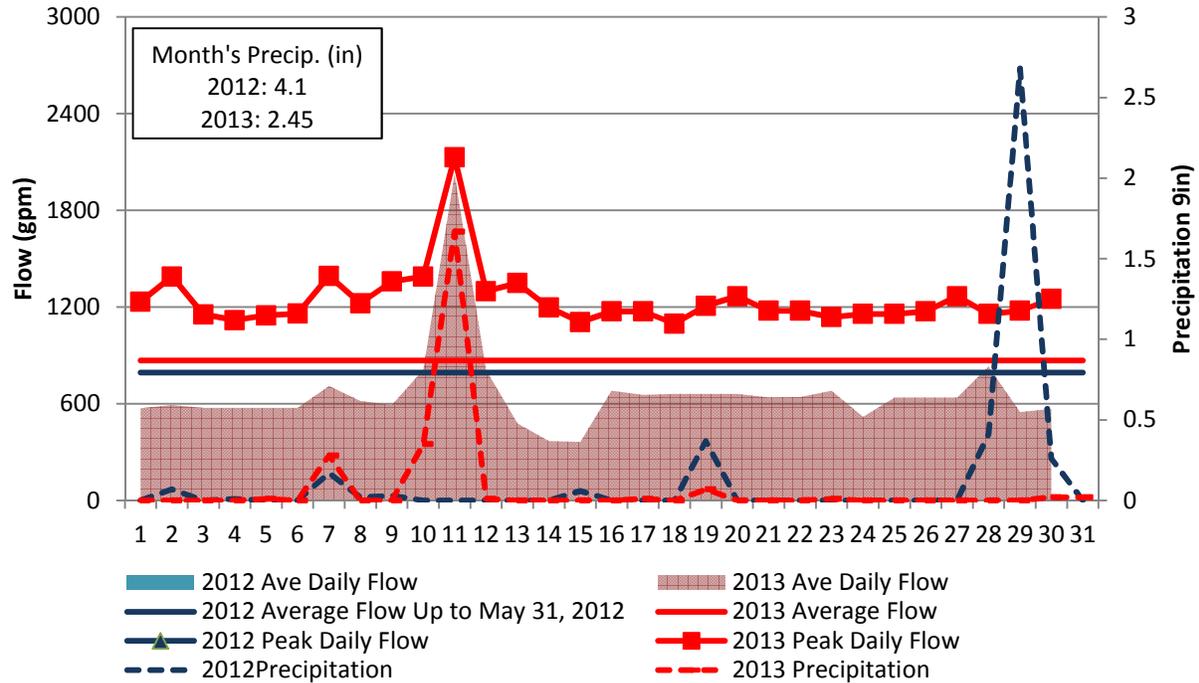
**Figure J.8: West Norriton I&I Evaluation: Jackson Street PS and Montgomery Bypass  
September 2012 & 2013**



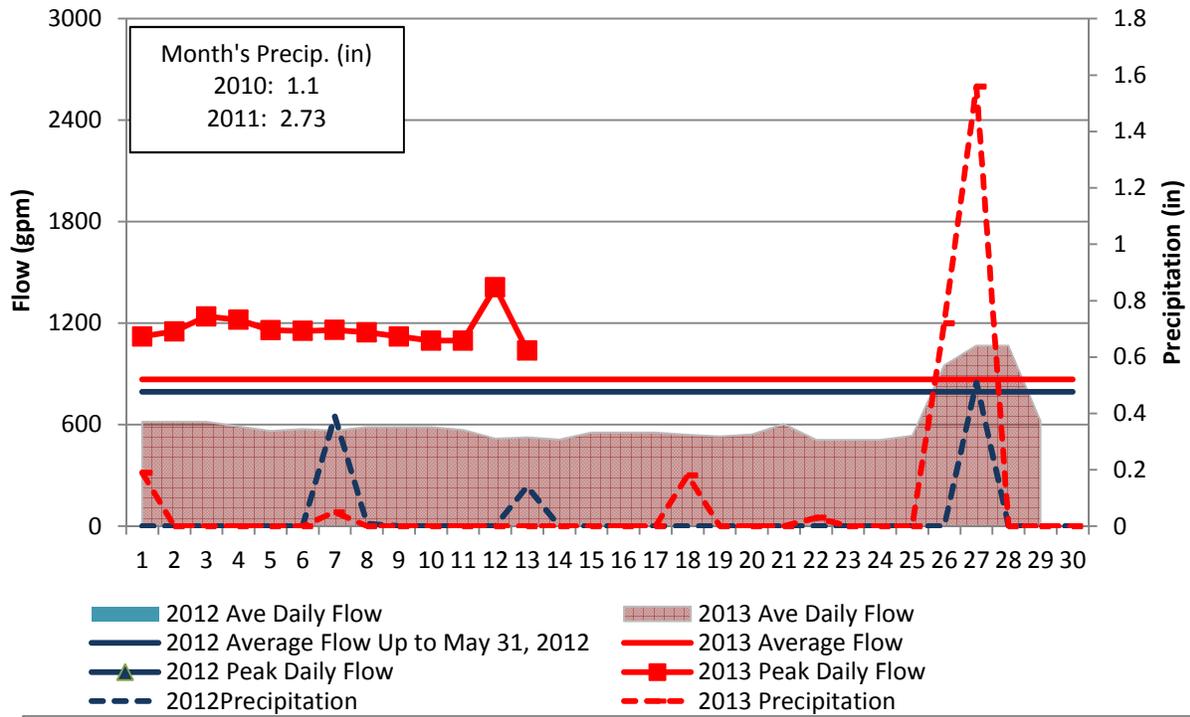
**Figure J.9: West Norriton I&I Evaluation: Jackson Street PS and Montgomery Bypass  
September 2012 & 2013**



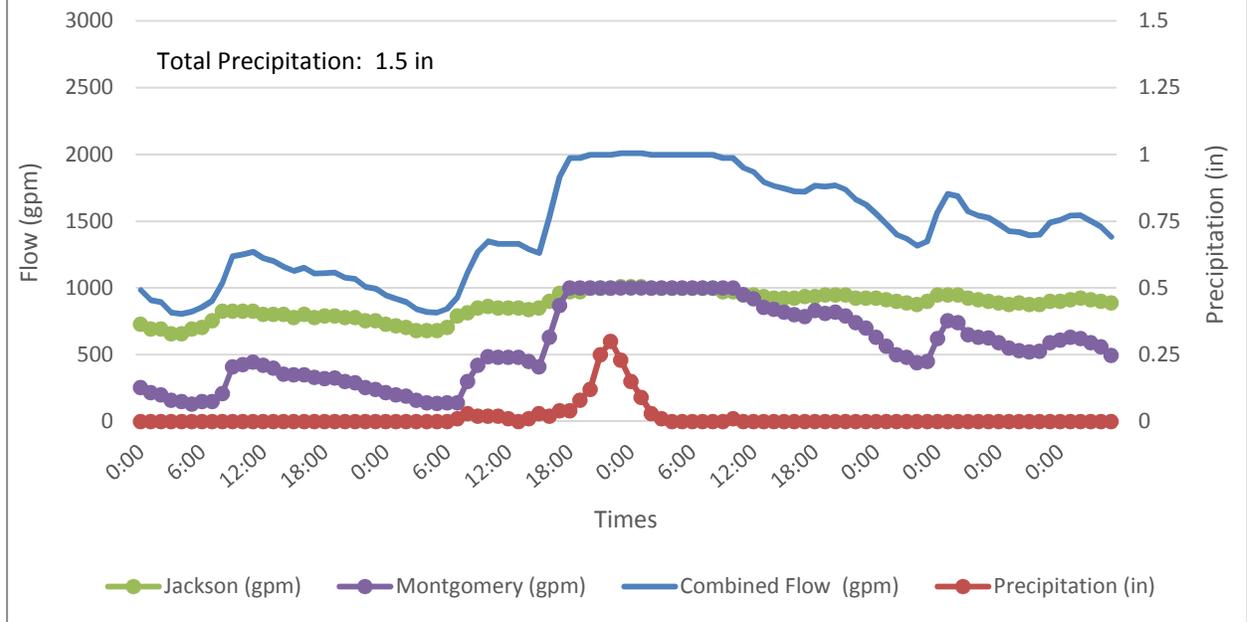
**Figure J.10: West Norriton I&I Evaluation: Jackson Street PS and Montgomery Bypass  
October 2012 & 2013**

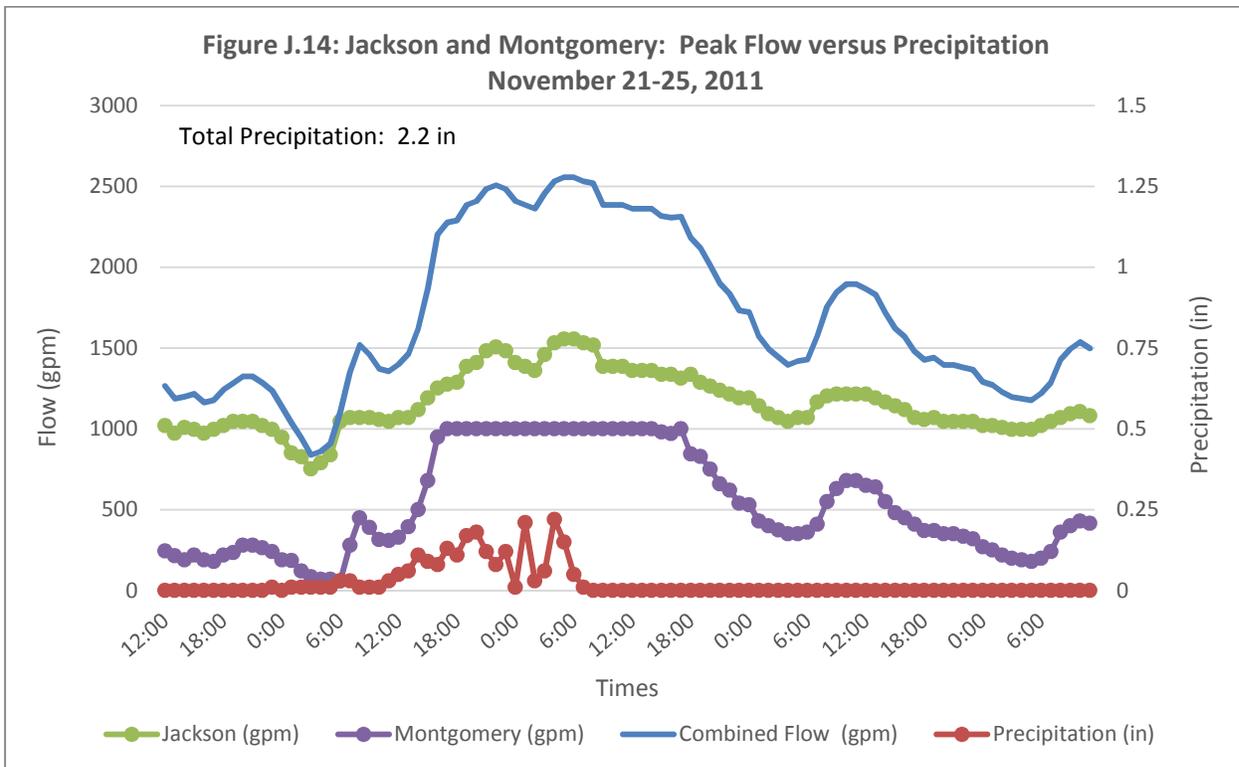
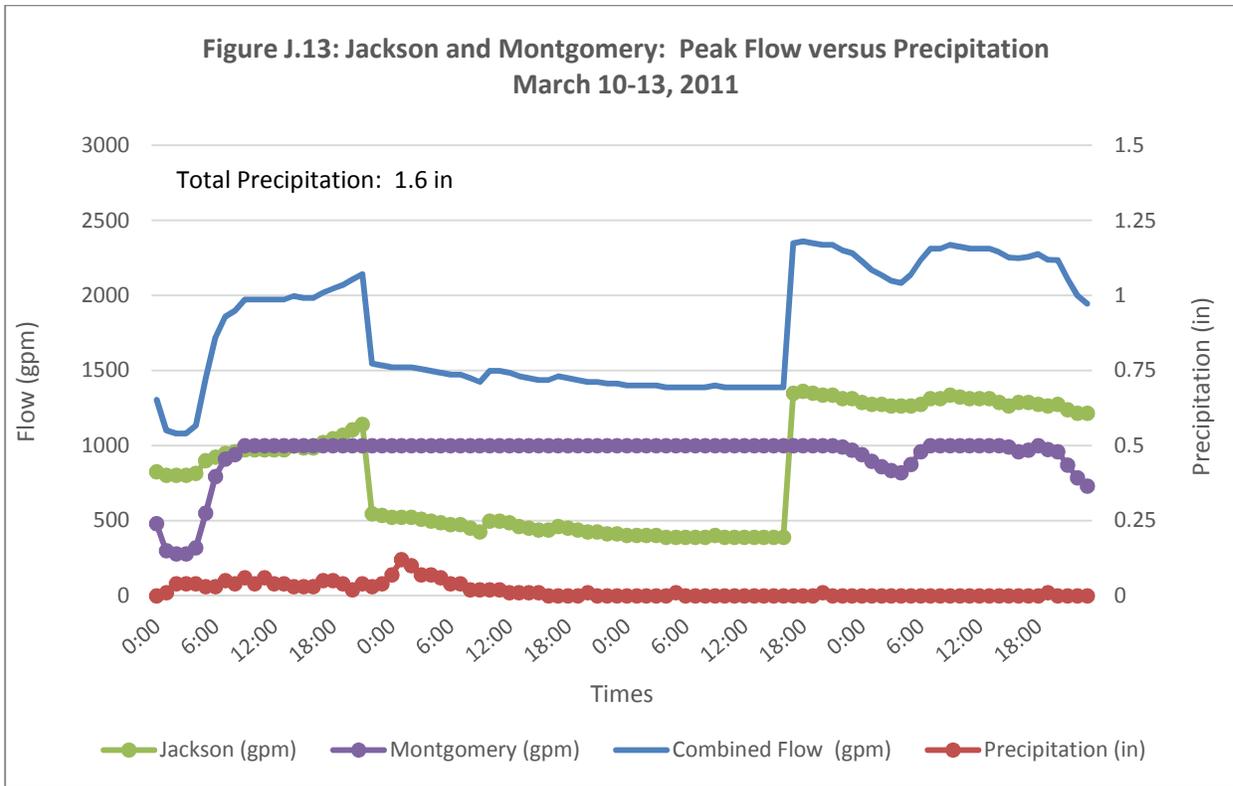


**Figure J.11: West Norriton I&I Evaluation: Jackson Street PS and Montgomery Bypass  
November 2012 & 2013**

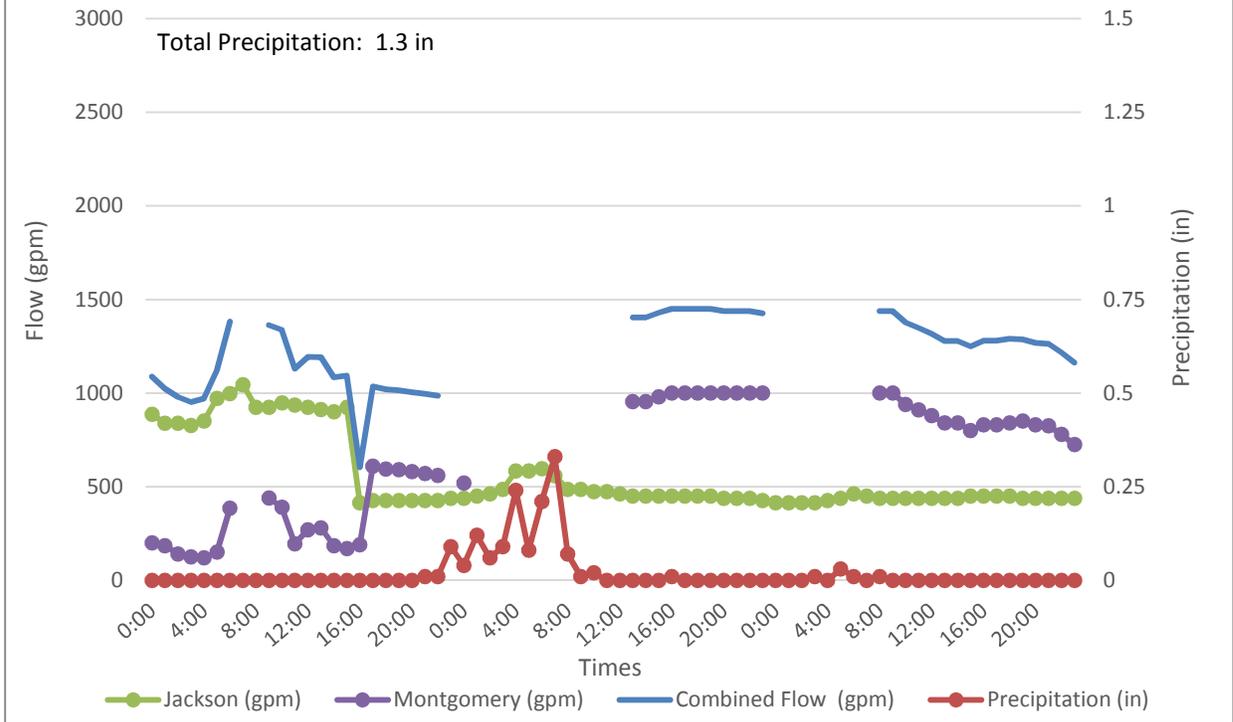


**Figure J. 12: Jackson and Montgomery: Peak Hourly Flow versus Hourly Precipitation  
March 5-8, 2011**

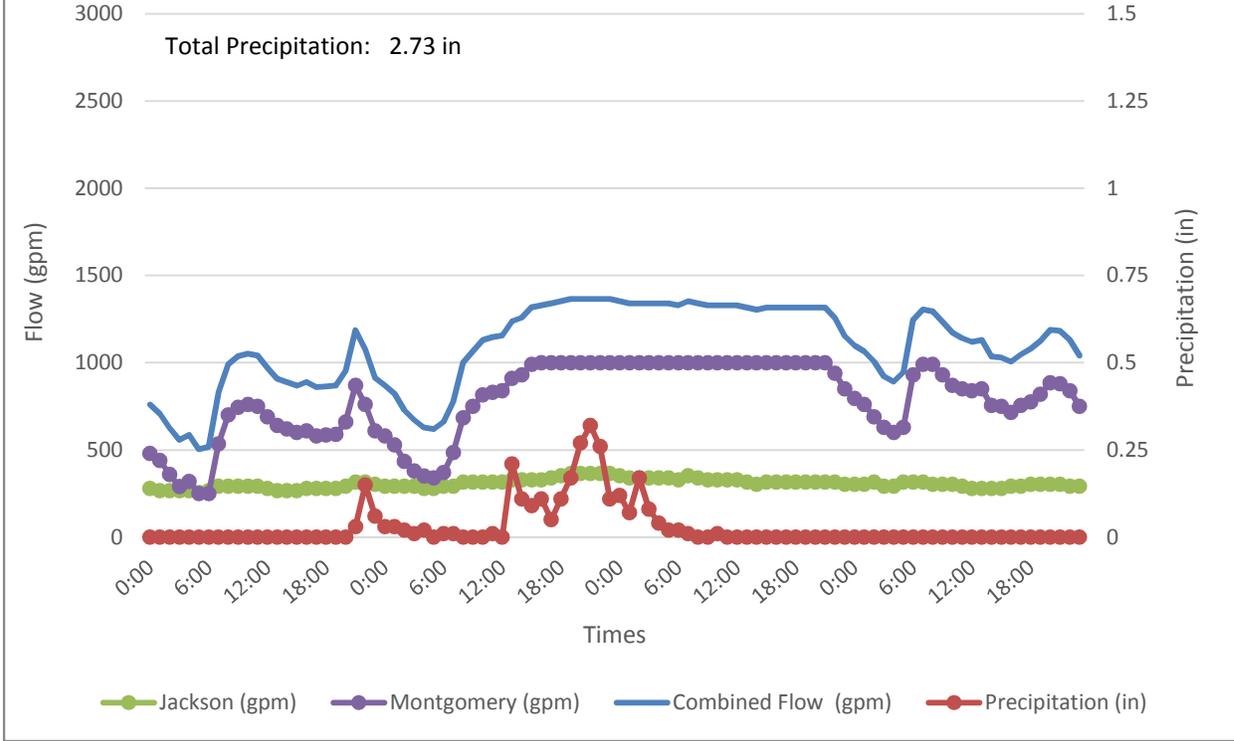


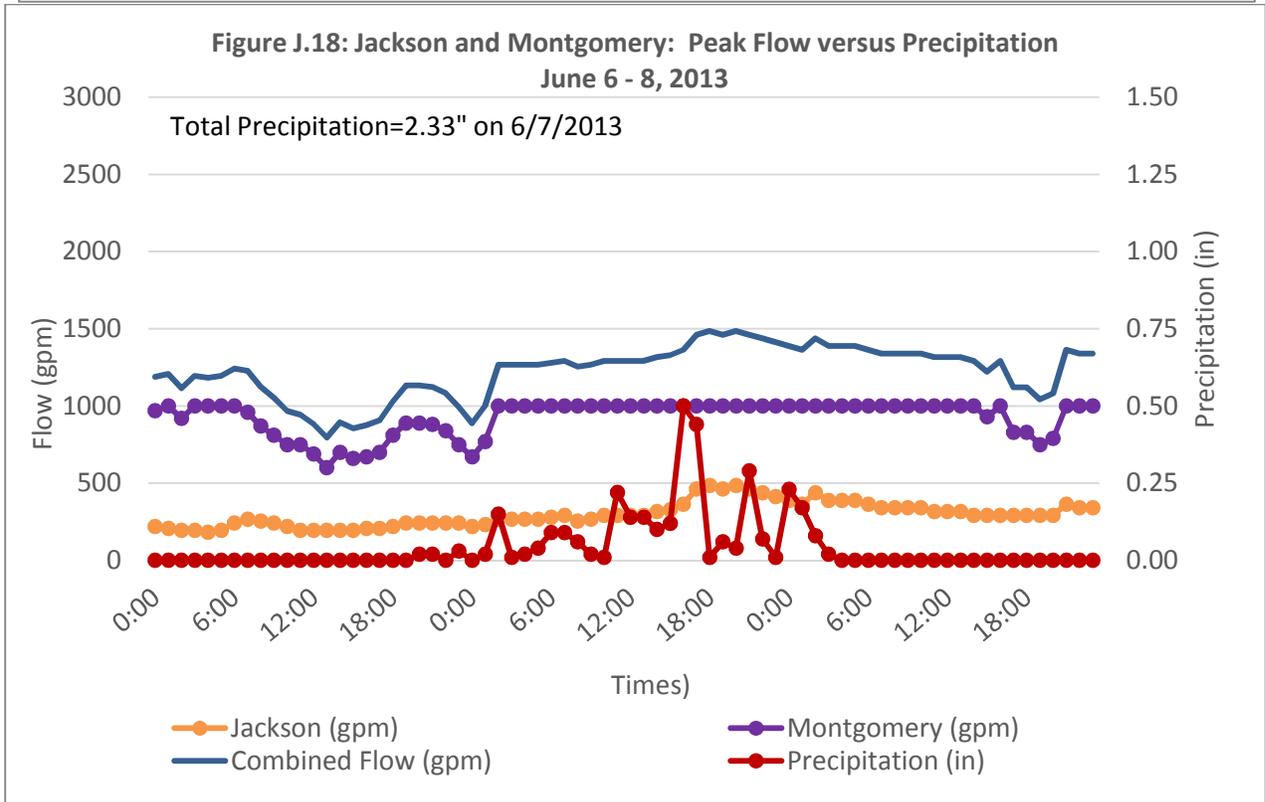
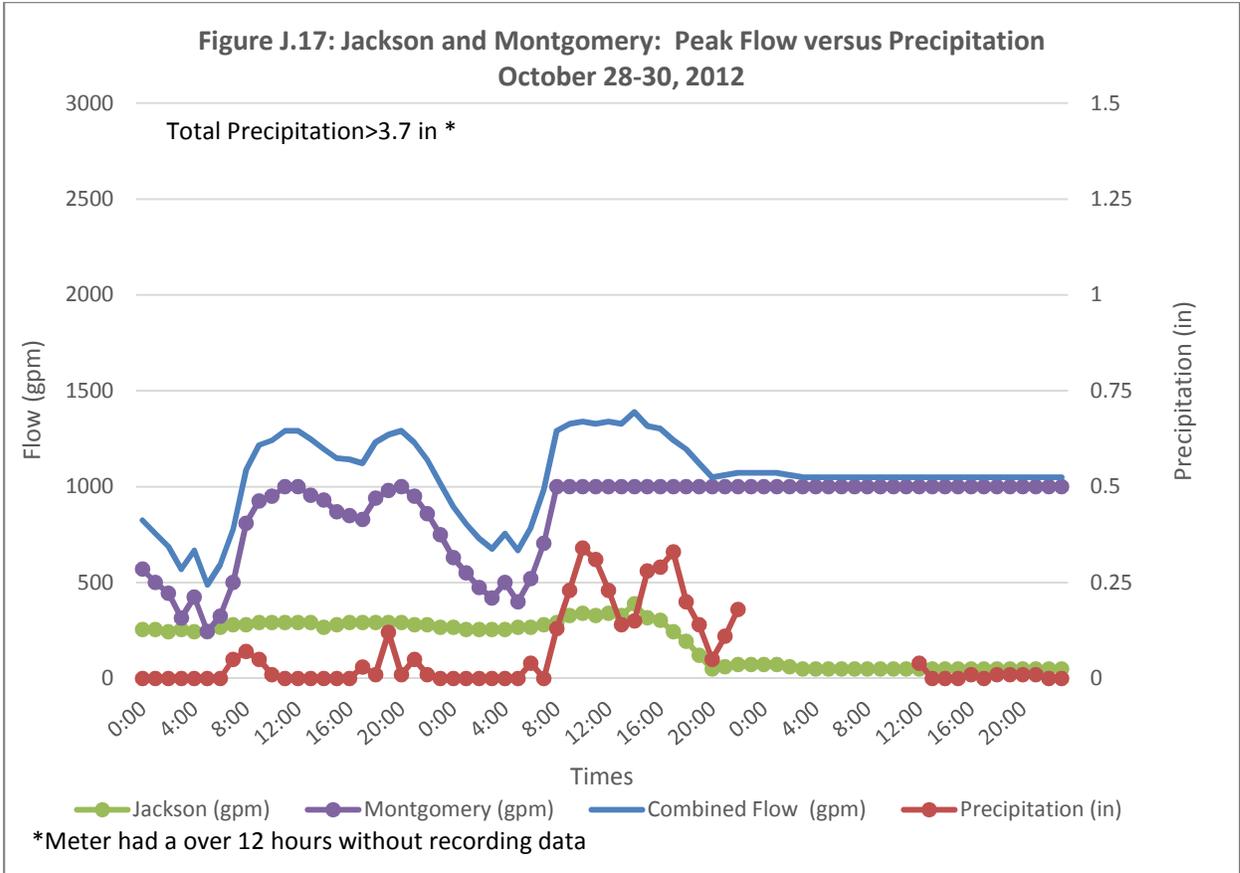


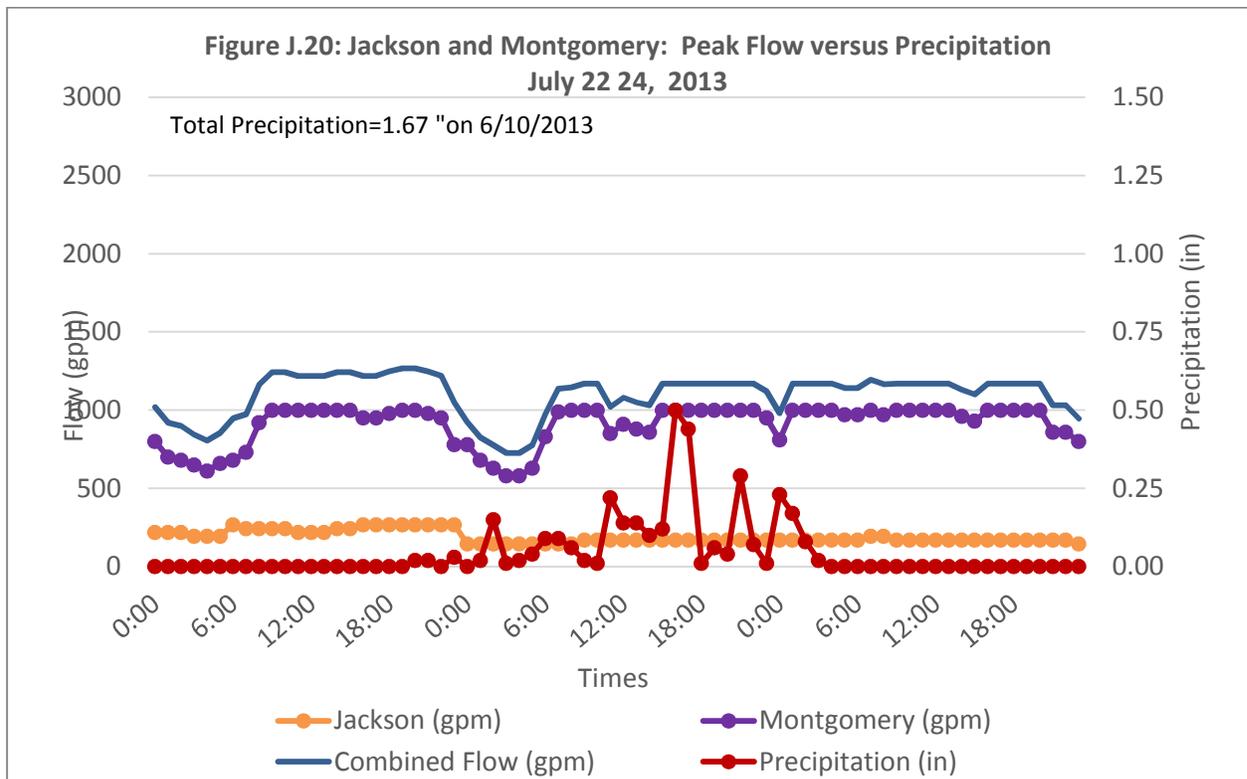
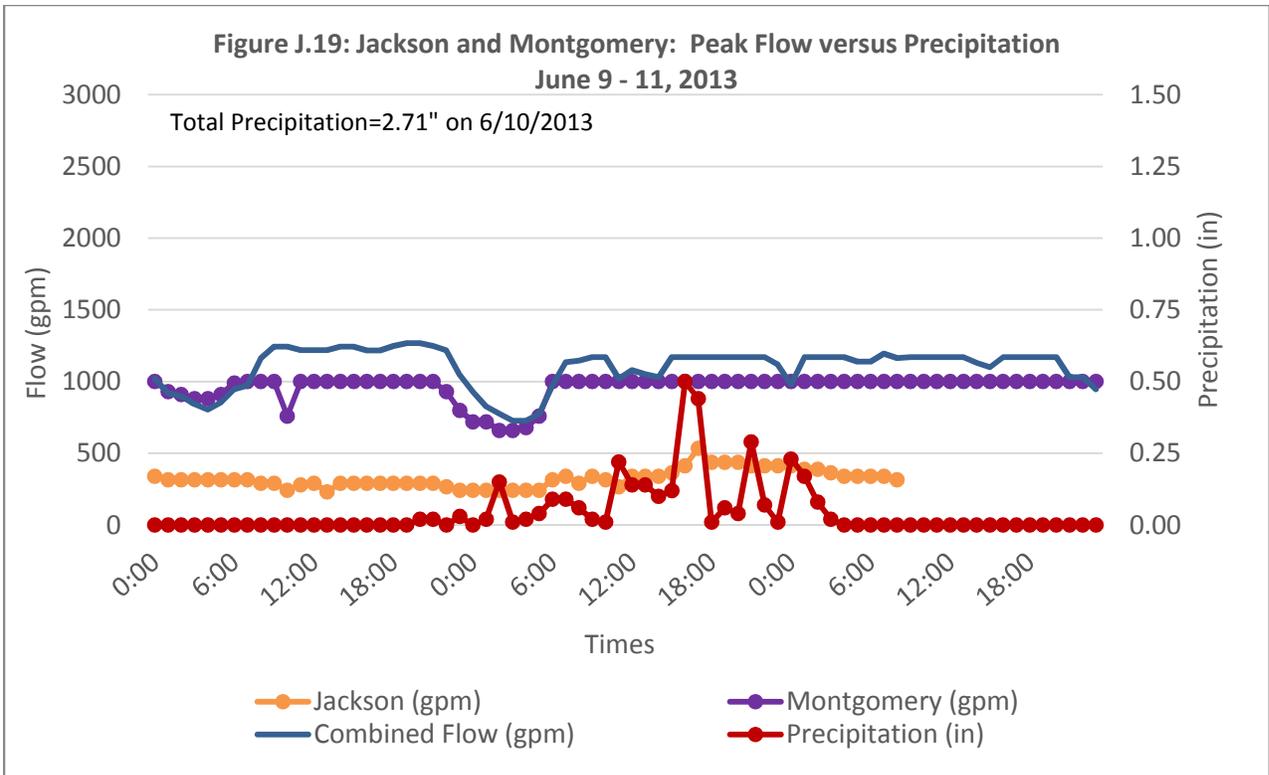
**Figure J.15: Jackson and Montgomery: Peak Flow versus Precipitation  
January 12, 2012**



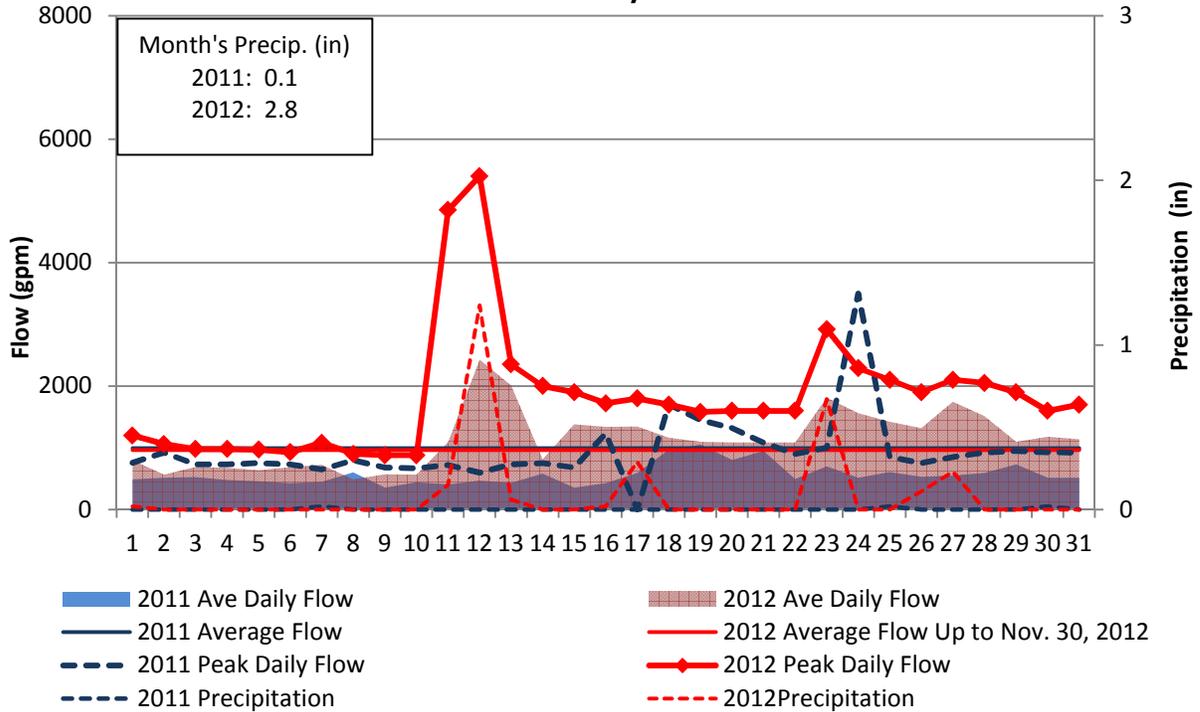
**Figure J.16: Jackson and Montgomery: Peak Flow versus Precipitation  
April 21-24, 2012**



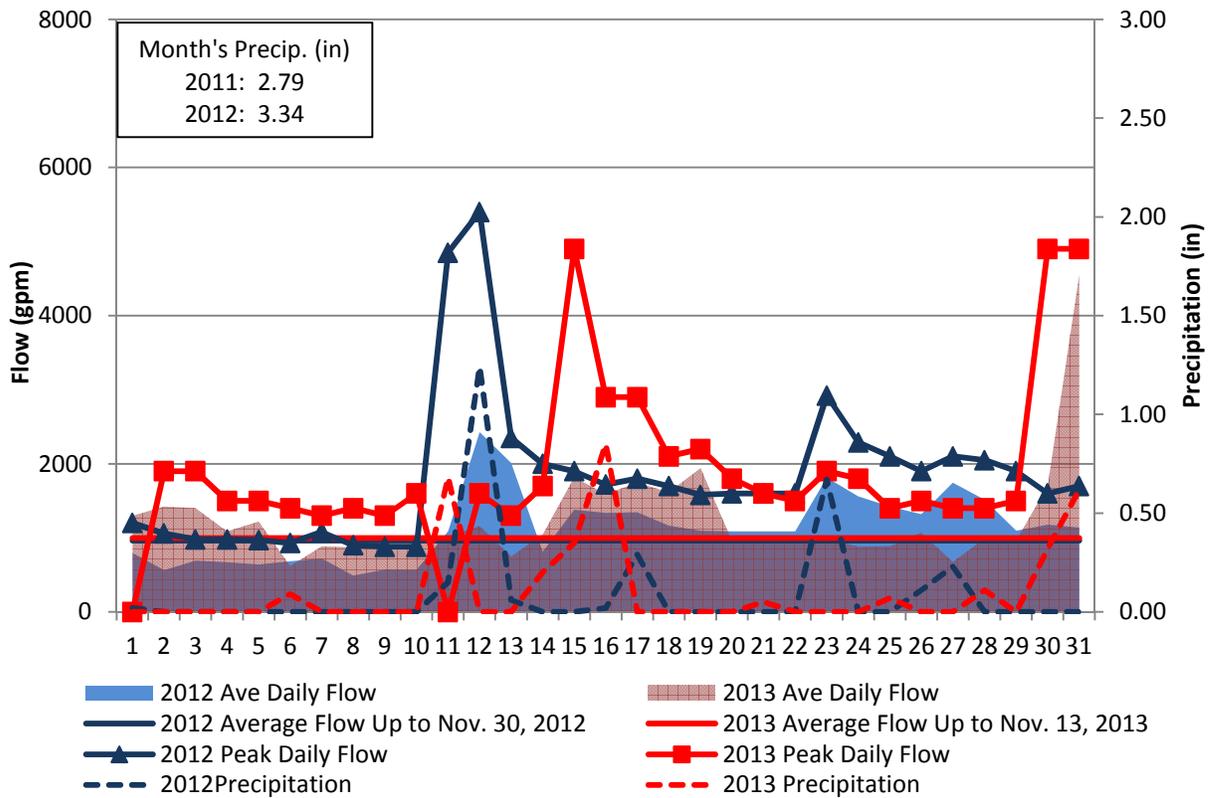




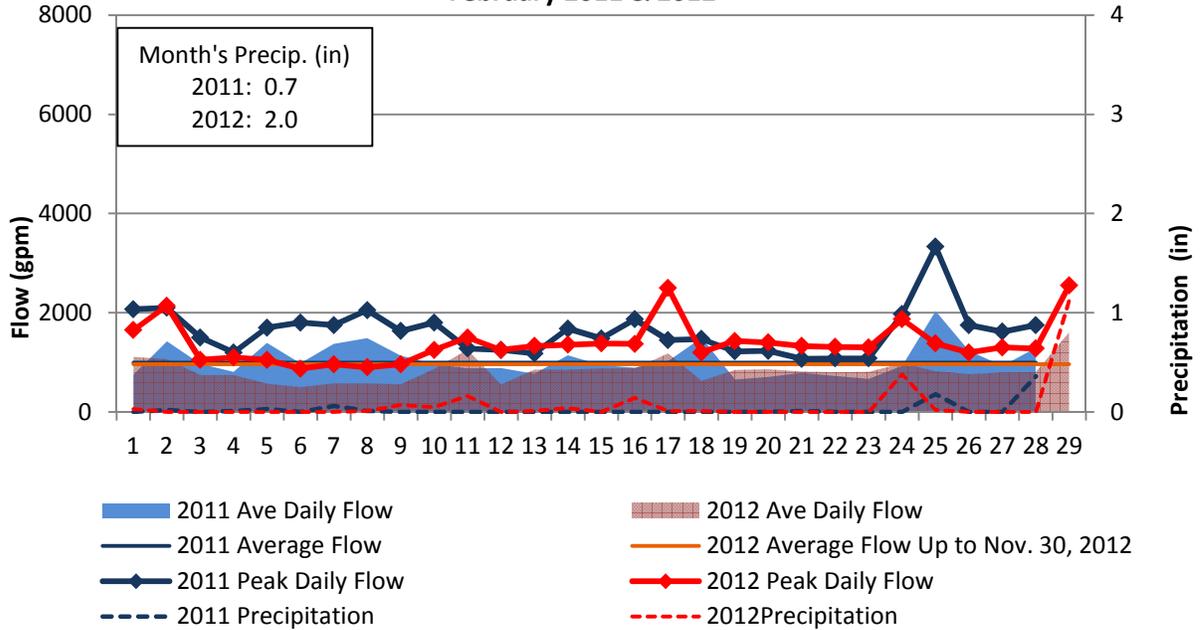
**Figure R.1A: West Norriton I&I Evaluation: Rittenhouse Pumping Station  
January 2011 & 2012**



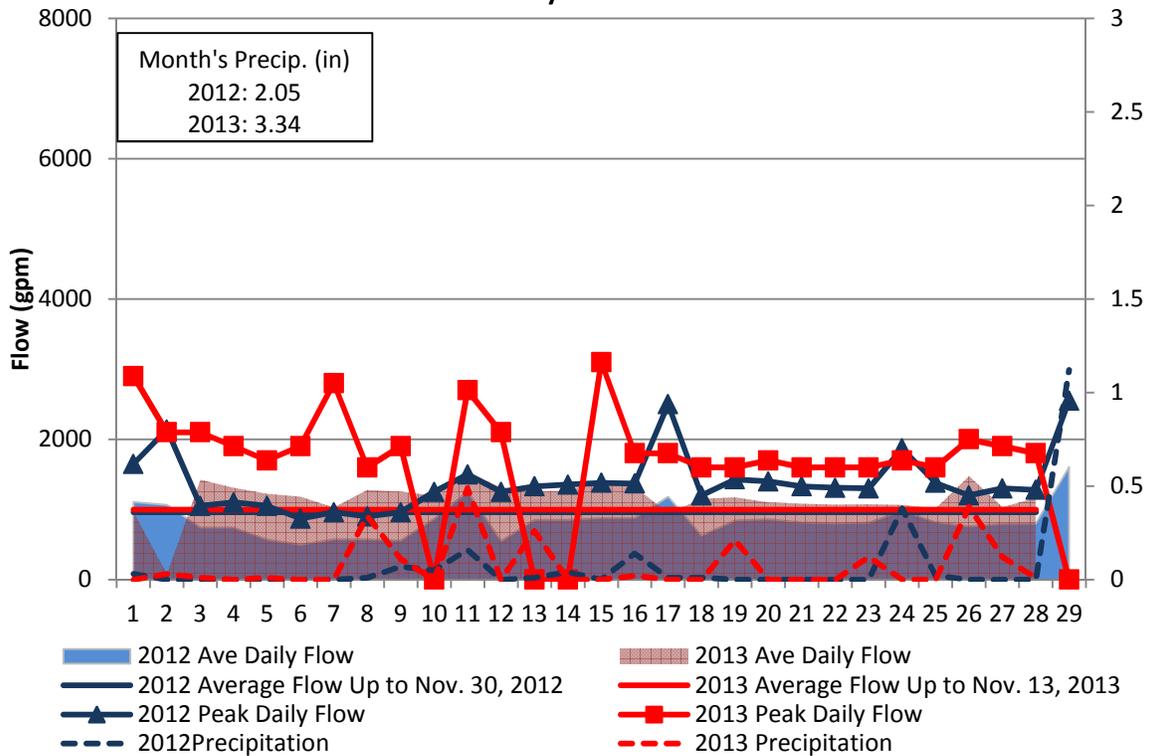
**Figure R.1B: West Norriton I&I Evaluation: Rittenhouse Pumping Station  
January 2012 & 2013**



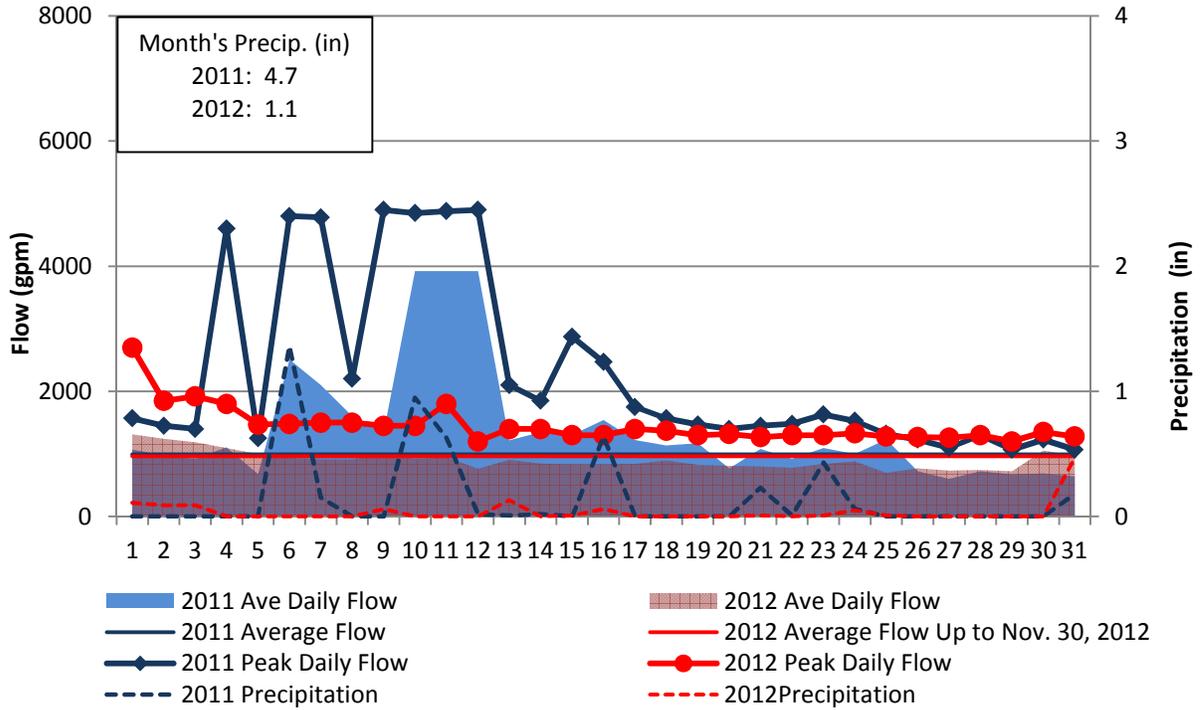
**Figure R.2A: West Norriton I&I Evaluation: Rittenhouse Pumping Station  
February 2011 & 2012**



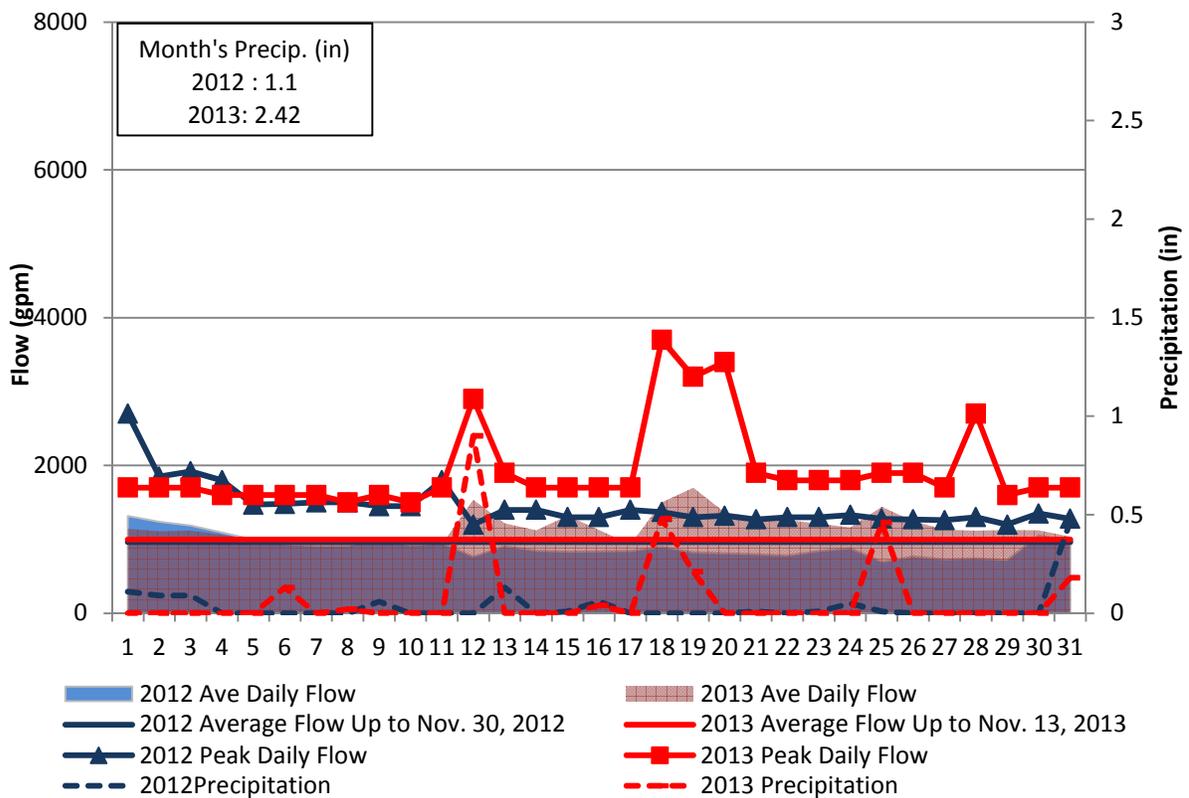
**Figure R.2B: West Norriton I&I Evaluation: Rittenhouse Pumping Station  
February 2012 & 2013**



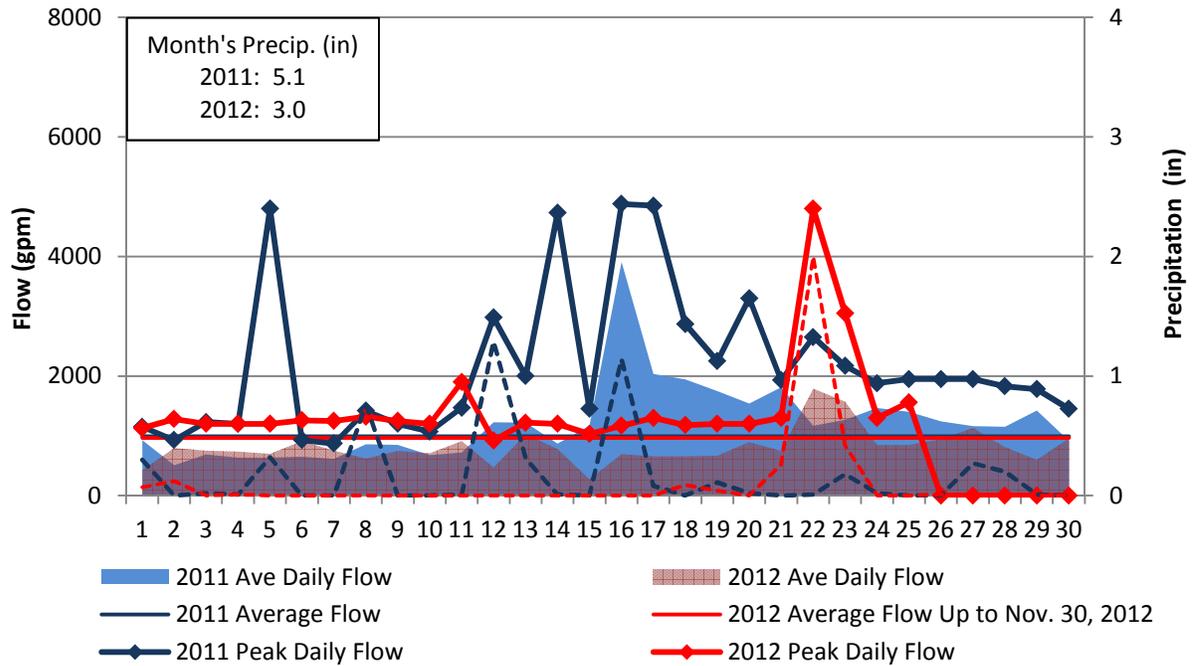
**Figure R.3A: West Norriton I&I Evaluation: Rittenhouse Pumping Station  
March 2011 & 2012**



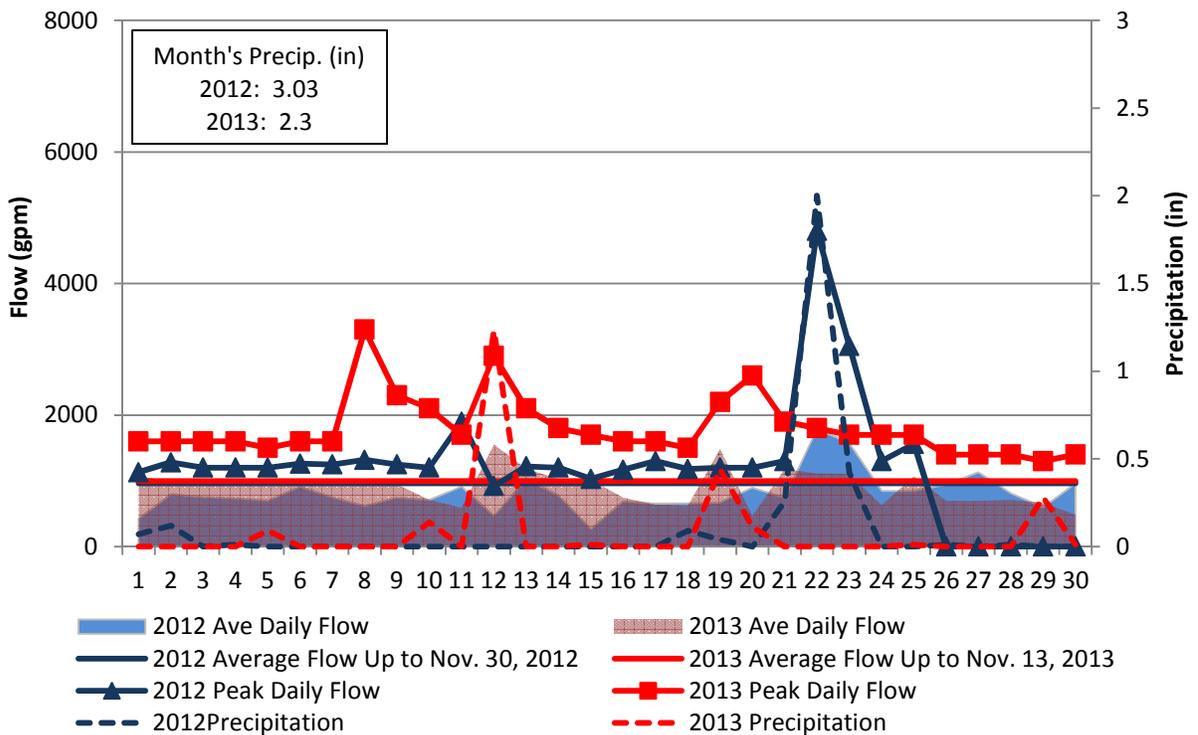
**Figure R.3B: West Norriton I&I Evaluation: Rittenhouse Pumping Station  
March 2012 & 2013**



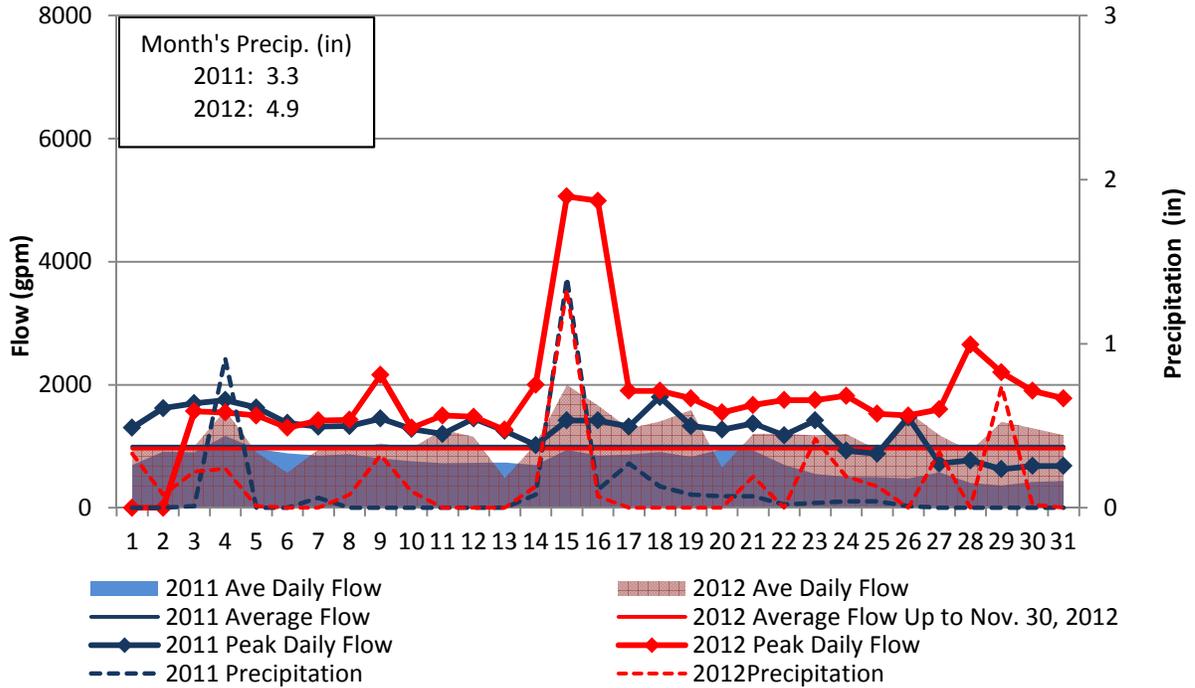
**Figure R.4A West Norriton I&I Evaluation: Rittenhouse Pumping Station  
April 2011 & 2012**



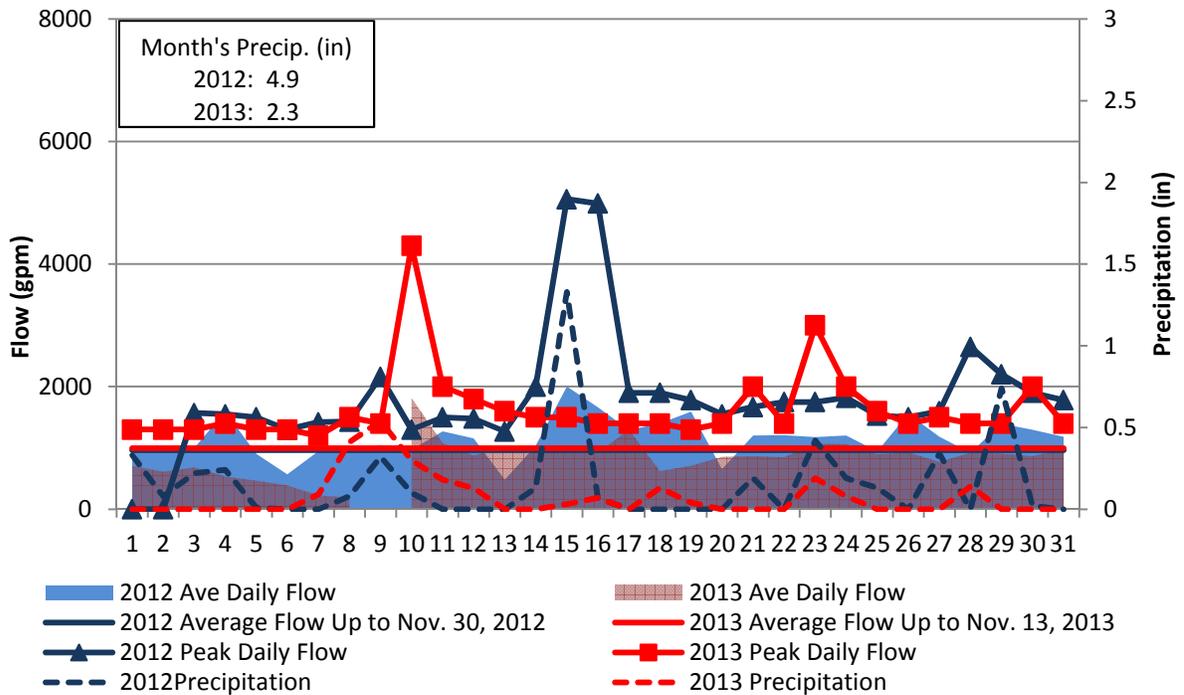
**Figure R.4B: West Norriton I&I Evaluation: Rittenhouse Pump Station  
April 2012 & 2013**



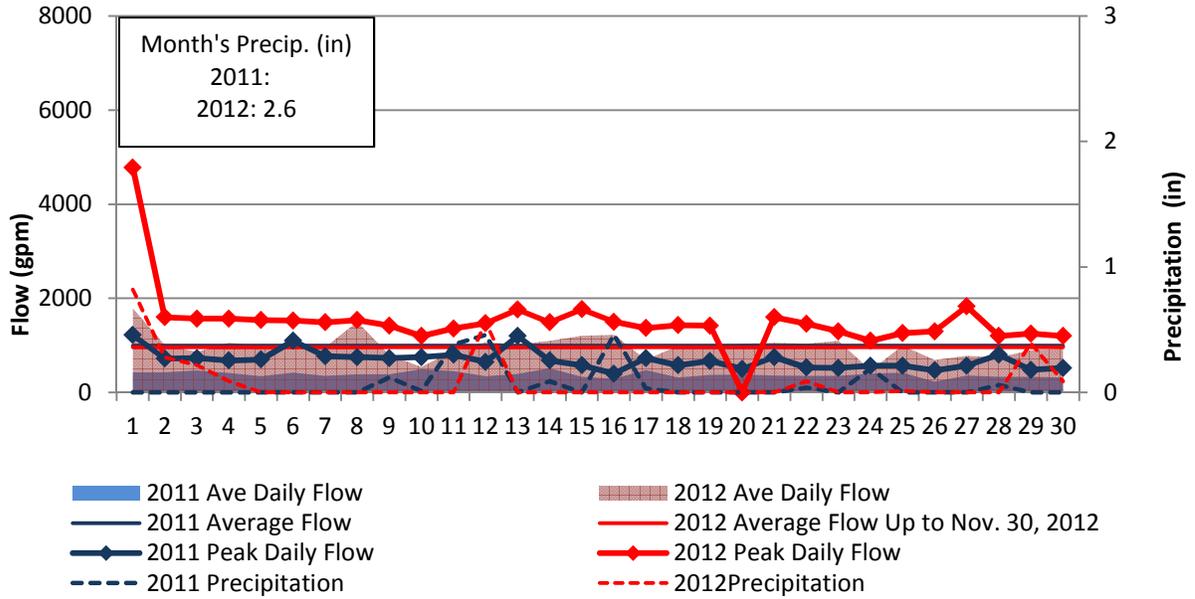
**Figure R.5A: West Norriton I&I Evaluation: Rittenhouse Pumping Station  
May 2011 & 2012**



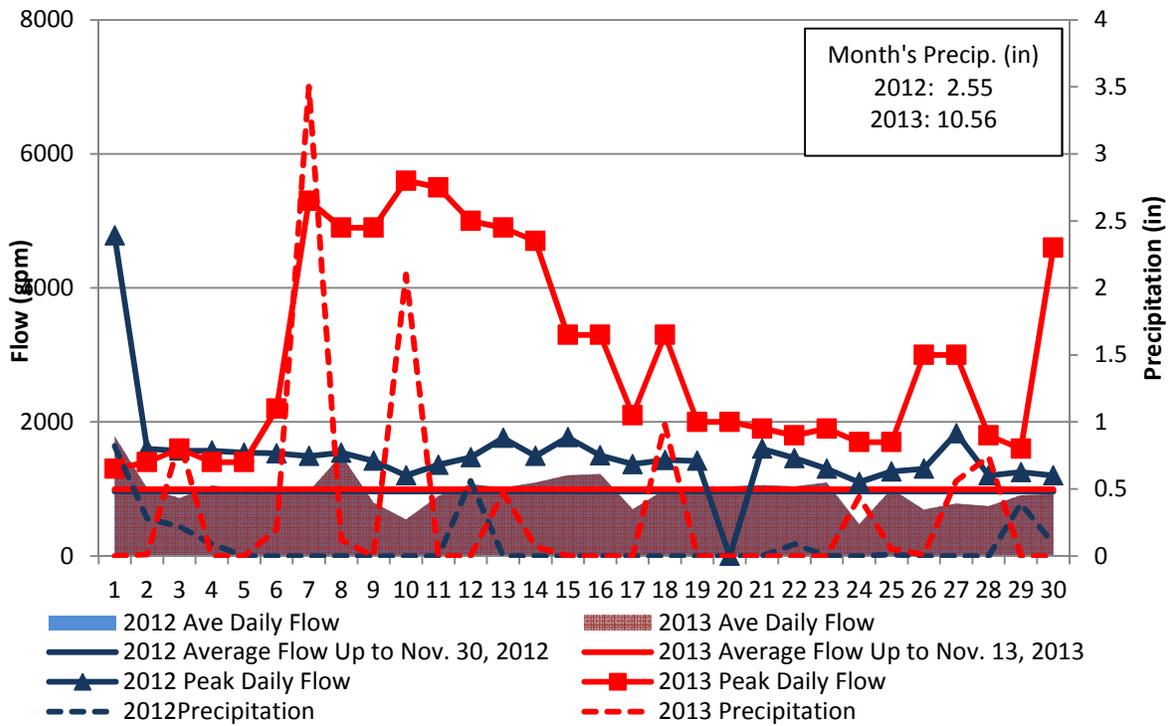
**Figure R.5B: West Norriton I&I Evaluation: Rittenhouse Pumping Station  
May 2012 & 2013**



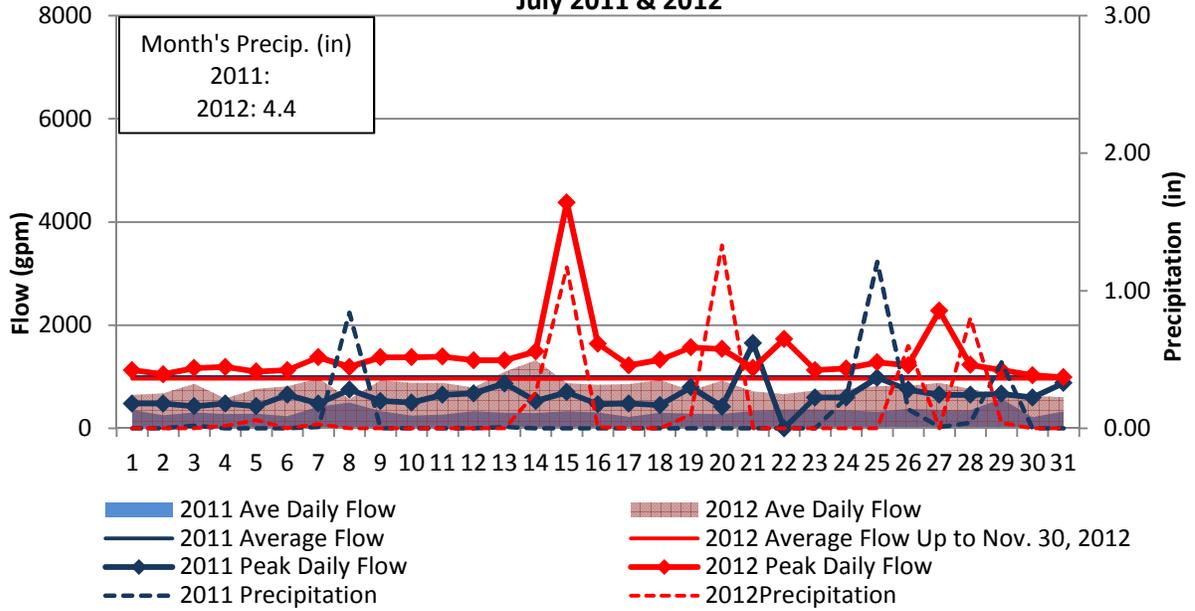
**Figure R.6A: West Norriton I&I Evaluation: Rittenhouse Pumping Station  
June 2011 & 2012**



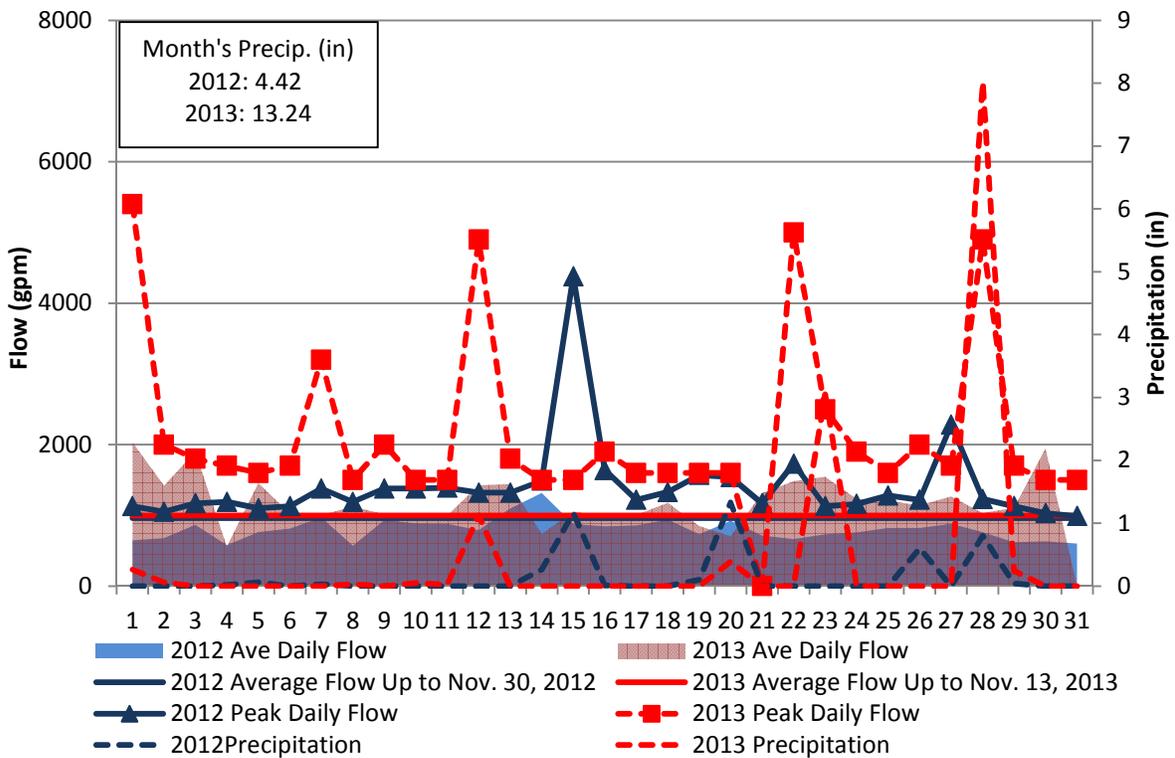
**Figure R.6B: West Norriton I&I Evaluation: Rittenhouse Pumping Station  
June 2012 & 2013**



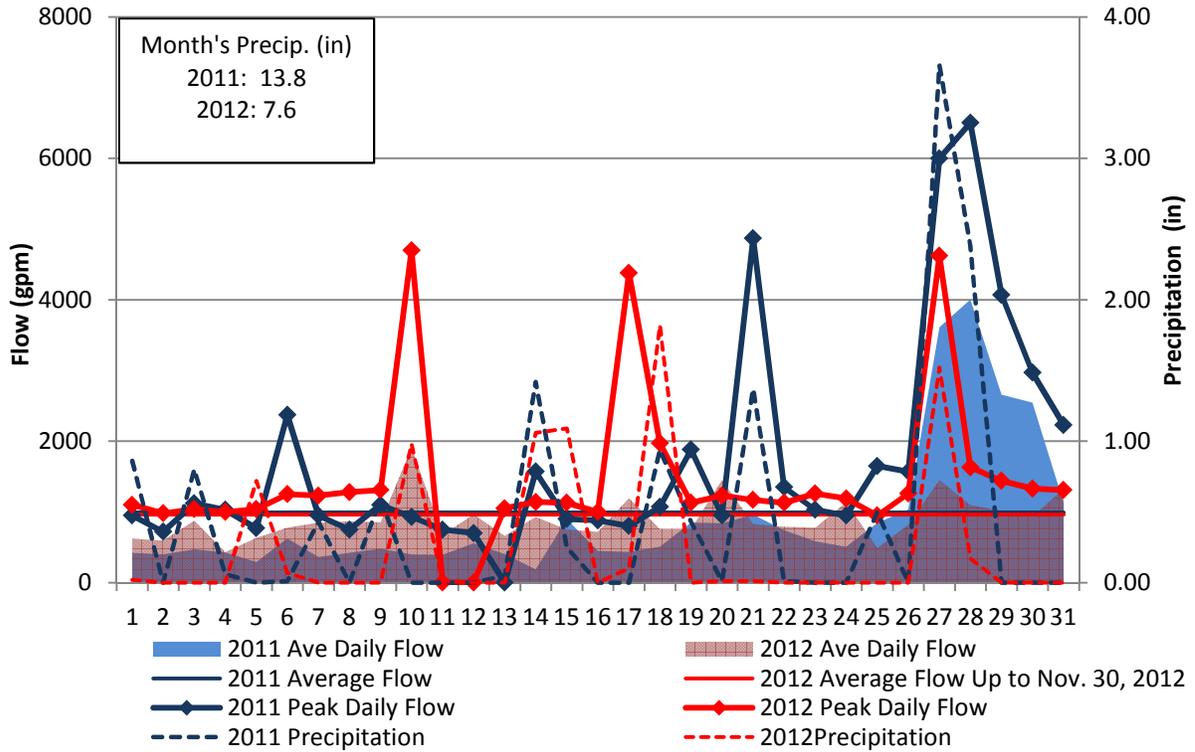
**Figure R.7A: West Norriton I&I Evaluation: Rittenhouse Pumping Station  
July 2011 & 2012**



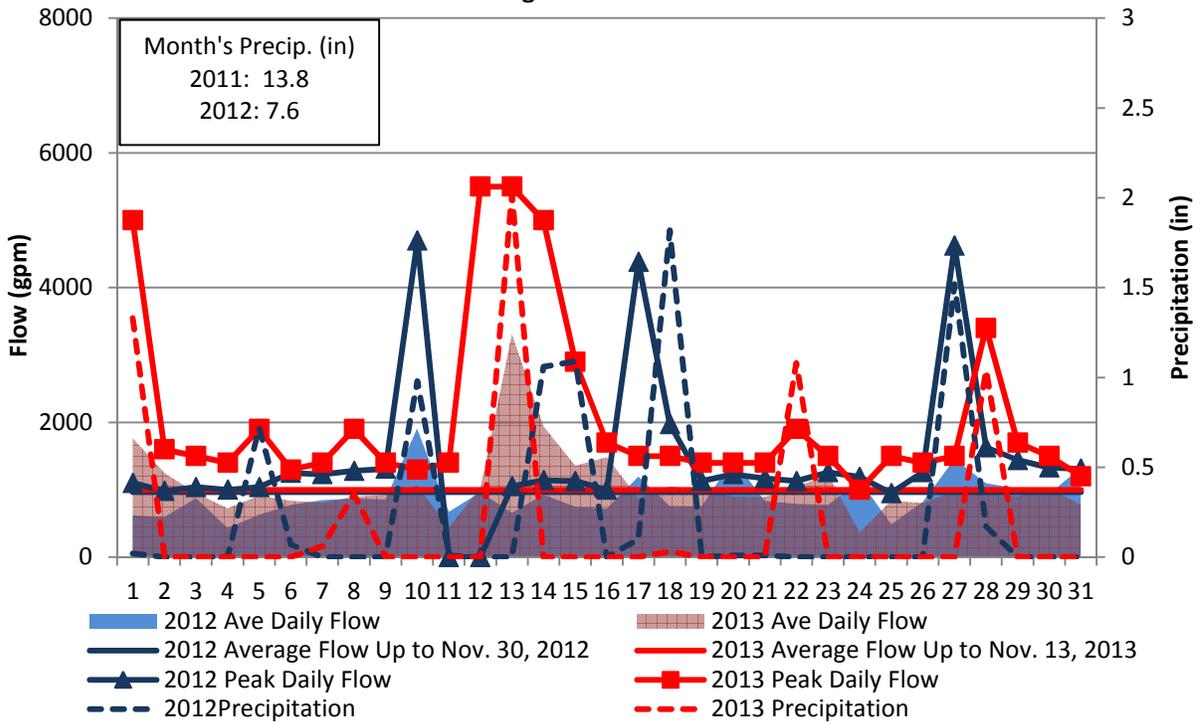
**Figure R.7B: West Norriton I&I Evaluation: Rittenhouse Pumping Station  
July 2012 & 2013**



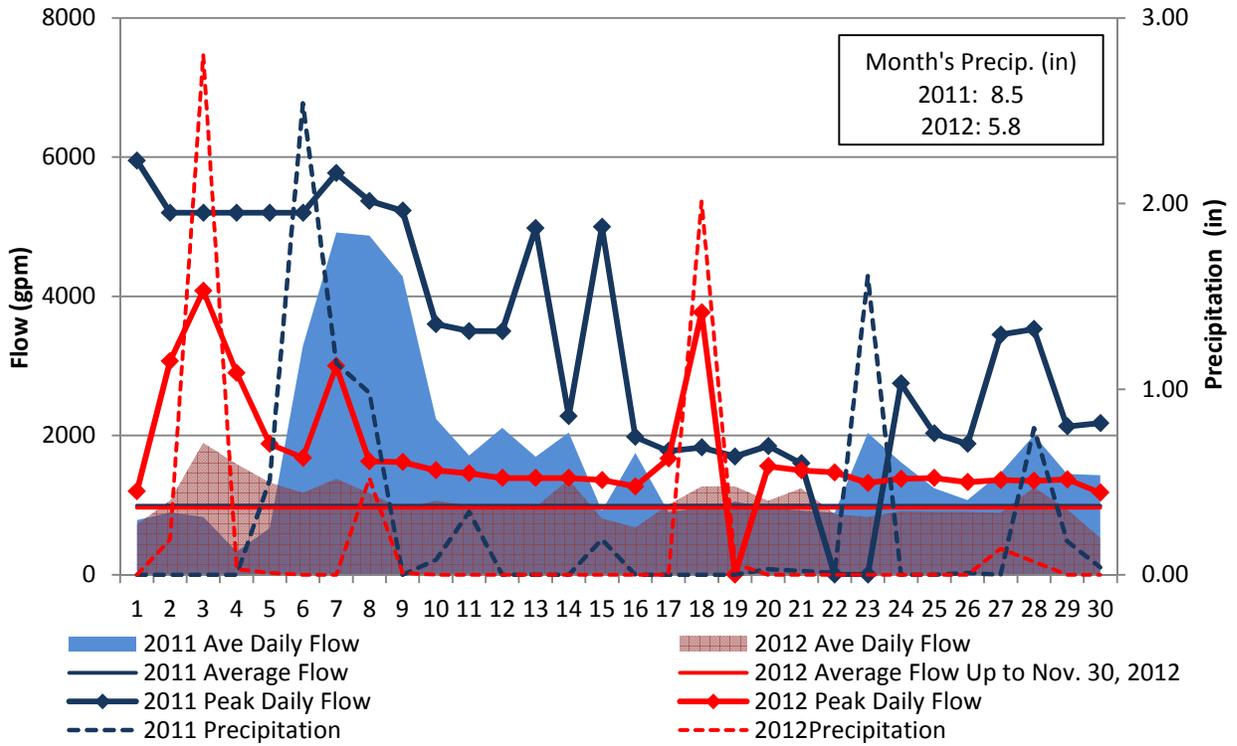
**Figure R.8A: West Norriton I&I Evaluation: Rittenhouse Pumping Station  
August 2011 & 2012**



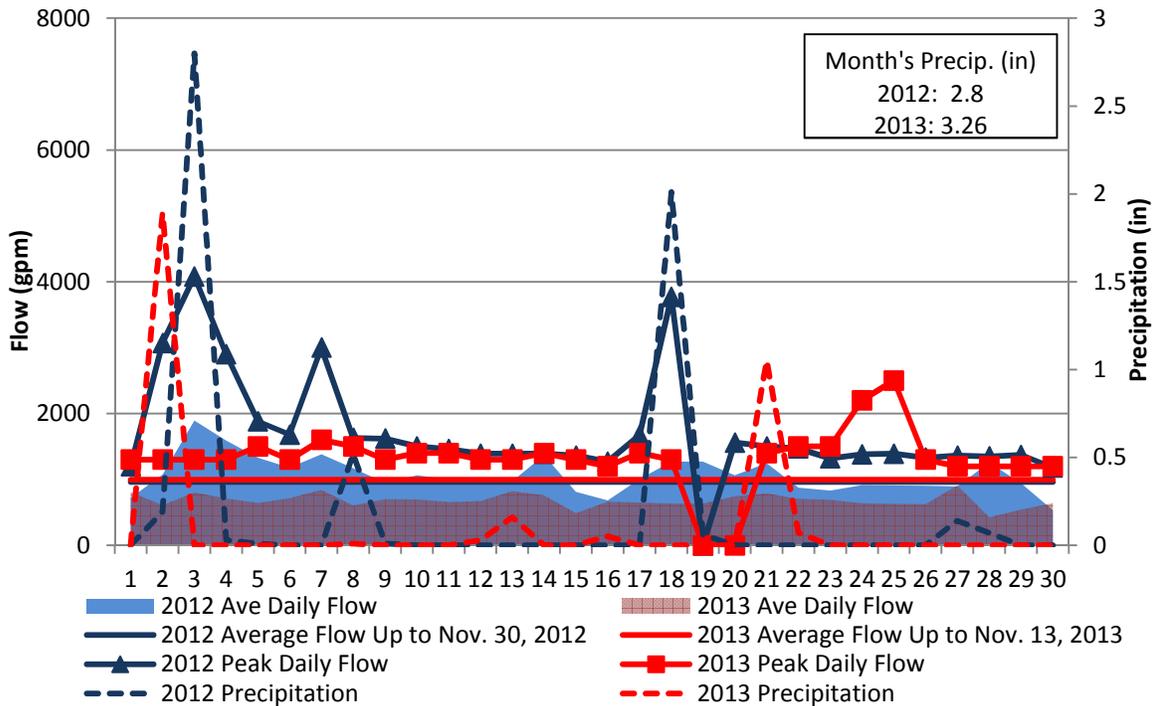
**Figure R.8B: West Norriton I&I Evaluation: Rittenhouse Pumping Station  
August 2012 & 2013**



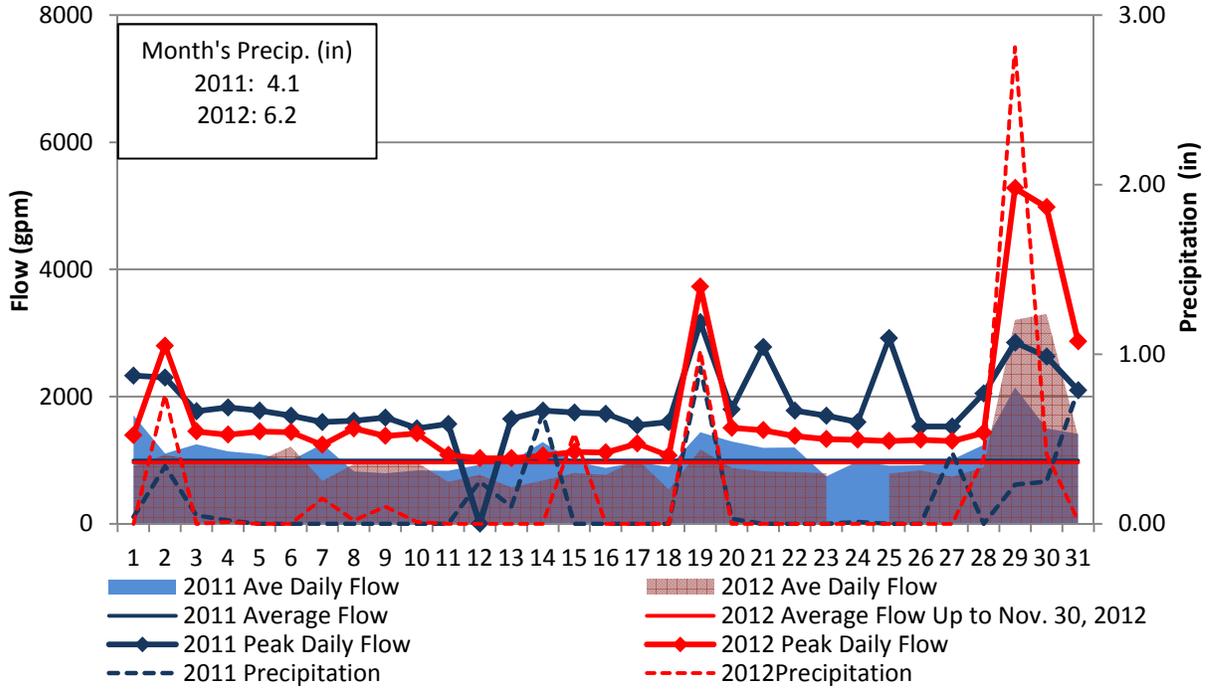
**Figure R.9A: West Norriton I&I Evaluation: Rittenhouse Pumping Station  
September 2011 & 2012**



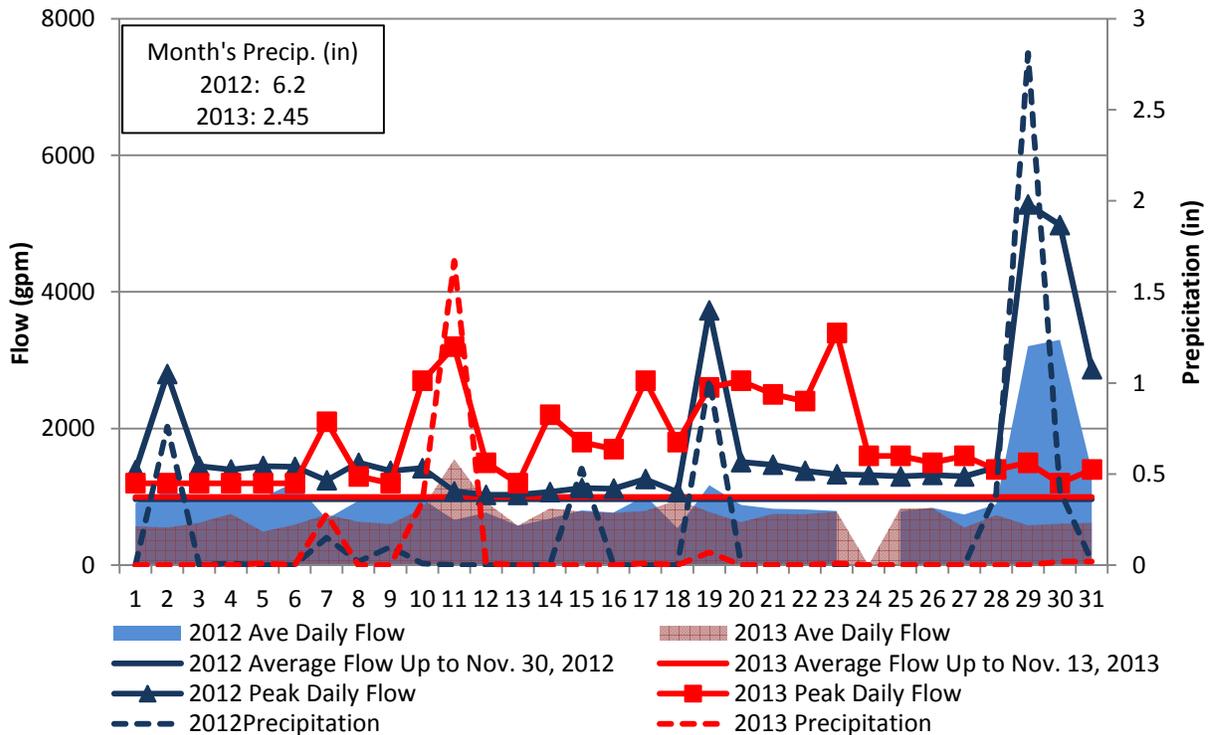
**Figure R.9B: West Norriton I&I Evaluation: Rittenhouse Pumping Station  
September 2012 & 2013**



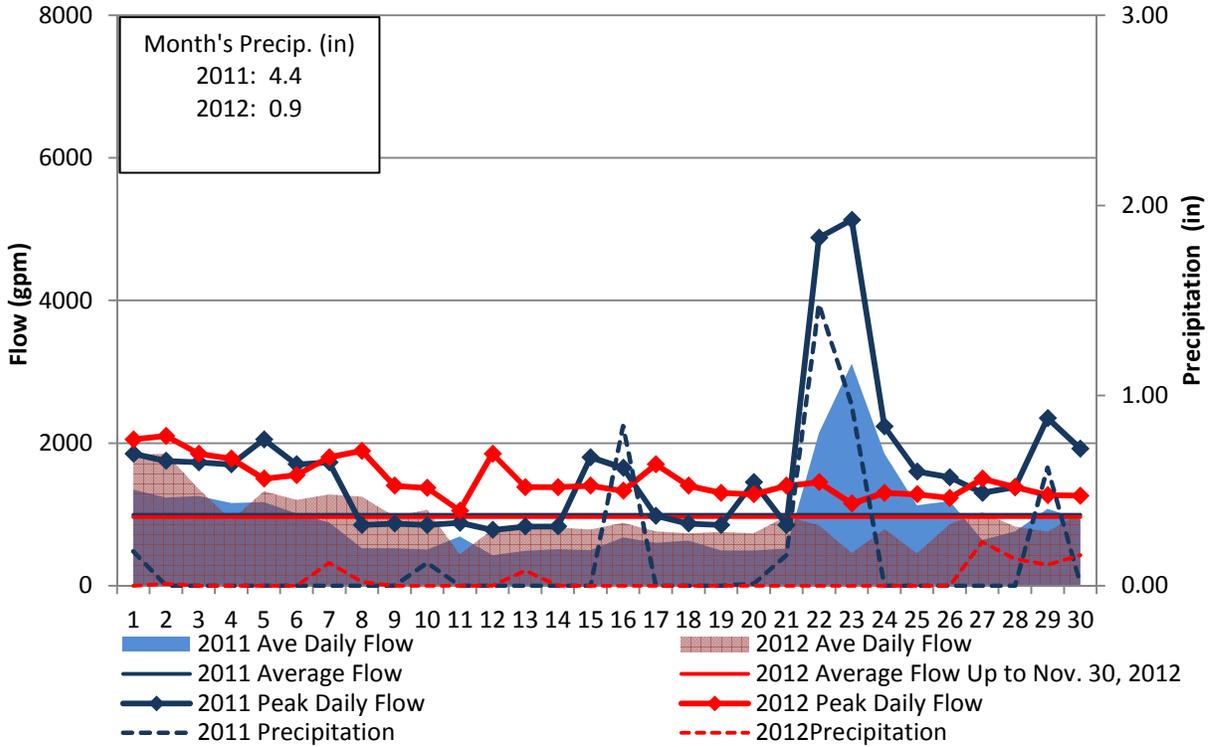
**Figure R.10A: West Norriton I&I Evaluation: Rittenhouse Pumping Station  
October 2011 & 2012**



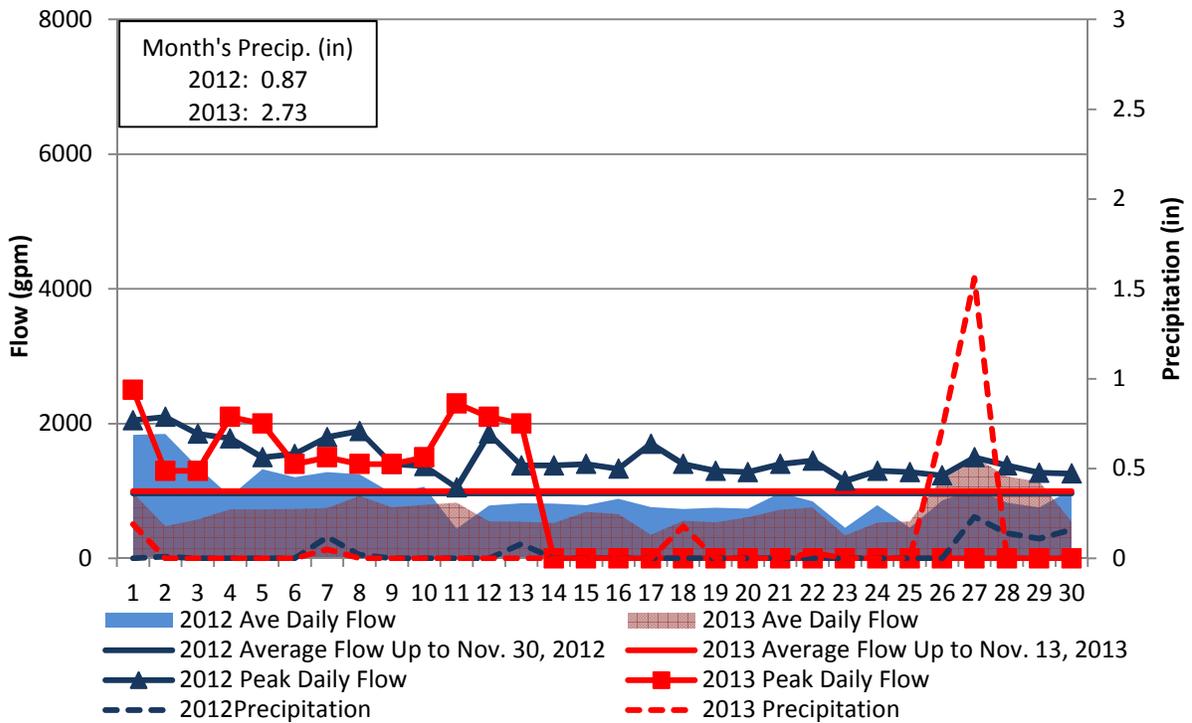
**Figure R.10B: West Norriton I&I Evaluation: Rittenhouse Pumping Station  
October 2012 & 2013**

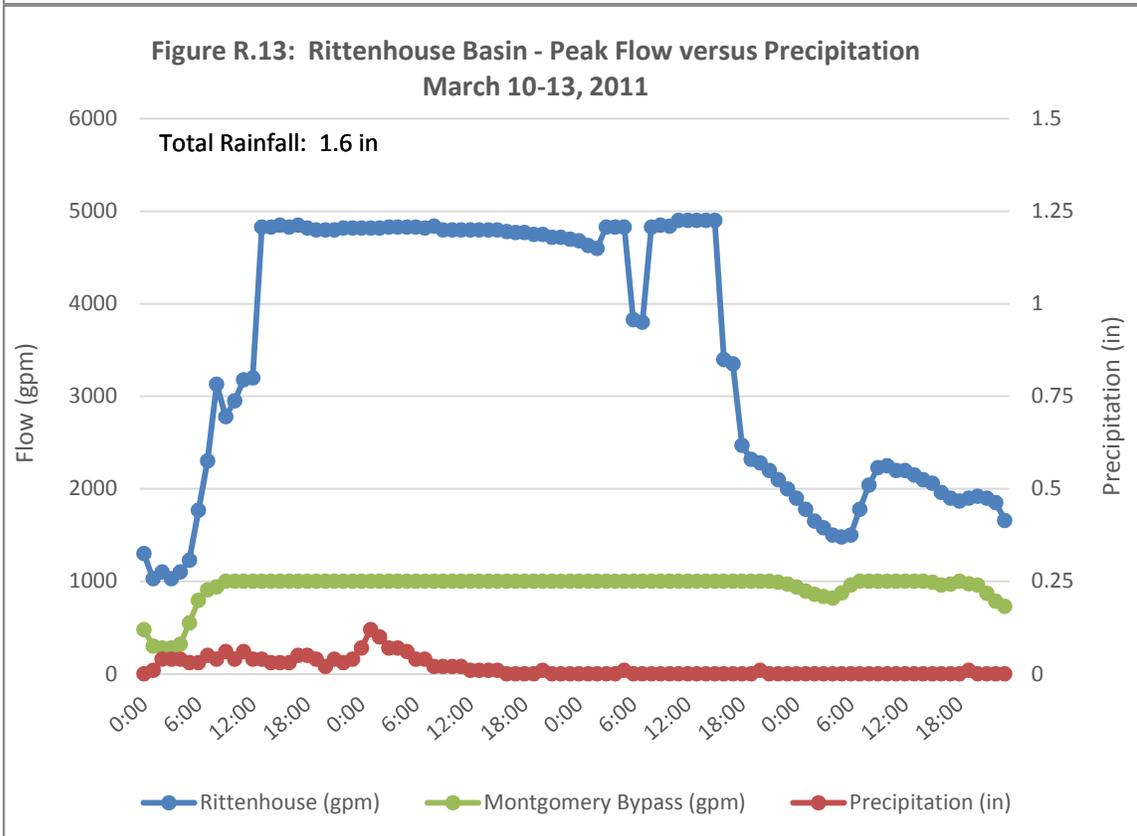
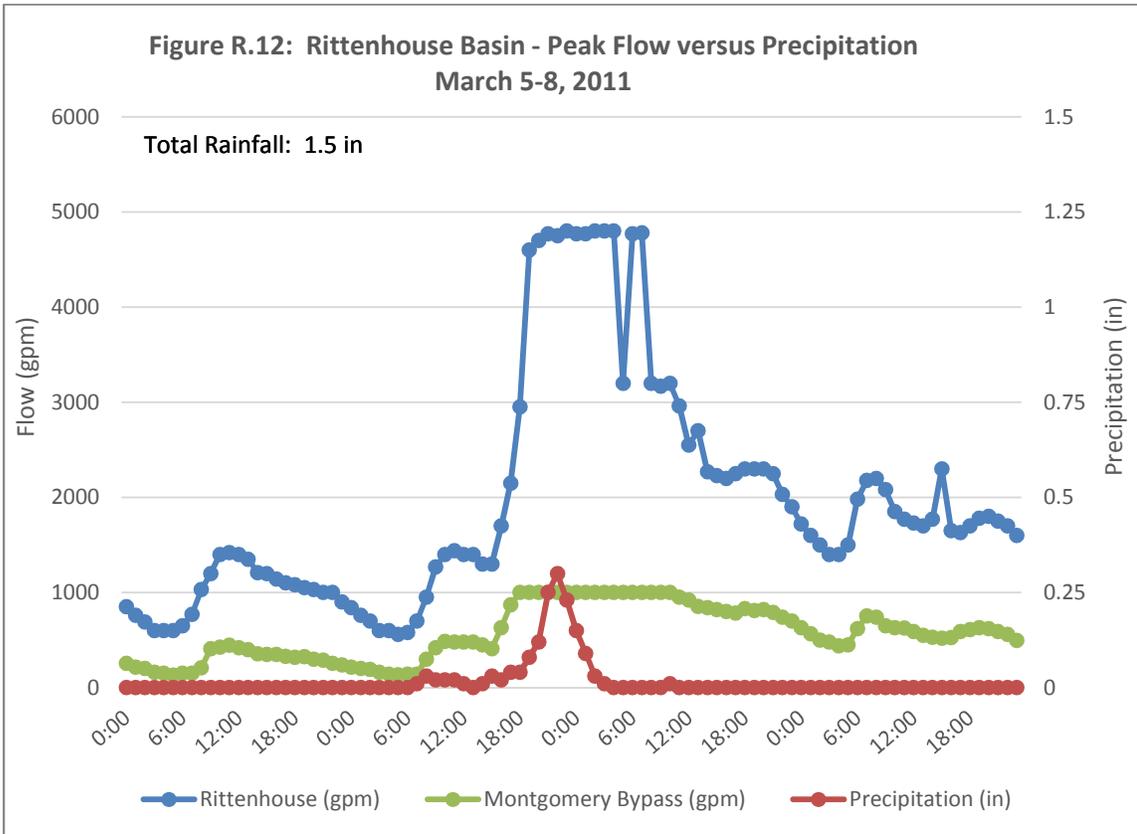


**Figure R.11A: West Norriton I&I Evaluation: Rittenhouse Pumping Station  
November 2011 & 2012**

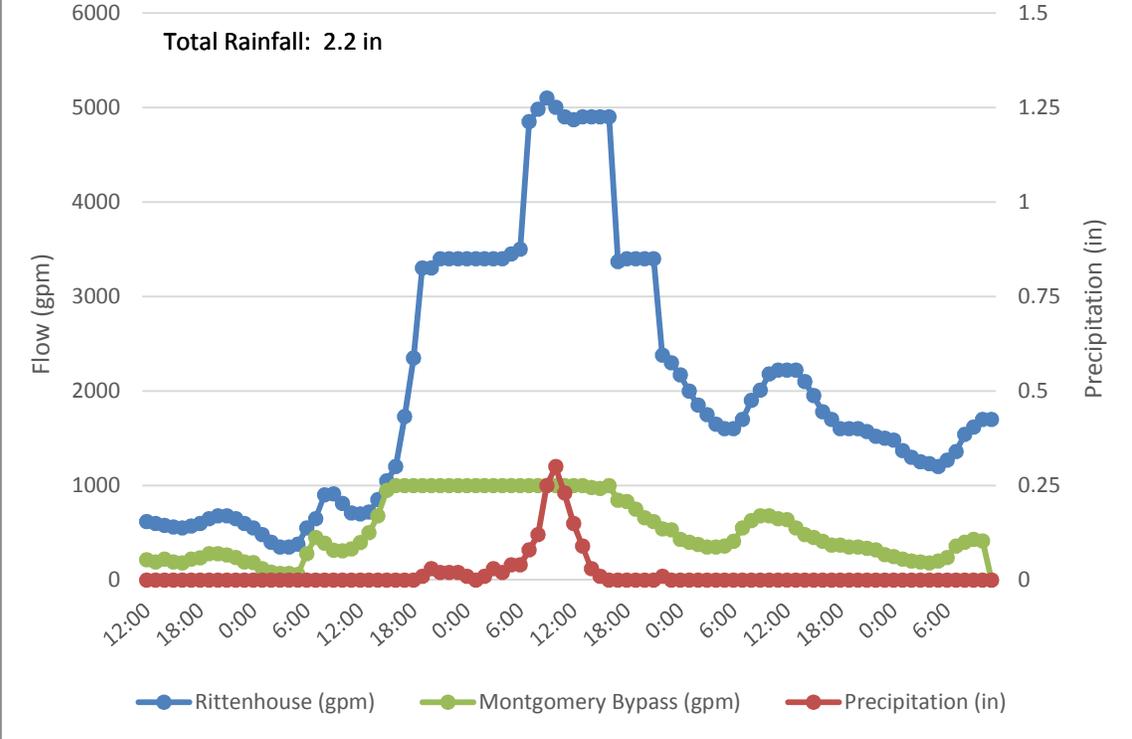


**Figure 11B: West Norriton I&I Evaluation: Rittenhouse Pumping Station  
November 2012 & 2013**

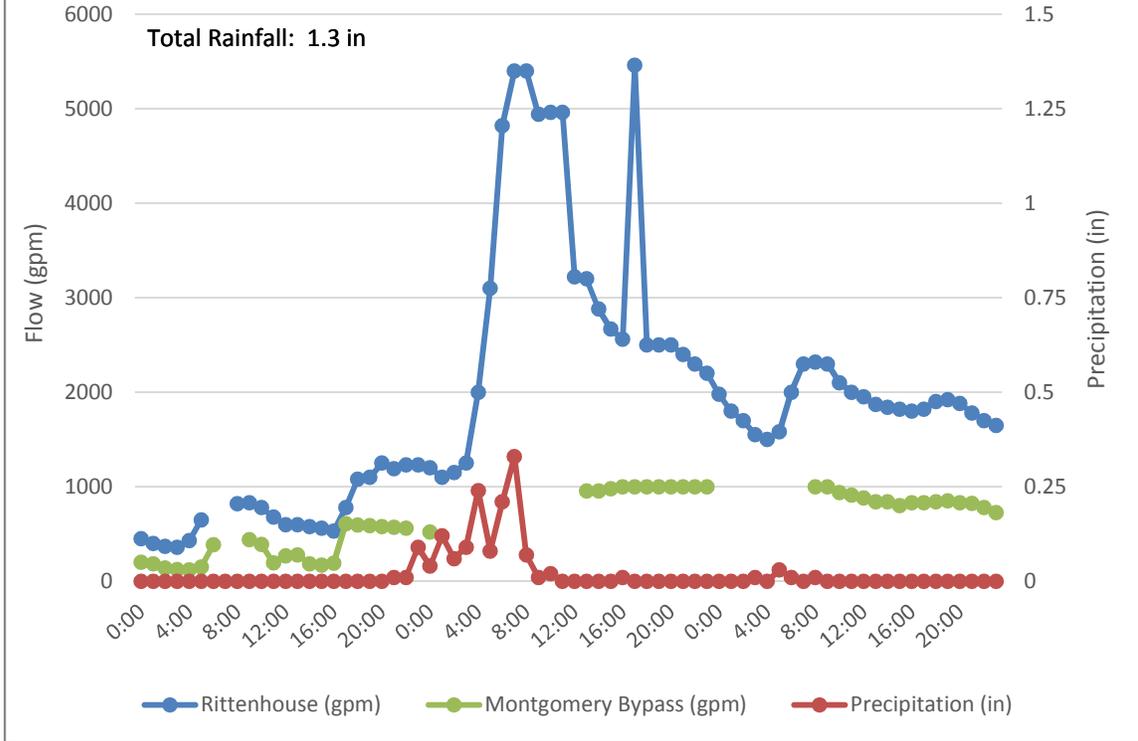


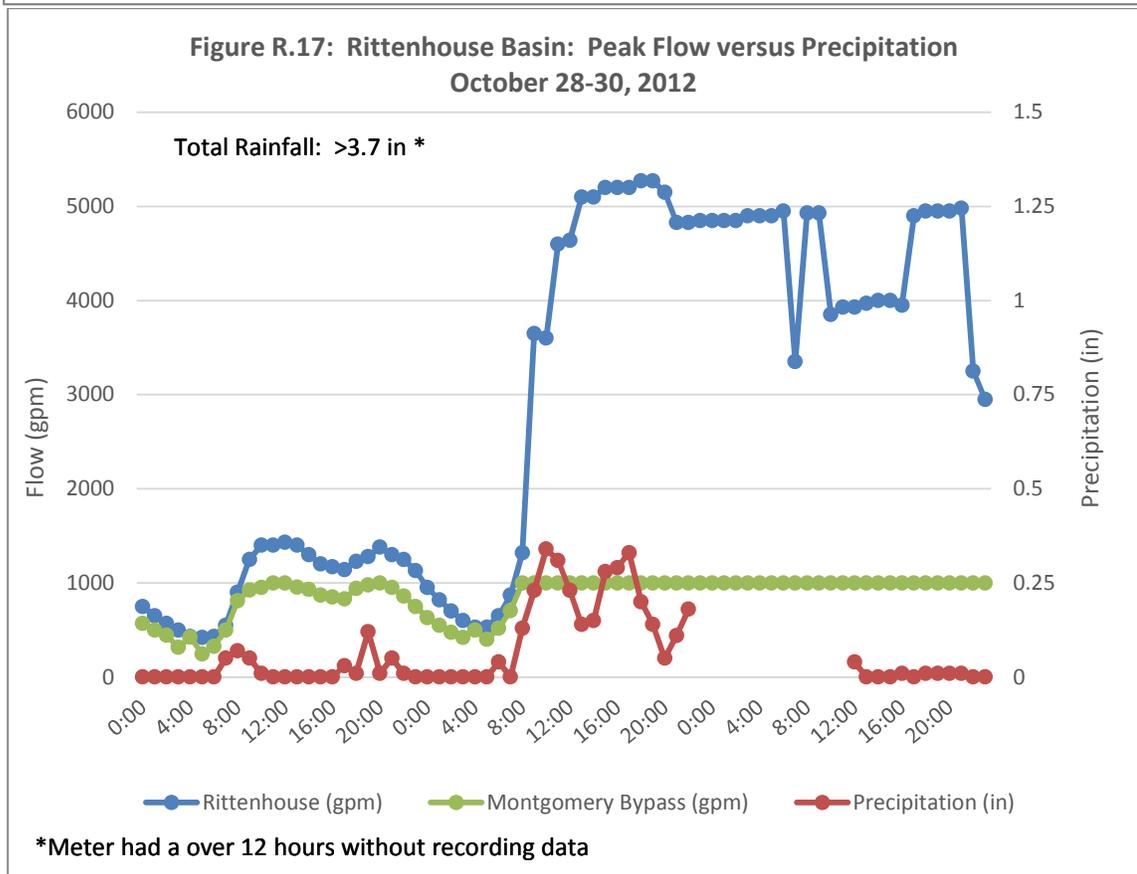
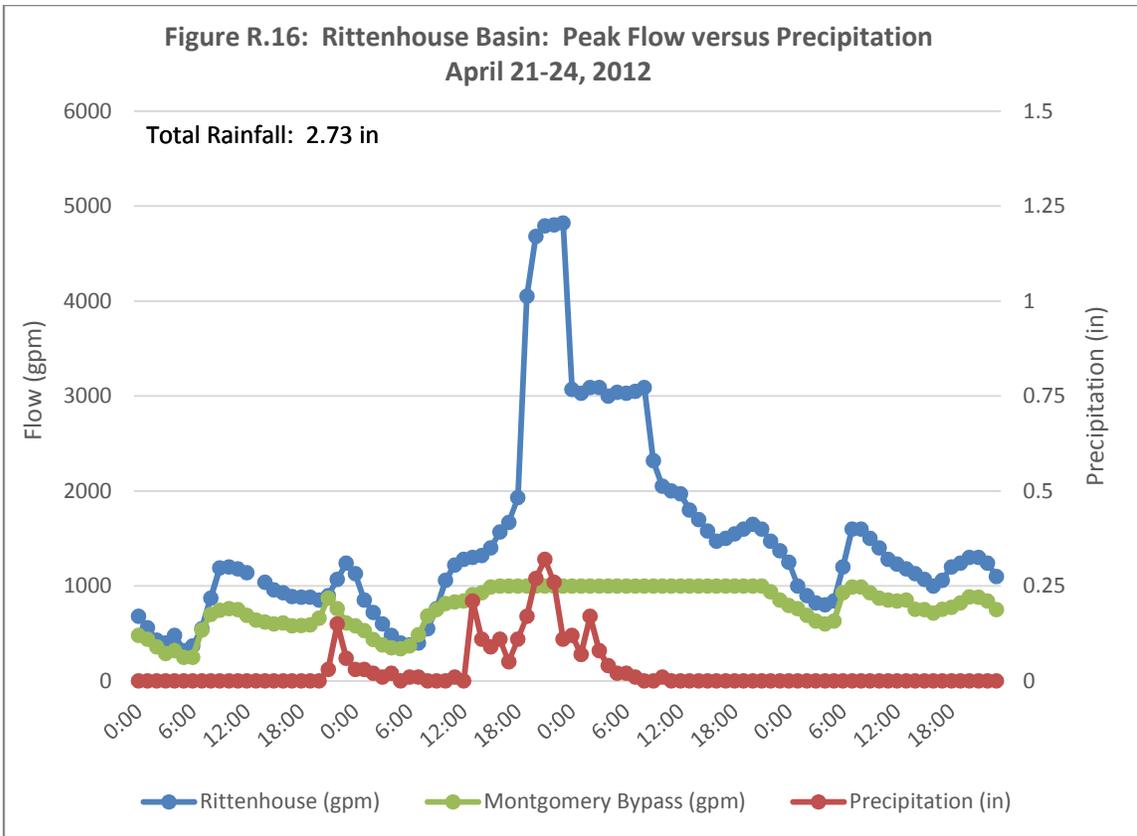


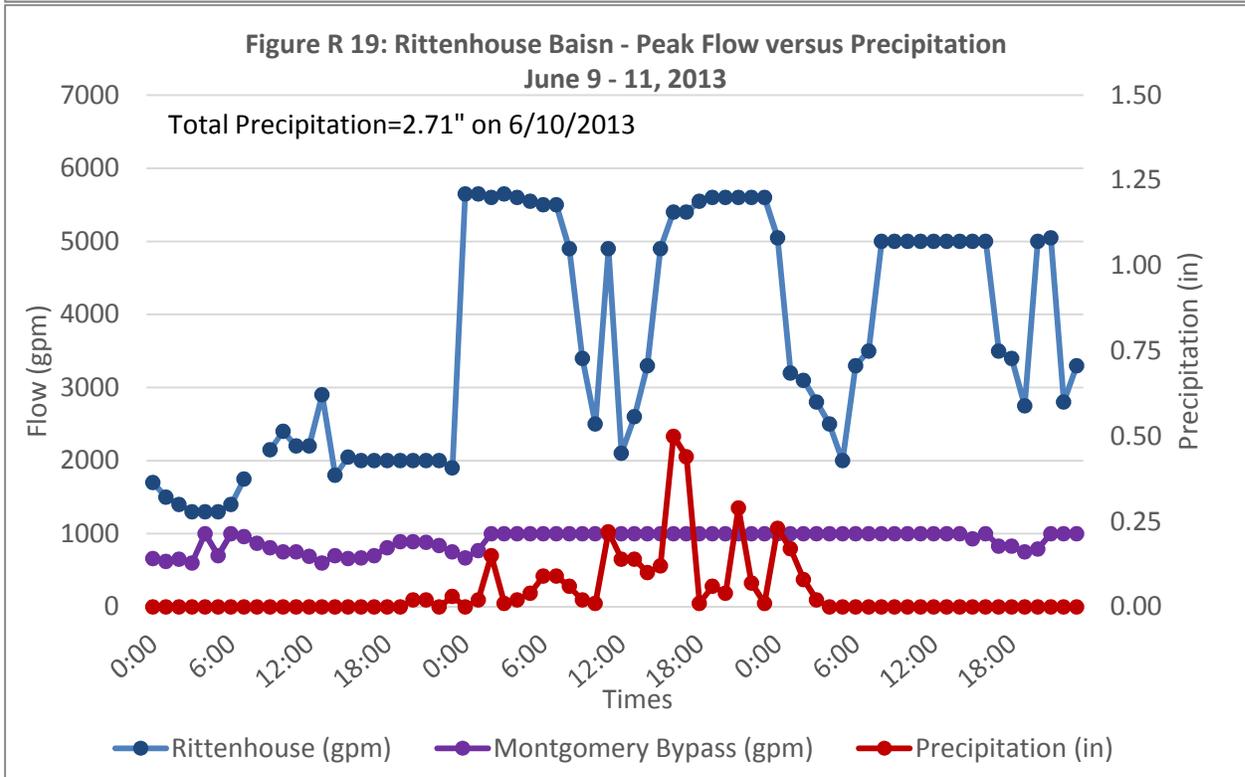
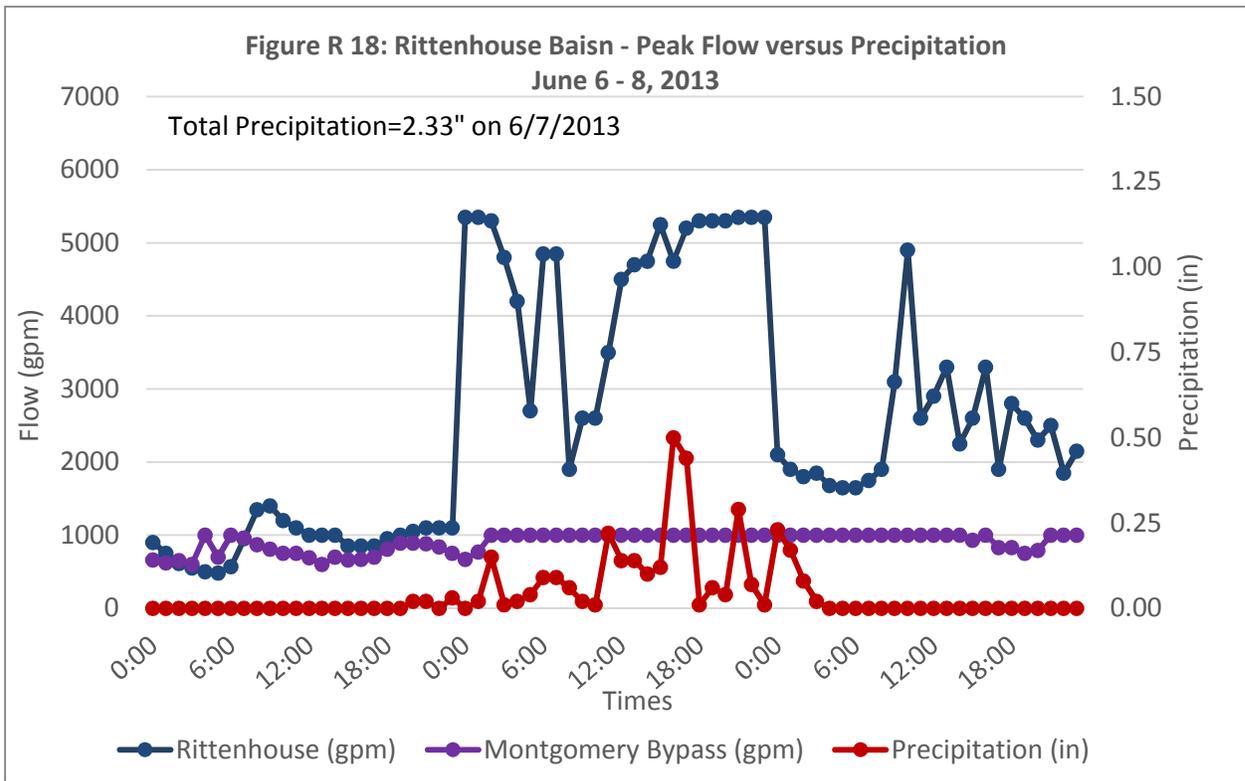
**Figure R.14: Rittenhouse Basin - Peak Flow versus Precipitation  
November 21-25, 2011**

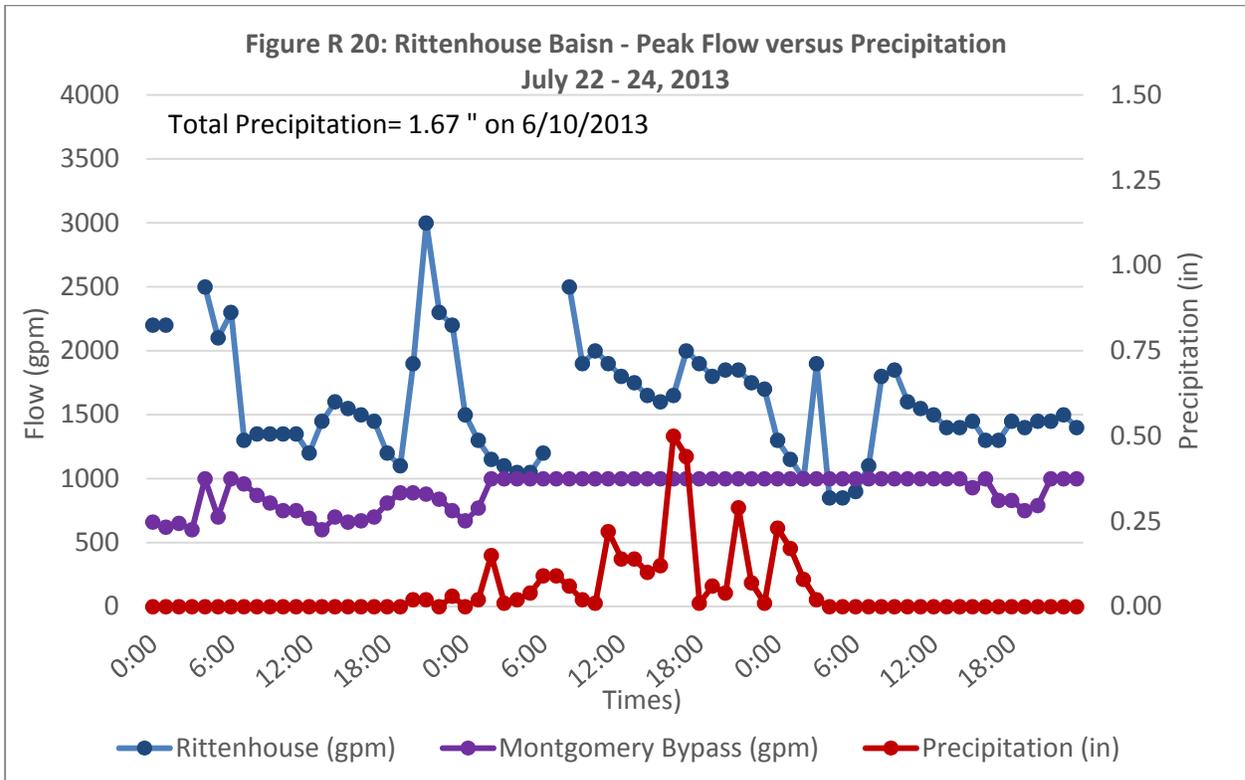


**Figure R.15: Rittenhouse Basin: Peak Flow versus Precipitation**  
**January 12, 2012**









**Appendix B**  
**Connection Management Plan**

## CONNECTION MANAGEMENT PLAN

West Norriton Township (WNT) currently has a backlog of projects and individual connections which are prepared to commence construction once capacity is restored within the sanitary sewer system. WNT is continuously working to remove I & I from the sanitary sewer system by concentrating on the Lower Jackson Street drainage basin, which is one of the oldest portions of the sewer system. WNT is asking for some staged EDUs to allow some development to proceed within the WNT.

A chart of proposed developments has been included for the DEP's review. WNT allows some development within the Township by staging the EDUs over the next three (3) years as follows:

	Project EDUs				
	2014	2015	2016	2017	Total
The Reserve at Stoney Brook	---	20	25	6	51
Norristown School District	---	10	----	----	10
Apartment at Schuylkill & Main Street	---	25	----	----	25
Fill in Lots & OLDS	10	2	2	1	15
Office Building at Egypt Road	---	10	----	----	10
<b>Total EDUs</b>	10	67	27	7	111
<b>Flow projected (gpd) (1EDU = 285 gpd)</b>	2,850	19,095	7,695	1,995	31,635

As time goes by, wet weather flows are reduced, WNT will request additional EDUs be released by the DEP. WNT is slowly running out of funding to complete the repairs to the sanitary sewer system and the release of some EDUs will be required to obtain the additional funding to accomplish the repairs.

A chart has also been prepared for the DEP for future development which has been discussed with WNT but has not been approved. Staging of these EDUs would also be submitted to the DEP for these connections before WNT will issue approval.

A chart has been prepared to demonstrate the repairs which have been completed to date and which are scheduled to be completed in the near future. Additional sanitary lateral and main repairs will be scheduled for spring 2014.

WNT is committed to continue with I&I remediation until the system has its peak hourly flows under control. WNT is committed to eliminate all illegal connections to the system, such as sump pumps, rain water conductors, and deficient laterals. WNT will continue inspections of property to find all of these connections.

**Appendix C**  
**Approved Developments**

APPENDIX C  
 APPROVED DEVELOPMENTS  
 WEST NORRITON TOWNSHIP

Approved Developments	Approved EDUs								
	2014		2015		2016		2017		
	EDUs	Flow	EDUs	Flow	EDUs	Flow	EDUs	Flow	
The Reserve at Stoney Brook	0	0	20	5,700	25	7,125	6	1,710	
Norristown school district	0	0	10	2,850	0	0	0	0	
Apartments at Schuylkill & main Street	0	0	25	7,125	0	0	0	0	
Fill in Lots and OLDs	10	2,850	2	570	2	570	1	285	
Office Building at Egypt Road	0	0	10	2,850	0	0	0	0	
<b>Total EDUs</b>	<b>10</b>	<b>2,850</b>	<b>405</b>	<b>19,095</b>	<b>27</b>	<b>7,695</b>	<b>7</b>	<b>1,995</b>	

Notes:

1 EDU = 285 gpd

Organic Loadings are not measured

## **Appendix D**

### **Developments in Progress or in Planning**

**APPENDIX D**  
**DEVELOPMENTS IN PROGRESS OR IN PLANNING (2013-2018)**  
**WEST NORRITON TOWNSHIP**

Name of New Development - See Attached map for location	Map Reference	Drainage Basin	EDUs	Projected Flow -GPD at complete build out	Pipe Data
The Reserve at Stoney Brook	9	Jackson Street	51	14,535	2850 of 8" PVC
WestoverApartments	3	Rittenhouse	720	205,200	In Planning stages
Norristown Area School District - Sports Complex	12	Jackson Street	10	2,850	In Planning Stages
Office Building - Egypt Road	13	Rittenhouse	10	2,850	In Planning Stages
Apartments	7	Rittenhouse	25	7,125	In Planning Stages
Miscellaneous		Jackson St.-5 Rittenhouse-30	35	9,975	count of vacant lots
<b>Total</b>			<b>851</b>	<b>242,535</b>	

**Appendix E**  
**Pump Station Information**

**APPENDIX E  
PUMP STATION INFORMATION  
WEST NORRITON TOWNSHIP**

Name and Location of Pumping Station	Installation / Expansion Date	Number of Pumps	Pump Manufacturer	Drive Type	Capacity (gpm) each Pump	Maximum Pumping Capacity	Flow Meter	Standby Generator	Estimated Connected EDUs	Flow (mgd) Average / Peak	Instantaneous ave. Peak flow (mgd)	Additional EDUs Projected in Next 2 Years	Additional Flow (mgd) Projected in Next 2 Years Average / Peak
Rittenhouse Boulevard	1994	3	Fairbanks-Morse	Variable	2700 gpm @165 ft. TDH	4618 gpm - 6.65 mgd with 2 pumps	Yes	Yes	3,197	1.51/4.323	4.9mgd	415	1.3/5.3
Chestnut Avenue	2004	2	Hydromatic	Fixed	180 gpm @30 ft. TDH	180 gpm - 0.259 mgd	Yes	Yes	280	0.06/0.11	0.16 mgd	0	1
Whitehall Road	1994	3	Fairbanks-Morse	Variable	1750 gpm @220 ft. TDH	2625 gpm - 3.78 mgd with 2 pumps	Yes	Yes	1,550	0.51/0.97	2.75 mgd	0	0.53/2.1
Forrest Avenue	1987	2	Chicago	Fixed	600 gpm @63 ft. TDH	600 gpm - 0.864 mgd	No	Yes	530	0.15/0.5	0.5 mgd*	0	0.15/0.5**
Port Indian Road	1999	2	Fairbanks-Morse	Fixed	1000 gpm @113 ft. TDH	1000 gpm -1.44 mgd	Yes	Yes	1,230	0.40/1.0	0.9 mgd	0	0.41/1.33
Halford Hills	1995	2	Hydromatic	Fixed	25 gpm @50 ft. TDH	25 gpm - 0.036 mgd	No	No	10	0.03/0.09	0.09 mgd*	0	0.003/0.009**
1 EDU = 285 gpd													
* Peak pump station flows estimated based on maximum month daily average times peaking factor of 2 to 3													
** Projected peak flows estimated based on average new EDU flow times 2.5 peaking factor added to estimated current peak flows													

**Appendix F**  
**Pump Station Monthly ADF**

**APPENDIX F**  
**PUMP STATIONS MONTHLY AVERAGE DAILY FLOWS**  
**WEST NORRITON TOWNSHIP**

Month	Rittenhouse Blvd (gpd)	Whitehall Road (gpd)	Port Indian Road (gpd)	Forrist Avenue (hrs/day)	Chestnut Avenue (gpd)	Halford Hills (hrs/day)
January	1,708,296	546,771	391,264	4.66	66,180	0.89
February	1,603,490	541,571	390,021	4.10	66,200	0.84
March	1,684,645	533,113	390,013	4.00	69,600	0.89
April	1,310,723	509,140	326,566	3.30	57,800	0.84
May	1,212,654	478,561	308,024	3.50	62,200	0.89
June	2,491,360	741,027	650,275	3.40	80,000	0.99
July	1,681,932	525,174	370,516	140.30	61,300	0.88
August	1,549,880	531,813	METER BROKE	OFF	64,200	1.00
September	980,463	372,800	METER BROKE	OFF	47,473	0.76
October	1,054,687	362,206	METER BROKE	0.15	51,045	0.76
November	1,012,422	354,160	METER BROKE	1.62	53,866	0.87
December	1,855,090	608,506	406,971	2.34	69,794	0.79

**Appendix G**  
**Monthly ADF Flows to Norristown**



WEST NORRITON TOWNSHIP  
FLOW TO NORRISTOWN

DATE	RIITTENHOUSE METER READING	JACKSON ST. METER READING	RIITTENHOUSE FORCE MAIN*	JACKSON ST. METER PIT*	TOTAL FLOW TO NORRISTOWN*	TOTAL FLOW TO TREATMENT PLANT TOTAL FLOW**
1	34,584,660	13,411,472	1.8677	0.0336	1.9013	
2	34,603,337	13,411,808	2.0516	0.0290	2.0806	
3	34,623,853	13,412,098	2.0198	0.0299	2.0497	
4	34,644,051	13,412,397	1.5692	0.5391	2.1083	
5	34,659,743		1.7601	0.5391	2.2992	
6	34,677,344		0.8904	0.5391	1.4295	
7	34,686,248	13,428,569	1.2756	0.5253	1.8009	
8	34,699,004	13,433,822	1.2563	0.5307	1.7870	
9	34,711,567	13,439,129	1.2474	0.5425	1.7899	
10	34,724,041	13,444,554	1.3162	0.5542	1.8704	
11	34,737,203	13,450,096	1.4741	0.5419	2.0160	
12	34,751,944		1.6694	0.5419	2.2113	
13	34,768,638		1.0780	0.5419	1.6199	
14	34,779,418	13,466,353	1.5070	0.4309	1.9379	
15	34,794,488	13,470,662	2.6183	0.2933	2.9116	
16	34,820,671	13,473,595	2.2927	0.1457	2.4384	
17	34,843,598	13,475,052	2.5127	0.1421	2.6548	
18	34,868,725	13,476,473	2.3295	0.1352	2.4647	
19	34,892,020		2.7950	0.1352	2.9302	
20	34,919,970		1.1855	0.1352	1.3207	
21	34,931,825	13,480,530	1.5645	0.5299	2.0944	
22	34,947,470	13,485,829	1.3684	0.5358	1.9042	
23	34,961,154	13,491,187	1.4188	0.4992	1.9180	
24	34,975,342	13,496,179	1.2715	0.4828	1.7543	
25	34,988,057	13,501,007	1.2760	0.5419	1.8179	
26	35,000,817		1.5395	0.5419	2.0814	
27	35,016,212		0.9754	0.5419	1.5173	
28	35,025,966	13,517,264	1.4245	0.4057	1.8302	
29	35,040,211	13,521,321	1.3887	0.3885	1.7772	
30	35,054,098	13,525,206	2.4561	0.4189	2.8750	
31	35,078,659	13,529,395	3.5573	0.3622	3.9195	
1	35,114,232	13,533,017				
TOTAL			52.9572	12.1545	65.1117	

SIGNATURE



(WNT)

SIGNATURE

(BOROUGH OF NORRISTOWN)

\* To be completed by WNT

\*\* To be completed by Norristown Municipal Waste Authority

cc: Norristown Municipal Waste Authority & Dean Miller (Treatment Plant)

Feb-13

WEST NORRITON TOWNSHIP  
FLOW TO NORRISTOWN

DATE	RITTENHOUSE METER READING	JACKSON ST. METER READING	RITTENHOUSE FORCE MAIN*	JACKSON ST. METER PIT*	TOTAL FLOW TO NORRISTOWN*	TOTAL FLOW TO TREATMENT PLANT TOTAL FLOW**
1	35,114,232	13,533,017	2,3890	0.3208	2,7098	2,7098
2	35,138,122		2,1101	0.3208	2,4309	2,4309
3	35,159,223		2,0523	0.3208	2,3731	2,3731
4	35,179,746	13,542,641	1,8887	0.3290	2,2177	2,2177
5	35,198,633	13,545,931	1,7598	0.3280	2,0878	2,0878
6	35,216,231	13,549,211	1,7052	0.3270	2,0322	2,0322
7	35,233,283	13,552,481	1,4803	0.2956	1,7759	1,7759
8	35,248,086	13,555,437	1,8378	0.3187	2,1565	2,1565
9	35,266,464		1,8096	0.3187	2,1283	2,1283
10	35,284,560		1,7245	0.3187	2,0432	2,0432
11	35,301,805	13,564,998	2,2039	0.3152	2,5191	2,5191
12	35,323,844	13,568,150	1,8901	0.3424	2,2325	2,2325
13	35,342,745	13,571,574	1,8294	0.3270	2,1564	2,1564
14	35,361,039	13,574,844	1,8164	0.3358	2,1522	2,1522
15	35,379,203	13,578,202	2,0703	0.3390	2,4093	2,4093
16	35,399,906		1,9054	0.3390	2,2444	2,2444
17	35,418,960		1,3625	0.3390	1,7015	1,7015
18	35,432,585	13,588,373	1,6579	0.3272	1,9851	1,9851
19	35,449,164	13,591,644	1,6925	0.3249	2,0174	2,0174
20	35,466,089	13,594,893	1,5870	0.3237	1,9107	1,9107
21	35,481,959	13,598,130	1,5606	0.3296	1,8902	1,8902
22	35,497,565	13,601,426	1,5383	0.3179	1,8562	1,8562
23	35,512,948		1,5439	0.3179	1,8618	1,8618
24	35,528,387		1,5359	0.3179	1,8538	1,8538
25	35,543,746	13,610,963	1,4613	0.3168	1,7781	1,7781
26	35,558,359	13,614,131	2,1279	0.3267	2,4546	2,4546
27	35,579,638	13,617,398	1,4912	0.3241	1,8153	1,8153
28	35,594,550	13,620,639	1,6764	0.3120	1,9884	1,9884
1	35,611,314	13,623,759			0,0000	0,0000
TOTAL			49,7082	9,0742	58,7824	

SIGNATURE \_\_\_\_\_ SIGNATURE \_\_\_\_\_  
 (WNT) (BOROUGH OF NORRISTOWN)

\* To be completed by WNT  
 \*\* To be completed by Norristown Municipal Waste Authority  
 cc: Norristown Municipal Waste Authority & Dean Miller (Treatment Plant)

Mar-13

WEST NORRITON TOWNSHIP  
FLOW TO NORRISTOWN

DATE	RITTENHOUSE METER READING	JACKSON ST. METER READING	RITTENHOUSE FORCE MAIN*	JACKSON ST. METER PIT*	TOTAL FLOW TO TREATMENT PLANT NORRISTOWN*	TOTAL FLOW**
1	35,611,314	13,623,759	1,6455	0.3111	1,9566	
2	35,627,769		1,5956	0.3111	1,9067	
3	35,643,725		1,6078	0.3111	1,9189	
4	35,659,803	13,633,091	1,5306	0.2990	1,8296	
5	35,675,109	13,636,081	1,4296	0.2891	1,7187	
6	35,689,406	13,638,972	1,4589	0.2935	1,7524	
7	35,703,994	13,641,907	1,4118	0.2893	1,7011	
8	35,718,112	13,644,800	1,4018	0.3007	1,7025	
9	35,732,130		1,3955	0.3007	1,6962	
10	35,746,085		1,4071	0.3007	1,7078	
11	35,760,156	13,653,820	1,3530	0.3043	1,6573	
12	35,773,686	13,656,863	2,2117	0.3163	2,5280	
13	35,795,803	13,660,026	1,7535	0.2894	2,0429	
14	35,813,338	13,662,920	1,6151	0.2886	1,9037	
15	35,829,489	13,665,806	1,9019	0.2899	2,1918	
16	35,848,508		1,6212	0.2899	1,9111	
17	35,864,720		1,3461	0.2899	1,6360	
18	35,878,181	13,674,502	2,1645	0.2978	2,4623	
19	35,899,826	13,677,480	2,4477	0.3091	2,7568	
20	35,924,303	13,680,571	1,9686	0.2915	2,2601	
21	35,943,989	13,683,486	1,8745	0.2863	2,1608	
22	35,962,734	13,686,349	1,8135	0.2856	2,0991	
23	35,980,869		1,7481	0.2856	2,0337	
24	35,996,350		1,6743	0.2856	1,9599	
25	36,015,093	13,694,916	2,0737	0.2950	2,3687	
26	36,035,830	13,697,866	1,7956	0.2846	2,0802	
27	36,053,786	13,700,712	1,6295	0.2834	1,9129	
28	36,070,081	13,703,546	1,6123	0.2789	1,8912	
29	36,086,204	13,706,336	1,6224	0.2793	1,9017	
30	36,102,428		1,6185	0.2793	1,8978	
31	36,118,613		1,4941	0.2793	1,7734	
1	36,133,554	13,714,717				
TOTAL			52,2240	9,0958	61,3198	

SIGNATURE



SIGNATURE

(BOROUGH OF NORRISTOWN)

\* To be completed by WNT

\*\* To be completed by Norristown Municipal Waste Authority

cc: Norristown Municipal Waste Authority & Dean Miller (Treatment Plant)

WEST NORRITON TOWNSHIP  
FLOW TO NORRISTOWN

DATE	RIITTENHOUSE METER READING	JACKSON ST. METER READING	RIITTENHOUSE FORCE MAIN*	JACKSON ST. METER PIT*	TOTAL FLOW TO NORRISTOWN*	TREATMENT PLANT TOTAL FLOW**
1	36,133,554	13,714,717	1.5392	0.2798	1.8190	
2	36,148,946	13,717,515	1.4347	0.2835	1.7182	
3	36,163,293	13,720,350	1.4104	0.2785	1.6889	
4	36,177,397	13,723,135	1.4095	0.2787	1.6882	
5	36,191,492	13,725,922	1.4344	0.2758	1.7102	
6	36,205,836		1.4531	0.2758	1.7289	
7	36,220,367		1.4708	0.2758	1.7466	
8	36,235,075	13,734,197	1.3384	0.2708	1.6092	
9	36,248,459	13,736,905	1.3642	0.2742	1.6384	
10	36,262,101	13,739,647	1.0259	0.2631	1.2890	
11	36,272,360	13,742,278	0.8466	0.2700	1.1166	
12	36,280,826	13,744,978	2.2355	0.2265	2.4620	
13	36,303,181		1.7070	0.2265	1.9335	
14	36,320,251		1.4736	0.2265	1.7001	
15	36,334,987	13,751,773	1.4599	0.2135	1.6734	
16	36,349,586	13,753,908	1.0724	0.2224	1.2948	
17	36,360,310	13,756,132	0.9200	0.2229	1.1429	
18	36,369,510	13,758,361	0.9005	0.2172	1.1177	
19	36,378,515	13,760,533	2.1357	0.2281	2.3638	
20	36,399,872		0.6654	0.2281	0.8935	
21	36,406,526		1.7015	0.2281	1.9296	
22	36,423,541	13,767,375	1.6028	0.2250	1.8278	
23	36,439,569	13,769,625	1.5906	0.2390	1.8296	
24	36,455,475	13,772,015	0.9015	0.2086	1.1101	
25	36,464,490	13,774,101	1.5406	0.2277	1.7683	
26	36,479,896	13,776,378	1.0005	0.5247	1.5252	
27	36,489,901		1.0029	0.5247	1.5276	
28	36,499,930		1.0259	0.5247	1.5506	
29	36,510,189	13,792,119	0.9638	0.5657	1.5295	
30	36,519,827	13,797,776	0.6944	0.4996	1.1940	
1	36,526,771	13,802,772				
TOTAL			39.3217	8.8055	48.1272	

SIGNATURE  (WNT) SIGNATURE \_\_\_\_\_ (BOROUGH OF NORRISTOWN)

\* To be completed by WNT

\*\* To be completed by Norristown Municipal Waste Authority

cc: Norristown Municipal Waste Authority & Dean Miller(Treatment Plant)

May-13

WEST NORRITON TOWNSHIP  
FLOW TO NORRISTOWN

DATE	RITTENHOUSE METER READING	JACKSON ST. METER READING	RITTENHOUSE FORCE MAIN*	JACKSON ST. METER PIT*	TOTAL FLOW TO NORRISTOWN*	TREATMENT PLANT TOTAL FLOW**
1	36,526,771	13,802,772	1,0183	0.5182	1,5365	
2	36,536,954	13,807,954	0.8830	0.5239	1,4069	
3	36,545,784	13,813,193	0.9855	0.5062	1,4917	
4	36,555,639		0.7683	0.5062	1,2745	
5	36,563,322		0.6724	0.5062	1,1786	
6	36,570,046	13,828,380	0.5604	0.4984	1,0588	
7	36,575,650	13,833,364	0.3258	0.5068	0.8326	
8	36,578,908	13,838,432	0.2740	0.5374	0.8114	
9	36,581,648	13,843,806	1.5657	0.5212	2,0869	
10	10,917	13,849,018	2.6157	0.4882	3,1039	
11	37,074		1.5549	0.4882	2,0431	
12	52,623		1.2616	0.4882	1,7498	
13	65,239	13,863,665	1.4872	0.4251	1,9123	
14	80,111	13,867,916	1.3790	0.4164	1,7954	
15	93,901	13,872,080	1.3260	0.4231	1,7491	
16	107,161	13,876,311	1.3299	0.4151	1,7450	
17	120,460	13,880,462	1.8690	0.3966	2,2656	
18	139,150		0.8961	0.3966	1,2927	
19	148,111		1.0226	0.3966	1,4192	
20	158,337	13,892,359	1.2282	0.3732	1,6014	
21	170,619	13,896,091	1.2474	0.3487	1,5961	
22	183,093	13,899,578	1.2242	0.3469	1,5711	
23	195,335	13,903,047	1.5372	0.3612	1,8984	
24	210,707	13,906,659	1.5293	0.3380	1,8673	
25	226,000		1.2886	0.3380	1,6266	
26	238,886		1.3352	0.3380	1,6732	
27	252,238		1.1101	0.3380	1,4481	
28	263,339	13,920,177	1.3290	0.3664	1,6954	
29	276,629	13,923,841	1.3037	0.3585	1,6622	
30	289,666	13,927,426	1.2460	0.3149	1,5609	
31	302,126	13,930,575	1.4180	0.3146	1,7326	
1	316,306	13,933,722				
TOTAL			37.5923	13.0950	50.6873	

SIGNATURE  (WNT) SIGNATURE \_\_\_\_\_ (BOROUGH OF NORRISTOWN)

\* To be completed by WNT  
 \*\* To be completed by Norristown Municipal Waste Authority  
 cc: Norristown Municipal Waste Authority & Dean Miller (Treatment Plant)

Jun-13

WEST NORRITON TOWNSHIP  
FLOW TO NORRISTOWN

DATE	RITTENHOUSE METER READING	JACKSON ST. METER READING	RITTENHOUSE FORCE MAIN*	JACKSON ST. METER PIT*	TOTAL FLOW TO NORRISTOWN*	TREATMENT PLANT TOTAL FLOW**
1	316,306	13,933,722	1.0282	0.3146	1.3428	
2	326,588		1.2307	0.3146	1.5453	
3	338,895	13,940,014	1.4051	0.3218	1.7269	
4	352,946	13,943,232	1.2048	0.3241	1.5289	
5	364,994	13,946,473	1.1672	0.3124	1.4796	
6	376,666	13,949,597	1.4750	0.3291	1.8041	
7	391,416	13,952,888	6.2784	0.4693	6.7477	
8	454,200		3.3300	0.4693	3.7993	
9	487,500		2.5719	0.4693	3.0412	
10	513,219	13,966,967	6.6372	0.5130	7.1502	
11	579,591	13,972,097	5.2112	0.4924	5.7036	
12	631,703	13,977,021	3.6213	0.4973	4.1186	
13	667,916	13,981,994	3.9798	0.4778	4.4576	
14	707,714	13,986,772	3.7664	0.4604	4.2268	
15	745,378		2.4788	0.4604	2.9392	
16	770,166		2.4751	0.4604	2.9355	
17	794,917	14,000,584	2.3587	0.4625	2.8212	
18	818,504	14,005,209	2.6188	0.4593	3.0781	
19	844,692	14,009,802	2.3291	0.4622	2.7913	
20	867,983	14,014,424	2.0694	0.4465	2.5159	
21	888,677	14,018,889	2.2560	0.4410	2.6970	
22	911,237		2.2374	0.4410	2.6784	
23	933,611		1.1438	0.4410	1.5848	
24	945,049	14,032,118	1.6956	0.4178	2.1134	
25	962,005	14,036,296	1.6347	0.4064	2.0411	
26	978,352	14,040,360	1.7240	0.4124	2.1364	
27	995,592	14,044,484	1.9163	0.4236	2.3399	
28	1,014,755	14,048,720	2.1095	0.3932	2.5027	
29	1,035,850		1.3367	0.3932	1.7299	
30	1,049,217		1.4497	0.3932	1.8429	
1	1,063,714	14,060,517				
TOTAL			74.7408	12.6795	87.4203	

SIGNATURE \_\_\_\_\_ SIGNATURE \_\_\_\_\_  
(WNT) (BOROUGH OF NORRISTOWN)

\* To be completed by WNT  
\*\* To be completed by Norristown Municipal Waste Authority  
cc: Norristown Municipal Waste Authority & Dean Miller (Treatment Plant)

WEST NORRITON TOWNSHIP  
FLOW TO NORRISTOWN

DATE	RITTENHOUSE METER READING	JACKSON ST. METER READING	RITTENHOUSE FORCE MAIN*	JACKSON ST. METER PIT*	TOTAL FLOW TO NORRISTOWN*	TREATMENT PLANT TOTAL FLOW**
1	1,063,714	14,060,517	2,9292	0.4234	3.3526	
2	1,093,006	14,064,751	2,0430	0.3988	2.4418	
3	1,113,436	14,068,739	2,7388	0.3778	3.1166	
4	1,140,824		0.8043	0.3778	1.1821	
5	1,148,857	14,076,295	2,0985	0.3817	2.4802	
6	1,169,852		1.4836	0.3817	1.8653	
7	1,184,688		1.4464	0.3817	1.8281	
8	1,199,152	14,087,746	1.6175	0.3732	1.9907	
9	1,215,327	14,091,478	1.4652	0.3614	1.8265	
10	1,229,979	14,095,092	1.4347	0.3613	1.7960	
11	1,244,326	14,098,705	1.4375	0.3736	1.8111	
12	1,258,701	14,102,441	2.0533	0.3656	2.4189	
13	1,279,234		2.0766	0.3656	2.4422	
14	1,300,000		1.0625	0.3656	1.4281	
15	1,310,625	14,113,408	1.5217	0.3793	1.9010	
16	1,325,842	14,117,201	1.4199	0.3726	1.7925	
17	1,340,041	14,120,927	1.4522	0.3306	1.7828	
18	1,354,563	14,124,233	1.6930	0.2715	1.9645	
19	1,371,493	14,126,948	1.2246	0.2002	1.4248	
20	1,383,739		1.0143	0.2002	1.2145	
21	1,393,882		1.8919	0.2002	2.0921	
22	1,412,801	14,132,953	2.1371	0.2425	2.3796	
23	1,434,172	14,135,379	2.2293	0.2310	2.4603	
24	1,456,465	14,137,689	1.7732	0.2387	2.0119	
25	1,474,197	14,140,076	1.7377	0.2459	1.9836	
26	1,491,574	14,142,535	1.6426	0.2012	1.8438	
27	1,508,000		1.8255	0.2012	2.0267	
28	1,526,255		1.4908	0.2012	1.6920	
29	1,541,163	14,148,572	1.5916	0.1900	1.7816	
30	1,557,079	14,150,472	1.5207	0.2028	1.7235	
31	1,572,286	14,152,500	1.2827	0.5391	1.8218	
1	1,585,113	14,157,891				
TOTAL			52.1399	9.7374	61.8773	

SIGNATURE \_\_\_\_\_  
(WNT)

SIGNATURE \_\_\_\_\_  
(BOROUGH OF NORRISTOWN)

\* To be completed by WNT  
 \*\* To be completed by Norristown Municipal Waste Authority  
 cc: Norristown Municipal Waste Authority & Dean Miller (Treatment Plant)

WEST NORRITON TOWNSHIP  
FLOW TO NORRISTOWN

DATE	RITTENHOUSE METER READING	JACKSON ST. METER READING	RITTENHOUSE FORCE MAIN*	JACKSON ST. METER PIT*	TOTAL FLOW TO NORRISTOWN*	TREATMENT PLANT TOTAL FLOW**
1	1,585,113	14,157,891	2,5456	0,6579	3,2035	
2	1,610,569	14,164,470	1,7955	0,5341	2,3296	
3	1,628,524		1,3676	0,5341	1,9017	
4	1,642,200		1,0457	0,5341	1,5798	
5	1,652,657	14,180,493	1,3130	0,5394	1,8524	
6	1,665,787	14,185,887	1,2069	0,5232	1,7301	
7	1,677,856	14,191,119	1,1666	0,5287	1,6953	
8	1,689,522	14,196,406	1,2864	0,5290	1,8154	
9	1,702,386	14,201,696	1,3379	0,5113	1,8492	
10	1,715,765		1,5235	0,5113	2,0348	
11	1,731,000		0,6354	0,5113	1,1467	
12	1,737,354	14,217,036	1,4811	0,6713	2,1524	
13	1,752,165	14,223,749	4,7719	0,2306	5,0025	
14	1,799,884	14,226,055	2,7997	0,3204	3,1201	
15	1,827,881	14,229,259	1,9542	0,5626	2,5168	
16	1,847,423	14,234,885	2,1392	0,5876	2,7268	
17	1,868,815		1,2684	0,5876	1,8560	
18	1,881,499		1,5119	0,5876	2,0995	
19	1,896,618	14,252,512	1,4431	0,5560	1,9991	
20	1,911,049	14,258,072	1,2968	0,5455	1,8423	
21	1,924,017	14,263,527	1,2902	0,5173	1,8075	
22	1,936,919	14,268,700	1,4981	0,3550	1,8531	
23	1,951,900	14,272,250	1,7615	0,5017	2,2632	
24	1,969,515		0,5229	0,5017	1,0246	
25	1,974,744		1,2041	0,5017	1,7058	
26	1,986,785	14,287,301	1,1607	0,5023	1,6630	
27	1,998,392	14,292,324	1,4120	0,4959	1,9079	
28	2,012,512	14,297,283	1,4044	0,5475	1,9519	
29	2,026,556	14,302,758	1,2966	0,4991	1,7957	
30	2,039,522	14,307,749	1,4853	0,4013	1,8866	
31	2,054,375		1,1201	0,4013	1,5214	
1	2,065,576	14,315,775				
TOTAL			48,0463	15,7884	63,8347	

SIGNATURE \_\_\_\_\_ SIGNATURE \_\_\_\_\_  
 (WNT) (BOROUGH OF NORRISTOWN)

\* To be completed by WNT  
 \*\* To be completed by Norristown Municipal Waste Authority  
 cc: Norristown Municipal Waste Authority & Dean Miller (Treatment Plant)

WEST NORRITON TOWNSHIP  
FLOW TO NORRISTOWN

DATE	RITTENHOUSE METER READING	JACKSON ST. METER READING	RITTENHOUSE FORCE MAIN*	JACKSON ST. METER PIT*	TOTAL FLOW TO NORRISTOWN*	TREATMENT PLANT TOTAL FLOW**
1	2,065,576	14,315,775	1.1624	0.6021	1.7645	1.7645
2	2,077,200		0.8766	0.6021	1.4787	1.4787
3	2,085,966	14,327,816	1.1546	0.5310	1.6856	1.6856
4	2,097,512	14,333,126	1.0238	0.4936	1.5174	1.5174
5	2,107,750	14,338,062	0.9264	0.4649	1.3913	1.3913
6	2,117,014	14,342,711	1.0308	0.4894	1.5202	1.5202
7	2,127,322		1.2073	0.4894	1.6967	1.6967
8	2,139,395		0.8673	0.4894	1.3567	1.3567
9	2,148,068	14,357,394	1.0109	0.4931	1.5040	1.5040
10	2,158,177	14,362,325	0.9989	0.4978	1.4967	1.4967
11	2,168,166	14,367,303	0.9439	0.4758	1.4197	1.4197
12	2,177,605	14,372,061	0.9641	0.4897	1.4538	1.4538
13	2,187,246	14,376,958	1.1820	0.4798	1.6618	1.6618
14	2,199,066		1.0934	0.4798	1.5732	1.5732
15	2,210,000		0.7024	0.4798	1.1822	1.1822
16	2,217,024	14,391,352	0.9550	0.4698	1.4248	1.4248
17	2,226,574	14,396,050	0.9332	0.4721	1.4053	1.4053
18	2,235,906	14,400,771	0.9082	0.4645	1.3727	1.3727
19	2,244,988	14,405,416	0.9197	0.4783	1.3980	1.3980
20	2,254,185	14,410,199	1.0681	0.5045	1.5726	1.5726
21	2,264,866		1.1348	0.5045	1.6393	1.6393
22	2,276,214		1.0165	0.5045	1.5210	1.5210
23	2,286,379	14,425,334	0.9918	0.5030	1.4948	1.4948
24	2,296,297	14,430,364	0.9171	0.5359	1.4530	1.4530
25	2,305,468	14,435,723	0.9049	0.4251	1.3300	1.3300
26	2,314,517	14,439,974	0.8973	0.4815	1.3788	1.3788
27	2,323,490	14,444,789	1.3099	0.4814	1.7913	1.7913
28	2,336,589		0.6156	0.4814	1.0970	1.0970
29	2,342,745		0.7801	0.4814	1.2615	1.2615
30	2,350,546	14,459,231	0.9169	0.4939	1.4108	1.4108
1	2,359,715	14,464,170				

TOTAL 29.4139 14.8395 44.2534

SIGNATURE \_\_\_\_\_ SIGNATURE \_\_\_\_\_  
(WNT) (BOROUGH OF NORRISTOWN)

\* To be completed by WNT  
 \*\* To be completed by Norristown Municipal Waste Authority  
 cc: Norristown Municipal Waste Authority & Dean Miller (Treatment Plant)

Oct-13

WEST NORRITON TOWNSHIP  
FLOW TO NORRISTOWN

DATE	RITTENHOUSE METER READING	JACKSON ST. METER READING	RITTENHOUSE FORCE MAIN*	JACKSON ST. METER PIT*	TOTAL FLOW TO NORRISTOWN*	TOTAL FLOW TO TREATMENT PLANT TOTAL FLOW**
1	2,359,715	14,464,170	0.8202	0.4726	1.2928	
2	2,367,917	14,468,896	0.7899	0.4888	1.2787	
3	2,375,816	14,473,784	0.8907	0.4526	1.3433	
4	2,384,723	14,478,310	1.0826	0.4613	1.5439	
5	2,395,549		0.7034	0.4613	1.1647	
6	2,402,583		0.8523	0.4613	1.3136	
7	2,411,106	14,492,148	1.0647	0.4837	1.5484	
8	2,421,753	14,496,986	0.9155	0.4696	1.3851	
9	2,430,908	14,501,682	0.8697	0.4671	1.3368	
10	2,439,605	14,506,353	1.1992	0.5113	1.7105	
11	2,451,597	14,511,466	2.2348	0.4787	2.7135	
12	2,473,945		1.3307	0.4787	1.8094	
13	2,487,252		0.8311	0.4787	1.3098	
14	2,495,563	14,525,826	1.1976	0.3221	1.5197	
15	2,507,539	14,529,047	1.1264	0.3126	1.4390	
16	2,518,803	14,532,173	1.1042	0.3624	1.4666	
17	2,529,845	14,535,797	1.1396	0.2817	1.4213	
18	2,541,241	14,538,614	1.3779	0.3202	1.6981	
19	2,555,020		1.1233	0.3202	1.4435	
20	2,566,253		0.9095	0.3202	1.2297	
21	2,575,348	14,548,220	1.0807	0.3210	1.4017	
22	2,586,155	14,551,430	1.0752	0.3272	1.4024	
23	2,596,907	14,554,702	1.1249	0.3360	1.4609	
24	2,608,156	14,558,062	0.9971	0.2677	1.2648	
25	2,618,127	14,560,739	1.1963	0.3037	1.5000	
26	2,630,090		1.2009	0.3037	1.5046	
27	2,642,099		0.7943	0.3037	1.0980	
28	2,650,042	14,569,849	1.0522	0.3041	1.3563	
29	2,660,564	14,572,891	0.8412	0.3782	1.2194	
30	2,668,976	14,576,673	0.8751	0.3778	1.2529	
31	2,677,727	14,580,451	0.8941	0.3989	1.2930	
1	2,686,668	14,584,440				
TOTAL			32.6953	12.0270	44.7223	

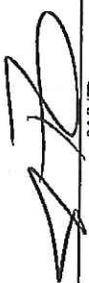
SIGNATURE  (WNT) SIGNATURE \_\_\_\_\_ (BOROUGH OF NORRISTOWN)

\* To be completed by WNT  
 \*\* To be completed by Norristown Municipal Waste Authority  
 cc: Norristown Municipal Waste Authority & Dean Miller (Treatment Plant)

Nov-13

WEST NORRITON TOWNSHIP  
FLOW TO NORRISTOWN

DATE	<u>RITTENHOUSE</u> <u>METER READING</u>	<u>JACKSON ST.</u> <u>METER READING</u>	<u>RITTENHOUSE</u> <u>FORCE MAIN*</u>	<u>JACKSON ST.</u> <u>METER PIT*</u>	<u>TOTAL FLOW TO</u> <u>NORRISTOWN*</u>	<u>TREATMENT PLANT</u> <u>TOTAL FLOW**</u>
1	2,686,668	14,584,440	1.3932	0.3997	1.7929	
2	2,700,600		0.6900	0.3997	1.0897	
3	2,707,500		0.8335	0.3997	1.2332	
4	2,715,835	14,596,432	1.0474	0.2524	1.2998	
5	2,726,309	14,598,956	1.0474	0.2203	1.2677	
6	2,736,783	14,601,159	1.0591	0.2186	1.2777	
7	2,747,374	14,603,345	1.0777	0.1942	1.2719	
8	2,758,151	14,605,287	1.3321	0.1166	1.4487	
9	2,771,472		1.0884	0.1166	1.2050	
10	2,782,356		1.1445	0.1166	1.2611	
11	2,793,801	14,608,786	1.1933	0.0836	1.2769	
12	2,805,734	14,609,622	0.7907	0.4196	1.2103	
13	2,813,641	14,613,818	0.7809	0.4427	1.2236	
14	2,821,450	14,618,245	0.7540	0.4389	1.1929	
15	2,828,990	14,622,634	0.9964	0.4579	1.4543	
16	2,838,954		0.9446	0.4579	1.4025	
17	2,848,400		0.5082	0.4579	0.9661	
18	2,853,482	14,636,370	0.8049	0.4509	1.2558	
19	2,861,531	14,640,878	0.7721	0.4475	1.2196	
20	2,869,252	14,645,353	0.8799	0.4320	1.3119	
21	2,878,051	14,649,673	1.0439	0.4162	1.4601	
22	2,888,490	14,653,835	1.0810	0.4119	1.4929	
23	2,899,300		0.4900	0.4119	0.9019	
24	2,904,200		0.7660	0.4119	1.1779	
25	2,911,860	14,666,193	0.7902	0.4387	1.2289	
26	2,919,762	14,670,580	1.7187	0.4979	2.2166	
27	2,936,949	14,675,559	2.1743	0.4138	2.5881	
28	2,958,692		1.7529	0.4138	2.1667	
29	2,976,221	14,683,835	1.6427	0.2554	1.8981	
30	2,992,648		0.7871	0.2554	1.0425	
1	3,000,519	14,688,942				
TOTAL			31.3851	10.4502	41.8353	

SIGNATURE  (WNT)  
SIGNATURE \_\_\_\_\_ (BOROUGH OF NORRISTOWN)

\* To be completed by WNT  
\*\* To be completed by Norristown Municipal Waste Authority  
cc: Norristown Municipal Waste Authority & Dean Miller (Treatment Plant)

WEST NORRITON TOWNSHIP  
FLOW TO NORRISTOWN

DATE	RIITTENHOUSE METER READING	JACKSON ST. METER READING	RIITTENHOUSE FORCE MAIN*	JACKSON ST. METER PIT*	TOTAL FLOW TO NORRISTOWN*	TOTAL FLOW TO TREATMENT PLANT TOTAL FLOW**
1	3,000,519	14,688,942	1.0668	0.5107	1.5775	
2	3,011,187	14,694,049	1.0785	0.3587	1.4372	
3	3,021,972	14,697,636	1.0378	0.3550	1.3928	
4	3,032,350	14,701,186	1.0312	0.3477	1.3789	
5	3,042,662		1.0028	0.3477	1.3505	
6	3,052,690	14,708,142	2.1384	0.3730	2.5114	
7	3,074,074		1.8578	0.3730	2.2308	
8	3,092,652		1.3329	0.3730	1.7059	
9	3,105,981	14,719,331	2.6646	0.3491	3.0137	
10	3,132,627	14,722,822	2.0284	0.3843	2.4127	
11	3,152,911	14,726,665	1.6030	0.3503	1.9533	
12	3,168,941	14,730,168	1.4279	0.3514	1.7793	
13	3,183,220	14,733,682	1.6780	0.3703	2.0483	
14	3,200,000		2.4617	0.3703	2.8320	
15	3,224,617		2.1005	0.3703	2.4708	
16	3,245,622	14,744,790	1.9549	0.3707	2.3256	
17	3,265,171	14,748,497	1.7523	0.3758	2.1281	
18	3,282,694	14,752,255	1.8252	0.3711	2.1963	
19	3,300,946	14,755,966	1.3695	0.2885	1.6580	
20	3,314,641	14,758,851	2.2109	0.1637	2.3746	
21	3,336,750		2.6187	0.1637	2.7824	
22	3,362,937		1.8983	0.1637	2.0620	
23	3,381,920	14,763,762	3.3409	0.6136	3.9545	
24	3,415,329	14,769,898	2.3657	0.5553	2.9210	
25	3,438,986		1.4816	0.5553	2.0369	
26	3,453,802	14,781,004	1.6891	0.5734	2.2625	
27	3,470,693	14,786,738	1.5307	0.5563	2.0870	
28	3,486,000		1.4900	0.5563	2.0463	
29	3,500,900		3.0444	0.5563	3.6007	
30	3,531,344	14,803,426	2.1996	0.5752	2.7748	
31	3,553,340	14,809,178	2.2257	0.5619	2.7876	
1	3,575,597	14,814,797				
TOTAL			57.5078	12.5855	70.0933	

SIGNATURE  (WNT) SIGNATURE \_\_\_\_\_ (BOROUGH OF NORRISTOWN)

\* To be completed by WNT  
 \*\* To be completed by Norristown Municipal Waste Authority  
 cc: Norristown Municipal Waste Authority & Dean Miller (Treatment Plant)

**Appendix H**  
**Average Daily Flow to NMWA 2013**

**APPENDIX H**  
**Average Daily Flow to NMWA (2007 to 2013)**  
**West Norriton Township**

**Rittenhouse Pump Station**

Month	2007	2008	2009	2010	2011	2012	2013
January	1,175,234	1,140,058	1,456,990	1,463,313	829,881	1,631,760	1,708,296
February	801,730	1,766,872	559,437	1,722,096	1,505,254	1,204,106	1,603,490
March	1,577,887	1,846,990	515,907	2,755,964	2,072,793	1,304,838	1,684,645
April	2,265,663	977,496	544,155	1,361,187	1,515,407	1,724,400	1,310,723
May	1,050,378	1,196,496	540,160	778,958	1,063,490	1,660,581	1,212,654
June	855,940	858,186	576,791	637,826	551,286	1,411,733	2,491,360
July	689,329	1,008,148	571,476	806,335	503,868	1,160,841	1,681,932
August	672,210	611,941	1,197,658	764,652	1,320,574	1,297,906	1,549,880
September	577,253	1,086,073	1,130,403	696,443	2,465,300	1,538,583	980,463
October	869,115	953,025	1,310,132	955,535	1,613,858	1,481,161	1,054,687
November	866,651	1,012,316	1,013,466	753,803	1,322,593	1,372,833	1,012,422
December	1,328,553	1,922,929	2,076,363	896,903	2,257,632	1,686,839	1,855,090
<b>Total flow (gpd)</b>	<b>12,729,943</b>	<b>14,380,530</b>	<b>11,492,938</b>	<b>13,593,015</b>	<b>17,021,936</b>	<b>17,475,581</b>	<b>18,145,642</b>
<b>Average daily (gpd)</b>	<b>1,060,829</b>	<b>1,198,378</b>	<b>957,745</b>	<b>1,132,751</b>	<b>1,418,495</b>	<b>1,456,298</b>	<b>1,512,137</b>

**Jackson Street**

Month	2007	2008	2009	2010	2011	2012	2013
January	1,142,778	790,335	769,226	957,096	926,654	774,271	501,065
February	974,878	778,410	702,625	984,242	1,181,932	627,951	324,078
March	1,242,256	939,700	634,481	1,199,387	1,382,040	441,216	293,412
April	1,059,473	891,593	787,590	1,057,330	1,107,757	404,566	293,516
May	861,426	976,874	799,035	844,048	821,629	315,281	422,419
June	772,822	737,986	818,420	810,590	910,306	42,916	422,650
July	863,950	572,561	711,158	721,716	780,844	359,752	314,109
August	734,808	730,770	919,719	604,587	965,958	318,684	509,303
September	886,369	519,453	841,158	749,493	921,690	198,200	494,650
October	798,710	605,374	914,658	944,132	629,923	264,568	387,968
November	762,118	723,646	865,060	899,283	1,031,928	356,193	348,340
December	849,654	839,361	1,062,719	962,383	599,409	381,393	405,984
<b>Total flow (gpd)</b>	<b>10,949,242</b>	<b>9,106,063</b>	<b>9,825,849</b>	<b>10,734,287</b>	<b>11,260,070</b>	<b>4,484,991</b>	<b>4,717,494</b>
<b>Average daily (gpd)</b>	<b>912,437</b>	<b>758,839</b>	<b>818,821</b>	<b>894,524</b>	<b>938,339</b>	<b>373,749</b>	<b>393,125</b>

	2007	2008	2009	2010	2011	2012	2013
<b>Average daily to NMWA (gpd)</b>	1,973,265	1,957,216	1,776,566	2,027,275	2,356,834	1,830,048	1,905,261
<b>Total precipitation (inch)</b>	39.57	41.78	48.17	44.06	54.19	44.56	49.64

**Appendix I**  
**Sanitary Sewer Repair 2013**

**APPENDIX I  
2013 SANITARY SEWER REPAIR  
WEST NORRITON TOWNSHIP**

2013 - 2014 Sewer Repairs	Quantity	Unit	Drainage Basin
Laterals			
Lateral Heavy Cleaning and Televized	185	EA	Low Jackson Street Basin
Lateral Replacement	5	EA	Low Jackson Street Basin
Lateral CIPP Lining	68	EA	Low Jackson Street Basin
Lateral reinstatement and Sealing	0	EA	Low Jackson Street Basin
			Low Jackson Street Basin
Sewer Main			
Heavy Cleaning and Televized	51	EA	Low Jackson Street Basin
Gravity Sewer Replacement	200	LF	Low Jackson Street Basin
Manhole to Manhole CIPP Lining	470	LF	Low Jackson Street Basin
Sewer Main CIPP Lining	5045	LF	Low Jackson Street Basin
Lateral reinstatement and Sealing	5	EA	Low Jackson Street Basin
Gravity sewer Spot repairs	15	EA	Low Jackson Street Basin

## 2013 Laterals Repaired to date West Norriton Township

1. Repaired laterals from main to 1 foot inside curb. Property owner is responsible to repair the lateral from where township stopped within 6 months after.
2. The following are number of sanitary lateral lined by CIPP lining during 2013:
  - A. William Way: 6
    - House Number: 1717,1718,1706,1642, 1627, 1711
  - B. David Lane: 2
    - House Number:103, 116
  - C. Sheriden Lane: 9
    - House Number:1653, 1649 ,1633, 1637, 1615, 1650, 1610, 1616, 1630
  - D. Hartranfth Avenue: 3
    - House Number: 1640, 1646, 1650
  - E. Prospect Avenue: 29
    - House Number:5, 8, 10, 14, 15, 16, 19, 20, 23, 24, 27, 31, 32, 35, 36, 39, 40, 42, 43, 47, 48, 50, 55, 56, 58, 64, 66, 67
  - F. Colonial Avenue: 16
    - House Number: 5, 10, 11, 16, 21, 22, 30, 31, 40, 41, 46, 51, 52, 58, 59, 75
  - G. Forrest Avenue: 6
    - House Number: 303, 305, 307, 421
  - H. Centre Avenue: 1
    - House Number: 75
3. Laterals have been replaced:
  - 65 Montgomery Avenue
  - 70 Montgomery Avenue
  - 86 Montgomery Avenue
  - 26a Centre Avenue
  - 74 Centre Avenue
  - 1710 Williams Way
  - 1715a Williams Way
  - 1747 Williams Way
  - 1657 Sheridan Lane
  - 28 Prospect Avenue
  - 63 Prospect Avenue
  - 76 Prospect Avenue
4. New connection from on-lot Sewer System (OLDS) in 2013:
  - Two residences on Markley Farms – OLDS have failed and have connected to system February 2013
  - One OLDS 265 Carey lane – OLDS failure connected March 2013

**Appendix J**  
**Hydraulic Loading and Wet Weather Flow**  
**Data Calendar Days 1-inch Rainfall Plus**

**APPENDIX J**

**Rittenhouse Pump Station  
Precipitation Greater than 1-inch in 2013  
West Norriton Township**

<b>Flow Monitoring</b>				
<b>Date</b>	<b>Maximum Flow (mgd)</b>	<b>Peak Instantaneous Flow (%)</b>	<b>Peak Instantaneous Flow (mgd)</b>	<b>Precipitation (inches)</b>
<b>Friday, June 7, 2013</b>	6.65	116%	7.70	2.33
<b>Monday, June 10, 2013</b>	6.65	122%	8.11	2.71
<b>Wednesday, June 26, 2013</b>	6.65	67%	4.46	0.94
<b>Monday, July 1, 2013</b>	6.65	117%	7.78	1.04
<b>Tuesday, July 2, 2013</b>	6.65	43%	2.88	1.04
<b>Wednesday, July 3, 2013</b>	6.65	38%	2.52	1.04
<b>Friday, July 12, 2013</b>	6.65	106%	7.06	0.95
<b>Tuesday, July 23, 2013</b>	6.65	55%	3.67	1.67
<b>Thursday, August 1, 2013</b>	6.65	119%	7.92	1.14
<b>Wednesday, August 28, 2013</b>	6.65	74%	4.90	1.36
<b>Friday, October 11, 2013</b>	6.65	71%	4.75	1.23
<b>Sunday, December 29, 2013</b>	6.65	NOT AVAILBALE	***	1.04

**AVERAGE =                      84%                      5.613                      1.37**

Note: \*\*\* chart recorder did not plot

**APPENDIX J**

**Jackson Street Gravity Line  
Precipitation Greater than 1-inch in 2013  
West Norriton Township**

<b>Flow Monitoring</b>				
<b>Date</b>	<b>NMWA Flow (mgd) try not to exceed</b>	<b>Peak Instantaneous Flow (%)</b>	<b>Peak Instantaneous Flow (mgd)</b>	<b>Precipitation (inches)</b>
<b>Friday, June 7, 2013</b>	1.50	25%	0.37	2.33
<b>Monday, June 10, 2013</b>	1.50	34%	0.51	2.71
<b>Wednesday, June 26, 2013</b>	1.50	33%	0.50	0.94
<b>Monday, July 1, 2013</b>	1.50	26%	0.39	1.04
<b>Tuesday, July 2, 2013</b>	1.50	33%	0.49	1.04
<b>Wednesday, July 3, 2013</b>	1.50	31%	0.46	1.04
<b>Tuesday, July 23, 2013</b>	1.50	21%	0.32	1.67
<b>Thursday, August 1, 2013</b>	1.50	45%	0.68	1.14
<b>Wednesday, August 28, 2013</b>	1.50	44%	0.66	1.36
<b>Friday, October 11, 2013</b>	1.50	45%	0.67	1.23
<b>Sunday, December 29, 2013</b>	1.50	NOT AVAILBALE	***	1.04

**AVERAGE =                      34%                      0.505                      1.41**

Note: \*\*\* Chart recorder did not plot

# Weather History for Philadelphia, PA

Month of January, 2013

Month of January, 2013

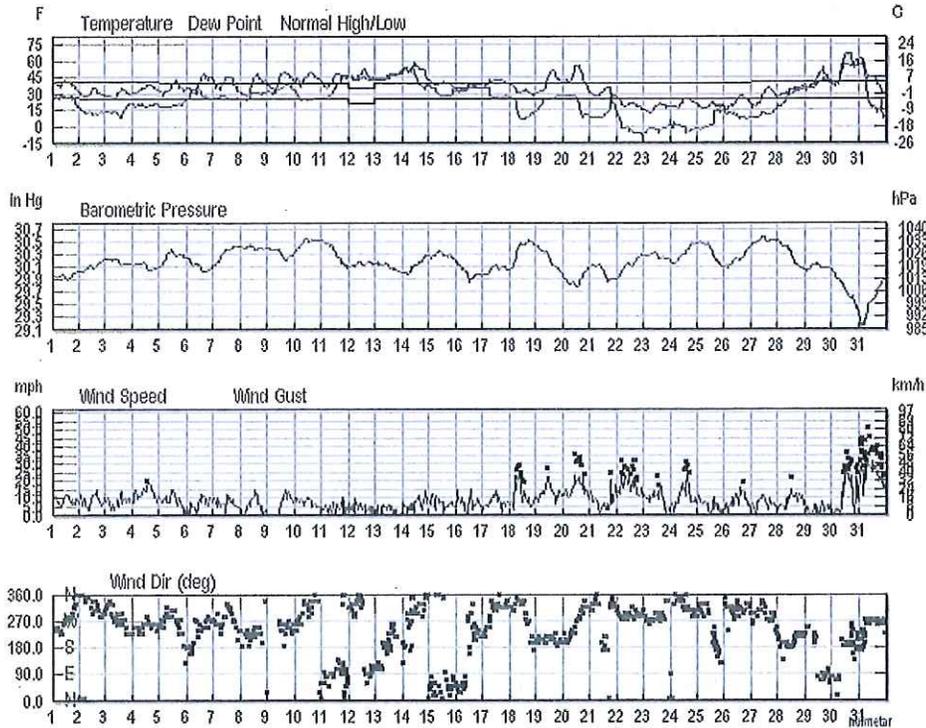
« Previous Month

January 1 2013 View

Next Month »

Daily Weekly Monthly Custom

	Max	Avg	Min	Sum
<b>Temperature</b>				
Max Temperature	68 °F	43 °F	22 °F	
Mean Temperature	53 °F	37 °F	17 °F	
Min Temperature	43 °F	29 °F	12 °F	
<b>Degree Days</b>				
Heating Degree Days (base 65)	48	28	12	881
Cooling Degree Days (base 65)	0	0	0	0
Growing Degree Days (base 50)	2	0	0	2
<b>Dew Point</b>				
Dew Point	59 °F	25 °F	-8 °F	
<b>Precipitation</b>				
Precipitation	0.85 in	0.12 in	0.00 in	3.34 in
Snowdepth	1.0 in	0.1 in	0.0 in	-
<b>Wind</b>				
Wind	41 mph	9 mph	0 mph	
Gust Wind	52 mph	23 mph	16 mph	
<b>Sea Level Pressure</b>				
Sea Level Pressure	30.59 in	30.16 in	29.11 in	



Certify This Report

Monthly Calendar Weather History Overview

Precipitation: Actual month total 3.34 Normal month total 3.03

Print This Weather Calendar

Print This Weather Calendar

« Previous Month « 2012 January 2013 2014 » Next Month »

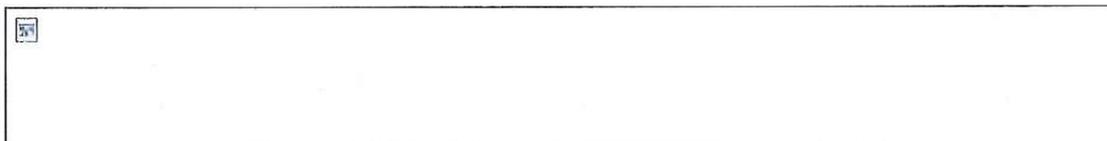
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
		Actual: 42   33 Precip: 0.00 Average: 41   27 Precip: 0.09	Actual: 35   27 Precip: 0.00 Average: 41   26 Precip: 0.10	Actual: 35   25 Precip: 0.00 Average: 41   26 Precip: 0.09	Actual: 40   30 Precip: 0.00 Average: 41   26 Precip: 0.10	Actual: 42   28 Precip: 0.00 Average: 40   26 Precip: 0.10
6	7	8	9	10	11	12
Actual: 48   32 Precip: 0.09 Average: 40   26 Precip: 0.09	Actual: 47   31 Precip: 0.00 Average: 40   26 Precip: 0.10	Actual: 49   27 Precip: 0.00 Average: 40   26 Precip: 0.09	Actual: 53   31 Precip: T Average: 40   26 Precip: 0.10	Actual: 50   36 Precip: 0.00 Average: 40   26 Precip: 0.10	Actual: 50   34 Precip: 0.68 Average: 40   26 Precip: 0.10	Actual: 53   43 Precip: 0.00 Average: 36   22 Precip: 0.04
13	14	15	16	17	18	19
Actual: 51   43 Precip: T Average: 40   25 Precip: 0.10	Actual: 58   42 Precip: 0.20 Average: 40   25 Precip: 0.10	Actual: 42   36 Precip: 0.35 Average: 40   25 Precip: 0.10	Actual: 39   35 Precip: 0.85 Average: 40   25 Precip: 0.10	Actual: 43   38 Precip: 0.00 Average: 40   25 Precip: 0.10	Actual: 39   29 Precip: T Average: 40   25 Precip: 0.10	Actual: 52   30 Precip: 0.00 Average: 40   25 Precip: 0.09
20	21	22	23	24	25	26
Actual: 57   32 Precip: 0.00 Average: 40   25 Precip: 0.10	Actual: 36   27 Precip: 0.05 Average: 40   25 Precip: 0.10	Actual: 27   15 Precip: 0.00 Average: 40   25 Precip: 0.09	Actual: 22   12 Precip: 0.00 Average: 40   25 Precip: 0.10	Actual: 27   17 Precip: 0.00 Average: 40   25 Precip: 0.10	Actual: 24   17 Precip: 0.07 Average: 40   25 Precip: 0.10	Actual: 29   14 Precip: 0.00 Average: 40   26 Precip: 0.09
27	28	29	30	31		
Actual: 36   17 Precip: 0.00 Average: 41   26 Precip: 0.10	Actual: 38   27 Precip: 0.11 Average: 41   26 Precip: 0.09	Actual: 54   35 Precip: 0.00 Average: 41   26 Precip: 0.11	Actual: 68   38 Precip: 0.32 Average: 41   26 Precip: 0.10	Actual: 62   30 Precip: 0.62 Average: 41   26 Precip: 0.10		

Calendar Legend

Sunny Clear  
 Mostly Cloudy Partly Sunny  
 Partly Cloudy Mostly  
 Sunny  
 Cloudy  
 Rain  
 Snow  
 Hail  
 Thunderstorms  
 Flurries  
 Hazy Fog  
 Sleet  
 ? denotes chance  
 Unknown

Actual:	90   58	Data Category
Precip:	0.00	Condition
Average:	71   53	High Temp.
Precip:	0.03	Lo Temp.
		Precip. (in inches)
		Daily Avg. Temp.
		Temp. in °F

90-30 0 30 60 90 120



Daily Weather History & Observations

2013	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)		Precip. (in)	Events
	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg		
Jan	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high	sum
1	42	38	33	29	26	18	70	61	51	30.04	29.96	29.90	10	10	10	15	9	21	0.00
2	35	31	27	16	13	11	53	44	35	30.22	30.11	30.02	10	10	10	17	9	22	0.00

Comma Delimited File

2013	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
3	35	30	25	21	15	8	69	52	35	30.24	30.19	30.14	10	10	10	17	8	21	0.00	
4	40	35	30	22	20	19	69	57	44	30.17	30.11	30.05	10	10	10	23	13	29	0.00	
5	42	35	28	25	20	18	69	54	39	30.37	30.27	30.11	10	10	8	17	8	23	0.00	
6	48	40	32	34	29	25	96	69	42	30.25	30.14	30.02	10	7	2	15	7	18	0.09	Snow
7	47	39	31	28	27	25	75	60	45	30.43	30.33	30.12	10	10	10	15	7	23	0.00	
8	49	38	27	32	29	25	85	68	50	30.45	30.41	30.38	10	9	7	16	6	18	0.00	
9	53	42	31	39	35	30	96	79	61	30.40	30.32	30.20	10	9	7	17	6	23	T	
10	50	43	36	33	26	24	79	58	36	30.56	30.49	30.35	10	10	10	14	7	16	0.00	
11	50	42	34	46	39	26	100	77	53	30.52	30.26	30.09	10	6	2	13	4	20	0.68	Rain
12	53	48	43	45	43	42	100	91	74	30.18	30.14	30.10	7	4	0	9	5	-	0.00	Fog
13	51	47	43	50	45	43	100	96	92	30.17	30.10	30.01	4	1	0	8	3	10	T	Fog , Rain
14	58	50	42	54	47	34	100	75	50	30.29	30.11	29.98	10	5	0	20	7	24	0.20	Fog , Rain
15	42	39	36	39	32	28	92	76	60	30.36	30.28	30.21	10	9	4	14	7	21	0.35	Rain
16	39	37	35	36	34	32	92	89	85	30.19	30.02	29.85	9	5	2	21	7	24	0.85	Rain
17	43	41	38	37	30	26	92	73	53	30.12	30.06	29.98	10	9	6	17	8	22	0.00	
18	39	34	29	27	15	7	64	48	32	30.52	30.36	30.06	10	10	10	29	11	37	T	Snow
19	52	41	30	29	24	14	70	54	38	30.43	30.23	29.96	10	10	10	23	13	29	0.00	
20	57	45	32	29	22	9	60	41	21	30.09	29.90	29.78	10	10	10	31	15	39	0.00	
21	36	32	27	27	17	8	92	64	36	30.13	29.97	29.87	10	7	0	22	7	28	0.05	Fog , Snow
22	27	21	15	11	-2	-8	55	43	31	30.30	30.13	29.92	10	10	10	26	16	35	0.00	
23	22	17	12	2	-3	-6	58	46	33	30.33	30.26	30.20	10	10	10	21	9	26	0.00	
24	27	22	17	6	0	-5	61	43	25	30.49	30.31	30.15	10	10	10	24	10	36	0.00	
25	24	21	17	16	9	-3	92	66	39	30.50	30.27	30.10	10	6	1	14	5	18	0.07	Snow
26	29	22	14	13	10	7	88	64	39	30.43	30.22	30.09	10	9	7	20	8	24	0.00	
27	36	27	17	16	11	8	67	51	35	30.59	30.52	30.45	10	10	10	16	7	21	0.00	
28	38	33	27	35	29	18	92	78	63	30.52	30.29	30.06	10	4	1	16	9	22	0.11	Rain , Snow
29	54	45	35	45	39	33	100	86	71	30.16	30.10	30.04	8	4	2	12	3	13	0.00	
30	68	53	38	57	51	37	100	84	68	30.05	29.72	29.35	10	6	2	27	10	37	0.32	Fog , Rain
31	62	46	30	59	40	7	93	61	29	29.89	29.39	29.11	10	8	2	41	24	52	0.62	Rain , Snow

Comma Delimited File

# Weather History for Philadelphia, PA

Month of February, 2013

Month of February, 2013

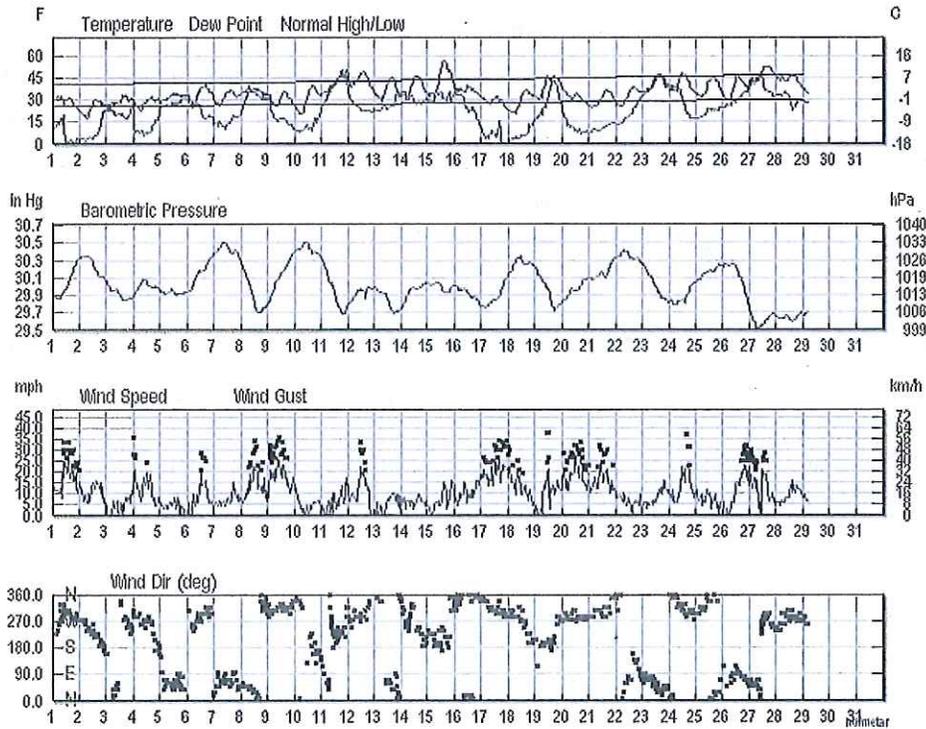
« Previous Month

February 1 2013 View

Next Month »

Daily Weekly Monthly Custom

	Max	Avg	Min	Sum
<b>Temperature</b>				
Max Temperature	57 °F	42 °F	30 °F	
Mean Temperature	47 °F	35 °F	24 °F	
Min Temperature	41 °F	29 °F	18 °F	
<b>Degree Days</b>				
Heating Degree Days (base 65)	41	30	18	829
Cooling Degree Days (base 65)	0	0	0	0
Growing Degree Days (base 50)	0	0	0	0
<b>Dew Point</b>				
Dew Point	48 °F	23 °F	-1 °F	
<b>Precipitation</b>				
Precipitation	0.49 in	0.11 in	0.00 in	2.12 in
Snowdepth	1.0 in	0.0 in	0.0 in	-
<b>Wind</b>				
Wind	31 mph	10 mph	0 mph	
Gust Wind	40 mph	24 mph	16 mph	
<b>Sea Level Pressure</b>				
Sea Level Pressure	30.51 in	30.01 in	29.51 in	



Certify This Report

Precipitation: Actual month total 2.12 Normal month total 2.65

Print This Weather Calendar

Print This Weather Calendar

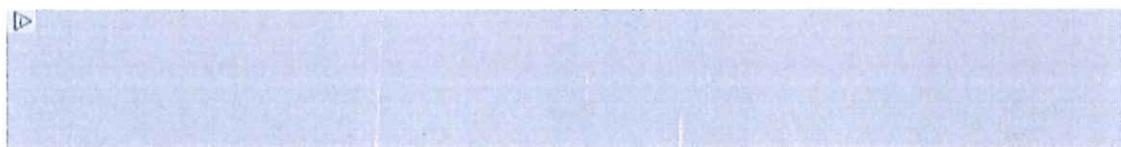
« Previous Month « 2012 February 2013 2014 » Next Month »

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
					Actual: 32   23 Precip: T Average: 41   26 Precip: 0.10	Actual: 30   18 Precip: 0.03 Average: 41   26 Precip: 0.10
3	4	5	6	7	8	9
Actual: 33   26 Precip: 0.01 Average: 41   26 Precip: 0.09	Actual: 32   23 Precip: T Average: 42   26 Precip: 0.10	Actual: 35   29 Precip: 0.01 Average: 42   26 Precip: 0.10	Actual: 42   26 Precip: T Average: 42   26 Precip: 0.10	Actual: 37   25 Precip: 0.00 Average: 42   27 Precip: 0.09	Actual: 39   33 Precip: 0.34 Average: 42   27 Precip: 0.09	Actual: 35   26 Precip: 0.11 Average: 42   27 Precip: 0.10
10	11	12	13	14	15	16
Actual: 41   21 Precip: 0.00 Average: 43   27 Precip: 0.09	Actual: 51   34 Precip: 0.49 Average: 43   27 Precip: 0.09	Actual: 49   35 Precip: 0.00 Average: 43   27 Precip: 0.09	Actual: 46   29 Precip: 0.26 Average: 43   27 Precip: 0.09	Actual: 47   32 Precip: T Average: 44   28 Precip: 0.09	Actual: 57   31 Precip: T Average: 44   28 Precip: 0.10	Actual: 40   32 Precip: 0.02 Average: 44   28 Precip: 0.09
17	18	19	20	21	22	23
Actual: 32   23 Precip: T Average: 44   28 Precip: 0.09	Actual: 38   21 Precip: 0.00 Average: 44   28 Precip: 0.10	Actual: 46   29 Precip: 0.21 Average: 45   28 Precip: 0.09	Actual: 38   27 Precip: T Average: 45   29 Precip: 0.09	Actual: 37   25 Precip: 0.00 Average: 45   29 Precip: 0.09	Actual: 39   25 Precip: T Average: 46   29 Precip: 0.10	Actual: 48   35 Precip: 0.12 Average: 46   29 Precip: 0.10
24	25	26	27	28		
Actual: 49   34 Precip: T Average: 46   29 Precip: 0.09	Actual: 47   31 Precip: 0.00 Average: 46   30 Precip: 0.10	Actual: 47   28 Precip: 0.39 Average: 47   30 Precip: 0.10	Actual: 53   41 Precip: 0.12 Average: 47   30 Precip: 0.09	Actual: 47   38 Precip: 0.01 Average: 47   30 Precip: 0.10		

Calendar Legend

Sunny Clear   
 Mostly Cloudy Partly Sunny   
 Partly Cloudy Mostly Sunny   
 Cloudy   
 Rain   
 Snow  
 Flurries   
 Thunderstorms   
 Sunny   
 Hazy Fog   
 Sleet   
 '?' denotes 'chance' of   
 Unknown

Actual:	90   58	Data Category
Precip:	0.00	Condition
Average:	71   53	High Temp.
Precip:	0.03	Lo Temp.
		Precip. (In inches)
		Daily Avg. Temp.
		Temps in °F
		-60 -30 0 30 60 90 120



Daily Weather History & Observations

2013	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high	high	avg	high		
Feb																				
1	32	28	23	19	10	1	63	46	28	30.32	30.01	29.86	10	9	2	30	17	36	T	Snow
2	30	24	18	23	12	2	84	59	34	30.35	30.19	30.06	10	7	2	18	11	24	0.03	Snow

Comma Delimited File

2013	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
3	33	30	26	27	22	15	92	72	51	30.06	29.92	29.84	10	8	2	25	5	36	0.01	Snow
4	32	28	23	25	12	6	58	47	36	30.08	29.99	29.90	10	9	4	26	12	36	T	Snow
5	35	32	29	31	28	25	92	84	75	29.97	29.93	29.90	8	5	2	9	4	13	0.01	Snow
6	42	34	26	31	23	13	92	65	38	30.38	30.14	29.95	10	6	2	22	8	29	T	Snow
7	37	31	25	21	15	10	63	50	37	30.50	30.42	30.27	10	10	10	15	7	23	0.00	
8	39	36	33	36	33	26	92	77	61	30.21	29.86	29.70	10	6	2	28	13	37	0.34	Rain , Snow
9	35	31	26	31	20	10	89	67	44	30.40	30.04	29.80	10	8	1	31	17	40	0.11	Snow
10	41	31	21	25	12	8	64	46	27	30.51	30.42	30.33	10	10	10	17	5	22	0.00	
11	51	43	34	48	40	26	100	85	69	30.30	29.92	29.69	10	4	0	20	7	24	0.49	Fog , Rain
12	49	42	35	35	25	22	76	56	36	29.99	29.93	29.80	10	10	10	28	10	35	0.00	
13	46	38	29	34	29	23	96	73	49	29.99	29.79	29.69	10	7	2	14	5	29	0.26	Rain , Snow
14	47	40	32	34	31	27	96	71	45	30.04	29.93	29.75	10	7	4	12	6	16	T	Snow
15	57	44	31	36	32	28	92	64	35	30.05	30.00	29.93	10	8	3	18	7	22	T	Rain
16	40	36	32	36	27	12	92	67	41	30.01	29.92	29.78	10	9	6	22	11	28	0.02	Rain , Snow
17	32	28	23	15	5	-1	43	36	28	30.12	29.88	29.76	10	10	10	30	19	39	T	Snow
18	38	30	21	15	7	0	47	37	27	30.34	30.25	30.14	10	10	10	30	12	38	0.00	
19	46	38	29	43	33	17	92	70	47	30.21	29.90	29.72	10	8	4	24	10	38	0.21	Rain
20	38	33	27	23	11	7	59	47	35	30.09	29.96	29.83	10	10	10	28	18	38	T	
21	37	31	25	14	11	8	53	44	35	30.32	30.16	30.07	10	10	10	26	15	36	0.00	
22	39	32	25	32	21	13	82	66	50	30.42	30.33	30.26	10	10	8	13	6	17	T	Snow
23	48	42	35	46	40	32	100	95	89	30.27	30.01	29.81	10	4	1	17	8	23	0.12	Rain
24	49	42	34	38	30	17	92	66	40	30.05	29.87	29.79	10	9	5	29	13	38	T	
25	47	39	31	25	22	18	69	54	38	30.25	30.16	30.06	10	10	10	15	7	22	0.00	
26	47	38	28	38	32	25	92	73	53	30.26	30.07	29.77	10	8	3	25	11	33	0.39	Rain
27	53	47	41	46	41	32	92	73	54	29.72	29.59	29.51	10	5	0	24	12	33	0.12	Fog , Rain
28	47	43	38	35	30	23	70	54	38	29.70	29.64	29.60	10	10	10	18	9	25	0.01	Rain

Comma Delimited File

# Weather History for Philadelphia, PA

Month of March, 2013

Month of March, 2013

« Previous Month

March 1 2013 View

Next Month »

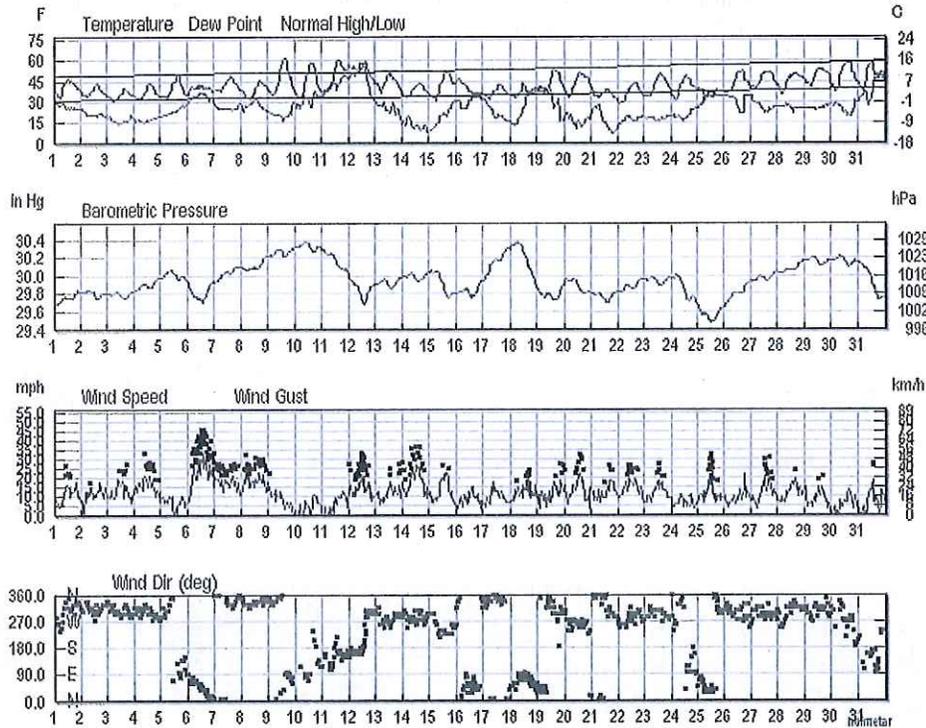
Daily

Weekly

Monthly

Custom

	Max	Avg	Min	Sum
<b>Temperature</b>				
Max Temperature	62 °F	49 °F	39 °F	
Mean Temperature	51 °F	41 °F	35 °F	
Min Temperature	43 °F	33 °F	28 °F	
<b>Degree Days</b>				
Heating Degree Days (base 65)	30	24	14	729
Cooling Degree Days (base 65)	0	0	0	0
Growing Degree Days (base 50)	2	0	0	2
<b>Dew Point</b>				
Dew Point	55 °F	26 °F	6 °F	
<b>Precipitation</b>				
Precipitation	0.90 in	0.11 in	0.00 in	2.42 in
Snowdepth	1.0 in	0.0 in	0.0 in	-
<b>Wind</b>				
Wind	39 mph	11 mph	0 mph	
Gust Wind	49 mph	23 mph	16 mph	
<b>Sea Level Pressure</b>				
Sea Level Pressure	30.38 in	29.95 in	29.48 in	



Certify This Report

Precipitation: Actual month total 2.42 Normal month total 3.79

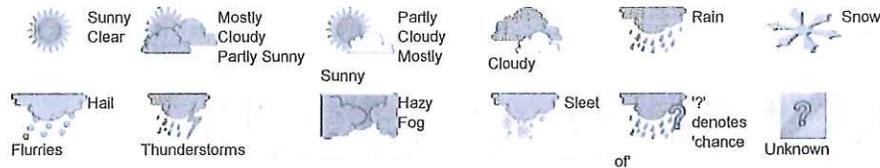
Print This Weather Calendar

Print This Weather Calendar

« Previous Month « 2012 March 2013 2014 » Next Month »

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
					Actual: 46   31 Precip: 0.00 Average: 48   30 Precip: 0.10	Actual: 42   34 Precip: T Average: 48   31 Precip: 0.11
3	4	5	6	7	8	9
Actual: 40   29 Precip: 0.00 Average: 48   31 Precip: 0.10	Actual: 42   31 Precip: 0.00 Average: 49   31 Precip: 0.11	Actual: 49   31 Precip: 0.00 Average: 49   31 Precip: 0.10	Actual: 41   35 Precip: 0.13 Average: 49   32 Precip: 0.11	Actual: 48   37 Precip: T Average: 50   32 Precip: 0.12	Actual: 45   31 Precip: 0.02 Average: 50   32 Precip: 0.12	Actual: 62   35 Precip: 0.00 Average: 50   32 Precip: 0.11
10	11	12	13	14	15	16
Actual: 59   31 Precip: 0.00 Average: 51   33 Precip: 0.12	Actual: 60   36 Precip: 0.00 Average: 51   33 Precip: 0.11	Actual: 59   43 Precip: 0.90 Average: 51   33 Precip: 0.11	Actual: 51   36 Precip: T Average: 52   33 Precip: 0.12	Actual: 43   32 Precip: T Average: 52   34 Precip: 0.12	Actual: 52   29 Precip: 0.00 Average: 52   34 Precip: 0.13	Actual: 47   35 Precip: 0.04 Average: 53   34 Precip: 0.13
17	18	19	20	21	22	23
Actual: 43   31 Precip: 0.00 Average: 53   35 Precip: 0.13	Actual: 42   32 Precip: 0.48 Average: 53   35 Precip: 0.13	Actual: 53   38 Precip: 0.21 Average: 54   35 Precip: 0.13	Actual: 50   31 Precip: 0.00 Average: 54   35 Precip: 0.13	Actual: 40   30 Precip: T Average: 54   36 Precip: 0.14	Actual: 45   28 Precip: T Average: 55   36 Precip: 0.13	Actual: 50   31 Precip: 0.00 Average: 55   36 Precip: 0.12
24	25	26	27	28	29	30
Actual: 48   29 Precip: 0.00 Average: 56   37 Precip: 0.14	Actual: 39   33 Precip: 0.46 Average: 56   37 Precip: 0.13	Actual: 52   35 Precip: T Average: 56   37 Precip: 0.13	Actual: 52   37 Precip: T Average: 57   38 Precip: 0.14	Actual: 49   35 Precip: T Average: 57   38 Precip: 0.13	Actual: 54   38 Precip: 0.00 Average: 57   38 Precip: 0.13	Actual: 59   35 Precip: 0.00 Average: 58   39 Precip: 0.13
31						
Actual: 59   37 Precip: 0.18 Average: 58   39 Precip: 0.13						

Calendar Legend



Actual:	90   58	Data Category
Precip:	0.00	Condition
Average:	71   53	High Temp.
Precip:	0.03	Lo Temp.
		Precip. (in inches)
		Daily Avg. Temp.
		Temps in °F
		60 30 0 30 60 90 120

**SPECIAL!** BUY 1 MONTH, GET 1 FREE!

Interactive, Online Education for PreK - 12th

MATH ENGLISH SCIENCE SOCIAL STUDIES

TIME 4 LEARNING®

Get Details >>>

Daily Weather History & Observations

2013	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high	sum	
1	46	39	31	29	26	24	82	64	45	29.84	29.76	29.67	10	10	10	22	11	26	0.00	
2	42	38	34	24	21	19	59	49	39	29.84	29.81	29.75	10	10	10	20	11	25	T	
3	40	35	29	20	16	13	58	48	37	29.83	29.79	29.75	10	10	10	23	13	28	0.00	
4	42	37	31	19	17	14	56	45	33	29.99	29.90	29.84	10	10	10	25	15	33	0.00	
5	49	40	31	28	22	19	70	53	36	30.06	30.01	29.94	10	10	10	16	7	20	0.00	
6	41	38	35	36	34	29	85	78	70	29.94	29.80	29.71	10	9	5	39	22	49	0.13	Rain
7	48	43	37	28	25	23	76	57	38	30.11	30.04	29.93	10	10	10	24	17	31	T	Snow
8	45	38	31	32	27	22	92	69	46	30.23	30.10	30.07	10	6	1	25	18	32	0.02	Rain , Snow
9	62	49	35	29	20	15	64	41	18	30.32	30.27	30.22	10	10	10	20	8	24	0.00	
10	59	45	31	37	30	24	85	58	30	30.38	30.33	30.27	10	10	10	14	5	24	0.00	
11	60	48	36	48	40	33	100	72	44	30.30	30.22	30.07	10	6	0	16	6	22	0.00	Fog
12	59	51	43	55	51	31	93	73	53	30.01	29.80	29.69	10	6	0	24	14	33	0.90	Fog , Rain
13	51	44	36	30	24	18	70	51	32	29.98	29.92	29.86	10	10	10	29	12	35	T	Rain
14	43	38	32	19	13	8	54	39	24	30.04	30.00	29.95	10	10	10	30	17	47	T	Snow
15	52	41	29	30	18	8	62	45	28	30.06	29.93	29.76	10	10	10	25	13	33	0.00	
16	47	41	35	33	30	24	92	69	45	29.95	29.83	29.76	10	8	3	17	9	21	0.04	Rain , Snow
17	43	37	31	32	23	16	89	65	40	30.31	30.12	29.94	10	10	8	20	9	23	0.00	
18	42	37	32	37	28	12	92	67	41	30.38	30.17	29.91	10	6	2	21	12	25	0.48	Rain
19	53	46	38	38	35	15	92	61	29	29.90	29.81	29.73	10	6	2	23	12	31	0.21	Rain
20	50	41	31	21	16	10	61	41	21	29.96	29.89	29.80	10	10	10	26	13	36	0.00	
21	40	35	30	27	19	6	78	54	29	29.83	29.78	29.70	10	9	2	23	12	28	T	Snow
22	45	37	28	19	17	10	58	46	33	29.97	29.88	29.82	10	10	10	24	14	32	T	Snow
23	50	41	31	19	17	16	56	41	26	29.98	29.95	29.89	10	10	10	23	12	36	0.00	
24	48	39	29	24	19	16	63	46	29	30.01	29.87	29.71	10	10	10	8	6	10	0.00	
25	39	36	33	34	32	25	96	75	54	29.68	29.55	29.48	10	6	1	26	12	32	0.46	Rain , Snow
26	52	44	35	34	30	21	92	61	30	29.93	29.79	29.66	10	10	7	24	9	30	T	Rain
27	52	45	37	33	26	21	79	55	30	30.05	29.98	29.93	10	10	10	26	12	33	T	
28	49	42	35	28	25	21	70	52	34	30.17	30.08	30.04	10	10	10	21	12	26	T	
29	54	46	38	27	25	23	54	43	32	30.20	30.16	30.12	10	10	10	20	9	24	0.00	
30	59	47	35	30	24	19	70	47	23	30.22	30.17	30.11	10	10	10	17	6	25	0.00	
31	59	48	37	48	41	27	100	66	32	30.16	29.89	29.73	10	7	2	15	7	27	0.18	Rain

Comma Delimited File

# Weather History for Philadelphia, PA

Month of April, 2013

Month of April, 2013

« Previous Month

April 1 2013 View

Next Month »

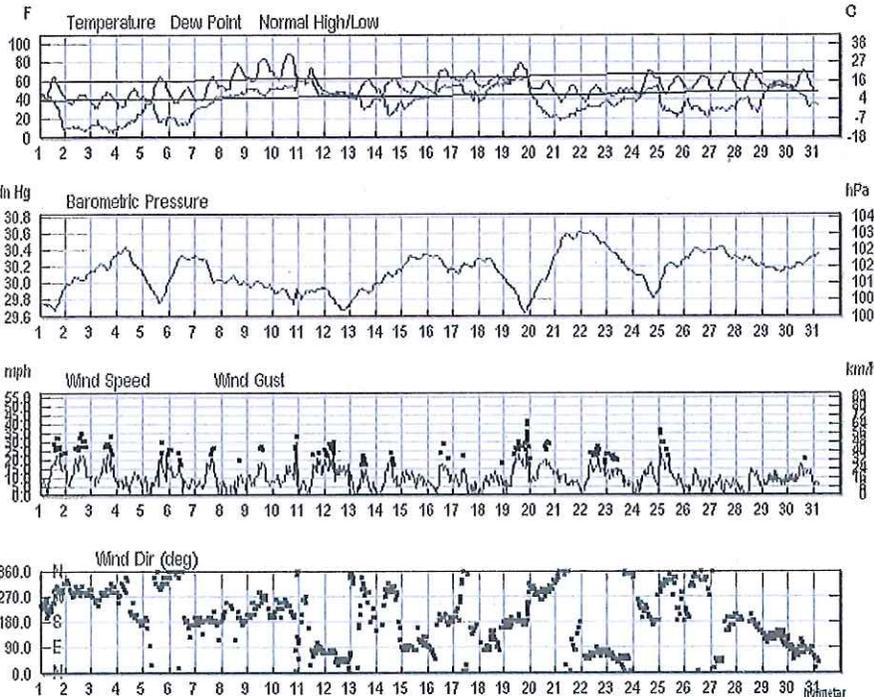
Daily

Weekly

Monthly

Custom

	Max	Avg	Min	Sum
<b>Temperature</b>				
Max Temperature	89 °F	65 °F	46 °F	
Mean Temperature	75 °F	55 °F	40 °F	
Min Temperature	60 °F	45 °F	31 °F	
<b>Degree Days</b>				
Heating Degree Days (base 65)	25	11	0	316
Cooling Degree Days (base 65)	10	1	0	17
Growing Degree Days (base 50)	24	7	0	196
<b>Dew Point</b>				
Dew Point	64 °F	37 °F	4 °F	
<b>Precipitation</b>				
Precipitation	1.23 in	0.10 in	0.00 in	2.32 in
Snowdepth	0.0 in	0.0 in	0.0 in	-
<b>Wind</b>				
Wind	36 mph	10 mph	0 mph	
Gust Wind	47 mph	23 mph	16 mph	
<b>Sea Level Pressure</b>				
Sea Level Pressure	30.63 in	30.14 in	29.64 in	



Certify This Report

Monthly Calendar Weather History Overview

Precipitation: Actual month total 2.32 Normal month total 3.56

Print This Weather Calendar

April 2013

« Previous Month

« 2012

2014 »

Next Month »

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6
	Actual: 66   39 Precip: T Average: 59   39 Precip: 0.13	Actual: 46   34 Precip: 0.00 Average: 59   40 Precip: 0.14	Actual: 49   31 Precip: 0.00 Average: 59   40 Precip: 0.13	Actual: 51   31 Precip: 0.00 Average: 60   40 Precip: 0.13	Actual: 65   39 Precip: 0.09 Average: 60   41 Precip: 0.13	Actual: 53   37 Precip: 0.00 Average: 60   41 Precip: 0.12
7	8	9	10	11	12	13
Actual: 64   39 Precip: 0.00 Average: 61   41 Precip: 0.12	Actual: 78   49 Precip: 0.00 Average: 61   42 Precip: 0.12	Actual: 84   57 Precip: 0.00 Average: 62   42 Precip: 0.12	Actual: 89   60 Precip: 0.14 Average: 62   42 Precip: 0.13	Actual: 74   50 Precip: 0.00 Average: 62   43 Precip: 0.12	Actual: 50   45 Precip: 1.23 Average: 63   43 Precip: 0.12	Actual: 62   42 Precip: 0.00 Average: 63   43 Precip: 0.12
14	15	16	17	18	19	20
Actual: 63   45 Precip: 0.00 Average: 63   44 Precip: 0.12	Actual: 61   47 Precip: 0.01 Average: 64   44 Precip: 0.12	Actual: 73   46 Precip: 0.00 Average: 64   44 Precip: 0.11	Actual: 73   54 Precip: T Average: 65   45 Precip: 0.12	Actual: 66   52 Precip: T Average: 65   45 Precip: 0.11	Actual: 78   53 Precip: 0.44 Average: 65   45 Precip: 0.11	Actual: 60   46 Precip: 0.11 Average: 66   46 Precip: 0.12
21	22	23	24	25	26	27
Actual: 55   37 Precip: 0.00 Average: 66   46 Precip: 0.11	Actual: 55   38 Precip: 0.00 Average: 66   46 Precip: 0.11	Actual: 51   43 Precip: T Average: 67   47 Precip: 0.12	Actual: 72   43 Precip: T Average: 67   47 Precip: 0.11	Actual: 65   46 Precip: 0.01 Average: 67   47 Precip: 0.11	Actual: 66   49 Precip: 0.00 Average: 68   48 Precip: 0.11	Actual: 69   47 Precip: 0.00 Average: 68   48 Precip: 0.12
28	29	30				
Actual: 71   48 Precip: T Average: 68   48 Precip: 0.11	Actual: 59   53 Precip: 0.28 Average: 69   49 Precip: 0.12	Actual: 71   48 Precip: 0.01 Average: 69   49 Precip: 0.10				

Calendar Legend

Sunny Clear  
 Mostly Cloudy Partly Sunny  
 Partly Cloudy Mostly Sunny  
 Cloudy  
 Rain  
 Snow  
 Hail Flurries  
 Thunderstorms  
 Hazy Fog  
 Sleet  
 '?' denotes 'chance of'  
 Unknown

Actual: 90   58	Data Category Condition High Temp. Lo Temp. Precip. (in inches) Daily Avg. Temp. Temps in °F -60 -30 0 30 60 90 120
Precip: 0.00	
Average: 71   53	
Precip: 0.03	

Daily Weather History & Observations

2013	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high		
Apr	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high	sum	
1	66	53	39	46	37	9	96	59	22	29.96	29.76	29.68	10	6	1	30	13	37	T	Fog , Rain
2	46	40	34	12	10	7	38	29	20	30.15	30.06	29.99	10	10	10	22	14	36	0.00	
3	49	40	31	18	11	4	54	37	19	30.34	30.23	30.16	10	10	10	28	13	35	0.00	
4	51	41	31	29	17	9	57	41	24	30.44	30.31	30.12	10	10	10	14	8	20	0.00	
5	65	52	39	37	28	14	85	51	16	30.11	29.93	29.77	10	8	4	26	11	32	0.09	Rain
6	53	45	37	28	18	13	60	41	21	30.34	30.27	30.06	10	10	10	20	8	25	0.00	

Comma Delimited File

2013	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
7	64	52	39	43	36	29	79	58	37	30.33	30.17	30.01	10	10	10	22	10	28	0.00	
8	78	64	49	52	45	42	77	54	30	30.09	30.03	29.98	10	10	10	16	5	24	0.00	
9	84	71	57	52	49	43	75	49	23	30.02	29.98	29.93	10	10	10	22	11	28	0.00	
10	89	75	60	61	54	50	93	62	31	29.93	29.88	29.76	10	9	4	36	10	47	0.14	Rain , Thunderstorm
11	74	62	50	61	54	45	93	77	61	29.95	29.91	29.81	10	9	5	22	11	28	0.00	
12	50	48	45	46	45	42	93	87	80	29.94	29.77	29.68	10	6	2	24	14	31	1.23	Rain
13	62	52	42	45	38	30	93	63	33	29.99	29.89	29.77	10	9	4	18	6	24	0.00	
14	63	54	45	42	33	23	86	56	25	30.17	30.09	29.99	10	10	10	23	8	30	0.00	
15	61	54	47	43	38	30	71	58	44	30.35	30.30	30.18	10	10	10	15	9	18	0.01	Rain
16	73	60	46	54	49	42	86	68	49	30.35	30.26	30.14	10	10	10	20	9	29	0.00	
17	73	64	54	56	49	39	84	59	33	30.30	30.20	30.11	10	10	10	16	6	25	T	
18	66	59	52	57	51	38	84	68	51	30.30	30.23	30.07	10	10	6	14	8	18	T	Rain
19	78	66	53	64	60	51	93	74	54	30.07	29.84	29.64	10	9	3	35	14	45	0.44	Rain , Thunderstorm
20	60	53	46	52	33	21	83	53	23	30.33	30.00	29.74	10	9	5	25	14	35	0.11	Rain
21	55	46	37	29	23	18	53	42	30	30.63	30.53	30.35	10	10	10	18	7	24	0.00	
22	55	47	38	39	33	29	76	61	46	30.62	30.56	30.46	10	10	10	22	13	28	0.00	
23	51	47	43	43	38	33	77	68	59	30.45	30.29	30.15	10	9	3	17	10	28	T	
24	72	58	43	54	47	38	92	71	49	30.15	30.01	29.83	10	9	6	30	10	46	T	
25	65	56	46	45	29	22	56	38	19	30.29	30.18	29.95	10	10	10	28	12	37	0.01	
26	66	58	49	40	30	22	66	43	20	30.43	30.38	30.30	10	10	10	18	6	24	0.00	
27	69	58	47	33	30	27	50	36	22	30.45	30.38	30.30	10	10	10	14	6	21	0.00	
28	71	60	48	42	35	26	77	50	23	30.32	30.27	30.21	10	10	10	17	6	23	T	
29	59	56	53	55	53	41	93	76	59	30.22	30.17	30.14	10	8	2	15	8	18	0.28	Rain
30	71	60	48	52	46	32	93	64	34	30.33	30.22	30.17	10	9	2	15	11	18	0.01	Rain

Comma Delimited File

# Weather History for Philadelphia, PA

Month of May, 2013

Month of May, 2013

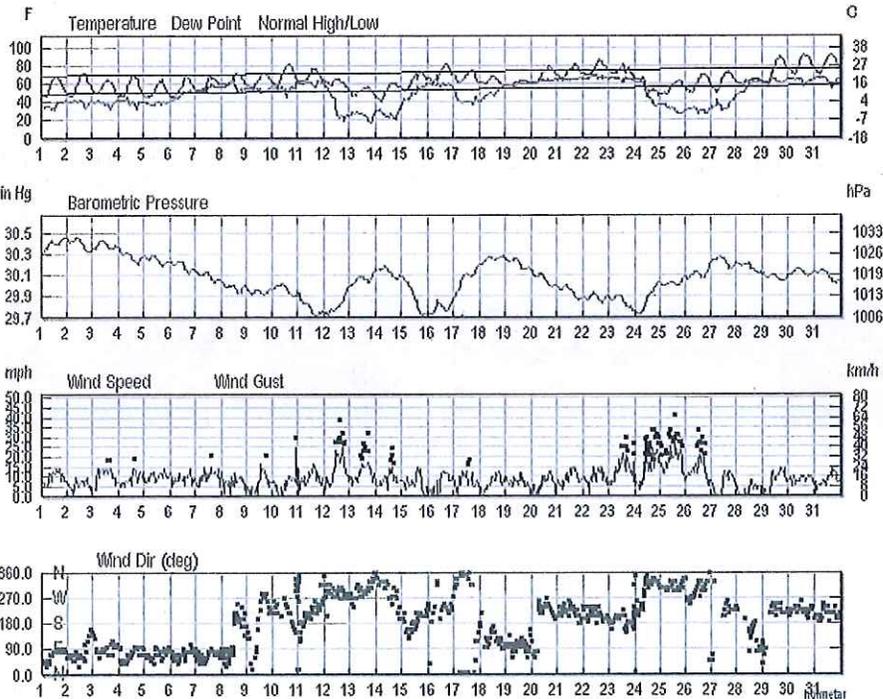
« Previous Month

May 1 2013 View

Next Month »

Daily Weekly Monthly Custom

	Max	Avg	Min	Sum
<b>Temperature</b>				
Max Temperature	93 °F	74 °F	57 °F	
Mean Temperature	82 °F	65 °F	52 °F	
Min Temperature	70 °F	55 °F	41 °F	
<b>Degree Days</b>				
Heating Degree Days (base 65)	13	3	0	105
Cooling Degree Days (base 65)	17	3	0	107
Growing Degree Days (base 50)	32	15	2	456
<b>Dew Point</b>				
Dew Point	70 °F	50 °F	18 °F	
<b>Precipitation</b>				
Precipitation	0.54 in	0.08 in	0.00 in	2.33 in
Snowdepth	0.0 in	0.0 in	0.0 in	-
<b>Wind</b>				
Wind	31 mph	9 mph	0 mph	
Gust Wind	41 mph	21 mph	16 mph	
<b>Sea Level Pressure</b>				
Sea Level Pressure	30.47 in	30.08 in	29.71 in	



Certify This Report

Monthly Calendar Weather History Overview

Precipitation: Actual month total 2.33 Normal month total 3.71

Print This Weather Calendar

« Previous Month

« 2012

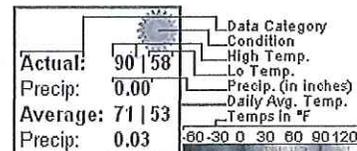
May 2013

2014 »

Next Month »

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4
			Actual: 69   46 Precip: 0.00 Average: 69   49 Precip: 0.10	Actual: 74   46 Precip: 0.00 Average: 70   50 Precip: 0.11	Actual: 65   48 Precip: 0.00 Average: 70   50 Precip: 0.11	Actual: 71   46 Precip: 0.00 Average: 70   50 Precip: 0.11
5	6	7	8	9	10	11
Actual: 65   46 Precip: 0.00 Average: 71   51 Precip: 0.11	Actual: 70   45 Precip: 0.00 Average: 71   51 Precip: 0.12	Actual: 71   53 Precip: 0.09 Average: 71   51 Precip: 0.11	Actual: 73   59 Precip: 0.41 Average: 71   51 Precip: 0.12	Actual: 73   57 Precip: 0.54 Average: 72   52 Precip: 0.11	Actual: 83   58 Precip: 0.30 Average: 72   52 Precip: 0.12	Actual: 79   63 Precip: 0.18 Average: 72   52 Precip: 0.12
12	13	14	15	16	17	18
Actual: 67   52 Precip: 0.13 Average: 73   53 Precip: 0.11	Actual: 57   46 Precip: 0.00 Average: 73   53 Precip: 0.12	Actual: 62   41 Precip: T Average: 73   53 Precip: 0.12	Actual: 75   53 Precip: 0.03 Average: 74   54 Precip: 0.12	Actual: 82   62 Precip: 0.07 Average: 74   54 Precip: 0.13	Actual: 76   60 Precip: 0.00 Average: 74   54 Precip: 0.12	Actual: 70   59 Precip: 0.13 Average: 74   55 Precip: 0.12
19	20	21	22	23	24	25
Actual: 64   59 Precip: 0.04 Average: 75   55 Precip: 0.12	Actual: 80   62 Precip: 0.00 Average: 75   55 Precip: 0.13	Actual: 83   67 Precip: 0.00 Average: 75   56 Precip: 0.13	Actual: 87   70 Precip: T Average: 76   56 Precip: 0.13	Actual: 82   66 Precip: 0.19 Average: 76   56 Precip: 0.13	Actual: 67   48 Precip: 0.08 Average: 76   57 Precip: 0.12	Actual: 64   49 Precip: 0.00 Average: 77   57 Precip: 0.12
26	27	28	29	30	31	
Actual: 72   49 Precip: 0.00 Average: 77   57 Precip: 0.13	Actual: 74   49 Precip: 0.00 Average: 77   58 Precip: 0.12	Actual: 66   58 Precip: 0.14 Average: 77   58 Precip: 0.12	Actual: 90   61 Precip: 0.00 Average: 78   58 Precip: 0.12	Actual: 93   70 Precip: 0.00 Average: 78   59 Precip: 0.13	Actual: 93   70 Precip: 0.00 Average: 78   59 Precip: 0.13	

Calendar Legend



Elevate your travel experience.

The only card with United Club<sup>SM</sup> membership, Premier Access<sup>SM</sup> and a 50% mileage bonus.

[LEARN MORE](#)

**\$100 Statement Credit**

Daily Weather History & Observations

2013	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high		
May	69	58	46	43	37	32	71	49	26	30.47	30.41	30.32	10	10	10	17	9	24	0.00	
1	69	58	46	43	37	32	71	49	26	30.47	30.41	30.32	10	10	10	17	9	24	0.00	
2	74	60	46	43	40	34	82	54	25	30.46	30.41	30.34	10	10	10	13	6	17	0.00	
3	65	57	48	43	39	32	80	56	32	30.43	30.39	30.36	10	10	10	20	10	23	0.00	
4	71	59	46	45	41	32	86	57	28	30.37	30.29	30.21	10	10	10	17	9	22	0.00	
5	65	56	46	41	39	37	82	61	39	30.29	30.25	30.19	10	10	10	18	10	22	0.00	
6	70	58	45	54	48	42	92	73	53	30.24	30.20	30.12	10	10	7	15	9	18	0.00	

Comma Delimited File

2013	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
7	71	62	53	61	55	50	100	83	66	30.15	30.10	30.04	10	6	0	16	10	21	0.09	Fog , Rain
8	73	66	59	63	59	51	97	72	46	30.05	29.99	29.94	10	7	1	16	6	22	0.41	Rain
9	73	65	57	57	55	50	100	75	49	29.99	29.95	29.92	10	7	2	18	6	31	0.54	Rain
10	83	71	58	63	56	46	90	60	30	30.02	29.96	29.90	10	9	3	24	6	30	0.30	Rain , Thunderstorm
11	79	71	63	64	62	57	87	68	48	29.94	29.82	29.71	10	8	2	20	9	24	0.18	Rain , Thunderstorm
12	67	60	52	61	41	20	84	52	20	29.99	29.80	29.72	10	9	2	28	13	39	0.13	Rain
13	57	52	46	29	25	18	49	36	23	30.15	30.07	30.01	10	10	10	24	11	32	0.00	
14	62	52	41	33	27	21	67	45	22	30.19	30.13	30.06	10	10	10	18	9	30	T	
15	75	64	53	61	52	39	73	60	47	30.09	29.87	29.72	10	10	7	17	6	21	0.03	Rain
16	82	72	62	61	60	57	93	70	46	29.86	29.80	29.73	10	8	4	16	6	21	0.07	Rain , Thunderstorm
17	76	68	60	52	42	37	53	39	25	30.20	30.07	29.89	10	10	10	17	7	21	0.00	
18	70	65	59	57	51	41	93	70	46	30.29	30.26	30.20	10	9	4	15	7	18	0.13	Rain
19	64	62	59	61	59	55	93	89	84	30.27	30.22	30.16	10	6	2	14	7	18	0.04	Rain
20	80	71	62	66	63	61	100	79	58	30.16	30.09	29.99	10	4	0	17	6	20	0.00	Fog
21	83	75	67	67	65	64	90	73	55	30.00	29.96	29.87	10	8	3	16	9	21	0.00	
22	87	79	70	70	68	66	90	70	50	29.93	29.89	29.84	10	7	2	17	9	22	T	
23	82	74	66	68	66	62	90	71	51	29.91	29.84	29.76	10	9	3	23	13	30	0.19	Rain , Thunderstorm
24	67	58	48	64	53	35	93	72	50	30.04	29.84	29.73	10	8	4	28	14	35	0.08	Rain
25	64	57	49	38	32	27	66	45	24	30.09	30.03	30.01	10	10	10	31	17	41	0.00	
26	72	61	49	34	31	27	52	36	19	30.22	30.11	30.07	10	10	10	25	13	33	0.00	
27	74	62	49	47	37	30	71	47	23	30.28	30.23	30.17	10	10	10	16	6	21	0.00	
28	66	62	58	63	58	48	93	77	60	30.22	30.17	30.12	10	7	4	10	3	13	0.14	Rain
29	90	76	61	65	62	59	93	66	38	30.12	30.08	30.05	10	8	4	18	8	22	0.00	
30	93	82	70	66	63	58	84	58	32	30.17	30.13	30.09	10	10	10	16	8	21	0.00	
31	93	82	70	67	64	56	90	60	30	30.15	30.10	30.02	10	10	8	18	8	23	0.00	

Comma Delimited File

# Weather History for Philadelphia, PA

Month of June, 2013

Month of June, 2013

« Previous Month

June 1 2013 View

Next Month »

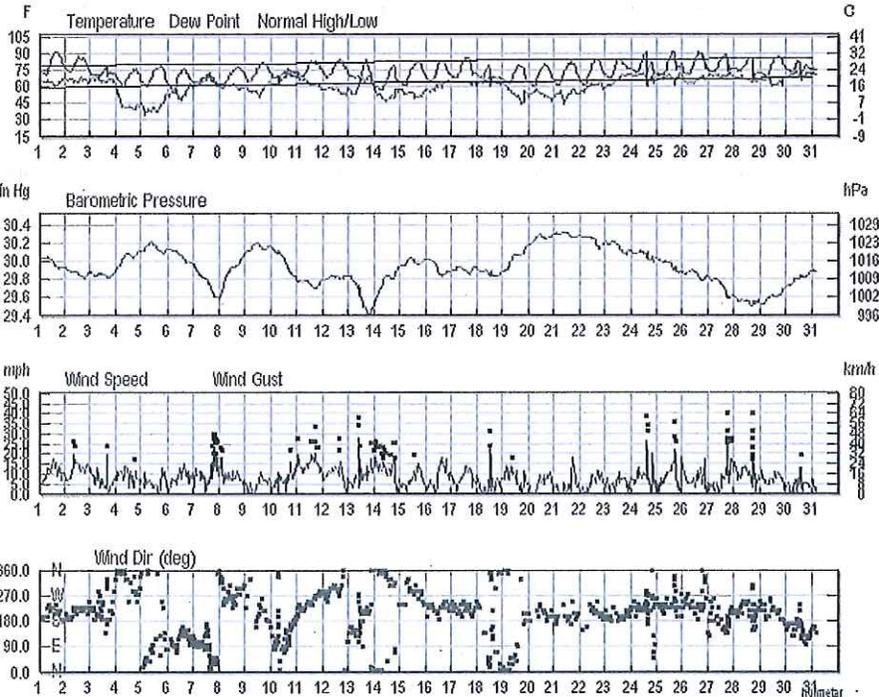
Daily

Weekly

Monthly

Custom

	Max	Avg	Min	Sum
<b>Temperature</b>				
Max Temperature	93 °F	84 °F	72 °F	
Mean Temperature	82 °F	75 °F	67 °F	
Min Temperature	73 °F	66 °F	57 °F	
<b>Degree Days</b>				
Heating Degree Days (base 65)	0	0	0	0
Cooling Degree Days (base 65)	17	10	2	294
Growing Degree Days (base 50)	32	24	16	733
<b>Dew Point</b>				
Dew Point	73 °F	61 °F	35 °F	
<b>Precipitation</b>				
Precipitation	3.50 in	0.41 in	0.00 in	10.56 in
Snowdepth	0.0 in	0.0 in	0.0 in	-
<b>Wind</b>				
Wind	33 mph	8 mph	0 mph	
Gust Wind	40 mph	23 mph	16 mph	
<b>Sea Level Pressure</b>				
Sea Level Pressure	30.32 in	29.92 in	29.41 in	



Certify This Report

Monthly Calendar Weather History Overview

Precipitation: Actual month total 10.56 Normal month total 3.43

Print This Weather Calendar

June 2013

« Previous Month

« 2012

2014 »

Next Month »

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1 Actual: 93   71 Precip: 0.00 Average: 79   59 Precip: 0.12
2 Actual: 88   72 Precip: 0.01 Average: 79   60 Precip: 0.12	3 Actual: 79   69 Precip: 0.86 Average: 79   60 Precip: 0.12	4 Actual: 76   59 Precip: 0.00 Average: 80   60 Precip: 0.12	5 Actual: 81   59 Precip: 0.00 Average: 80   61 Precip: 0.13	6 Actual: 76   58 Precip: 0.20 Average: 80   61 Precip: 0.12	7 Actual: 72   63 Precip: 3.50 Average: 80   61 Precip: 0.13	8 Actual: 78   63 Precip: 0.12 Average: 81   62 Precip: 0.12
9 Actual: 82   65 Precip: 0.00 Average: 81   62 Precip: 0.12	10 Actual: 77   67 Precip: 2.10 Average: 81   62 Precip: 0.12	11 Actual: 84   70 Precip: T Average: 82   63 Precip: 0.11	12 Actual: 85   68 Precip: 0.00 Average: 82   63 Precip: 0.11	13 Actual: 85   61 Precip: 0.47 Average: 82   63 Precip: 0.11	14 Actual: 79   57 Precip: 0.07 Average: 83   64 Precip: 0.12	15 Actual: 83   59 Precip: 0.00 Average: 83   64 Precip: 0.11
16 Actual: 85   64 Precip: T Average: 83   64 Precip: 0.11	17 Actual: 88   68 Precip: T Average: 83   64 Precip: 0.10	18 Actual: 81   66 Precip: 0.98 Average: 84   65 Precip: 0.11	19 Actual: 79   63 Precip: 0.00 Average: 84   65 Precip: 0.10	20 Actual: 80   59 Precip: 0.00 Average: 84   65 Precip: 0.11	21 Actual: 83   61 Precip: 0.00 Average: 84   66 Precip: 0.11	22 Actual: 86   61 Precip: 0.00 Average: 85   66 Precip: 0.11
23 Actual: 85   67 Precip: T Average: 85   66 Precip: 0.11	24 Actual: 92   71 Precip: 0.44 Average: 85   66 Precip: 0.11	25 Actual: 93   70 Precip: 0.05 Average: 85   67 Precip: 0.11	26 Actual: 91   71 Precip: 0.01 Average: 85   67 Precip: 0.12	27 Actual: 89   73 Precip: 0.56 Average: 86   67 Precip: 0.10	28 Actual: 87   70 Precip: 0.74 Average: 86   67 Precip: 0.11	29 Actual: 88   70 Precip: 0.00 Average: 86   68 Precip: 0.12
30 Actual: 84   72 Precip: 0.45 Average: 86   68 Precip: 0.12						

Calendar Legend



Actual:	90   58	Data Category
Precip:	0.00	Condition
Average:	71   53	High Temp.
Precip:	0.03	Lo Temp.
		Precip. (in inches)
		Daily Avg. Temp.
		Temps in °F
		-60 -30 0 30 60 90 120

Daily Weather History & Observations

2013	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high		
Jun																				
1	93	82	71	68	64	59	79	57	34	30.05	29.99	29.92	10	10	10	21	11	24	0.00	
2	88	80	72	69	66	63	79	63	46	29.93	29.87	29.81	10	10	10	23	12	29	0.01	Rain
3	79	74	69	68	66	61	90	76	62	29.89	29.85	29.82	10	7	0	22	6	24	0.86	Fog , Rain
4	76	68	59	61	45	40	63	45	27	30.12	30.04	29.90	10	10	10	17	9	23	0.00	
5	81	70	59	53	42	35	72	48	24	30.21	30.14	30.09	10	10	10	13	5	17	0.00	

Comma Delimited File

2013	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
6	76	67	58	63	56	48	93	66	38	30.14	30.05	29.97	10	9	7	16	8	23	0.20	Rain
7	72	68	63	70	64	60	93	90	87	29.97	29.76	29.59	10	4	1	24	10	30	3.50	Rain , Thunderstorm
8	78	71	63	63	60	57	93	71	48	30.09	29.84	29.59	10	9	4	18	8	24	0.12	Rain
9	82	74	65	64	57	51	78	57	36	30.20	30.15	30.10	10	10	10	12	4	18	0.00	
10	77	72	67	72	68	63	93	86	78	30.15	29.98	29.81	10	6	0	18	8	26	2.10	Fog , Rain , Thunderstorm
11	84	77	70	70	64	58	90	69	47	29.80	29.76	29.71	10	10	7	26	14	35	T	Rain
12	85	77	68	59	57	52	70	52	34	29.84	29.82	29.79	10	10	10	18	9	28	0.00	
13	85	73	61	70	63	53	87	71	55	29.83	29.59	29.41	10	8	0	30	10	38	0.47	Rain , Thunderstorm
14	79	68	57	59	53	47	86	62	37	29.94	29.74	29.52	10	9	3	23	11	30	0.07	Rain
15	83	71	59	57	54	50	84	59	34	30.04	29.99	29.95	10	10	10	17	7	24	0.00	
16	85	75	64	66	60	55	84	65	46	30.02	29.93	29.84	10	10	10	23	9	29	T	
17	88	78	68	65	64	60	87	68	48	29.94	29.91	29.86	10	10	8	20	8	23	T	
18	81	74	66	70	64	61	87	77	67	29.92	29.86	29.83	10	7	0	26	4	31	0.98	Rain , Thunderstorm
19	79	71	63	63	54	44	87	59	30	30.18	30.01	29.89	10	10	7	17	8	23	0.00	
20	80	70	59	57	53	47	84	60	36	30.29	30.25	30.19	10	10	10	13	5	17	0.00	
21	83	72	61	58	53	44	78	57	35	30.32	30.29	30.26	10	10	10	18	4	21	0.00	
22	86	74	61	64	60	55	90	67	44	30.28	30.23	30.13	10	10	10	15	5	18	0.00	
23	85	76	67	72	66	59	87	71	55	30.22	30.15	30.07	10	10	10	15	6	18	T	Rain
24	92	82	71	73	68	61	90	70	49	30.11	30.06	29.99	10	8	1	33	8	40	0.44	Rain , Thunderstorm
25	93	82	70	72	68	62	90	67	44	30.02	29.95	29.87	10	8	2	28	9	36	0.05	Rain , Thunderstorm
26	91	81	71	70	66	63	82	63	44	29.90	29.84	29.78	10	10	8	22	7	26	0.01	Rain , Thunderstorm
27	89	81	73	73	71	68	93	72	50	29.81	29.68	29.59	10	8	0	30	8	40	0.56	Fog , Rain , Thunderstorm
28	87	79	70	70	67	64	87	68	48	29.60	29.55	29.50	10	8	1	31	10	40	0.74	Rain , Thunderstorm
29	88	79	70	69	65	60	90	65	40	29.71	29.60	29.52	10	10	7	15	7	22	0.00	
30	84	78	72	73	71	66	93	79	65	29.89	29.81	29.72	10	6	2	15	5	20	0.45	Rain , Thunderstorm

Comma Delimited File

# Weather History for Philadelphia, PA

Month of July, 2013  
 Month of July, 2013

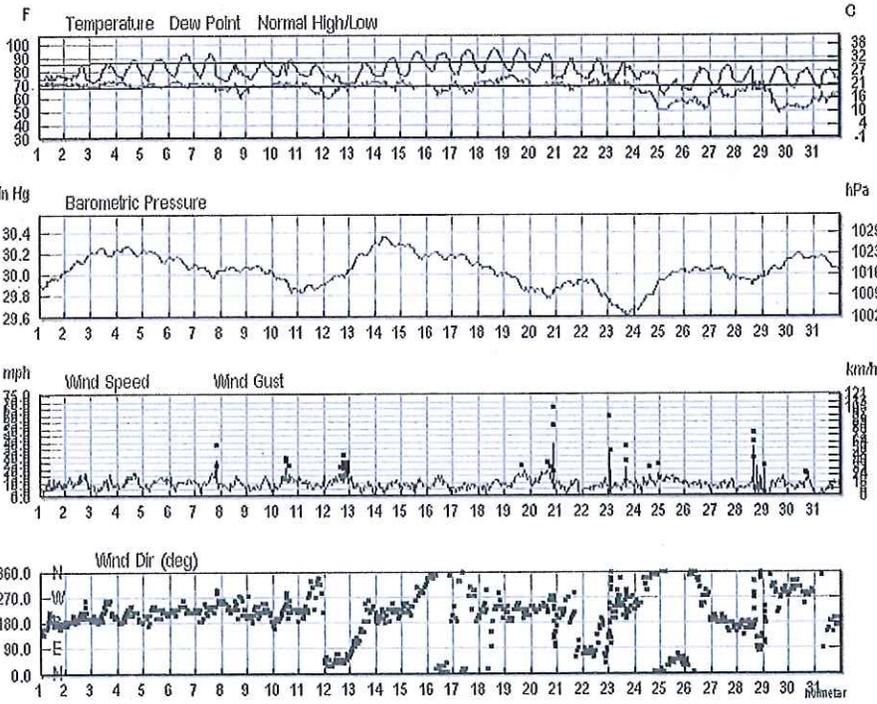
« Previous Month

July 1 2013 View

Next Month »

Daily Weekly **Monthly** Custom

	Max	Avg	Min	Sum
<b>Temperature</b>				
Max Temperature	98 °F	88 °F	74 °F	
Mean Temperature	89 °F	81 °F	69 °F	
Min Temperature	81 °F	73 °F	63 °F	
<b>Degree Days</b>				
Heating Degree Days (base 65)	0	0	0	0
Cooling Degree Days (base 65)	24	16	4	492
Growing Degree Days (base 50)	39	30	18	940
<b>Dew Point</b>				
Dew Point	77 °F	68 °F	49 °F	
<b>Precipitation</b>				
Precipitation	8.02 in	0.55 in	0.00 in	13.24 in
Snowdepth	0.0 in	0.0 in	0.0 in	-
<b>Wind</b>				
Wind	41 mph	8 mph	0 mph	
Gust Wind	66 mph	23 mph	16 mph	
<b>Sea Level Pressure</b>				
Sea Level Pressure	30.36 in	30.04 in	29.61 in	



Certify This Report

Monthly Calendar Weather History Overview

Precipitation: Actual month total 13.24 Normal month total 4.35

Print This Weather Calendar

July 2013

« Previous Month

« 2012

2014 »

Next Month »

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6
	Actual: 80   75 Precip: 0.26 Average: 86   68 Precip: 0.13	Actual: 86   74 Precip: 0.06 Average: 86   68 Precip: 0.13	Actual: 87   73 Precip: T Average: 87   68 Precip: 0.12	Actual: 90   76 Precip: 0.00 Average: 87   68 Precip: 0.13	Actual: 91   74 Precip: 0.00 Average: 87   69 Precip: 0.13	Actual: 94   77 Precip: 0.00 Average: 87   69 Precip: 0.13
7	8	9	10	11	12	13
Actual: 94   75 Precip: T Average: 87   69 Precip: 0.13	Actual: 87   74 Precip: 0.03 Average: 87   69 Precip: 0.14	Actual: 89   75 Precip: T Average: 87   69 Precip: 0.15	Actual: 89   77 Precip: 0.05 Average: 87   69 Precip: 0.14	Actual: 86   77 Precip: 0.02 Average: 87   69 Precip: 0.14	Actual: 79   70 Precip: 1.12 Average: 87   69 Precip: 0.15	Actual: 88   71 Precip: T Average: 87   69 Precip: 0.14
14	15	16	17	18	19	20
Actual: 91   76 Precip: 0.00 Average: 87   69 Precip: 0.15	Actual: 95   76 Precip: 0.00 Average: 87   70 Precip: 0.15	Actual: 94   80 Precip: 0.00 Average: 87   70 Precip: 0.15	Actual: 96   77 Precip: 0.00 Average: 87   70 Precip: 0.15	Actual: 98   79 Precip: 0.00 Average: 87   70 Precip: 0.15	Actual: 97   81 Precip: 0.00 Average: 87   70 Precip: 0.14	Actual: 94   74 Precip: 0.39 Average: 87   70 Precip: 0.14
21	22	23	24	25	26	27
Actual: 91   76 Precip: T Average: 87   70 Precip: 0.14	Actual: 89   75 Precip: T Average: 87   70 Precip: 0.14	Actual: 88   71 Precip: 3.05 Average: 87   70 Precip: 0.14	Actual: 81   67 Precip: 0.00 Average: 87   70 Precip: 0.14	Actual: 74   63 Precip: T Average: 87   70 Precip: 0.14	Actual: 83   66 Precip: 0.00 Average: 87   70 Precip: 0.15	Actual: 85   69 Precip: 0.00 Average: 87   70 Precip: 0.15
28	29	30	31			
Actual: 84   69 Precip: 8.02 Average: 87   70 Precip: 0.14	Actual: 84   68 Precip: 0.24 Average: 87   70 Precip: 0.14	Actual: 82   65 Precip: 0.00 Average: 87   69 Precip: 0.14	Actual: 83   67 Precip: 0.00 Average: 87   69 Precip: 0.14			

Calendar Legend



Actual: 90   58	Data Category
Precip: 0.00	Condition
Average: 71   53	High Temp.
Precip: 0.03	Lo Temp.
	Precip. (in inches)
	Daily Avg. Temp.
	Temps in °F
	-60 -30 0 30 60 90 120

Daily Weather History & Observations

2013	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high		
Jul	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high	sum	
1	80	78	75	73	72	70	88	84	79	30.04	29.96	29.88	10	9	4	14	7	18	0.26	Rain
2	86	80	74	73	71	69	87	74	61	30.20	30.11	30.03	10	9	6	21	11	25	0.06	Rain
3	87	80	73	74	71	69	87	76	65	30.26	30.22	30.18	10	10	8	16	8	20	T	Rain
4	90	83	76	73	72	68	94	72	50	30.27	30.24	30.18	10	10	8	18	10	23	0.00	
5	91	83	74	72	71	68	93	70	47	30.24	30.19	30.12	10	10	10	21	10	24	0.00	
6	94	86	77	74	72	68	88	66	44	30.17	30.12	30.06	10	10	10	17	10	21	0.00	

Comma Delimited File

2013	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
7	94	85	75	72	71	66	87	67	46	30.10	30.04	29.97	10	10	10	30	10	38	T	Rain , Thunderstorm
8	87	81	74	72	67	61	84	68	51	30.08	30.06	30.03	10	10	7	26	8	32	0.03	Rain
9	89	82	75	71	69	65	82	69	55	30.09	30.05	30.01	10	9	7	16	7	21	T	Rain
10	89	83	77	73	72	68	85	69	52	30.02	29.94	29.84	10	9	2	24	11	29	0.05	Rain , Thunderstorm
11	86	82	77	72	68	60	79	64	48	29.92	29.88	29.84	10	10	7	17	8	22	0.02	Rain
12	79	75	70	70	67	60	93	74	54	30.04	29.99	29.91	10	6	1	20	12	31	1.12	Rain , Thunderstorm
13	88	80	71	73	70	68	93	76	59	30.30	30.16	30.05	10	10	9	14	6	18	T	
14	91	84	76	73	72	66	88	68	47	30.36	30.31	30.27	10	9	7	13	7	18	0.00	
15	95	86	76	74	70	67	85	64	42	30.29	30.23	30.15	10	10	10	15	8	20	0.00	
16	94	87	80	71	67	63	69	54	38	30.22	30.18	30.14	10	10	10	18	8	26	0.00	
17	96	87	77	73	68	64	85	60	35	30.20	30.15	30.09	10	10	10	13	6	18	0.00	
18	98	89	79	76	73	71	79	62	45	30.11	30.05	29.99	10	10	6	14	8	20	0.00	
19	97	89	81	77	75	72	91	70	48	30.01	29.94	29.84	10	7	3	21	12	28	0.00	
20	94	84	74	72	70	69	76	61	46	29.88	29.84	29.78	10	9	1	41	13	66	0.39	Rain , Thunderstorm
21	91	84	76	72	70	66	87	67	47	29.95	29.91	29.86	10	10	8	14	6	26	T	Rain
22	89	82	75	74	72	69	87	70	52	29.94	29.88	29.78	10	10	8	13	6	18	T	Rain
23	88	80	71	74	71	67	93	74	55	29.76	29.70	29.61	10	7	0	33	8	60	3.05	Rain , Thunderstorm
24	81	74	67	69	63	52	79	63	46	29.94	29.78	29.66	10	10	10	20	9	26	0.00	
25	74	69	63	59	55	51	68	62	55	30.04	30.00	29.94	10	10	10	17	11	26	T	Rain
26	83	75	66	62	56	52	73	54	34	30.07	30.04	30.02	10	10	10	15	7	18	0.00	
27	85	77	69	68	64	60	90	67	44	30.07	30.02	29.95	10	9	7	15	7	21	0.00	
28	84	77	69	73	68	65	93	81	69	29.99	29.95	29.90	10	6	0	36	6	47	8.02	Fog , Rain , Thunderstorm
29	84	76	68	68	61	49	90	61	31	30.14	30.03	29.97	10	9	3	21	7	23	0.24	Rain , Thunderstorm
30	82	74	65	61	54	51	68	53	37	30.20	30.16	30.14	10	10	10	16	7	25	0.00	
31	83	75	67	64	60	56	79	61	42	30.17	30.12	30.05	10	10	10	14	4	28	0.00	

Comma Delimited File

# Weather History for Philadelphia, PA

Month of August, 2013

Month of August, 2013

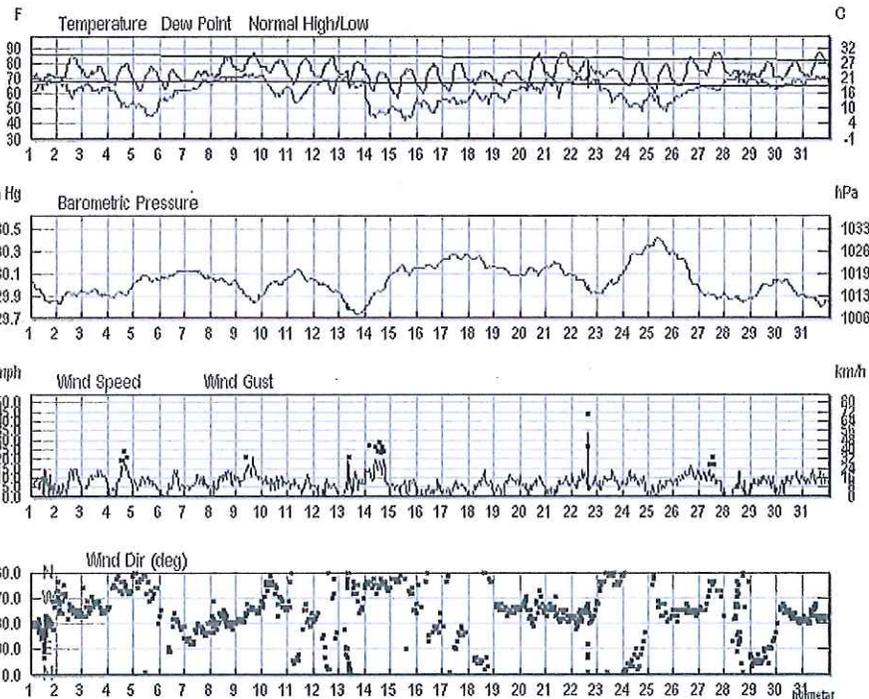
« Previous Month

August 1 2013 View

Next Month »

Daily Weekly **Monthly** Custom

	Max	Avg	Min	Sum
<b>Temperature</b>				
Max Temperature	89 °F	82 °F	74 °F	
Mean Temperature	82 °F	75 °F	68 °F	
Min Temperature	76 °F	67 °F	58 °F	
<b>Degree Days</b>				
Heating Degree Days (base 65)	0	0	0	0
Cooling Degree Days (base 65)	17	10	3	306
Growing Degree Days (base 50)	32	24	18	757
<b>Dew Point</b>				
Dew Point	73 °F	62 °F	42 °F	
<b>Precipitation</b>				
Precipitation	2.02 in	0.25 in	0.00 in	5.91 in
Snowdepth	0.0 in	0.0 in	0.0 in	
<b>Wind</b>				
Wind	33 mph	7 mph	0 mph	
Gust Wind	44 mph	21 mph	16 mph	
<b>Sea Level Pressure</b>				
Sea Level Pressure	30.42 in	30.04 in	29.73 in	



Certify This Report

Monthly Calendar Weather History Overview

Precipitation: Actual month total 5.91 Normal month total 3.50

Print This Weather Calendar

« Previous Month

« 2012

August 2013

2014 »

Next Month »

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
				Actual: 74   68 Precip: 1.33 Average: 87   69 Precip: 0.13	Actual: 86   68 Precip: 0.00 Average: 87   69 Precip: 0.12	Actual: 79   68 Precip: T Average: 87   69 Precip: 0.12
4	5	6	7	8	9	10
Actual: 80   66 Precip: 0.00 Average: 87   69 Precip: 0.12	Actual: 78   62 Precip: 0.00 Average: 87   69 Precip: 0.12	Actual: 78   63 Precip: T Average: 86   69 Precip: 0.11	Actual: 76   68 Precip: 0.06 Average: 86   69 Precip: 0.12	Actual: 87   71 Precip: 0.35 Average: 86   69 Precip: 0.12	Actual: 88   76 Precip: T Average: 86   69 Precip: 0.12	Actual: 84   73 Precip: 0.00 Average: 86   69 Precip: 0.12
11	12	13	14	15	16	17
Actual: 85   66 Precip: 0.00 Average: 86   69 Precip: 0.11	Actual: 86   72 Precip: 0.00 Average: 86   69 Precip: 0.11	Actual: 83   68 Precip: 2.02 Average: 86   69 Precip: 0.11	Actual: 76   63 Precip: 0.00 Average: 86   68 Precip: 0.12	Actual: 78   58 Precip: 0.00 Average: 86   68 Precip: 0.11	Actual: 81   60 Precip: 0.00 Average: 86   68 Precip: 0.12	Actual: 82   63 Precip: 0.00 Average: 85   68 Precip: 0.11
18	19	20	21	22	23	24
Actual: 77   66 Precip: 0.03 Average: 85   68 Precip: 0.11	Actual: 77   65 Precip: 0.00 Average: 85   68 Precip: 0.12	Actual: 87   66 Precip: 0.00 Average: 85   68 Precip: 0.12	Actual: 89   70 Precip: 0.00 Average: 85   68 Precip: 0.11	Actual: 85   70 Precip: 1.08 Average: 85   67 Precip: 0.12	Actual: 77   68 Precip: T Average: 85   67 Precip: 0.12	Actual: 82   65 Precip: 0.00 Average: 84   67 Precip: 0.10
25	26	27	28	29	30	31
Actual: 81   61 Precip: 0.00 Average: 84   67 Precip: 0.11	Actual: 86   65 Precip: T Average: 84   67 Precip: 0.10	Actual: 89   73 Precip: 0.00 Average: 84   66 Precip: 0.11	Actual: 76   72 Precip: 1.04 Average: 84   66 Precip: 0.09	Actual: 83   71 Precip: T Average: 84   66 Precip: 0.10	Actual: 83   69 Precip: T Average: 83   66 Precip: 0.10	Actual: 88   72 Precip: 0.00 Average: 83   66 Precip: 0.10

Calendar Legend

Sunny Clear  
 Mostly Cloudy Partly Sunny  
 Partly Cloudy Mostly Sunny  
 Cloudy  
 Rain  
 Snow  
 Hail Flurries  
 Thunderstorms  
 Hazy Fog  
 Sleet  
 '?' denotes 'chance of'  
 Unknown

Actual: 90 | 58  
 Precip: 0.00  
 Average: 71 | 53  
 Precip: 0.03

Data Category  
 Condition  
 High Temp.  
 Lo Temp.  
 Precip. (in inches)  
 Daily Avg. Temp.  
 Temps in °F

60-30 0 30 60 90 120

Daily Weather History & Observations

2013	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high		
Aug	74	71	68	70	66	62	90	79	68	30.04	29.91	29.84	10	5	1	18	7	25	1.33	Rain, Thunderstorm
1	86	77	68	68	65	58	90	64	37	29.95	29.89	29.83	10	9	5	17	8	24	0.00	
2	79	74	68	68	65	61	90	72	54	29.96	29.93	29.90	10	10	7	16	9	21	T	Rain
3	80	73	66	65	57	51	87	62	36	30.01	29.92	29.88	10	10	9	20	8	29	0.00	

Comma Delimited File

2013	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
5	78	70	62	57	50	46	72	52	32	30.09	30.05	30.02	10	10	10	14	7	21	0.00	
6	78	71	63	63	60	56	78	64	50	30.13	30.09	30.06	10	10	10	15	6	20	T	Rain
7	76	72	68	70	66	63	84	77	69	30.13	30.10	30.06	10	10	3	13	7	17	0.06	Rain
8	87	79	71	72	70	66	93	75	57	30.06	30.04	30.00	10	9	2	18	9	29	0.35	Rain
9	88	82	76	73	73	71	87	73	59	30.00	29.90	29.84	10	10	10	21	11	26	T	Rain , Thunderstorm
10	84	79	73	73	64	59	85	64	43	30.06	30.00	29.91	10	10	10	14	8	17	0.00	
11	85	76	66	68	61	55	84	64	43	30.14	30.09	30.03	10	10	10	13	6	20	0.00	
12	86	79	72	72	68	60	90	67	44	30.05	29.99	29.94	10	8	6	14	3	18	0.00	
13	83	76	68	72	68	64	93	74	55	29.92	29.79	29.73	10	6	0	23	7	29	2.02	Fog , Rain , Thunderstorm
14	76	70	63	59	49	45	58	48	38	30.08	29.93	29.79	10	10	10	23	13	30	0.00	
15	78	68	58	57	48	42	77	54	31	30.18	30.13	30.09	10	10	10	13	6	18	0.00	
16	81	71	60	57	53	48	84	59	33	30.22	30.17	30.15	10	10	10	13	3	16	0.00	
17	82	73	63	58	56	53	78	59	39	30.28	30.25	30.23	10	10	10	10	4	14	0.00	
18	77	72	66	63	59	53	87	68	49	30.26	30.21	30.15	10	10	8	14	5	24	0.03	Rain
19	77	71	65	64	60	55	79	66	53	30.17	30.12	30.08	10	10	10	15	6	17	0.00	
20	87	77	66	68	64	61	93	69	44	30.16	30.12	30.09	10	7	1	13	6	21	0.00	
21	89	80	70	70	67	58	93	67	40	30.21	30.16	30.09	10	8	2	14	5	25	0.00	Fog
22	85	78	70	72	69	65	93	76	58	30.09	30.00	29.92	10	8	0	33	8	44	1.08	Rain , Thunderstorm
23	77	73	68	70	61	55	82	65	47	30.10	30.00	29.93	10	10	7	15	8	22	T	Rain
24	82	74	65	58	54	49	73	53	33	30.36	30.25	30.12	10	10	10	14	7	21	0.00	
25	81	71	61	60	55	49	87	60	33	30.42	30.35	30.28	10	10	10	13	5	20	0.00	
26	86	76	65	65	61	57	78	63	48	30.28	30.13	29.97	10	10	10	17	11	23	T	
27	89	81	73	69	65	62	76	60	43	29.95	29.91	29.87	10	10	10	16	8	22	0.00	
28	76	74	72	72	70	67	90	85	79	29.91	29.87	29.84	10	6	1	16	3	20	1.04	Rain , Thunderstorm
29	83	77	71	72	68	64	93	76	58	30.04	29.96	29.87	10	6	1	14	7	21	T	Rain
30	83	76	69	70	67	64	84	74	63	30.04	29.99	29.90	10	10	9	14	8	22	T	Rain
31	88	80	72	72	69	66	93	74	55	29.91	29.87	29.80	10	9	7	15	9	21	0.00	

Comma Delimited File

# Weather History for Philadelphia, PA

Month of September, 2013

Month of September, 2013

« Previous Month

September 1 2013 View

Next Month »

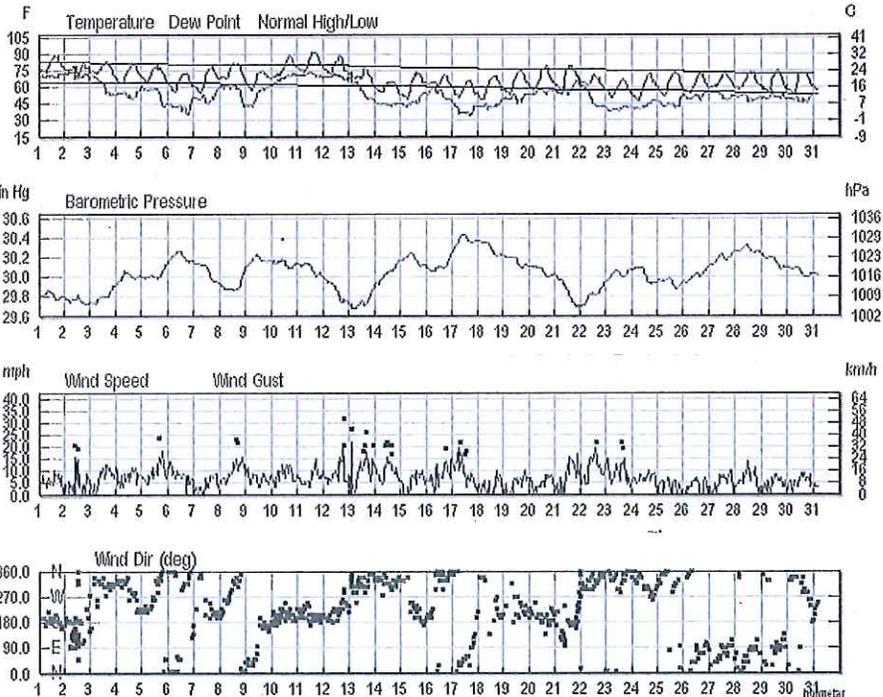
Daily

Weekly

Monthly

Custom

	Max	Avg	Min	Sum
<b>Temperature</b>				
Max Temperature	94 °F	77 °F	66 °F	
Mean Temperature	84 °F	68 °F	59 °F	
Min Temperature	74 °F	59 °F	47 °F	
<b>Degree Days</b>				
Heating Degree Days (base 65)	6	1	0	36
Cooling Degree Days (base 65)	19	4	0	130
Growing Degree Days (base 50)	33	18	8	537
<b>Dew Point</b>				
Dew Point	74 °F	54 °F	34 °F	
<b>Precipitation</b>				
Precipitation	1.89 in	0.11 in	0.00 in	3.26 in
Snowdepth	0.0 in	0.0 in	0.0 in	-
<b>Wind</b>				
Wind	25 mph	7 mph	0 mph	
Gust Wind	35 mph	21 mph	16 mph	
<b>Sea Level Pressure</b>				
Sea Level Pressure	30.44 in	30.04 in	29.68 in	



Certify This Report

Monthly Calendar Weather History Overview

Precipitation: Actual month total 3.26 Normal month total 3.78

Print This Weather Calendar

September 2013

« Previous Month

« 2012

2014 »

Next Month »

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 Actual: 89   74 Precip: 0.00 Average: 83   65 Precip: 0.10	2 Actual: 82   71 Precip: 1.89 Average: 83   65 Precip: 0.12	3 Actual: 84   68 Precip: 0.00 Average: 82   65 Precip: 0.12	4 Actual: 82   64 Precip: 0.00 Average: 82   65 Precip: 0.12	5 Actual: 82   64 Precip: 0.00 Average: 82   64 Precip: 0.12	6 Actual: 74   56 Precip: 0.00 Average: 81   64 Precip: 0.11	7 Actual: 79   55 Precip: 0.00 Average: 81   64 Precip: 0.12
8 Actual: 83   63 Precip: 0.01 Average: 81   63 Precip: 0.12	9 Actual: 76   57 Precip: 0.00 Average: 81   63 Precip: 0.12	10 Actual: 88   69 Precip: 0.00 Average: 80   63 Precip: 0.11	11 Actual: 94   74 Precip: 0.00 Average: 80   62 Precip: 0.13	12 Actual: 89   72 Precip: 0.03 Average: 80   62 Precip: 0.12	13 Actual: 78   60 Precip: 0.16 Average: 79   62 Precip: 0.13	14 Actual: 86   53 Precip: 0.00 Average: 79   61 Precip: 0.13
15 Actual: 74   50 Precip: 0.00 Average: 78   61 Precip: 0.13	16 Actual: 72   59 Precip: 0.05 Average: 78   60 Precip: 0.13	17 Actual: 67   51 Precip: 0.00 Average: 78   60 Precip: 0.13	18 Actual: 71   48 Precip: 0.00 Average: 77   60 Precip: 0.14	19 Actual: 76   52 Precip: 0.00 Average: 77   59 Precip: 0.13	20 Actual: 79   57 Precip: 0.00 Average: 77   59 Precip: 0.13	21 Actual: 80   56 Precip: 1.05 Average: 76   58 Precip: 0.13
22 Actual: 71   56 Precip: 0.07 Average: 76   58 Precip: 0.13	23 Actual: 68   50 Precip: 0.00 Average: 75   58 Precip: 0.12	24 Actual: 72   47 Precip: 0.00 Average: 75   57 Precip: 0.14	25 Actual: 74   52 Precip: 0.00 Average: 75   57 Precip: 0.13	26 Actual: 73   55 Precip: 0.00 Average: 74   56 Precip: 0.13	27 Actual: 73   59 Precip: 0.00 Average: 74   56 Precip: 0.14	28 Actual: 76   56 Precip: 0.00 Average: 73   55 Precip: 0.13
29 Actual: 75   55 Precip: 0.00 Average: 73   55 Precip: 0.14	30 Actual: 74   53 Precip: 0.00 Average: 72   54 Precip: 0.13					

Calendar Legend

Sunny Clear  
 Mostly Cloudy Partly Sunny  
 Partly Cloudy Mostly Sunny  
 Cloudy  
 Rain  
 Snow  
 Hail Flurries  
 Thunderstorms  
 Hazy Fog  
 Sleet  
 ? denotes 'chance of' Unknown

Data Category  
 Condition  
 High Temp.  
 Lo Temp.  
 Precip. (in inches)  
 Daily Avg. Temp.  
 Temps in °F  
 -60 -30 0 30 60 90 120

Actual: 90 | 58  
 Precip: 0.00  
 Average: 71 | 53  
 Precip: 0.03

Daily Weather History & Observations

2013	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high		
Sep	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high	sum	
1	89	82	74	73	71	69	87	70	52	29.86	29.82	29.77	10	10	10	12	6	22	0.00	
2	82	77	71	74	71	67	94	80	65	29.82	29.77	29.73	10	5	0	16	4	21	1.89	Fog, Rain, Thunderstorm
3	84	76	68	72	62	54	87	64	40	29.92	29.81	29.73	10	10	7	17	8	23	0.00	
4	82	73	64	60	54	50	73	54	35	30.06	30.00	29.93	10	10	10	15	7	20	0.00	
5	82	73	64	61	54	43	78	57	35	30.15	30.03	29.99	10	10	9	21	10	25	0.00	

Comma Delimited File

2013	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
6	74	65	56	51	42	36	72	50	27	30.27	30.21	30.16	10	10	10	13	7	18	0.00	
7	79	67	55	60	51	46	83	58	33	30.15	30.06	29.94	10	10	10	12	5	15	0.00	
8	83	73	63	63	58	43	78	58	37	30.09	29.92	29.87	10	10	10	20	10	24	0.01	Rain
9	76	67	57	62	53	43	81	65	48	30.23	30.18	30.11	10	10	10	15	7	22	0.00	
10	88	79	69	72	68	62	84	70	55	30.19	30.15	30.09	10	10	8	12	8	17	0.00	
11	94	84	74	74	71	68	93	71	49	30.14	30.09	30.01	10	7	4	16	7	20	0.00	
12	89	81	72	72	70	67	87	71	55	30.00	29.86	29.74	10	9	5	25	8	35	0.03	Rain , Thunderstorm
13	78	69	60	68	59	48	87	63	39	29.90	29.74	29.68	10	9	2	24	10	30	0.16	Rain
14	66	60	53	47	45	43	72	58	44	30.17	30.04	29.92	10	10	10	17	9	24	0.00	
15	74	62	50	55	48	43	77	58	38	30.25	30.18	30.11	10	10	2	12	6	15	0.00	
16	72	66	59	60	54	47	87	68	49	30.25	30.11	30.06	10	10	6	21	9	24	0.05	Rain
17	67	59	51	46	39	34	66	48	29	30.44	30.37	30.27	10	10	10	21	9	28	0.00	
18	71	60	48	49	43	40	80	59	37	30.37	30.30	30.22	10	10	10	10	4	17	0.00	
19	76	64	52	54	51	46	83	61	38	30.22	30.17	30.10	10	10	10	12	5	15	0.00	
20	79	68	57	58	56	54	87	65	42	30.11	30.07	30.00	10	10	10	12	5	17	0.00	
21	80	68	56	66	60	54	97	70	42	30.02	29.85	29.69	10	6	0	21	8	24	1.05	Fog , Rain
22	71	64	56	63	52	42	90	64	38	29.95	29.80	29.70	10	9	2	21	11	26	0.07	Rain
23	68	59	50	43	40	39	63	50	37	30.08	30.03	29.96	10	10	10	17	9	22	0.00	
24	72	60	47	48	43	40	77	58	38	30.10	30.02	29.93	10	10	10	12	6	17	0.00	
25	74	63	52	52	45	41	80	56	31	29.99	29.95	29.89	10	10	10	9	3	14	0.00	
26	73	64	55	55	52	48	86	65	44	30.11	30.02	29.95	10	10	10	10	3	13	0.00	
27	73	66	59	56	53	48	84	63	41	30.27	30.19	30.12	10	10	10	14	5	17	0.00	
28	76	66	56	53	50	47	80	59	38	30.32	30.28	30.24	10	10	10	15	7	23	0.00	
29	75	65	55	57	51	49	83	63	43	30.23	30.16	30.08	10	10	10	12	4	16	0.00	
30	74	64	53	53	49	46	83	61	38	30.10	30.05	30.00	10	10	10	9	6	17	0.00	

Comma Delimited File

# Weather History for Philadelphia, PA

Month of October, 2013

Month of October, 2013

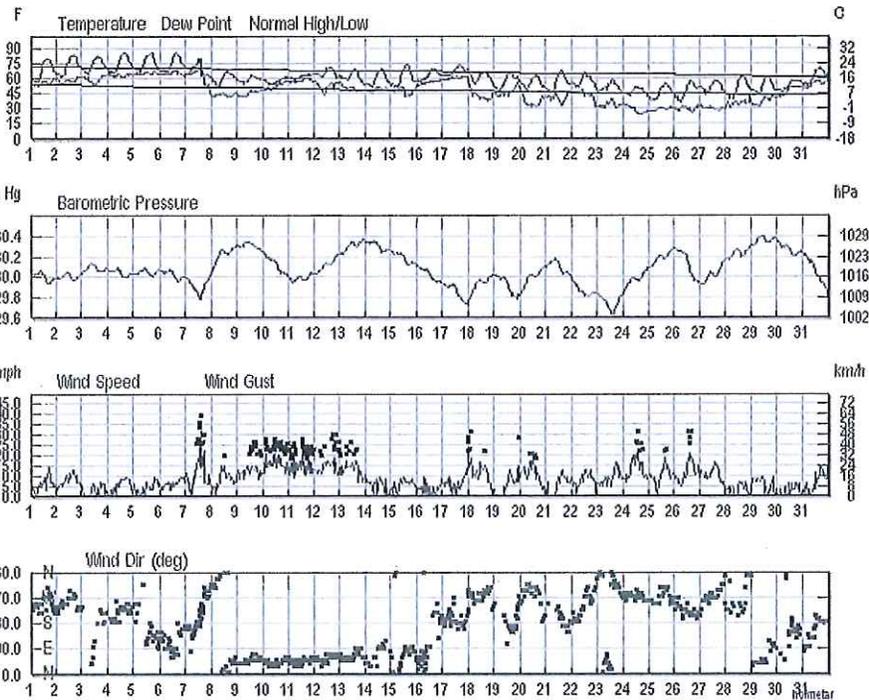
« Previous Month

October 1 2013 View

Next Month »

Daily Weekly Monthly Custom

	Max	Avg	Min	Sum
<b>Temperature</b>				
Max Temperature	86 °F	69 °F	53 °F	
Mean Temperature	77 °F	61 °F	46 °F	
Min Temperature	67 °F	52 °F	37 °F	
<b>Degree Days</b>				
Heating Degree Days (base 65)	19	6	0	193
Cooling Degree Days (base 65)	12	2	0	65
Growing Degree Days (base 50)	26	11	0	336
<b>Dew Point</b>				
Dew Point	70 °F	48 °F	24 °F	
<b>Precipitation</b>				
Precipitation	1.67 in	0.08 in	0.00 in	2.45 in
Snowdepth	0.0 in	0.0 in	0.0 in	-
<b>Wind</b>				
Wind	33 mph	8 mph	0 mph	
Gust Wind	39 mph	23 mph	17 mph	
<b>Sea Level Pressure</b>				
Sea Level Pressure	30.40 in	30.08 in	29.63 in	



Certify This Report

Monthly Calendar Weather History Overview

Precipitation: Actual month total 2.45 Normal month total 3.18

Print This Weather Calendar

October 2013

« Previous Month

« 2012

2014 »

Next Month »

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
		Actual: 80   57 Precip: 0.00 Average: 72   54 Precip: 0.11	Actual: 84   62 Precip: 0.00 Average: 72   54 Precip: 0.11	Actual: 83   63 Precip: 0.00 Average: 71   53 Precip: 0.12	Actual: 86   65 Precip: 0.00 Average: 71   53 Precip: 0.10	Actual: 86   67 Precip: 0.01 Average: 70   52 Precip: 0.12
6	7	8	9	10	11	12
Actual: 86   67 Precip: 0.00 Average: 70   52 Precip: 0.11	Actual: 80   59 Precip: 0.28 Average: 70   52 Precip: 0.10	Actual: 67   52 Precip: 0.00 Average: 69   51 Precip: 0.11	Actual: 63   55 Precip: 0.00 Average: 69   51 Precip: 0.11	Actual: 62   54 Precip: 0.35 Average: 69   50 Precip: 0.11	Actual: 65   59 Precip: 1.67 Average: 68   50 Precip: 0.10	Actual: 72   60 Precip: 0.01 Average: 68   50 Precip: 0.11
13	14	15	16	17	18	19
Actual: 70   55 Precip: T Average: 68   49 Precip: 0.10	Actual: 69   51 Precip: 0.00 Average: 67   49 Precip: 0.11	Actual: 74   51 Precip: 0.00 Average: 67   49 Precip: 0.10	Actual: 72   57 Precip: 0.00 Average: 67   48 Precip: 0.10	Actual: 74   63 Precip: 0.01 Average: 66   48 Precip: 0.10	Actual: 67   51 Precip: 0.00 Average: 66   48 Precip: 0.10	Actual: 66   48 Precip: 0.07 Average: 66   47 Precip: 0.09
20	21	22	23	24	25	26
Actual: 63   48 Precip: 0.00 Average: 65   47 Precip: 0.10	Actual: 68   45 Precip: 0.00 Average: 65   47 Precip: 0.10	Actual: 67   47 Precip: T Average: 65   46 Precip: 0.10	Actual: 59   44 Precip: 0.01 Average: 64   46 Precip: 0.10	Actual: 53   40 Precip: 0.00 Average: 64   46 Precip: 0.09	Actual: 55   37 Precip: 0.00 Average: 64   45 Precip: 0.10	Actual: 58   37 Precip: 0.00 Average: 63   45 Precip: 0.09
27	28	29	30	31		
Actual: 59   43 Precip: 0.00 Average: 63   45 Precip: 0.09	Actual: 63   39 Precip: 0.00 Average: 63   44 Precip: 0.10	Actual: 62   43 Precip: 0.00 Average: 62   44 Precip: 0.10	Actual: 58   46 Precip: 0.02 Average: 62   44 Precip: 0.10	Actual: 70   52 Precip: 0.02 Average: 62   44 Precip: 0.10		

Calendar Legend

Sunny Clear  
 Mostly Cloudy Partly Sunny  
 Partly Cloudy Mostly Sunny  
 Cloudy  
 Rain  
 Snow  
 Hail Flurries  
 Thunderstorms  
 Hazy Fog  
 Sleet  
 Unknown  
 '??' denotes 'chance of'

Data Category  
 Condition  
 High Temp.  
 Lo Temp.  
 Precip. (in inches)  
 Daily Avg. Temp.  
 Temps in °F

Actual:	90   58
Precip:	0.00
Average:	71   53
Precip:	0.03

60-30 0 30 60 90 120

Daily Weather History & Observations

2013	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high		
1	80	69	57	60	56	53	86	64	42	30.06	30.01	29.95	10	10	10	15	6	18	0.00	
2	84	73	62	62	59	55	87	64	40	30.05	30.01	29.97	10	9	7	15	8	21	0.00	
3	83	73	63	63	60	53	93	66	39	30.13	30.08	30.04	10	10	10	9	3	15	0.00	
4	86	76	65	65	63	62	87	66	45	30.09	30.05	30.00	10	7	2	12	5	16	0.00	
5	86	77	67	67	65	64	87	69	51	30.09	30.05	30.01	10	8	3	12	4	13	0.01	
6	86	77	67	68	65	62	93	72	51	30.08	30.04	29.96	10	6	2	12	7	15	0.00	

Comma Delimited File

2013	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
7	80	70	59	70	64	44	87	71	55	30.04	29.88	29.79	10	8	1	33	9	39	0.28	Rain
8	67	60	52	46	44	42	77	60	42	30.31	30.22	30.06	10	10	10	17	8	23	0.00	
9	63	59	55	49	45	42	67	60	53	30.35	30.31	30.25	10	10	10	22	12	29	0.00	
10	62	58	54	57	53	48	93	80	67	30.23	30.12	30.00	10	7	2	22	16	29	0.35	Rain
11	65	62	59	61	58	55	93	86	78	30.05	29.99	29.95	10	5	1	22	14	28	1.67	Rain , Thunderstorm
12	72	66	60	57	53	44	78	63	48	30.22	30.14	30.03	10	10	4	25	14	32	0.01	Rain
13	70	63	55	56	51	47	78	62	45	30.37	30.30	30.23	10	9	3	21	12	26	T	Rain
14	69	60	51	52	49	46	83	65	47	30.36	30.31	30.24	10	10	10	10	5	18	0.00	
15	74	63	51	52	47	42	89	61	33	30.26	30.19	30.12	10	10	10	10	6	15	0.00	
16	72	65	57	59	56	53	90	76	61	30.11	30.04	29.94	10	8	4	13	4	15	0.00	
17	74	69	63	62	60	59	93	79	64	29.93	29.87	29.73	10	8	3	22	6	29	0.01	Rain
18	67	59	51	61	44	38	72	55	37	30.02	29.92	29.75	10	10	9	28	10	39	0.00	Rain
19	66	57	48	55	48	42	84	64	44	30.02	29.90	29.79	10	10	4	24	5	30	0.07	Rain
20	63	56	48	49	37	32	77	55	32	30.11	29.99	29.83	10	10	10	20	10	25	0.00	
21	68	57	45	47	41	34	82	56	29	30.18	30.10	29.99	10	10	10	16	6	21	0.00	
22	67	57	47	49	44	32	83	63	42	29.98	29.87	29.82	10	10	10	14	7	16	T	Rain
23	59	52	44	40	34	30	65	53	40	29.83	29.74	29.63	10	10	10	20	9	26	0.01	Rain
24	53	47	40	35	29	24	70	53	36	30.10	29.97	29.84	10	10	10	25	13	31	0.00	
25	55	46	37	32	29	27	70	53	35	30.28	30.19	30.10	10	10	10	20	10	26	0.00	
26	58	48	37	33	30	26	76	53	30	30.28	30.13	29.94	10	10	10	25	12	35	0.00	
27	59	51	43	33	30	28	58	46	33	30.17	30.03	29.93	10	10	10	20	10	25	0.00	
28	63	51	39	42	35	30	85	61	36	30.31	30.23	30.17	10	10	10	10	3	14	0.00	
29	62	53	43	43	38	32	77	60	42	30.40	30.36	30.32	10	10	10	9	6	18	0.00	
30	58	52	46	52	48	41	89	83	77	30.35	30.26	30.21	10	9	3	9	2	12	0.02	Rain
31	70	61	52	61	54	50	93	77	61	30.23	30.09	29.82	10	6	2	17	7	26	0.02	Rain

Comma Delimited File

# Weather History for Philadelphia, PA

Month of November, 2013

Month of November, 2013

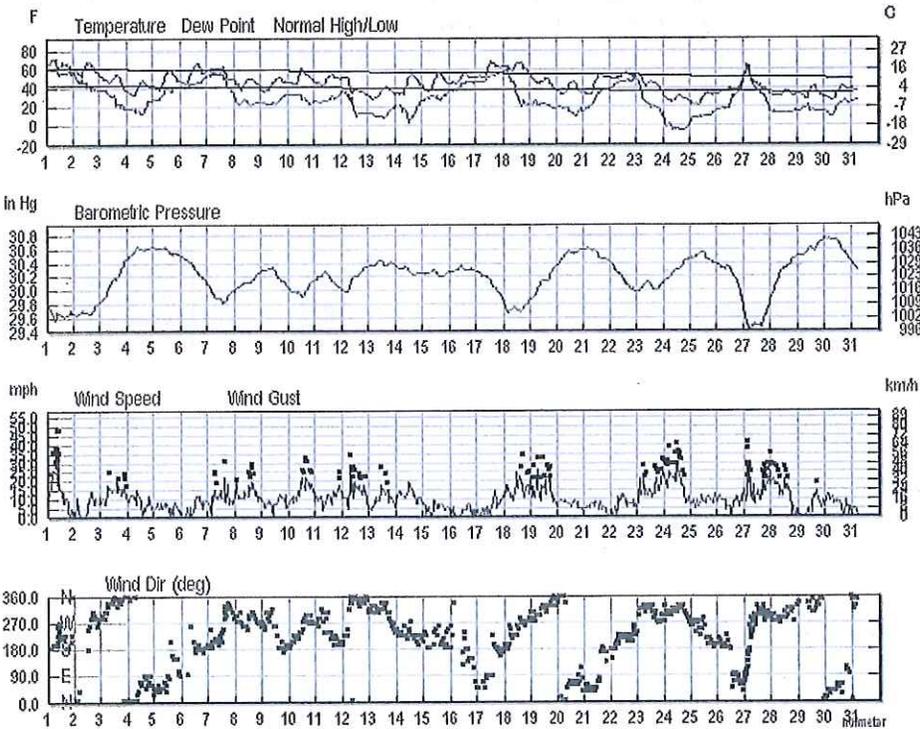
« Previous Month

November 1 2013 View

Next Month »

Daily Weekly Monthly Custom

	Max	Avg	Min	Sum
<b>Temperature</b>				
Max Temperature	71 °F	54 °F	32 °F	
Mean Temperature	64 °F	46 °F	28 °F	
Min Temperature	56 °F	37 °F	20 °F	
<b>Degree Days</b>				
Heating Degree Days (base 65)	37	19	1	577
Cooling Degree Days (base 65)	0	0	0	0
Growing Degree Days (base 50)	14	2	0	58
<b>Dew Point</b>				
Dew Point	63 °F	29 °F	-5 °F	
<b>Precipitation</b>				
Precipitation	1.56 in	0.10 in	0.00 in	2.73 in
Snowdepth	0.0 in	0.0 in	0.0 in	-
<b>Wind</b>				
Wind	36 mph	10 mph	0 mph	
Gust Wind	48 mph	25 mph	16 mph	
<b>Sea Level Pressure</b>				
Sea Level Pressure	30.75 in	30.20 in	29.42 in	



Certify This Report

Precipitation: Actual month total 2.73 Normal month total 2.99

Print This Weather Calendar

Print This Weather Calendar

« Previous Month « 2012 November 2013 2014 » Next Month »

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
					Actual: 71   56 Precip: 0.19 Average: 61   43 Precip: 0.10	Actual: 70   52 Precip: 0.00 Average: 61   43 Precip: 0.10
3	4	5	6	7	8	9
Actual: 54   36 Precip: 0.00 Average: 61   43 Precip: 0.10	Actual: 48   33 Precip: 0.00 Average: 60   43 Precip: 0.09	Actual: 61   38 Precip: 0.00 Average: 60   42 Precip: 0.10	Actual: 67   42 Precip: 0.00 Average: 60   42 Precip: 0.09	Actual: 62   47 Precip: 0.05 Average: 59   42 Precip: 0.10	Actual: 50   38 Precip: 0.00 Average: 59   41 Precip: 0.09	Actual: 52   35 Precip: 0.00 Average: 59   41 Precip: 0.09
10	11	12	13	14	15	16
Actual: 62   43 Precip: 0.00 Average: 58   41 Precip: 0.09	Actual: 55   40 Precip: 0.00 Average: 58   41 Precip: 0.09	Actual: 52   31 Precip: T Average: 58   40 Precip: 0.08	Actual: 41   28 Precip: 0.00 Average: 57   40 Precip: 0.09	Actual: 55   34 Precip: 0.00 Average: 57   40 Precip: 0.09	Actual: 56   35 Precip: 0.00 Average: 56   39 Precip: 0.10	Actual: 56   44 Precip: T Average: 56   39 Precip: 0.09
17	18	19	20	21	22	23
Actual: 69   51 Precip: 0.00 Average: 56   39 Precip: 0.10	Actual: 67   51 Precip: 0.18 Average: 55   39 Precip: 0.10	Actual: 52   36 Precip: 0.00 Average: 55   38 Precip: 0.11	Actual: 47   32 Precip: 0.00 Average: 54   38 Precip: 0.10	Actual: 55   33 Precip: 0.00 Average: 54   38 Precip: 0.10	Actual: 56   49 Precip: 0.03 Average: 54   37 Precip: 0.11	Actual: 55   31 Precip: 0.00 Average: 53   37 Precip: 0.10
24	25	26	27	28	29	30
Actual: 32   24 Precip: 0.00 Average: 53   37 Precip: 0.11	Actual: 35   20 Precip: 0.00 Average: 52   36 Precip: 0.11	Actual: 55   33 Precip: 0.72 Average: 52   36 Precip: 0.10	Actual: 64   33 Precip: 1.56 Average: 52   36 Precip: 0.11	Actual: 37   30 Precip: 0.00 Average: 51   35 Precip: 0.11	Actual: 42   28 Precip: 0.00 Average: 51   35 Precip: 0.12	Actual: 43   25 Precip: 0.00 Average: 50   35 Precip: 0.12

Calendar Legend

Sunny Clear  
 Mostly Cloudy Partly Sunny  
 Partly Cloudy Mostly  
 Sunny  
 Cloudy  
 Rain  
 Snow  
 Hail  
 Thunderstorms  
 Flurries  
 Hazy Fog  
 Sleet  
 ? denotes 'chance'  
 Unknown

Actual:	90   58	Data Category
Precip:	0.00	Condition
Average:	71   53	High Temp.
Precip:	0.03	Lo Temp.
		Precip. (in inches)
		Daily Avg. Temp.
		Temps in °F

80-30 0 30 60 90 120

Daily Weather History & Observations

2013	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high		
Nov																				
1	71	64	56	63	58	55	93	78	63	29.79	29.66	29.56	10	8	0	36	12	48	0.19	Rain

Comma Delimited File

2013	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visiblity (mi)			Wind (mph)			Precip. (in)	Events
2	70	61	52	55	45	38	93	65	37	29.83	29.70	29.65	10	10	7	18	6	24	0.00	
3	54	45	36	39	30	18	71	50	28	30.47	30.14	29.84	10	10	10	22	14	28	0.00	
4	48	41	33	28	19	13	60	42	24	30.65	30.60	30.50	10	10	10	18	8	22	0.00	
5	61	50	38	42	36	28	80	61	42	30.64	30.58	30.50	10	10	10	10	5	15	0.00	
6	67	55	42	53	45	40	89	69	48	30.50	30.32	30.09	10	10	10	16	6	18	0.00	
7	62	55	47	57	51	29	90	73	56	30.06	29.92	29.82	10	9	4	23	11	31	0.05	Rain
8	50	44	38	28	25	21	59	47	34	30.30	30.14	30.03	10	10	10	25	13	32	0.00	
9	52	44	35	34	27	23	64	49	33	30.34	30.23	30.03	10	10	10	15	8	20	0.00	
10	62	53	43	34	30	24	65	47	29	30.16	30.01	29.91	10	10	10	30	15	39	0.00	
11	55	48	40	36	29	25	56	47	38	30.27	30.16	30.01	10	10	10	18	11	25	0.00	
12	52	42	31	36	23	11	76	54	32	30.37	30.18	29.98	10	9	4	28	13	35	T	Rain , Snow
13	41	35	28	22	13	9	61	44	27	30.44	30.39	30.36	10	10	10	23	10	29	0.00	
14	55	45	34	27	17	4	61	38	14	30.34	30.29	30.23	10	10	10	21	12	24	0.00	
15	56	46	35	36	31	27	82	57	32	30.29	30.25	30.20	10	10	10	10	5	18	0.00	
16	56	50	44	46	43	37	83	75	66	30.36	30.30	30.27	10	9	7	8	2	12	T	Rain
17	69	60	51	58	51	46	84	72	59	30.27	30.09	29.80	10	9	7	16	6	21	0.00	
18	67	59	51	61	43	20	84	50	16	29.87	29.73	29.67	10	9	4	35	15	44	0.18	Rain
19	52	44	36	26	21	19	48	40	32	30.38	30.13	29.88	10	10	10	28	14	37	0.00	
20	47	40	32	20	16	10	56	41	25	30.60	30.53	30.38	10	10	10	15	7	20	0.00	
21	55	44	33	39	30	17	63	54	44	30.61	30.52	30.41	10	10	10	10	5	18	0.00	
22	56	53	49	49	45	39	89	76	63	30.41	30.17	29.97	10	9	4	15	7	23	0.03	Rain
23	55	43	31	45	24	11	77	54	31	30.12	30.05	29.99	10	10	10	29	16	35	0.00	
24	32	28	24	4	-2	-5	43	32	21	30.48	30.31	30.13	10	10	10	32	18	44	0.00	
25	35	28	20	17	11	7	57	46	35	30.56	30.47	30.38	10	10	10	16	9	23	0.00	
26	55	44	33	52	31	17	93	67	40	30.36	30.12	29.66	10	7	2	16	8	22	0.72	Rain
27	64	49	33	59	42	15	93	70	47	29.90	29.52	29.42	10	6	2	31	15	41	1.56	Rain
28	37	34	30	17	14	13	54	46	37	30.51	30.29	29.94	10	10	10	26	12	32	0.00	
29	42	35	28	21	17	15	69	52	34	30.75	30.61	30.50	10	10	10	15	5	21	0.00	
30	43	34	25	27	19	10	59	53	46	30.75	30.61	30.39	10	10	10	15	7	18	0.00	

Comma Delimited File

# Weather History for Philadelphia, PA

Month of December, 2013

Month of December, 2013

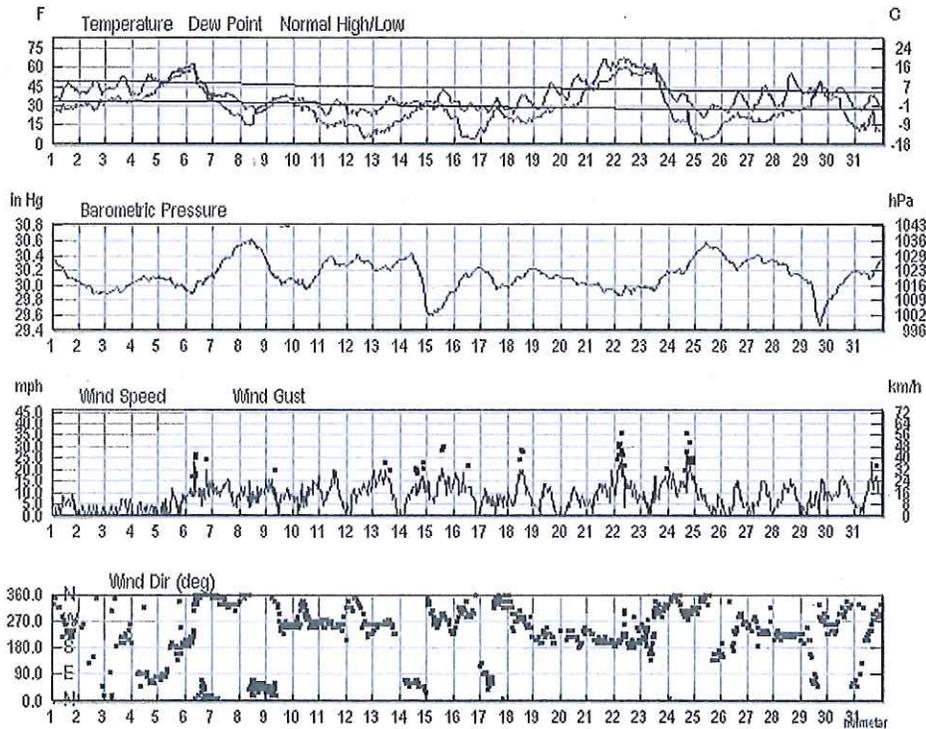
« Previous Month

December 1 2013 View

Next Month »

Daily Weekly Monthly Custom

	Max	Avg	Min	Sum
<b>Temperature</b>				
Max Temperature	68 °F	46 °F	30 °F	
Mean Temperature	64 °F	39 °F	27 °F	
Min Temperature	59 °F	32 °F	21 °F	
<b>Degree Days</b>				
Heating Degree Days (base 65)	38	26	1	807
Cooling Degree Days (base 65)	0	0	0	0
Growing Degree Days (base 50)	12	1	0	25
<b>Dew Point</b>				
Dew Point	61 °F	28 °F	3 °F	
<b>Precipitation</b>				
Precipitation	1.19 in	0.21 in	0.00 in	5.20 in
Snowdepth	6.0 in	1.0 in	0.0 in	-
<b>Wind</b>				
Wind	29 mph	8 mph	0 mph	
Gust Wind	36 mph	23 mph	16 mph	
<b>Sea Level Pressure</b>				
Sea Level Pressure	30.62 in	30.13 in	29.47 in	



Certify This Report

Precipitation: Actual month total 5.20 Normal month total 3.56

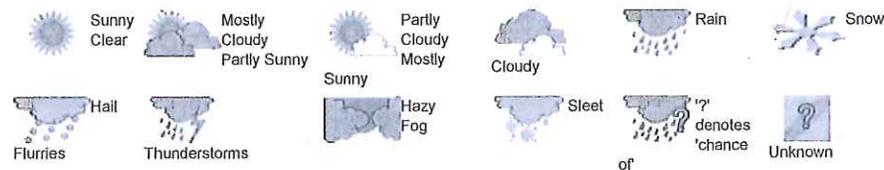
Print This Weather Calendar

Print This Weather Calendar

« Previous Month « 2012 December 2013 2014 » Next Month »

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
Actual: 48   33 Precip: 0.00 Average: 50   34 Precip: 0.12	Actual: 51   39 Precip: 0.00 Average: 49   34 Precip: 0.13	Actual: 54   39 Precip: 0.00 Average: 49   34 Precip: 0.12	Actual: 54   37 Precip: T Average: 49   34 Precip: 0.13	Actual: 60   49 Precip: T Average: 48   33 Precip: 0.12	Actual: 63   38 Precip: 0.77 Average: 48   33 Precip: 0.13	Actual: 41   33 Precip: 0.07 Average: 48   33 Precip: 0.12
8	9	10	11	12	13	14
Actual: 33   27 Precip: 0.57 Average: 47   32 Precip: 0.12	Actual: 38   32 Precip: 0.98 Average: 47   32 Precip: 0.13	Actual: 37   28 Precip: 0.27 Average: 46   32 Precip: 0.13	Actual: 35   21 Precip: 0.00 Average: 46   31 Precip: 0.12	Actual: 30   23 Precip: 0.00 Average: 46   31 Precip: 0.13	Actual: 37   24 Precip: 0.00 Average: 45   31 Precip: 0.12	Actual: 34   29 Precip: 0.70 Average: 45   30 Precip: 0.12
15	16	17	18	19	20	21
Actual: 43   32 Precip: 0.07 Average: 45   30 Precip: 0.11	Actual: 34   25 Precip: 0.00 Average: 44   30 Precip: 0.12	Actual: 35   25 Precip: 0.05 Average: 44   30 Precip: 0.11	Actual: 38   24 Precip: 0.00 Average: 44   29 Precip: 0.11	Actual: 48   27 Precip: 0.00 Average: 44   29 Precip: 0.11	Actual: 54   34 Precip: T Average: 43   29 Precip: 0.11	Actual: 67   45 Precip: 0.00 Average: 43   29 Precip: 0.11
22	23	24	25	26	27	28
Actual: 68   59 Precip: 0.04 Average: 43   28 Precip: 0.11	Actual: 63   42 Precip: 0.49 Average: 43   28 Precip: 0.12	Actual: 42   27 Precip: T Average: 42   28 Precip: 0.11	Actual: 32   21 Precip: 0.00 Average: 42   28 Precip: 0.11	Actual: 42   24 Precip: T Average: 42   28 Precip: 0.11	Actual: 46   25 Precip: 0.00 Average: 42   27 Precip: 0.10	Actual: 56   28 Precip: 0.00 Average: 42   27 Precip: 0.10
29	30	31				
Actual: 49   39 Precip: 1.19 Average: 41   27 Precip: 0.10	Actual: 46   27 Precip: 0.00 Average: 41   27 Precip: 0.09	Actual: 38   26 Precip: T Average: 41   27 Precip: 0.09				

Calendar Legend



Actual: 90   58	Data Category
Precip: 0.00	Condition
Average: 71   53	High Temp.
Precip: 0.03	Lo Temp.
	Precip. (in inches)
	Daily Avg. Temp.
	Temps in °F

## DENTAL ASSISTANT TRAINING

[CLICK HERE](#)

Daily Weather History & Observations

2013	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high	low	high	low		
Dec																				
1	48	41	33	31	28	25	70	58	45	30.36	30.19	30.05	10	10	10	9	4	11	0.00	
2	51	45	39	35	30	26	76	58	39	30.03	29.95	29.90	10	9	7	6	1	10	0.00	

Comma Delimited File

2013	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
3	54	47	39	37	34	32	76	61	46	30.03	29.95	29.90	9	7	5	9	3	13	0.00	
4	54	46	37	44	38	33	85	70	54	30.12	30.09	30.03	8	7	5	8	2	13	T	
5	60	55	49	57	51	45	96	88	80	30.12	30.04	29.95	7	4	0	14	4	17	T	Fog , Rain
6	63	51	38	59	46	34	93	83	73	30.17	30.02	29.89	10	6	2	25	11	30	0.77	Rain
7	41	37	33	34	29	23	85	70	54	30.54	30.32	30.11	10	10	6	21	10	25	0.07	Rain
8	33	30	27	28	22	14	92	71	49	30.62	30.52	30.33	10	4	0	17	10	21	0.57	Fog , Snow
9	38	35	32	34	32	28	92	89	85	30.33	30.13	30.02	7	4	2	17	9	22	0.98	Rain
10	37	33	28	31	28	17	92	75	58	30.21	30.03	29.96	10	4	0	18	9	22	0.27	Fog , Snow
11	35	28	21	19	15	13	74	59	43	30.40	30.31	30.22	10	10	10	23	10	26	0.00	
12	30	27	23	15	11	4	74	54	34	30.41	30.32	30.23	10	10	10	18	10	24	0.00	
13	37	31	24	18	13	8	60	46	32	30.35	30.25	30.21	10	10	10	23	12	29	0.00	
14	34	32	29	31	26	19	92	73	54	30.43	30.20	29.67	10	7	1	18	10	24	0.70	Rain , Snow
15	43	38	32	32	28	20	89	71	52	29.92	29.71	29.60	10	8	2	28	12	36	0.07	Rain , Snow
16	34	30	25	22	9	4	61	45	29	30.25	30.13	29.91	10	10	10	21	10	26	0.00	
17	35	30	25	28	21	9	85	64	42	30.23	30.07	29.96	10	8	3	13	7	17	0.05	Rain , Snow
18	38	31	24	21	19	16	81	61	40	30.23	30.12	29.99	10	10	9	23	11	30	0.00	
19	48	38	27	29	25	20	78	59	39	30.22	30.15	30.09	10	10	10	16	6	28	0.00	
20	54	44	34	44	33	28	86	64	41	30.12	30.07	30.01	10	10	10	15	6	20	T	
21	67	56	45	54	48	42	93	75	56	30.03	29.98	29.92	10	10	10	20	10	26	0.00	
22	68	64	59	61	58	54	84	78	72	29.99	29.94	29.86	10	9	2	26	14	36	0.04	Rain
23	63	53	42	61	53	29	93	77	61	30.20	29.99	29.93	10	7	1	23	9	30	0.49	Fog , Rain
24	42	35	27	28	19	8	69	54	39	30.42	30.24	30.16	10	10	2	29	14	36	T	Snow
25	32	27	21	16	7	3	53	43	32	30.57	30.50	30.43	10	10	10	17	6	23	0.00	
26	42	33	24	25	21	16	81	63	45	30.42	30.31	30.21	10	10	7	20	6	24	T	Snow
27	46	36	25	24	19	17	75	53	31	30.42	30.36	30.31	10	10	10	17	6	21	0.00	
28	56	42	28	27	25	21	78	54	30	30.32	30.22	30.12	10	10	10	20	9	23	0.00	
29	49	44	39	46	38	27	93	73	53	30.10	29.79	29.47	10	6	2	21	7	24	1.19	Rain
30	46	37	27	37	27	13	92	70	47	30.20	30.02	29.82	10	10	10	21	10	26	0.00	
31	38	32	26	27	16	10	63	49	35	30.35	30.19	30.11	10	10	7	24	9	31	T	Snow

Comma Delimited File

**Appendix K**  
**Flow Meter Calibration Reports**

**TheMeterGuy, LLC.**

5758 GLEN OAKS DRIVE NARVON, PA 17555  
PHONE: (717) 940-1987

**\*\*\*SERVICE REPORT\*\*\***

KAREN MADDEN  
WEST NORRITON  
1630 WEST MARSHALL  
JEFFERSONVILLE, PA 2/13/1953

**SERVICE DATE:** 11/26/2013  
**METER#:** C2000 AB  
**LOCATION:** RITTENHOUSE PUMP STATION  
**SERIAL #:** 8208A0402  
**MANUFACTURER:** FISCHER & PORTER  
**RECORDER:** 51C1102DC  
**TRANSMITTER:** 10D1416A  
**PRIMARY:** MAG  
**MAXIMUM CAPACITY:** 6000 GPM  
**SERVICE CONTRACT:** QUARTERLY

---

**\*WORK PERFORMED\***

**CLEANED EQUIPMENT:** X     **PRIMARY:** X

**\*RECORDER CALIBRATION\***    **CHECKED AT:** 0, 25, 50 & 100%  
**ERROR:** 0%     **CORRECTED ACCURACY:** ±1%

**\*TOTALIZER CALIBRATION\***    **CHECKED AT:** 0, 25, 50 & 100%  
**ERROR:** 0     **CORRECTED ACCURACY:** ±1%

**\*TRANSMITTER CALIBRATION\***  
0, 25, 50 & 100%  
**ERROR:** 0%     **CORRECTED ACCURACY:** ±1%

---

**COMMENTS:** LEFT EQUIPMENT OPERATING PROPERLY.

**SERVICE REPRESENTATIVE:** DAVE MOORE  
**copies:**

**PERSON SEEN:** ED CHELLIS

**TheMeterGuy, LLC.**

5758 GLEN OAKS DRIVE NARVON, PA 17555  
PHONE: (717) 940-1987

**\*\*\*SERVICE REPORT\*\*\***

KAREN MADDEN  
WEST NORRITON  
1630 WEST MARSHALL  
JEFFERSONVILLE, PA 2/13/1953

**SERVICE DATE:** 11/26/2013  
**METER#:** C2000 AC  
**LOCATION:** WHITEHALL ROAD  
**SERIAL #:** 8503A0455  
**MANUFACTURER:** FISCHER & PORTER  
**RECORDER:** 51C1102DZ  
**TRANSMITTER:** 50PZ1112  
**PRIMARY:** MAG X  
**MAXIMUM CAPACITY:** 3000 GPM  
**SERVICE CONTRACT:** QUARTERLY

---

**\*WORK PERFORMED\***

**CLEANED EQUIPMENT:** X     **PRIMARY:** X

**\*RECORDER CALIBRATION\***    **CHECKED AT:** 0, 15, 50 & 80%  
**ERROR:** 0%     **CORRECTED ACCURACY:** ±1%

**\*TOTALIZER CALIBRATION\***    **CHECKED AT:** 0, 15, 50 & 80%  
**ERROR:** 0%     **CORRECTED ACCURACY:** ±1%

**\*TRANSMITTER CALIBRATION\***  
0, 15, 50 & 80%  
**ERROR:** 0%     **CORRECTED ACCURACY:** ±1%

---

**COMMENTS:** LEFT EQUIPMENT OPERATING PROPERLY.

**SERVICE REPRESENTATIVE:** DAVE MOORE  
**copies:**

**PERSON SEEN:** ED CHELLIS

**TheMeterGuy, LLC.**

5758 GLEN OAKS DRIVE NARVON, PA 17555  
PHONE: (717) 940-1987

**\*\*\*SERVICE REPORT\*\*\***

KAREN MADDEN  
WEST NORRITON  
1630 WEST MARSHALL  
JEFFERSONVILLE, PA 2/13/1953

**SERVICE DATE:** 11/26/2013  
**METER#:** C2000 AA  
**LOCATION:** JACKSON STREET  
**SERIAL #:** 9902E3010E6/US21707-001  
**MANUFACTURER:** E & H/CHESELL  
**RECORDER:** 392  
**TRANSMITTER:** FMU90  
**PRIMARY:** 9" PARSHALL FLUME  
**MAXIMUM CAPACITY:** 3.5 MGD  
**SERVICE CONTRACT:** QUARTERLY.

---

**\*WORK PERFORMED\***

**CLEANED EQUIPMENT:** X    **PRIMARY:** X

**\*RECORDER CALIBRATION\***    **CHECKED AT:** 0, 25, 50 & 100%  
**ERROR:** 0%    **CORRECTED ACCURACY:** ±1%

**\*TOTALIZER CALIBRATION\***    **CHECKED AT:** 0, 25, 50 & 100%  
**ERROR:** 0%    **CORRECTED ACCURACY:** ±1%

**\*TRANSMITTER CALIBRATION\***  
FLOW MEASUREMENTS  
**ERROR:** 0%    **CORRECTED ACCURACY:** ±1%

---

**COMMENTS:** LEFT EQUIPMENT OPERATING PROPERLY.

**SERVICE REPRESENTATIVE:** DAVE MOORE  
copies:

**PERSON SEEN:** ED CHELLIS

**TheMeterGuy, LLC.**

5758 GLEN OAKS DRIVE NARVON, PA 17555  
PHONE: (717) 940-1987

**\*\*\*SERVICE REPORT\*\*\***

KAREN MADDEN  
WEST NORRITON  
1630 WEST MARSHALL  
JEFFERSONVILLE, PA 2/13/1953

**SERVICE DATE:** 11/26/2013  
**METER#:** C2000 AD  
**LOCATION:** PORT INDIAN  
**SERIAL #:** BF104551-001-01-01  
**MANUFACTURER:** F&P / FLOMOTION  
**RECORDER:** 1392  
**TRANSMITTER:** BE6200  
**PRIMARY:** 8 INCH  
**MAXIMUM CAPACITY:** 1500 GPM  
**SERVICE CONTRACT:** QUARTERLY

---

**\*WORK PERFORMED\***

**CLEANED EQUIPMENT:** X      **PRIMARY:** X

**\*RECORDER CALIBRATION\***    **CHECKED AT:** 0, 25, 50 & 100%  
**ERROR:** 0%      **CORRECTED ACCURACY:** ±1%

**\*TOTALIZER CALIBRATION\***    **CHECKED AT:** 0, 50 & 100%  
**ERROR:** 0%      **CORRECTED ACCURACY:** ±1%

**\*TRANSMITTER CALIBRATION\***  
**CHECKED OUTPUT AT ZERO FLOW**  
**ERROR:** 0%      **CORRECTED ACCURACY:** ±1%

---

**COMMENTS:** \*\* REPLACED FLOODED TRANSMITTER WITH FLOMOTION BE6200 ON 9/30/2013.  
LEFT EQUIPMENT OPERATING PROPERLY.

**SERVICE REPRESENTATIVE:** DAVE MOORE  
copies:

**PERSON SEEN:** ED CHELLIS

**TheMeterGuy, LLC.**

5758 GLEN OAKS DRIVE NARVON, PA 17555  
PHONE: (717) 940-1987

**\*\*\*SERVICE REPORT\*\*\***

KAREN MADDEN  
WEST NORRITON  
1630 WEST MARSHALL  
JEFFERSONVILLE, PA 2/13/1953

**SERVICE DATE:** 11/26/2013  
**METER#:** C2000 AE  
**LOCATION:** CHESTNUT STREET  
**SERIAL #:** N28401/20/4  
**MANUFACTURER:** ABB  
**RECORDER:** 1900 COMMANDER  
**TRANSMITTER:** MAGMASTER  
**PRIMARY:** 4 INCH  
**MAXIMUM CAPACITY:** 500 GPM  
**SERVICE CONTRACT:** QUARTERLY

---

**\*WORK PERFORMED\***

**CLEANED EQUIPMENT:** X     **PRIMARY:** X

**\*RECORDER CALIBRATION\***    CHECKED AT: 0, 25, 50 & 100%  
**ERROR:** 0%     **CORRECTED ACCURACY:** ±1%

**\*TOTALIZER CALIBRATION\***    CHECKED AT: ZERO & FLOW RATE  
**ERROR:** 0%     **CORRECTED ACCURACY:** ±1%

**\*TRANSMITTER CALIBRATION\***  
CHECKED OUTPUT AT ZERO & FLOW RATE  
**ERROR:** 0%     **CORRECTED ACCURACY:** ±1%

---

**COMMENTS:** LEFT EQUIPMENT OPERATING PROPERLY.

**SERVICE REPRESENTATIVE:** DAVE MOORE  
copies:

**PERSON SEEN:** ED CHELLIS

**TheMeterGuy, LLC.**

5758 GLEN OAKS DRIVE NARVON, PA 17555  
PHONE: (717) 940-1987

**\*\*\*SERVICE REPORT\*\*\***

KAREN MADDEN  
WEST NORRITON  
1630 WEST MARSHALL  
JEFFERSONVILLE, PA 2/13/1953

**SERVICE DATE:** 11/26/2013  
**METER#:** C2000 AF  
**LOCATION:** MONTGOMERY STREET  
**SERIAL #:** US21223-001-01-01-37-07  
**MANUFACTURER:** E & H/ CHESSELL  
**RECORDER:** 392  
**TRANSMITTER:** FMU 90  
**PRIMARY:** 90 V-NOTCH  
**MAXIMUM CAPACITY:** 1000 GPM  
**SERVICE CONTRACT:** QUARTERLY

---

**\*WORK PERFORMED\***

**CLEANED EQUIPMENT:** X     **PRIMARY:** X

**\*RECORDER CALIBRATION\***    **CHECKED AT:** 0,25,50,75,& 100  
**ERROR:** 0%     **CORRECTED ACCURACY:** ±1%

**\*TOTALIZER CALIBRATION\***    **CHECKED AT:** 0,25,50,75, & 100  
**ERROR:** 0%     **CORRECTED ACCURACY:** ± 1%

**\*TRANSMITTER CALIBRATION\***  
FLOW MEASUREMENTS  
**ERROR:** +1/2%     **CORRECTED ACCURACY:** ± 1%

---

**COMMENTS:** LEFT EQUIPMENT OPERATING PROPERLY.

**SERVICE REPRESENTATIVE:** DAVE MOORE  
**copies:**

**PERSON SEEN:** ED CHELLIS

# The Meter Guy, LLC

5758 Glen Oaks Drive  
 Narvon, PA 17555  
 Phone 717-768-0028  
 Fax: 866-323-5142

JUL 29 2013

# Invoice

DATE	INVOICE #
7/22/2013	469

<b>BILL TO</b>
WEST NORRITON 1634 WEST MARSHALL STREET JEFFERSONVILLE, PA 19403 ATTN: ACCOUNTS PAYABLE

<b>SHIP TO</b>
WEST NORRITON 1634 WEST MARSHALL STREET JEFFERSONVILLE, PA 19403 ATTN: TONY TUSKI

P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
	Net 30	DEM	5/9/2013	Our Truck		

QUANTITY	ITEM CODE	DESCRIPTION	PRICE EACH	AMOUNT
8	Hours	Quarterly service to calibrate flowmeters on 4/26/2013	70.00	560.00
65	miles	mileage	0.50	32.50
5	Hours	Service to replace totalizer at Rittenhouse and check Chestnut with Flomotion BE 6200 on 5/9/2013	70.00	350.00
65	miles	Mileage	0.50	32.50
1	Charts	GDSV0100U100 for Jackson	29.95	29.95
5	Charts	211G071 charts for Rittenhouse	29.95	149.75
5	Charts	211G021 charts for Whitehall	29.95	149.75
1	Misc	Totalizer with enclosure	125.00	125.00

**APPROVED FOR PAYMENT**

DEPT. CHRNM.      FINANCE CHRNM.

**DISTRIBUTION**

WARRANT NO. \_\_\_\_\_

DATE 8/2/13

80  
 H20  
 272512  
*P.S. MAINTENANCE Acct*

**Total** \$1,429.45

**TheMeterGuy, LLC.**

5758 GLEN OAKS DRIVE NARVON, PA 17555  
PHONE: (717) 940-1987

**\*\*\*SERVICE REPORT\*\*\***

KAREN MADDEN  
WEST NORRITON  
1630 WEST MARSHALL  
JEFFERSONVILLE, PA 19403

**SERVICE DATE:** 4/26/2013  
**METER#:** C2000 AA  
**LOCATION:** JACKSON STREET  
**SERIAL #:** 9902E3010E6/US21707-001  
**MANUFACTURER:** E & H/CHESELL  
**RECORDER:** 392  
**TRANSMITTER:** FMU90  
**PRIMARY:** 9" PARSHALL FLUME  
**MAXIMUM CAPACITY:** 3.5 MGD  
**SERVICE CONTRACT:** QUARTERLY

---

**\*WORK PERFORMED\***

**CLEANED EQUIPMENT:** X     **PRIMARY:** X

**\*RECORDER CALIBRATION\***    **CHECKED AT:** 0, 25, 50 & 100%  
**ERROR:** 0%     **CORRECTED ACCURACY:** ±1%

**\*TOTALIZER CALIBRATION\***    **CHECKED AT:** 0, 25, 50 & 100%  
**ERROR:** 0%     **CORRECTED ACCURACY:** ±1%

**\*TRANSMITTER CALIBRATION\***  
FLOW MEASUREMENTS  
**ERROR:** 0%     **CORRECTED ACCURACY:** ±1%

---

**COMMENTS:** LEFT EQUIPMENT OPERATING PROPERLY.

**SERVICE REPRESENTATIVE:** DAVE MOORE  
copies:

**PERSON SEEN:** ED CHELLIS

**TheMeterGuy, LLC.**

5758 GLEN OAKS DRIVE NARVON, PA 17555  
PHONE: (717) 940-1987

**\*\*\*SERVICE REPORT\*\*\***

KAREN MADDEN  
WEST NORRITON  
1630 WEST MARSHALL  
JEFFERSONVILLE, PA 19403

SERVICE DATE: 4/26/2013  
METER#: C2000 AB  
LOCATION: RITTENHOUSE PUMP STATION  
SERIAL #: 8208A0402  
MANUFACTURER: FISCHER & PORTER  
RECORDER: 51C1102DC  
TRANSMITTER: 10D1416A  
PRIMARY: MAG  
MAXIMUM CAPACITY: 6000 GPM  
SERVICE CONTRACT: QUARTERLY

---

**\*WORK PERFORMED\***

CLEANED EQUIPMENT: X      PRIMARY: X

**\*RECORDER CALIBRATION\***    CHECKED AT: 0, 25, 50 & 100%  
ERROR: 0%      CORRECTED ACCURACY: ±1%

**\*TOTALIZER CALIBRATION\***    CHECKED AT: 0, 25, 50 & 100%  
ERROR: \*      CORRECTED ACCURACY: ±1%

**\*TRANSMITTER CALIBRATION\***  
0, 25, 50 & 100%  
ERROR: 0%      CORRECTED ACCURACY: ±1%

---

COMMENTS: \* FOUND TOTALIZER WAS MISSING COUNTS--REPLACED WITH AN LCD TYPE. LEFT EQUIPMENT OPERATING PROPERLY.

SERVICE REPRESENTATIVE: DAVE MOORE  
copies:

PERSON SEEN: ED CHELLIS

**TheMeterGuy, LLC.**

5758 GLEN OAKS DRIVE NARVON, PA 17555  
PHONE: (717) 940-1987

**\*\*\*SERVICE REPORT\*\*\***

KAREN MADDEN  
WEST NORRITON  
1630 WEST MARSHALL  
JEFFERSONVILLE, PA 19403

**SERVICE DATE:** 4/26/2013  
**METER#:** C2000 AC  
**LOCATION:** WHITEHALL ROAD  
**SERIAL #:** 8503A0455  
**MANUFACTURER:** FISCHER & PORTER  
**RECORDER:** 51C1102DZ  
**TRANSMITTER:** 50PZ1112  
**PRIMARY:** MAG X  
**MAXIMUM CAPACITY:** 3000 GPM  
**SERVICE CONTRACT:** QUARTERLY

---

**\*WORK PERFORMED\***

**CLEANED EQUIPMENT:** X      **PRIMARY:** X

**\*RECORDER CALIBRATION\*** CHECKED AT: 0, 15, 50 & 80%  
**ERROR:** 0%      **CORRECTED ACCURACY:** ±1%

**\*TOTALIZER CALIBRATION\*** CHECKED AT: 0, 15, 50 & 80%  
**ERROR:** 0%      **CORRECTED ACCURACY:** ±1%

**\*TRANSMITTER CALIBRATION\***  
0, 15, 50 & 80%  
**ERROR:** 0%      **CORRECTED ACCURACY:** ±1%

---

**COMMENTS:** LEFT EQUIPMENT OPERATING PROPERLY.

**SERVICE REPRESENTATIVE:** DAVE MOORE  
copies:

**PERSON SEEN:** ED CHELLIS

# TheMeterGuy, LLC.

5758 GLEN OAKS DRIVE NARVON, PA 17555  
PHONE: (717) 940-1987

## \*\*\*SERVICE REPORT\*\*\*

KAREN MADDEN  
WEST NORRITON  
1630 WEST MARSHALL  
JEFFERSONVILLE, PA 19403

**SERVICE DATE:** 4/26/2013  
**METER#:** C2000 AD  
**LOCATION:** PORT INDIAN  
**SERIAL #:** BF104551-001-01-01  
**MANUFACTURER:** BAILEY FISHER & PORTER  
**RECORDER:** 1392  
**TRANSMITTER:** 10DX4311  
**PRIMARY:** 8 INCH  
**MAXIMUM CAPACITY:** 1500 GPM  
**SERVICE CONTRACT:** QUARTERLY

---

### \*WORK PERFORMED\*

**CLEANED EQUIPMENT:** X      **PRIMARY:** X

**\*RECORDER CALIBRATION\*** CHECKED AT: 0, 25, 50 & 100%  
**ERROR:** 0%      **CORRECTED ACCURACY:** ±1%

**\*TOTALIZER CALIBRATION\*** CHECKED AT: 0, 50 & 100%  
**ERROR:** 0%      **CORRECTED ACCURACY:** ±1%

**\*TRANSMITTER CALIBRATION\***  
CHECKED OUTPUT AT ZERO FLOW  
**ERROR:** 0%      **CORRECTED ACCURACY:** ±1%

---

**COMMENTS:** LEFT EQUIPMENT OPERATING PROPERLY.

**SERVICE REPRESENTATIVE:** DAVE MOORE  
copies:

**PERSON SEEN:** ED CHELLIS

**TheMeterGuy, LLC.**

5758 GLEN OAKS DRIVE NARVON, PA 17555  
PHONE: (717) 940-1987

**\*\*\*SERVICE REPORT\*\*\***

KAREN MADDEN  
WEST NORRITON  
1630 WEST MARSHALL  
JEFFERSONVILLE, PA 19403

**SERVICE DATE:** 4/26/2013  
**METER#:** C2000 AE  
**LOCATION:** CHESTNUT STREET  
**SERIAL #:** N28401/20/4  
**MANUFACTURER:** ABB  
**RECORDER:** 1900 COMMANDER  
**TRANSMITTER:** MAGMASTER  
**PRIMARY:** 4 INCH  
**MAXIMUM CAPACITY:** 500 GPM  
**SERVICE CONTRACT:** QUARTERLY

---

**\*WORK PERFORMED\***

**CLEANED EQUIPMENT:** X      **PRIMARY:** X

**\*RECORDER CALIBRATION\***    **CHECKED AT:** 0, 25, 50 & 100%  
**ERROR:** 0%      **CORRECTED ACCURACY:** ±1%

**\*TOTALIZER CALIBRATION\***    **CHECKED AT:** ZERO & FLOW RATE  
**ERROR:** 0%      **CORRECTED ACCURACY:** ±1%

**\*TRANSMITTER CALIBRATION\***  
**CHECKED OUTPUT AT ZERO & FLOW RATE**  
**ERROR:** 0%      **CORRECTED ACCURACY:** ±1%

---

**COMMENTS:** CHECKED METER WITH BE6000 FLOW METER. LEFT EQUIPMENT OPERATING PROPERLY.

**SERVICE REPRESENTATIVE:** DAVE MOORE  
copies:

**PERSON SEEN:** ED CHELLIS

**TheMeterGuy, LLC.**

5758 GLEN OAKS DRIVE NARVON, PA 17555  
PHONE: (717) 940-1987

**\*\*\*SERVICE REPORT\*\*\***

KAREN MADDEN  
WEST NORRITON  
1630 WEST MARSHALL  
JEFFERSONVILLE, PA 19403

**SERVICE DATE:** 4/26/2013  
**METER#:** C2000 AF  
**LOCATION:** MONTGOMERY STREET  
**SERIAL #:** US21223-001-01-01-37-07  
**MANUFACTURER:** E & H/ CHESSELL  
**RECORDER:** 392  
**TRANSMITTER:** FMU 90  
**PRIMARY:** 90 V-NOTCH  
**MAXIMUM CAPACITY:** 1000 GPM  
**SERVICE CONTRACT:** QUARTERLY

---

**\*WORK PERFORMED\***

**CLEANED EQUIPMENT:** X      **PRIMARY:** X

**\*RECORDER CALIBRATION\***    **CHECKED AT:** 0,25,50,75,& 100  
**ERROR:** 0%      **CORRECTED ACCURACY:** ±1%

**\*TOTALIZER CALIBRATION\***    **CHECKED AT:** 0,25,50,75, & 100  
**ERROR:** 0%      **CORRECTED ACCURACY:** ± 1%

**\*TRANSMITTER CALIBRATION\***  
**FLOW MEASUREMENTS**  
**ERROR:** 0%      **CORRECTED ACCURACY:** ± 1%

---

**COMMENTS:** LEFT EQUIPMENT OPERATING PROPERLY.

**SERVICE REPRESENTATIVE:** DAVE MOORE  
**copies:**

**PERSON SEEN:** ED CHELLIS

**The Meter Guy, LLC**

5758 Glen Oaks Drive  
 Narvon, PA 17555  
 Phone 717-768-0028  
 Fax: 866-323-5142

FEB 27 2013

**Invoice**

DATE	INVOICE #
2/18/2013	1551

**BILL TO**

WEST NORRITON  
 1634 WEST MARSHALL STREET  
 JEFFERSONVILLE, PA 19403  
 ATTN: ACCOUNTS PAYABLE

**SHIP TO**

WEST NORRITON  
 1634 WEST MARSHALL STREET  
 JEFFERSONVILLE, PA 19403  
 ATTN: TONY TUSKI

P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
	Net 30	DEM	1/10/2013	Our Truck		

QUANTITY	ITEM CODE	DESCRIPTION	PRICE EACH	AMOUNT
8	Hours	Quarterly service to calibrate flow meters	70.00	560.00
65	miles	mileage	0.50	32.50



OK 7-12-13 - PS. Maint.  
 ACCT

**Total** \$592.50

**TheMeterGuy, LLC.**

5758 GLEN OAKS DRIVE NARVON, PA 17555  
PHONE: (717) 940-1987

**\*\*\*SERVICE REPORT\*\*\***

KAREN MADDEN  
WEST NORRITON  
1630 WEST MARSHALL  
JEFFERSONVILLE, PA 19403

**SERVICE DATE:** 1/10/2013  
**METER#:** C2000 AA  
**LOCATION:** JACKSON STREET  
**SERIAL #:** 9902E3010E6/US21707-001  
**MANUFACTURER:** E & H/CHESELL  
**RECORDER:** 392  
**TRANSMITTER:** FMU90  
**PRIMARY:** 9" PARSHALL FLUME  
**MAXIMUM CAPACITY:** 3.5 MGD  
**SERVICE CONTRACT:** QUARTERLY

---

**\*WORK PERFORMED\***

**CLEANED EQUIPMENT:** X     **PRIMARY:** X

**\*RECORDER CALIBRATION\*** CHECKED AT: 0, 25, 50 & 100%  
**ERROR:** 0%     **CORRECTED ACCURACY:** ±1%

**\*TOTALIZER CALIBRATION\*** CHECKED AT: 0, 25, 50 & 100%  
**ERROR:** 0%     **CORRECTED ACCURACY:** ±1%

**\*TRANSMITTER CALIBRATION\***  
FLOW MEASUREMENTS  
**ERROR:** 0%     **CORRECTED ACCURACY:** ±1%

---

**COMMENTS:** LEFT EQUIPMENT OPERATING PROPERLY.

**SERVICE REPRESENTATIVE:** DAVE MOORE     **PERSON SEEN:** CHRIS CALLAHAN  
copies:

**TheMeterGuy, LLC.**

5758 GLEN OAKS DRIVE NARVON, PA 17555  
PHONE: (717) 940-1987

**\*\*\*SERVICE REPORT\*\*\***

KAREN MADDEN  
WEST NORRITON  
1630 WEST MARSHALL  
JEFFERSONVILLE, PA 19403

**SERVICE DATE:** 1/10/2013  
**METER#:** C2000 AB  
**LOCATION:** RITTENHOUSE PUMP STATION  
**SERIAL #:** 8208A0402  
**MANUFACTURER:** FISCHER & PORTER  
**RECORDER:** 51C1102DC  
**TRANSMITTER:** 10D1416A  
**PRIMARY:** MAG  
**MAXIMUM CAPACITY:** 6000 GPM  
**SERVICE CONTRACT:** QUARTERLY

---

**\*WORK PERFORMED\***

**CLEANED EQUIPMENT:** X      **PRIMARY:** X

**\*RECORDER CALIBRATION\*** CHECKED AT: 0, 25, 50 & 100%  
**ERROR:** 0%      **CORRECTED ACCURACY:** ±1%

**\*TOTALIZER CALIBRATION\*** CHECKED AT: 0, 25, 50 & 100%  
**ERROR:** 0%      **CORRECTED ACCURACY:** ±1%

**\*TRANSMITTER CALIBRATION\***  
0, 25, 50 & 100%  
**ERROR:** +0%      **CORRECTED ACCURACY:** ±1%

---

**COMMENTS:** LEFT EQUIPMENT OPERATING PROPERLY.

**SERVICE REPRESENTATIVE:** DAVE MOORE  
**copies:**

**PERSON SEEN:** CHRIS CALLAHAN

**TheMeterGuy, LLC.**

5758 GLEN OAKS DRIVE NARVON, PA 17555  
PHONE: (717) 940-1987

**\*\*\*SERVICE REPORT\*\*\***

KAREN MADDEN  
WEST NORRITON  
1630 WEST MARSHALL  
JEFFERSONVILLE, PA 19403

SERVICE DATE: 1/10/2013  
METER#: C2000 AC  
LOCATION: WHITEHALL ROAD  
SERIAL #: 8503A0455  
MANUFACTURER: FISCHER & PORTER  
RECORDER: 51C1102DZ  
TRANSMITTER: 50PZ1112  
PRIMARY: MAG X  
MAXIMUM CAPACITY: 3000 GPM  
SERVICE CONTRACT: QUARTERLY

---

**\*WORK PERFORMED\***

CLEANED EQUIPMENT: X      PRIMARY: X

**\*RECORDER CALIBRATION\*** CHECKED AT: 0, 15, 50 & 80%  
ERROR: 0%      CORRECTED ACCURACY:  $\pm 1\%$

**\*TOTALIZER CALIBRATION\*** CHECKED AT: 0, 15, 50 & 80%  
ERROR: 0%      CORRECTED ACCURACY:  $\pm 1\%$

**\*TRANSMITTER CALIBRATION\***  
0, 15, 50 & 80%  
ERROR: 0%      CORRECTED ACCURACY:  $\pm 1\%$

---

COMMENTS: LEFT EQUIPMENT OPERATING PROPERLY.

SERVICE REPRESENTATIVE: DAVE MOORE  
copies:

PERSON SEEN: CHRIS CALLAHAN

**TheMeterGuy, LLC.**

5758 GLEN OAKS DRIVE NARVON, PA 17555  
PHONE: (717) 940-1987

**\*\*\*SERVICE REPORT\*\*\***

KAREN MADDEN  
WEST NORRITON  
1630 WEST MARSHALL  
JEFFERSONVILLE, PA 19403

SERVICE DATE: 1/10/2013  
METER#: C2000 AD  
LOCATION: PORT INDIAN  
SERIAL #: BF104551-001-01-01  
MANUFACTURER: BAILEY FISHER & PORTER  
RECORDER: 1392  
TRANSMITTER: 10DX4311  
PRIMARY: 8 INCH  
MAXIMUM CAPACITY: 1500 GPM  
SERVICE CONTRACT: QUARTERLY

---

**\*WORK PERFORMED\***

CLEANED EQUIPMENT: X    PRIMARY: X

**\*RECORDER CALIBRATION\*** CHECKED AT: 0, 25, 50 & 100%  
ERROR: 0%    CORRECTED ACCURACY: ±1%

**\*TOTALIZER CALIBRATION\*** CHECKED AT: 0, 50 & 100%  
ERROR: 0%    CORRECTED ACCURACY: ±1%

**\*TRANSMITTER CALIBRATION\***  
CHECKED OUTPUT AT ZERO FLOW  
ERROR: 0%    CORRECTED ACCURACY: ±1%

---

COMMENTS: LEFT EQUIPMENT OPERATING PROPERLY.

SERVICE REPRESENTATIVE: DAVE MOORE    PERSON SEEN: CHRIS CALLAHAN  
copies:

TheMeterGuy, LLC.  
5758 GLEN OAKS DRIVE NARVON, PA 17555  
PHONE: (717) 940-1987

\*\*\*SERVICE REPORT\*\*\*

KAREN MADDEN  
WEST NORRITON  
1630 WEST MARSHALL  
JEFFERSONVILLE, PA 19403

SERVICE DATE: 1/10/2013  
METER#: C2000 AE  
LOCATION: CHESTNUT STREET  
SERIAL #: N28401/20/4  
MANUFACTURER: ABB  
RECORDER: 1900 COMMANDER  
TRANSMITTER: MAGMASTER  
PRIMARY: 4 INCH  
MAXIMUM CAPACITY: 500 GPM  
SERVICE CONTRACT: QUARTERLY

---

\*WORK PERFORMED\*

CLEANED EQUIPMENT: X      PRIMARY: X

**\*RECORDER CALIBRATION\***    CHECKED AT: 0, 25, 50 & 100%  
ERROR: 0%      CORRECTED ACCURACY:  $\pm 1\%$

**\*TOTALIZER CALIBRATION\***    CHECKED AT: ZERO & FLOW RATE  
ERROR: 0%      CORRECTED ACCURACY:  $\pm 1\%$

**\*TRANSMITTER CALIBRATION\***  
CHECKED OUTPUT AT ZERO & FLOW RATE  
ERROR: 0%      CORRECTED ACCURACY:  $\pm 1\%$

---

COMMENTS: LEFT EQUIPMENT OPERATING PROPERLY.

SERVICE REPRESENTATIVE: DAVE MOORE  
copies:

PERSON SEEN: CHRIS CALLAHAN

**TheMeterGuy, LLC.**

5758 GLEN OAKS DRIVE NARVON, PA 17555  
PHONE: (717) 940-1987

**\*\*\*SERVICE REPORT\*\*\***

KAREN MADDEN  
WEST NORRITON  
1630 WEST MARSHALL  
JEFFERSONVILLE, PA 19403

SERVICE DATE: 1/10/2013  
METER#: C2000 AF  
LOCATION: MONTGOMERY STREET  
SERIAL #: US21223-001-01-01-37-07  
MANUFACTURER: E & H/ CHESSELL  
RECORDER: 392  
TRANSMITTER: FMU 90  
PRIMARY: 90 V-NOTCH  
MAXIMUM CAPACITY: 1000 GPM  
SERVICE CONTRACT: QUARTERLY

---

**\*WORK PERFORMED\***

CLEANED EQUIPMENT: X      PRIMARY: X

**\*RECORDER CALIBRATION\*** CHECKED AT: 0,25,50,75,& 100  
ERROR: 0%      CORRECTED ACCURACY:  $\pm 1\%$

**\*TOTALIZER CALIBRATION\*** CHECKED AT: 0,25,50,75, & 100  
ERROR: 0%      CORRECTED ACCURACY:  $\pm 1\%$

**\*TRANSMITTER CALIBRATION\***  
FLOW MEASUREMENTS  
ERROR: 0%      CORRECTED ACCURACY:  $\pm 1\%$

---

COMMENTS: LEFT EQUIPMENT OPERATING PROPERLY.

SERVICE REPRESENTATIVE: DAVE MOORE  
copies:

PERSON SEEN: CHRIS CALLAHAN

**Appendix L**  
**Pump Station Monthly Reports**

**WEST NORRITON**  
**RITTENHOUSE PUMP STATION**

Operator: Toni Tuski

Date: January 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<b><u>Station Exterior</u></b>		
Fascia & Cornice	3	
Roof	3	
Grounds, Weeds	3	
Driveway	3	
<b><u>Wetwell</u></b>		
Grease Buildup	1	Needs cleaning
Stairwells	1	Railing needs to be replaced
Comminutor	3	
Valves	1	Trying to shut valves
<b><u>Station Interior</u></b>		
<b><u>#1 Pump</u></b>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Flow Matchers	3	
Pillow Block		
Bearing	3	
<b><u>#2 Pump</u></b>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	2	
Flow Matcher	3	
Pillow Block	2	
Bearing	3	
Generator	3	
<b><u>Plant Air</u></b>		
Compressor	3	
Pumps Packing	3	
Sump Pump	3	
Pump Bearing	3	
<b><u>Auto Dialer</u></b>	<b>2</b>	<b>Needs upgrade</b>

**WEST NORRITON**  
**RITTENHOUSE PUMP STATION**

Operator: Tony Tuski

Date: January 2013

<u>Ventilation</u>	<u>Priority</u>	<u>Remarks</u>
Dry well	3	
Wetwell	3	
Electric Heaters	3	
<b>#3 Pump</b>		
Motor	3	
Rings	3	
Brushes	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Flow Matcher	3	
Pillow Block		
Bearing	3	
Pump Bearings	3	

**1 - Immediate Priority; 2 - Priority; 3 - Needs No Attention**

<u>DATE</u>		<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
1/1/2013	- 2/1/2013	52,957,200	1,708,296

<u>DATE</u>	<u>Pump Run Hours</u>			<u>Run Hours Per Day</u>		
	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>
1/1/2013-2/1/2013	221.4	236.2	249.6	7.13	7.62	8.05

**Comments:**

- 1/10/2013: The Meter Guy was in to calibrated the flow meter.
- 1/23/2013: Electrician in to check the drywell exhaust fan that had been tripping out and the louvers would not open. He found a burned out wire and a bad contact. Both were repaired and all is fine now.
- The station is running fine at this time.

RITTENHOUSE

Operator: Tony Tuski

Date: February 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<u>Exterior</u>		
Fascia & Cornice	3	
Roof	3	
Grounds, Weeds	3	
Driveway	3	
<u>Wetwell</u>		
Grease Buildup	3	Needs cleaning
Stairwells	1	Railing needs to be replaced
Comminutor	3	
Valves	3	#2 Side needs to be replaced
<u>Station Interior</u>		
<u>#1 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Flow Matchers	3	
Pillow Block		
Bearing	3	
<u>#2 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	2	
Flow Matcher	3	
Pillow Block	2	
Bearing	3	
Generator	3	
<u>Plant Air</u>		
Compressor	3	
Pumps Packing	3	
Sump Pump	3	
Pump Bearing	3	

RITTENHOUSE

Operator: Tony Tuski

Date: February 2013

Audio Dialer 2 Needs upgrade

Ventilation Priority Remarks

Dry well 3  
Wetwell 3  
Electric Heaters 3

#3 Pump

Motor 3  
Rings 3  
Brushes 3  
Drive Shafts 3  
U-Joints 3  
Pump Bearings 3  
Valves 3  
Flow Matcher 3  
Pillow Block  
Bearing 3  
Pump Bearings 3

1 - Immediate Priority; 2 - Priority; 3 - Needs No Attention

<u>DATE</u>		<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
2/1/2013	3/1/2013	49,957,200	1,603,490

<u>DATE</u>	<u>Pump Run Hours</u>			<u>Run Hours Per Day</u>		
	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>
2/1/2013-3/1/2013	186.3	300.4	211.9	6.65	10.7	7.5

Comments

2/5/2013 The #3 pump tripped out due to low electrolyte level . Possible leak we are using a lot of water in this load cell.  
2/13/2013 The #2 pump pillow block bearing was very noisy. They were greased but did not quiet it.  
2/14/2013 M&B maintenance in to replace pillow block bearing for the #2 pump.  
2/27/2013 Pump #1 out on overheat. Reset - seems okay.

RITTENHOUSE

Operator: Tony Tuski

Date: March 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<u>Exterior</u>		
Fascia & Cornice	3	
Roof	3	
Grounds, Weeds	3	
Driveway	3	
<u>Wetwell</u>		
Grease Buildup	3	Needs cleaning
Stairwells	1	Railing needs to be replaced
Comminutor	3	
Valves	3	#2 Side needs to be replaced
<u>Station Interior</u>		
<u>#1 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Flow Matchers	3	
Pillow Block		
Bearing	3	
<u>#2 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	2	
Flow Matcher	3	
Pillow Block	2	
Bearing	3	
Generator	3	
<u>Plant Air</u>		
Compressor	3	
Pumps Packing	3	
Sump Pump	3	
Pump Bearing	3	

March 0

RITTENHOUSE

Operator: Tony Tuski

Date: February 2013

Audio Dialer 2 Needs upgrade

Ventilation Priority Remarks

Dry well 3  
Wetwell 3  
Electric Heaters 3

#3 Pump

Motor 3  
Rings 3  
Brushes 3  
Drive Shafts 3  
U-Joints 3  
Pump Bearings 3  
Valves 3  
Flow Matcher 3  
Pillow Block  
Bearing 3  
Pump Bearings 3

1 - Immediate Priority; 2 - Priority; 3 - Needs No Attention

<u>DATE</u>		<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
3/1/2013	4/1/2013	52,224,000	1,684,645

<u>DATE</u>	<u>Pump Run Hours</u>			<u>Run Hours Per Day</u>		
	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>
3/1/2013-4/1/2013	238.3	265.0	269.1	7.68	8.54	8.7

Comments

3/12/2013: Seeley in to check electrolyte usage on Flomatcher  
3/20/2013: #1pump tripped out again Seeley in to check and added more electrolyte solution  
3/22/2013: Penn Generator in to service generator.  
3/22/2013- Grease all pump drive shafts

RITTENHOUSE

Operator: Tony Tuski

Date: April 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<u>Exterior</u>		
Fascia & Cornice	3	
Roof	3	
Grounds, Weeds	3	
Driveway	3	
<u>Wetwell</u>		
Grease Buildup	3	Needs cleaning
Stairwells	1	Railing needs to be replaced
Comminutor	3	
Valves	3	#2 Side needs to be replaced
<u>Station Interior</u>		
<u>#1 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Flow Matchers	3	
Pillow Block		
Bearing	3	
<u>#2 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	2	
Flow Matcher	3	
Pillow Block	2	
Bearing	3	
Generator	3	
<u>Plant Air</u>		
Compressor	3	
Pumps Packing	3	
Sump Pump	3	
Pump Bearing	3	

RITTENHOUSE

Operator: Tony Tuski

Date: April 2013

Audio Dialer 2 Needs upgrade

Ventilation Priority Remarks

Dry well 3  
Wetwell 3  
Electric Heaters 3

#3 Pump

Motor 3  
Rings 3  
Brushes 3  
Drive Shafts 3  
U-Joints 3  
Pump Bearings 3  
Valves 3  
Flow Matcher 3  
Pillow Block  
Bearing 3  
Pump Bearings 3

1 - Immediate Priority; 2 - Priority; 3 - Needs No Attention

<u>DATE</u>		<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
4/1/2013	5/1/2013	39,321,700	1,310,723

<u>DATE</u>	<u>Pump Run Hours</u>			<u>Run Hours Per Day</u>		
	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>
4/1/2013-5/1/2013	232.2	234.1	283.0	7.74	7.80	9.4

Comments:

4/8/2013: McGovern in to clean the wetwell  
4/26/2013: Meter guy into calibrate flow meter

RITTENHOUSE

Operator: Tony Tuski

Date: May 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<u>Exterior</u>		
Fascia & Cornice	3	
Roof	3	
Grounds, Weeds	3	
Driveway	3	
<u>Wetwell</u>		
Grease Buildup	3	Needs cleaning
Stairwells	1	Railing needs to be replaced
Comminutor	3	
Valves	3	#2 Side needs to be replaced
<u>Station Interior</u>		
<u>#1 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Flow Matchers	3	
Pillow Block		
Bearing	3	
<u>#2 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	2	
Flow Matcher	3	
Pillow Block	2	
Bearing	3	
Generator	3	
<u>Plant Air</u>		
Compressor	3	
Pumps Packing	3	
Sump Pump	3	
Pump Bearing	3	

RITTENHOUSE

Operator: Tony Tuski

Date: May 2013

Audio Dialer 2 Needs upgrade

Ventilation Priority Remarks

Dry well 3  
Wetwell 3  
Electric Heaters 3

#3 Pump

Motor 3  
Rings 3  
Brushes 3  
Drive Shafts 3  
U-Joints 3  
Pump Bearings 3  
Valves 3  
Flow Matcher 3  
Pillow Block  
Bearing 3  
Pump Bearings 3

1 - Immediate Priority; 2 - Priority; 3 - Needs No Attention

<u>DATE</u>		<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
5/1/2013	6/1/2013	37,592,300	1,212,654

<u>DATE</u>	<u>Pump Run Hours</u>			<u>Run Hours Per Day</u>		
	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>
5/1/2013-6/1/2013	271.7	239.9	245.8	8.76	7.74	7.9

Comments

5/2/2013: #1 Pump tripped out on Overtemp. Reset. Pump started up.

5/9/2013: Meter Guy into to change the counter on the flow meter.

RITTENHOUSE

Operator: Tony Tuski

Date: June 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<u>Exterior</u>		
Fascia & Cornice	3	
Roof	3	
Grounds, Weeds	3	
Driveway	3	
<u>Wetwell</u>		
Grease Buildup	3	Needs cleaning
Stairwells	1	Railing needs to be replaced
Comminutor	3	
Valves	3	#2 Side needs to be replaced
<u>Station Interior</u>		
<u>#1 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Flow Matchers	3	
Pillow Block		
Bearing	3	
<u>#2 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	2	
Flow Matcher	3	
Pillow Block	2	
Bearing	3	
Generator	3	
<u>Plant Air</u>		
Compressor	3	
Pumps Packing	3	
Sump Pump	3	
Pump Bearing	3	



RITTENHOUSE

Operator: Tony Tuski

Date: July 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<u>Exterior</u>		
Fascia & Cornice	3	
Roof	3	
Grounds, Weeds	3	
Driveway	3	
<u>Wetwell</u>		
Grease Buildup	3	Needs cleaning
Stairwells	1	Railing needs to be replaced
Comminutor	3	
Valves	3	#2 Side needs to be replaced
<u>Station Interior</u>		
<u>#1 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Flow Matchers	3	
Pillow Block		
Bearing	3	
<u>#2 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	2	
Flow Matcher	3	
Pillow Block	2	
Bearing	3	
Generator	3	
<u>Plant Air</u>		
Compressor	3	
Pumps Packing	3	
Sump Pump	3	
Pump Bearing	3	



RITTENHOUSE

Operator: Tony Tuski

Date: August 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<u>Exterior</u>		
Fascia & Cornice	3	
Roof	3	
Grounds, Weeds	3	
Driveway	3	
<u>Wetwell</u>		
Grease Buildup	3	Needs cleaning
Stairwells	1	Railing needs to be replaced
Comminutor	3	
Valves	3	#2 Side needs to be replaced
<u>Station Interior</u>		
<u>#1 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Flow Matchers	3	
Pillow Block		
Bearing	3	
<u>#2 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	2	
Flow Matcher	3	
Pillow Block	2	
Bearing	3	
Generator	3	
<u>Plant Air</u>		
Compressor	3	
Pumps Packing	3	
Sump Pump	3	
Pump Bearing	3	

RITTENHOUSE

Operator: Tony Tuski

Date: August 2013

Audio Dialer 2 Needs upgrade

Ventilation Priority Remarks

Dry well 3  
Wetwell 3  
Electric Heaters 3

**#3 Pump**

Motor 3  
Rings 3  
Brushes 3  
Drive Shafts 3  
U-Joints 3  
Pump Bearings 3  
Valves 3  
Flow Matcher 3  
Pillow Block  
Bearing 3  
Pump Bearings 3

1 - Immediate Priority; 2 - Priority; 3 - Needs No Attention

<u>DATE</u>		<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
8/1/2013	9/1/2013	48,046,300	1,549,880

<u>DATE</u>	<u>Pump Run Hours</u>			<u>Run Hours Per Day</u>		
	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>
8/1/2013-9/1/2013	161.3	345.7	291.8	5.20	11.1	9.4

**Comments**

8/13/2013: All pumps on high speed due to storms, found I- beam for #2 pump vibrating badly, we had M&B Maintenance in to weld temporary support brackets on the I-Beam to stop the movement. A permanent repair must be made to all of the I- beams, you can see where the walls are hollowing out around the beams due to vibration at high speeds. A proposal will be sent.

RITTENHOUSE

Operator: Tony Tuski

Date: September 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<u>Exterior</u>		
Fascia & Cornice	3	
Roof	3	
Grounds, Weeds	3	
Driveway	3	
<u>Wetwell</u>		
Grease Buildup	3	Needs cleaning
Stairwells	1	Railing needs to be replaced
Comminutor	3	
Valves	3	#2 Side needs to be replaced
<u>Station Interior</u>		
<u>#1 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Flow Matchers	3	
Pillow Block		
Bearing	3	
<u>#2 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	2	
Flow Matcher	3	
Pillow Block	2	
Bearing	3	
Generator	3	
<u>Plant Air</u>		
Compressor	3	
Pumps Packing	3	
Sump Pump	3	
Pump Bearing	3	



RITTENHOUSE

Operator: Tony Tuski

Date: October 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<u>Exterior</u>		
Fascia & Cornice	3	
Roof	3	
Grounds, Weeds	3	
Driveway	3	
<u>Wetwell</u>		
Grease Buildup	3	Needs cleaning
Stairwells	1	Railing needs to be replaced
Comminutor	3	
Valves	3	#2 Side needs to be replaced
<u>Station Interior</u>		
<u>#1 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Flow Matchers	3	
Pillow Block		
Bearing	3	
<u>#2 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	2	
Flow Matcher	3	
Pillow Block	2	
Bearing	3	
Generator	3	
<u>Plant Air</u>		
Compressor	3	
Pumps Packing	3	
Sump Pump	3	
Pump Bearing	3	



RITTENHOUSE

Operator: Tony Tuski

Date: November 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<u>Exterior</u>		
Fascia & Cornice	3	
Roof	3	
Grounds, Weeds	3	
Driveway	3	
<u>Wetwell:</u>		
Grease Buildup	3	Needs cleaning
Stairwells	1	Railing needs to be replaced
Comminutor	3	
Valves	3	#2 Side needs to be replaced
<u>Station Interior</u>		
<u>#1 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Flow Matchers	3	
Pillow Block		
Bearing	3	
<u>#2 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	2	
Flow Matcher	3	
Pillow Block	2	
Bearing	3	
Generator	3	
<u>Plant Air</u>		
Compressor	3	
Pumps Packing	3	
Sump Pump	3	
Pump Bearing	3	



RITTENHOUSE

Operator: Tony Tuski

Date: December 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<u>Exterior</u>		
Fascia & Cornice	3	
Roof	3	
Grounds, Weeds	3	
Driveway	3	
<u>Wetwell</u>		
Grease Buildup	3	Needs cleaning
Stairwells	1	Railing needs to be replaced
Comminutor	3	
Valves	3	#2 Side needs to be replaced
<u>Station Interior</u>		
<u>#1 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Flow Matchers	3	
Pillow Block		
Bearing	3	
<u>#2 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	2	
Flow Matcher	3	
Pillow Block	2	
Bearing	3	
Generator	3	
<u>Plant Air</u>		
Compressor	3	
Pumps Packing	3	
Sump Pump	3	
Pump Bearing	3	

RITTENHOUSE

Operator: Tony Tuski

Date: December 2013

Audio Dialer . 2 Needs upgrade

Ventilation Priority Remarks

Dry well 3  
Wetwell 3  
Electric Heaters 3

#3 Pump

Motor 3  
Rings 3  
Brushes 3  
Drive Shafts 3  
U-Joints 3  
Pump Bearings 3  
Valves 3  
Flow Matcher 3  
Pillow Block  
Bearing 3  
Pump Bearings 3

1 - Immediate Priority; 2 - Priority; 3 -- Needs No Attention

DATE	TOTAL GALLONS	GALLONS/DAY
12/1/2013 1/1/2014	57,507,800	1,855,090

DATE	Pump Run Hours			Run Hours Per Day		
	Pump #1	Pump #2	Pump #3	Pump #1	Pump #2	Pump #3
12/1/2013-1/1/2014	143.42	339.16	337.63	4.63	10.94	10.89

Comments: Generator Hours= 1.7

12/27/2013: Communitor installed in wet well.

12/30/2013: McGovern in to clean wet well

**WEST NORRITON**  
**FOREST AVENUE PUMP STATION**

Operator: Tony Tuski

Date: January 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>	
<b><u>Exterior</u></b>			
Fascia & Cornice	3		
Grounds, Weeds	3		
Roof	3		
Driveway	3		
<b><u>Wetwell</u></b>			
Grease buildup	3		
<b><u>Station Interior</u></b>			
<b><u>#1 Pump</u></b>			
Motor	3		
Bearings	3		
Drive Shafts	3		
U-Joints	3		
Pump Bearings	3		
Valves	3		
Pillow Block Bearings	3		
<b><u>#2 Pump</u></b>			
Motor	3		
Bearings	3		
Drive Shafts	3		
U-Joints	3	<b>PUMP #2 OUT FOR REPAIR</b>	
Pillow Block Bearing	3		
Generator	3		
Pumps Packing	3		
Sump Pump	3		
Valves	2		
<b><u>Ventilation</u></b>			
Drywell	3		
Wetwell	3		
Electric Heaters	3		

*1 - Immediate Priority; 2 -Priority; 3 - Needs No Attention*

DATE	RUN HOURS		PER DAY	
	Pump #1	Pump #2	Pump #1	Pump #2
1/1/2013-2/1/2013	144.6	OFF	4.66	

**Comments:**

- We continue to add a chemical to the generator fuel to separate the water out of the fuel and drain it at the day tank weekly.
- The drywell conditions continue to be terrible, peeling paint chips prevent proper cleaning and hosing of the drywell.
- All of the valves, suction, discharge and recycle valves along with the check valves are all in need of replacement. They can be closed for pump removal, but leak.
- Other than the issues above, the station is running fine at this time.

**FOREST AVENUE**

**Operator:** Tony Tuski

**Date:** February 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<u><b>Exterior</b></u>		
Fascia & Cornice	3	
Grounds, Weeds	3	
Roof	3	
Driveway	3	
<u><b>Wetwell</b></u>		
Grease buildup	3	
<u><b>Station Interior</b></u>		
<u><b>#1 Pump</b></u>		
Motor	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Pillow Block Bearings	3	
<u><b>#2 Pump</b></u>		
Motor	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pillow Block Bearing	3	
Generator	3	
Pumps Packing	3	
Sump Pump	3	
Valves	2	
<u><b>Ventilation</b></u>		
Drywell	3	
Wetwell	3	
Electric Heaters	3	

*1 - Immediate Priority; 2 -Priority; 3 - Needs No Attention*

DATE	RUN HOURS		PER DAY	
	Pump #1	Pump #2	Pump #1	Pump #2
2/1/2013 - 3/1/2013	114.8	OFF	4.1	OFF

**Comments:**

FOREST AVENUE

Operator: Tony Tuski

Date: March 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<u>Exterior</u>		
Fascia & Cornice	3	
Grounds, Weeds	3	
Roof	3	
Driveway	3	
<u>Wetwell</u>		
Grease buildup	3	
<u>Station Interior</u>		
<u>#1 Pump</u>		
Motor	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Pillow Block Bearings	3	
<u>#2 Pump</u>		
Motor	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pillow Block Bearing	3	
Generator	3	
Pumps Packing	3	
Sump Pump	3	
Valves	2	
<u>Ventilation</u>		
Drywell	3	
Wetwell	3	
Electric Heaters	3	

*1 - Immediate Priority; 2 - Priority; 3 - Needs No Attention*

DATE	RUN HOURS		PER DAY	
	Pump #1	Pump #2	Pump #1	Pump #2
3/1/2013 - 4/1/2013	116.9	OUT	4.0	OUT

Comments:

3/1/2013: Pulled #2 Pump and Drive Shafts and sent out to be rebuilt.

3/21/2013: Penn Generator did generator service

FOREST AVENUE

Operator: Tony Tuski

Date: April 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<u>Exterior</u>		
Fascia & Cornice	3	
Grounds, Weeds	3	
Roof	3	
Driveway	3	
<u>Wetwell</u>		
Grease buildup	3	
<u>Station Interior</u>		
<u>#1 Pump</u>		
Motor	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Pillow Block Bearings	3	
<u>#2 Pump</u>		
Motor	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pillow Block Bearing	3	
Generator	3	
Pumps Packing	3	
Sump Pump	3	
Valves	2	
<u>Ventilation</u>		
Drywell	3	
Wetwell	3	
Electric Heaters	3	

*1 - Immediate Priority; 2 -Priority; 3 - Needs No Attention*

DATE	RUN HOURS		PER DAY	
	Pump #1	Pump #2	Pump #1	Pump #2
4/1/2013 - 5/1/2013	99.77	OUT	3.3	OUT

**Comments:**

4/5/2013: High wetwell alarm found the bubbler system failed, called in Seeley to repair and they found the unit was not repairable due to age. They installed a float system to run the pumps.

4/22/2013: Broken force main next to station. Plymar Construction was in to repair. A bypass valve was installed to allow for station bypass if needed in the future. The wetwell

was also cleaned while the station was being bypassed.

**FOREST AVENUE**

**Operator: Tony Tuski**

**Date: May 2013**

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<b><u>Exterior</u></b>		
Fascia & Cornice	3	
Grounds, Weeds	3	
Roof	3	
Driveway	3	
<b><u>Wetwell</u></b>		
Grease buildup	3	
<b><u>Station Interior</u></b>		
<b><u>#1 Pump</u></b>		
Motor	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Pillow Block Bearings	3	
<b><u>#2 Pump</u></b>		
Motor	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pillow Block Bearing	3	
Generator	3	
Pumps Packing	3	
Sump Pump	3	
Valves	2	
<b><u>Ventilation</u></b>		
Drywell	3	
Wetwell	3	
Electric Heaters	3	

*1 - Immediate Priority; 2 -Priority; 3 -- Needs No Attention*

DATE	RUN HOURS		PER DAY	
	Pump #1	Pump #2	Pump #1	Pump #2
5/1/2013 – 6/1/2013	110.8	OUT	3.5	OUT

**Comments:**

FOREST AVENUE

Operator: Tony Tuski

Date: June 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<b><u>Exterior</u></b>		
Fascia & Cornice	3	
Grounds, Weeds	3	
Roof	3	
Driveway	3	
<b><u>Wetwell</u></b>		
Grease buildup	3	
<b><u>Station Interior</u></b>		
<b><u>#1 Pump</u></b>		
Motor	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Pillow Block Bearings	3	
<b><u>#2 Pump</u></b>		
Motor	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pillow Block Bearing	3	
Generator	3	
Pumps Packing	3	
Sump Pump	3	
Valves	2	
<b><u>Ventilation</u></b>		
Drywell	3	
Wetwell	3	
Electric Heaters	3	

*1 - Immediate Priority; 2 - Priority; 3 - Needs No Attention*

DATE	RUN HOURS		PER DAY	
	Pump #1	Pump #2	Pump #1	Pump #2
6/1/2013 - 7/1/2013	96.38	OUT	3.4	OUT

**Comments:**

6/12/2013: M&B maintenance installed rebuilt #2 pump and driveshafts.

6/14/2013: J. Henry in to replace switch on drywell ventilation fan, we eliminated the timer and went with a straight on/off switch.

**FOREST AVENUE**

**Operator: Tony Tuski**

**Date: July 2013**

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<b><u>Exterior</u></b>		
Fascia & Cornice	3	
Grounds, Weeds	3	
Roof	3	
Driveway	3	
<b><u>Wetwell</u></b>		
Grease buildup	3	
<b><u>Station Interior</u></b>		
<b><u>#1 Pump</u></b>		
Motor	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Pillow Block Bearings	3	
<b><u>#2 Pump</u></b>		
Motor	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pillow Block Bearing	3	
Generator	3	
Pumps Packing	3	
Sump Pump	3	
Valves	2	
<b><u>Ventilation</u></b>		
Drywell	3	
Wetwell	3	
Electric Heaters	3	

*1 - Immediate Priority; 2 -Priority; 3 -- Needs No Attention*

DATE	RUN HOURS		PER DAY	
	Pump #1	Pump #2	Pump #1	Pump #2
7/1/2013 – 8/1/2013	OUT	80.4	OUT	2.5

**Comments:**

7/10/2013: Fuel tank for the generator filled.

7/26/2013: M&B Maintenance in to pull #1 pump and driveshaft sent both for repair.

**FOREST AVENUE**

Operator: **Tony Tuski**

Date: **August 2013**

<b><u>Item</u></b>	<b><u>Priority</u></b>	<b><u>Remarks</u></b>
<b><u>Exterior</u></b>		
Fascia & Cornice	3	
Grounds, Weeds	3	
Roof	3	
Driveway	3	
<b><u>Wetwell</u></b>		
Grease buildup	3	
<b><u>Station Interior</u></b>		
<b><u>#1 Pump</u></b>		
Motor	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Pillow Block Bearings	3	
<b><u>#2 Pump</u></b>		
Motor	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pillow Block Bearing	3	
Generator	3	
Pumps Packing	3	
Sump Pump	3	
Valves	2	
<b><u>Ventilation</u></b>		
Drywell	3	
Wetwell	3	
Electric Heaters	3	

*1 - Immediate Priority; 2 - Priority; 3 - Needs No Attention*

DATE	RUN HOURS		PER DAY	
	Pump #1	Pump #2	Pump #1	Pump #2
8/1/2013 – 9/1/2013	OUT	140.3	OUT	4.6

**Comments:**

**FOREST AVENUE**

**Operator: Tony Tuski**

**Date: September 2013**

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<b><u>Exterior</u></b>		
Fascia & Cornice	3	
Grounds, Weeds	3	
Roof	3	
Driveway	3	
<b><u>Wetwell</u></b>		
Grease buildup	3	
<b><u>Station Interior</u></b>		
<b><u>#1 Pump</u></b>		
Motor	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Pillow Block Bearings	3	
<b><u>#2 Pump</u></b>		
Motor	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pillow Block Bearing	3	
Generator	3	
Pumps Packing	3	
Sump Pump	3	
Valves	2	
<b><u>Ventilation</u></b>		
Drywell	3	
Wetwell	3	
Electric Heaters	3	

*1 - Immediate Priority; 2 -Priority; 3 - Needs No Attention*

DATE	RUN HOURS		PER DAY	
	Pump #1	Pump #2	Pump #1	Pump #2
9/1/2013 – 10/1/2013	OUT	91.6	OUT	3.05

**Comments:**

**Generator hours= 1**

**FOREST AVENUE**

**Operator: Tony Tuski**

**Date: October 2013**

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<b><u>Exterior</u></b>		
Fascia & Cornice	3	
Grounds, Weeds	3	
Roof	3	
Driveway	3	
<b><u>Wetwell</u></b>		
Grease buildup	3	
<b><u>Station Interior</u></b>		
<b><u>#1 Pump</u></b>		
Motor	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Pillow Block Bearings	3	
<b><u>#2 Pump</u></b>		
Motor	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pillow Block Bearing	3	
Generator	3	
Pumps Packing	3	
Sump Pump	3	
Valves	2	
<b><u>Ventilation</u></b>		
Drywell	3	
Wetwell	3	
Electric Heaters	3	

*1 - Immediate Priority; 2 -Priority; 3 - Needs No Attention*

DATE	RUN HOURS		PER DAY	
	Pump #1	Pump #2	Pump #1	Pump #2
10/1/2013 - 11/1/2013	4.8	98.2	0.15	3.17

**Comments:**

**Generator hours= 1.3**

**10/25/2013: Rebuilt #1 pump and driveshaft's installed and back online.**

**FOREST AVENUE**

**Operator: Tony Tuski**

**Date: November 2013**

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<b><u>Exterior</u></b>		
Fascia & Cornice	3	
Grounds, Weeds	3	
Roof	3	
Driveway	3	
<b><u>Wetwell</u></b>		
Grease buildup	3	
<b><u>Station Interior</u></b>		
<b><u>#1 Pump</u></b>		
Motor	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Pillow Block Bearings	3	
<b><u>#2 Pump</u></b>		
Motor	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pillow Block Bearing	3	
Generator	3	
Pumps Packing	3	
Sump Pump	3	
Valves	2	
<b><u>Ventilation</u></b>		
Drywell	3	
Wetwell	3	
Electric Heaters	3	

*1 - Immediate Priority; 2 -Priority; 3 - Needs No Attention*

DATE	RUN HOURS		PER DAY	
	Pump #1	Pump #2	Pump #1	Pump #2
11/1/2013 – 12/1/2013	48.5	53.3	1.62	1.78

**Comments:**

**Generator hours= 1.2**

**11/26/2013: Meter guys into calibrate the flow meter.**

**December- Penn Power into service generator.**

FOREST AVENUE

Operator: Tony Tuski

Date: December 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<u>Exterior</u>		
Fascia & Cornice	3	
Grounds, Weeds	3	
Roof	3	
Driveway	3	
<u>Wetwell</u>		
Grease buildup	3	
<u>Station Interior</u>		
<u>#1 Pump</u>		
Motor	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Pillow Block Bearings	3	
<u>#2 Pump</u>		
Motor	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pillow Block Bearing	3	
Generator	3	
Pumps Packing	3	
Sump Pump	3	
Valves	2	
<u>Ventilation</u>		
Drywell	3	
Wetwell	3	
Electric Heaters	3	

1 - Immediate Priority; 2 - Priority; 3 - Needs No Attention

DATE	RUN HOURS		PER DAY	
	Pump #1	Pump #2	Pump #1	Pump #2
12/1/2013 - 1/1/2014	72.5	75.3	2.34	2.43

Comments:

Generator hours= 1.6

# WEST NORRITON

## CHESTNUT AVENUE PUMP STATION

Operator: Tony Tuski

Date: January 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<b><u>Control Panel</u></b>		
Level Controls	3	
Backup System	3	
<b><u>#1 Pump</u></b>		
Operation	3	
Check Valve	3	
Valving	3	
<b><u>#2 Pump</u></b>		
Operation	3	
Check Valve	3	
Valving	3	
<b><u>Generator</u></b>		
Operational	3	
Generator Run Hours	<u>1.34</u>	
<b><u>Air Relief Valve</u></b>		
Operation	3	
<b><u>Auto Dialer</u></b>		
Operational	3	
<b><u>Wetwell</u></b>		
Condition	3	
<b><u>Building Condition</u></b>		
Exterior	3	
Interior	3	
Driveway	3	
Grounds, Weeds	3	

**1- Immediate Priority; 2- Priority; 3 - Needs No Attention**

DATE	PUMP 1		PUMP 2	
	Run Hour	Per Day	Run Hour	Per Day
1/1/2013-2/1/2013	119.05	111.4	3.84	3.59

DATE	TOTAL GALLONS	GALLONS/DAY
1/1/2013 - 2/1/2013	2,007,600	66,180

**Comments:**

- **1/10/2013:** Found a sewer blockage at the line going into the pump station, a bag with rags was clogging the pipe. Called in Pipe Data View to clear the blockage.
- The pump station is running fine at this time.

**CHESTNUT AVENUE**

**Operator: Tony Tuski**

**Date: February 2013**

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<b><u>Control Panel</u></b>		
Level Controls	3	
Backup System	3	
<b><u>#1 Pump</u></b>		
Operation	3	
Check Valve	3	
Valving	3	
<b><u>#2 Pump</u></b>		
Operation	3	
Check Valve	3	
Valving	3	
<b><u>Generator</u></b>		
Operational	3	
Generator Run Hours <b><u>1.5</u></b>		
<b><u>Air Relief Valve</u></b>		
Operation	3	
<b><u>Auto Dialer</u></b>		
Operational	3	
<b><u>Wetwell</u></b>		
Condition	3	
<b><u>Building Condition</u></b>		
Exterior	3	
Interior	3	
Driveway	3	
Grounds, Weeds	3	

*1- Immediate Priority; 2- Priority; 3 - Needs No Attention*

DATE	PUMP 1		PUMP 2	
	Run Hour	Per Day	Run Hour	Per Day
2/1/2013 - 3/1/2013	102.3	3.65	95.4	3.40

DATE	TOTAL GALLONS	GALLONS/DAY
2/1/2013 - 3/1/2013	1,853,600	66,200

**Comments:**

**CHESTNUT AVENUE**

**Operator: Tony Tuski**

**Date: March 2013**

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<b><u>Control Panel</u></b>		
Level Controls	3	
Backup System	3	
<b><u>#1 Pump</u></b>		
Operation	3	
Check Valve	3	
Valving	3	
<b><u>#2 Pump</u></b>		
Operation	3	
Check Valve	3	
Valving	3	
<b><u>Generator</u></b>		
Operational	3	
Generator Run Hours <u>1.5</u>		
<b><u>Air Relief Valve</u></b>		
Operation	3	
<b><u>Auto Dialer</u></b>		
Operational	3	
<b><u>Wetwell</u></b>		
Condition	3	
<b><u>Building Condition</u></b>		
Exterior	3	
Interior	3	
Driveway	3	
Grounds, Weeds	3	

*1- Immediate Priority; 2- Priority; 3 - Needs No Attention*

DATE	PUMP 1		PUMP 2	
	Run Hour	Per Day	Run Hour	Per Day
3/1/2013 -- 4/1/2013	80.72	3.06	89.6	3.2

DATE	TOTAL GALLONS	GALLONS/DAY
3/1/2013 - 4/1/2013	1,949,700	69,600

**Comments:**

3/22/2013: The generator guy was in to service the generator.

3/26/2013: The #2 pump has been putting out lower than normal flow, the amperage is within range. We pulled the pump and found nothing in the volute. Possible check valve issue.

**CHESTNUT AVENUE**

Operator: Tony Tuski

Date: April 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<b><u>Control Panel</u></b>		
Level Controls	3	
Backup System	3	
<b><u>#1 Pump</u></b>		
Operation	3	
Check Valve	3	
Valving	3	
<b><u>#2 Pump</u></b>		
Operation	3	
Check Valve	3	
Valving	3	
<b><u>Generator</u></b>		
Operational	3	
Generator Run Hours <u>1.5</u>		
<b><u>Air Relief Valve</u></b>		
Operation	3	
<b><u>Auto Dialer</u></b>		
Operational	3	
<b><u>Wetwell</u></b>		
Condition	3	
<b><u>Building Condition</u></b>		
Exterior	3	
Interior	3	
Driveway	3	
Grounds, Weeds	3	

*1- Immediate Priority; 2- Priority; 3 - Needs No Attention*

DATE	PUMP 1		PUMP 2	
	Run Hour	Per Day	Run Hour	Per Day
4/1/2013 - 5/1/2013	76.4	2.5	96.8	3.2

DATE	TOTAL GALLONS	GALLONS/DAY
4/1/2013 - 5/1/2013	1,735,200	57,800

**Comments:**

4/4/2013: McGovern in to clean wetwell.

4/18/2013: The #2 pump still putting out low flow, pulled pump and installed the spare, no difference in flow. Check valves okay.

4/26/2013: Meter Guy in to calibrate flow meter.

**CHESTNUT AVENUE**

**Operator: Tony Tuski**

**Date: May 2013**

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<b><u>Control Panel</u></b>		
Level Controls	3	
Backup System	3	
<b><u>#1 Pump</u></b>		
Operation	3	
Check Valve	3	
Valving	3	
<b><u>#2 Pump</u></b>		
Operation	3	
Check Valve	3	
Valving	3	
<b><u>Generator</u></b>		
Operational	3	
Generator Run Hours <u>1.5</u>		
<b><u>Air Relief Valve</u></b>		
Operation	3	
<b><u>Auto Dialer</u></b>		
Operational	3	
<b><u>Wetwell</u></b>		
Condition	3	
<b><u>Building Condition</u></b>		
Exterior	3	
Interior	3	
Driveway	3	
Grounds, Weeds	3	

*1- Immediate Priority; 2- Priority; 3 - Needs No Attention*

DATE	PUMP 1		PUMP 2	
	Run Hour	Per Day	Run Hour	Per Day
5/1/2013 – 6/1/2013	78.5	2.5	101.1	3.3

DATE	TOTAL GALLONS	GALLONS/DAY
5/1/2013 - 6/1/2013	1,930,900	62,200

**Comments:**

**CHESTNUT AVENUE**

**Operator: Tony Tuski**

**Date: June 2013**

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<b><u>Control Panel</u></b>		
Level Controls	3	
Backup System	3	
<b><u>#1 Pump</u></b>		
Operation	3	
Check Valve	3	
Valving	3	
<b><u>#2 Pump</u></b>		
Operation	3	
Check Valve	3	
Valving	3	
<b><u>Generator</u></b>		
Operational	3	
Generator Run Hours <u>1.5</u>		
<b><u>Air Relief Valve</u></b>		
Operation	3	
<b><u>Auto Dialer</u></b>		
Operational	3	
<b><u>Wetwell</u></b>		
Condition	3	
<b><u>Building Condition</u></b>		
Exterior	3	
Interior	3	
Driveway	3	
Grounds, Weeds	3	

*1- Immediate Priority; 2- Priority; 3 - Needs No Attention*

DATE	PUMP 1		PUMP 2	
	Run Hour	Per Day	Run Hour	Per Day
6/1/2013 - 7/1/2013	105.4	3.7	112.3	4.1

DATE	TOTAL GALLONS	GALLONS/DAY
6/1/2013 - 7/1/2013	2,241,800	80,000

**Comments:**

**CHESTNUT AVENUE**

**Operator: Tony Tuski**

**Date: July 2013**

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<b><u>Control Panel</u></b>		
Level Controls	3	
Backup System	3	
<b><u>#1 Pump</u></b>		
Operation	3	
Check Valve	3	
Valving	3	
<b><u>#2 Pump</u></b>		
Operation	3	
Check Valve	3	
Valving	3	
<b><u>Generator</u></b>		
Operational	3	
Generator Run Hours <u>1.5</u>		
<b><u>Air Relief Valve</u></b>		
Operation	3	
<b><u>Auto Dialer</u></b>		
Operational	3	
<b><u>Wetwell</u></b>		
Condition	3	
<b><u>Building Condition</u></b>		
Exterior	3	
Interior	3	
Driveway	3	
Grounds, Weeds	3	

*1- Immediate Priority; 2- Priority; 3 - Needs No Attention*

DATE	PUMP 1		PUMP 2	
	Run Hour	Per Day	Run Hour	Per Day
7/1/2013 - 8/1/2013	93.1	3.0	83.8	2.7

DATE	TOTAL GALLONS	GALLONS/DAY
7/1/2013 - 8/1/2013	1,901,200	61,300

**Comments:**

7/18/2013: Filled generator fuel tank

**CHESTNUT AVENUE**

Operator: Tony Tuski

Date: August 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<b><u>Control Panel</u></b>		
Level Controls	3	
Backup System	3	
<b><u>#1 Pump</u></b>		
Operation	3	
Check Valve	3	
Valving	3	
<b><u>#2 Pump</u></b>		
Operation	3	
Check Valve	3	
Valving	3	
<b><u>Generator</u></b>		
Operational	3	
Generator Run Hours <u>1.5</u>		
<b><u>Air Relief Valve</u></b>		
Operation	3	
<b><u>Auto Dialer</u></b>		
Operational	3	
<b><u>Wetwell</u></b>		
Condition	3	
<b><u>Building Condition</u></b>		
Exterior	3	
Interior	3	
Driveway	3	
Grounds, Weeds	3	

*1- Immediate Priority; 2- Priority; 3 - Needs No Attention*

DATE	PUMP 1		PUMP 2	
	Run Hour	Per Day	Run Hour	Per Day
8/1/2013 -- 9/1/2013	99.3	3.3	103.0	3.6

DATE	TOTAL GALLONS	GALLONS/DAY
8/1/2013 - 9/1/2013	1,987,700	64,200

**Comments:**

**CHESTNUT AVENUE**

**Operator: Tony Tuski**

**Date: September 2013**

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<b><u>Control Panel</u></b>		
Level Controls	3	
Backup System	3	
<b><u>#1 Pump</u></b>		
Operation	3	
Check Valve	3	
Valving	3	
<b><u>#2 Pump</u></b>		
Operation	3	
Check Valve	3	
Valving	3	
<b><u>Generator</u></b>		
Operational	3	
Generator Run Hours <b><u>1.0</u></b>		
<b><u>Air Relief Valve</u></b>		
Operation	3	
<b><u>Auto Dialer</u></b>		
Operational	3	
<b><u>Wetwell</u></b>		
Condition	3	
<b><u>Building Condition</u></b>		
Exterior	3	
Interior	3	
Driveway	3	
Grounds, Weeds	3	

*1- Immediate Priority; 2- Priority; 3 - Needs No Attention*

DATE	PUMP 1		PUMP 2	
	Run Hour	Per Day	Run Hour	Per Day
9/1/2013 – 10/1/2013	62.27	2.8	67.83	2.26

DATE	TOTAL GALLONS	GALLONS/DAY
9/1/2013 - 10/1/2013	1,424,200	47,473

**Comments:**

**CHESTNUT AVENUE**

**Operator: Tony Tuski**

**Date: October 2013**

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<b><u>Control Panel</u></b>		
Level Controls	3	
Backup System	3	
<b><u>#1 Pump</u></b>		
Operation	3	
Check Valve	3	
Valving	3	
<b><u>#2 Pump</u></b>		
Operation	3	
Check Valve	3	
Valving	3	
<b><u>Generator</u></b>		
Operational	3	
Generator Run Hours <b><u>1.34</u></b>		
<b><u>Air Relief Valve</u></b>		
Operation	3	
<b><u>Auto Dialer</u></b>		
Operational	3	
<b><u>Wetwell</u></b>		
Condition	3	
<b><u>Building Condition</u></b>		
Exterior	3	
Interior	3	
Driveway	3	
Grounds, Weeds	3	

*1- Immediate Priority; 2- Priority; 3 – Needs No Attention*

DATE	PUMP 1		PUMP 2	
	Run Hour	Per Day	Run Hour	Per Day
10/1/2013 – 11/1/2013	75.50	2.44	84.61	2.73

DATE	TOTAL GALLONS	GALLONS/DAY
10/1/2013 - 11/1/2013	1,582,400	51,045

**Comments:**

**CHESTNUT AVENUE**

**Operator: Tony Tuski**

**Date: November 2013**

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<b><u>Control Panel</u></b>		
Level Controls	3	
Backup System	3	
<b><u>#1 Pump</u></b>		
Operation	3	
Check Valve	3	
Valving	3	
<b><u>#2 Pump</u></b>		
Operation	3	
Check Valve	3	
Valving	3	
<b><u>Generator</u></b>		
Operational	3	
Generator Run Hours <b><u>1.5</u></b>		
<b><u>Air Relief Valve</u></b>		
Operation	3	
<b><u>Auto Dialer</u></b>		
Operational	3	
<b><u>Wetwell</u></b>		
Condition	3	
<b><u>Building Condition</u></b>		
Exterior	3	
Interior	3	
Driveway	3	
Grounds, Weeds	3	

*1- Immediate Priority; 2- Priority; 3 - Needs No Attention*

DATE	PUMP 1		PUMP 2	
	Run Hour	Per Day	Run Hour	Per Day
11/1/2013 – 12/1/2013	92.74	3.09	84.71	2.82

DATE	TOTAL GALLONS	GALLONS/DAY
11/1/2013 - 12/1/2013	1,616,000	53,866

**Comments:**

**11/26/2013:** Meter guys into Calibrate the flow meter.

**December-** Penn Power into service generator. A couple minor issues were found that will be addressed after the beginning of the year.

**CHESTNUT AVENUE**

Operator: Tony Tuski

Date: December 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<b><u>Control Panel</u></b>		
Level Controls	3	
Backup System	3	
<b><u>#1 Pump</u></b>		
Operation	3	
Check Valve	3	
Valving	3	
<b><u>#2 Pump</u></b>		
Operation	3	
Check Valve	3	
Valving	3	
<b><u>Generator</u></b>		
Operational	3	
Generator Run Hours <u>1.5</u>		
<b><u>Air Relief Valve</u></b>		
Operation	3	
<b><u>Auto Dialer</u></b>		
Operational	3	
<b><u>Wetwell</u></b>		
Condition	3	
<b><u>Building Condition</u></b>		
Exterior	3	
Interior	3	
Driveway	3	
Grounds, Weeds	3	

*1- Immediate Priority; 2- Priority; 3 - Needs No Attention*

DATE	PUMP 1		PUMP 2	
	Run Hour	Per Day	Run Hour	Per Day
12/1/2013 - 1/1/2014	114.45	3.69	121.50	3.92

DATE	TOTAL GALLONS	GALLONS/DAY
12/1/2013 - 1/1/2014	2,163,600	69,794

**Comments:**

Generator hours=1.67

## WEST NORRITON

### HALFORD HILLS ESTATES PUMP STATION

Operator: Tony Tuski

Date: January 2013

<u>Equipment</u>	<u>Operational</u>	
	<u>Yes</u>	<u>No</u>
Pump #1		
Pump #2		
Controls		
Check Valves		
<u>Alarm System:</u>		
Operational		
	<u>Good</u>	<u>Poor</u>
<u>Wetwell</u>		
Debris Buildup		
Grounds, weeds		

DATE	RUN HOURS		PER DAY	
	Pump #1	Pump #2	Pump #1	Pump #2
1/1/2013 – 2/1/2013	23.08	27.61	0.74	0.89

Comments:

- The Pump Station is running fine at this time.

### PUMP STATION AT GOLF COURSE

Comments:

- The controls for this station are very iffy at best. You have to jiggle the switches at times to get the pumps to run. The panel itself is in very poor shape electrically. To ensure that the station operates properly, this station and especially the control panel needs to be gone over and repairs and upgrades made where needed. There are no alarms here and if it were to fail, we would have no notice until someone saw it overflowing. Let me know if you would like me to get a price for what may need to be done.

HALFORD HILLS ESTATES

Operator: Tony Tuski

Date: February 2013

Equipment:

Operational

Yes    No

Pump #1  
Pump #2  
Controls  
Check Valves

Alarm System:

Operational

Good    Poor

Wetwell Debris Buildup  
Grounds, weeds

DATE	RUN HOURS		PER DAY	
	Pump #1	Pump #2	Pump #1	Pump #2
2/1/2013 - 3/1/2013	25.35	23.54	0.90	0.84

Operator's Comments:

**HALFORD HILLS ESTATES**

**Operator: Tony Tuski**

**Date: March 2013**

**Equipment:**

**Operational**

**Yes      No**

Pump #1  
Pump #2  
Controls  
Check Valves

**Alarm System:**

Operational

**Good      Poor**

Wetwell Debris Buildup  
Grounds, weeds

DATE	RUN HOURS		PER DAY	
	Pump #1	Pump #2	Pump #1	Pump #2
3/1/2013 -- 4/1/2013	27.67	25.94	0.95	0.89

**Operator's Comments:**

HALFORD HILLS ESTATES

Operator: Tony Tuski

Date: April 2013

Equipment:

Operational  
Yes    No

Pump #1  
Pump #2  
Controls  
Check Valves

Alarm System:

Operational

Good    Poor

Wetwell Debris Buildup  
Grounds, weeds

DATE	RUN HOURS		PER DAY	
	Pump #1	Pump #2	Pump #1	Pump #2
4/1/2013 – 5/1/2013	25.23	24.93	0.84	0.84

Operator's Comments:

HALFORD HILLS ESTATES

Operator: Tony Tuski

Date: May 2013

Equipment:

Operational  
Yes    No

Pump #1  
Pump #2  
Controls  
Check Valves

Alarm System:

Operational

Good    Poor

Wetwell Debris Buildup  
Grounds, weeds

DATE	RUN HOURS		PER DAY	
	Pump #1	Pump #2	Pump #1	Pump #2
5/1/2013 - 6/1/2013	28.98	27.68	0.93	0.89

Comments:

5/10/2013: Jack Henry Electricians in to install new on and off floats. Pump alternator works at times but not consistently. Controls need to be gone over.

HALFORD HILLS ESTATES

Operator: Tony Tuski

Date: June 2013

Equipment:

Operational  
Yes    No

Pump #1  
Pump #2  
Controls  
Check Valves

Alarm System:

Operational

Good    Poor

Wetwell Debris Buildup  
Grounds, weeds

DATE	RUN HOURS		PER DAY	
	Pump #1	Pump #2	Pump #1	Pump #2
6/1/2013 - 7/1/2013	33.05	30.81	1.13	0.99

Comments:

HALFORD HILLS ESTATES

Operator: Tony Tuski

Date: July 2013

Equipment:

Operational  
Yes    No

Pump #1  
Pump #2  
Controls  
Check Valves

Alarm System:

Operational

Good    Poor

Wetwell Debris Buildup  
Grounds, weeds

DATE	RUN HOURS		PER DAY	
	Pump #1	Pump #2	Pump #1	Pump #2
7/1/2013 – 8/1/2013	26.11	25.60	0.90	0.88

Comments:

HALFORD HILLS ESTATES

Operator: Tony Tuski

Date: August 2013

Equipment:

Operational

Yes    No

Pump #1  
Pump #2  
Controls  
Check Valves

Alarm System:

Operational

Good    Poor

Wetwell Debris Buildup  
Grounds, weeds

DATE	RUN HOURS		PER DAY	
	Pump #1	Pump #2	Pump #1	Pump #2
8/1/2013 – 9/1/2013	30.4	30.0	1.01	1.00

Comments:

**HALFORD HILLS ESTATES**

**Operator: Tony Tuski**

**Date: September 2013**

**Equipment:**

**Operational**

Yes      No

Pump #1  
Pump #2  
Controls  
Check Valves

**Alarm System:**

Operational

Good      Poor

Wetwell Debris Buildup  
Grounds, weeds

DATE	RUN HOURS		PER DAY	
	Pump #1	Pump #2	Pump #1	Pump #2
9/1/2013 – 10/1/2013	24.51	22.94	0.82	0.76

**Comments:**

**HALFORD HILLS ESTATES**

**Operator: Tony Tuski**

**Date: October 2013**

**Equipment:**

**Operational**

Yes      No

Pump #1  
Pump #2  
Controls  
Check Valves

**Alarm System:**

Operational

**Good**      **Poor**

Wetwell Debris Buildup  
Grounds, weeds

DATE	RUN HOURS		PER DAY	
	Pump #1	Pump #2	Pump #1	Pump #2
10/1/2013 – 11/1/2013	24.18	22.67	0.81	0.76

**Comments:**

HALFORD HILLS ESTATES

Operator: Tony Tuski

Date: November 2013

Equipment:

Pump #1  
Pump #2  
Controls  
Check Valves

Operational  
Yes    No

Alarm System:

Operational

Good    Poor

Wetwell Debris Buildup  
Grounds, weeds

DATE	RUN HOURS		PER DAY	
	Pump #1	Pump #2	Pump #1	Pump #2
11/1/2013 – 12/1/2013	27.67	26.10	0.92	0.87

Comments:

HALFORD HILLS ESTATES

Operator: Tony Tuski

Date: December 2013

Equipment:

Pump #1  
Pump #2  
Controls  
Check Valves

Operational  
Yes    No

Alarm System:

Operational

Good    Poor

Wetwell Debris Buildup  
Grounds, weeds

DATE	RUN HOURS		PER DAY	
	Pump #1	Pump #2	Pump #1	Pump #2
12/1/2013 - 1/1/2014	27.03	24.46	0.87	0.79

Comments:

DEC 2012

Jan 2013

3	4661463	3	4542726
4	4666271	4	4956502
5	4671060	5	4970028
6	4675856	6	4995678
7	4680297	7	5004991
8	4685716	8	5011253
9	4690742	9	5017341
10	4695518	10	5041136
11	4701981	11	5050021
12	4707520	12	5063225
13	4712118	13	5076645
14	4717262	14	5092480
15	4722577	15	5103466
16	4728614	16	5142139
17	4735347	17	5149702
18	4742822	18	5153995
19	4750619	19	5157686
20	4758614	20	5177370
21	4767330	21	5186583
22	4776619	22	5193849
23	4783763	23	5206084
24	4793169		
25	4803169		
26	4813255		
27	4823421		
28			
29			
30			
31			

meta-Cal-hat

February 2013

March 2013

1 5222078  
4 5261716  
5 5273403  
6 5284210  
7 5294572  
8 5303648  
11 5336933  
12 5350786  
13 5363375  
14 5374907  
15 5386491  
18 5420098  
19 5430429  
20 5441363  
21 5457220  
22 5461046  
25 5490181  
26 5499237  
27 5510321  
28 5523088

1 5534078  
4 5545610  
5 5575338  
6 5584461  
7 5593877  
8 5602815  
11 5629331  
12 5639942  
13 5651680  
14 5663172  
15 5673996  
18 5705312  
19 5718507  
20 5733423  
21 5746259  
22 5768383  
25 5792319  
26 5806197  
27 5818201  
28 5829033  
29 5839284

May 2013

1 6164385  
2 6170872  
3 6176238  
6 6193863  
7 6199433  
8 6205052  
9 6213089  
10 6219768  
13 6252136  
14 ~~6252136~~ 6260913  
15 6268931  
16 6276705  
17 6284460  
20 6305954  
21 6313068  
22 6320123  
23 6327003  
24 6336183  
27 6342224  
28 6345222  
29 6382943  
30 6384541  
31 6390054

~~APRIL 2013~~  
APRIL 2013

1 5876592  
2 5880714  
3 5890014  
4 5899173  
5 5908167  
8 5935275  
9 5943939  
10 5952675  
11 5962464  
12 5971665  
15 6009994  
16 6019994  
17 6030078  
18 6039833  
19 6049761  
22 6087036  
23 6098487  
24 6110447  
25 6120277  
26 6130009  
29 6160349  
30 6158361

1010 June 2013

3 6491376  
 4 6419949  
 5 6426753  
 6 6436513  
 7 6442672  
 8 6490204  
 9 6502999  
 10 6519207  
 11 6550039  
 12 6592864  
 13 6607022  
 14 6621284  
 15 6635041  
 16 6648664  
 17 6682214  
 18 6692400  
 19 6702515  
 20 6713120  
 21 6725086

1010 July 2013

1 6755907  
 2 6776025  
 3 6783157  
 4 6805313  
 5 6837114  
 6 6847090  
 7 6856188  
 8 6865023  
 9 6873791  
 10 6906597  
 11 6916029  
 12 6924783  
 13 6933689  
 14 6942482  
 15 6970968  
 16 6983520  
 17 6997830  
 18 7009364  
 19 7020466  
 20 7051925  
 21 7062042  
 22 7072166

Gal meter

August 2013

SEPT 2013

1 707 890022  
 2 7092647  
 3 7117172  
 4 7124201  
 5 7130648  
 6 7137200  
 7 7144157  
 8 7162296  
 9 7170045  
 10 7185408  
 11 7201467  
 12 7212573  
 13 7241412  
 14 7249352  
 15 7256680  
 16 7263525  
 17 7272459  
 18 7290725  
 19 7296512  
 20 7301897  
 21 7311114  
 22 7321851  
 23 7331851  
 24 7341851  
 25 7351851  
 26 7361851  
 27 7371851  
 28 7381851  
 29 7391851  
 30 7401851

3 7343132  
 4 7348988  
 5 ~~7354082~~  
 6 7358627  
 7 7374081  
 8 7378891  
 9 7383819  
 10 7388894  
 11 7392963  
 12 7407050  
 13 7411466  
 14 7415733  
 15 7419860  
 16 7424054  
 17 7440345  
 18 7444944  
 19 7448996  
 20 7452964  
 21 7456246  
 22 7462995  
 23  
 24  
 25  
 26  
 27  
 28  
 29  
 30

November 2013

October 2013

1	7643243
4	7657934
5	7663898
6	7669801
7	7675884
8	7682049
11	7703849
12	771196
13	7714471
14	7719608
15	7720603
18	7730796
19	7734084
20	7737261
21	7740744
22	7745282
25	7754984
26	7758247
27	7767019
29	7787434

10-13	7472988
2	7476501
3	7480139
4	7483888
5	7494849
8	7500246
9	7504446
10	7508304
11	7514860
14	7539220
15	7546109
16	7552406
17	7558591
18	7565213
21	7584180
22	7590180
23	7596144
24	7602599
25	7609401
26	7615797
29	7630874
30	7634718
31	7638833

meter read

January 2014

8120017  
8129053  
8156908  
8171753  
8182393  
8190933  
8200081  
8237658  
8249310  
8260648  
8274104  
8284284  
8312312  
8321416  
8331626  
8344414

December 2013

7808686  
7814609  
7820154  
7825397  
7830617  
7863610  
7876209  
7888242  
7898089  
7906409  
7939501  
7950414  
7961106  
7972500  
7984405  
7995110  
8034054  
8053208  
8062392  
8091275  
8121608  
8141018

2  
3  
4  
7  
8  
9  
10  
13  
14  
15  
16  
17  
20  
21  
22  
23  
24

2  
3  
4  
5  
6  
9  
10  
11  
12  
13  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26

**WEST NORRITON**  
**JACKSON STREET & MONTGOMERY AVE. METERING PIT**

Operator: Tony Tuski

Date: January 2013

**Flow Jackson Street Pit**

DATE			TOTAL GALLONS	GALLONS/DAY
1/1/2013	-	2/1/2013	13,533,017	501,065

**Montgomery Avenue Metering Pit to the Rittenhouse P.S.**

DATE	Total Flow	Average flow/day
1/1/2013-2/1/2013	27,930,200	900,974

**Flow to Norristown**

DATE			TOTAL GALLONS	GALLONS/DAY
1/1/2013	-	2/1/2013	65,111,700	2,100,377

**Comments:**

- 1/10/2013: The Meter Guy was in to calibrate the flow meters.

**JACKSON STREET METERING PIT**

**Operator: Tony Tuski**

**Date: February 2013**

**Flow Jackson Street Pit**

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
2/1/2013 - 3/1/2013	9,074,200	324,078

**Montgomery Avenue Metering Pit to the Rittenhouse P.S.**

<u>DATE</u>	<u>Total Flow</u>	<u>Average flow/day</u>
2/1/2013 - 3/1/2013	31,200,000	1,114,285

**Flow to Norristown**

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
2/1/2013 - 3/1/2013	58,782,400	2,099,371

**JACKSON STREET METERING PIT**

**Operator: Tony Tuski**

**Date: March 2013**

**Flow Jackson Street Pit**

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
3/1/2013 - 4/1/2013	9,095,800	293,412

**Montgomery Avenue Metering Pit to the Rittenhouse P.S.**

<u>DATE</u>	<u>Total Flow</u>	<u>Average flow/day</u>
3/1/2013 - 4/1/2013	33,651,400	1,160,393

**Flow to Norristown**

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
3/1/2013 - 4/1/2013	61,319,800	1,978,058

**JACKSON STREET METERING PIT**

**Operator: Tony Tuski**

**Date: April 2013**

**Flow Jackson Street Pit**

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
4/1/2013 - 5/1/2013	8,805,500	293,516

**Montgomery Avenue Metering Pit to the Rittenhouse P.S.**

<u>DATE</u>	<u>Total Flow</u>	<u>Average flow/day</u>
4/1/2013 - 5/1/2013	29,379,300	979,310

**Flow to Norristown**

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
4/1/2013 - 5/1/2013	48,127,200	1,604,240

**JACKSON STREET METERING PIT**

**Operator: Tony Tuski**

**Date: May 2013**

**Flow Jackson Street Pit**

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
5/1/2013 - 6/1/2013	13,095,000	422,419

**Montgomery Avenue Metering Pit to the Rittenhouse P.S.**

<u>DATE</u>	<u>Total Flow</u>	<u>Average flow/day</u>
5/1/2013 - 6/1/2013	24,699,100	796,745

**Flow to Norristown**

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
5/1/2013 - 6/1/2013	50,687,300	1,635,074

**JACKSON STREET METERING PIT**

**Operator: Tony Tuski**

**Date: June 2013**

**Flow Jackson Street Pit**

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
6/1/2013 - 7/1/2013	12,679,500	422,650

**Montgomery Avenue Metering Pit to the Rittenhouse P.S.**

<u>DATE</u>	<u>Total Flow</u>	<u>Average flow/day</u>
6/1/2013 - 7/1/2013	34,453,100	1,230,467

**Flow to Norristown**

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
6/1/2013 - 7/1/2013	87,420,300	2,914,010

**JACKSON STREET METERING PIT**

**Operator: Tony Tuski**

**Date: July 2013**

**Flow Jackson Street Pit**

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
7/1/2013 - 8/1/2013	9,737,400	314,109

**Montgomery Avenue Metering Pit to the Rittenhouse P.S.**

<u>DATE</u>	<u>Total Flow</u>	<u>Average flow/day</u>
7/1/2013 - 8/1/2013	32,299,300	1,041,912

**Flow to Norristown**

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
7/1/2013 - 8/1/2013	61,877,300	1,996,041

**JACKSON STREET METERING PIT**

Operator: Tony Tuski

Date: August 2013

**Flow Jackson Street Pit**

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
8/1/2013 - 9/1/2013	15,788,400	509,303

**Montgomery Avenue Metering Pit to the Rittenhouse P.S.**

<u>DATE</u>	<u>Total Flow</u>	<u>Average flow/day</u>
8/1/2013 - 9/1/2013	26,423,200	880,773

**Flow to Norristown**

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
8/1/2013 - 9/1/2013	63,834,700	2,059,183

## JACKSON STREET METERING PIT

Operator: Tony Tuski

Date: September 2013

### Flow Jackson Street Pit

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
9/1/2013 - 10/1/2013	14,839,500	494,650

### Montgomery Avenue Metering Pit to the Rittenhouse P.S.

<u>DATE</u>	<u>Total Flow</u>	<u>Average flow/day</u>
9/1/2013 - 10/1/2013	12,985,600	432,853

### Flow to Norristown

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
9/1/2013 - 10/1/2013	44,253,400	1,475,113

**JACKSON STREET METERING PIT**

Operator: Tony Tuski

Date: October 2013

**Flow Jackson Street Pit**

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
10/1/2013 - 11/1/2013	12,027,000	387,968

**Montgomery Avenue Metering Pit to the Rittenhouse P.S.**

<u>DATE</u>	<u>Total Flow</u>	<u>Average flow/day</u>
10/1/2013 - 11/1/2013	17,025,500	549,209

**Flow to Norristown**

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
10/1/2013 - 11/1/2013	44,722,300	1,442,655

**JACKSON STREET METERING PIT**

Operator: Tony Tuski

Date: November 2013

**Flow Jackson Street Pit**

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
11/1/2013 - 12/1/2013	10,450,200	348,340

**Montgomery Avenue Metering Pit to the Rittenhouse P.S.**

<u>DATE</u>	<u>Total Flow</u>	<u>Average flow/day</u>
11/1/2013 - 12/1/2013	16,544,300	551,476

**Flow to Norristown**

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
11/1/2013 - 12/1/2013	41,835,300	1,394,510

**JACKSON STREET METERING PIT**

Operator: Tony Tuski

Date: December 2013

**Flow Jackson Street Pit**

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
12/1/2013 - 1/1/2014	12,585,500	405,984

**Montgomery Avenue Metering Pit to the Rittenhouse P.S.**

<u>DATE</u>	<u>Total Flow</u>	<u>Average flow/day</u>
12/1/2013 - 1/1/2014	31,133,100	1,004,294

**Flow to Norristown**

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
12/1/2013 - 1/1/2014	70,093,300	2,261,074

# WEST NORRITON

## PORT INDIAN PUMP STATION

Operator: Tony Tuski

Date: January 2013

<u>EQUIPMENT</u>	<u>OPERATIONAL</u>	
	<u>YES</u>	<u>NO</u>
Pump #1		
Pump #2		
Controls		
Check Valves		
Diversion Chamber		

**Alarm System**

Operational

YES X NO \_\_\_

**Emergency Generator**

Run Hrs/Month

1.1 hr.

YES X NO \_\_\_

**Wetwell**

Debris Buildup

Good X Needs Cleaning \_\_\_

**Exterior**

Fascia and Cornice  
Roof  
Grounds, Weeds  
Driveway

**General Condition**

Good X Poor \_\_\_  
Good X Poor \_\_\_  
Good X Poor \_\_\_  
Good X Poor \_\_\_

**Flows**

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
1/1/2013 - 2/1/2013	12,129,200	391,264

<u>DATE</u>	<u>Run Hours</u>		<u>Per Day</u>	
	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #1</u>	<u>Pump #2</u>
1/1/2013 - 2/1/2013	107.6	106.7	3.47	3.44

**Comments:**

- 1/10/2013 The Meter Guy was in to calibrate the flow meter.
- 1/11/2013 The air release valves at the station and on the golf course were rebuilt. They both still blow a small amount of liquid out at times when they close, but according to the distributor, this is normal. With the valve at the station, this may not matter much as the liquid just drains to the wetwell and can be hosed down to prevent odors. However, this is not the case on the golf course. It has a sealed vault and if there is a buildup of sewage in there, our only recourse is to have it pumped out to prevent odors during the warm months.
- 1/22/2013 The electrician was in to replace the thermostat for the wetwell room exhaust fan.
- The station is running fine at this time.



PORT INDIAN P.S.

Operator: Tony Tuski

Date: March 2013

Equipment:

OPERATIONAL

YES      NO

- Pump #1
- Pump #2
- Controls
- Check Valves
- Diversion Chamber

Alarm System

Operational

YES \_\_\_ NO \_\_\_

Emergency Generator

Run Hrs/Month 1 hr.

YES \_\_\_ NO \_\_\_

Wetwell

Debris Buildup

Good \_\_\_ Needs Cleaning \_\_\_

Exterior

General Condition

- Fascia and Cornice
- Roof
- Grounds, Weeds
- Driveway

Good \_\_\_ Poor \_\_\_  
 Good \_\_\_ Poor \_\_\_  
 Good \_\_\_ Poor \_\_\_  
 Good \_\_\_ Poor \_\_\_

Flows

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
3-1-2013 - 4/1/2013	11,339,400	390,013

<u>DATE</u>	<u>Run Hours</u>		<u>Per Day</u>	
	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #1</u>	<u>Pump #2</u>
3/1/2013 - 4/1/2013	103.53	101.18	3.57	3.49

Comments:

3/6/2013: The repaired generator radiator was reinstalled and the generator was put back on line.

3/22/2013: Penn Power in to service generator.

PORT INDIAN P.S.

Operator: Tony Tuski

Date: April 2013

Equipment:

OPERATIONAL

YES      NO

- Pump #1
- Pump #2
- Controls
- Check Valves
- Diversion Chamber

Alarm System

Operational

YES \_\_\_ NO \_\_\_

Emergency Generator

Run Hrs/Month 1 hr.

YES \_\_\_ NO \_\_\_

Wetwell

Debris Buildup

Good \_\_\_ Needs Cleaning \_\_\_

Exterior

General Condition

- Fascia and Cornice
- Roof
- Grounds, Weeds
- Driveway

Good \_\_\_ Poor \_\_\_  
 Good \_\_\_ Poor \_\_\_  
 Good \_\_\_ Poor \_\_\_  
 Good \_\_\_ Poor \_\_\_

Flows

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
4/1/2013 - 5/1/2013	9,799,700	326,566

<u>DATE</u>	<u>Run Hours</u>		<u>Per Day</u>	
	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #1</u>	<u>Pump #2</u>
4/1/2013 - 5/1/2013	88.82	89.64	2.96	2.98

Comments:

4/4/2013: McGovern cleaned the wet well.

4/25/2013: The Meter Guy was in to calibrate the flowmeter.

PORT INDIAN P.S.

Operator: Tony Tuski

Date: May 2013

Equipment:

OPERATIONAL

YES      NO

- Pump #1
- Pump #2
- Controls
- Check Valves
- Diversion Chamber

Alarm System

Operational

YES \_\_\_ NO \_\_\_

Emergency Generator

Run Hrs/Month 1 hr.

YES \_\_\_ NO \_\_\_

Wetwell

Debris Buildup

Good \_\_\_ Needs Cleaning \_\_\_

Exterior

General Condition

- Fascia and Cornice
- Roof
- Grounds, Weeds
- Driveway

- Good \_\_\_ Poor \_\_\_

Flows

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
5/1/2013 - 6/1/2013	10,164,800	308,024

<u>DATE</u>	<u>Run Hours</u>		<u>Per Day</u>	
	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #1</u>	<u>Pump #2</u>
5/1/2013 - 6/1/2013	92.19	135.19	2.79	4.09

Comments:



**PORT INDIAN P.S.**

**Operator: Tony Tuski**

**Date: August 2013**

**Equipment:**

- Pump #1
- Pump #2
- Controls
- Check Valves
- Diversion Chamber

**OPERATIONAL**

**YES      NO**

**Alarm System**

Operational

YES \_\_\_ NO \_\_\_

**Emergency Generator**

Run Hrs/Month 1 hr.

YES \_\_\_ NO \_\_\_

**Wetwell**

Debris Buildup

Good \_\_\_ Needs Cleaning \_\_\_

**Exterior**

- Fascia and Cornice
- Roof
- Grounds, Weeds
- Driveway

**General Condition**

- Good \_\_\_ Poor \_\_\_

**Flows**

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
8/1/2013 - 9/1/2013	Meter broke	Meter broke

<u>DATE</u>	<u>Run Hours</u>		<u>Per Day</u>	
	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #1</u>	<u>Pump #2</u>
8/1/2013 - 9/1/2013	138.95	114.44	4.63	3.81

**Comments:**

**8/2/2013:** Air valve broke off from force main. Our maintenance in to bypass main and repair problem. Mag meter for flow chart submerged. Need to replace.

**8/27/2013:** Our maintenance in to replace air valves and section of pipe both a P.S. and CC manholes.

**8/30/2013:** High and low alarms in wet well. Seeley in to change floats. Meter guy in to check out mag meter. Need to be replaced.

PORT INDIAN P.S.

Operator: Tony Tuski

Date: July 2013

Equipment:

OPERATIONAL

YES      NO

- Pump #1
- Pump #2
- Controls
- Check Valves
- Diversion Chamber

Alarm System

Operational

YES \_\_\_ NO \_\_\_

Emergency Generator

Run Hrs/Month 1 hr.

YES \_\_\_ NO \_\_\_

Wetwell

Debris Buildup

Good \_\_\_ Needs Cleaning \_\_\_

Exterior

General Condition

- Fascia and Cornice
- Roof
- Grounds, Weeds
- Driveway

Good \_\_\_ Poor \_\_\_  
 Good \_\_\_ Poor \_\_\_  
 Good \_\_\_ Poor \_\_\_  
 Good \_\_\_ Poor \_\_\_

Flows

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
7/1/2013 - 8/1/2013	11,846,000	370,516

<u>DATE</u>	<u>Run Hours</u>		<u>Per Day</u>	
	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #1</u>	<u>Pump #2</u>
7/1/2013 - 8/1/2013	104.58	99.99	3.37	3.22

Comments:

7/18/2013: Filled generator fuel tank.

PORT INDIAN P.S.

Operator: Tony Tuski

Date: September 2013

Equipment:

OPERATIONAL

	<u>YES</u>	<u>NO</u>
Pump #1	X	
Pump #2	X	
Controls	X	
Check Valves	X	
Diversion Chamber	X	

Alarm System

Operational YES X NO \_\_\_

Emergency Generator

Run Hrs/Month 1 hr. YES X NO \_\_\_

Wetwell

Debris Buildup Good X Needs Cleaning \_\_\_

Exterior

General Condition

Fascia and Cornice	Good <u>X</u>	Poor ___
Roof	Good <u>X</u>	Poor ___
Grounds, Weeds	Good <u>X</u>	Poor ___
Driveway	Good <u>X</u>	Poor ___

Flows

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
9/1/2013 - 10/1/2013	Meter broke	Meter broke

<u>DATE</u>	<u>Run Hours</u>		<u>Per Day</u>	
	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #1</u>	<u>Pump #2</u>
9/1/2013 - 10/1/2013	66.18	52.94	2.21	1.76

Comments:

PORT INDIAN P.S.

Operator: Tony Tuski

Date: October 2013

Equipment:

OPERATIONAL

Pump #1	<u>YES</u>	<u>NO</u>
Pump #2	X	
Controls	X	
Check Valves	X	
Diversion Chamber	X	

Alarm System

Operational YES X NO \_\_\_

Emergency Generator

Run Hrs/Month 1 hr. YES X NO \_\_\_

Wetwell

Debris Buildup Good X Needs Cleaning

Exterior

General Condition

Fascia and Cornice	Good <u>X</u>	Poor ___
Roof	Good <u>X</u>	Poor ___
Grounds, Weeds	Good <u>X</u>	Poor ___
Driveway	Good <u>X</u>	Poor ___

Flows

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
10/1/2013 - 11/1/2013	Meter broke	Meter broke

<u>DATE</u>	<u>Run Hours</u>		<u>Per Day</u>	
	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #1</u>	<u>Pump #2</u>
10/1/2013 - 11/1/2013	75.14	60.82	2.42	1.96

Comments:

- The Meter Guy replaced the Mag Meter that was damaged when the air release valve failed and filled the meter pit with water. The flow meter is now operational.
- The Meter Guy was in to calibrate the flow meter in December.

**PORT INDIAN P.S.**

Operator: Tony Tuski

Date: November 2013

**Equipment:**

**OPERATIONAL**

	<u>YES</u>	<u>NO</u>
Pump #1	X	
Pump #2	X	
Controls	X	
Check Valves	X	
Diversion Chamber	X	

**Alarm System**

Operational YES X NO \_\_\_

**Emergency Generator**

Run Hrs/Month 1 hr. YES X NO \_\_\_

**Wetwell**

Debris Buildup Good X Needs Cleaning \_\_\_

**Exterior**

**General Condition**

Fascia and Cornice	Good <u>X</u>	Poor ___
Roof	Good <u>X</u>	Poor ___
Grounds, Weeds	Good <u>X</u>	Poor ___
Driveway	Good <u>X</u>	Poor ___

**Flows**

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
11/1/2013 - 12/1/2013	Meter broke	Meter broke

<u>DATE</u>	<u>Run Hours</u>		<u>Per Day</u>	
	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #1</u>	<u>Pump #2</u>
11/1/2013 - 12/1/2013	62.36	59.35	2.08	1.98

**Comments:**



# WEST NORRITON

## WHITEHALL ROAD PUMP STATION

Operator: Tony Tuski

Date: January 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<b><u>Station Exterior</u></b>		
Fascia & Cornice	3	
Roof	1	
Grounds, Weeds	3	
Driveway	3	Needs to be widened, can't turn around
<b><u>Wetwell</u></b>		
Grease Buildup	3	
Stairwell	3	
Comminutor	3	
<b><u>Station Interior</u></b>		
<b><u>#1 Pump</u></b>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Flow Matcher Unit	3	
Pillow Block	3	
Bearing	3	
<b><u>#2 Pump</u></b>		
Motor		Pump #2 is out for repair
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
Flow Matcher	3	
U-Joints	3	
Pillow Block		
Bearing	3	
Pump Bearings	3	
Valves	3	
<b><u>#3 Pump</u></b>		
Motor	3	
Rings	3	
Brushes	3	
Drive Shafts	3	
Flow Matcher	3	
U-Joints	3	
Pillow Block	3	
Bearing	3	
Valves	3	
Pump Bearings	3	
Valves	3	

# WEST NORRITON

## WHITEHALL ROAD PUMP STATION

Operator: Tony Tuski

Date: January 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
Generator	3	
Plant Air		
Compressor	3	
Pumps Packing	3	
Sump Pump	3	
<b><u>Ventilation</u></b>		
Drywell	3	
Wetwell	3	
<b><u>Electric Heaters</u></b>	3	

*1 - Immediate Priority; 2 - Priority; 3 - Needs No Attention*

Readings:

<u>DATE</u>		<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
1/1/2013	- 2/1/2013	16,949,900	546,770

<u>DATE</u>	<u>Pump Run Hours</u>			<u>Run Hours Per Day</u>		
	<u>Pump#1</u>	<u>Pump #2</u>	<u>Pump#3</u>	<u>Pump#1</u>	<u>Pump #2</u>	<u>Pump #3</u>
1/1/2013 - 2/1/2013	355.0	OUT	368.9	11.45	OUT	11.9

**Comments:**

- 1/4/2013: Had D Electric out to check the #2 pump motor. When the last rebuilt pump was installed and started up, the motor blew out blue flames and was shut down. They found damage to the top end of the motor and determined that it would need to be pulled and sent out for repair. The motor was pulled and brought to Deckman's for repair on 1/18/2013. He found major damage due to arcing of the brushes. While pricing the repair, he found that Continental Motors had gone out of business and there are no after market parts available for these motors due to their age. The parts that had been damaged needed to be specially made with a lead time of at least 8 weeks; we are currently waiting for the parts to arrive. As soon as it is ready, it will be reinstalled and at that time, all three pumps would have been rebuilt and back on line at this station.
- 1/10/2013: The Meter Guy was in to calibrate the flow meter.
- The auto dialer is in need of replacement or at least repair. It calls out alarms but does not give a message and you cannot call in to get status reports.
- The station is running fine at this time.

WHITEHALL ROAD

Operator: Tony Tuski

Date: February 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<u>Exterior</u>		
Fascia & Cornice	3	
Roof	1	
Grounds, Weeds	3	
Driveway	3	
<u>Wetwell</u>		
Grease Buildup	3	
Stairwell	3	
Comminutor	3	
<u>Station Interior</u>		
<u>#1 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Flow Matcher Unit	3	
Pillow Block	3	
Bearing	3	
<u>#2 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
Flow Matcher	3	
U-Joints	3	
Pillow Block		
Bearing	3	
Pump Bearings	3	
Valves	3	
<u>#3 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Drive Shafts	3	
Flow Matcher	3	
U-Joints	3	
Pillow Block	3	
Bearing	3	
Valves	3	
Pump Bearings	3	
Valves	3	

**WHITEHALL ROAD**

**Operator: Tony Tuski**

**Date: February 2013**

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
Generator	3	
Plant Air		
Compressor	3	
Pumps Packing	3	
Sump Pump	3	
<u>Ventilation</u>		
Drywell	3	
Wetwell	3	
<u>Electric Heaters</u>		
	3	

*1 - Immediate Priority; 2 - Priority; 3 - Needs No Attention*

**Readings:**

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
2/1/2013 - 3/1/2013	15,164,000	54,157

<u>DATE</u>	<u>Pump Run Hours</u>			<u>Run Hours Per Day</u>		
	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>
2/1/2013 - 3/1/2013	311.2	OFF	360.5	11.11	OFF	12.8

**Comments:**

WHITEHALL ROAD

Operator: Tony Tuski

Date: March 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<u>Exterior</u>		
Fascia & Cornice	3	
Roof	1	
Grounds, Weeds	3	
Driveway	3	
<u>Wetwell</u>		
Grease Buildup	3	
Stairwell	3	
Comminutor	3	
<u>Station Interior</u>		
<u>#1 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Flow Matcher Unit	3	
Pillow Block	3	
Bearing	3	
<u>#2 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
Flow Matcher	3	
U-Joints	3	
Pillow Block		
Bearing	3	
Pump Bearings	3	
Valves	3	
<u>#3 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Drive Shafts	3	
Flow Matcher	3	
U-Joints	3	
Pillow Block	3	
Bearing	3	
Valves	3	
Pump Bearings	3	
Valves	3	

**WHITEHALL ROAD**

Operator: Tony Tuski

Date: March 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
Generator	3	
Plant Air		
Compressor	3	
Pumps Packing	3	
Sump Pump	3	
<u>Ventilation</u>		
Drywell	3	
Wetwell	3	
<u>Electric Heaters</u>		
	3	

1 - Immediate Priority; 2 - Priority; 3 - Needs No Attention

Readings:

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
3/1/2013 - 4/1/2013	16,526,500	53,311

<u>DATE</u>	<u>Pump Run Hours</u>			<u>Run Hours Per Day</u>		
	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>
3/1/2013 - 4/1/2013	436.3	OFF	306.7	14.07	OFF	9.89

Comments:

3/20/2013: Penn Power in to service generator.

WHITEHALL ROAD

Operator: Tony Tuski

Date: April 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<b><u>Exterior</u></b>		
Fascia & Cornice	3	
Roof	1	
Grounds, Weeds	3	
Driveway	3	
...		
<b><u>Wetwell</u></b>		
Grease Buildup	3	
Stairwell	3	
Comminutor	3	
<b><u>Station Interior</u></b>		
<b><u>#1 Pump</u></b>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Flow Matcher Unit .	3	
Pillow Block	3	
Bearing	3	
<b><u>#2 Pump</u></b>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
Flow Matcher	3	
U-Joints	3	
Pillow Block		
Bearing	3	
Pump Bearings	3	
Valves	3	
<b><u>#3 Pump</u></b>		
Motor	3	
Rings	3	
Brushes	3	
Drive Shafts	3	
Flow Matcher	3	
U-Joints	3	
Pillow Block	3	
Bearing	3	
Valves	3	
Pump Bearings	3	
Valves	3	

**WHITEHALL ROAD**

**Operator: Tony Tuski**

**Date: April 2013**

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
Generator	3	
Plant Air		
Compressor	3	
Pumps Packing	3	
Sump Pump	3	
<u>Ventilation</u>		
Drywell	3	
Wetwell	3	
<u>Electric Heaters</u>		
	3	

1 - Immediate Priority; 2 - Priority; 3 - Needs No Attention

Readings:

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
4/1/2013 - 5/1/2013	15,274,200	50,914

<u>DATE</u>	<u>Pump Run Hours</u>			<u>Run Hours Per Day</u>		
	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>
4/1/2013 - 5/1/2013	178.2	238.5	285.7	5.94	7.95	9.85

Comments:

4/11/2013: Rebuilt #2 Pump motor installed.

4/12/2013: McGovern in to clean the wetwell.

4/22/2013: #2 Pump motor making scratching noise, Deckmans in to check, stoned the rings and noise stopped.

4/26/2013: Meter Guy in to calibrate the flowmeter.

WHITEHALL ROAD

Operator: Tony Tuski

Date: May 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<u>Exterior</u>		
Fascia & Cornice	3	
Roof	1	
Grounds, Weeds	3	
Driveway	3	
<u>Wetwell</u>		
Grease Buildup	3	
Stairwell	3	
Comminutor	3	
<u>Station Interior</u>		
<u>#1 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Flow Matcher Unit	3	
Pillow Block	3	
Bearing	3	
<u>#2 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
Flow Matcher	3	
U-Joints	3	
Pillow Block		
Bearing	3	
Pump Bearings	3	
Valves	3	
<u>#3 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Drive Shafts	3	
Flow Matcher	3	
U-Joints	3	
Pillow Block	3	
Bearing	3	
Valves	3	
Pump Bearings	3	
Valves	3	

**WHITEHALL ROAD**

Operator: Tony Tuski

Date: May 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
Generator	3	
Plant Air		
Compressor	3	
Pumps Packing	3	
Sump Pump	3	
<u>Ventilation</u>		
Drywell	3	
Wetwell	3	
<u>Electric Heaters</u>		
	3	

1 - Immediate Priority; 2 - Priority; 3 - Needs No Attention

Readings:

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
5/1/2013 - 6/1/2013	14,835,400	47,856

<u>DATE</u>	<u>Pump Run Hours</u>			<u>Run Hours Per Day</u>		
	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>
5/1/2013 - 6/1/2013	232.8	167.3	296.0	7.50	5.39	9.55

Comments:

5/3/2013: The #2 Pump motor continues to be noisy, Deckmans in to install new brush springs and stone the rings again. Sounds better.

WHITEHALL ROAD

Operator: Tony Tuski

Date: June 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<b><u>Exterior</u></b>		
Fascia & Cornice	3	
Roof	1	
Grounds, Weeds	3	
Driveway	3	
<b><u>Wetwell</u></b>		
Grease Buildup	3	
Stairwell	3	
Comminutor	3	
<b><u>Station Interior</u></b>		
<b><u>#1 Pump</u></b>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Flow Matcher Unit	3	
Pillow Block	3	
Bearing	3	
<b><u>#2 Pump</u></b>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
Flow Matcher	3	
U-Joints	3	
Pillow Block		
Bearing	3	
Pump Bearings	3	
Valves	3	
<b><u>#3 Pump</u></b>		
Motor	3	
Rings	3	
Brushes	3	
Drive Shafts	3	
Flow Matcher	3	
U-Joints	3	
Pillow Block	3	
Bearing	3	
Valves	3	
Pump Bearings	3	
Valves	3	

**WHITEHALL ROAD**

Operator: Tony Tuski

Date: June 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
Generator	3	
Plant Air		
Compressor	3	
Pumps Packing	3	
Sump Pump	3	
<u>Ventilation</u>		
Drywell	3	
Wetwell	3	
<u>Electric Heaters</u>	3	

1 - Immediate Priority; 2 - Priority; 3 - Needs No Attention

Readings:

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
6/1/2013 - 7/1/2013	22,230,800	74,102

<u>DATE</u>	<u>Pump Run Hours</u>			<u>Run Hours Per Day</u>		
	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>
6/1/2013 - 7/1/2013	219.7	207.2	300.7	7.32	6.90	10.0

Comments:

6/5/2013: Deckman's in to work on the #2 pump motor which continues to be noisy, he changed out the brushes to a softer brush and it immediately quieted down.

6/8/2013: #3 Pump failure alarm. Limit switch on the check valve went out, Seeley changed. All fine now.

WHITEHALL ROAD

Operator: Tony Tuski

Date: July 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<u>Exterior</u>		
Fascia & Cornice	3	
Roof	1	
Grounds, Weeds	3	
Driveway	3	
<u>Wetwell</u>		
Grease Buildup	3	
Stairwell	3	
Comminutor	3	
<u>Station Interior</u>		
<u>#1 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Flow Matcher Unit	3	
Pillow Block	3	
Bearing	3	
<u>#2 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
Flow Matcher	3	
U-Joints	3	
Pillow Block		
Bearing	3	
Pump Bearings	3	
Valves	3	
<u>#3 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Drive Shafts	3	
Flow Matcher	3	
U-Joints	3	
Pillow Block	3	
Bearing	3	
Valves	3	
Pump Bearings	3	
Valves	3	

WHITEHALL ROAD

Operator: Tony Tuski

Date: July 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
Generator	3	
Plant Air		
Compressor	3	
Pumps Packing	3	
Sump Pump	3	
<u>Ventilation</u>		
Drywell	3	
Wetwell	3	
<u>Electric Heaters</u>		
	3	

1 - Immediate Priority; 2 - Priority; 3 - Needs No Attention

Readings:

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
7/1/2013 - 8/1/2013	16,280,400	52,517

<u>DATE</u>	<u>Pump Run Hours</u>			<u>Run Hours Per Day</u>		
	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>
7/1/2013 - 8/1/2013	172.0	161.8	389.2	5.54	5.21	12.5

Comments:

7/3/2013: State in to fix the driveway, they enlarged to area in front of the station. Much better now.

7/18/2013: Filled generator fuel tank.

7/18/2013: Greased all pumps and drive shafts.

7/24/2013: New lights installed on Flomatcher control panels.

WHITEHALL ROAD

Operator: Tony Tuski

Date: August 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<u>Exterior</u>		
Fascia & Cornice	3	
Roof	1	
Grounds, Weeds	3	
Driveway	3	
<u>Wetwell</u>		
Grease Buildup	3	
Stairwell	3	
Comminutor	3	
<u>Station Interior</u>		
<u>#1 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Flow Matcher Unit	3	
Pillow Block	3	
Bearing	3	
<u>#2 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
Flow Matcher	3	
U-Joints	3	
Pillow Block		
Bearing	3	
Pump Bearings	3	
Valves	3	
<u>#3 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Drive Shafts	3	
Flow Matcher	3	
U-Joints	3	
Pillow Block	3	
Bearing	3	
Valves	3	
Pump Bearings	3	
Valves	3	

WHITEHALL ROAD

Operator: Tony Tuski

Date: August 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
Generator	3	
Plant Air		
Compressor	3	
Pumps Packing	3	
Sump Pump	3	
<u>Ventilation</u>		
Drywell	3	
Wetwell	3	
<u>Electric Heaters</u>		
	3	

1 - Immediate Priority; 2 - Priority; 3 - Needs No Attention

Readings:

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
8/1/2013 - 9/1/2013	16,486,200	531,811

<u>DATE</u>	<u>Pump Run Hours</u>			<u>Run Hours Per Day</u>		
	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>
8/1/2013 -9/1/2013	228.4	328.0	281.5	7.36	10.5	9.08

Comments:

WHITEHALL ROAD

Operator: Tony Tuski

Date: September 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<b><u>Exterior</u></b>		
Fascia & Cornice	3	
Roof	1	
Grounds, Weeds	3	
Driveway	3	
<b><u>Wetwell</u></b>		
Grease Buildup	3	
Stairwell	3	
Comminutor	3	
<b><u>Station Interior</u></b>		
<b><u>#1 Pump</u></b>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Flow Matcher Unit	3	
Pillow Block	3	
Bearing	3	
<b><u>#2 Pump</u></b>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
Flow Matcher	3	
U-Joints	3	
Pillow Block		
Bearing	3	
Pump Bearings	3	
Valves	3	
<b><u>#3 Pump</u></b>		
Motor	3	
Rings	3	
Brushes	3	
Drive Shafts	3	
Flow Matcher	3	
U-Joints	3	
Pillow Block	3	
Bearing	3	
Valves	3	
Pump Bearings	3	
Valves	3	

**WHITEHALL ROAD**

**Operator: Tony Tuski**

**Date: September 2013**

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
Generator	3	
Plant Air		
Compressor	3	
Pumps Packing	3	
Sump Pump	3	
<b><u>Ventilation</u></b>		
Drywell	3	
Wetwell	3	
<b><u>Electric Heaters</u></b>		
	3	

*1 - Immediate Priority; 2 - Priority; 3 - Needs No Attention*

**Readings:**

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
9/1/2013 - 10/1/2013	11,184,000	372,800

<u>DATE</u>	<u>Pump Run Hours</u>			<u>Run Hours Per Day</u>		
	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>
9/1/2013 -10/1/2013	237.9	244.6	188.9	7.93	8.15	6.29

**Comments: Generator hours from 9/1/2013 - 10/1/2013 = 1.8**

WHITEHALL ROAD

Operator: Tony Tuski

Date: October 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<b><u>Exterior</u></b>		
Fascia & Cornice	3	
Roof	1	
Grounds, Weeds	3	
Driveway	3	
<b><u>Wetwell</u></b>		
Grease Buildup	3	
Stairwell	3	
Comminutor	3	
<b><u>Station Interior</u></b>		
<b><u>#1 Pump</u></b>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Flow Matcher Unit	3	
Pillow Block	3	
Bearing	3	
<b><u>#2 Pump</u></b>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
Flow Matcher	3	
U-Joints	3	
Pillow Block		
Bearing	3	
Pump Bearings	3	
Valves	3	
<b><u>#3 Pump</u></b>		
Motor	3	
Rings	3	
Brushes	3	
Drive Shafts	3	
Flow Matcher	3	
U-Joints	3	
Pillow Block	3	
Bearing	3	
Valves	3	
Pump Bearings	3	
Valves	3	

**WHITEHALL ROAD**

**Operator: Tony Tuski**

**Date: October 2013**

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
Generator	3	
Plant Air Compressor	3	
Pumps Packing	3	
Sump Pump	3	
<b><u>Ventilation</u></b>		
Drywell	3	
Wetwell	3	
<b><u>Electric Heaters</u></b>		
	3	

*1 - Immediate Priority; 2 - Priority; 3 - Needs No Attention*

**Readings:**

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
10/1/2013 - 11/1/2013	11,228,400	362,206

<u>DATE</u>	<u>Pump Run Hours</u>			<u>Run Hours Per Day</u>		
	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>
10/1/2013-11/1/2013	171.0	165.1	409.7	5.52	5.33	13.22

**Comments: Generator hours from 10/1/2013 – 11/1/2013 = 2.4**

WHITEHALL ROAD

Operator: Tony Tuski

Date: November 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<b><u>Exterior</u></b>		
Fascia & Cornice	3	
Roof	1	
Grounds, Weeds	3	
Driveway	3	
<b><u>Wetwell</u></b>		
Grease Buildup	3	
Stairwell	3	
Comminutor	3	
<b><u>Station Interior</u></b>		
<b><u>#1 Pump</u></b>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Flow Matcher Unit	3	
Pillow Block	3	
Bearing	3	
<b><u>#2 Pump</u></b>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
Flow Matcher	3	
U-Joints	3	
Pillow Block		
Bearing	3	
Pump Bearings	3	
Valves	3	
<b><u>#3 Pump</u></b>		
Motor	3	
Rings	3	
Brushes	3	
Drive Shafts	3	
Flow Matcher	3	
U-Joints	3	
Pillow Block	3	
Bearing	3	
Valves	3	
Pump Bearings	3	
Valves	3	

**WHITEHALL ROAD**

**Operator: Tony Tuski**

**Date: November 2013**

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
Generator	3	
Plant Air		
Compressor	3	
Pumps Packing	3	
Sump Pump	3	
<b><u>Ventilation</u></b>		
Drywell	3	
Wetwell	3	
<b><u>Electric Heaters</u></b>		
	3	

*1 - Immediate Priority; 2 - Priority; 3 - Needs No Attention*

**Readings:**

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
11/1/2013 - 12/1/2013	10,624,800	354,160

<u>DATE</u>	<u>Pump Run Hours</u>			<u>Run Hours Per Day</u>		
	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>
11/1/2013- 12/1/2013	242.9	264.6	243.0	8.10	8.82	8.1

**Comments: Generator hours from 11/1/2013 – 12/1/2013 = 2.6**

- The Meter Guy was in to calibrate the flow meter on 11/26/2013.
- Grease all shafts and pumps.

WHITEHALL ROAD

Operator: Tony Tuski

Date: December 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
<u>Exterior</u>		
Fascia & Cornice	3	
Roof	1	
Grounds, Weeds	3	
Driveway	3	
<u>Wetwell</u>		
Grease Buildup	3	
Stairwell	3	
Comminutor	3	
<u>Station Interior</u>		
<u>#1 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
U-Joints	3	
Pump Bearings	3	
Valves	3	
Flow Matcher Unit	3	
Pillow Block	3	
Bearing	3	
<u>#2 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Bearings	3	
Drive Shafts	3	
Flow Matcher	3	
U-Joints	3	
Pillow Block		
Bearing	3	
Pump Bearings	3	
Valves	3	
<u>#3 Pump</u>		
Motor	3	
Rings	3	
Brushes	3	
Drive Shafts	3	
Flow Matcher	3	
U-Joints	3	
Pillow Block	3	
Bearing	3	
Valves	3	
Pump Bearings	3	
Valves	3	

WHITEHALL ROAD

Operator: Tony Tuski

Date: December 2013

<u>Item</u>	<u>Priority</u>	<u>Remarks</u>
Generator	3	
Plant Air		
Compressor	3	
Pumps Packing	3	
Sump Pump	3	

Ventilation

Drywell	3
Wetwell	3

Electric Heaters 3

*1 - Immediate Priority; 2 - Priority; 3 - Needs No Attention*

Readings:

<u>DATE</u>	<u>TOTAL GALLONS</u>	<u>GALLONS/DAY</u>
12/1/2013 - 1/1/2014	18,863,700	608,506

<u>DATE</u>	<u>Pump Run Hours</u>			<u>Run Hours Per Day</u>		
	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>	<u>Pump #1</u>	<u>Pump #2</u>	<u>Pump #3</u>
12/1/2013- 1/1/2014	214.2	311.5	225.3	6.9	10.05	7.27

Comments: Generator hours: 3.3 hours

**Appendix M**  
**PA DEP Monthly Hydraulic Loading Data**

**TABLE 1**  
**2009 - 2013 MONTHLY HYDRAULIC LOADING DATA**  
**WEST NORRITON TOWNSHIP**  
**SANITARY SEWER SYSTEM to NORRISTOWN**

Month	Hydraulic Loading					Rainfall (inches) 2013
	(Million Gallons/Day)					
	2009	2010	2011	2012	2013	
January	1.930 *	2.226	1.756	2.400 *	2.210	2.5
February	2.545 *	1.262	2.687 *	1.830 *	1.928	1.5
March	2.786 *	1.150	3.455 *	1.740 *	1.978	1.9
April	1.869	1.332	2.623 *	2.120	1.604	2.6
May	2.173	1.339	1.885	1.970	1.635	2.6
June	1.596	1.395	1.461	1.450	2.914 *	8.4 *
July	1.581	1.283	1.285	1.520	1.996 *	7.1 *
August	1.343	2.117	2.286	1.610	2.059 *	4.1 *
September	1.606	1.972	3.387	1.730	1.475	1.1
October	1.558	2.225 *	2.244	1.740	1.442	2.5
November	1.736	1.879 *	2.355	1.730	1.360	0.5
December	2.762	3.139 *	2.857	2.280	2.261	3.4
<b>ANNUAL AVE.</b>	<b>1.957</b>	<b>1.777</b>	<b>2.357</b>	<b>1.843</b>	<b>1.905</b>	<b>3.2</b>
<b>3-MONTH MAX AVERAGE DAILY FLOW</b>						
	2.420	2.414	2.922	1.990	2.323	6.5
<b>RATIO (3-MONTH MAX / ANNUAL AVERAGE)</b>						
	1.24	1.36	1.24	1.08	1.22	
<b>5 YEAR AVERAGE HYDRAULIC RATIO :</b>						
	1.227					
<b>5 YEAR ANNUAL AVERAGE LOADING :</b>						
	1.968 Million Gallons/Day					
<b>**PREVIOUS YEAR - 5 YEAR ANNUAL AVERAGE LOADING :</b>						
	1.981 Million Gallons/Day					

\* - INDICATES HIGHEST THREE CONSECUTIVE MONTHS

\*\* - FROM 2012 REPORT

**TABLE 2**  
**2013-2017 PROJECTED FLOWS & EDUs**  
**West Norriton Township**  
**Flow to Norristown**

SEWER EDU'S							
Development	Pump Station	Total	2014	2015	2016	2017	2018
The Reserve at Stoney Brook	Whitehall Pump Station	51		20	25	6	
Norristown School District	Whitehall Pump Station	10		10			
Apartment at Schuylkill and Main Street		25		25			
Fill in Lots and OLDs		15	10	2	2	1	
Office Building at Egypt Road		10		10			
<b>Total New Projected EDUs</b>	<b>Total New Projected EDUs</b>	<b>111</b>	<b>10</b>	<b>67</b>	<b>27</b>	<b>7</b>	<b>0</b>
<b>Total New Projected Flows (MGD)<sup>1</sup></b>	<b>Total New Projected Flows (MGD)<sup>1</sup></b>	<b>0.0316</b>	<b>0.0029</b>	<b>0.0191</b>	<b>0.0077</b>	<b>0.0020</b>	<b>0</b>

<sup>1</sup>Flow calculations use [250] gpd/EDU

<sup>2</sup>List all pumping stations flows from the pro <sup>1</sup>FLOW CALCULATIONS USE 285 gpd/EDU

**TABLE 3**  
**2008-2012 NEW FLOWS PER YEAR**  
 West Norriton Township  
 Flow to Norristown

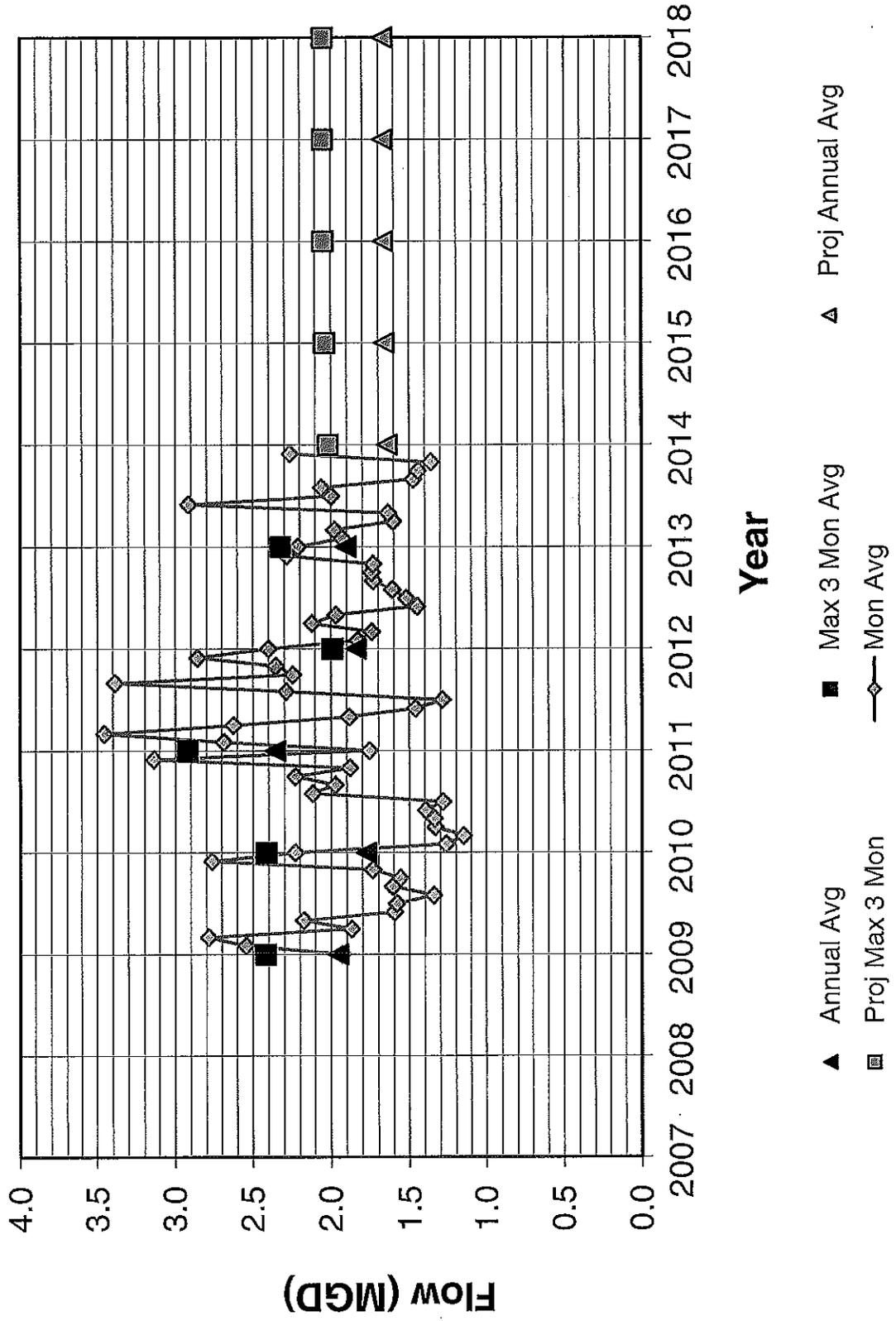
Year	# of EDUs connected	gpd/EDU	New Flow (MGD)
2009	100	285	28500
2010	100	285	28500
2011	5	285	1425
2012	10	285	2850
2013	5	285	1425

**TABLE 4**  
**ADJUSTED ANNUAL AVERAGE FLOW**  
 West Norriton Township  
 Flow to Norristown

Year	Annual Average Flow (MGD)	All projects connected (Either approved by Planning Modules or which did not require planning)					Adjusted Annual Average Flow (MGD)	
		2009	2010	2011	2012	2013		
2009	1.957							
2010	1.777		0.000				1.957	
2011	2.357			0.000			1.777	
2012	1.843				0.000		2.357	
2013	1.905					0.001	1.844	
<b>Total</b>	<b>9.839</b>					<b>0.001</b>	<b>1.905</b>	
<b>5 Yr Ave.</b>	<b>1.968</b>	<b>5 Yr. Adjusted Ave.</b>					<b>9.840</b>	<b>1.640</b>

WEST NORRITON TOWNSHIP  
FLOW TO NORRISTOWN

Figure 1: Hydraulic Loading Graph



Month	2009	2010	2011	2012	Rainfall	
					2013	2013
January	1.93	2.226	1.756	2.4	2.21	2.52
February	2.545	1.262	2.687	1.83	1.928	1.5
March	2.786	1.15	3.455	1.74	1.978	1.94
April	1.869	1.332	2.623	2.12	1.604	2.55
May	2.173	1.339	1.885	1.97	1.635	2.57
June	1.596	1.395	1.461	1.45	2.914	8.42
July	1.581	1.283	1.285	1.52	1.996	7.11
August	1.343	2.117	2.286	1.61	2.059	4.11
September	1.606	1.972	3.387	1.73	1.475	1.05
October	1.558	2.225	2.244	1.74	1.442	2.52
November	1.736	1.879	2.355	1.73	1.36	0.53
December	2.762	3.139	2.857	2.28	2.261	3.44

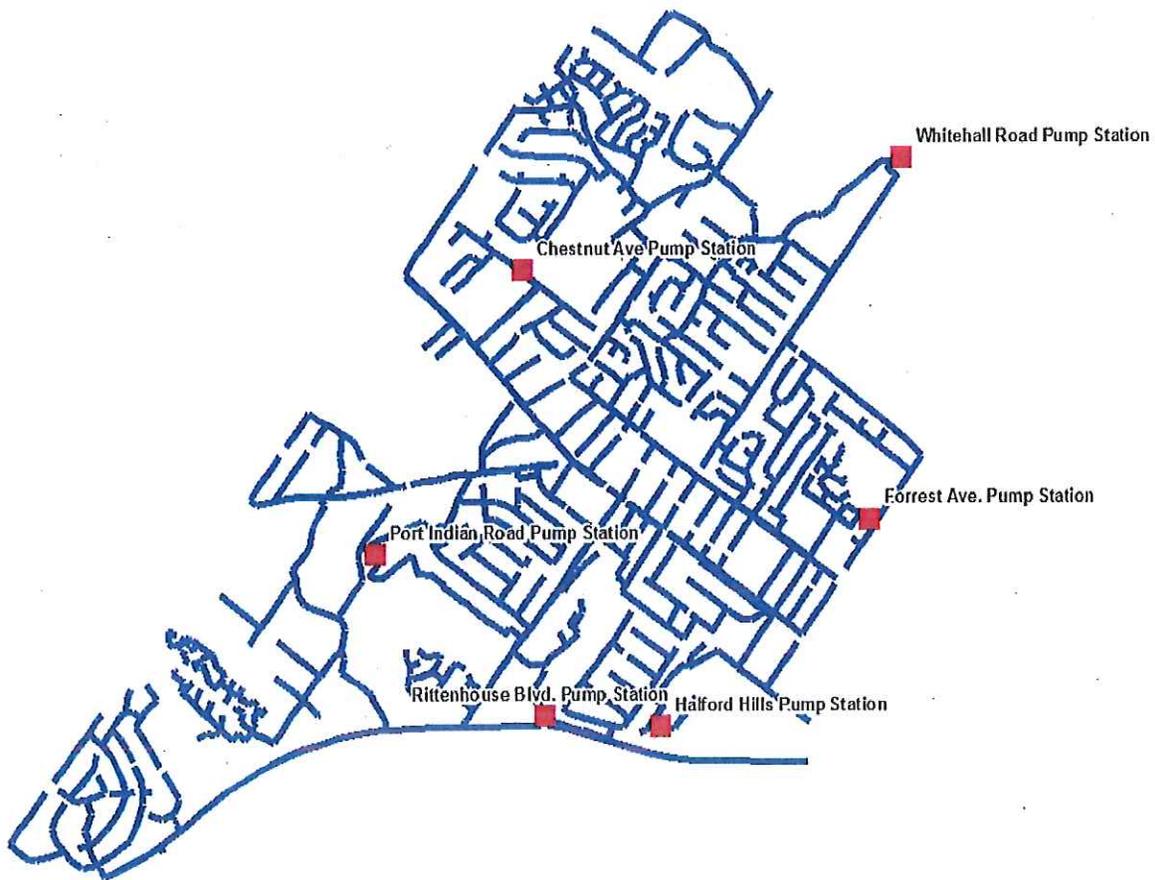
MAX Value

					Rainfall	
2009	2010	2011	2012	2013	2013	
2.42033	1.546	2.63267	1.99	2.03867	1.98667	
2.4	1.248	2.92167	1.89667	1.83667	1.99667	
2.276	1.27367	2.65433	1.94333	1.739	2.35333	
1.87933	1.35533	1.98967	1.84667	2.051	4.51333	
1.78333	1.339	1.54367	1.64667	2.18167	6.03333	
1.50667	1.59833	1.67733	1.52667	2.323	6.54667	
1.51	1.79067	2.31933	1.62	1.84333	4.09	
1.50233	2.10467	2.639	1.69333	1.65867	2.56	
1.63333	2.02533	2.662	1.73333	1.42567	1.36667	
2.01867	2.41433	2.48533	1.91667	1.68767	2.16333	
2.42033	2.41433	2.92167	1.99	2.323	6.54667	

**Appendix N**  
**2013 Sanitary Sewer System Inflow and  
Infiltration Study**

# WEST NORRITON TOWNSHIP

## SANITARY SEWER SYSTEM INFLOW AND INFILTRATION STUDY



---

November 2013

Rettew Associates, Inc.  
3020 Columbia Avenue  
Lancaster, PA 17603

## RECOMMENDATIONS

The top four priorities for inflow and infiltration reduction based on this study are listed below with the highest priority listed first. The full table of prioritized meter areas is on Table 1 on the following page. Table 2 on page 3 summarizes the possible sources of I&I within each meter area, as identified in the characterization of flows within the discussions for each individual meter.

1. Investigate the sewershed contributing to Meter 14, which consists of only 14 manholes located mostly in Mystic Lane. Current metering identifies an average daily dry weather flow of approximately 40 gpm; expected values are 4 gpm. A field investigation of the piping at the meter site in the early morning hours should show flows very close to zero. If significant flows are occurring, their source should be identified and repaired. Additionally, this sewershed has the highest rate of I&I (Inflow and Infiltration) per manhole of any of the metered areas. During a 2-year storm event, peak inflows of 14.3 gpm per manhole were experienced. The potential sources are most likely to include flow into manhole lids, sewer vents, and into manholes through the stone subbase of roadways.
2. Investigate a single 7-manhole run in School Lane, contributory to Meter 11(1) for inflow and infiltration. During a 2-year storm event, peak inflows reached 10 gpm per manhole. Both inflow and infiltration are clearly evident for this sewer run. Except for downspout connections, all other typical sources are possible contributors, such exterior drain connections, low sewer vents, flow directly into manhole lids, flow into manholes through the stone subbase of roadways, and infiltration into the pipe or manholes from groundwater.
3. Investigate the sewershed contributory to Meter 1, which is located in the manhole at 360 Burnside Avenue. This sewershed generally extends from Burnside Avenue to Trooper Road on each side of Oakland Drive. Inflow levels reached 5.7 gpm per manhole during a 2-year storm event, which results in a tremendous amount of extra flow due to 141 contributing manholes. The inflow was characterized as likely coming from exterior drain connections to the sewer lateral, surface flow passing directly through manhole lids, flow into manholes through the stone subbase of roadways, and bad laterals. Groundwater Infiltration appeared to be minimal.
4. Investigate the sewershed contributory to Meter 4 (essentially the sewershed to the Whitehall Road +Pump Station), which includes the areas flowing through Meter 18, Meter 3, and Meter 17. The peak inflow and infiltration from this sewershed was estimated at 4.2 gpm per manhole, from a total of 236 manholes. Except for downspout connections, all other typical sources are possible contributors, such as exterior drain connections, low sewer vents, flow directly into manhole lids, flow into manholes through the stone subbase of roadways, and infiltration into the pipe or manholes from groundwater. The Meter 17 sewershed's flow had different characteristics; its likely sources of rain-induced flow did not include downspout or exterior floor drain connections, sump pump connections, stone subbase flow into manholes, nor infiltration.

Table 1

## WEST NORRITON TOWNSHIP

### Meter Area Prioritization for I & I Repair Projects

Priority Number	Meter #	Meter Name	Contributing MHS	Estimated June 7 I & I (GPM)	June 7 I & I per Manhole (GPM)	Estimated July 23 I & I (GPM)	July 23 I & I per Manhole (GPM)
1	14	West Indian Woods	14	200	14.3	50	3.6
2	11(1)	School at Driveway	7	70	10	17	2.1
3	1	360 Burnside	141	800	5.7	300	3
4	4	Whitehall	42	1000 <sup>(4)</sup>	4.2 <sup>(5)</sup>	650 <sup>(6)</sup>	7.1 <sup>(7)</sup>
5	18 <sup>(1)</sup>	Burnside Avenue	50	<sup>(2)</sup>	<sup>(2)</sup>	NF <sup>(9)</sup>	NF
6	11(2)	Off School	124	NF	NF	500	4
7	7	498 Port Indian	84	700 <sup>(8)</sup>	3.9 <sup>(9)</sup>	NF	NF
8	8	367 Port Indian	23	400 <sup>(10)</sup>	3.14 <sup>(11)</sup>	0	0
9	17	Paddock	38	80	2.1	0	0
10	10	Port Indian Detention	108	450 <sup>(12)</sup>	1.9 <sup>(13)</sup>	NF	NF
11	3	Wayne Drive	106	NF	NF	220	2.1
12	9	General Armistead	96	NF	NF	200	2.1
13	5	Sheridan/Hartranft	86	NF	NF	NF	NF
14	15	Riverview	90	NF	NF	0	0
15	2	711	153	0	0	0	0
16	13	Beaver Hollow	55	0	0	0	0

(1) Prioritized based on July 23 Flow Analysis of Meter 4

(2) Calculated with Meter 4

(3) Non-Functioning

(4) Assumed to come from Meter 18, Meter 3, Meter 17 and Meter 4

(5) Based on a total of 236 manholes in the total contributing sewershed

(6) Assumed to come from Meter 18 and Meter 4

(7) Based on a total of 92 manholes in the total contributing sewershed

(8) Assumed to come from Meter 7 and from Meter 9

(9) Based on a total of 180 manholes in the total contributing sewershed

(10) Assumed to come from Meter 14, Meter 15, and from Meter 8

(11) Based on a total of 127 manholes in the total contributing sewershed

(12) Assumed to come from Meter 11(2) and from Meter 10

(13) Based on a total of 232 manholes in the total contributing sewershed

## WEST NORRITON TOWNSHIP

### Meter Area Possible I & I Sources

<u>Priority Number</u>	<u>Meter #</u>	<u>Meter Name</u>	Possible I & I Sources								
			Sump Pump Connections	Manholes in low points of paved areas	Manholes adjacent to drainage paths	Exterior surface drains connected to sewer lateral	Sewer vents at ground level and in drainage path	Low sewer vent adjacent to drainage path	Downspout connections to sewer lateral	Manhole inflow from road stone subbase	Infiltration from groundwater
1	14	West Indian Woods	N	N	Y	N	Y	Y	N	Y	N
2	11(1)	School at Driveway	Y	Y	Y	Y	Y	Y	N	Y	Y
3	1	360 Burnside	Y	Y	N	Y	Y	N	Y	Y	N
4	18 <sup>(1)</sup>	Burnside Avenue	Y	N	Y	N	Y	Y	N	Y	Y
5	4	Whitehall	Y	N	Y	N	Y	Y	N	Y	Y
6	11(2)	Off School	Y	Y	Y	Y	Y	Y	Y	Y	Y
7	7	498 Port Indian	Y	N	Y	N	N	Y	N	Y	Y
8	8	367 Port Indian	N	N	Y	N	N	Y	N	N	N
9	17	Paddock	N	N	Y	N	N	Y	N	N	N
10	10	Port Indian Detention	U	U	U	U	U	U	U	U	U
11	3	Wayne Drive	N	Y	N	Y	N	N	Y	Y	N
12	9	General Armistead	N	N	Y	N	Y	Y	N	N	N
13	5	Sheridan/Hartranft	U	U	U	U	U	U	U	U	U
14	15	Riverview	N	Y	Y	Y	Y	Y	Y	Y	N
15	2	711	N	N	N	N	N	N	N	N	N
16	13	Beaver Hollow	N	N	N	N	N	N	N	N	N

Note: Y = Yes, which means possibly present, and N = No, which means not likely to be present, based on metering results; U means Unknown

## COMPUTER MODELING

### Computer Model Development

This Inflow and Infiltration Study consisted of two components: metering of the sewage flows throughout the system; and, development of a computer model of the entire West Norriton Township sewer system. Prior to the development of the sewer system computer model, Geographic Information System (GIS) mapping of the sewer system was completed. The GIS mapping was developed by gathering information from the Township's sewer system drawings, and incorporating it by computer in digital aerial photography and parcel mapping of the Township.

A full system hydraulic computer model was developed using Bentley SewerCAD Version 8i modeling software. Gravity sanitary sewer mains, force mains and manholes were developed for the model by linking and integrating the GIS database within the SewerCAD program. The Township's six pump stations (Rittenhouse Boulevard, Whitehall Road, Port Indian Road, Chestnut Avenue, Halford Hills, and Forest Avenue) were created using record drawings and pump flow curves. Each pump station consists of a wet well, lead and lag pumps. The pumps are controlled by the water level in their respective wet well.

The daily flow data collected from the system flow meters was analyzed to determine the typical variation of flow through a 24-hour period during dry weather conditions. From census data, the typical household in West Norriton Township consists of an average of 2.25 persons. With a typical average sanitary flow of 100 gallons per day per person, the typical average flow per household is assumed to be 225 gallons per day. To mimic the typical flow from each household in the Township, the flow curve shown in Figure 1 was developed, which utilizes the typical variation of flow based on metering and equates to a 24-hour total flow of 225 gallons.

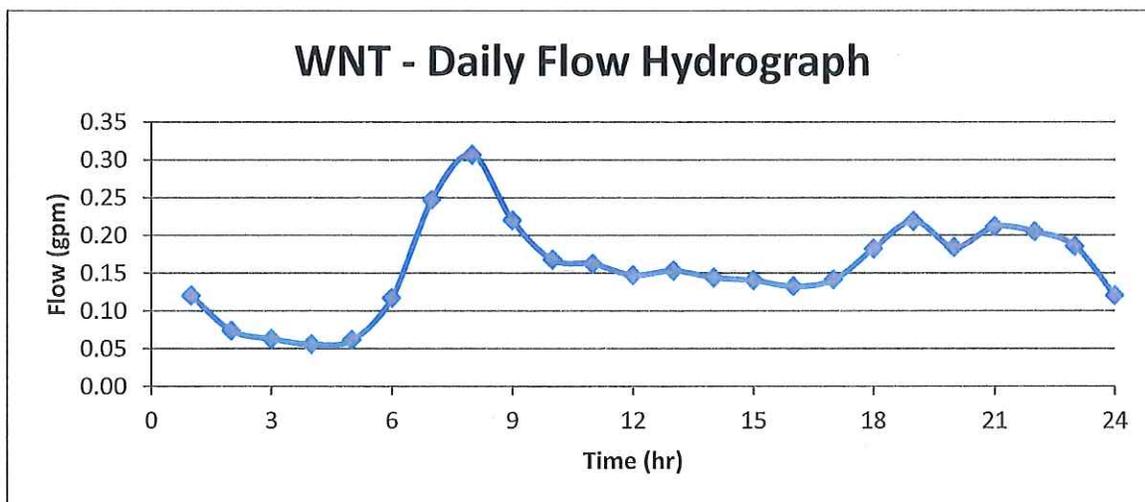


Figure 1: West Norriton Township daily flow hydrograph used for each sewer connection in the hydraulic model.

The sewer modeling software was utilized to assign each parcel in the Township to the closest sanitary sewer manhole. Significant non-residential customers in the sewer system, defined as contributing more than 7200 gallons per day or 5 gallons per minute, were identified from past water use records, and their sewage flow (assumed the same as the water usage) was input into the sewer system model at the appropriate location.

The computer model was utilized to develop the anticipated dry weather flows at the flow meter locations. This provides quality control for the collected meter data, assisting in the determination of meter accuracy as well as identifying meter locations with excessive flows which could identify high levels of infiltration. Future phases of sewer system analysis can utilize the computer model to analyze storm flows, to determine potential undersized pipes and pump stations, and to appropriately size upgrade facilities.

### **Computer Model Results**

The accuracy of the computer model is best illustrated through Table 3, Model Results – Pump Station/System Comparisons, on Page 6. This table shows the 2012 Chapter 94 Report flow values for the Township pump stations, the Jackson Street Diversion Chamber, and for the total flow to Norristown, as well as the flow results for these same locations from the computer model. It should be noted that the average daily flows from the Chapter 94 Report include all wet-weather as well as dry weather flows, whereas the computer model flows are only dry-weather flows. The Chapter 94 report flows would be expected to be higher than the computer model flows in most cases, as can be seen to be true in this table. The results shown on this table provide a high level of confidence in the accuracy of the computer model. The comparisons of the total flow to Norristown indicates that approximately 13% of the of the sewage flow is due to inflow and infiltration, based on the computer modeling.

To evaluate the apparent accuracy of the flow data collected by the installed flow meters, we have developed Table 4, Model Results – Flow Meter Comparisons, on Page 7. This table provides a clear illustration of the challenges of obtaining accurate flow meter data, as shown through the variability of the comparison at each meter site. The table does provide a valuable tool in the analysis of the flow meter data when evaluating inflow and infiltration levels, by allowing upward or downward adjustments of flow data based on comparisons with anticipated levels from the computer modeling results.

### Model Results – Pump Station/System Comparisons

Pump Station Name	Average Daily Flow (gpm)	
	2012 Chapter 94 Report	Model Dry Weather
Rittenhouse Blvd	985.1	852.3
Whitehall Road	307.7	312.1
Port Indian Road	226.5	184.7
Forest Avenue	124.3	150.4
Chestnut Avenue	40.9	34.2
Halford Hills	1.7	2.0
Jackson Street	651.6	577.7
Flow to Norristown	1,636.7	1,430.0

gpm = gallons per minute

## Model Results – Flow Meter Comparisons

Meter #	Meter Name	Average Daily Flow (gpm)	
		Metered Dry Weather	Model Dry Weather
1	360 Burnside	70.0	133.9
2	7-11	300.0	571.6
3	Wayne Drive	75.0	62.0
4	Whitehall	200.0	308.7
5	Sheridan/Hartranft	60.0	231.3
7	498 Port Indian	0	166.4
8	367 Port Indian	60.0	39.0
9	General Armistead	75.0	71.7
10	Port Indian Detention	50.0	184.7
11(1)	School at Driveway	4.0	2.8
11(2)	Off School	100.0	130.4
13	Beaver Hollow	1.0	22.9
14	W Indian Woods	40.0	3.6
15	Riverview	2.0	14.2
17	Paddock	0.2	49.7
18	Burnside Avenue	120.0	155.4

gpm = gallons per minute

## **STORM ANALYSIS**

Two recent storms of significance were analyzed for this report, June 7, 2013, and July 23, 2013, which occurred during flow monitoring within the West Norriton Township sewer system. All meters were in place during these two storms, allowing comparisons between the meters and prioritization based on those comparisons. These storms are described within this section, and the effect of these storms on each individual flow meter is described in Meter Results, beginning on page 15.

### **Storm of June 7, 2013**

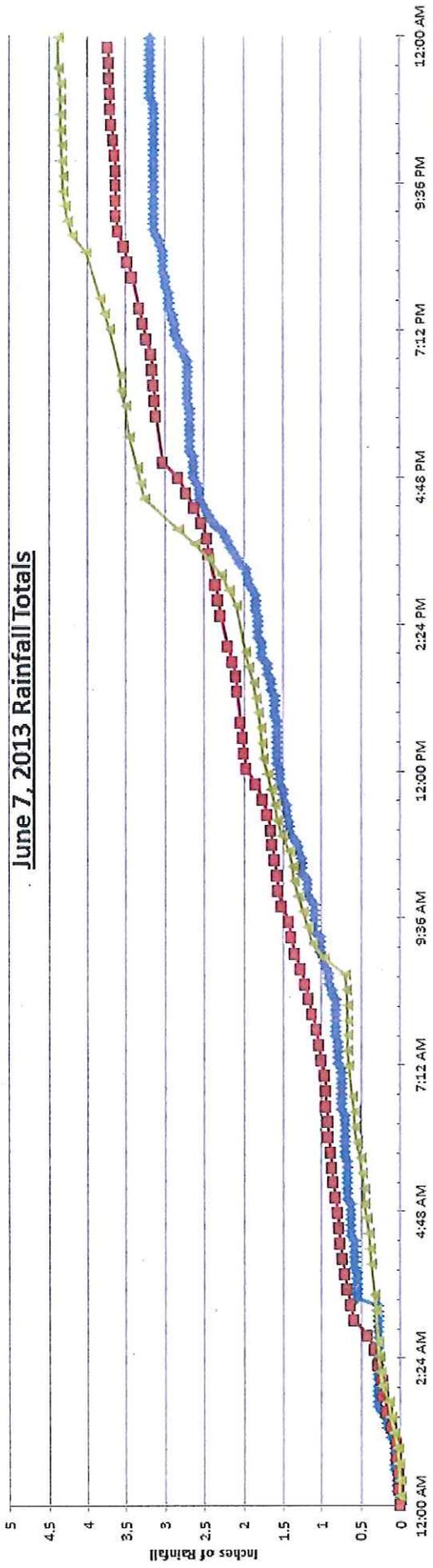
From midnight on the morning of June 7, 2013, to the end of rainfall approximately 24 hours later, West Norriton Township received a total of between 3 and 4 inches of rainfall following approximately 0.16" of rain through the evening of June 6. This rainfall for three nearby rain gages is depicted on Figure 1 which shows both the accumulation of total rainfall as well as the intensity of the rainfall throughout the day. These three rain gages surround the Township as shown on Figure 2, and were utilized for analysis since no functioning raingage was located within the Township during this storm. The storm traveled in a southwest to northeast direction. The Wayne raingage lies directly in front of the Township for the path of this storm, and based on the speed of the storm track, it would take approximately 5 minutes for rain at the Wayne gage to travel to the center of the Township. Due to the proximity of the Wayne raingage, it was utilized for the comparison of rainfall to flow for the Township. For reference, the Collegetown and Lafayette Hill rain gages may provide an indication of how the rainfall is changing as it travels across the Township.

The Wayne raingage received a total rainfall in the 24-hour period of June 7 of 3.19 inches, which would represent a 2-year storm based on the latest NOAA Point Precipitation Frequency Estimates. A 2-year storm event happens on the average once every two years. If the rainfall on the Township increased to 4 inches as possible based on the Collegetown and Lafayette Hill rain gages, then the Township would have experienced a 5-year storm event. The maximum intensity of rainfall during this rainfall event was 0.55 inches per hour, which occurred between 4 pm and 5 pm.

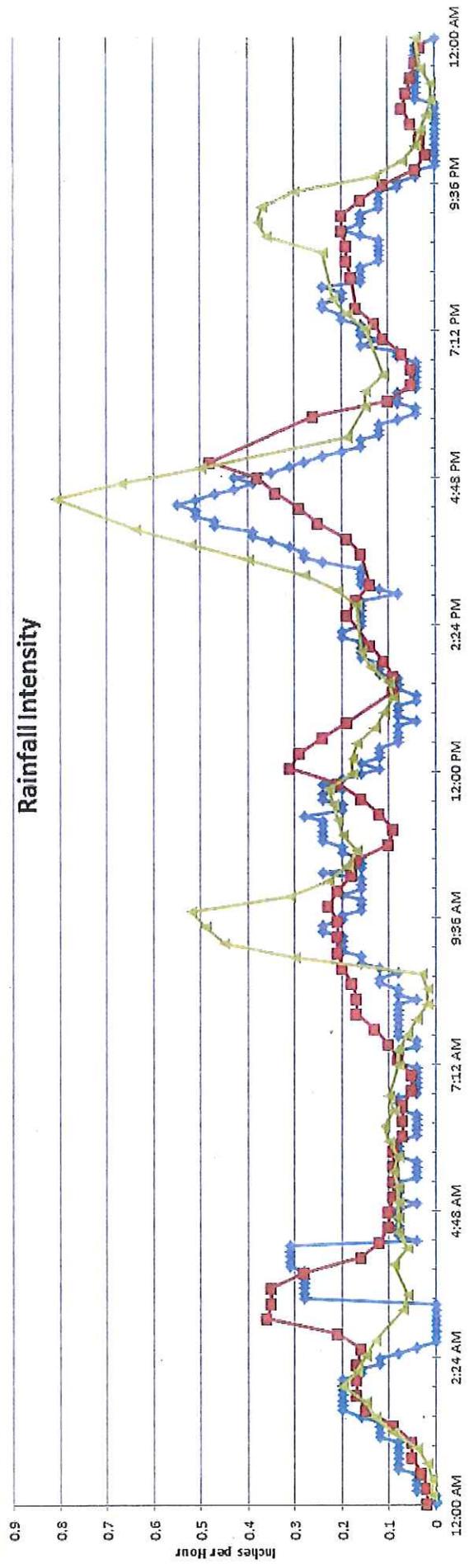
### **Storm of July 23, 2013**

The storm of July 23 was a very short, high intensity event which occurred in the early morning hours between 1 am and 3 am, as depicted on Figure 3. The Eagleville raingage, located as shown on Figure 4, which lies closer to the Township than the Collegetown raingage, was functioning during this storm. The storm tracked almost directly from west to east, such that the rainfall at the Township would most likely lie between the values of the Wayne and the Eagleville rain gages. For this storm, the Wayne raingage received 0.91 inches of rain, and the Eagleville raingage received 1.67 inches of rain. The Lafayette Hill raingage received 1.52 inches of rain; with the storm track being almost directly from the Wayne raingage to the Lafayette Hill raingage, it appears that the storm intensified as it traveled over the Township from the Wayne raingage. The peak storm intensity over the Township was most likely somewhere between 0.83 inches per hour at the Wayne raingage and 1.57 inches per hour at the Eagleville raingage. This would represent approximately a 2-year storm event.

### June 7, 2013 Rainfall Totals

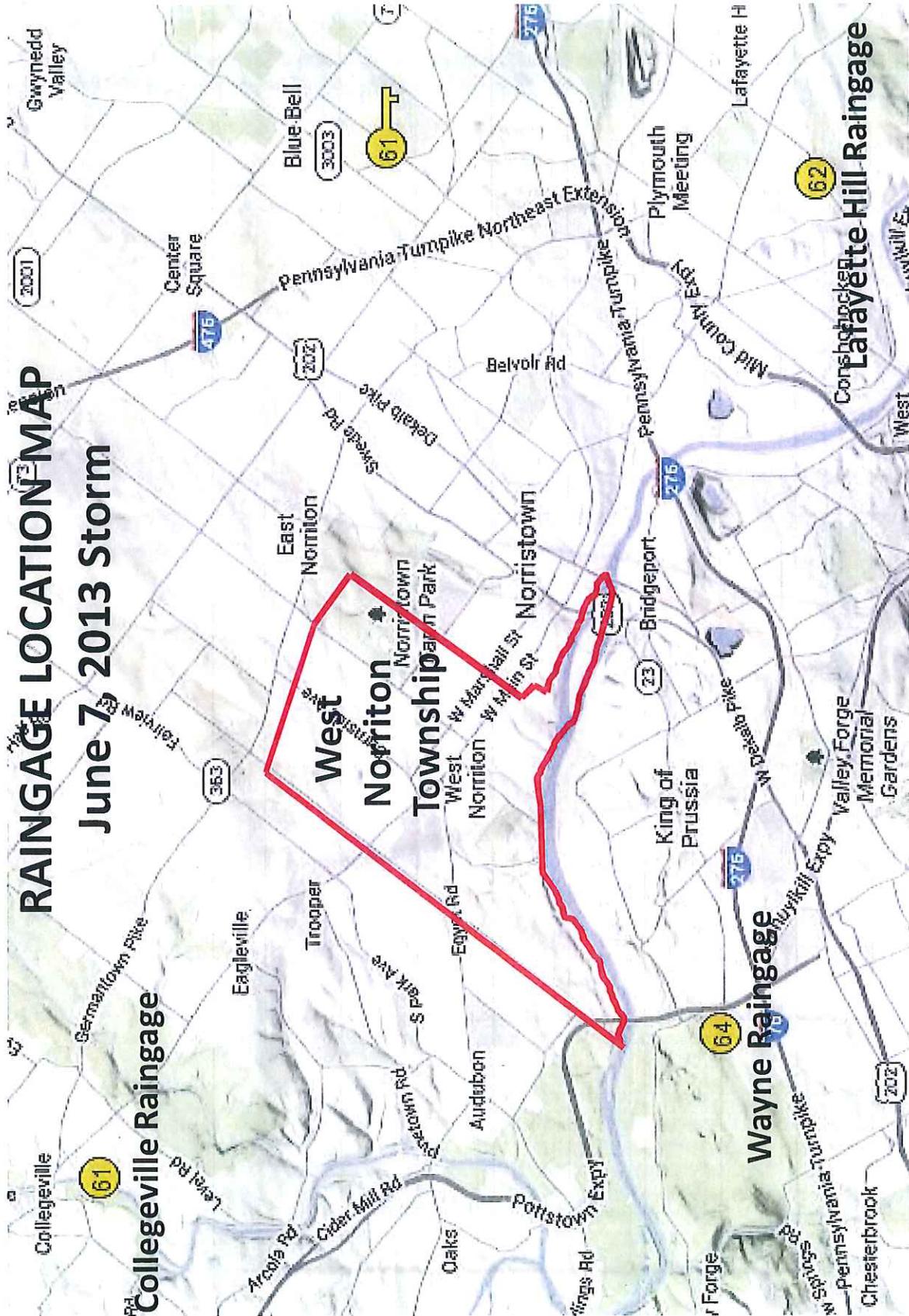


### Rainfall Intensity

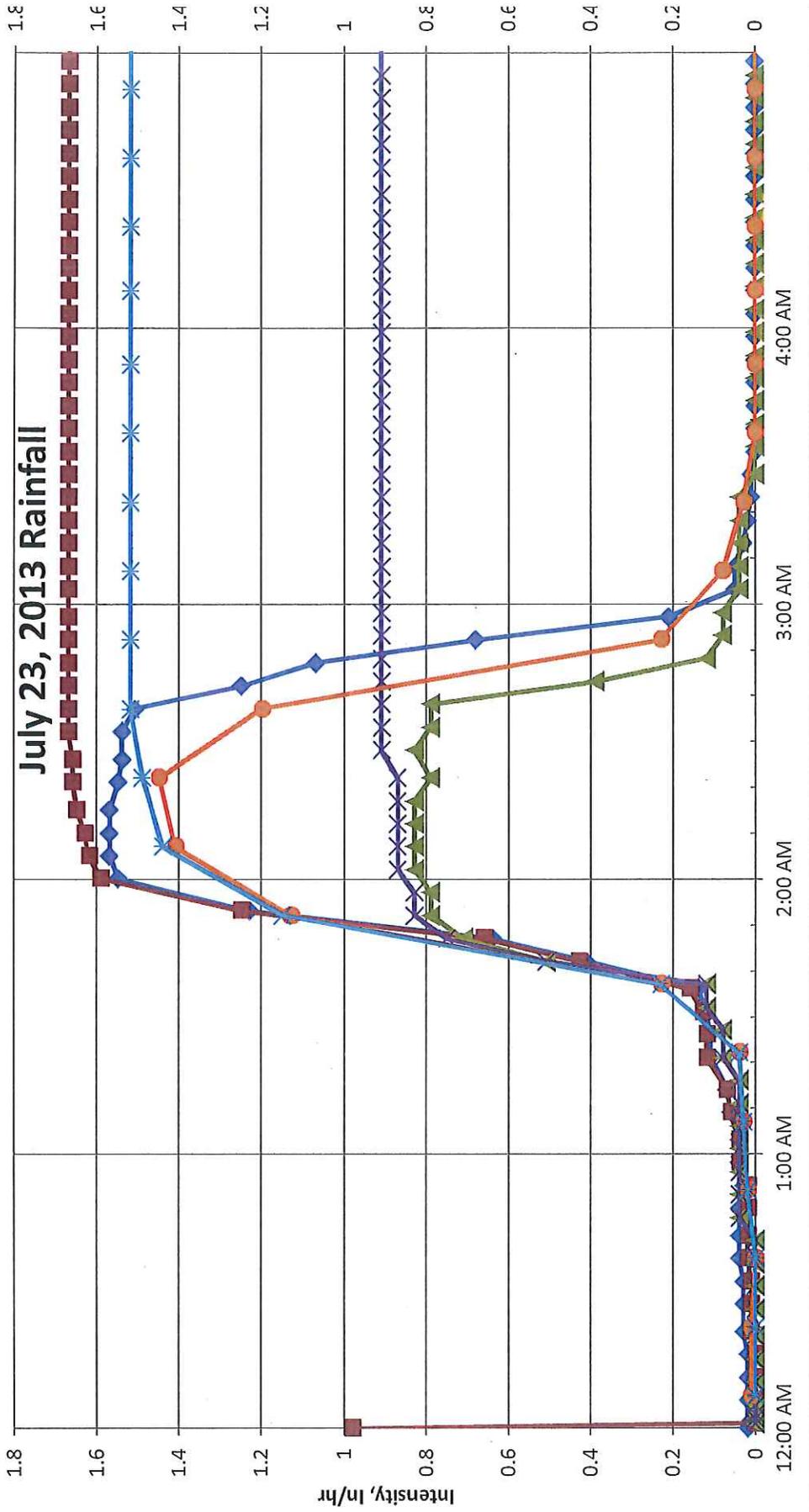


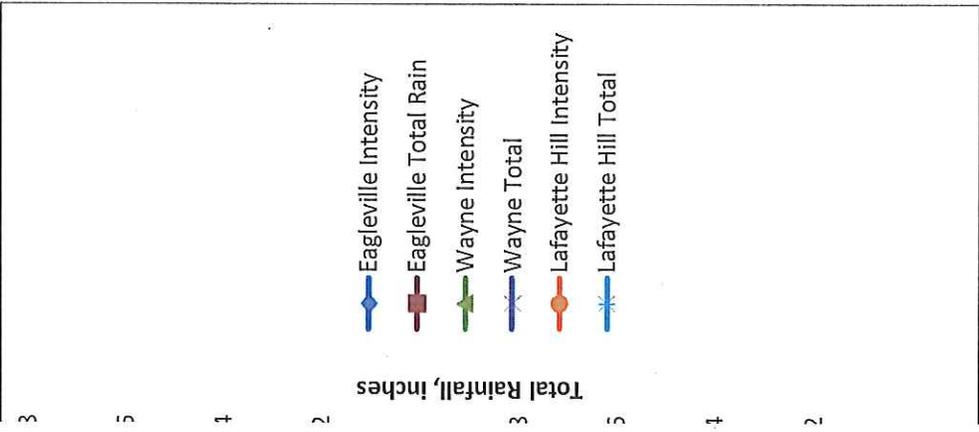
# RAINGAGE LOCATION MAP

## June 7, 2013 Storm



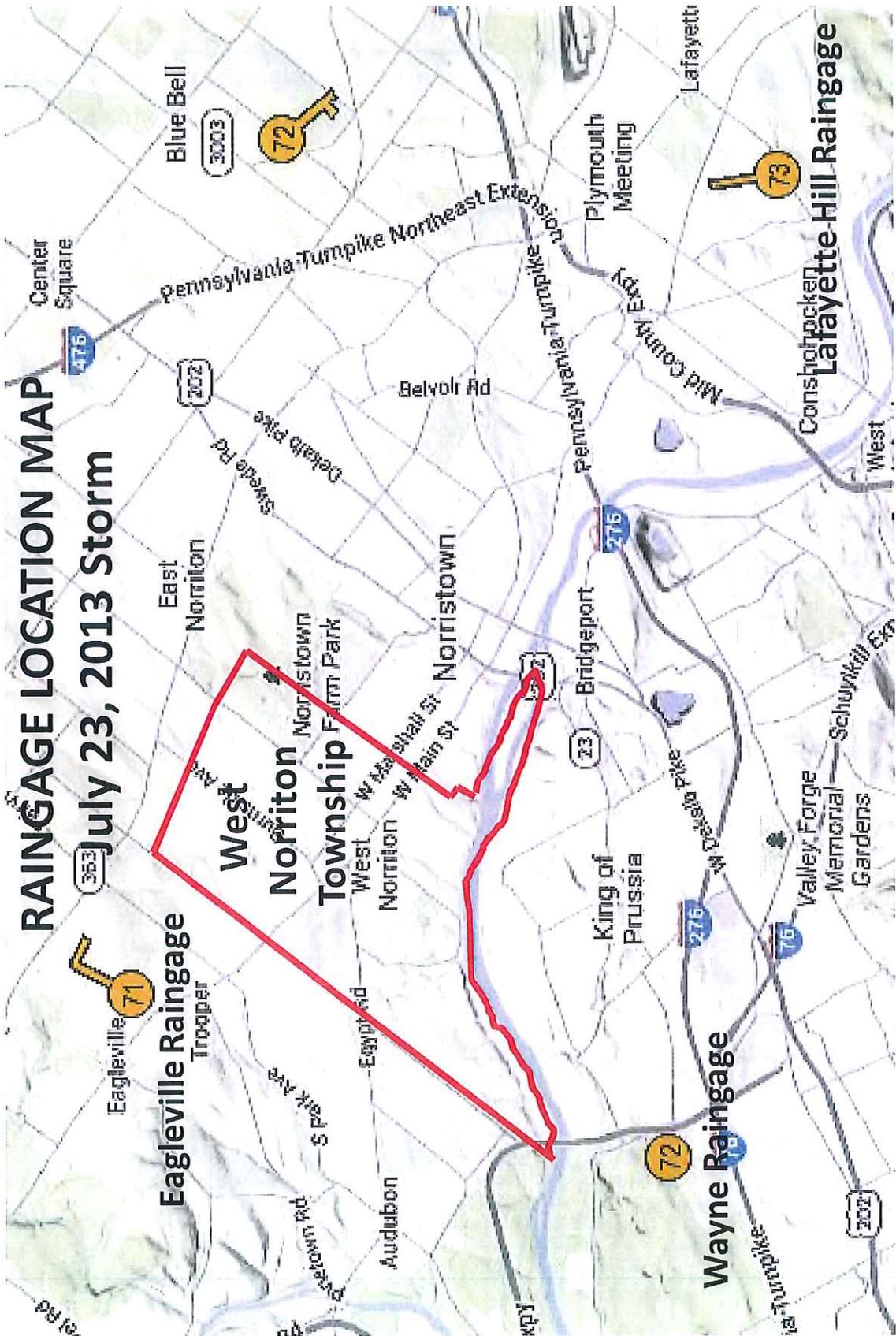
# July 23, 2013 Rainfall





# RAINGAGE LOCATION MAP

## July 23, 2013 Storm

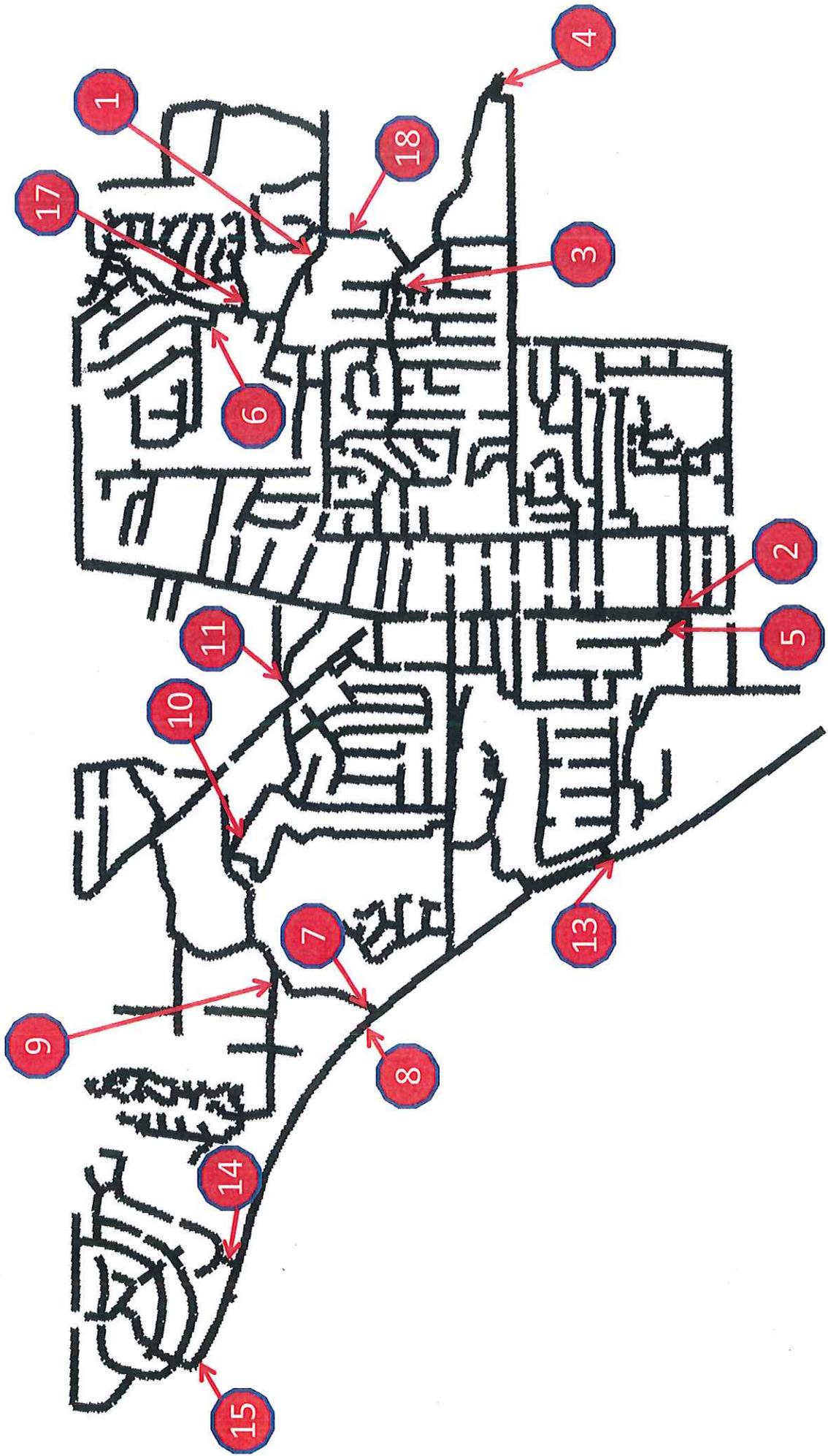


## **METER RESULTS**

Fifteen flow meters have collected flow information in the West Norriton Township sewer system through the summer of 2013. The meters are Greyline Loggers, which gather and store information on the velocity and depth of the sanitary sewer flow, with values obtained continuously at 5- or 10-minute intervals. Based on the diameter of the pipe in which the meter is installed, the flow can be determined from the velocity and depth readings. The location of the meters is shown on Figure 6, page 14. A description of the effects of the June 7 and July 23 rainfall events on each of these meters follows Figure 6, along with a discussion of the probable causes of those effects, also known as the characterization of the storm event flows. It should be noted that different graphs utilize different flow increments, so that peak flows shown at the same time for the same meter can be quite different; some charts contain average daily flow, whereas others show instantaneous flows at 5-minute increments.

Based on an analysis of the individual metering information shown on pages 15 through 83, inflow and infiltration (I&I) levels have been estimated at each meter location for the two analyzed storms, and prioritizations have been established for I&I repair efforts. Table 1 on page 2 presents the estimated I&I values as well as the results of the prioritization. Table 2 on page 3 summarizes the possible sources of the I&I within each prioritized meter area, as discussed in the characterization of flow contained within the analysis of each individual meter.

# METER LOCATIONS



## METER 1 – 360 BURNSIDE AVENUE

Meter 1 is located in Township manhole 1299 at 360 Burnside Avenue, in the 12-inch influent pipe to that manhole. Meter 17 flows through this meter; based on computer modeling, it is expected to contribute approximately 1/3 of the dry weather flow to Meter 1.

### Period of Record

From Figure 7, it can be seen that the approximate average daily flow at this meter is 70 gallons per minute (gpm) for non-rainfall days. It is important to note that the anticipated average daily flow for dry-weather days is 150 gpm based on computer modeling; it therefore appears that the meter is reading too low in general. The average daily flow can be seen in Figure 6 to have clear increases which occur on days related to high rainfall events.

### June 7, 2013 Event

On June 7, following approximately 3 inches of rainfall, the instantaneous peak flow reached 873 gpm, as shown on Figure 7. A gradual, steady increase in flow began at 1 am, after 0.24 inches of rainfall with intensities of only 0.08 inches per hour. Flows continued to increase or stay at the highest levels until the rainfall intensity dropped to below 0.15 inches per hour around 10 pm. From Figure 8, it can be seen that flows dropped close to pre-storm levels approximately 1 day following the end of rainfall.

### July 23, 2013 Event

Based on Figure 9, it can be seen that the meter transitioned from a non-functioning position to a flow of 100 gpm within 30 minutes following the start of significant intensities of rainfall. Based on the results of the June 7 event where flow increased essentially concurrently with the start of rainfall and reached 100 gpm after intensities reached 0.2 inches per hour, it is probable that the period of meter non-function at the beginning of this storm included instantaneous increases in flow with the start of rainfall. The July 23 peak flow was 385 gpm. Flows rapidly decreased following a decrease in rainfall intensity until the rain ended at 3 am. From that point, with a flow of 250 gpm, flows gradually decreased, falling nearly to pre-storm levels approximately 1 day following the end of rainfall, as seen on Figure 10.

### Flow Characterization

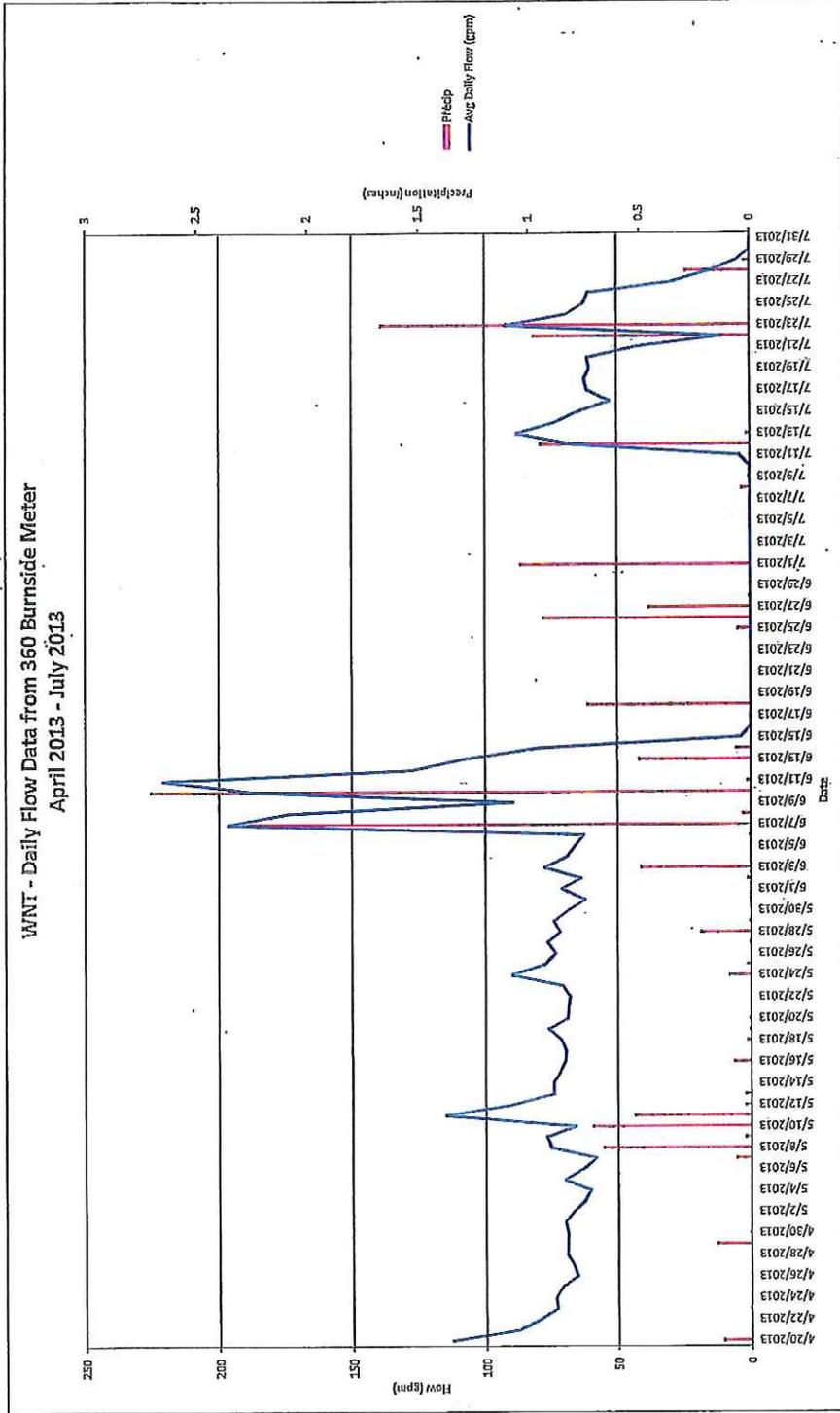
Based especially on Figures 8 and 9, it appears that there are two components to the storm-induced flows to this flow meter: a direct inflow; and a delayed inflow. It appears that infiltration is a very minor component for the pipes contributing to meter 1, since increased flows last essentially only a day following the end of rainfall. Pipes experiencing significant levels of infiltration would typically experience increased flows for many days after a storm event, especially after a 3-inch rainfall event.

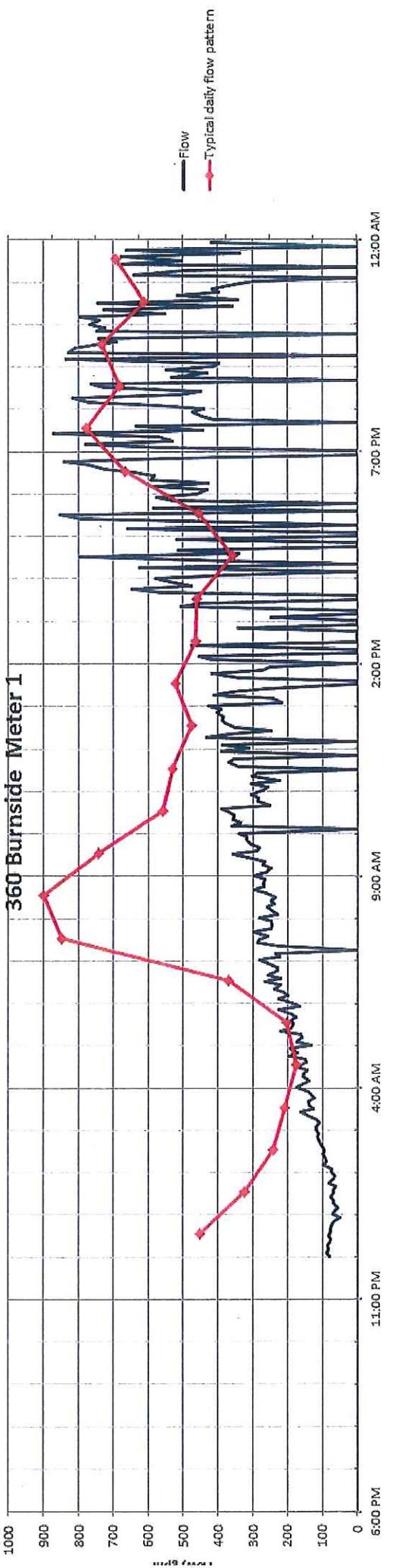
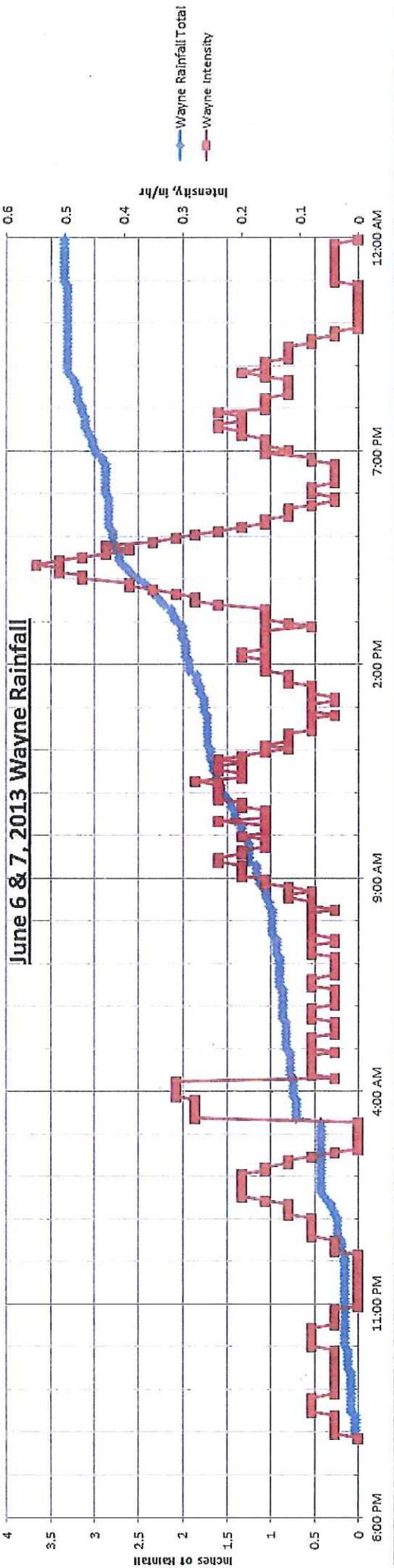
With sewage flows apparently increasing immediately with the onset of significant rainfall, it would be indicative of downspout or exterior surface drain connections directly to sewer laterals, or having manholes without lid inserts located in drainage low points which receive flow from paved areas (such

as near curb lines within paved streets.) All of the flow from these sources would experience a rapid decline following the end of rainfall. The point at which these direct flows become less than the flow from delayed sources can be seen at 3 am on Figure 9 and 6 am on Figure 8, where the slope of the line showing decreasing flows changes abruptly.

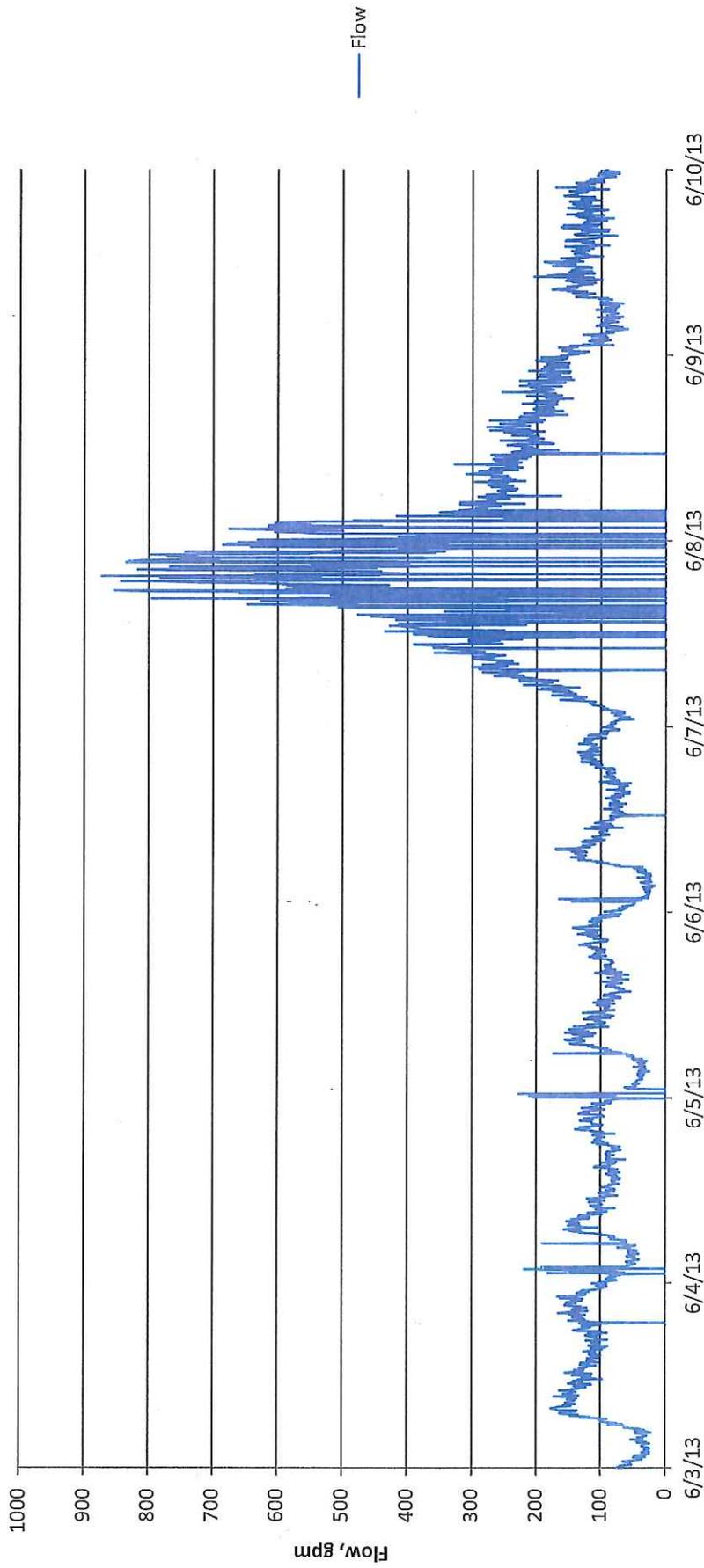
The sources of the delayed inflows can be such things as sump pump connections, flow into manholes through the stone subbase of paved roads, and flow into low-lying sewer vents.

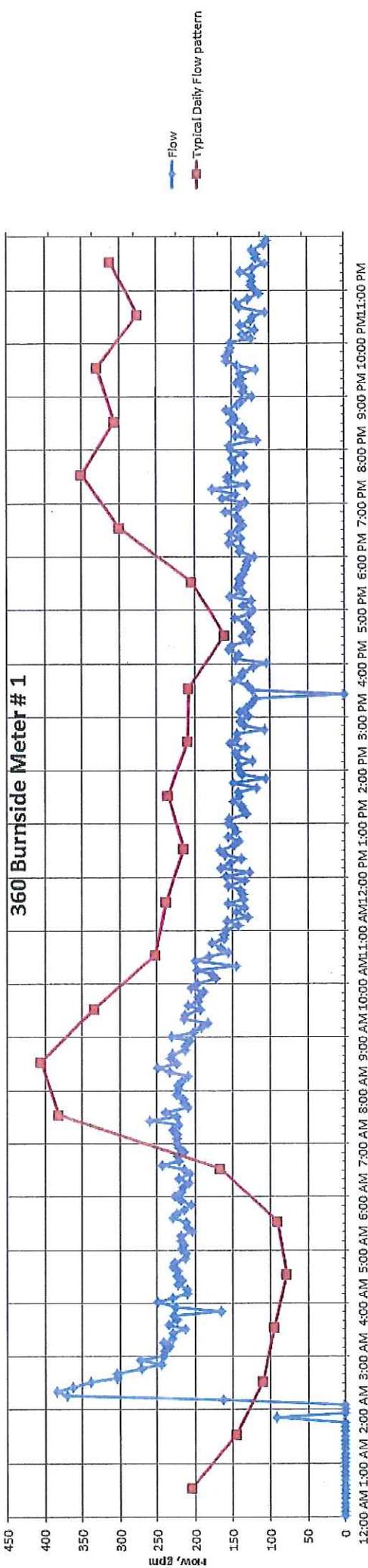
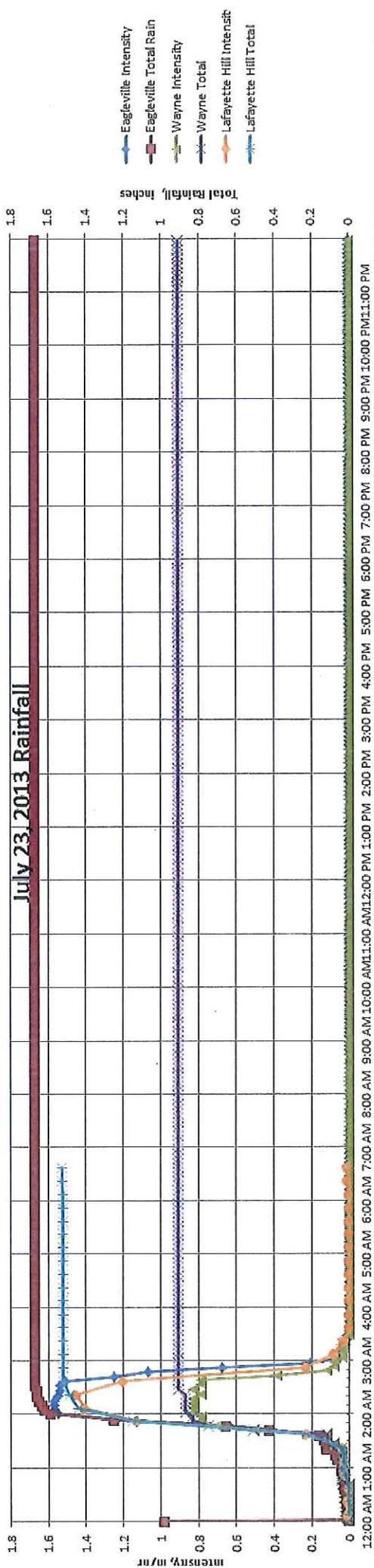
WNT - Daily Flow Data from 360 Burnside Meter  
 April 2013 - July 2013



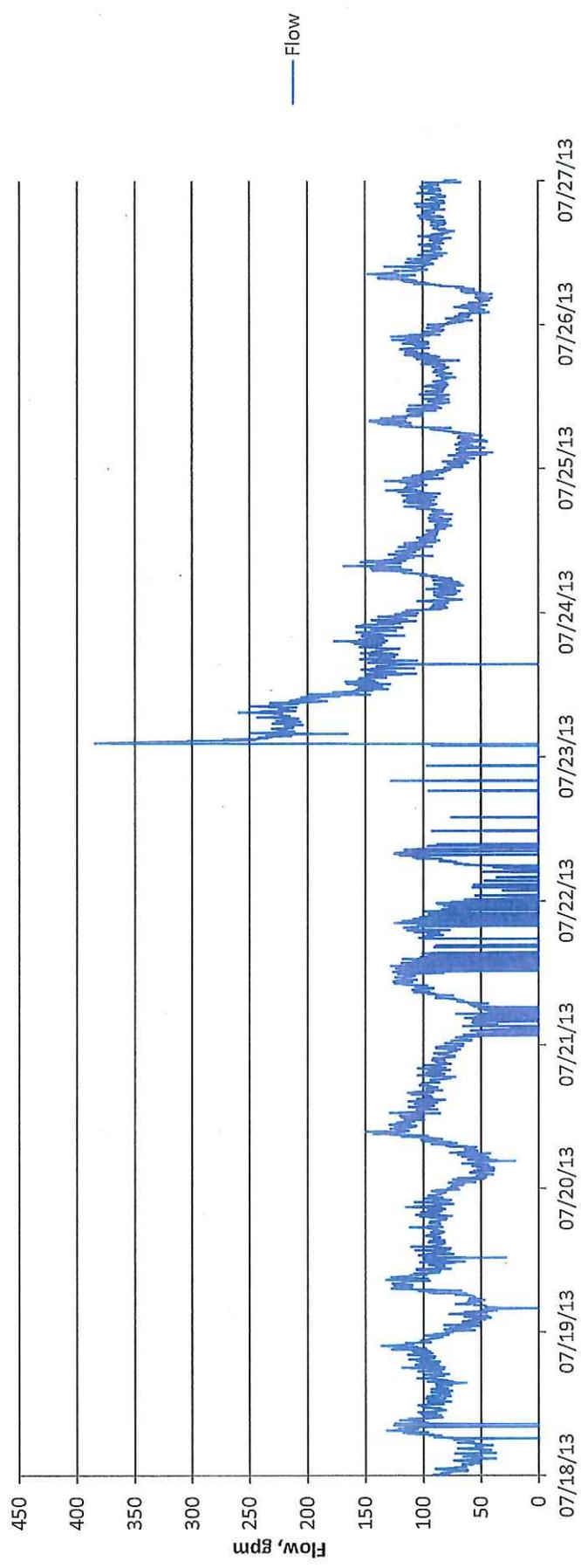


# 360 Burnside Meter 1





### 360 Burnside Avenue Meter 1



## **METER 17 – PADDOCK CIRCLE**

Meter 17 is located in Township manhole 1254 near Paddock Circle, in an 8-inch pipe at that manhole. There are no other meters which flow to this meter.

### **Period of Record**

Figure 11 would indicate that the average daily flow through this meter for non-rainfall days would be less than 1 gpm. This is an unrealistically low value considering the number of households which flow through this meter; the anticipated average daily flow for dry-weather days is 55 gpm based on computer modeling. An important observation from Figure 1.1 is that there appears to be very little correlation between rainfall events and the average daily flow, except for the very highest rainfall events, where there is a significant increase in average daily flows.

### **June 7, 2013 Event**

This meter shows a peak instantaneous flow of 80 gpm on June 7 as shown on Figure 12. It occurs at the end of the significant rainfall. However, throughout this storm, short periods of increased flow only appear to occur in general after the most intense periods of rainfall, and not as a steadily increasing effect through the storm.

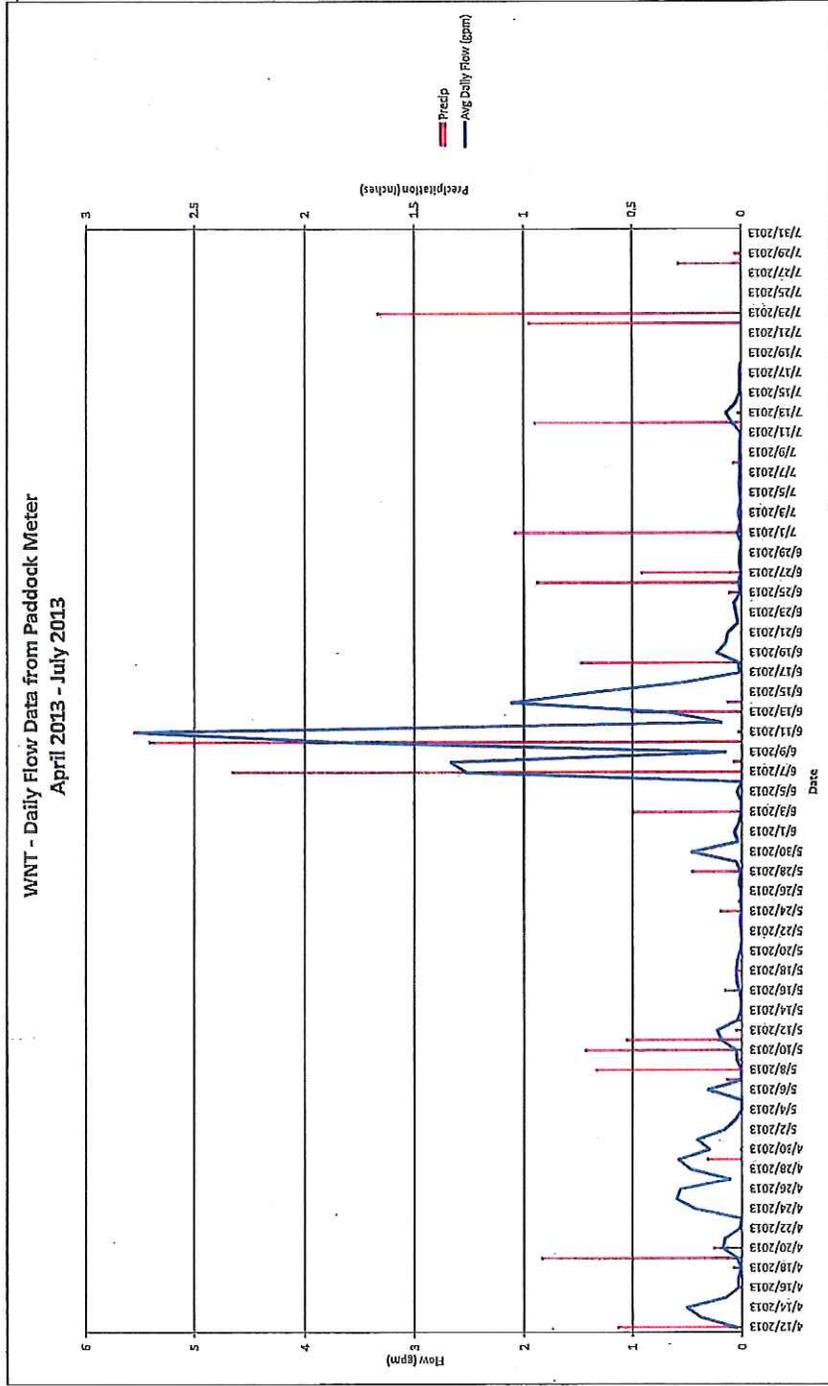
### **July 23, 2013 Event**

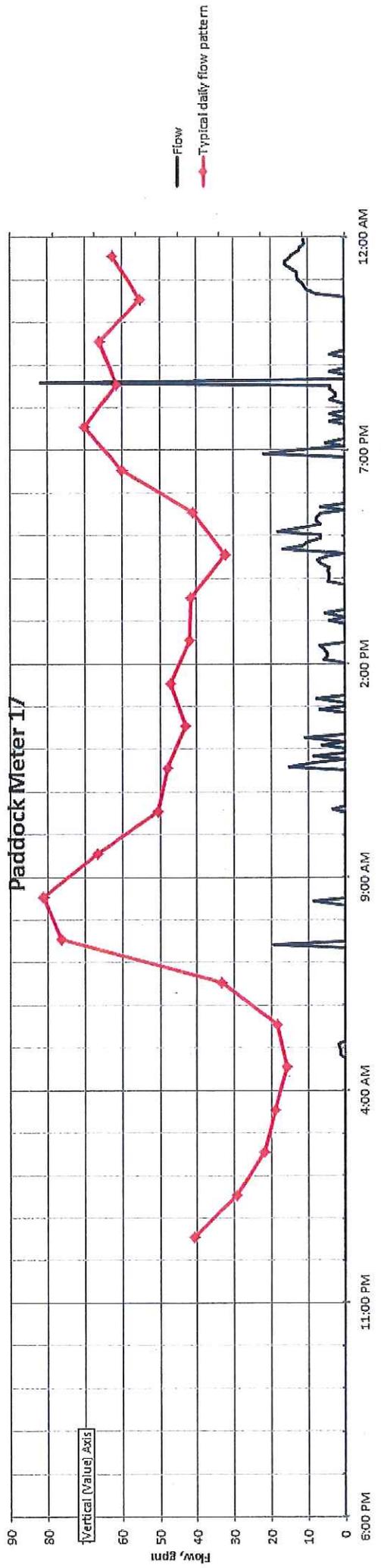
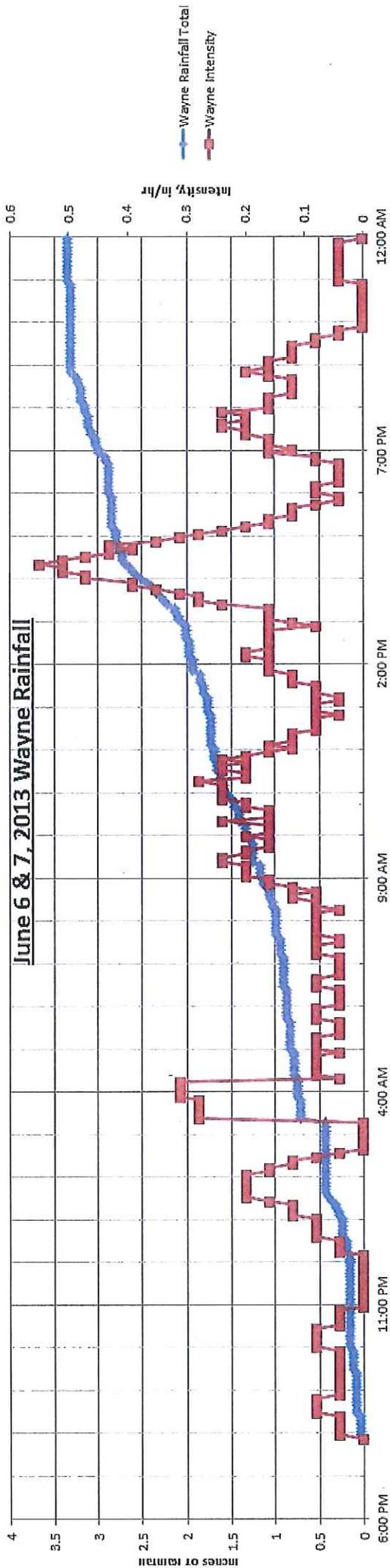
A very short duration high flow appears to occur immediately upon the occurrence of the highest intensity rainfall, just after 2 am, as shown on Figure 13. A higher short duration appears to occur just after 7 am, but with the rainfall ending at 3 am, it does not appear possible that this flow would be rainfall-induced. It appears that this would be a peak flow based on the typical morning flows through this meter; its magnitude is consistent with anticipated normal peak flows through this meter.

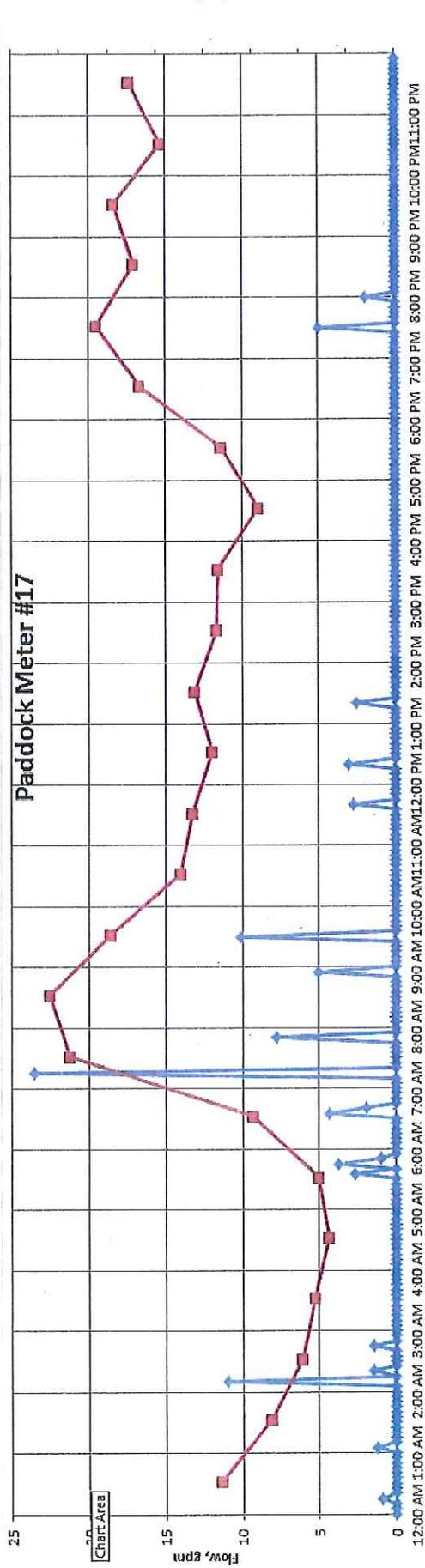
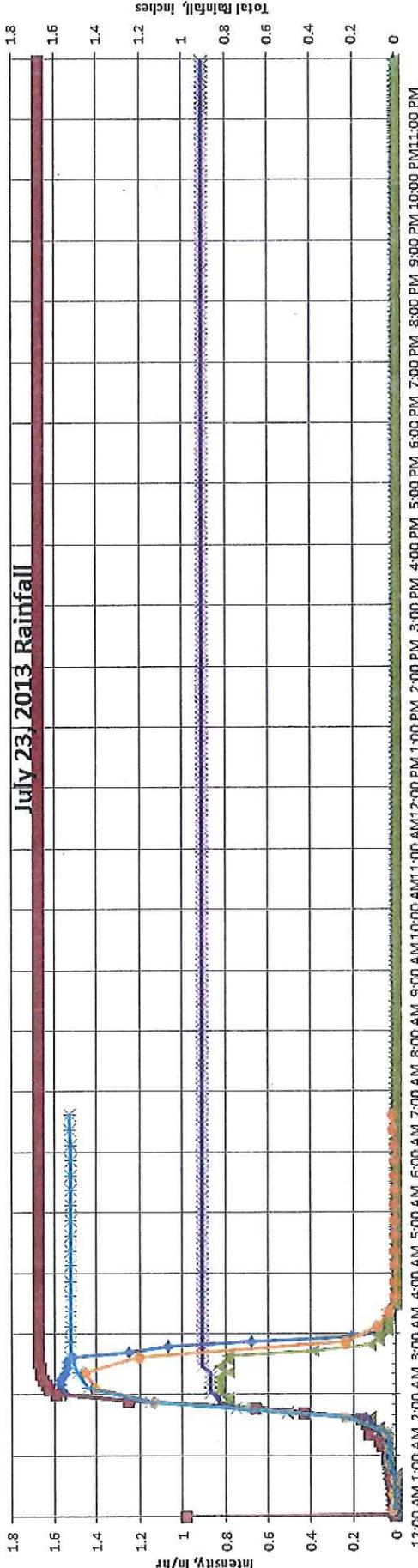
### **Flow Characterization**

Analysis of the three figures related to this meter indicate that only the very highest rainfall intensities from significant rainfall events contribute rainfall-induced flows to this meter. This would mean that the rainfall would need to be producing very high surface runoff flows. These flows are apparently high enough to reach direct inflow points to the sewer which are normally unaffected by typical surface runoff. This could be sewer vents which are above ground level but are low enough to collect higher surface flows; it could also be street manholes which are not along the curblin, but are close enough to be affected by higher and wider curb flows; or, manholes which are along a surface drainage channel, but are only high enough to be above the majority of surface flow. These peak sewer flows would not be the result of roof drain connections, floor drain connections, sump pumps, subbase flows, nor infiltration.

WNT - Daily Flow Data from Paddock Meter  
 April 2013 - July 2013







## METER 3 – WAYNE DRIVE

Meter 3 is located in Township manhole 1153 behind 1909 and 1911 Wayne Drive, in an 8-inch pipe at that manhole. There are no other meters which flow to this meter.

### Period of Record

Meter 3 has been in place since April of 2012, but has recorded flows of zero for much of that time. Figure 14 shows some recorded flows in June and July of 2013. It can be seen that the highest recorded flow occurred on a day with no rainfall. From approximately July 17 to July 21, a typical flow pattern can be seen which would be representative of base flows with no inflow or infiltration. This base flow, or apparent dry-weather average flow value is 75 gpm, compared to the anticipated value of 69 gpm from computer modeling; this is considered a very good comparison.

### June 7, 2013 Event

As seen on Figure 15, a single recorded peak flow occurs at 9 am, in the middle of the storm after a period of relatively low rain intensity. It is possible that the meter was not functioning before or after this peak, so no specific information can be assumed from this graph.

### July 23, 2013 Event

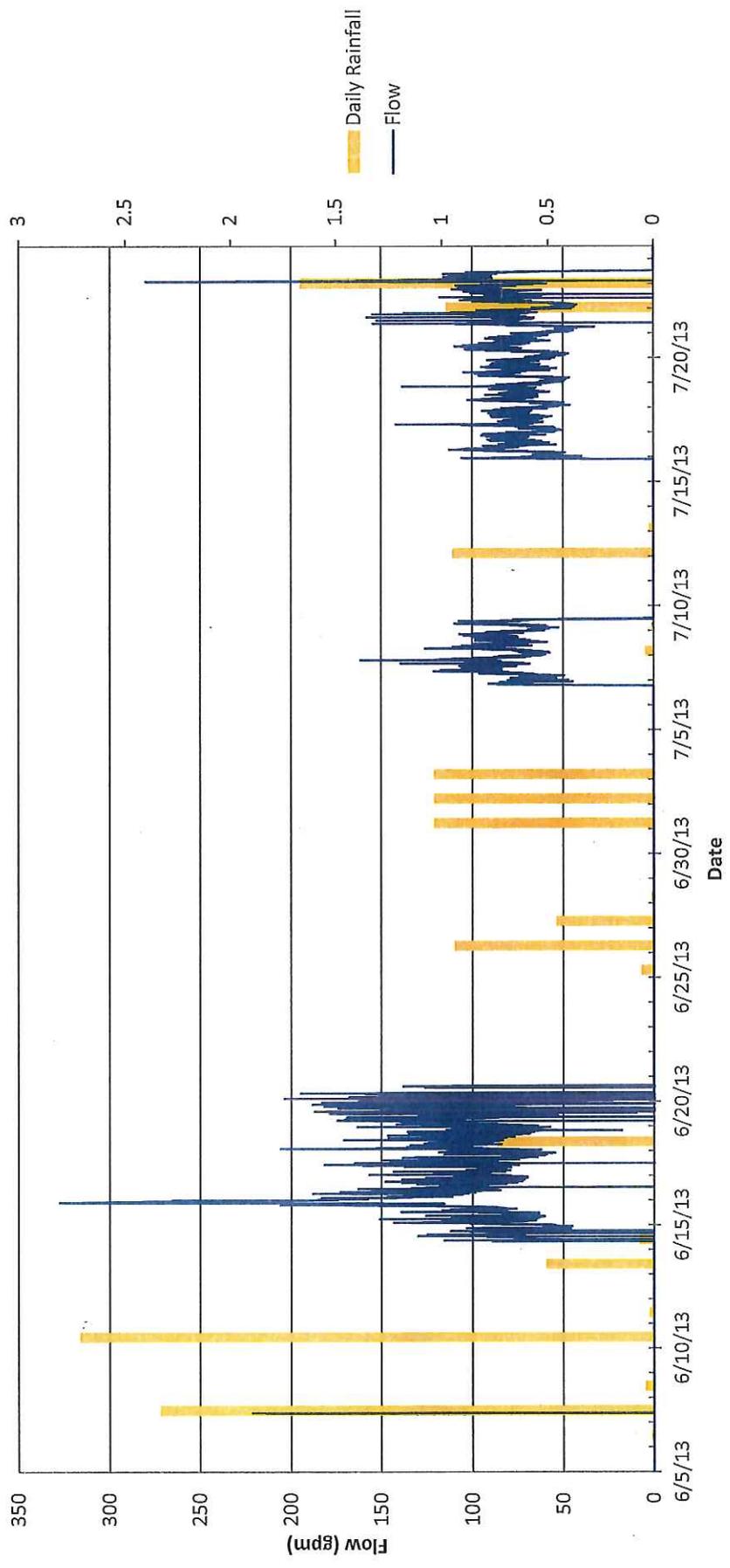
Based on Figure 16, it can be seen that increases in flow began immediately with the occurrence of significant rainfall, and continued to increase with the increase in rainfall intensity, followed by a rapid decline with the passing of the peak rainfall. Flows increased by a factor of 4; as with Figure 14, all of the actual flow values on Figure 16 are too high, but the magnitude of the increase in flows is appropriately depicted. It appears that the rainfall-induced flows ended by approximately 5 am (2 hours after the end of rainfall, at which point the higher flows related to the increase of the typical daily flow curve take over.

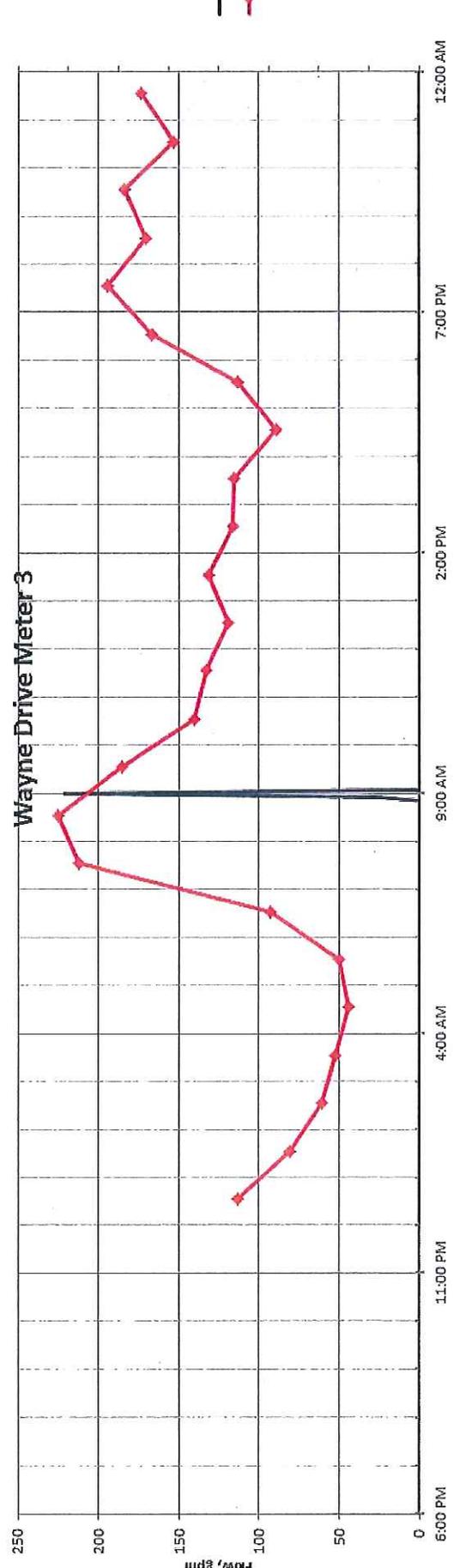
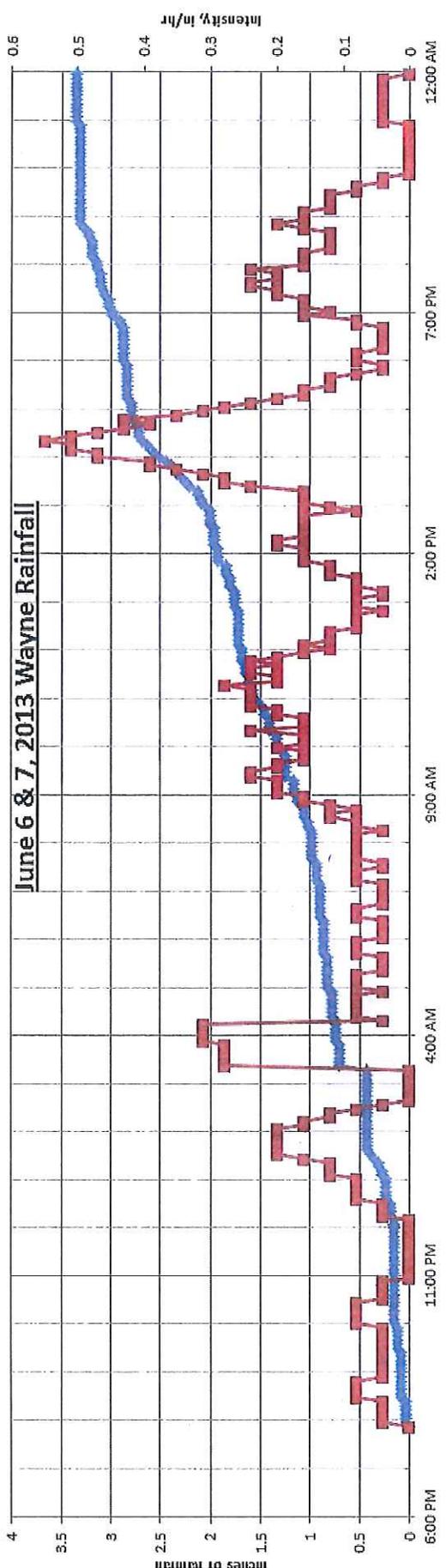
### Flow Characterization

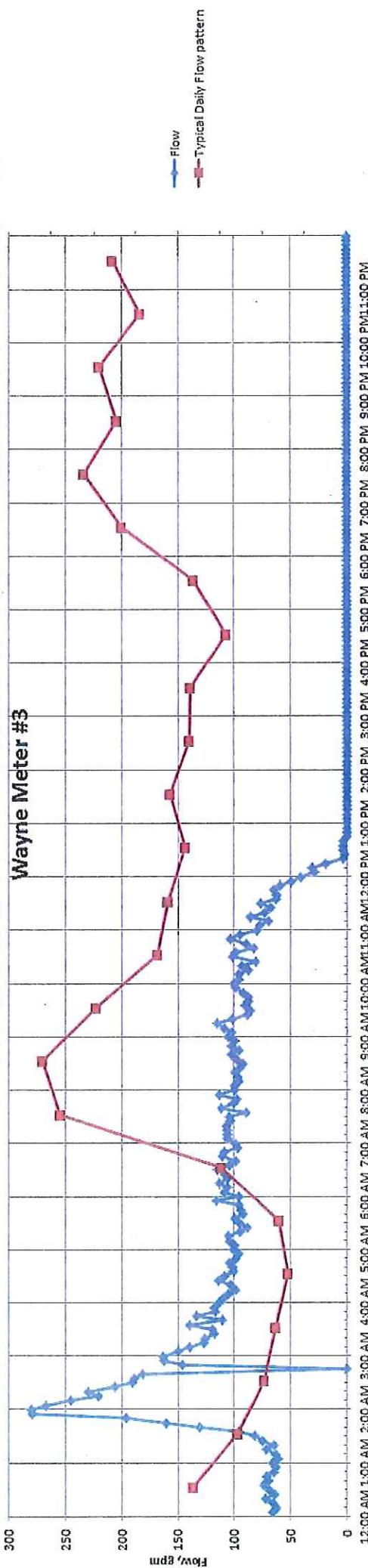
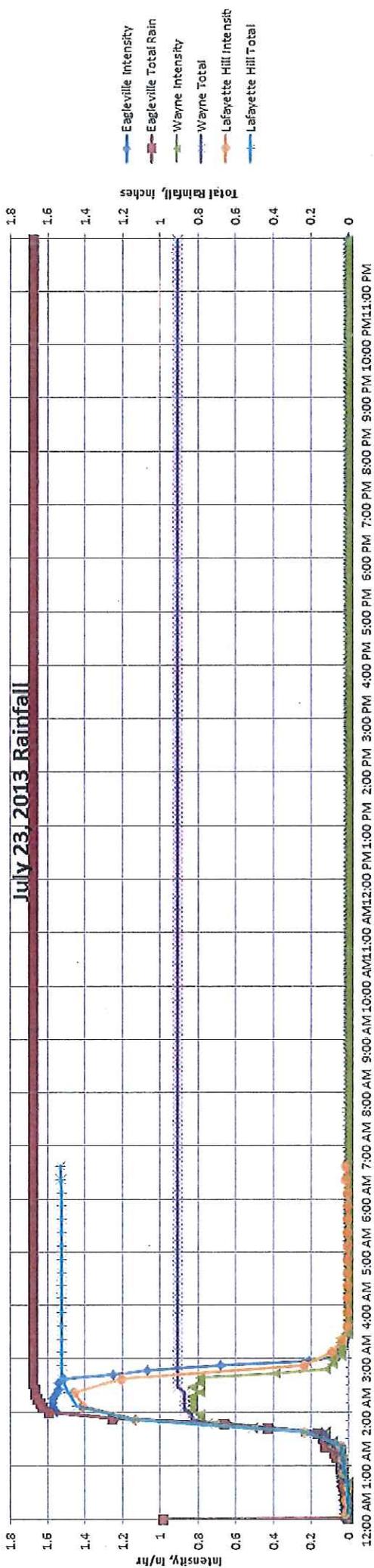
Based specifically on Figure 16, it is clear that there is direct inflow of the rainfall runoff into the sewer system, such as downspout or exterior floor drain connections directly to sewer laterals, or having manholes without lid inserts located in drainage low points which receive flow from paved areas (such as near curb lines within paved streets.) All of the flow from these sources would experience a rapid decline following the end of rainfall as can be seen in Figure 16. There is also a delayed inflow component within this meter area which only lasts a couple of hours after the storm. The sources of the delayed inflows at this meter would most likely be flow into manholes through the stone subbase of paved roads. It appears that infiltration is a very minor component or non-existent for the pipes contributing to meter 3, since increased flows last such a short time following the end of rainfall.

Additional discussion concerning rain-induced flows at Meter 3 can be found in the discussions of downstream Meter 4.

### WNT - Flow Data from Wayne Drive Meter #3







## METER 9 – GENERAL ARMISTEAD

Meter 9 is located in Township manhole 505 near the intersection of Boulevard of the Generals and General Arnold Avenue, in an 8-inch pipe at that manhole. There are no other meters which flow to this meter.

### Period of Record

Meter 9 has been functional for portions of the time since May of 2013 as shown in Figure 17. It can also be seen that there is very little effect of rainfall events on average daily flows. When the meter is functioning, its accuracy appears good, in that the actual dry-weather average daily flow appears to be 75 gpm, and the anticipated flow is 80 gpm from computer modeling.

### June 7, 2013 Event

The meter was not functioning during this rain event.

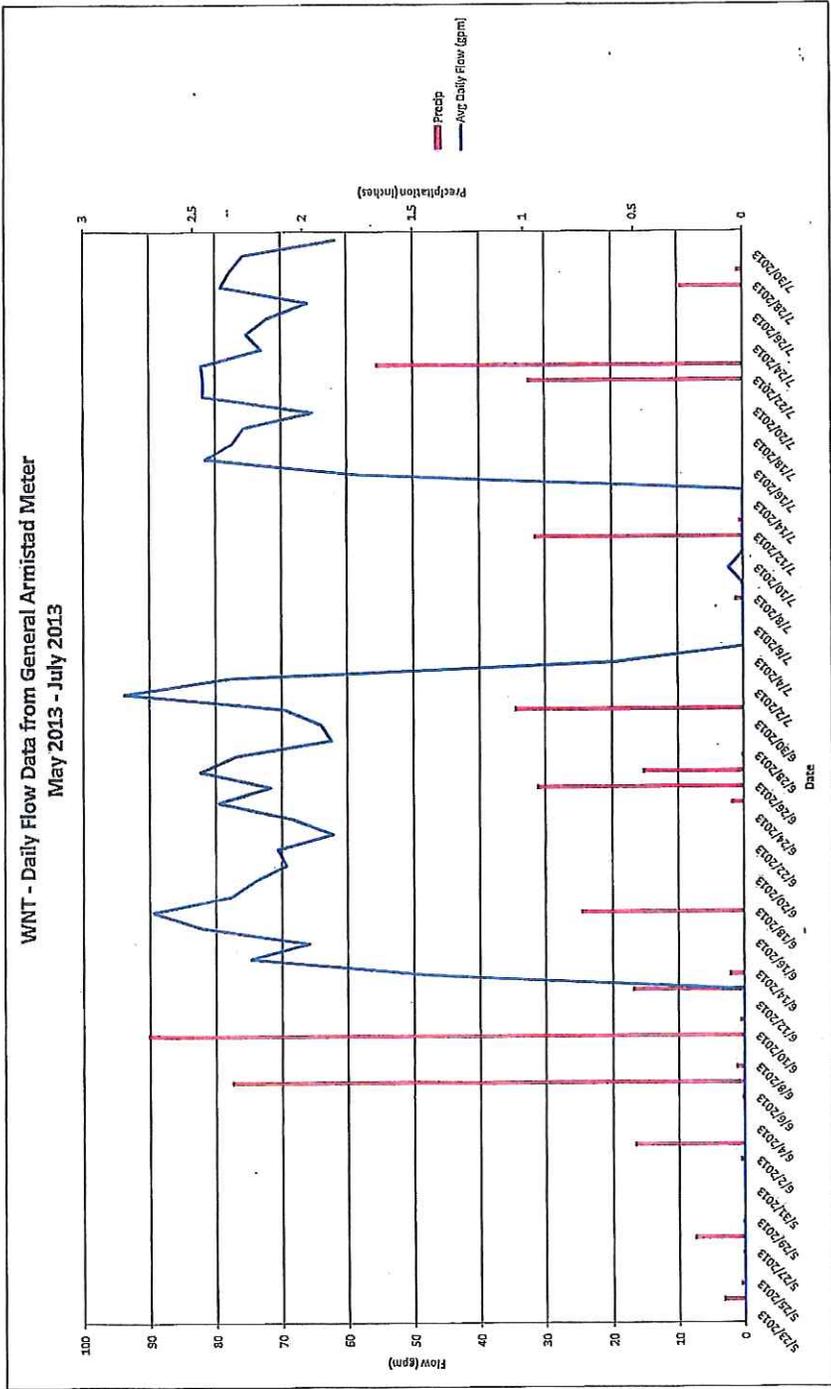
### July 23, 2013 Event

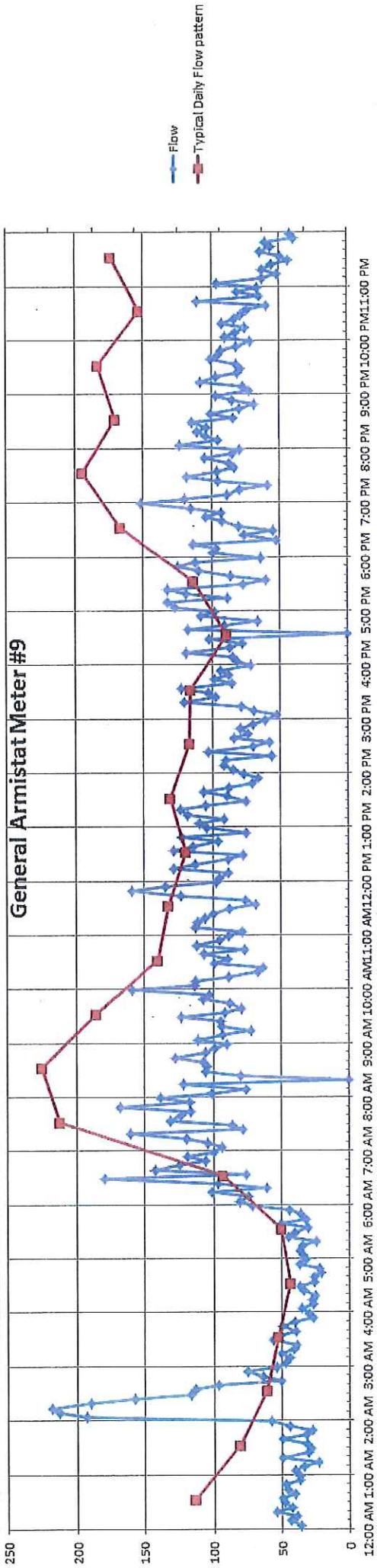
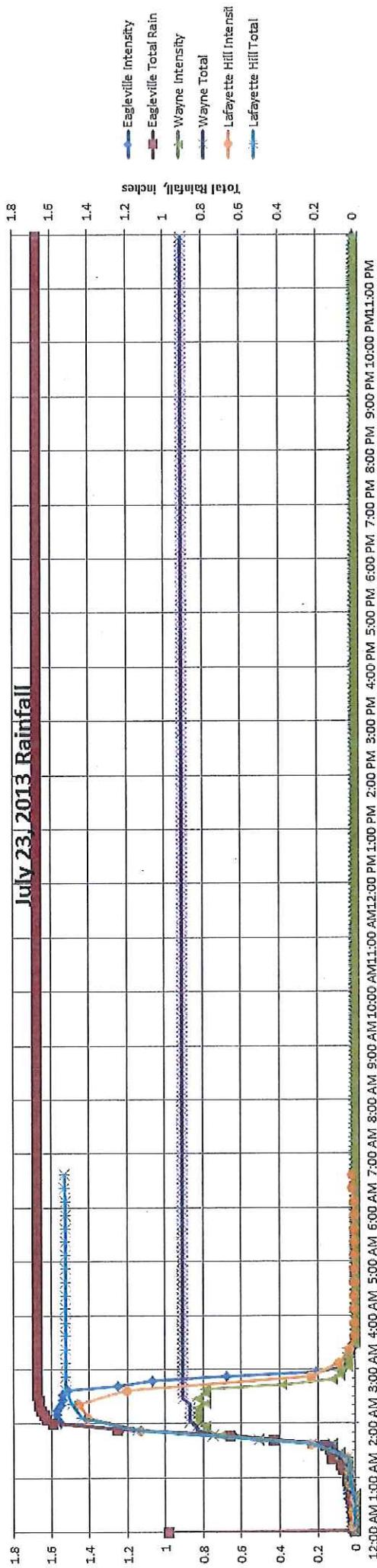
From Figure 18, it can be seen that increases in flow began approximately ½ hour after the occurrence of significant rainfall, and continued to increase with the increase in rainfall intensity, followed by a rapid decline with the passing of the peak rainfall. It appears that the rainfall-induced flows ended by approximately 4 am (1 hour after the end of rainfall, at which point the flows have returned to the typical daily flow curve.)

### Flow Characterization

From Figure 18, it is clear that there is direct inflow of the rainfall runoff into the sewer system, although it is delayed such that it would not be due to downspout connections which provide an instantaneous response. It could be due to low sewer lateral vents, or to manholes without lid inserts which are adjacent to drainage low areas and are affected after a buildup of surface flows. The flow from these sources would experience a rapid decline following the end of rainfall as can be seen in Figure 18. The delayed inflow component within this meter area lasts approximately only an hour after the storm and is very minor.

WNT - Daily Flow Data from General Armistad Meter  
 May 2013 - July 2013





## **METER 14 – WEST INDIAN WOODS**

Meter 14 is located in Township manhole 480 behind 922 Mystic Lane, in an 8-inch pipe at that manhole. There are no other meters which flow to this meter.

### **Period of Record**

Meter 14 was providing mostly zero flow readings prior to the storm of June 7, 2013, as illustrated in Figure 19. Following the storms of June 7 and June 10, flows returned closer to zero, but then gradually increased to an average daily flow of approximately 40 gpm. For this relatively small sewershed of residential housing, an average daily flow of 40 gpm is too high, with anticipated averages at 4 gpm based on computer modeling. Figure 20 shows more detail with hourly flows for the period of June 7 through June 23. While the peak flows from June 15 through June 23 appear too high, the daily flow pattern with many flows dropping to zero would be expected; the general flow pattern in this time period therefore appears appropriate. This implies that the flows between June 8 and June 14, which are followed by an apparent instantaneous and large drop in flows, are unrealistically high.

### **June 7, 2013 Event**

Figure 21 shows negligible flows until over 2.5 inches of rainfall has occurred and after the highest storm intensities, and flows rapidly dropping to zero after the higher rainfall intensities have ceased. The recorded peak flows appear to be unrealistically high. It is also unknown if the rapid drop to zero flow from the high peaks is accurate or represents a non-functioning meter.

### **July 23, 2013 Event**

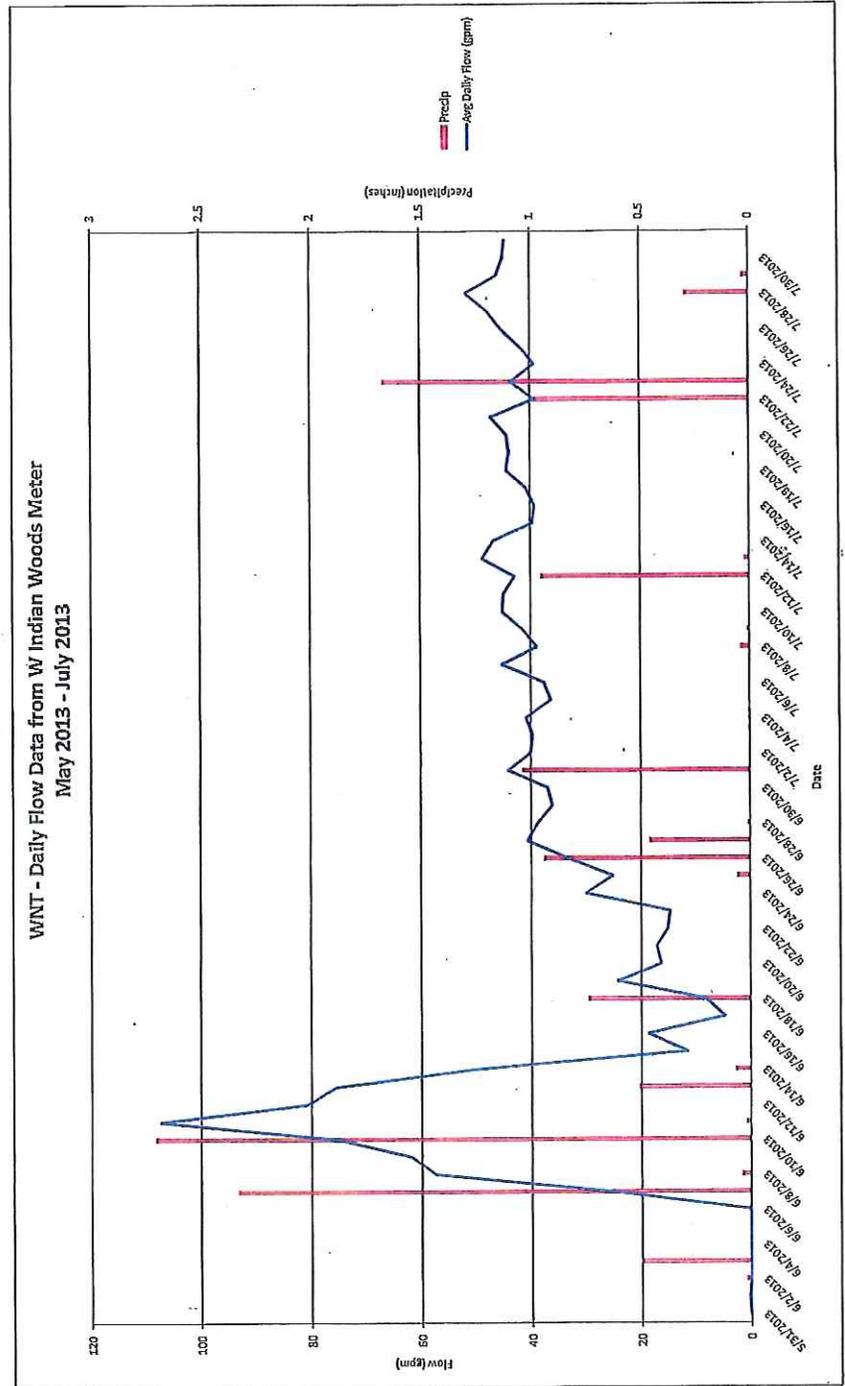
Based on Figure 22, it is clear that this storm has caused rainfall-induced sewer flows. It is unclear whether the drop in flows after the initial rise at 2 am is accurate, since high increases occur again at 2:30 am; whereas the high intensity rainfall continues to increase through this time period, it would be expected that flows would continue to increase. Following the end of rainfall, flows in general gradually decrease back to normal sewer flows over a period of approximately 2 hours.

### **Flow Characterization**

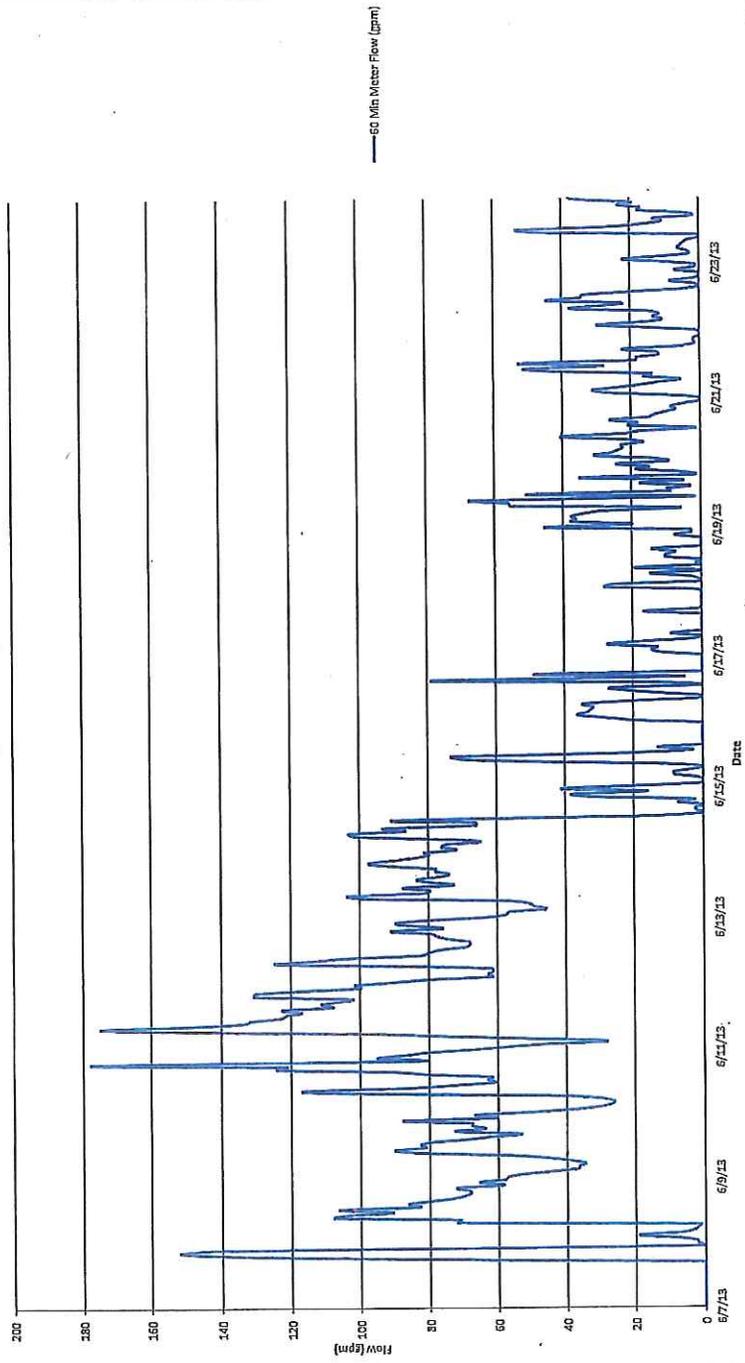
It was noted that in both storms sewage flows do not appear to increase until significant surface flows are experienced. For June 7, since storm intensities were not very high, it took 2.5 inches of previous rainfall to develop sufficient surface flows to cause sewer inflow. For July 23, sewer inflows didn't occur until after a storm total of over 0.5 inches and storm intensities exceeded 0.5 inches per hour. In each case, it appears that sufficient rainfall occurred as needed to produce significant surface flows. It is likely therefore that the inflow is due to low sewer lateral vents, or to manholes without lid inserts which are adjacent to drainage low areas and are affected after a buildup of sufficient surface flows. These inflows would not be due to downspout connections which provide an instantaneous response. From Figure 22, it is clear that there is a delayed inflow which occurs a short period after the rainfall event. The sources of the delayed inflows at this meter would most likely be flow into manholes through

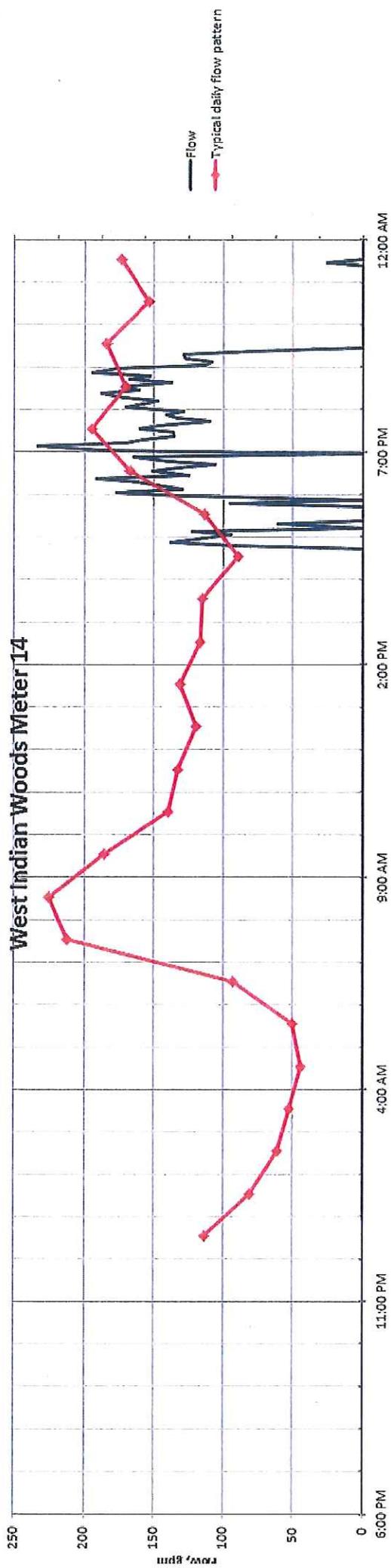
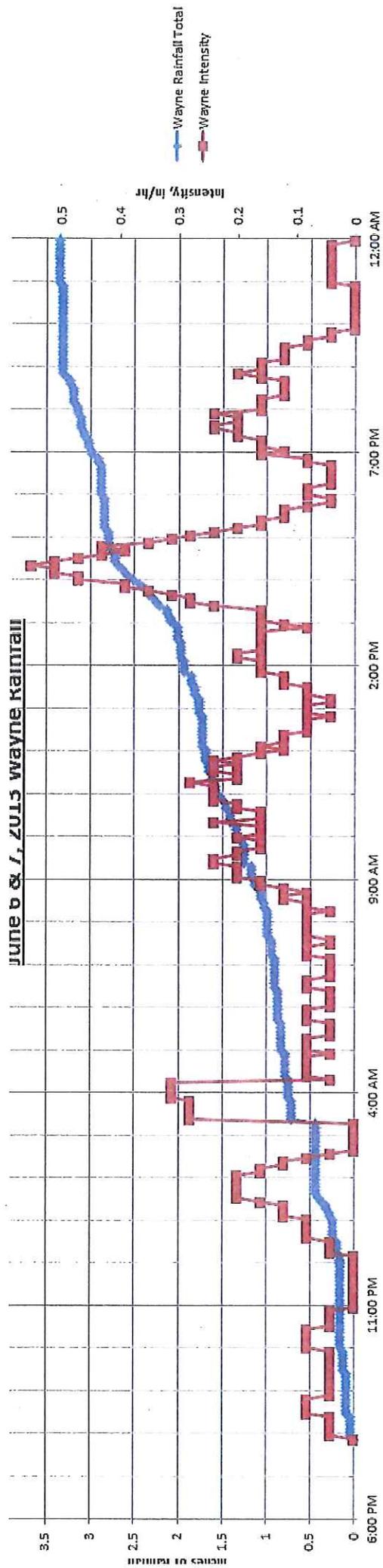
the stone subbase of paved roads. It appears that infiltration is a very minor component or non-existent for the pipes contributing to meter 14, since increased flows last such a short time following the end of rainfall. A field investigation should be made of the contributing sewershed to this area to verify that the metered flows are erroneously high, and that there is not an intercepted spring, continuous high capacity sump pump connection, or some other significant flow source somewhere in the system.

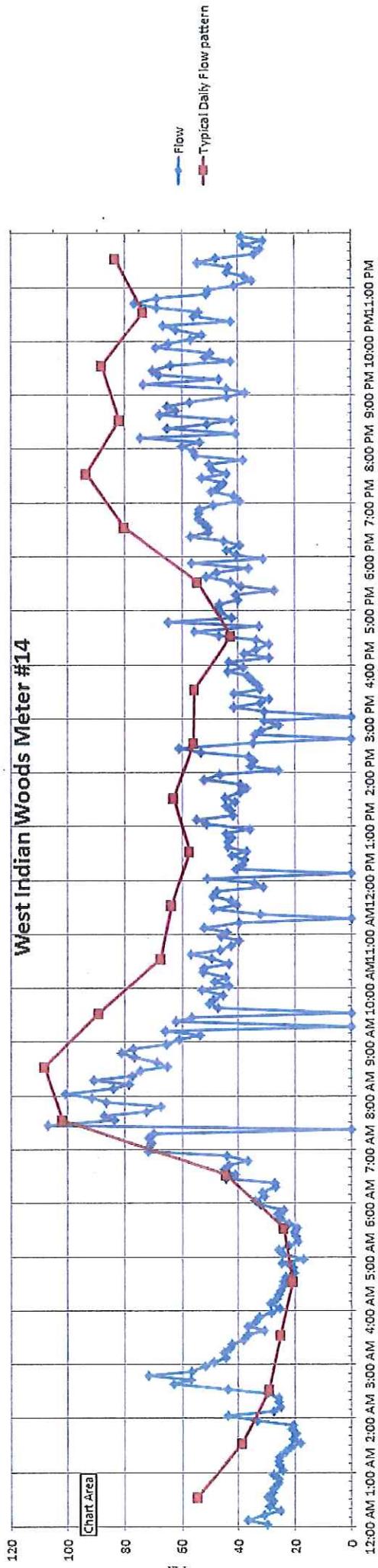
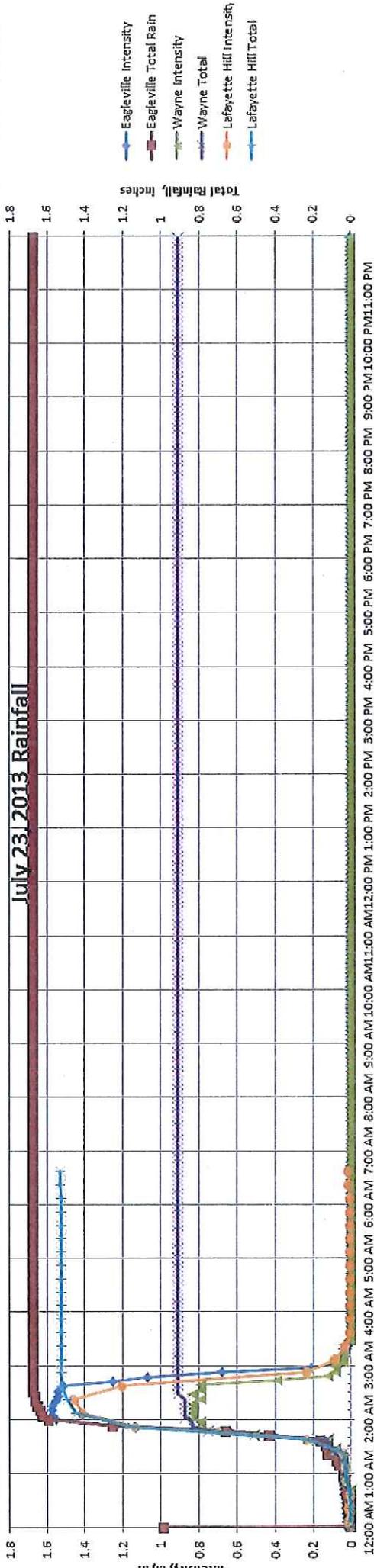
WNT - Daily Flow Data from W Indian Woods Meter  
 May 2013 - July 2013



WNT - Hourly Flow Data from W Indian Woods Meter  
May 2013 - July 2013







## METER 15 – RIVERVIEW

Meter 15 is located in Township manhole 390 on Riverview Boulevard, in the 10-inch pipe discharging from that manhole. There are no other meters which flow to this meter.

### Period of Record

Meter 15's contributing sewershed is a residential area for which anticipated dry-weather average daily flows would be 47 gpm based on computer modeling; Figure 23 shows an actual average daily flow of approximately 2 gpm, indicating that the meter is reading significantly too low. While it appears that most rain events cause an increase in average daily flows, there are non-rain event peak flows as least as large as the rain event peak flows, other than those occurring on June 7 and June 10. It appears therefore that very large rain events (2 inches and greater) are required to see any appreciable increase in average daily sewer flows.

### June 7, 2013 Event

Figure 24 shows a very high (over 500 gpm), short duration peak flow occurring at 3 pm. However, there is no basis for this peak to occur at this particular time based on the rainfall patterns. Also, meter 8, which is the next meter downstream from meter 15, shows no such comparable peak flow. It appears that this peak is therefore erroneous. The smaller, although significant flows occurring from 2 to 5 am are relatively consistent in timing and magnitude with flows at downstream meter 8.

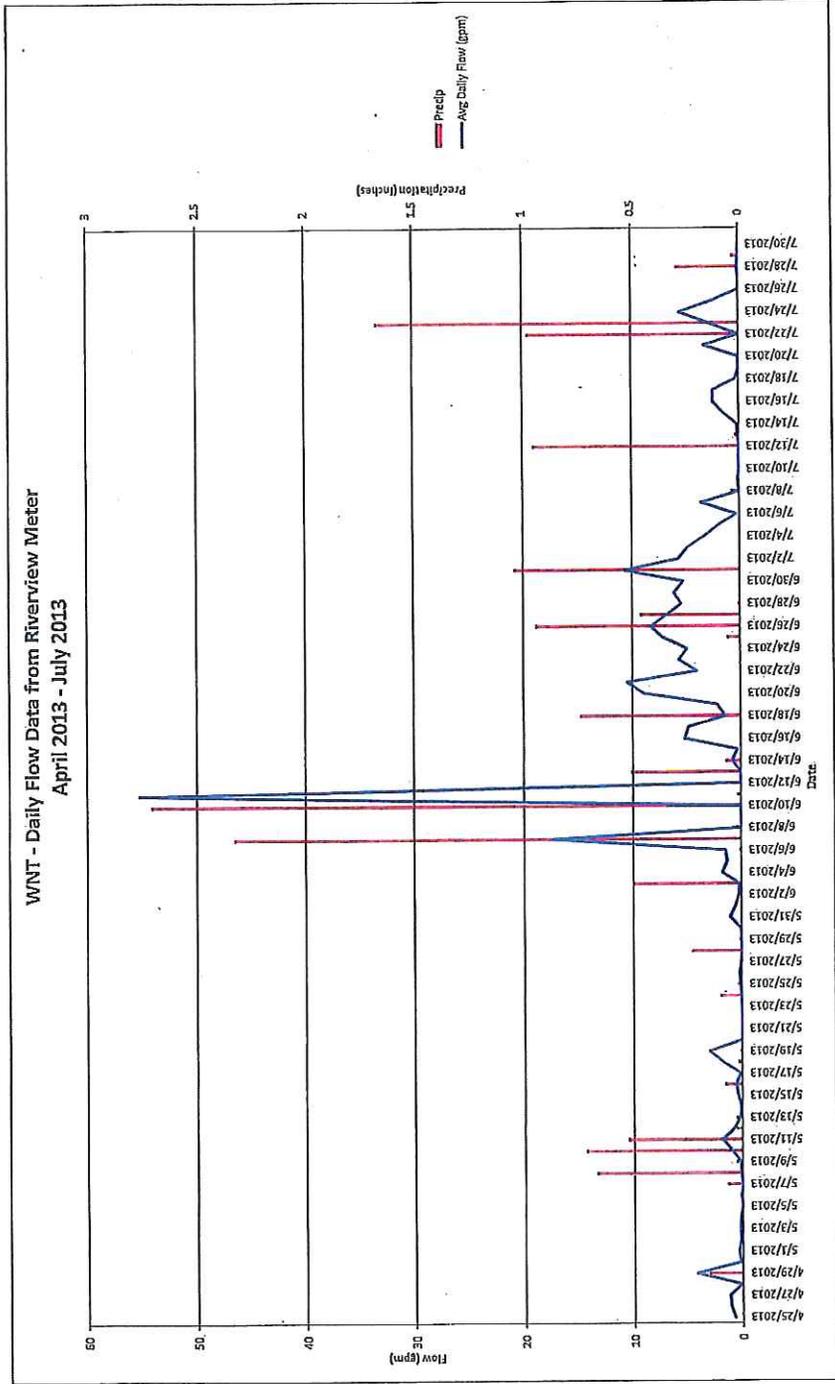
### July 23, 2013 Event

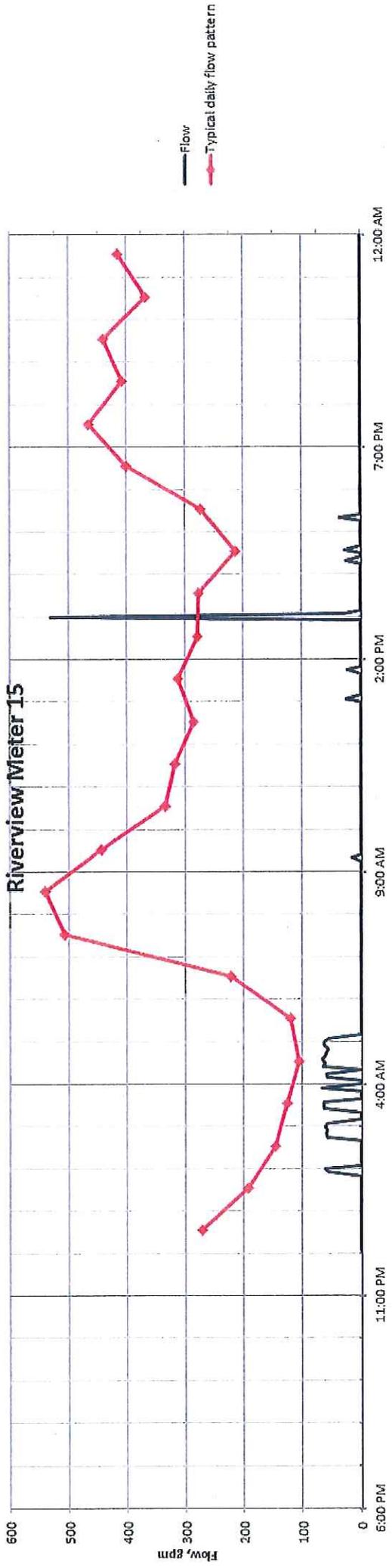
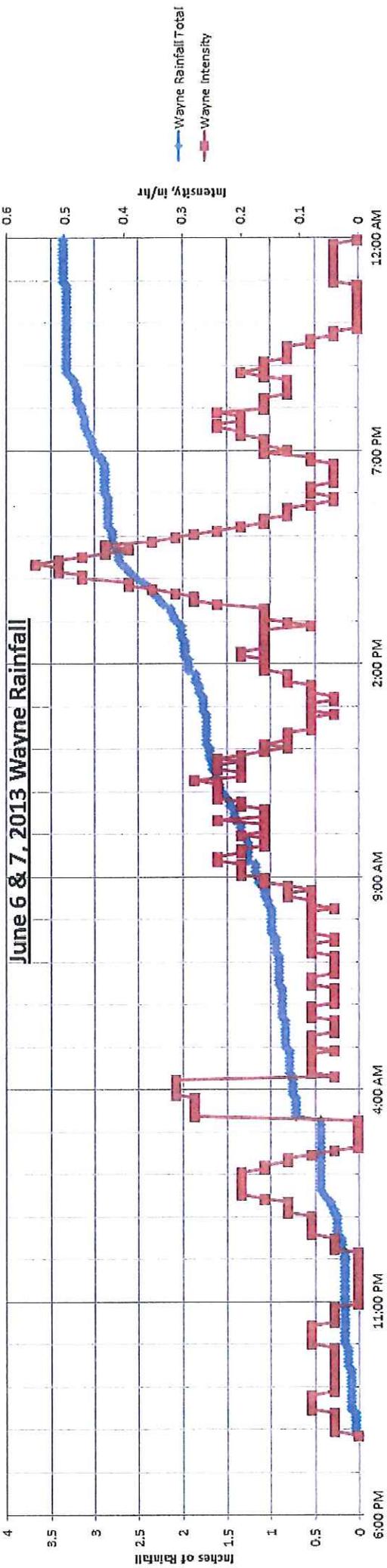
There are multiple very short duration peaks shown to have occurred throughout the day as shown on Figure 25. These peaks are relatively consistent in magnitude and are not limited to occurrence with the early morning rainfall event. They also do not appear to be consistent with flows at downstream meter 8. It is assumed that these flows are in error and provide no worthwhile information concerning rain-induced flows.

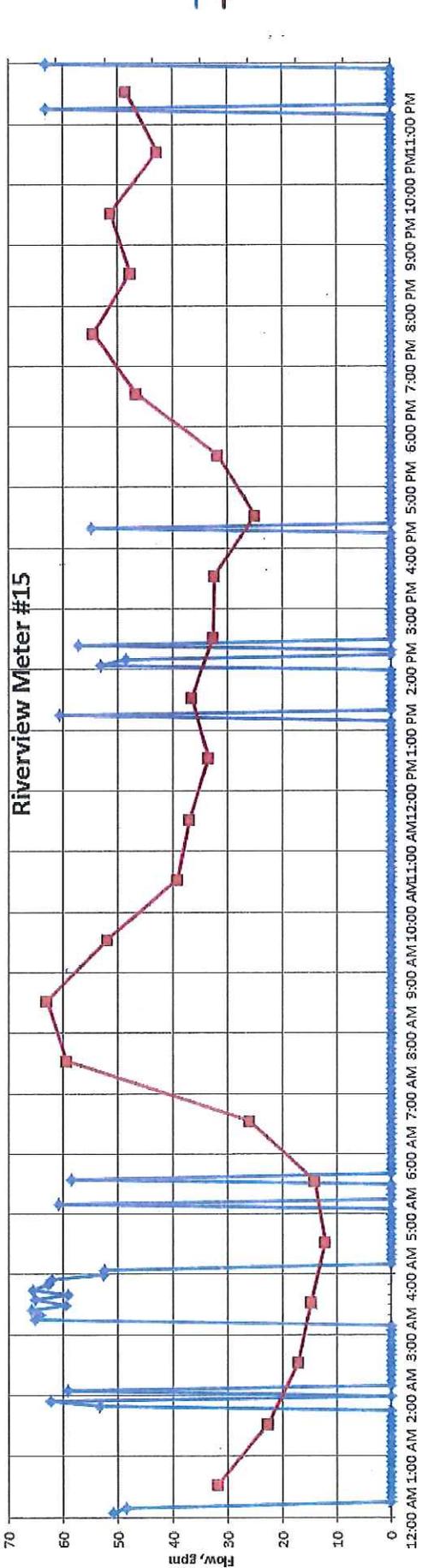
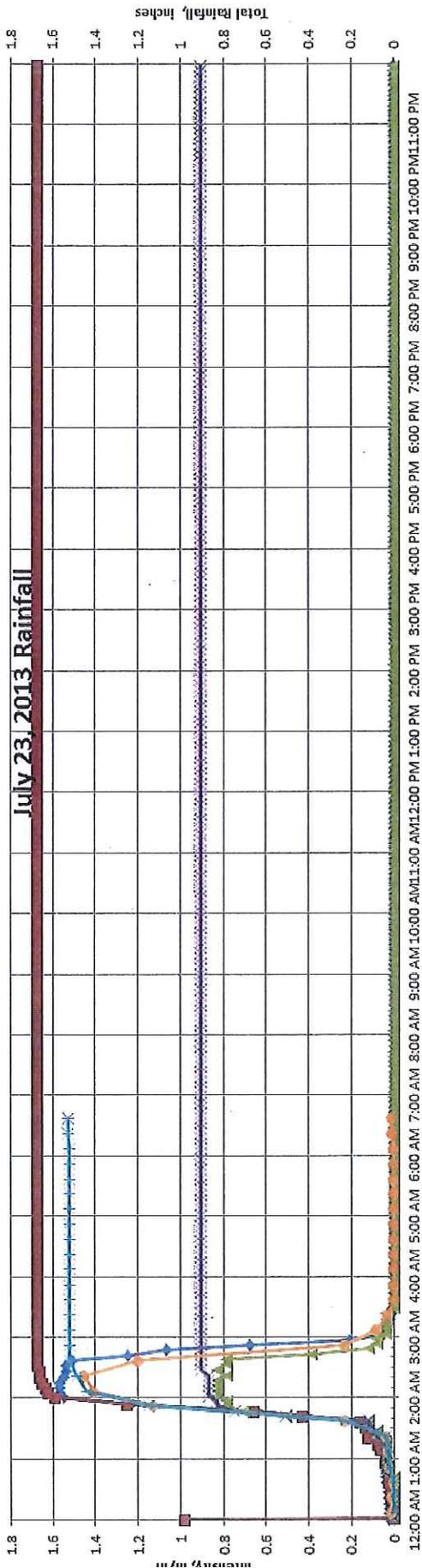
### Flow Characterization

The metering results for these two storm events provide no information concerning the types of inflow which might be occurring within the contributing sewershed. It seems like the significant increases in average daily flow for the June 7 and June 10 rainfall events indicates that direct and/or indirect inflow is occurring. Whereas the average daily flows appear to drop to zero within one day following the rainfall events, infiltration and sump pumps would not appear to be a significant contributor of rain-induced sewage flows. All other sources of potential inflow could be considered, including downspout and exterior surface drain connections to sewer laterals, low lying sewer vents, direct surface flow into non-lined manhole covers, and subbase drainage into manholes.

WNT - Daily Flow Data from Riverview Meter  
 April 2013 - July 2013







## METER 8 – 367 PORT INDIAN

Meter 8 is located in Township manhole 367 on West Indian Lane, just west of the intersection with Port Indian Road, in the 15-inch pipe at that manhole. Meter 14 and Meter 15 both flow to Meter 8, along with a large apartment complex.

### Period of Record

Figure 26 shows small impacts to average daily sewage flows for most rainfall events, with significant impacts for the June 7 and June 10 rain events. The apparent impacts for normal rain events are not significantly higher than high flows for non-rainfall event days. This is consistent with both contributing meters to this site, ie, that only very large rainfall events have a significant impact on sewage flows. It should be noted that the meter appears generally accurate, with actual dry-weather average daily flows at 60 gpm compared to anticipated flows between 64 and 75 gpm based on computer modeling.

### June 7, 2013 Event

It appears from Figure 27 that the increased flows from 2 am to 3:30 am come from upstream meter 15, but that rain-induced flows appear at Meter 8 around 6 am. These rain-induced flows do not appear at Meter 14 or Meter 15, and would therefore appear to originate in the direct sewershed contributing to Meter 8. The peak sewage flow which occurs at approximately 7:30 pm is consistent with the peak flow at Meter 14, although twice as high. The travel time for sewage flows from Meter 14 and Meter 15 to Meter 8 is approximately 20 minutes, which is the difference in time between the peak occurrence at Meter 14 and Meter 8. Therefore, although the peak flow from Meter 14 passes through Meter 8, there is also a very significant contribution from the direct Meter 8 sewershed.

### July 23, 2013 Event

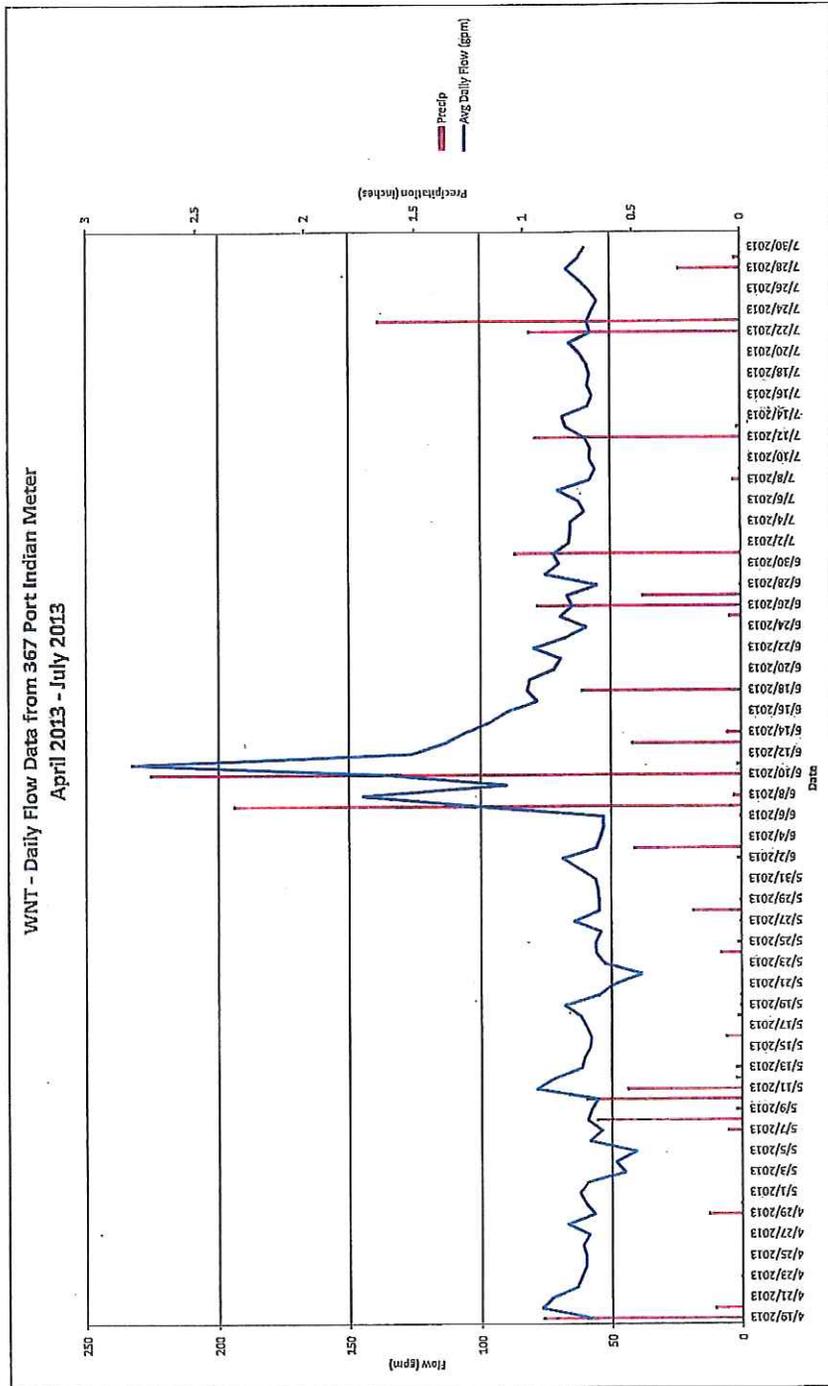
The flows shown on Figure 28 for Meter 8 show a nearly identical curve to the flows from Meter 14, which is the typical daily flow curve for non-rainfall days. The rain-induced peak from Meter 14 which occurred at 2:45 am shows up at Meter 8 approximately ½ hour later. The difference in the magnitude of the peak at the two meters appears to be consistent with the difference in normal flows from the direct sewershed to Meter 8. The differences in flow throughout the day would be consistent with normal flows between the two meters. What this would imply is that there was essentially no rain-induced flow contribution from Meter 8's direct sewershed as a result of this storm.

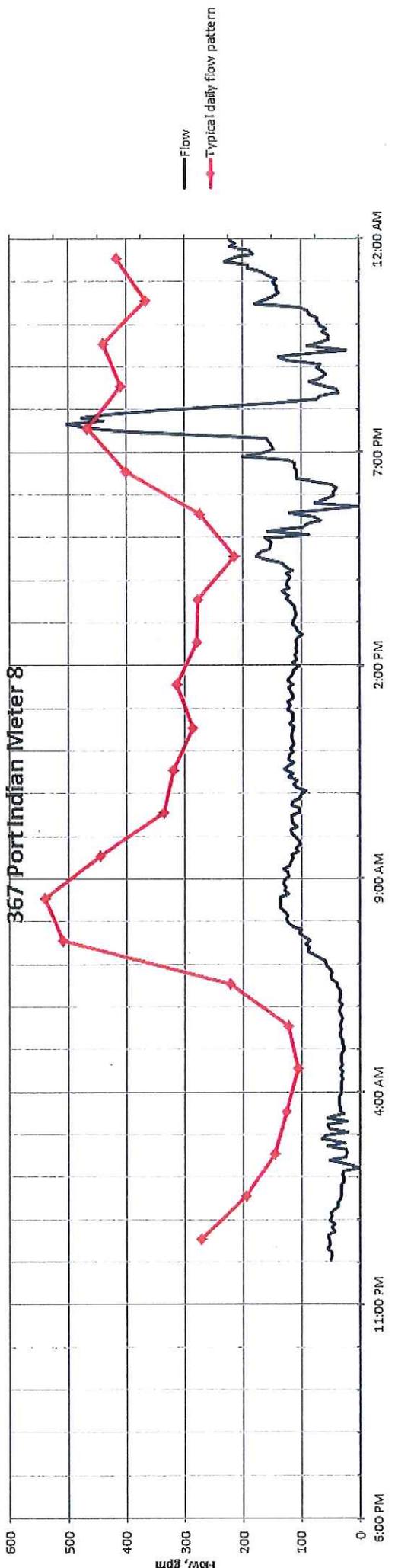
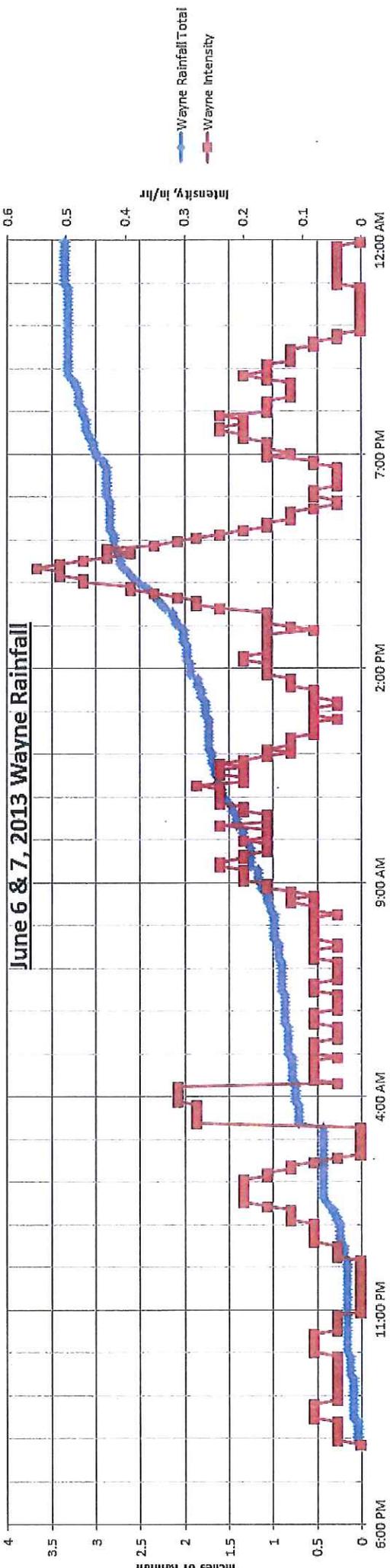
### Flow Characterization

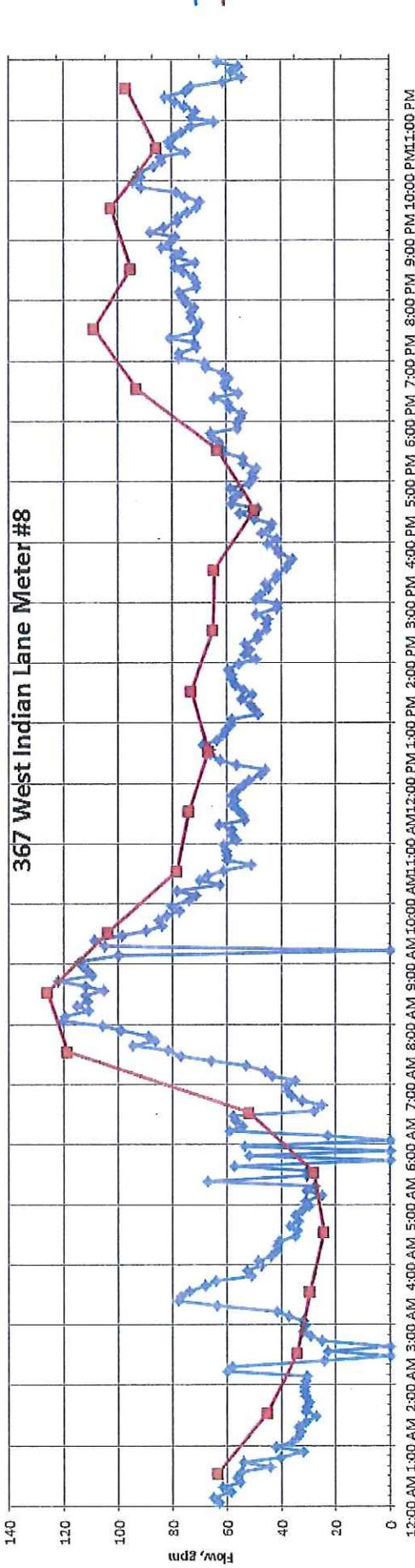
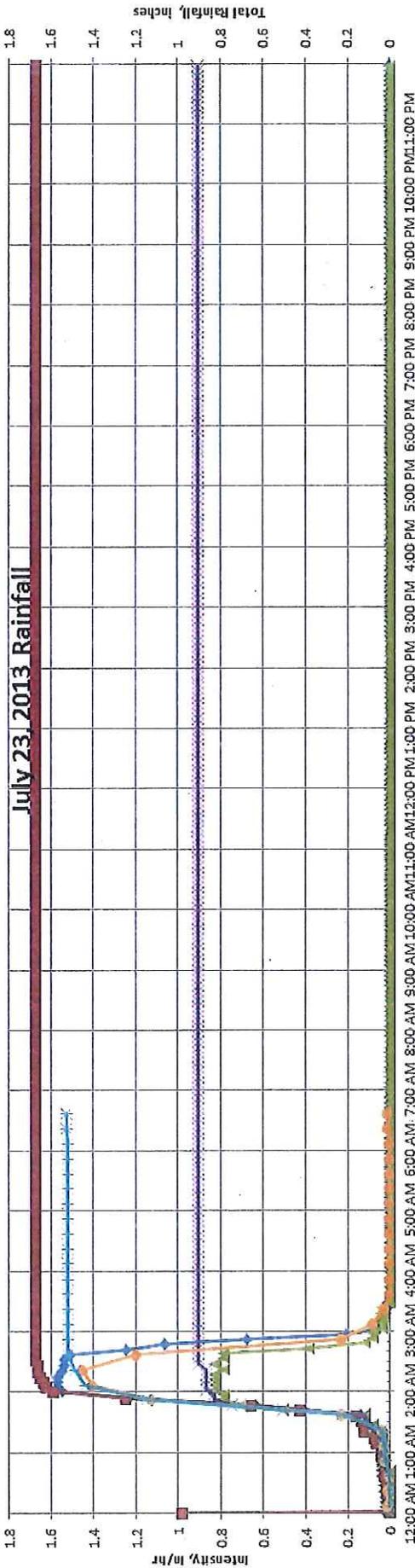
It was noted that in both storms sewage flows do not appear to increase until significant surface flows are experienced. For June 7, significant flow increases didn't occur until after 3 inches of rainfall was received. For July 23, it appears that no inflow occurred even after more than one inch of rain had fallen. In each case, it appears that sufficient rainfall has to occur as needed to produce surface flows which are large enough to flood areas which are not affected by smaller rainfall events. It is likely therefore that the inflow is due to low (but not flush) sewer lateral vents, or to manholes without lid inserts which are

adjacent to drainage low areas and are affected after a buildup of sufficient surface flows. These inflows would not be due to downspout connections which provide an instantaneous response. It also appears that most of the delayed inflows at Meter 8 originate from Meter 14.

WNT - Daily Flow Data from 367 Port Indian Meter  
 April 2013 - July 2013







## **METER 7 – 498 PORT INDIAN**

Meter 7 is located in Township manhole 498 on Port Indian Road, in the 15-inch pipe at that manhole. Meter 9 flows to Meter 7.

### **Period of Record**

The only recorded flows at Meter 7 occurred on the high rainfall events of June 7 and 10, 2013, as shown on Figure 29. This was due to a non-functioning meter and not representative of zero flow, as a comparison with Meter 9, which flows to Meter 7, makes clear. Anticipated dry-weather average daily flows at this meter range from 112 to 184 gpm based on computer modeling.

### **June 7, 2013 Event**

Figure 30 shows the hourly flows for the period of June 7 through June 12, while Figure 31 shows the flows at 5 minute increments for June 7. Whereas sufficiently high flows apparently needed to occur to coax this meter into flow readings, it is assumed that high flows didn't occur until over 1½ inches of rain occurred on June 7. As hinted at on Figure 31, and as seen more clearly on Figure 30, flows declined slowly following the end of rainfall, and were still at half of the highest peak flow a full day after the end of the rainfall.

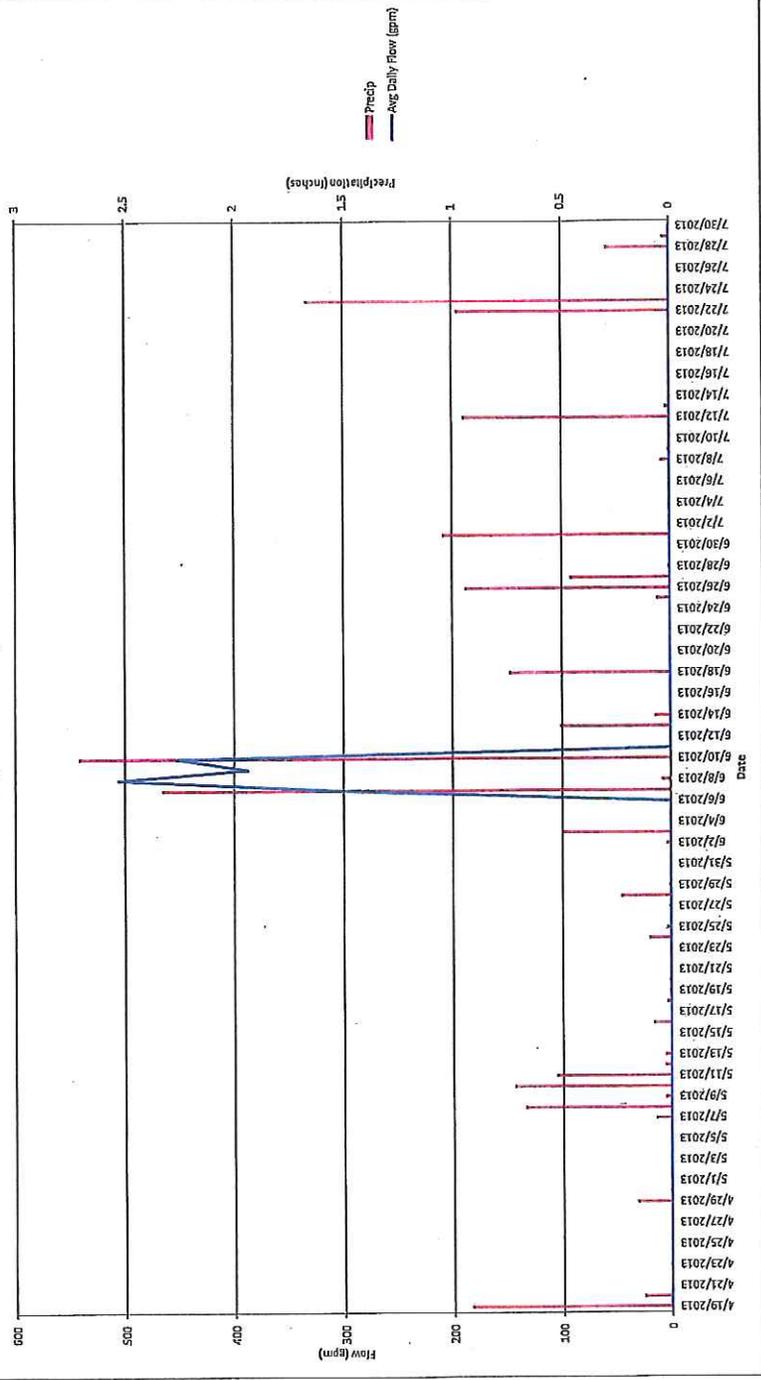
### **July 23, 2013 Event**

This meter was not functional during the July 23 rain event.

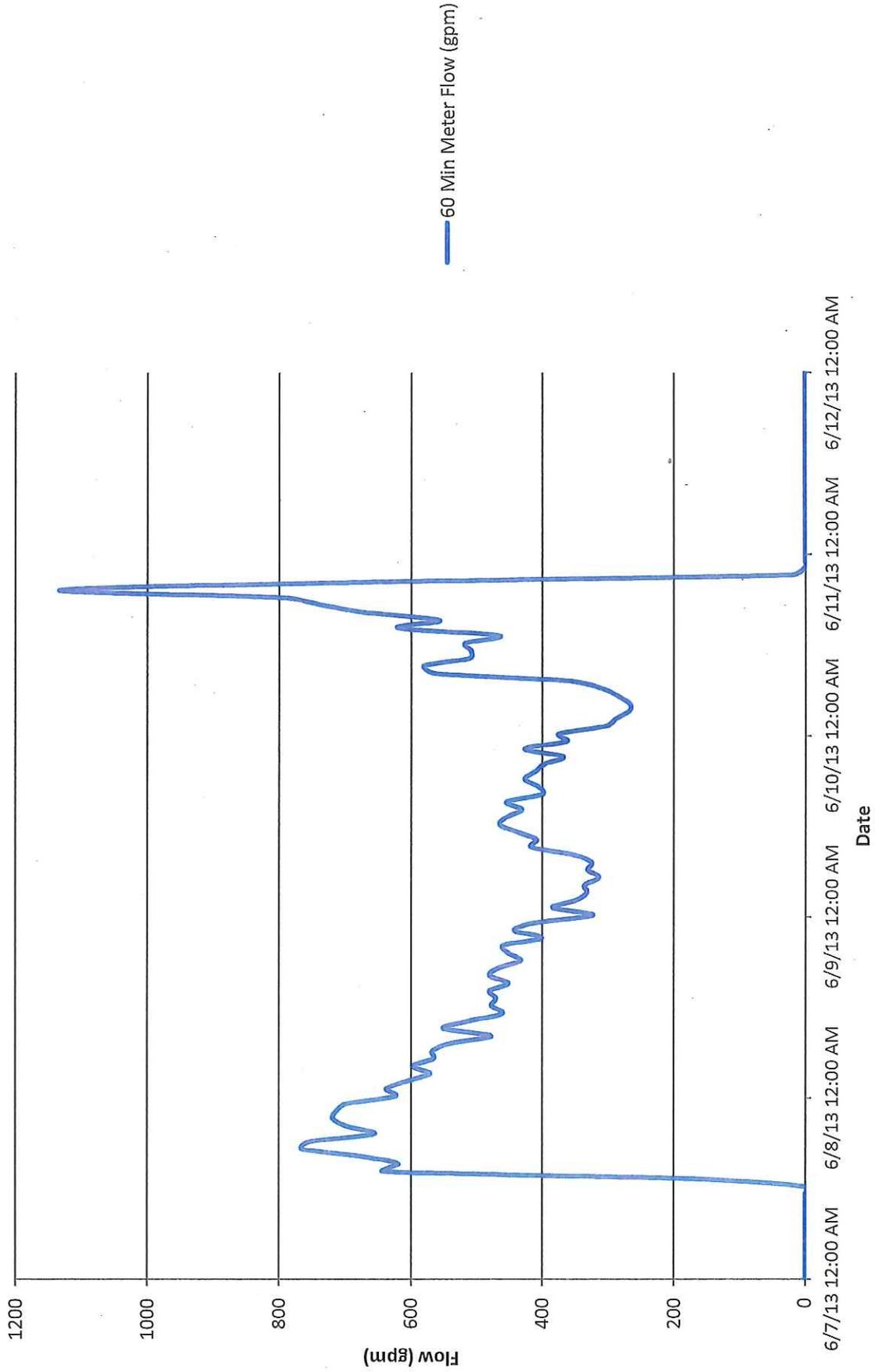
### **Flow Characterization**

Similar to Meter 9 as evidenced by its July 23 flow chart, it appears that significant rain-induced sewage flows to meter 7 do not occur until sufficient rainfall occurs as needed to produce high surface flows. There apparently is very little direct inflow to the sewershed contributing to Meter 7. This is further illustrated by the fact that there is no rapid reduction in sewage flows following the end of the rainfall event. Direct surface inflow to manhole lids, direct connection of downspout or exterior area drains to sewer laterals, and low sewer vents would not be expected to be significant contributors to sewage flows in the contributing sewershed. Flow into manholes through the stone subbase of streets, and groundwater infiltration would be expected to be the sources of rain-induced sewage flows in this case.

WNT - Daily Flow Data from 498 Port Indian Meter  
 April 2013 - July 2013



# WNT - Hourly Flow Data from 498 Port Indian Meter June 7 to June 12, 2013





## **METER 11(1) – SCHOOL AT DRIVEWAY**

Meter 11(1) is located in Township manhole 701 on School Lane, in the 8-inch pipe at that manhole.

### **Period of Record**

Figure 32 shows small impacts to average daily sewage flows for most rainfall events, with significant impacts for the June 7 and June 10 rain events. Another feature apparent from this figure is that following each rise related to a rain event, there is a gradual decline in flows until the next rain event. It is also worthwhile to note that even though the rainfalls were generally comparable on June 7 and June 10, the average daily flow for the June 10 event was much higher than the June 7 event. It should be noted that the meter appears to be providing fairly accurate data, since the actual dry-weather average daily flows are approximately 4 gpm compared to the anticipated value of 2 gpm based on computer modeling.

### **June 7, 2013 Event**

Figure 33 shows the hourly flows from June 6 through June 10 related to this storm, and Figure 34 shows the flows at 5-minute increments through June 7. It appears that rain-induced flows began after only 0.2 inches of rainfall, showing gradual increases with the higher rain intensities, until approximately 3:40 pm, approximately ½ hour after the highest rainfall intensities began. The subsequent flows drop with the drop in rainfall intensity. Following the end of rainfall, the flows drop fairly rapidly for approximately two hours, at which point the drop changes to a very slow decrease over the following two days (as seen in Figure 33).

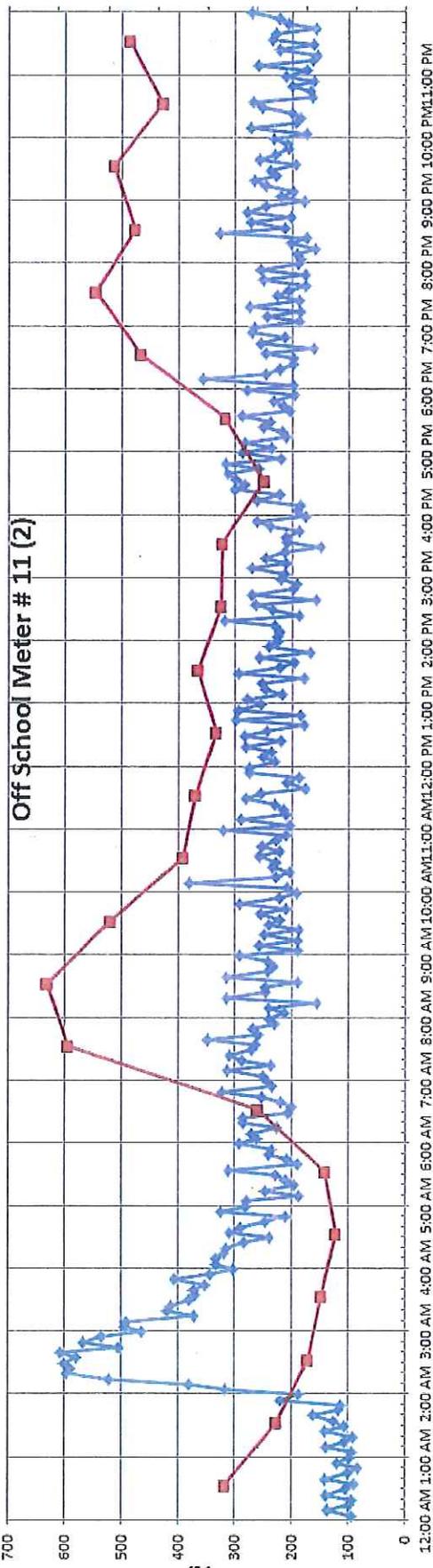
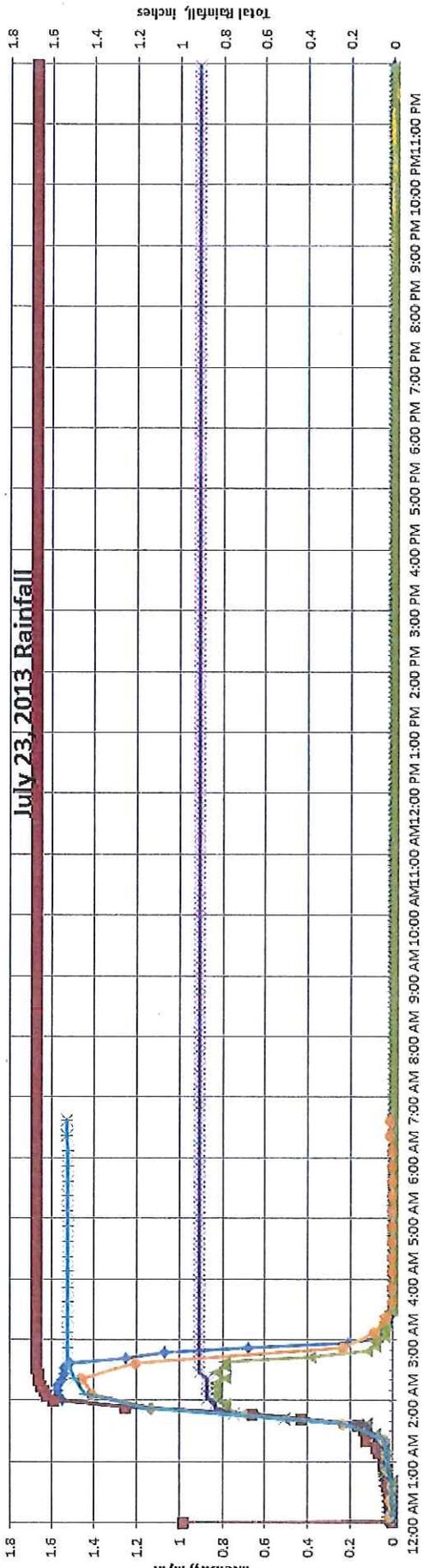
### **July 23, 2013 Event**

From Figure 35, it can be seen that rain-induced sewage flows begin shortly after the start of significant rainfall intensities, and the flows continue to increase through the end of rainfall. The drop in flows is similar to the June 7 event, although to a much lesser magnitude. There is a sharp, short drop following the end rainfall, followed by a 3 hour gradual decline, followed by a very gradual decrease through the end of the day.

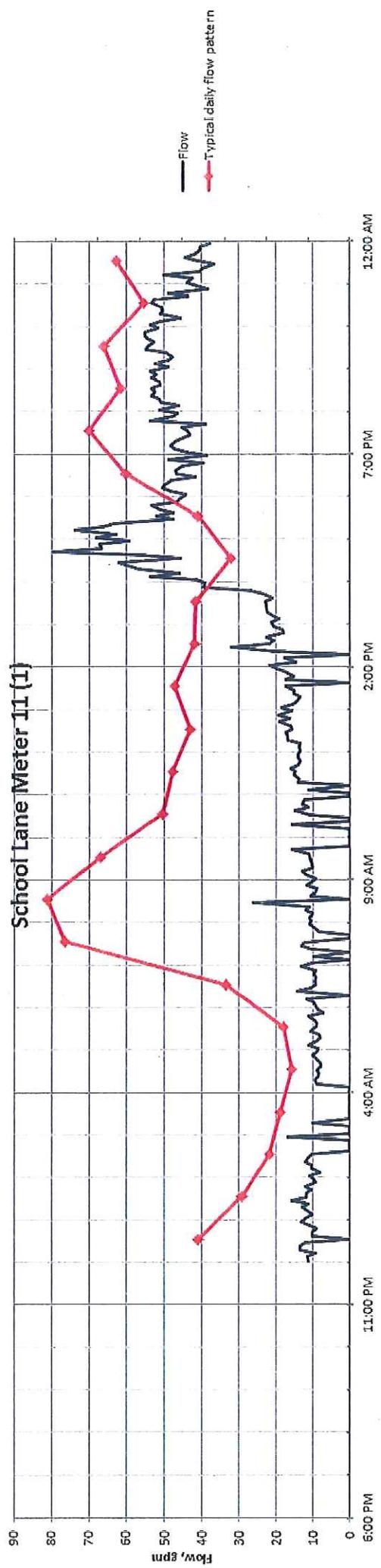
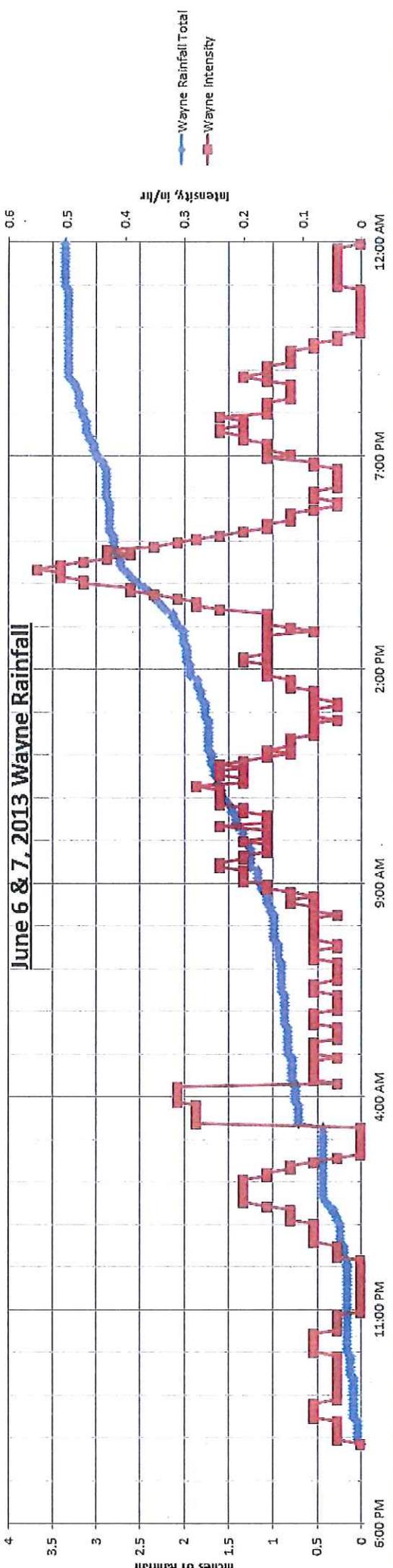
### **Flow Characterization**

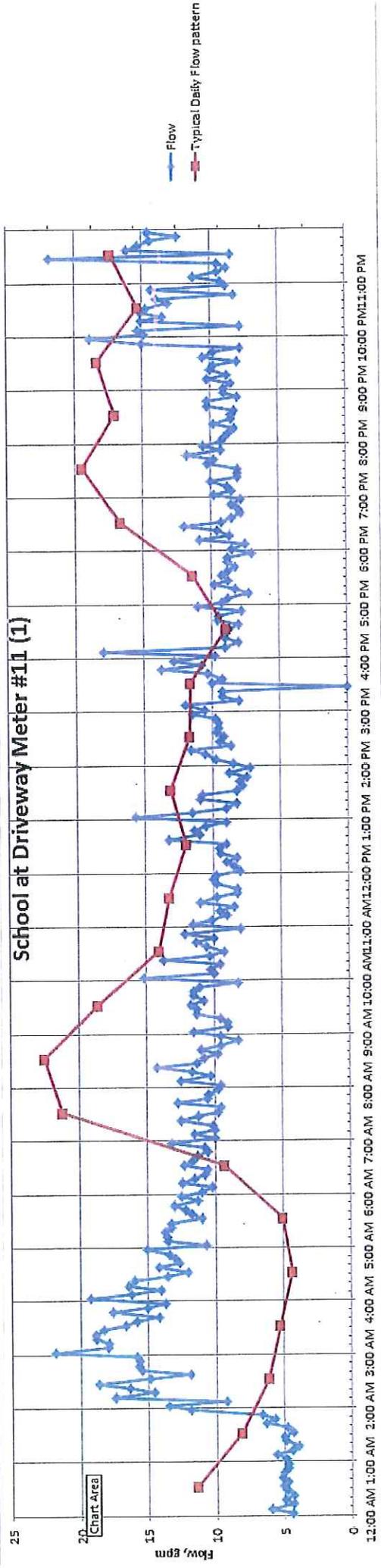
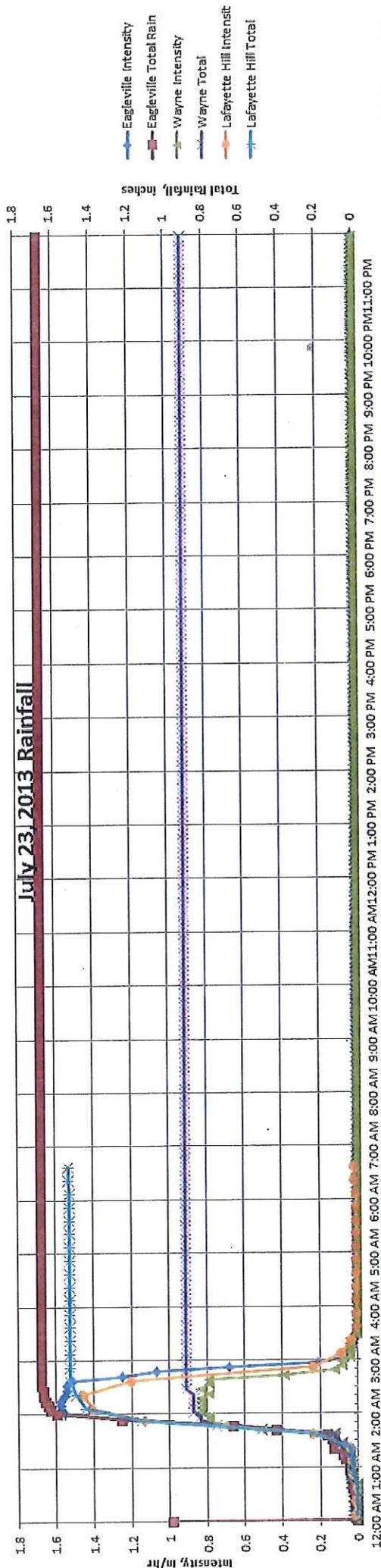
It appears that this sewershed has some elements of each type of inflow and infiltration: direct inflow, delayed direct inflow, and infiltration. The least likely direct inflow source would be direct downspout connections. Inflow through manhole lids and low sewer vents, are all likely, as is inflow to manholes through the stone subbase of the road. Of all the meters analyzed thus far in this report, this one is the most likely candidate for receiving infiltration from groundwater. The fact that the flows increased so significantly for the June 7 storm event compared to the June 10 storm event, even though they were generally comparable rainfall events, is almost surely due to a rise in the groundwater level due to the two close, large rain events. The sewershed contributing to this meter consists of only 6 manholes, approximately 1150 feet of 8" pipe, and less than 10 homes and small businesses. For it to contribute

over 70 gpm of average daily flow due to the June 10 storm event is a tremendous amount of rain-induced flows for such a small area.









## METER 11(2) – OFF SCHOOL

Meter 11(2) is located in Township manhole 708 just off of School Lane, in a 12-inch pipe at that manhole.

### Period of Record

This meter was functioning after June 12, 2013. From Figure 36, there is a clear increase in average daily sewage flow at this meter for essentially every rain event. The other thing that is clearly illustrated in this figure is that following the increases due to each rain event, there is a gradual decline in flows, with the downward trend continuing until the next rain event. The gradual drop in flows from the June 10 event can be seen in the beginning of this figure. It should be noted that this meter appears to be reading too low, since the apparent dry-weather average daily flow is 100 gpm, with an anticipated value between 122 and 145 gpm based on computer modeling.

### June 7, 2013 Event

This meter was not functioning during the June 7 event.

### July 23, 2013 Event

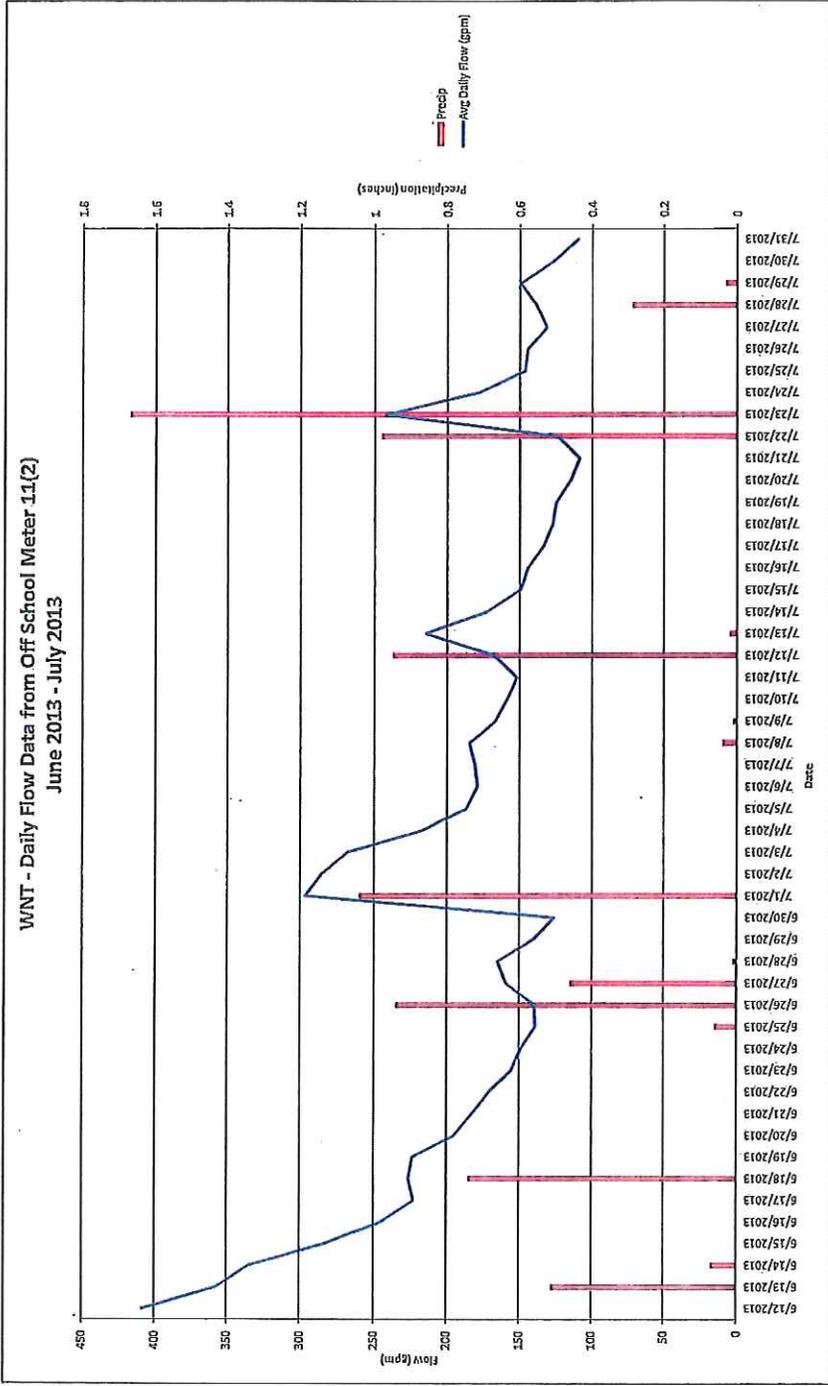
From Figure 37, it can be seen that rain-induced sewage flows begin shortly after the start of significant rainfall intensities, and the flows continue to increase along with the increase in rainfall intensities. There is a relatively steady drop in flow for the next two hours, to a flow just over 1/3 of the peak flow, at which point the drop in flows is much more gradual over much more time.

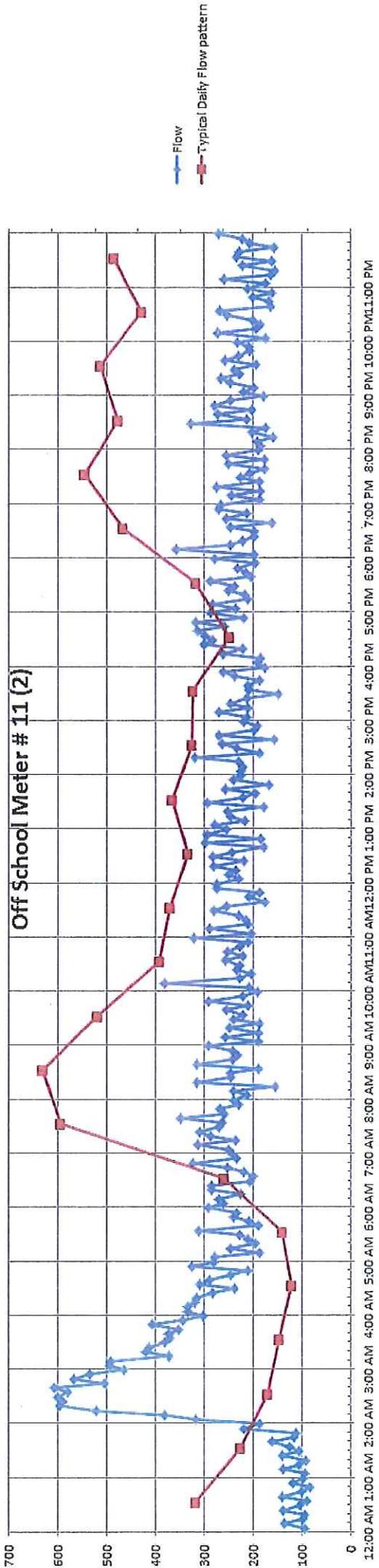
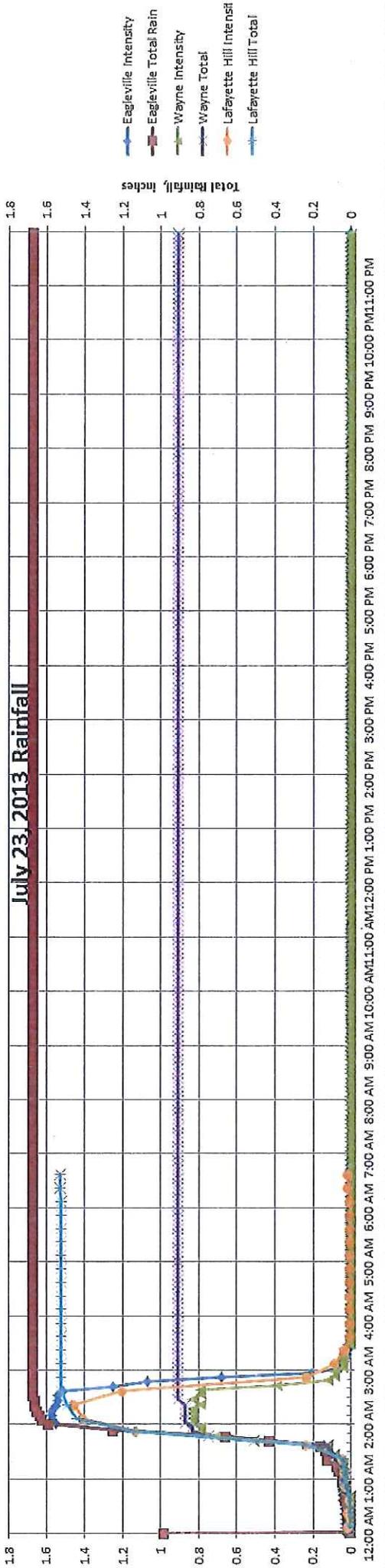
### Flow Characterization

The sewershed through this meter includes the Chestnut Hill Pump Station. As such, peak flows through this pump station are reduced, and the timing of the arrival at the meter is delayed. Characterization of the flows at the meter therefore must be much more generalized since there is no method of differentiating the timing of those various flows. It is clear that there is a source of direct surface inflow to the meter which does not pass through the pump station, due to its nearly immediate arrival with the onset of significant rainfall; the sewage flows can be seen to rise in Figure 37 at the same time as the beginning of rainfall. This could be due to downspout connections and sewer manholes without lid inserts located close to the low point of surface flow areas. Additionally, it appears that there are sources of significant delayed inflow, such as low sewer vents, and external drain connections. Most clearly, there is significant infiltration occurring within this sewershed, best illustrated by Figure 36, which shows continual drops in average daily flows for days following rain events.

This sewershed would be a good candidate for additional metering, with meters strategically placed to narrow down the sources and their likely type of inflow or infiltration.

WNT - Daily Flow Data from Off School Meter 11(2)  
 June 2013 - July 2013





## **METER 10 – PORT INDIAN DETENTION**

Meter 10 is located in Township manhole 676 just off of Port Indian Road near the Port Indian Road Pump Station, in a 10-inch pipe at that manhole. Meter 11(1) and Meter 11(2) both flow to this meter.

### **Period of Record**

Figure 38 shows the average daily flows through Meter 10. The high flows from 7/12 through 7/24 are surely erroneous, as they are extremely high. This is the opposite of the meter accuracy, which generally appears low, with apparent dry-weather average daily flows of 50 gpm compared to anticipated flows of 178 to 205 gpm based on computer modeling. Many rainfall events appear to cause a clear increase in flow, followed by a long steady decrease in flows until the next rainfall event.

### **June 7, 2013 Event**

Figure 39 shows a clear increase in sewage flows upon occurrence of higher rainfall intensities. The flow generally steadily increases, until a peak flow is reached several hours after the peak rainfall intensities.

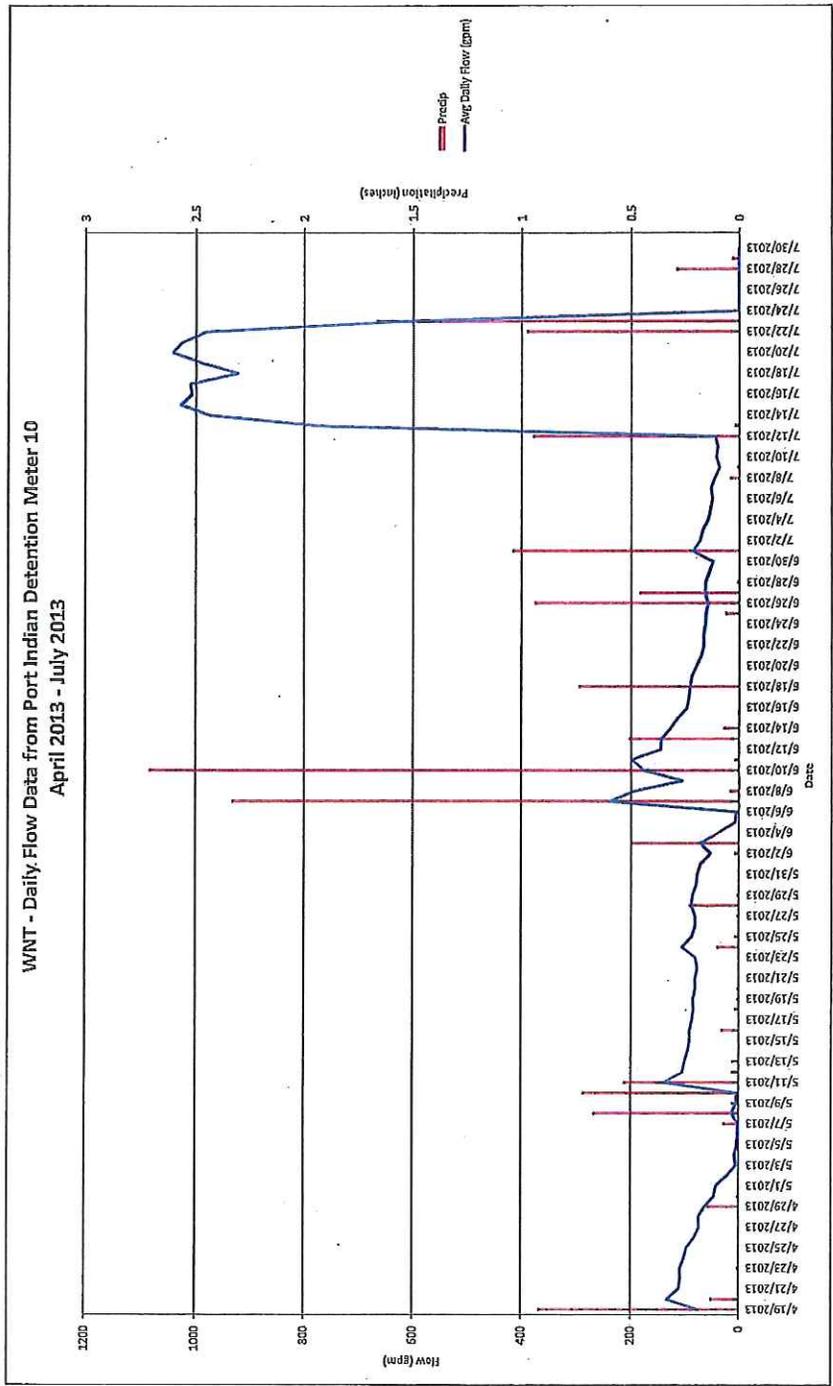
### **July 23, 2013 Event**

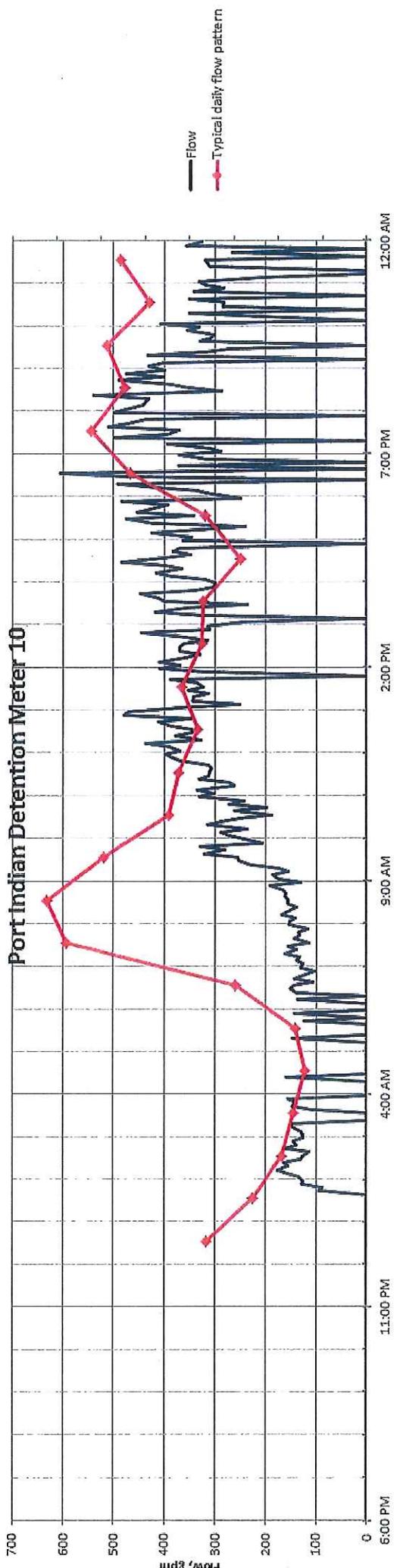
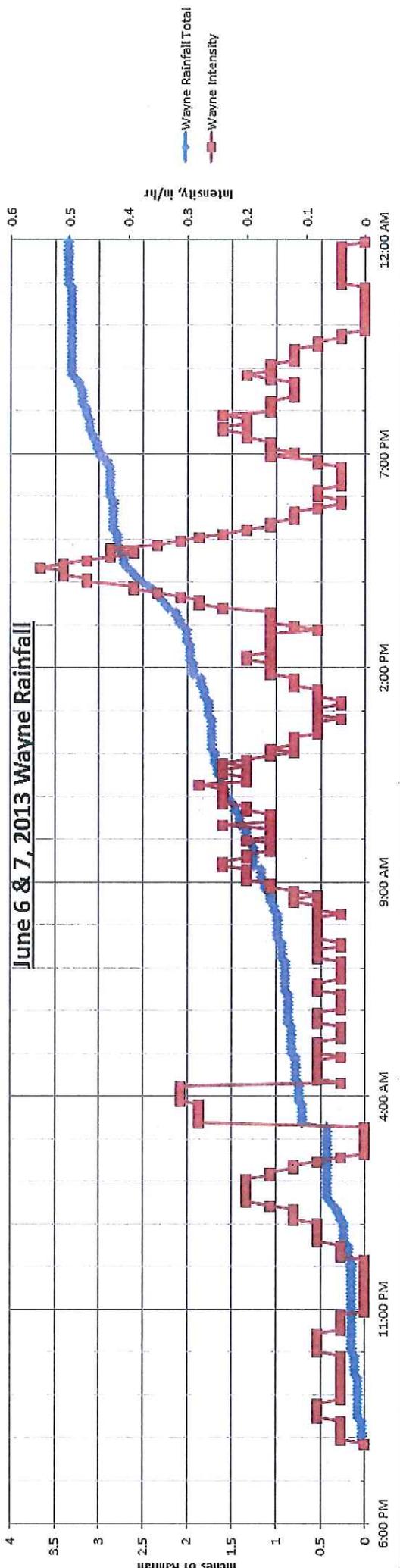
This meter was not functioning correctly during the July 23 event, as illustrated by Figure 40. The very high flows remain essentially the same before, during, and after the rain event, until the sudden drop to zero flow 12 hours after the storm ends.

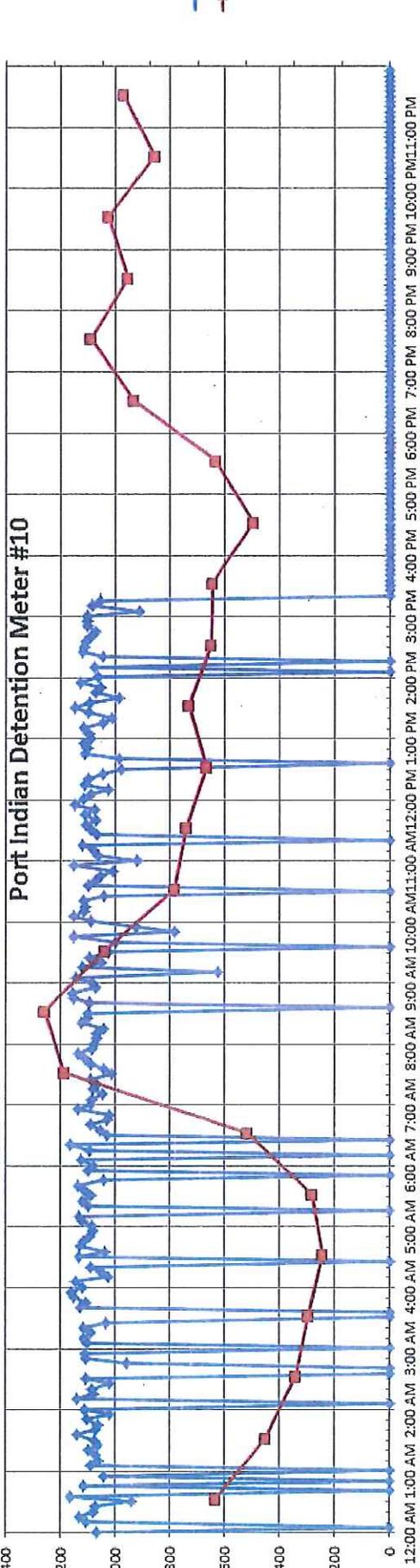
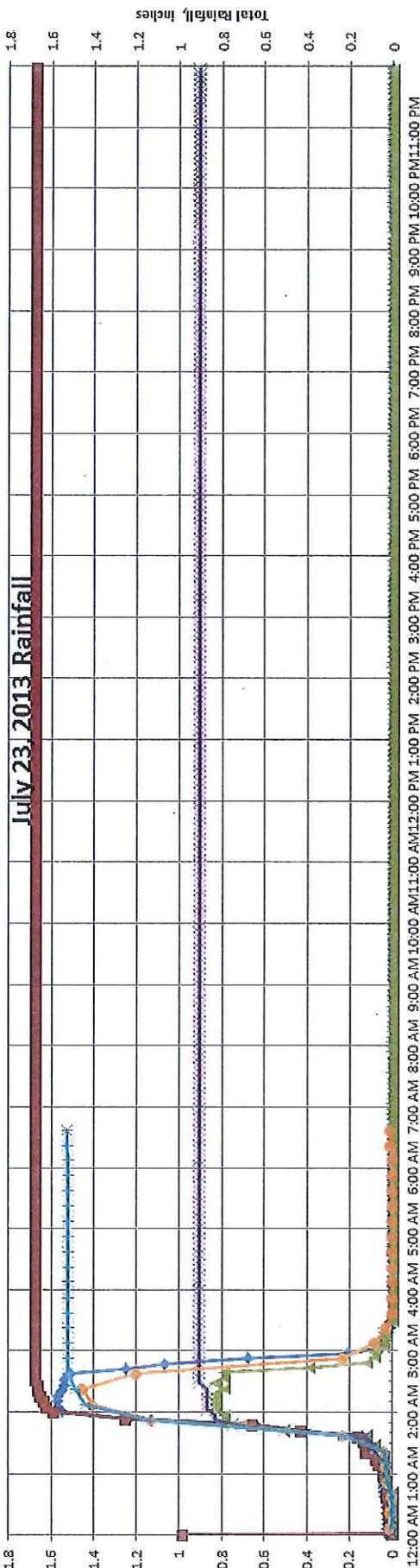
### **Flow Characterization**

Meter 11(1) and Meter 11(2) both flow through Meter 10. Meter 11(2)'s average daily flows by themselves are significantly higher than Meter 10's flows, for both rain days and non-rainfall days. While Meter 11(2)'S flows appear too high, a logical assumption is that most of the flows to Meter 10 come from Meter 11(2), including the rain-induced flows. Without metering which shows more logical comparisons for Meter 11(2) and Meter 10, no other conclusions can be determined for the sewershed contributing directly to Meter 10.

WNT - Daily Flow Data from Port Indian Detention Meter 10  
 April 2013 - July 2013







## METER 13 – BEAVER HOLLOW

Meter 13 is located in Township manhole 336, in the back of the property at 1710 Beaver Hollow Drive, in an 18-inch pipe at that manhole. Flows over 700,000 gallons per day at the Jackson Street Diversion Chamber are diverted such that they flow through this meter. The Halford Hills Pump Station contributes flow to this meter.

### Period of Record

Figure 41 shows the average daily flows through Meter 13, which for dry-weather days are approximately 1 gpm; anticipated flows are ?????? based on computer modeling. It is likely that the Jackson Street Diversion Chamber is the source of the high average daily flows on June 7 through June 10. It is possible that the Diversion Chamber was sending non-rainfall flows through Meter 13 on June 19 through June 25. For the rest of the period of record, there is no obvious correlation between rainfall events and high flows: peaks on non-rainfall days are as high as the peaks for rain events, other than the June 7 and June 10 events.

### June 7, 2013 Event

The high flows seen on Figure 42 appear to be flows from the diversion chamber, especially since the very short duration high peak flows occur an hour after the peak rainfall intensities. The likelihood of this flow being generated within the very small sewershed to Meter 13 is extremely low, since it would not take an hour for peak flows generated within the directly contributing sewershed to reach the meter.

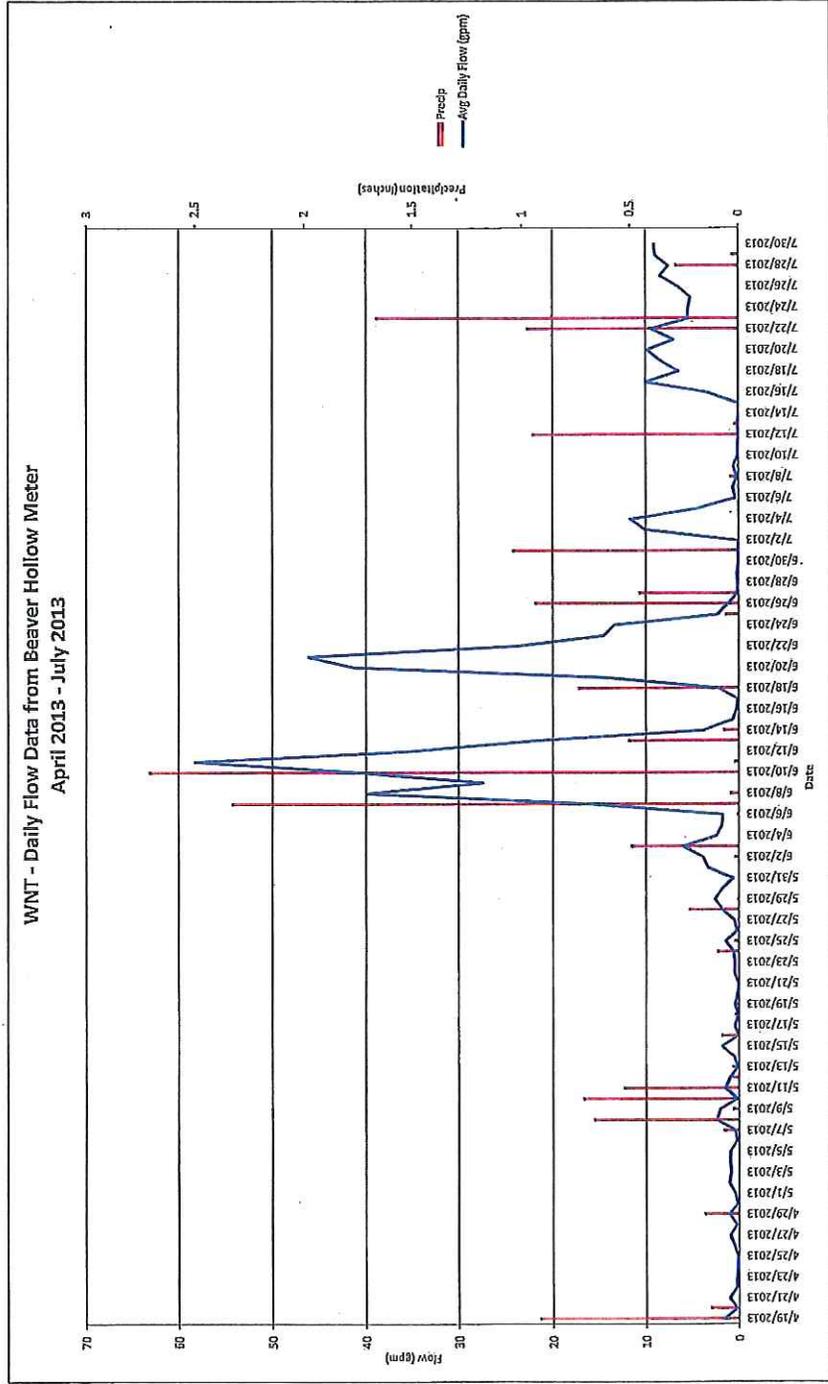
### July 23, 2013 Event

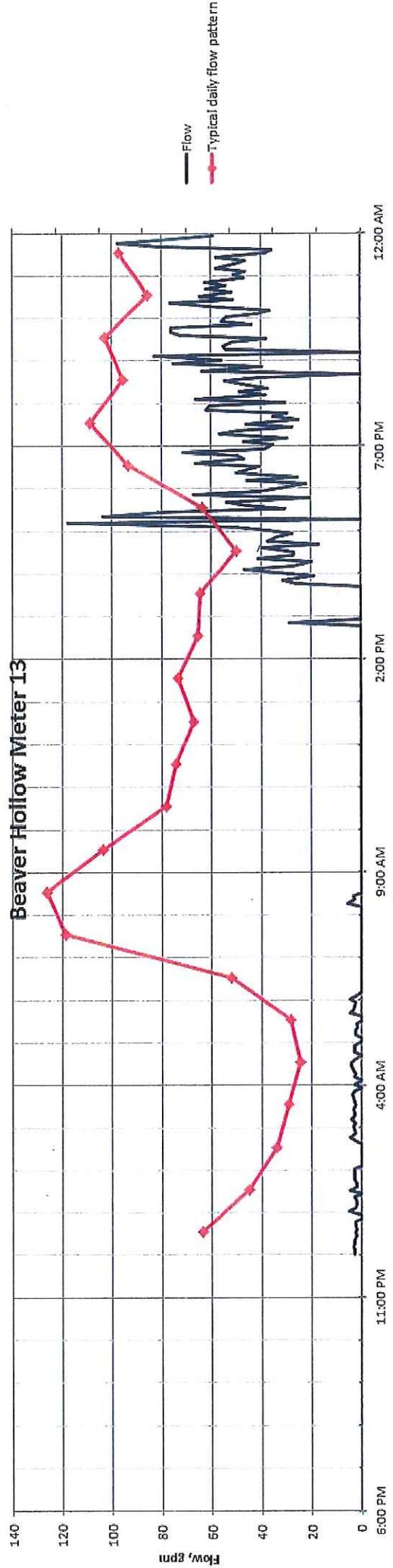
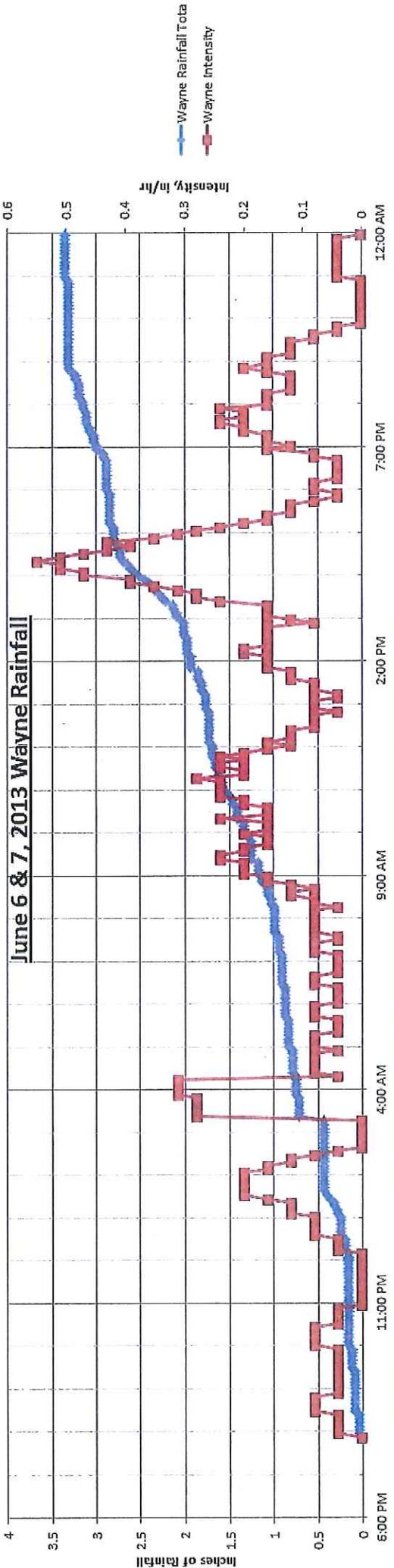
This storm event appears to generate no rainfall-induced flows to Meter 13. A review of Figure 43 shows flows through the day generally following the typical daily flow pattern expected throughout the system. Additionally, the highest recorded peak flow for the day occurs 8 hours after the end of rainfall.

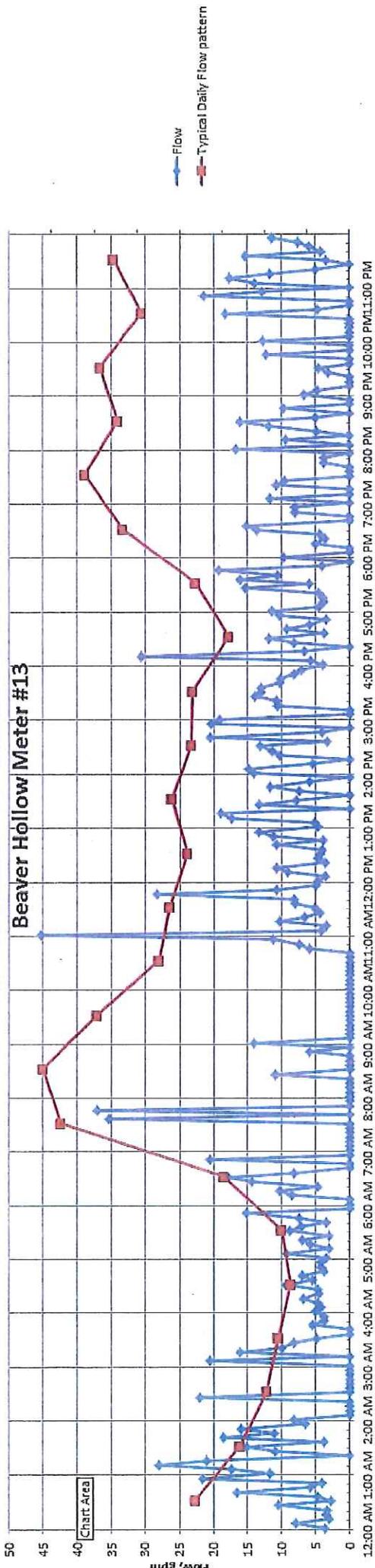
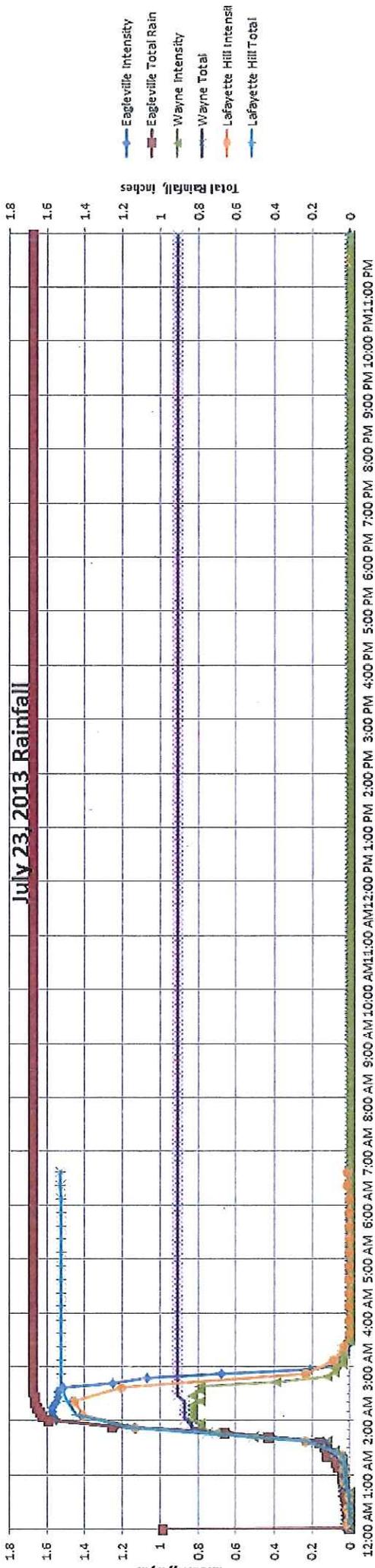
### Flow Characterization

From Figures 41, 42, and 43, the conclusion is that the sewershed contributing to Meter 13 does not have any significant sources of inflow or infiltration. This excludes the flow which passes through the meter from the Jackson Street Diversion Chamber.

WNT - Daily Flow Data from Beaver Hollow Meter  
 April 2013 - July 2013







## METER 18 – BURNSIDE AVENUE

Meter 18 is located in Township manhole 1349, behind the property at 380 Burnside Avenue, in a 15-inch pipe at that manhole. Meter 1, which includes Meter 17's flow, flows through Meter 18.

### Period of Record

Figure 44 shows the average daily flows through Meter 18. This figure provides no decisive results for the impact of rainfall events. In 2012 and for the July 23, this figure indicates significant increases in average daily flow for larger rain events; however, no effect is seen for the very significant June 7 and June 10 rainfall events. The total average daily flow for Meter 1 for the June 7 rainfall event is approximately 200 gpm; the total shown for Meter 18 is approximately 140 gpm. Meter 18's flow must be higher than Meter 1's, so Meter 18 must be reading significantly too low. This is also evidenced by the metered dry-weather average daily flow of 120 gpm compared to the anticipated flow of 170 gpm based on computer modeling.

### June 7, 2013 Event

Meter 1 is showing peak sewage flows on June 7 of almost 900 gpm, while the peak flow at Meter 18 can be seen on Figure 45 to be just over 400 gpm. The Meter 18 peak flows which occur at the comparable time to Meter 1's peak is even lower, at just over 350 gpm. It is clear that one of the meters is providing inaccurate data.

### July 23, 2013 Event

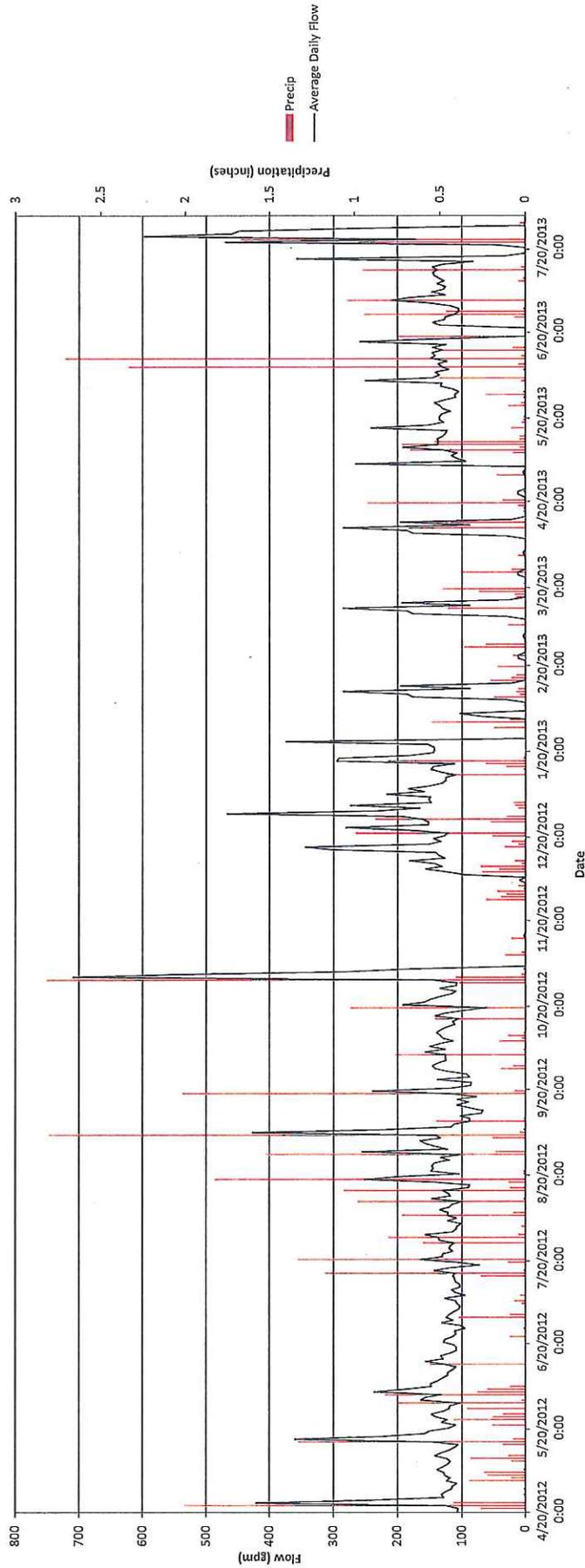
Even though the average daily flow for July 23, 2013 is shown to greatly increase on Figure 44, Figure 46 identifies erroneous metering for this day. From Figure 46, it can be seen that the meter is showing very high, constant peaks occurring for 4½ hours, but not until 15 hours after the end of the storm event. These erroneous flows are large enough to provide a significant impact to the average daily flow, but it is clear that this is in error. The meter recorded no flows during the actual rain event.

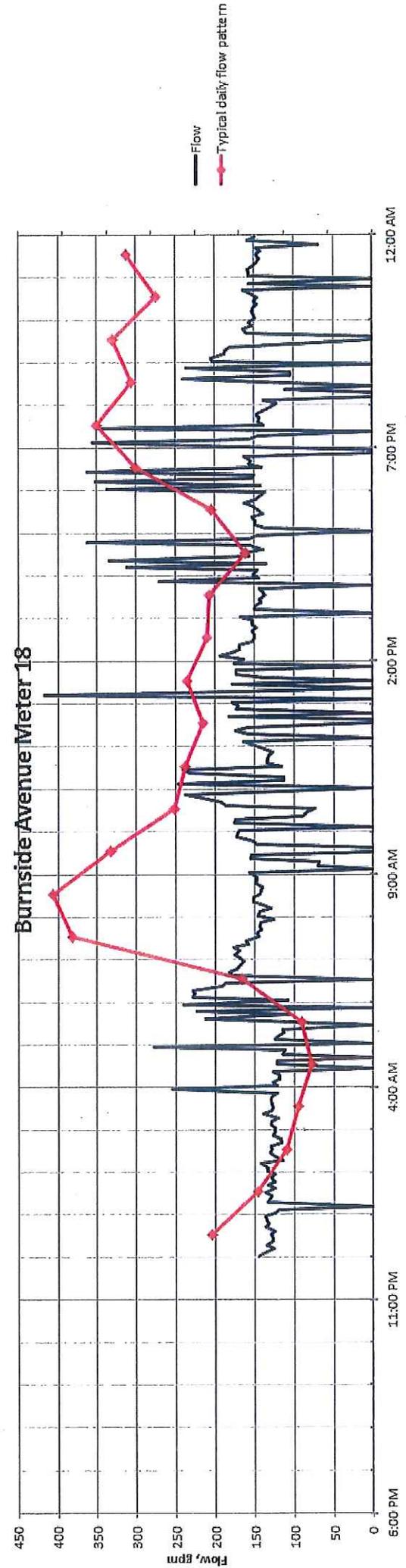
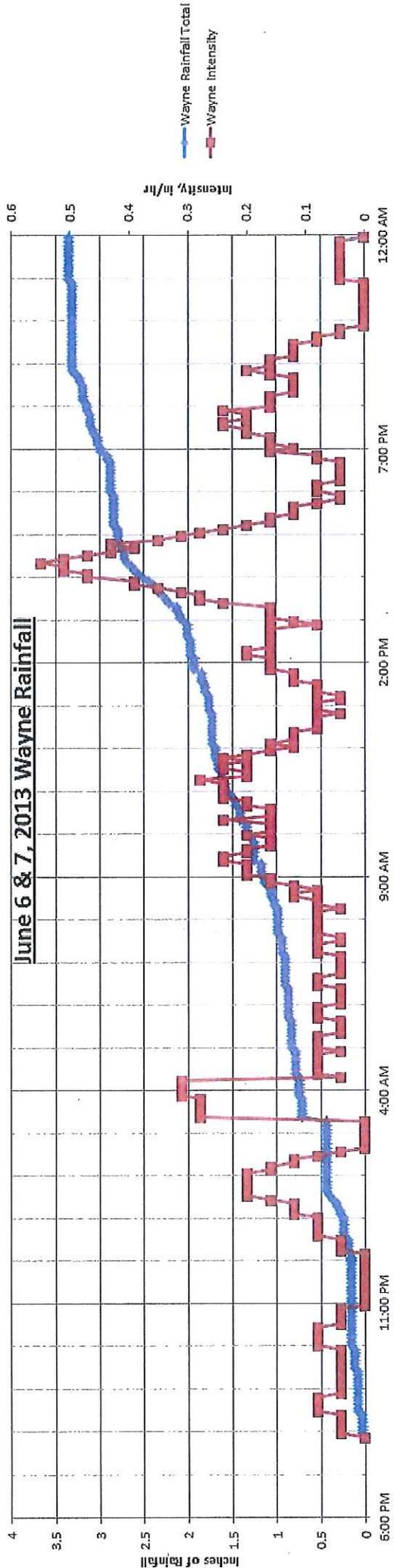
### Flow Characterization

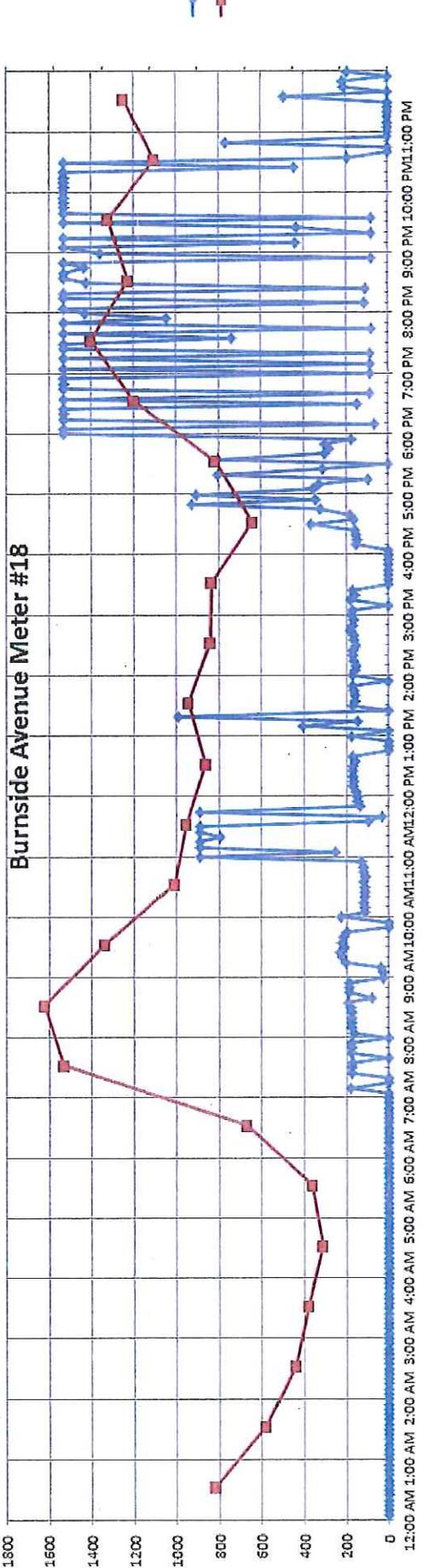
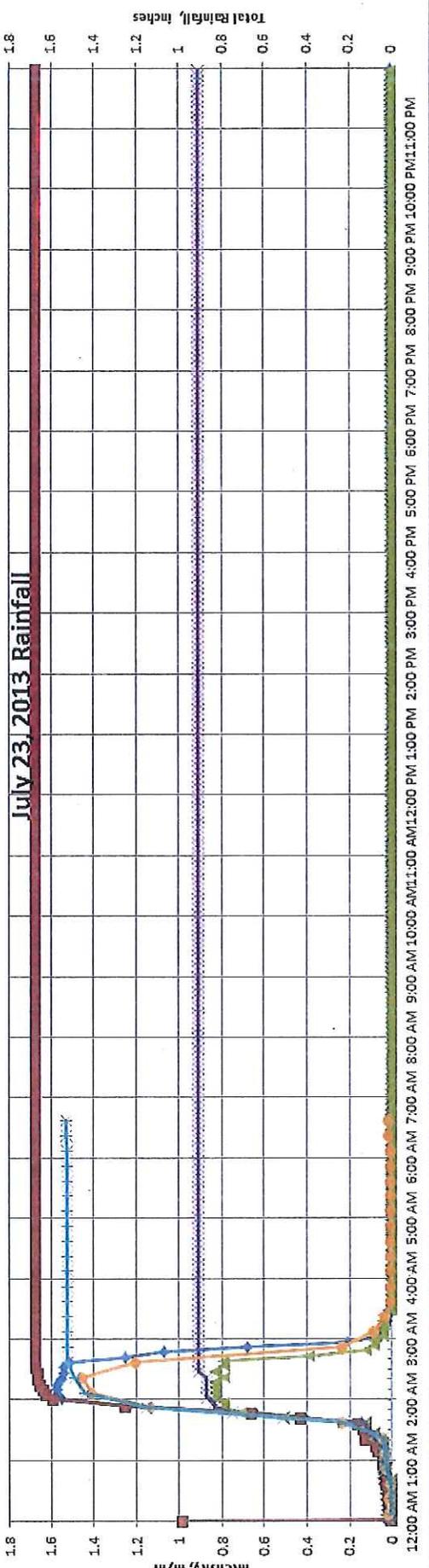
The 2013 meter data, as shown in Figures 44, 45, and 46, provides no worthwhile information concerning the impact or existence of rain-induced flows to Meter 18. Replacement or rehabilitation of the meter should be completed, with future data compared to upstream flow meters for consistency.

Additional discussion concerning rain-induced flows at Meter 18 can be found in the discussions of downstream Meter 4.

WNT - Daily Flow Data from Burnside Meter  
April 2012 - June 2013







## METER 4 – WHITEHALL

Meter 4 is located in Township manhole 1218, behind the Whitehall Pump Station, in a 15-inch pipe at that manhole. Meter 18 (which includes Meter 1, which includes Meter 17) and Meter 3 both flow through Meter 4.

### Period of Record

Figure 47 shows a clear relationship between rain events and increased average daily flows throughout the 15-month period of record for this meter. Another very well illustrated tendency is the rapid drop in average daily flows in the day following the rain event, followed by a much more gradual decline in flows for all of the following days until the next rain event. Meter 4 actually appears to be reading too low, with apparent dry-weather average daily flows of 200 gpm compared to anticipated flows of 282 to 343 gpm based on computer modeling.

### June 7, 2013 Event

It can be seen in Figure 48 and Figure 49 that the sewage flow due to the storm on June 7 peaks around 1700 gpm at Meter 4 just before midnight, with this peak flow occurring at least an hour following the end of significant rainfall. From Figure 49, it can also be seen that the very high flows continue until approximately 7:00 am on the morning of June 8, with a fairly rapid drop of about 70 gpm over the next 5 hours, and a subsequent slower drop over the next 24 hours.

### July 23, 2013 Event

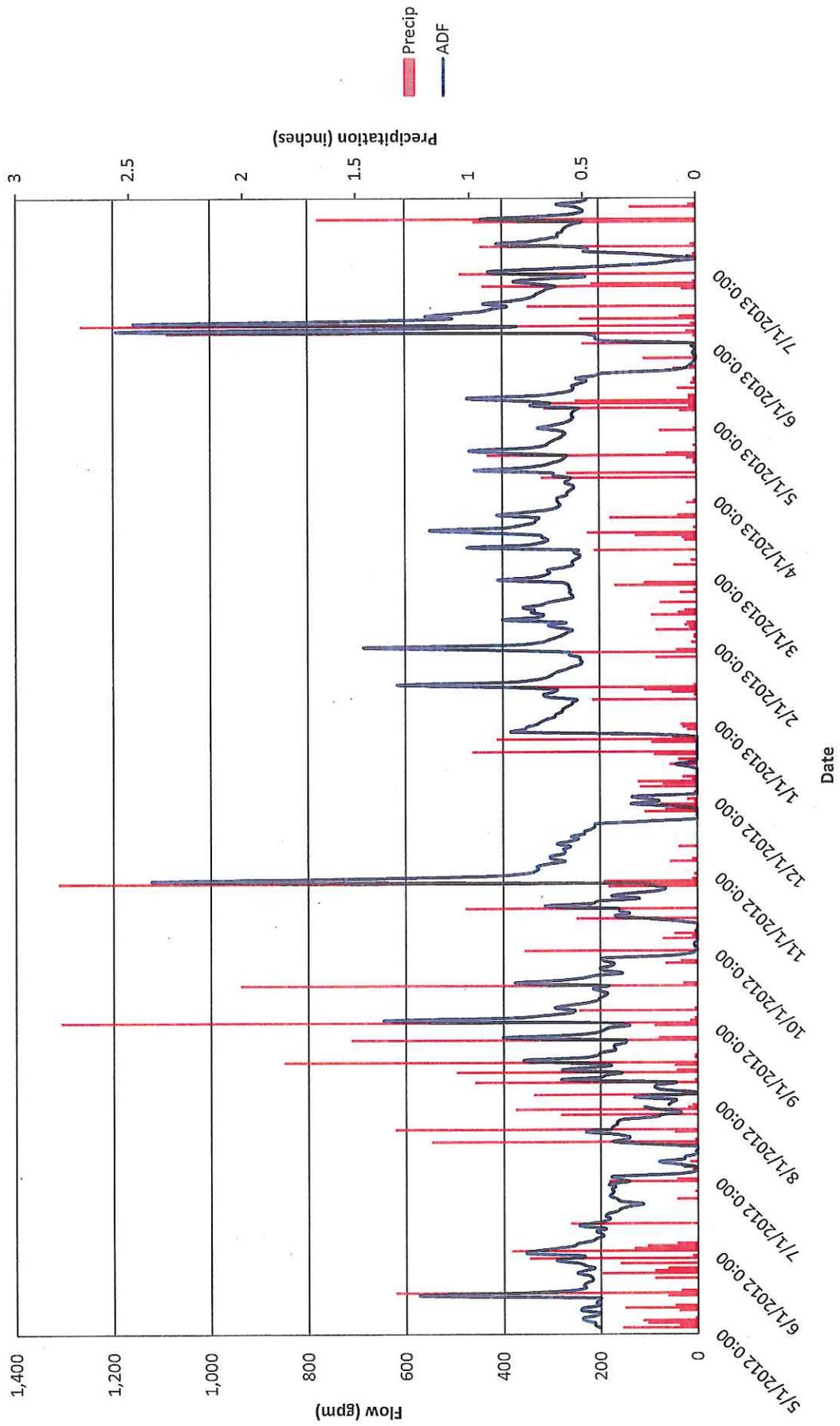
Flows didn't begin to increase on July 23 until approximately ½ hour after the start of significant rainfall, as can be seen in Figure 50. The flows continue to rise to 1000 gpm until the end of rainfall, and remain high for approximately ½ hour. A fairly rapid drop of 200 gpm occurs in the next ½ hour, followed by a slow decline in flow for the remainder of the day.

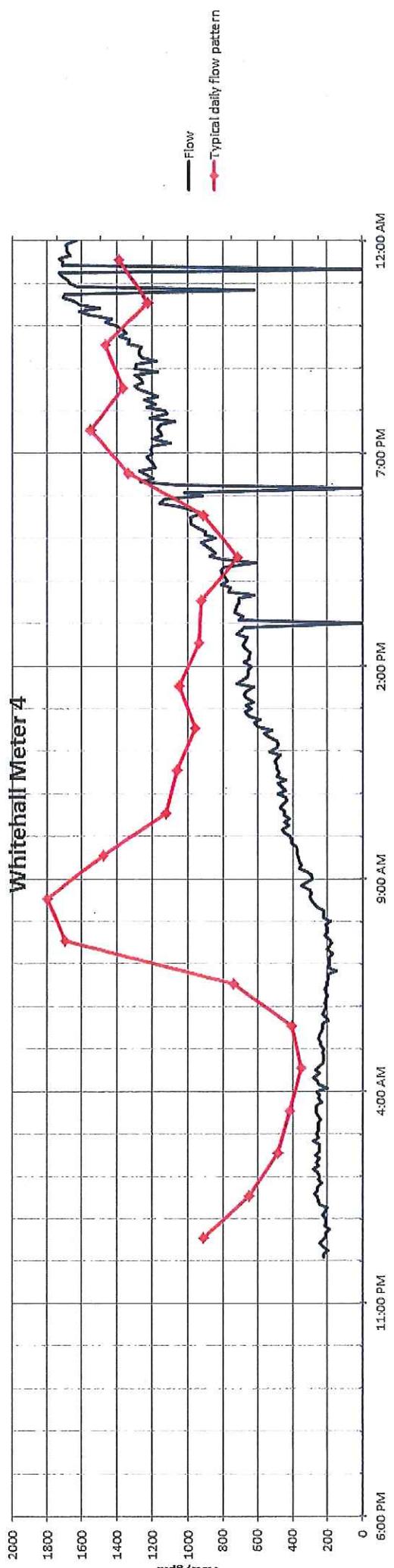
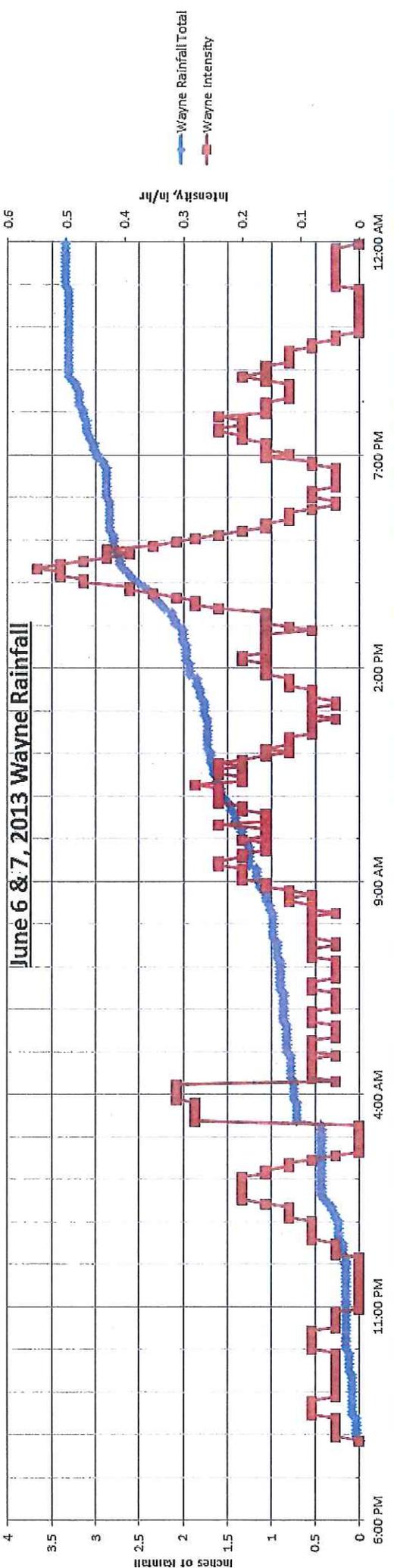
### Flow Characterization

Meter 18, which includes Meter 1, and Meter 3, both contribute flow to Meter 4. The full sewershed to Meter 4 is quite large, with anticipated dry weather flows of around 300 gpm. It is expected therefore that flows from the outer limits of the sewershed could take approximately 1½ to 3 hours to flow to Meter 4. From a comparison of Figure 48 to Figure 7, it can be seen that until approximately 10:30 am, Meter 1 is contributing most of the rain-induced flows to Meter 4. This implies that Meter 4's and Meter 18's directly contributing sewer sheds have very little direct inflow such as downspout connections and un-lined manhole lids in low drainage areas. Meter 3 was already identified as having significant direct inflows. However, since Meter 1's peak flows only represents approximately ½ of Meter 4's peak flows, these other areas are contributing significant amounts of delayed direct inflow, such as low sewer vents, flow into manholes through road stone subbase, and flow into un-lined manhole lids along drainage areas, but which are unaffected by lower surface flows. Whereas Meter 1's flows following the storm represent less than ½ of the flows at Meter 4, the other areas are contributing the bulk of the longer

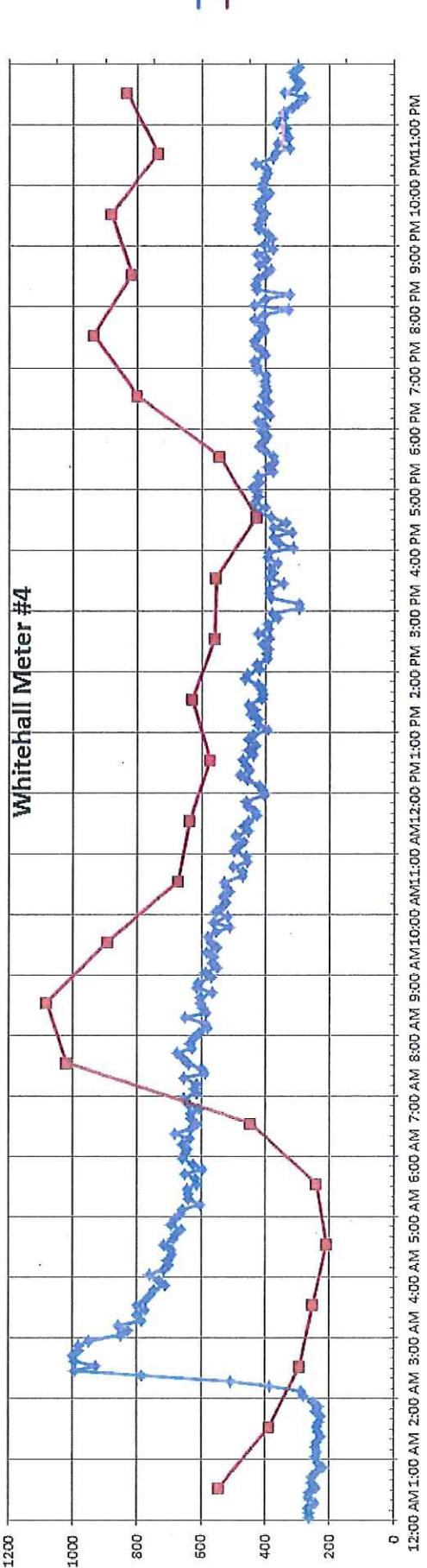
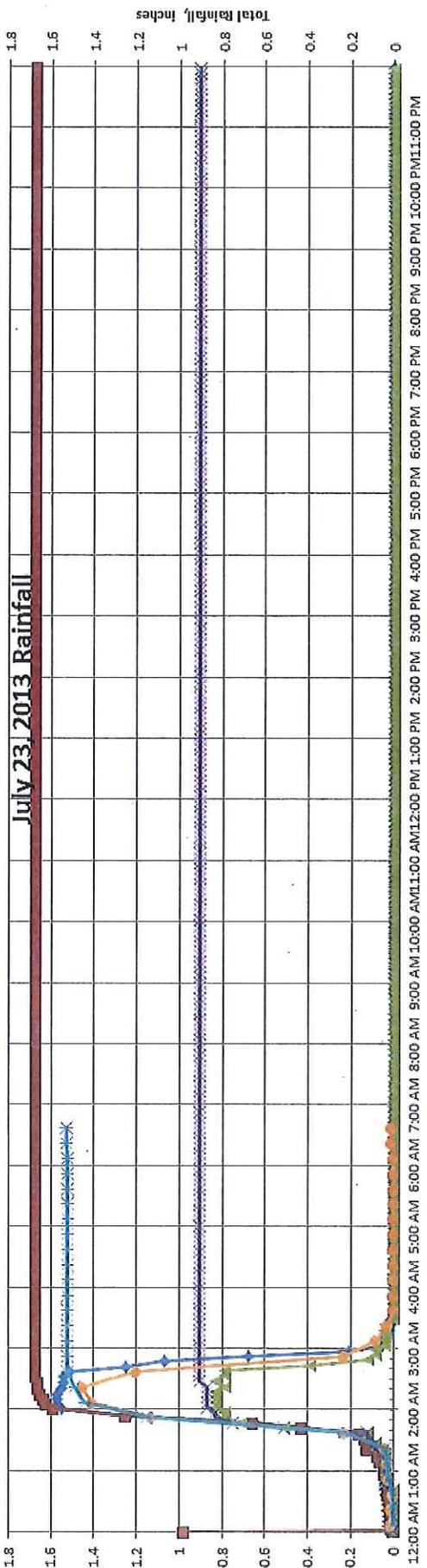
delayed inflows such as sump pump flow, and are contributing significant amounts of infiltration causing the slowly declining flows so evident in Figure 47.

# WNT - Daily Flow Data from Whitehall Meter April 2012 - June 2013









## METER 2 – 7-11

Meter 2 is located in Township manhole 98, in front of the 7-11 in Main Street, near the intersection of Montgomery Avenue, in a 15-inch pipe at that manhole. Meter 2 receives flow from the Whitehall Road Pump Station (essentially the same flow as Meter 4) as well as its own directly contributing sewershed.

### Period of Record

For the periods when this meter was functioning, Figure 51 shows a clear relationship between rain events and increased average daily flows. Another very well illustrated tendency is the rapid drop in average daily flows in the day following the rain event, followed by a much more gradual decline in flows for all of the following days until the next rain event. It should be noted that Meter 2 appears to be reading too low, since apparent dry-weather average daily flows are 300 gpm compared to anticipated flows of 428 to 635 gpm based on computer modeling.

### June 7, 2013 Event

This meter was not functioning during the June 7 event.

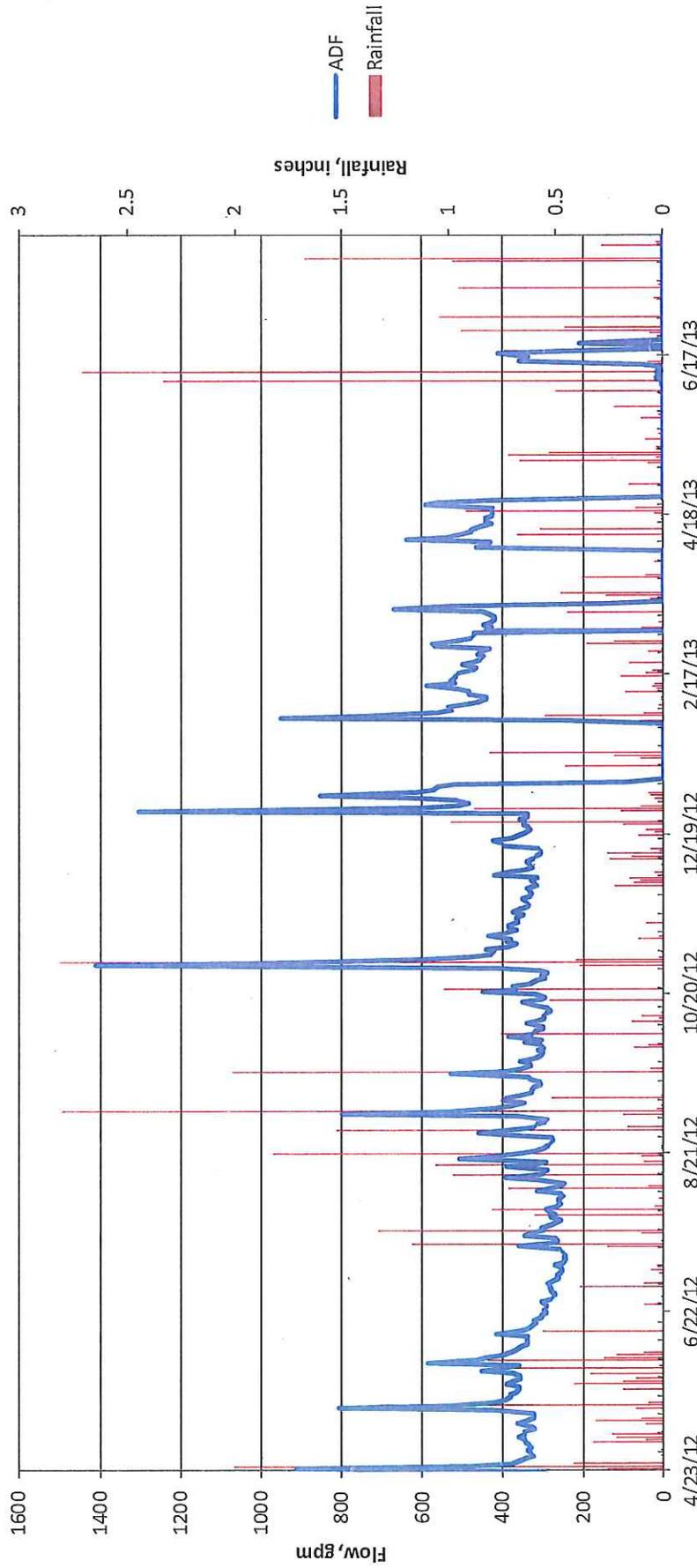
### July 23, 2013 Event

This meter was not functioning during the July 23 event.

### Flow Characterization

Meter 4 flows through Meter 2, and is expected to provide over half of its average daily dry weather flows based on computer modeling. To obtain an indication of how much of the rain-induced flow at Meter 2 comes from Meter 4, Figure 52 was developed for a direct correlation. Based on this figure when both meters were functioning, it appears that essentially all of the rain-induced flows come from Meter 4. For instance, in the October, 2012, rain event of approximately 2.8 inches (from Figure 51), the average daily flows at Meter 4 increased from approximately 100 gpm to approximately 1100 gpm; at Meter 2, the flows increased from 300 gpm to 1400 gpm. Of the 1100 gpm increase at Meter 2, 1000 gpm came from Meter 4. The 100 gpm increase apparently from Meter 2's directly contributing sewershed represents less than a 25% increase over dry weather flows, and indicates that inflow and infiltration control efforts should be directed to other areas of the system.

# WNT Daily Flow Data from 7-11 Meter 2 April 2012 - July 2013



## **METER 5 – SHERIDAN-HARTRANFT**

Meter 5 is located in Township manhole 209, at the intersection of Sheridan Lane and Hartranft Drive, in a 15-inch pipe at that manhole. The Port Indian Road Pump Station (the same as Meter 10) flows through Meter 5 when its flow is not diverted to the Rittenhouse Pump Station; this diversion is typically only done during rain-induced high flow periods.

### **Period of Record**

Figure 52 shows the metering record for Meter 5; it was operating correctly less than half of the installation period. Dry weather average daily flows to this meter should be approximately 250 gpm based on computer modeling; it can be seen from Figure 52 that when the meter was operating, the average of its flows was approximately 60 gpm. The highest recorded average daily flow was on a non-rainfall event day.

### **June 7, 2013 Event**

It can be seen in Figure 53 that the reason for the insignificant average daily flow on June 7 which appeared on Figure 52 was due to the fact that the recorded peak instantaneous flows were for a very short period while most of the day had zero flow. It is estimated that the pumps at the Port Indian Pump Station should have cycled on approximately every 10 minutes based on the high flows from Meter 10. The pumps produce a flow of approximately 1000 gpm, so the total flow through Meter 5 should be over 1000 gpm unless diversion is occurring, and should reach that flow approximately every 10 minutes from noon to 9 pm. The highest that the Meter 5 flow reached was 740 gpm, and this was only for two instantaneous readings over the 9-hour period.

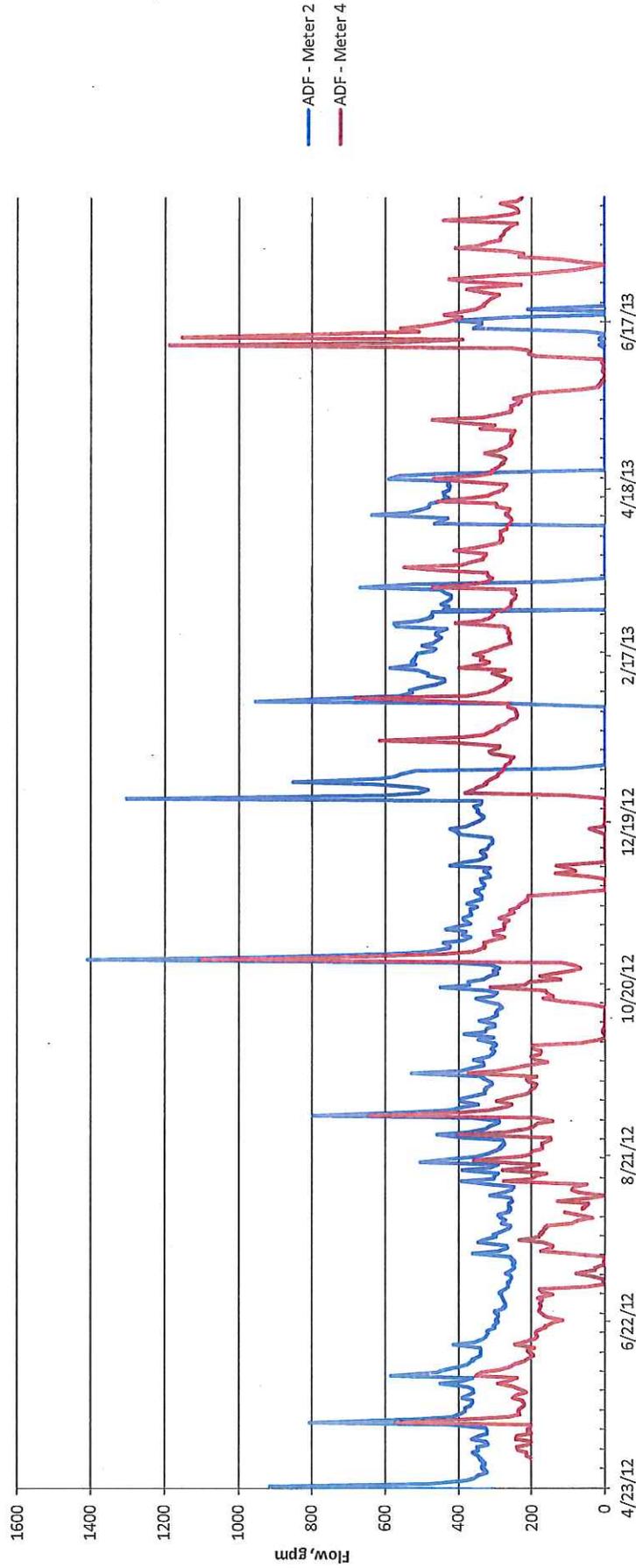
### **July 23, 2013 Event**

This meter was not functioning during the July 23 event.

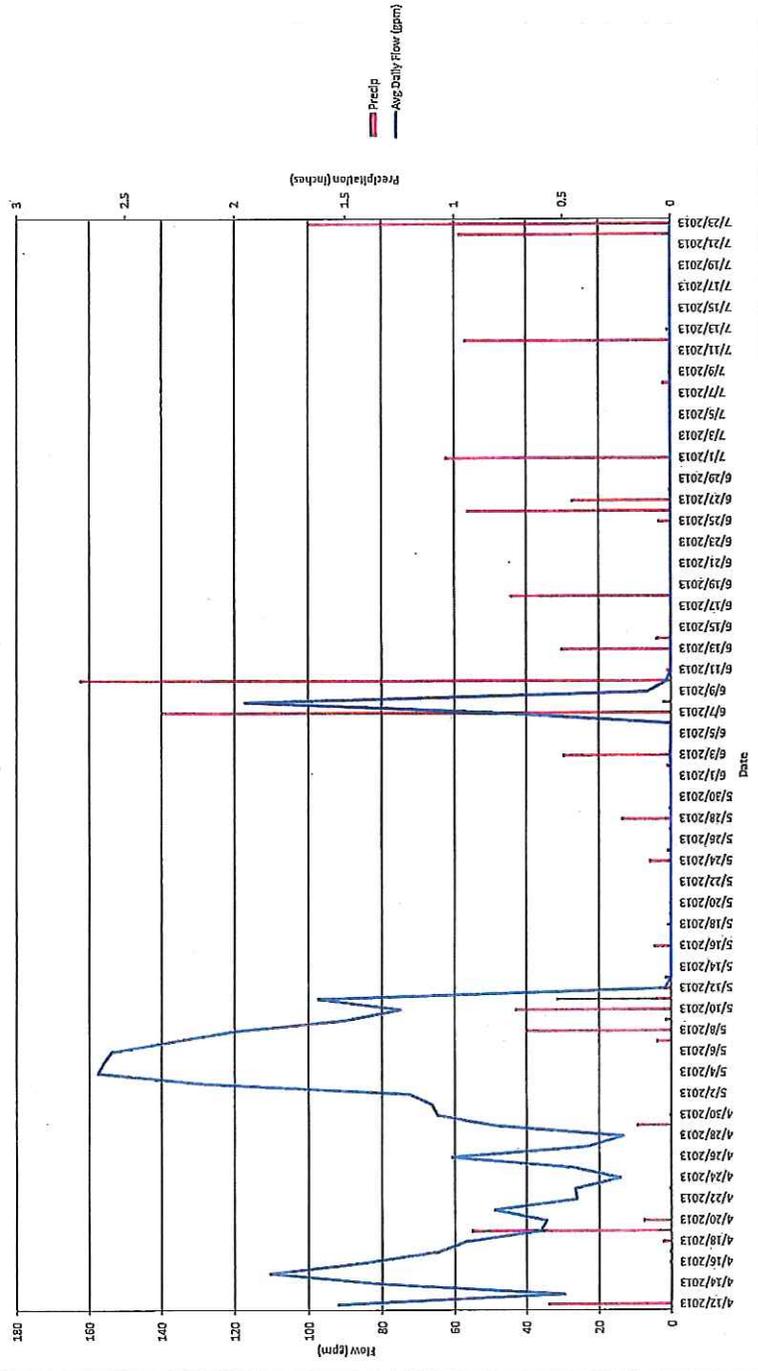
### **Flow Characterization**

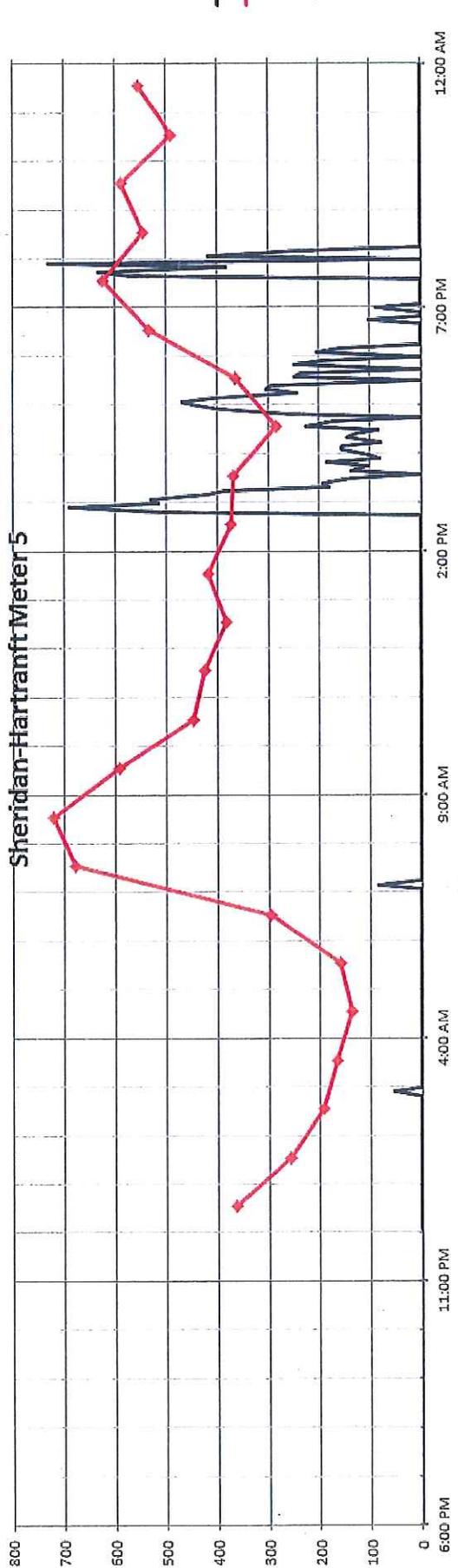
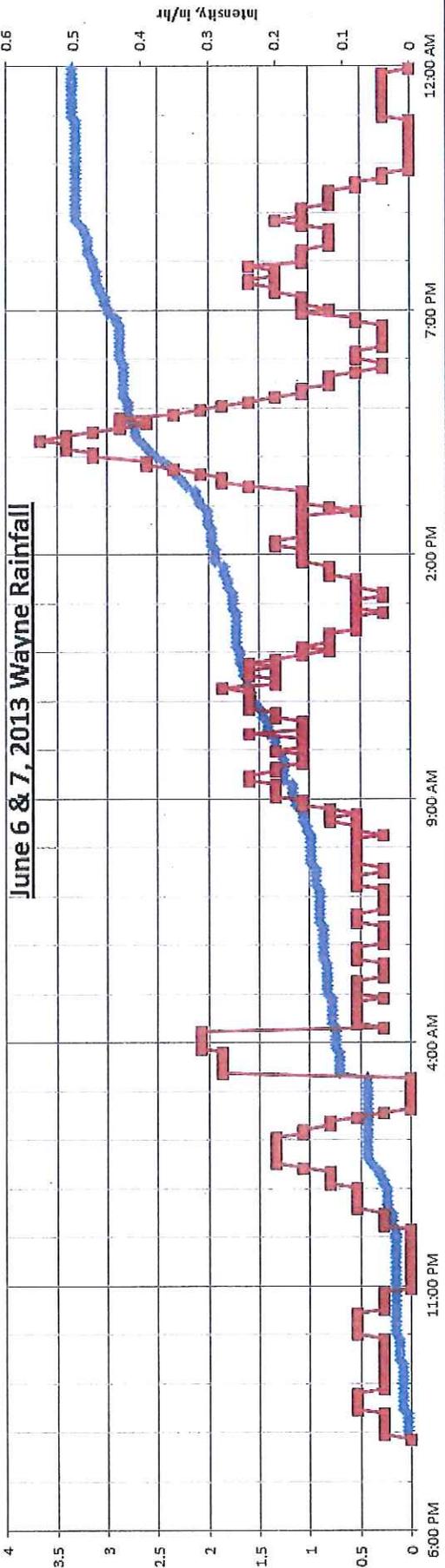
Based on comparisons with expected flows from the Port Indian Pump Station, the only conclusion that can be drawn from Figure 54 is that the directly contributing sewershed to Meter 5 contributes very little rain-induced sewage flows. However, it appears that the metering data is inaccurate, since average daily flows on Figure 53 are well below what should flow through this meter. Additionally, the peak flows on Figure 54 are generally well below the flows which would come from the pumping rates at the Port Indian Pump Station. It is recommended that the metering location be revised or the meter be rehabilitated.

# WNT Daily Flow Data from Meter 2 & Meter 4 April 2012 - July 2013



WNT - Daily Flow Data from Sheridan & Hartranft Meter 5  
 April 2013 - July 2013





# **Appendix O**

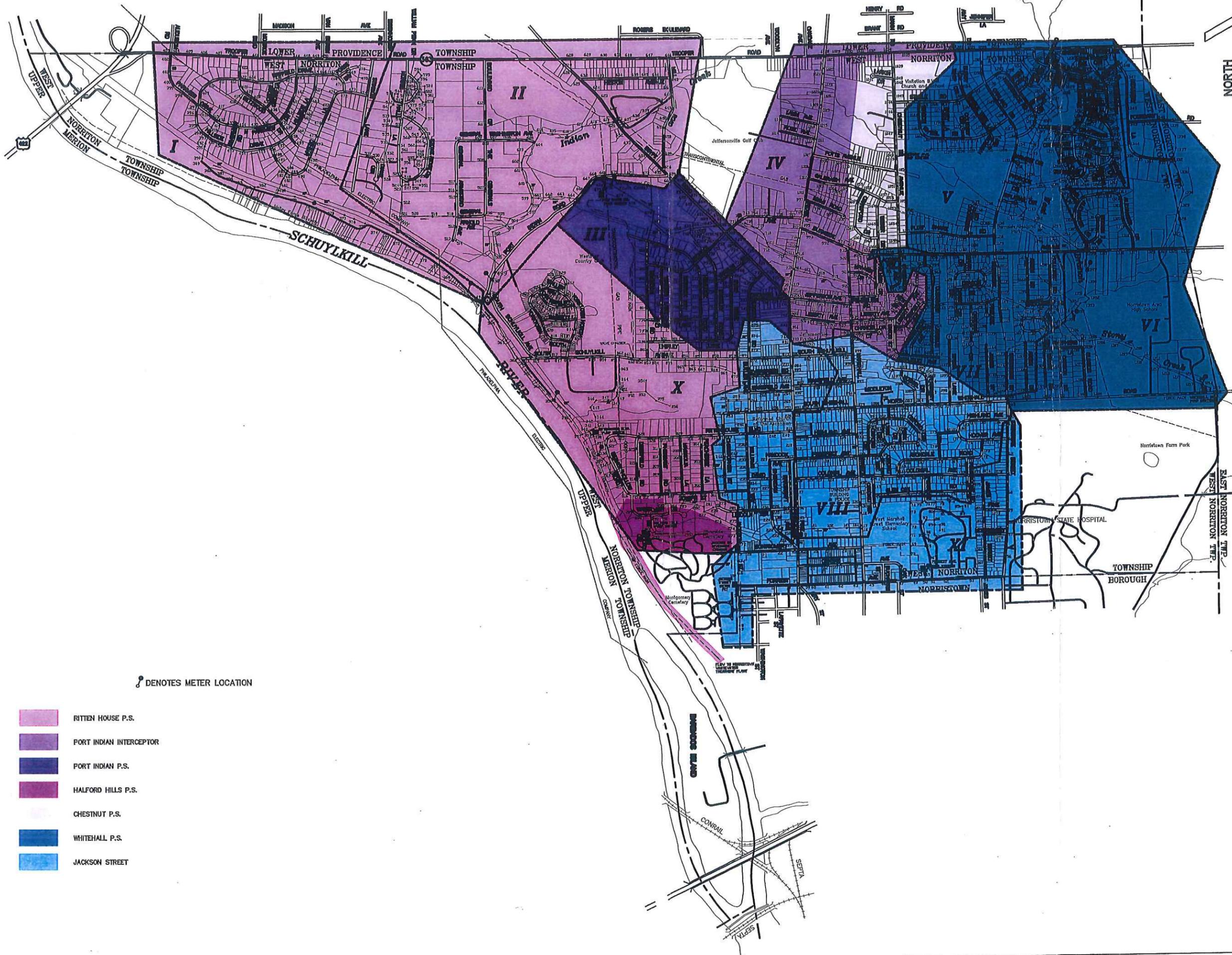
## **Drawings**



⊙ DENOTES METER LOCATION

- ⊙ RITTEN HOUSE P.S.
- ⊙ PORT INDIAN INTERCEPTOR
- ⊙ PORT INDIAN P.S.
- ⊙ HALFORD HILLS P.S.
- ⊙ CHESTNUT P.S.
- ⊙ WHITEHALL P.S.
- ⊙ JACKSON STREET

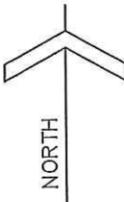
FOR REVIEW ASSOCIATES BY:		2010 updated
MANAGER:	DESIGN BY:	CHECK BY:
SURV. CHIEF:	DRAWN BY:	CHECK BY:
FIELDBOOK NO.:	DATA COLLECTOR:	DATE:
DRAWING REFERENCE: J:\04-05770-003\04-05770-003.dwg - 03/11/2008 10:00 AM		
CLIENT:		
RETTEW Associates, Inc. 2520 Oakhurst Rd., Suite 100, Camp Hill, PA 17011 Phone (717) 667-3021 • Fax (717) 667-4923 Email: rettetw@rettetw.com Harrisburg, PA • Lancaster, PA • Pottsville, PA • York, PA <small>Engineers • Surveyors • Architects • Environmental Consultants • IT Consultants</small>		
<b>WEST NORRITON TOWNSHIP 2008 SEWER INSPECTION CONTRACT</b>		
DATE: MARCH 2004		
SHEET NO. 1 OF 1		
DWG. NO. 04-05770-003		



⊕ DENOTES METER LOCATION

- RITTEN HOUSE P.S.
- PORT INDIAN INTERCEPTOR
- PORT INDIAN P.S.
- HALFORD HILLS P.S.
- CHESTNUT P.S.
- WHITEHALL P.S.
- JACKSON STREET

<p><b>RETTEW</b>  <small>Associates, Inc.          2200 Gettysburg Rd., Suite 100, Camp Hill, PA 17021          Phone (717) 697-3851 • Fax (717) 697-9853          Website: www.retrew.com          PA • MD • VA • DE • NJ • NY • OH • IL • IN • MI • WI • IA • MO • CO • KS • NE • MN • SD • ND • WI • IL • IN • MI • WI • IA • MO • CO • KS • NE • MN • SD • ND</small></p>	
<p>DATE: <b>MARCH 2004</b></p> <p>SHEET NO. <b>1</b> OF <b>1</b></p> <p>DWG. NO. <b>04-05770-003</b></p>	<p style="text-align: center;"><b>WEST NORRITON TOWNSHIP</b> Drainage Basins</p>
<p>MANAGER:</p> <p>DESIGN BY: <b>T.M.C.</b></p> <p>DRAWING REFERENCE:</p> <p>SURV. CHIEF: <b>DAVID M. COLLIER</b></p> <p>FOR RETTEW ASSOCIATES BY:</p>	<p>CLIENT:</p> <p style="text-align: center;">SCALE          1" = 800'          0 400 800 1600 2400</p>
<p>2010 updated</p>	<p>NO. DATE REVISION</p>



<p><b>RETREW</b>          Associates, Inc. • Suite 100, Camp Hill, PA 17011          Phone (717) 697-3251 • Fax (717) 697-5853          Email: retrew@retrew.com          Website: www.retrew.com          Harrisburg, PA • York, PA • Pottsville, PA • York, PA          Lancaster, PA • Lewisburg, PA          Environmental Consultants • IT Consultants</p>		<p>CLIENT</p>	<p>FOR RETREW ASSOCIATES BY:</p>	<p>1/2/07</p>	<p>5000/2008/04/08</p>
<p>MANAGER:</p>	<p>SURV. CHIEF:</p>	<p>FIELDBOOK NO. DATA COLLECTOR:</p>	<p>1/2/07</p>	<p>5000/2008/04/08</p>	<p>NO. DATE REVISION</p>
<p>DESIGN BY:</p>	<p>CHNG BY:</p>	<p>CHNG BY:</p>	<p>T.M.C.</p>	<p>CHNG BY:</p>	<p>NO. DATE REVISION</p>
<p>DRAWING REFERENCE:          A 10/07-08770-001/0407/08-08770-001 Sewer Repairs          XREFS:</p>					
<p>SCALE          1" = 800'          0 400 800 1600 2400</p>					
<p><b>WEST NORRITON TWP.          SEWER REPAIRS          1993 - 2012</b></p>					
<p>DATE: MARCH 2007</p>					
<p>SHEET NO. 1 OF 1</p>					
<p>DWG. NO. 07-05770-001</p>					

- EXISTING SANITARY SEWER
- EXISTING FORCE MAIN
- TV/OUT AREA - 1993
- TV/OUT AREA - 1994
- TV/OUT AREA - 1996
- TV/OUT AREA - 1998
- TV/OUT AREA - 1997
- TV/OUT AREA - 2000
- TV/OUT AREA - 2008
- MANHOLE REPAIR
- MANHOLE REPAIR - 2012
- TV/OUT AREA - 2002
- REPLACE SEWER LINE - 2004
- TV/OUT AREA - 2008/2008
- PAUP SEWER REPAIR - 2002/2008
- REPAIR SEWER SEWER - 2007
- TV MAIN & LATERALS - 2008
- SEWER LINES - 2008
- 2007 SCHEDULE DRAIN SYSTEM
- 2008 CLEAN & TV LOWER SECTION BASH
- 2008 GREAT ARTERY, REPLACE & LNK

