

Three flow meters were installed in the sewers within the targeted area last year to collect flow data. This data has allowed us to see results from a large May rain event before any sump pumps were removed from the sewer system and a large rain event in October when we had removed over 60 sump pumps from the sewer in the targeted area. There has been a huge inflow reduction because of disconnecting these sump pumps from the sewer system.

We can see a 2/3 flow reduction at the treatment plant because of the sump pump disconnections in the targeted area. During rain events, the flow at the treatment plant was reduced from 14.72 MG in May down to 4.88 MG in October. The remaining 1/3 flow does not cause the sewer basement backups that was occurring before. This appears to prove the sewer I/I reduction program is working and should be continued throughout the rest of the City.

The next targeted area is the northeast part of the City and work will begin this summer. More information about this is available on the City website at www.boonegov.com.

Flow Meter Data in Boone, IA for three
selected Rain Dates in May, June, and
October 2019

Date	Cumulative Rainfall (in)	Meter 1 (2nd & McPherson)			
		Inflow(gpm)	Infiltration(gallon)		
			0-24 hrs	24-48 hrs	48-72 hrs
05/23/19-05/25/19	1.5	1,816	880,626	2,071,173	1,641,608
06/23/19-06/25/19	0.36	2,004	2,248,877	1,348,457	1,060,750
10/21/19-10/23/19	1.38	919	759,844	1,384,346	690,310

Date	Cumulative Rainfall (in)	Meter 2 (7th & McPherson)			
		Inflow(gpm)	Infiltration(gallon)		
			0-24 hrs	24-48 hrs	48-72 hrs
05/23/19-05/25/19	1.5	237	87,832	186,91	162,000
06/23/19-06/25/19	0.36	330	427,656	283,617	237,877
10/21/19-10/23/19	1.38	260	130,859	143,071	139,207

Date	Cumulative Rainfall (in)	Meter 3 (504 2nd)			
		Inflow(gpm)	Infiltration(gallon)		
			0-24 hrs	24-48 hrs	48-72 hrs
05/23/19-05/25/19	1.5	784	350,916	949,819	705,001
06/23/19-06/25/19	0.36	881	495,032	453,677	1,096,460
10/21/19-10/23/19	1.38	407	255,478	273,192	403,564

Date	Cumulative Rainfall (in)	Plant Flow			
		Inflow(gpm)	(gallon)		
			0-24 hrs	24-48 hrs	48-72 hrs
05/23/19-05/25/19	1.5	not reported	6,242,000	6,820,000	14,723,000
06/23/19-06/25/19	0.36		10,748,000	12,349,000	8,398,000
10/21/19-10/23/19	1.38		3,169,000	5,823,000	4,881,000

*Note:

Inflow was calculated by max gallons per minute in date range minus average dry flows in low rainfall months.

Infiltration was calculated by gallons per day in date range minus average dry flow in low rainfall months

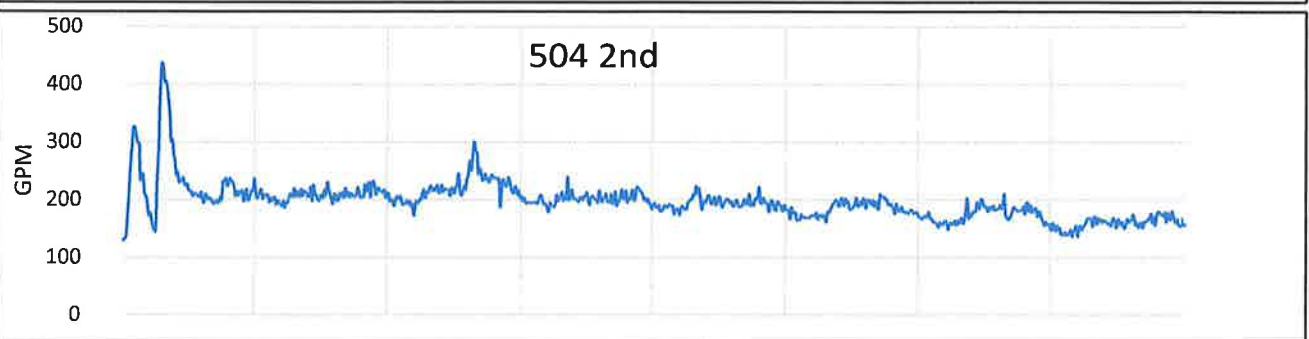
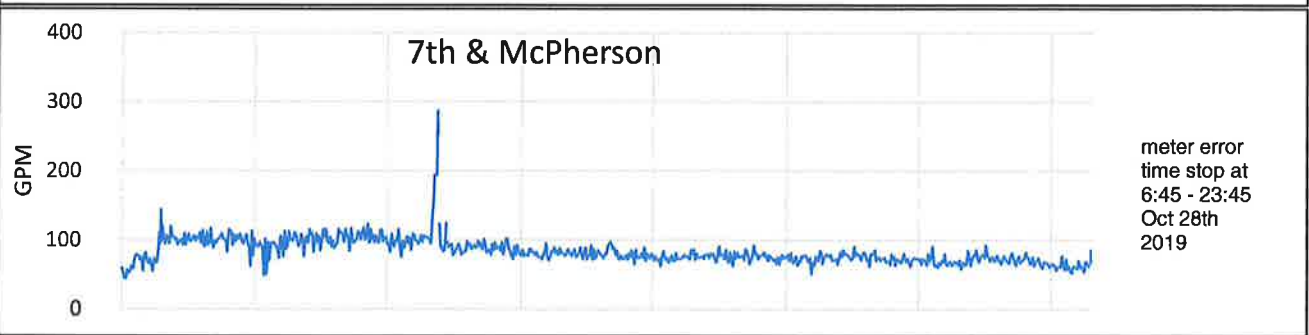
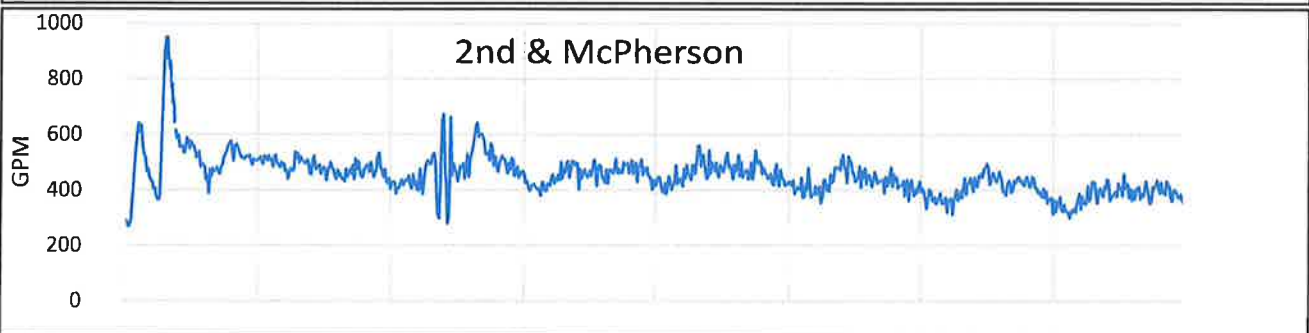
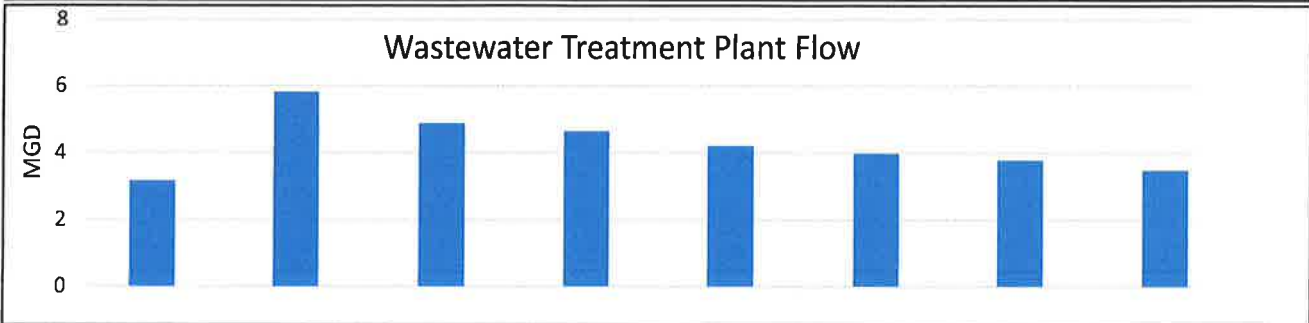
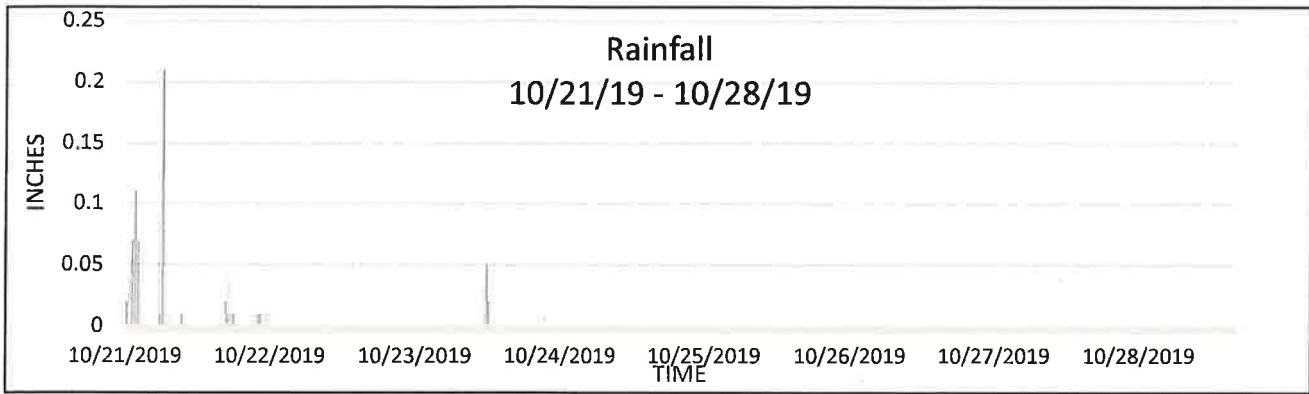
***DMR notes from selected months: May, June, October**

5/24/19 - storm flow mode is being use due to high influent flows. 5/24/19 to 5/26/19 West Boone lift station is over loaded with wastewater flowing 2nd and 3rd manhole preceeding the station having overflow. Issues. 5/29/19 - Boone lift station wastewater over flow 3rd manhole from lift station.

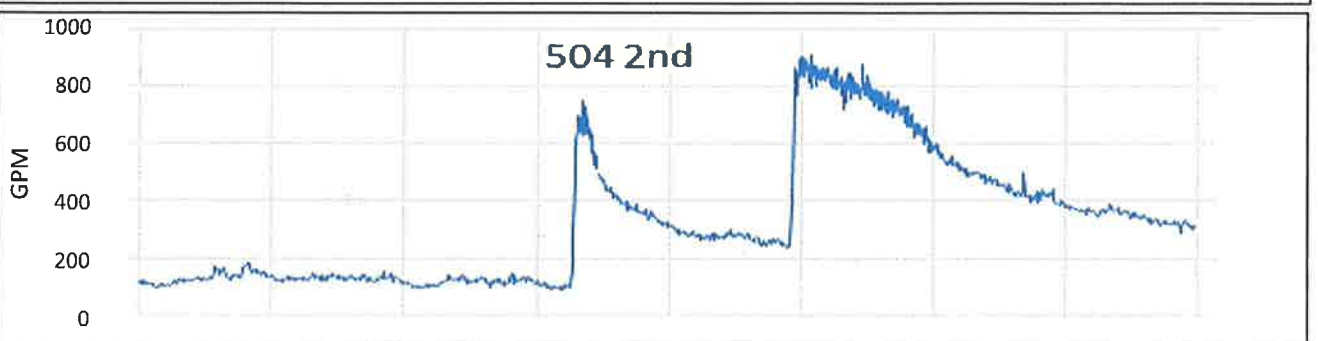
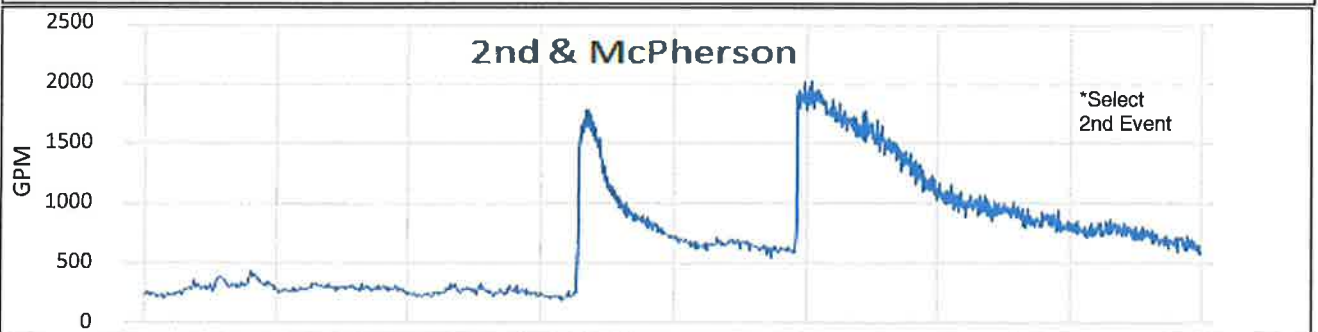
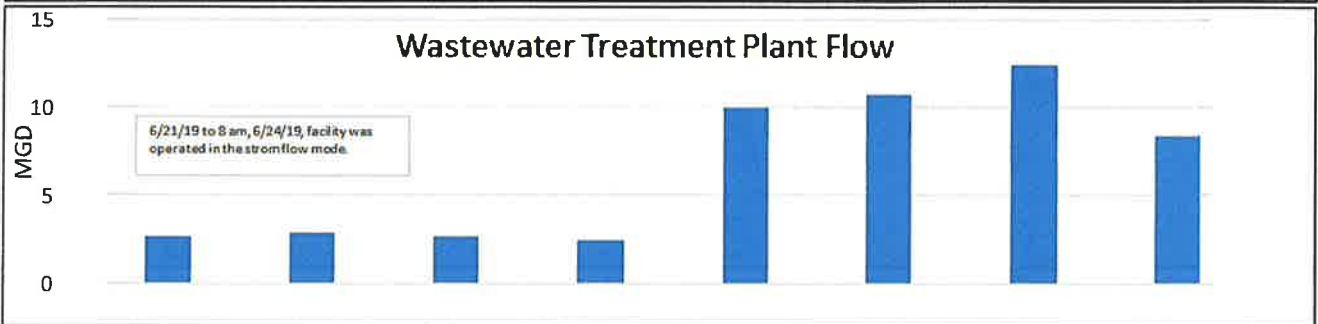
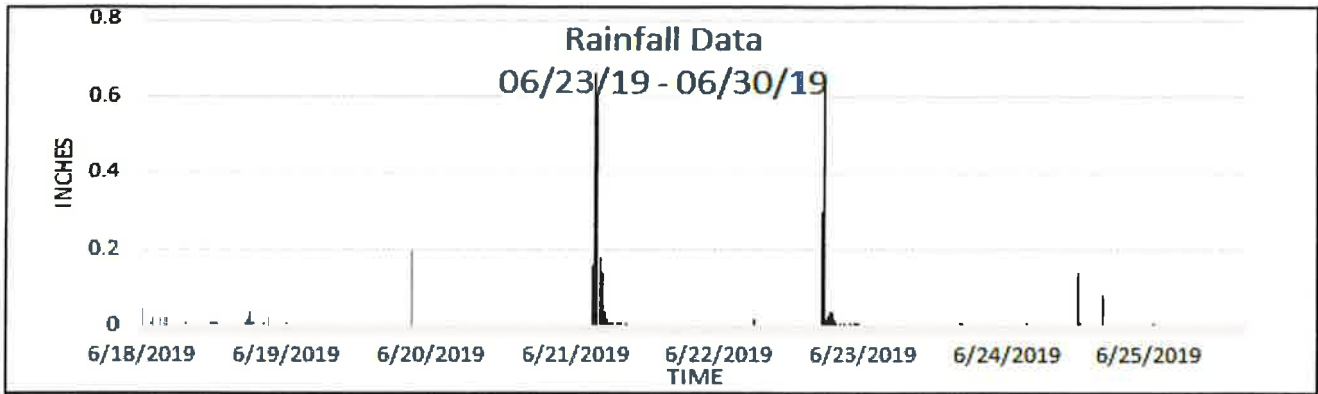
6/21/19 to 8 am, 6/24/19, facility was operated in the storm flow mode.

August 15th - August 27th, 2019		
Average Flow Rate(during dry times)		
Location of meter	gpm	MGD
504 2nd	30	0.04
7th & McPherson	27	0.04
2nd & McPherson	31	0.05
Plant	840	1.21

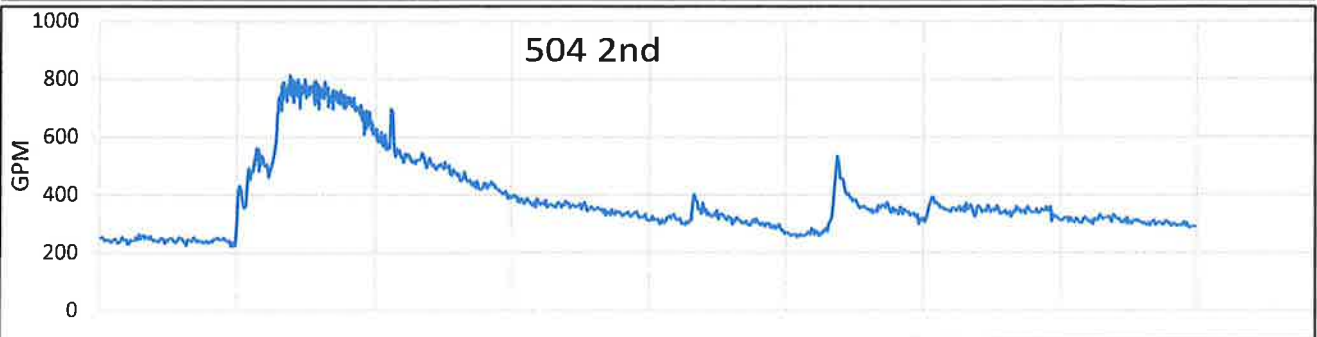
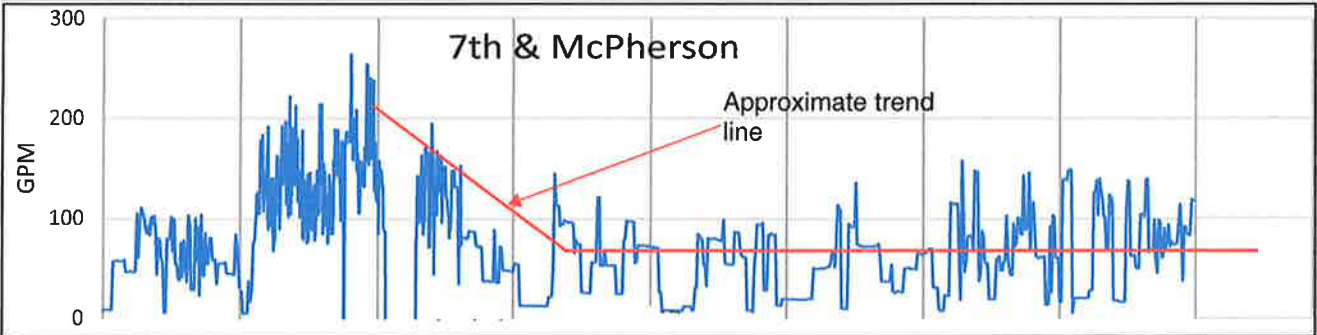
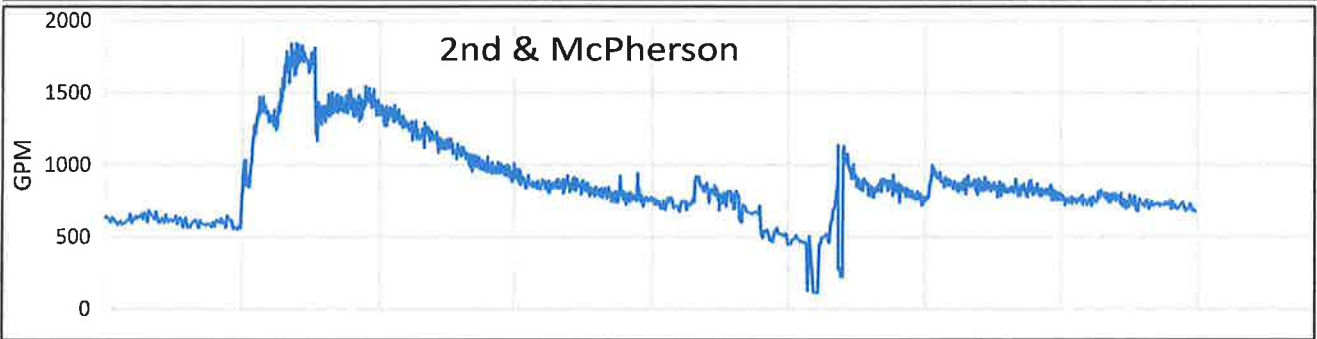
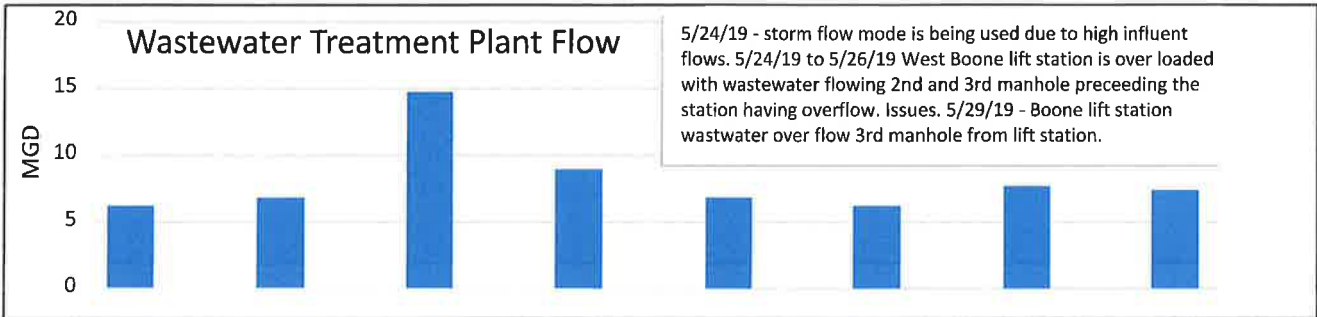
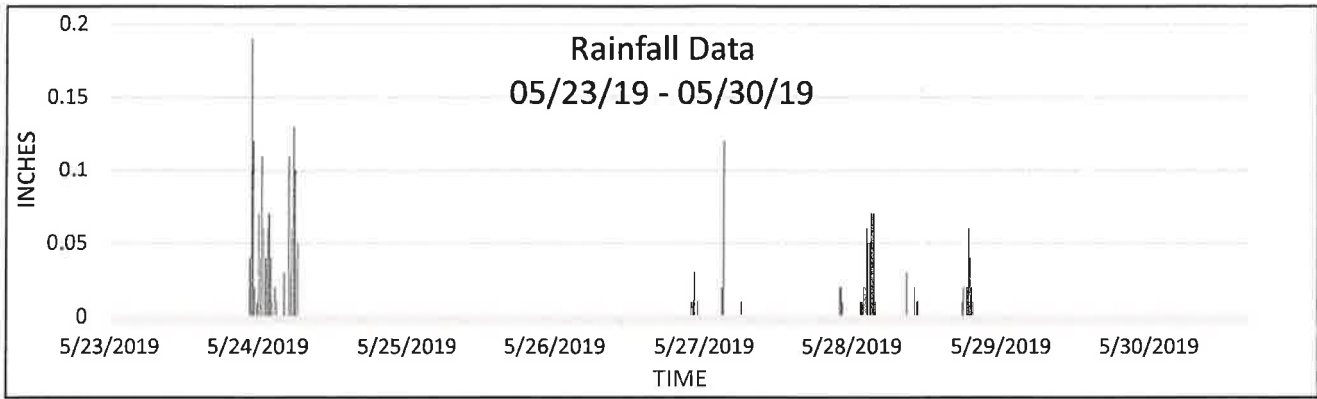
Flow Meter Data in Boone, IA for selected Rain Event Dates
10/21/19 - 10/28/19



Flow Meter Data in Boone, IA for selected Rain Event Dates
6/23/19 - 6/30/19



Flow Meter Data in Boone, IA for selected Rain Event Dates
5/23/19 - 5/30/19



Flow Meter Data in Boone, IA for Dates
3/07/19 - 11/15/19

