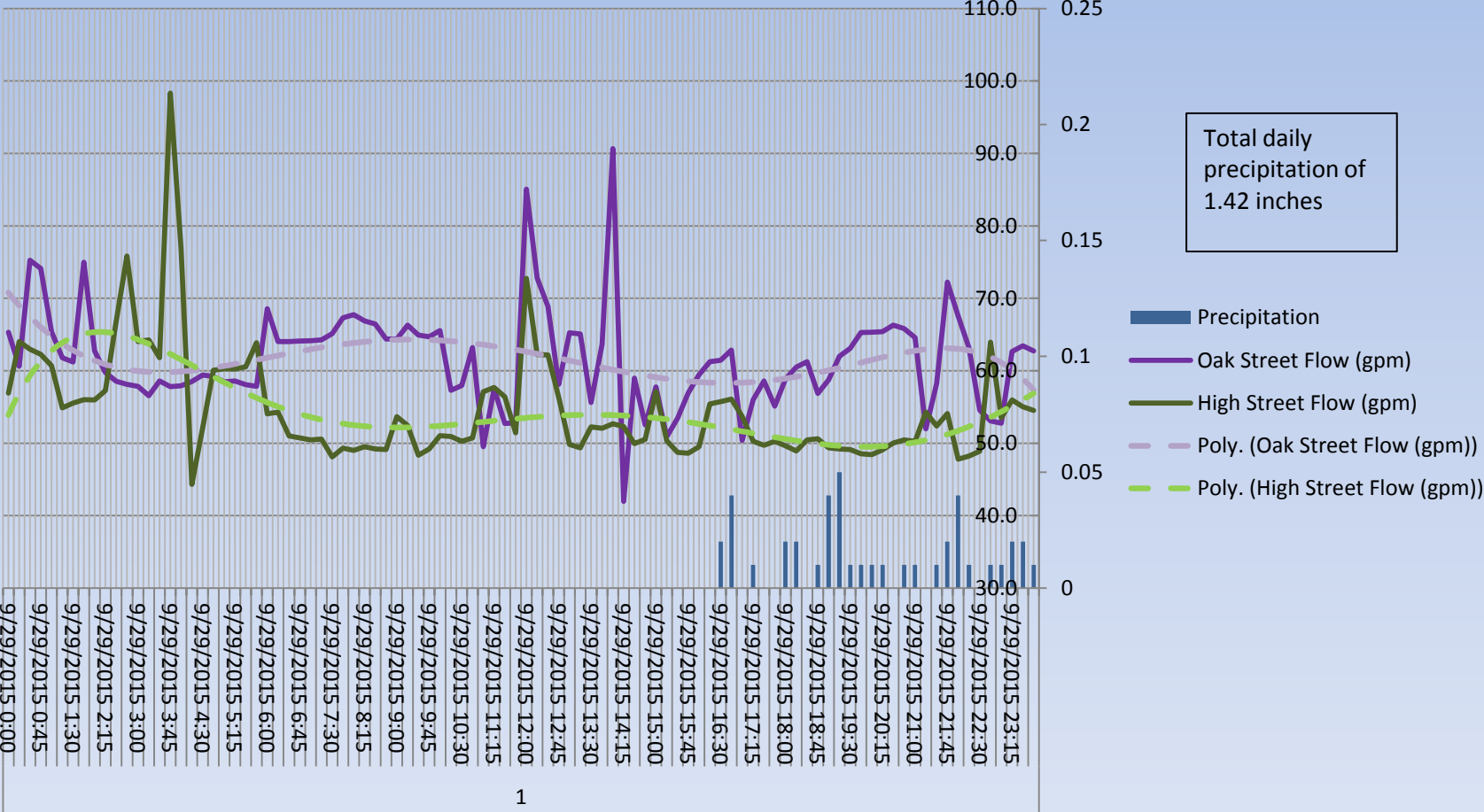


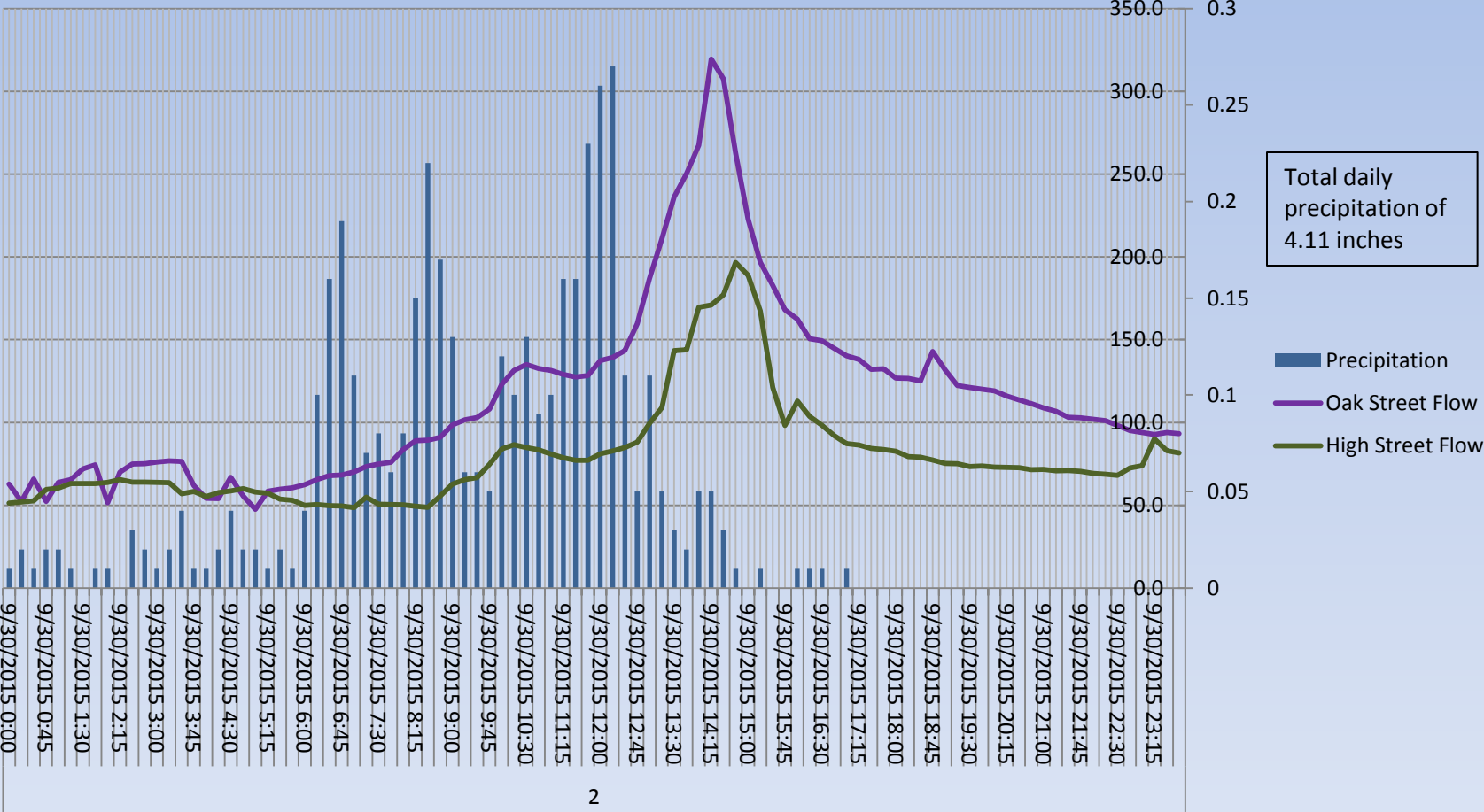
Oakland Sewer Department Inflow & Infiltration Study Update

November 9, 2016

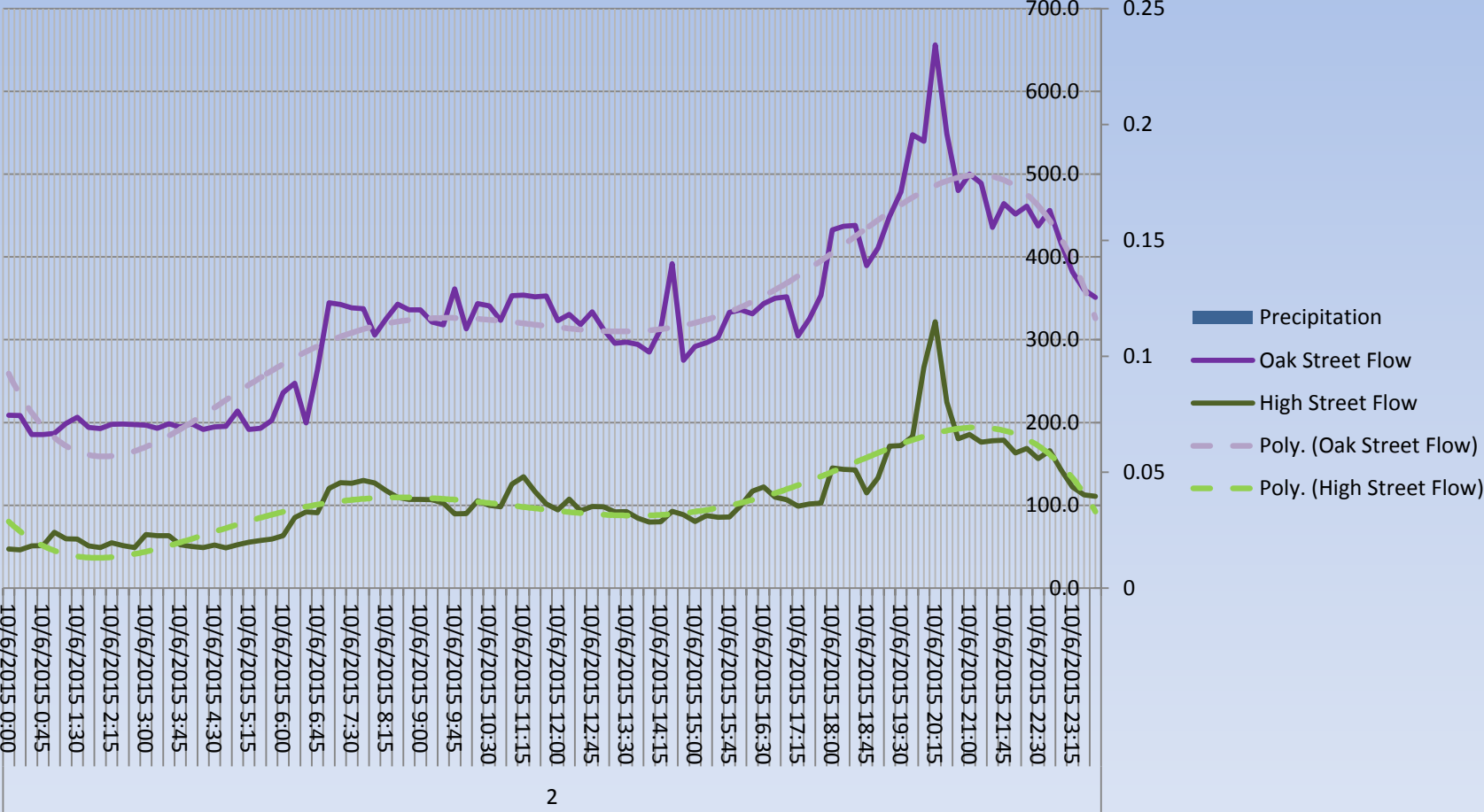
Oak/High Street September 29-30 Storm Event (2015)



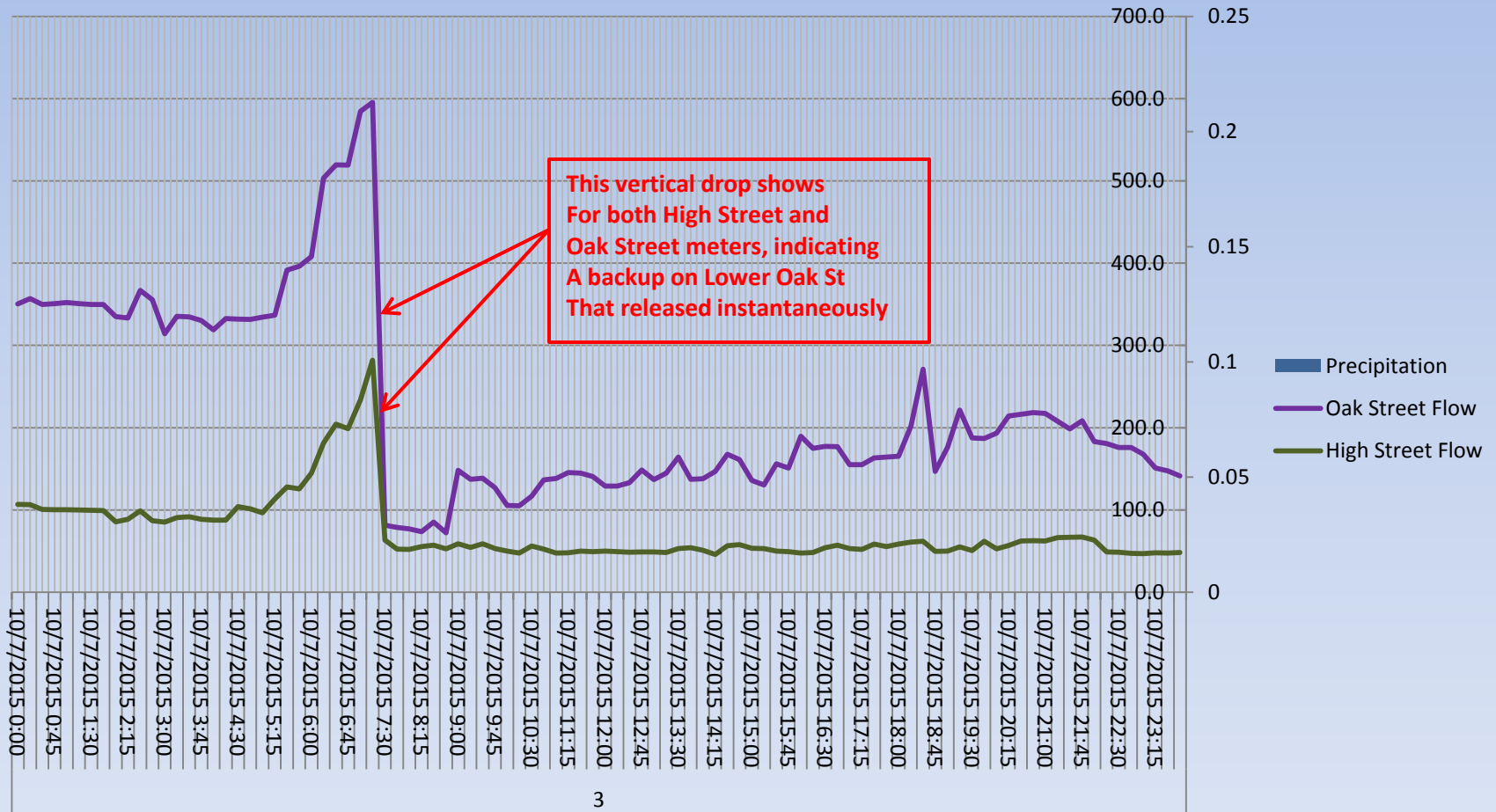
Oak/High Street September 29-30 Storm Event (2015)



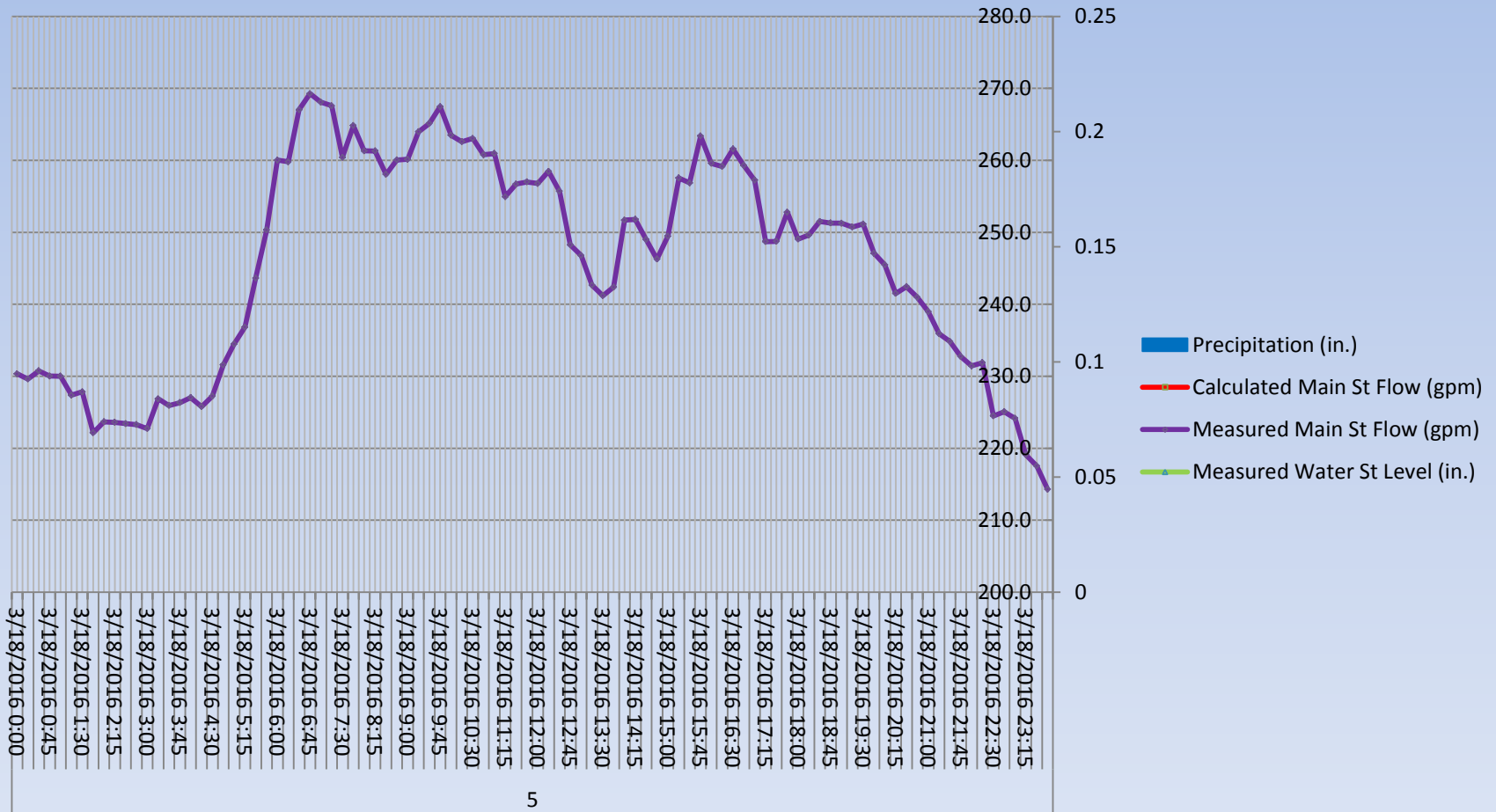
Backup from Lower Oak Street



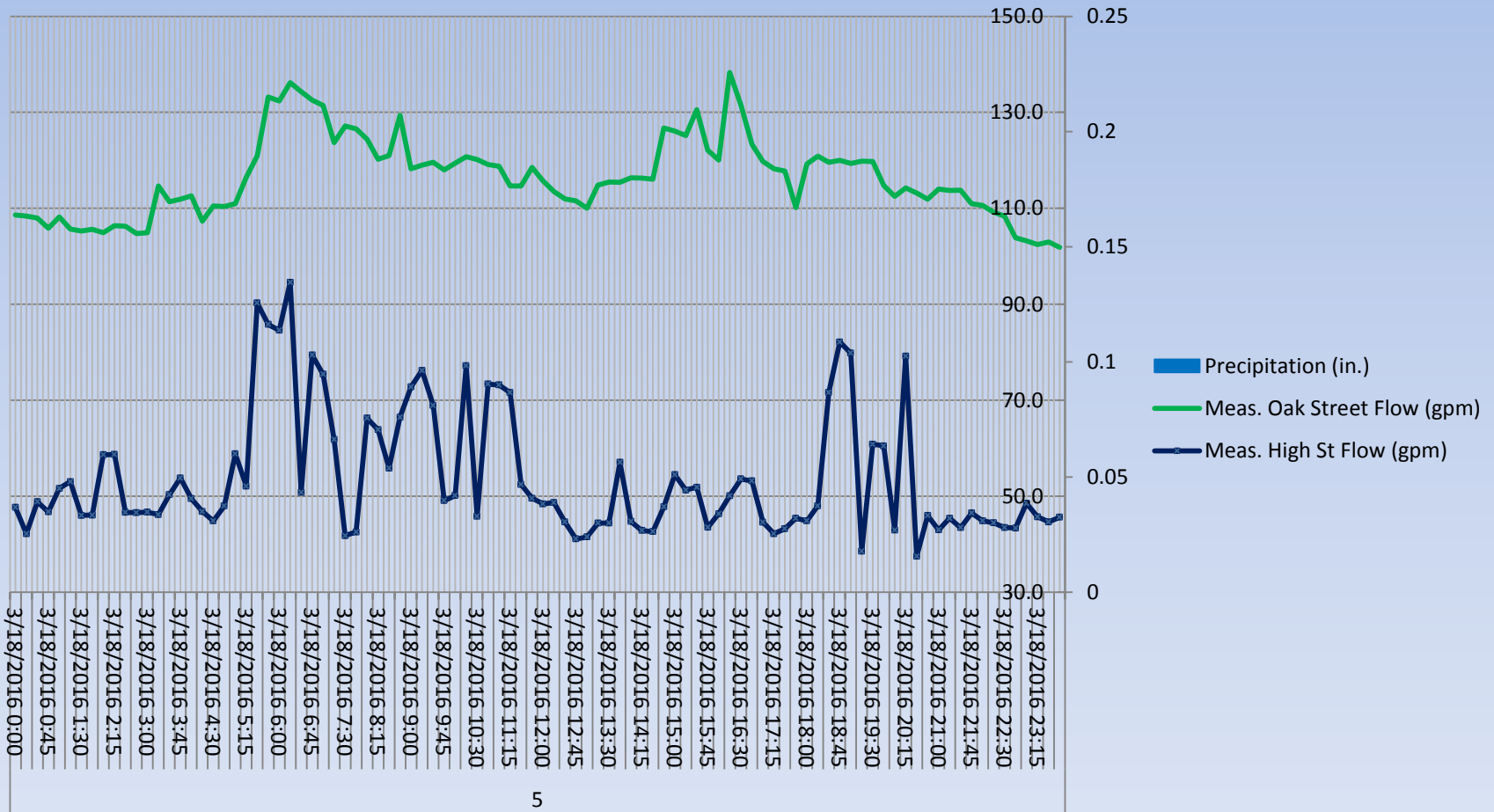
Lower Oak Street (cont.)



Main Street Spring Runoff Flow 2016



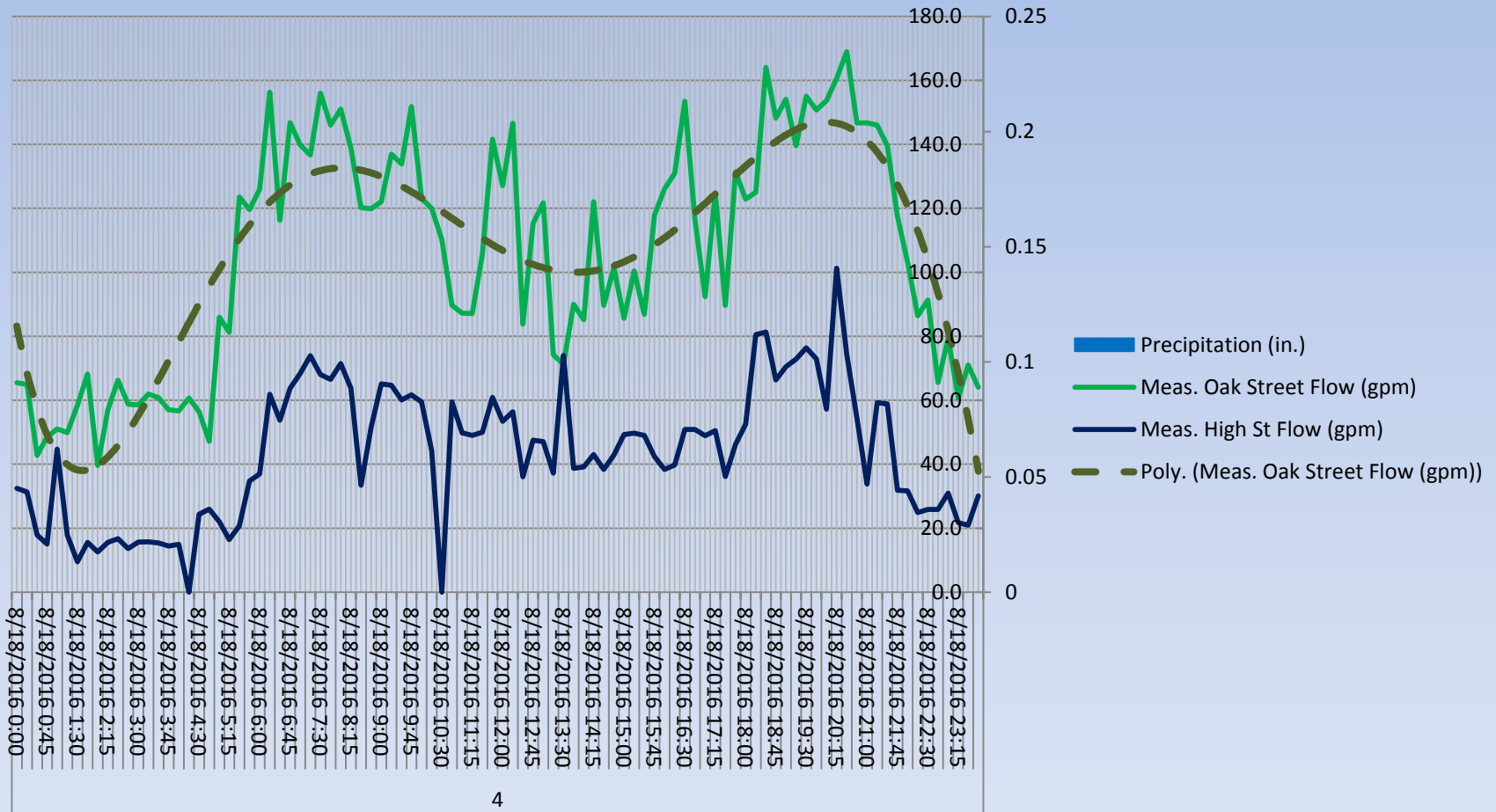
Oak/High Street Spring Runoff Flow 2016



Main Street Dry Flow Period 2016

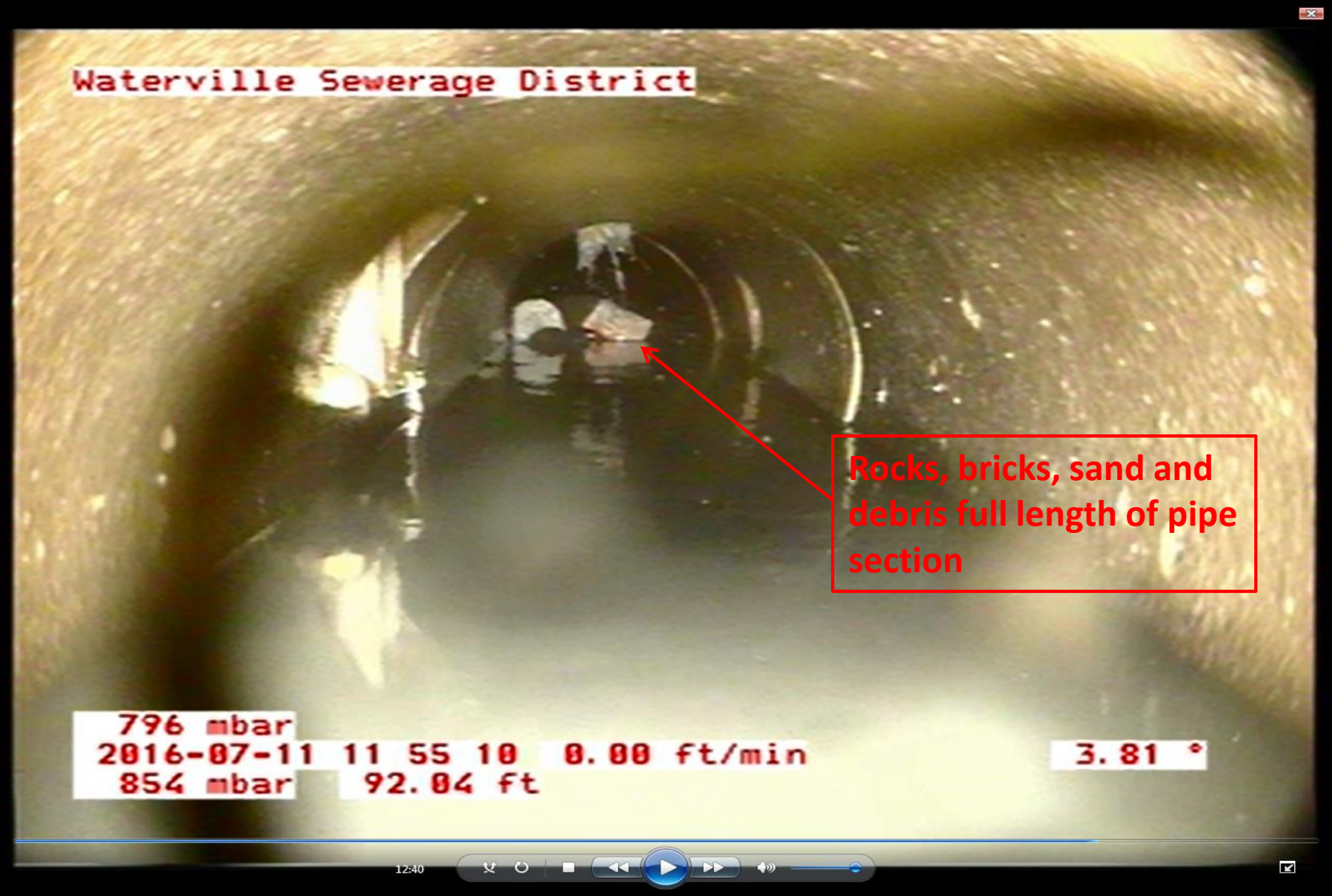


Oak/High Street Dry Flow Period 2016



Video Inspection of Lower Oak
Street Section from Manhole north
of Fabian Oil to Manhole at the
intersection with Heath Street

Cleaning of Lower Oak Street Section



Lower Oak Street Broken Pipe Section with Previous Repair



Pipe Material change from Clay to PVC Pipe



Pipe Material Change from PVC to Cast Iron (believed to be at granite box culvert crossing)



Shows open joint with stone backfill present in joint



Abandoned Sewer Service not capped. Stone showing for backfill



Broken joint leak point



Lower Oak Street Section Conclusions

- Pipe section is a contributor of Inflow & Infiltration.
- Pipe section recommended for lining ..
- Currently obtaining prices to have this section lined from manhole to manhole.

Oak Street from Manhole at
intersection with Sawtelle Road to
Manhole near the High School
Entrance

Broken Pipe Section with roots throughout



Major Root Issues along Pipe run



Oak Street Section Conclusions

- Pipe section is a contributor of Inflow & Infiltration.
- Pipe section is priority due to the collapsed pipe section.
- Pipe section recommended for lining immediately to avoid potential for sewer backup issues.
- Currently obtaining prices to have this section lined from manhole to manhole.

Water Street Sewer Upgrade

- In 2015/2016 cleaned and video recorded sewer main along full length of Water Street.
- Found a significant amount of debris in main in the vicinity of abandoned sewer connection near Grove Street.
- Plan to eliminate abandoned cross country main connection to sewer system in November 2016

Water Street Sewer Upgrade

- Review MDOT Drainage Connection Agreement for connection of abandoned Sewer Main to MDOT catch basin
- Agreement required due to unknown volume of flow coming from abandoned pipe.
 - If MDOT drainage system overloaded due to abandoned pipe, Town will work with MDOT on resolution.
 - Town agrees to test water to verify groundwater or surface water only.

Water Street Sewer Upgrade

- Should overloaded condition occur in MDOT storm water system due to connection
 - Town/MDOT may need to upgrade pipe size of drainage system downstream of connection, or
 - Town/MDOT may need to install another outlet from the overloaded catch basin to daylight

Fairfield Street Cleaning and Video Work in 2016

Cleaning Process on Fairfield Street

Rocks, bricks, sand and debris full length of pipe section



Grease buildup in sewer main between Fairfield Street and Main Pump Station

Grease build-up on sides of the existing sewer main prior to plant



Fairfield Street Manhole to be repaired likely I&I Source



Manhole is located in drainage low spot, open areas below rim allow water runoff entry