

VILLANOVA URBAN STORMWATER PARTNERSHIP

MONITORING AND MODELING THE HEADWATERS OF THE JENKINTOWN CREEK

BACKGROUND

The Villanova Urban Stormwater Partnership (VUSP) has been intensively monitoring a rain garden installed at Abington Friends School, at the headwaters of the Jenkintown creek. Our VUSP team worked closely with the Tookany/Tacony - Frankford Watershed Partnership (TTF), Abington Friends School (AFS), the designers at AKRF, and Cerulean Environmental to ensure that our instrumentation was fully incorporated into the rain garden design. This SCM will join a series of current and planned efforts, including a bioretention basin, riparian buffers, and another rain garden downstream, to improve Jenkintown Creek's water quality.

SITE MAP



QUALITY TESTING

Since August 2015, VUSP has been testing the site for the following water quality parameters:

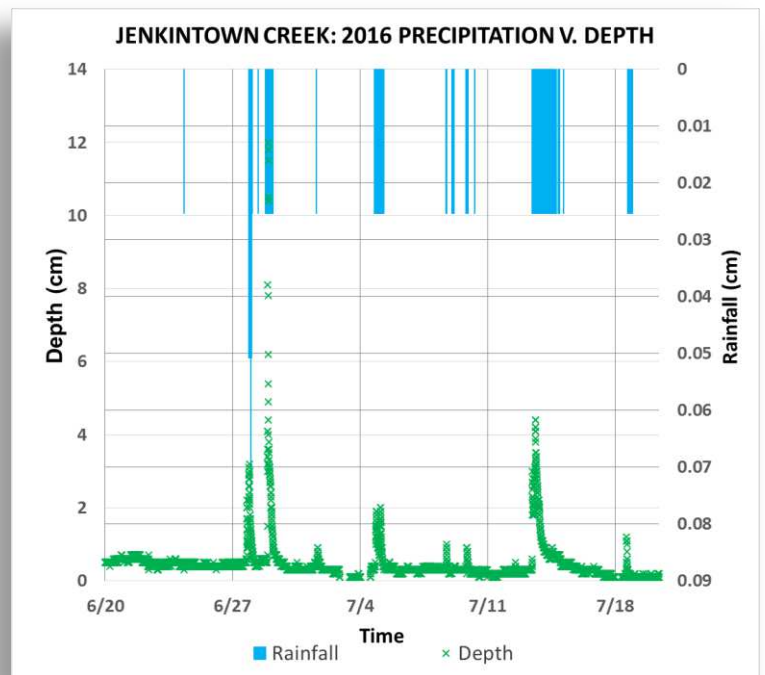
- Total suspended solids (TSS)
- Total dissolved solids (TDS)
- Nitrogen
- Phosphorus

EQUIPMENT

- **Bubbler:** To measure infiltration in the rain garden, enhancing our team's understanding of how water moves through the SCM
- **Autosampler:** To collect composite water samples from the bowl of the rain garden during storm events
- **Soil Moisture Meters:** To measure soil temperature and conductivity, which is used for water quality analysis
- **Flow Meter:** To measure the creek's depth, velocity, and temperature. Located directly downstream of the rain garden, this instrument allows our team to evaluate the effect of implemented SCMs on the headwaters
- **Weather Station:** To measure precipitation, solar radiation, wind speed and direction, temperature, humidity, and barometric pressure, enabling our team to accurately portray climate conditions in our models
- **Pressure Transducer:** To measure outflow from rain garden's underdrain, helping our team to gain an understanding of the water balance within the rain garden

QUANTITY ANALYSIS

To check the data collected by both the flow meter and the weather station, our team constructs monthly graphs of depth verses precipitation for the watershed (July 2016 is shown to the right). Comparing pre- and post-construction graphs also assists our team in understanding how the installed SCMs affect the creek.



FOR MORE INFORMATION



THE VILLANOVA URBAN STORMWATER PARTNERSHIP'S MISSION IS TO ADVANCE THE EVOLVING FIELD OF SUSTAINABLE STORMWATER MANAGEMENT AND TO FOSTER THE DEVELOPMENT OF PUBLIC AND PRIVATE PARTNERSHIPS THROUGH RESEARCH.