

Real-time Monitoring Sensors and Station

Things to Consider

Communication: How will sensors and stations transmit data?

- Cellular Network – Verizon and AT&T FirstNet in Monroe County
- Radio Antennae
- Satellite

Data Management Services: How will Data be stored and served? What are data management capabilities?

- Mobile Application and/or Software Platform – Data Dashboard
- Third-Party Services (NWS, Datawise, Weather Underground etc.)
- Alert Notification Capability

Sensor / Station Setup: Which sensors should be used and where should they be established? Compatibility issues?

- Weather Station (Wind, Rain, Temp, Humidity)
- Rain Gauge Sensor
- Water Level Sensors (Radar, Ultrasonic, Pressure Transducers)
- Camera
- “Packaged” stations allow for multiple sensors to interchangeably connect to station

Installation:

- Shallow streams – determine best installation for submersible water level sensors
- Permanent installation vs. Portability – determine best option and associated costs
- Public vs. Private land – work out agreements with landowners or choose public right-of-ways or easements
- Security – determine best practice to deter theft or vandalism, especially for road-side stations

Trempealeau County – Blair Mill Dam



Trempealeau County – Monitoring Stations



HIGH SIERRA ELECTRONICS, INC
environmental monitoring solutions

Communication:

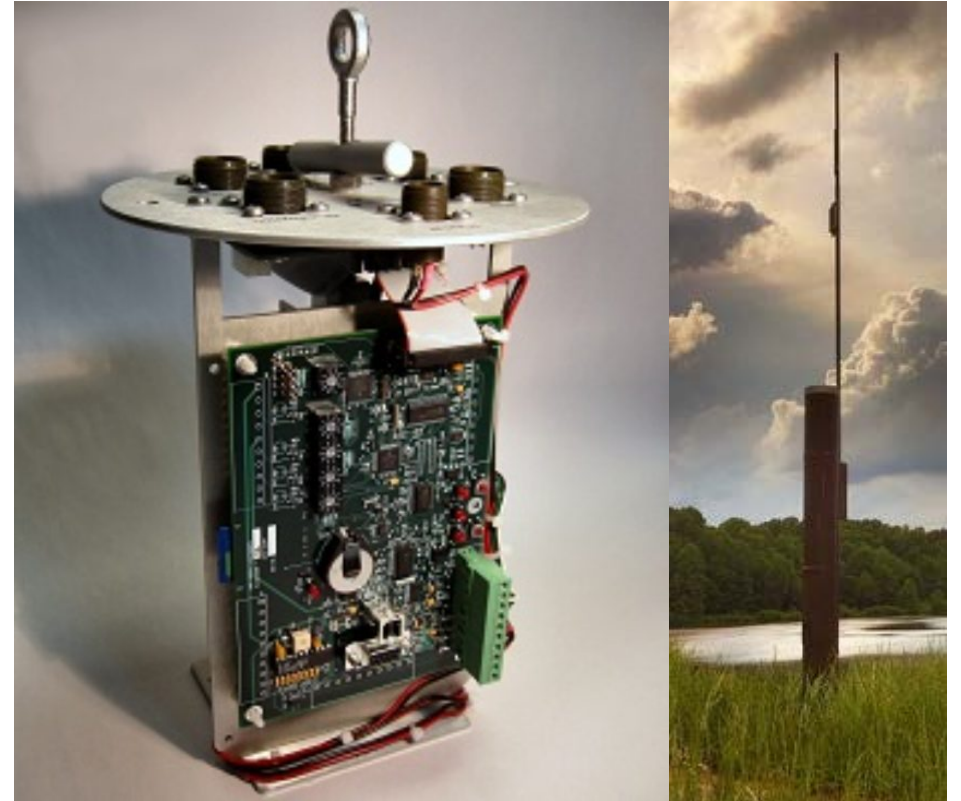
- Radio Antennae

Data Management Services:

- Data is stored on in-house servers
- Data is also used and displayed by NWS
- Data is transmitted when change occur. If no change, then data is being transmitted every 12 hours.

Sensor / Station Setup:

- Solar and Battery Powered Station
- Rain Gauge Sensor – Tipping Bucket
- Water Level Sensors – Radar and Pressure Transducers
- Configurable Data Transmitter



Trempealeau County – Installation



HIGH SIERRA ELECTRONICS, INC.
environmental monitoring solutions

Installation:

- Third-Party contracted for installation
- 10-ft aluminum standpipe encasement with security locked access panel
- Secured in place by concrete
- Conduits for water level sensor cables
- Weatherproof design, but desiccants are also used to prevent moisture damage to electronic components.
- Station is covered by wooden box during winter months to protect station from extreme weather.

Pole Mounting Option with Telemetry Cabinet:

- Offers a height adjustable option
- More portable option for relocating stations
- Weatherproof



Trempealeau County – Whitehall



National Weather Service
Advanced Hydrologic Prediction Service

weather.gov

Home
News
Organization
Search for:
NWS
All NOAA
Go

Return to: [Trempealeau River Point Selection Page](#) Important Note: Book-marking page saves current search criteria

Jump to Location

Trempealeau River At Whitehall (WHIW3)

Flood Stage: Not available Latest Stage: 3.12

Current Warnings/Statements/Advisories: None currently.

Complete information about the Trempealeau River at Whitehall available from NWS La Crosse, WI [XML](#) [RSS](#)

TREMPEALEAU RIVER AT WHITEHALL
Universal Time (UTC)

17Z	17Z	17Z	17Z	17Z	17Z	17Z	17Z	17Z	17Z
Jun 22	Jun 23	Jun 24	Jun 25	Jun 26	Jun 27	Jun 28	Jun 29	Jun 30	Jul 1

Site Time (CDT)
--- Graph Created (12:30PM Jun 30, 2020) ● Observed

WHIW3(plotting HGIRR) "Gage 0" Datum: n/a
Observations courtesy of Trempealeau County

RECONYX CAMERA – Hyperfire 2 Cellular IR Camera

Features:

- Wide Screen – High Definition Images
- Color by day, Infrared by night
- Remote viewing capability through mobile app / software
- Time-lapse options for capturing images and managing data
- External Trigger option is programmable for water level or water contact sensor
- Embedded GPS
- Battery Life of 5,000 images or 1 year
- External battery option also available to utilize a 12V power source if needed.
- Verizon or AT&T 4GLTE compatible
- Weather durability
- Price Estimate \$660
- Yearly data plan charges would apply



Photo taken from top of PL-566 dam in La Crosse County.
Camera monitoring of trash rack

Little La Crosse River Watershed – Monitoring Station Planning

Site 1. Town of Leon – Jancing Avenue Crossing

Station Setup: Water Level Sensor, Camera Sensor, Road-side Warning

Site 2. County Road F Crossing

Station Setup: Water Level Sensor, Camera Sensor

Site 3. Nebraska Avenue Crossing

Station Setup: Water Level Sensor

Note: This will also serve as a monitoring site as part of the Fisher and Farmers Partnership Grant

Site 4. Market Road Crossing

Station Setup: Water Level Sensor

Note: Village of Cashton Wastewater Treatment Plant has a rain gauge station. Coordinate data sharing.

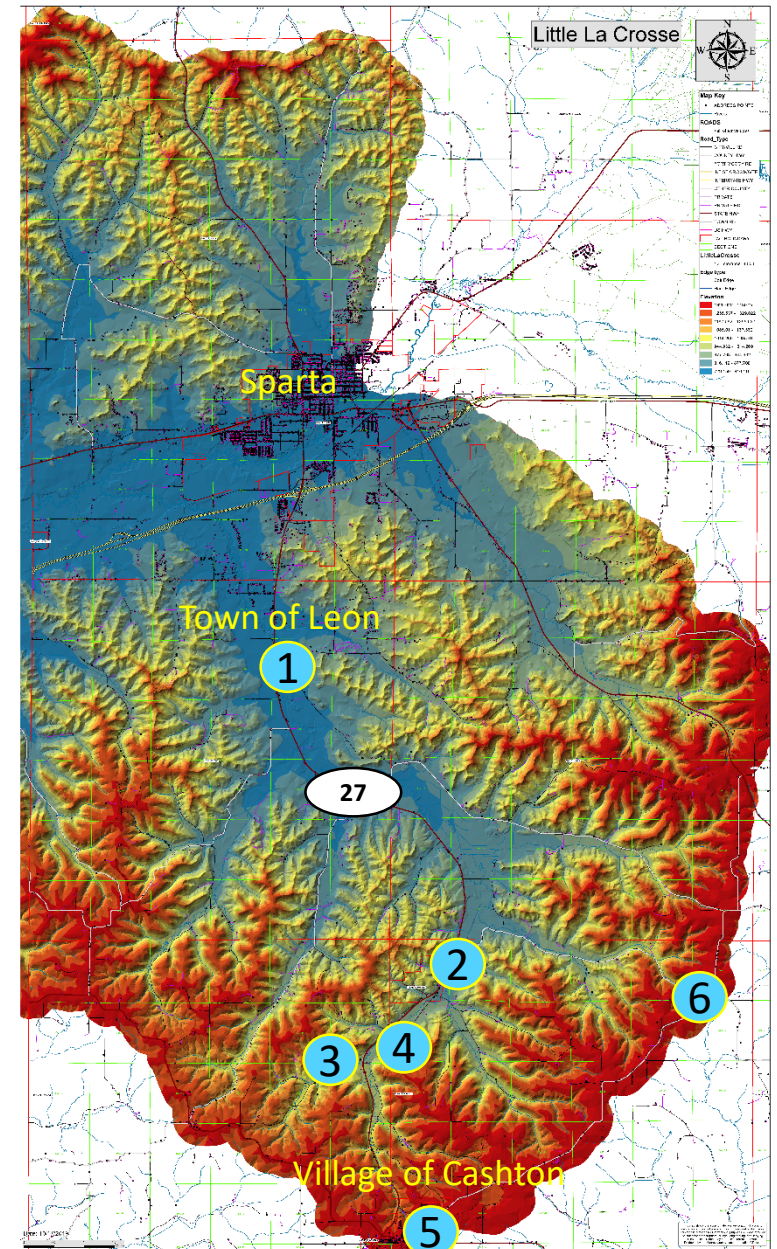
Site 5. Village of Cashton

Station Setup: Rain Gauge Sensor

Site 6. St. Mary's Ridge

Station Setup: Rain Gauge Sensor

All sites had good coverage on both Verizon and AT&T's FirstNet (first responders) Networks.



Kickapoo River Watershed – Monitoring Station Planning

Site 1. Village of Norwalk – Railroad St. Crossing

Station Setup: Water Level Sensor

Site 2. Village of Wilton – St. Hwy 71

Station Setup: Water Level Sensor

Note: Establish rain gauge in Village of Wilton

Site 3. County Road Z

Station Setup: Water level sensor, rain gauge sensor

Site 4. County Road T Crossing

Station Setup: Water Level Sensor

Site 5. Village of Ontario

USGS Gage Station – data sharing

Site 6. St. Mary's Ridge

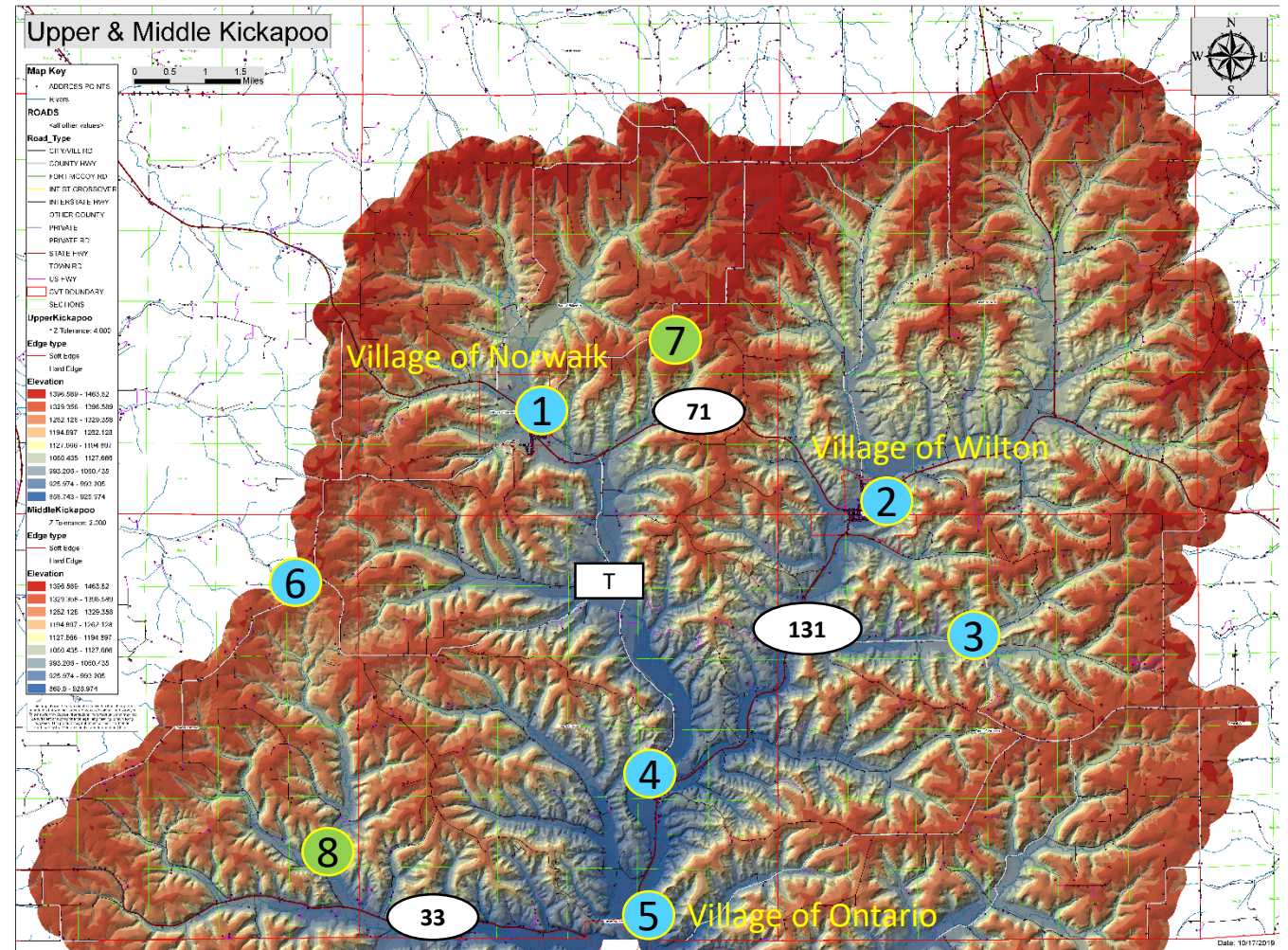
Station Setup: Rain Gauge Sensor

Site 7. County Road U – Helgren Farm

Weather Underground Registered Personal Weather Station

Site 8. Nevada Rd. – Firefly Ranch

Weather Underground Registered Personal Weather Station



All sites had good coverage on both Verizon and AT&T's FirstNet (first responders) Networks.