

Village of Sherman
Comprehensive Stormwater Management Improvements Project
Documentation of Health & Sanitary Issues

Increased concern with the frequency and severity of flood events, as well as the quality of runoff to French Creek, has elevated the need for building community resiliency and protecting community assets and residents from reoccurring stormwater runoff impacts. The Village Board's desire to mitigate the flooding impacts from more frequent and intense storm events is driven by its role to *"protect the health, welfare and safety of its residents and business owners"*.

The proposed *Comprehensive Stormwater Management Improvements Project* is being planned and developed on the heels of two large-scale public water and wastewater infrastructure asset renewal projects, currently under final design. The wastewater improvements project has been funded in large part by a USDA Rural Development loan and grant. A large component of this project is removal of sources of extraneous flow in the form of inflow and infiltration (I/I). The Village has completed several repairs in its collection system to remove direct stormwater inflow sources, noting that some of these were attributed to sanitary manholes located within or adjacent to unmaintained drainage ditches and swales for which the Village does not have easement access to maintain. Removing I/I will reduce hydraulic overloading of the sanitary collection system, which will mitigate the occurrence of sewer surcharging and raw sewage backups in basements. Additionally, I/I removal will reduce hydraulic overloading of the wastewater treatment plant (WWTP) and influent pump station, reducing SPDES permit excursions and improving water quality in French Creek, a Class C stream which drains to the Allegheny River.

Stormwater runoff from the 562-acre drainage basin into the Village has historically caused severe and reoccurring localized flooding and property damage at several locations within the Village. The drainage basin is primarily ruralized agricultural and wooded land. Natural drainageways are generally comprised of meandering channels overgrown with brush before ultimately entering the closed-pipe systems within the more densely populated residential and commercial areas of the Village. These pipe systems are undersized and cannot adequately convey peak runoff rates from the high intensity-short duration precipitation events that have become more prevalent with climate change. Closed systems are frequently plugged by brush and other debris dislodged during peak runoff events. The project proposes to address the flooding issues within in each of the sub-basin drainage areas through construction of wet and dry detention ponds above closed pipe systems. Once the ponds are constructed, areas most severely impacted by localized flooding will experience reduced occurrence and severity of flooding, including:

- Drainage Area 4: Residences fronting the north side of First Street will experience reduced basement flooding following construction of a cut-off swale equipped with a

French-drain style pipe system to capture/convey runoff to the Drainage Area 4 outlet channel.

- Drainage Area 3: Residents fronting the west side of Columbia Street will experience reduced flooding of backyards and basements following construction of the Project No. 5 dry-detention pond and improvements to the back-lot swale. Similar impacts will be reduced at the low-lying Columbia Street/Park Street intersection.
- Drainage Area 3: Residents adjacent to the natural outlet channel from the Nature Conservancy Pond watershed will experience reduced flooding following construction of pond enhancements under Project No. 3 which will attenuate peak runoff rates prior to entering the undersized culvert at Park Street.
- Drainage Area 3: Flooding within the High School athletic field open channel, which is an extreme safety hazard to students and children using this area, will be greatly reduced following Pond enhancements and pipe replacement by the Village DPW at the E. Main Street pipe crossing.
- Drainage Area 1: Flooding of the commercial property and building at the Inn On Main near the intersection of W. Main Street and Church Street will be substantially reduced following construction of the Project No. 4 detention pond and associated cleaning and maintenance of the downstream outlet channel above the entrance to the W. Main Street cross-culvert.
- Drainage Areas 1 and 2: Flooded streets and sidewalks within the downtown business district will be substantially mitigated through implementation of green infrastructure practices on Church Street, Miller Street, and Willard Street, improving the overall safety and welfare of pedestrians and business owners within the business district.

In summary, the proposed Project will mitigate health and sanitary issues that result from reoccurring localized flooding of private properties, residential and commercial buildings, public school athletic fields, and Village streets and sidewalks, and collectively improve the long-term health, welfare and safety of all Village residents.