Stormwater Management
Frequently Asked Questions

1. What are the components of the Village's sewer system and how is it designed?

The Village's sewer system is comprised of three different types of sewers: combined sewers, storm sewers and sanitary sewers. The purpose of these systems is to transmit storm water and sanitary waste to either a local water waterway or treatment facility.

A combined sewer system is an antiquated type of sewer system that combines storm water and sanitary waste in a single pipe. Combined sewer systems were the prevalent technology in the 19th and early 20th century as they were less expensive to construct. By the 1930's limitations of these systems were realized and were no longer the preferred option. However, once these types of systems are constructed it is typically cost prohibitive to rebuild the system as a separated sewer system.

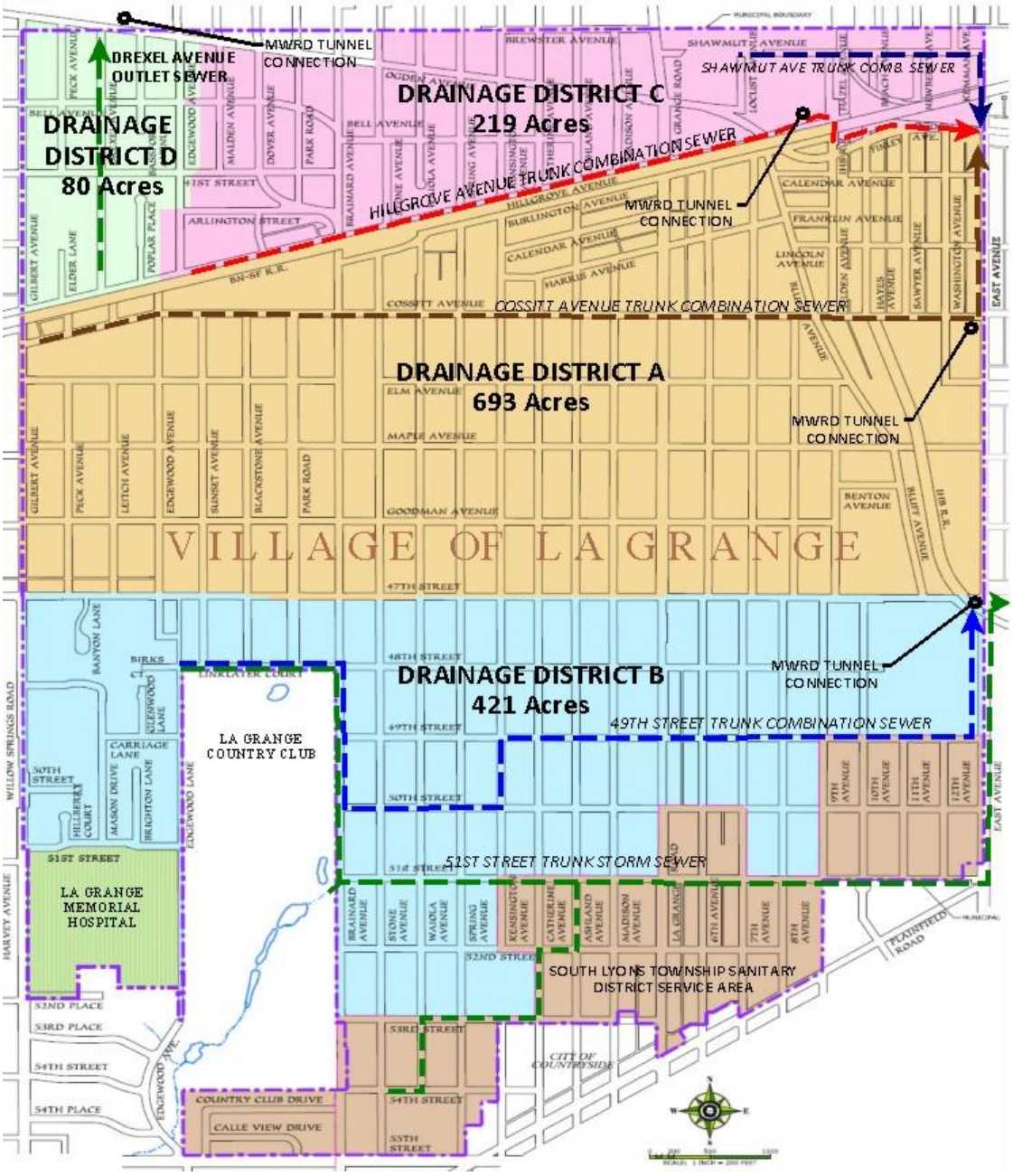
A separated sewer system is comprised of a storm sewer that collects rain and discharges it to a local waterway, and a sanitary sewer that collects sewage and transmits it to a local waste water treatment plant.

In La Grange, the first sewer systems were installed in the 1880s. The Village sewer system works by gravity and there are no pumps or valves on the system that redirect or control water flow from one area to another. The Village's system is comprised of the following components:

- Combined Sewers - 38 miles
- Storm Sewers - 7 miles
- Sanitary Sewers – 23 miles

Pipe sizes within La Grange range between 8" and 120" (10 feet) in diameter.

The following is a map showing the different drainage basins within the Village


DREXEL AVENUE OUTLET SEWER
MWRD TUNNEL CONNECTION
DRAINAGE DISTRICT D
80 Acres
DRAINAGE DISTRICT C
219 Acres
SHAWMUT AVE TRUNK COMB. SEWER
HILLGROVE AVENUE TRUNK COMBINATION SEWER
MWRD TUNNEL CONNECTION
COSSITT AVENUE TRUNK COMBINATION SEWER
DRAINAGE DISTRICT A
693 Acres
MWRD TUNNEL CONNECTION
VILLAGE OF LA GRANGE
MWRD TUNNEL CONNECTION
DRAINAGE DISTRICT B
421 Acres
49TH STREET TRUNK COMBINATION SEWER
LA GRANGE COUNTRY CLUB
51ST STREET TRUNK STORM SEWER
LA GRANGE MEMORIAL HOSPITAL
SOUTH LYONS TOWNSHIP SANITARY DISTRICT SERVICE AREA
BN-SF R.R.
IHB R.R.
EAST AVENUE
WILLOW SPRINGS ROAD
HARVEY AVENUE
PLAINFIELD ROAD
CITY OF COUNTRYSIDE
COUNTRY CLUB DRIVE
CALLE VIEW DRIVE

2. How does the system function?

During dry weather, the Village sewers collect waste water and transmits the water to Metropolitan Water Reclamation District (LINK) (MWRD) interceptor sewers. These interceptor sewers, which are regional large diameter sewers, transmit the water to treatment facilities. Waste water from La Grange is managed at MWRD's Stickney Plant where it is treated and discharged to local waterways.

During wet weather, rain water is combined with waste water and transmitted through Village sewers to MWRD interceptor sewers and the MWRD deep tunnel system. During significant rain events, these systems can reach capacity and overflow into MWRD reservoirs designed to store the water and local waterways.

3. What causes flooding in La Grange?

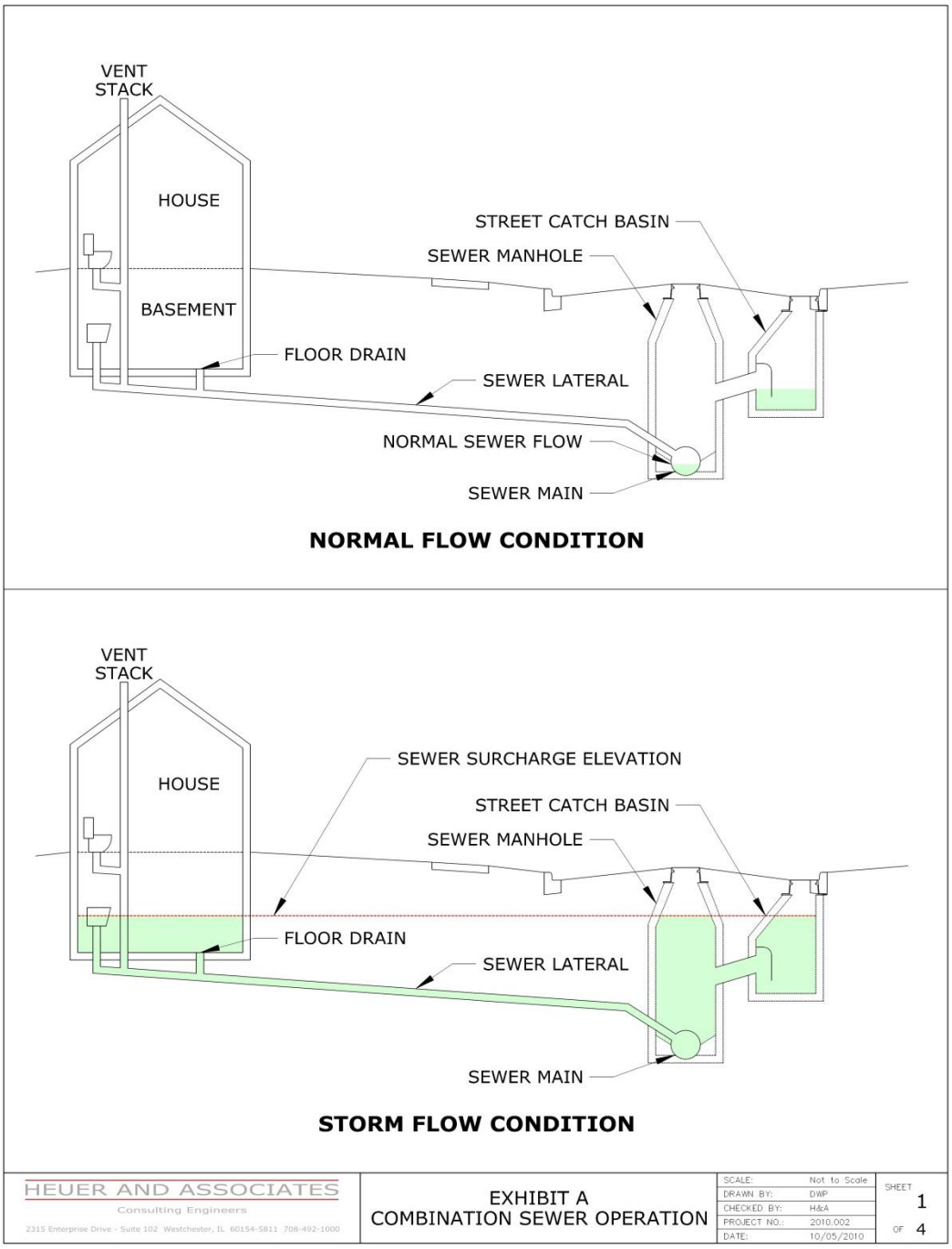
Flooding is the result of the inability to transmit either sanitary or storm water away from normally dry areas. In La Grange, flooding is generally caused by the following:

1. A rain event that exceeds the capacity of the sewer system or waterway
2. Improper grading and low lying depressional areas
3. Blocked or collapsed sewer

The term "flooding" related to residential properties is generally categorized into the following three categories:

1. **Seepage**. In this case, water builds up against a foundation and the hydrostatic pressure from the water pushing against the foundation enters the home through joints, cracks or overwhelmed sump pump systems.

2. **Combined sewer backup**. A combined sewer backup occurs when water from the Village's combined sewer system surcharges through the private sanitary sewer lateral into the home through a basement floor drain, toilet, shower, sink or other low orifice. The following is a detail that shows a cross section of a home and a combined sewer backup.



3. **Overland flow**. The third type of residential flooding is overland flooding where water builds up in a rear yard or from the street and enters a home through an opening such as a basement window or front door.

4. Why did I flood in the most recent rain event?

From Saturday, May 16 at 10:00 pm to Sunday, May 17 at 11:30 pm approximately 4.23 inches of rain fell in La Grange. This is in addition to the 2.18 inches of rain that fell over the prior two days on Thursday, May 14 and Friday, May 15. The Village's sewer system was operating normally and not surcharge through Sunday afternoon. At approximately 5:45 pm the rain storm intensified, which resulted in the sewer systems reaching capacity and surcharging into basements and low lying areas.

Flooding was experienced in all drainage basins within the Village. As the rain event intensified, flooding in all depressional areas occurred. Once the sewer systems and depressional areas were filled, water began to flow overland through streets and across other drainage paths. At 11:30 pm on Sunday, the water levels in the sewer systems began to recede. The sewer systems were operating normally a few hours later.

Preliminary analysis indicates that the flooding from this rain storm was not the result of a collapsed or blocked sewer, but rather was the result of a sewer system that reached capacity. In some areas this resulted in depressional areas filling with water until the Village's sewer system could drain the additional storm water.

5. How can flooding be reduced or prevented?

Solutions to reduce flooding depend on the type of flooding experienced, and could involve public and/or private property improvements.

Public improvements that seek to increase the capacity of the Village's sewer system are intended to reduce the incidences of overland flooding and combined sewer backups. By adding additional capacity, the water level in the Village's sewer system is lowered thus reducing the frequency of water backing up into basements and storing on streets. However, adding capacity to the combined sewer system does not completely reduce the risk of flooding as there could be an even larger rain storm that exceeds the sewer capacity. Therefore, the Village recommends that private property improvements that prevent combined sewer backups, such as overhead sewers, be implemented as there remains a risk of a backup due to the nature of a combined sewer system. More information regarding planned public improvements is provided in other FAQ responses.

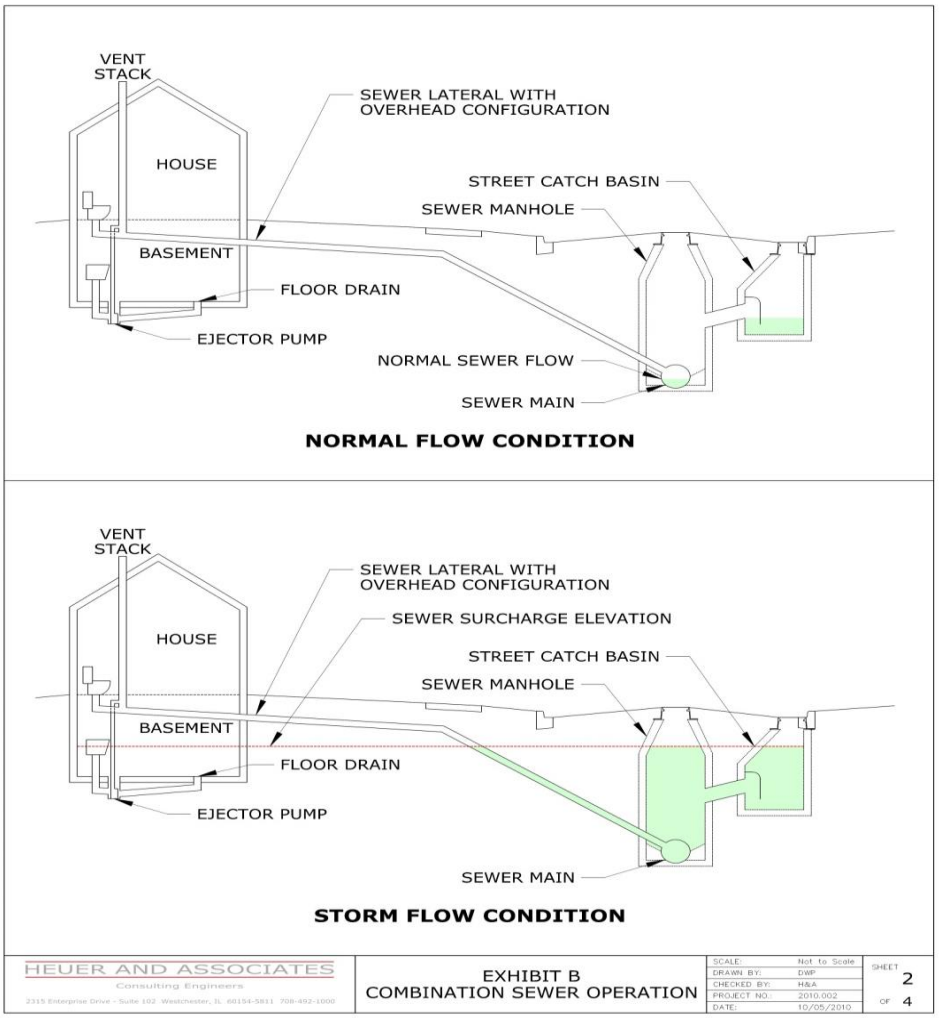
The installation of overhead sewers or sump pumps will not address some cases of flooding where water flows overland into low lying areas. In these cases,

adding capacity to the sewer system is necessary to reduce the frequency of flooding.

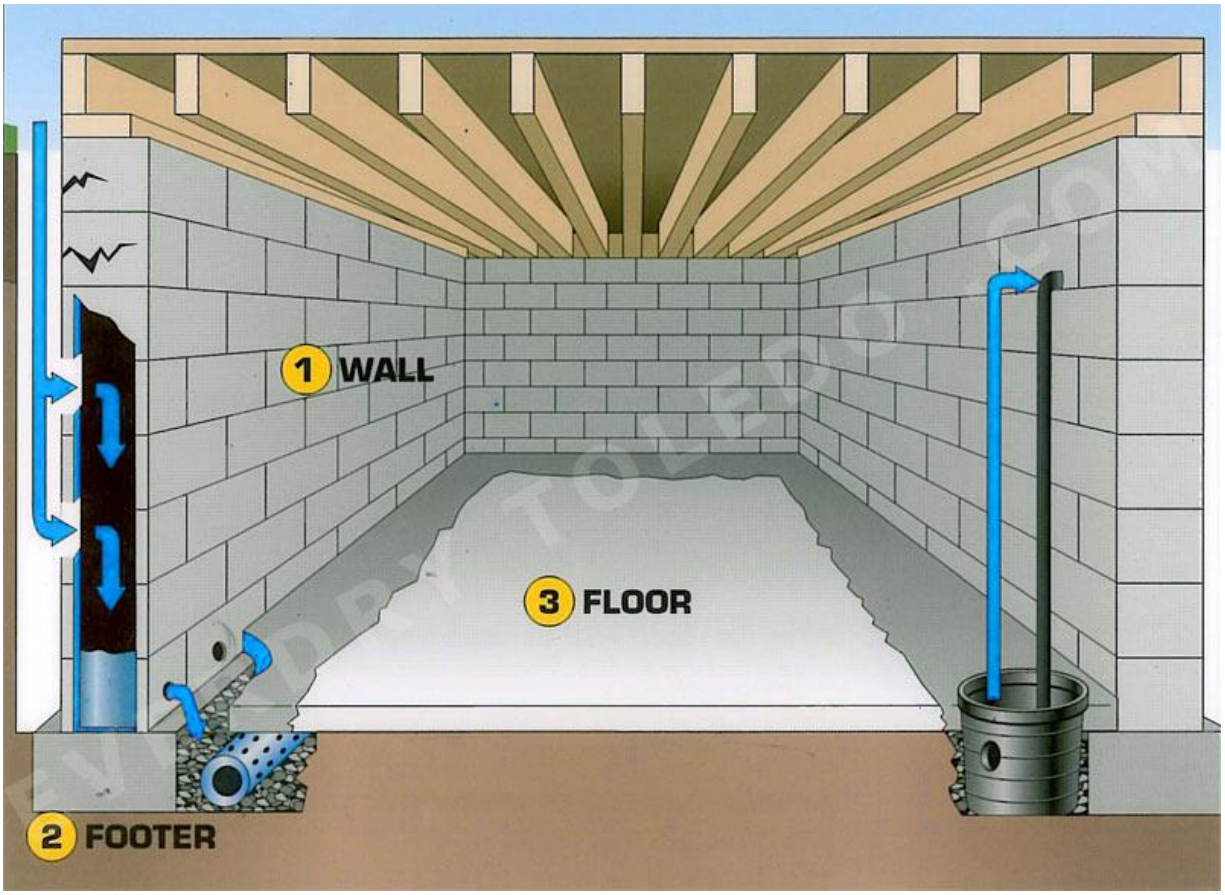
Other public initiatives that seek to reduce flooding include proper maintenance of the sewer system. These activities include sewer televising, cleaning, sewer lining and repair. The Village budgets and performs these maintenance activities on a yearly basis.

Again depending on the type of flooding, private property improvements could include an overhead sewer system to address a combined sewer backup, drain tile and sump pump installation to address seepage, or regrading property to direct water away from structures.

Below is a diagram that shows the general installation of a combined sewer system and how it protects a property from a combined sewer backup.



Normally to address seepage inside an existing property, internal drain tile is installed that connects to a sump pump. The sump pump then discharges the water to an outside area. The internal drain tile is usually installed by cutting open the concrete floor in a basement and installing perforated pipe below the floor elevation. The following diagram shows the installation of internal drain tile and sump pump system to address seepage.



For any plumbing modification, a permit is required (LINK). The Village recommends that residents seek qualified, licensed plumbers to complete the work. The Village also recommends that residents obtain three quotes and check references.

6. What steps has the Village taken to add capacity to the Village's sewer system?

The Village has completed drainage studies for each of the major drainage areas within the Village. These reports assess the capacity of the existing infrastructure and make recommendations for improvements and can be found on the Village's website.

For the area **south of 47th Street** (LINK), the Village has been pursuing the installation of a relief sewer along 50th Street from East Avenue to Waiola Avenue, and laterals to depressional areas. The proposed sewer is designed to drain depressional areas south of 47th Street and remove storm water from the combined sewer system thus reducing the frequency of combined sewer backups and overland flooding. Funding for the 50th Street Storm Sewer was obtained through a 2015 voter-approved La Grange referendum. In December, 2018, the Village and Hanson Material Service Corporation agreed on the terms of a settlement agreement related to the 2016 litigation brought against the Village by the quarry regarding this project. The settlement agreement establishes a framework for the design and construction of the 50th Street Storm Sewer in La Grange and necessary connecting pipe to convey storm water to regional waterways. The Village has been working on developing plans and approvals with the MWRD and other partners in order to further the project. Once the agreements have been approved, engineering will begin, followed by construction. The Village anticipates that the project will take five years to construct. The total Village cost of the project is estimated to be approximately $15.7 million.

For the central drainage basin, generally between 47th Street and the BNSF Railroad, the Village has developed and constructed portions of a relief sewer called the **Maple Avenue Relief Sewer (MARS)** (LINK)**.** The purpose of MARS is to add capacity to the existing sewer system to address flooding in areas tributary to the Maple Avenue Sewer. The MARS project involves the construction of a relief sewer along Maple Avenue from Bluff Avenue to Peck Avenue. The sewer pipe ranges in size from 60 inches in diameter at Bluff to 24 inches at Peck. The relief sewer intercepts drainage from the existing combination sewers, providing relief for the existing Cossitt Avenue sewer. At Bluff Avenue, the relief sewer redirects dry weather sanitary flow to the sanitary outlet in East Avenue and diverts wet weather storm flow to the deep tunnel outlet. The MARS sewer is currently constructed up to La Grange Road at a cost of $5.8 million. The total cost of the project is estimated to be $11.2 million (2014). While plans are in place to extend MARS to Sunset Avenue, funding for this project has not yet been identified.

The **Ogden Avenue Relief Sewer (OARS)** (LINK) project involves the construction of a relief sewer along Ogden Avenue, Ashland Avenue, and Bell Avenue to improve the drainage characteristics of the watershed. A preliminary engineering study of the project was completed in 2011. Like MARS, OARS is designed to add capacity to the existing sewer system and redirect rain water to the deep tunnel system. While plans have been designed for OARS, funding for this project has not yet been identified. The cost of the project is estimated to be $6 million (2014.)

7. Will I have to pay for a permit for flood mitigation projects on my property?

The Village waives homeowner permit fees (third party review and inspection fees are still applicable) for projects to address flooding such as overhead sewer installation, and drain tile and sump pump installation.

8. How do I clean my house after a flood?

The IDPH provides guidance (LINK) for residents that have experienced flooding and sewer overflows.

9. How is storm debris / damage item picked up?

Please visit the Village website for instructions on disposing of flood damaged items. Typically flood damaged items are picked up on the same day as regular refuse and may not require extra stickers. You may also contact the Village's waste hauler for disposal options.

10. What does the Village require for projects such as a new house, addition or planned development in terms of storm water management and grading?

The Village requires that a grading and storm water management plan be submitted by a civil engineer for developments that exceed certain thresholds. These plans are required to address localized grading around the property and to reduce the impact of storm water from residential development on the limited capacity sewer system. For a typical new home, storm water management includes the installation of below grade retention systems that are designed to store and infiltrate storm water that is generated on the site. In the storm event on 5/17/2020, these storage systems are also overwhelmed resulting in water pooling in low lying areas. Additionally, the plan establishes grading elevations on the site for compliance with local codes and generally accepted engineering practices. The Village continues to assess development and existing codes for updates and implementation of best practices to reduce flooding. The Village's stormwater management requirements are located on the Village's website (LINK).

Several recent large-scale planned developments included the installation of storm water management infrastructure to reduce the impact on the Village's sewer system.