



FLOSSMOOR

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March 11, 2024

Dear School District 161 Board Members:

Thank you for allowing the Village to present to you at the School District’s February 19 meeting regarding the potential Heather Hill Detention Basin to alleviate stormwater flooding throughout the Village. The School District Board Members posed many questions regarding the project; in response to these questions the Village has comprised this letter and several documents for your information. This information is provided to help you better understand the need to use the open land behind Heather Hill Elementary School for the community’s benefit.

We hope this additional information helps you understand that this project has been well vetted; and, while there are some opposed to the project, there is overwhelming local support for the project. This support is evident in conversations with many residents, letters to the village from residents and local business owners, and the Village’s successful bond referenda with over 80% support by the voting public.

Finding the available land in a built environment has been challenging, and like similar projects in other established communities, we are turning to our adjacent governmental entities (School District and Park District) for assistance as two of the few entities with open land in our built-out community.

This is an issue that has major impacts on our community. The proposed project serves our mutual constituents and cannot be successful without the cooperation of the School Board. If the School Board will not permit the Village an easement for this project, we will not be able to move forward now.

Historical Rainfall

On September 27, 2019, seven inches of rain fell in 20.5 hours. Attachment 1 includes an in-depth discussion of rain event definitions. This 2019 event was considered a ~97-year storm at the time, and now considered a ~44-year storm with updated definitions.

Data pulled from the United States Geological Society’s rain gauge goes back 4.5 years, and the closest rain gauge is in Matteson, IL. During this time, the gauge experienced:

- 8 1-2-year storm events
 - 3 2-10-year storm events
 - 0 10-25-year storm even
 - 1* 25–50-year storm event
 - 0 50-year or larger storm events
- * Denotes 2019 extreme event

Life Safety

Life Safety is the Village's primary concern, and this is a significant issue at the Flossmoor Road Viaduct. The Viaduct floods frequently (multiple times per year). There have been incidents where vehicles have become trapped in the flood waters under the viaduct, and emergency personnel have had to rescue motorists from these vehicles.

The larger concern is the lack of access from the west side of the Village to the east side. The Village's emergency services facilities (police, fire, EMS, public works) are all on the Village's west side. Our emergency services do not have efficient access from one side of the Village to the other when the viaduct floods, adding minutes to likely time-sensitive situations. In addition, there is significant inconvenience imposed on our residents and commuters – including school parents and buses.

Private Property Damage

The 2019 event was extremely damaging to the downtown area and private property throughout the community, especially in Heather Hill. The Village received reports of **105 homes flooding throughout the community**, as well as the Civic Center. Approximately 30 of these homes were in the Berry Lane project area.

The Civic Center building, the hub of our downtown, suffered approximately \$240,000 in damages on September 27, 2019, which included cleanup of flood debris, replacement of lower-level mechanical equipment, and replacement of damaged store items. Additionally, the Coldwell Banker tenant left the corner office following the flood, leaving that space vacant for almost three years, which cost the building owner a reported \$360,000 in lost rent revenue.

The building owner reports that flood damage had also occurred years prior, but they did not have records to support. Coldwell Banker was not the only business that the Village lost due to flooding. A salon and children's clothing store also were not able to reopen. The Conservatory Vintage and Vinyl lost inventory. Over the years, several of our local business owners have also been Village residents, which is still true today. Businesses in the downtown area owned by Village residents include Gypsy Fix, several of the Shops on Sterling, Conservatory Vintage and Vinyl, Leeland Grove Law, and Healthy Hounds. Included are letters of support from property owners and your local business community.

Both the storm sewer and sanitary sewer structures are located within the viaduct flooded areas and are likely to be hydraulically connected to the building's sewer connection, given the age of the buildings. As such, the Civic Center basement could potentially start experiencing surcharging in as low as a 1-year rain event. The Civic Center building is 95 years old and, like the Village, includes some aging infrastructure. Addressing any internal plumbing of the Civic Center is the owner's responsibility. This project will reduce the frequency by which the stormwater will approach the Civic Center.

Stormwater Study

The analysis performed understands the viaduct to be impassible, or "flooded" when the water depth within the viaduct exceeds nine inches, and similarly understands the Civic Center to be at risk for flooding when the water depth reaches the top of the sidewalk at the entrance to the building located at the corner

of Sterling Avenue and Flossmoor Road; the water reached this elevation when the ponding in the viaduct is approximately 3.4 feet deep.

Storm modeling data shows that the viaduct would have likely flooded on average three to four times a year. Based on available Police, Fire, and Public Works records, the Flossmoor Road Viaduct was closed to flooding on 7/7/98, 7/21/03, 7/29/03, 11/18/03, 2/28/17, 4/30/19, 9/27/19, 5/18/20, 5/23/20, 6/30/21, 8/25/21 and 3/31/23. These records were gathered by researching if someone called the Village to report the flooding or report a vehicle submerged in the flood waters.

Anecdotally, we know that the viaduct has been closed at other times, but we do not have a record of it. The Village does not keep records of self-initiating the viaduct's closure due to it being impassable; in these cases, Police, Fire or Public Works is simply requesting assistance by radio or telephone for barricades to be placed until flood waters recede, at which point Village personnel remove those barricades. While our records are not complete, our documented and anecdotal experience corroborates the predictive closures from the modeling.

Design Criteria

The goal of the Viaduct Flooding Improvement project is to provide 10-year capacity to both Berry Lane and the Flossmoor Road Viaduct in addition to as much protection as practical to private property structures. We defined "capacity" to ponding of less than 10 inches deep, which is passible by most vehicles. The industry standard is to design a storm sewer that allows roadways to be passible in a 10-year event. This design standard is driven largely by the Illinois Department of Transportation (IDOT) as this is their requirement for any project constructed on IDOT Right-of-Way or funded with IDOT funds. In addition, the 10-year event is used across the country as the design storm for roadways.

Currently, the viaduct floods in less than a 1-year event, the Civic Center becomes at risk of flooding in approximately a two-year event, and Berry Lane currently (after the paver and sewer project constructed in 2022) will start to see street flooding in an approximate 5-year event. Impacts of a project must be considered in great detail. Another design criteria is to not cause additional flooding somewhere else in the watershed, as well as to mitigate other impacts as much as possible. Being a good neighbor was discussed and, in this case, it is intended as not causing additional flooding downstream of the area we are addressing, in other words, not "pushing the problem downstream". Downstream of the viaduct are residential properties within the Village and communities east of it.

The Modeling shows that a new larger sewer straight to Butterfield Creek, without significant detention, would increase the potential for flooding along Butterfield Creek, both within the Village and in downstream communities. Increasing downstream flooding would neither be a responsible design, nor would it be a permissible design by regulatory agencies. Both the Illinois Department of Natural Resources – Office of Water Resources and the Metropolitan Water Reclamation District of Greater Chicago (MWRD) have authority over Butterfield Creek. MWRD was granted authority by the Illinois general assembly in 2004 and they have identified Butterfield Creek as a sensitive waterway. Projects that increase flooding along the Creek are not permitted.

Alternatives Analysis

This project included an exhaustive investigation for options to meet the project goals. Many alternatives were considered, and most were either unavailable or viable. The potential detention sites considered were:

- Behind Bunker Avenue
- Highlands Park
- the Sterling Avenue Parkway - along the west side of railroad tracks
- Leavitt Park
- Flossmoor Park
- The South Commuter Lot
- The Triangle Parcel (at Governors/Kedzie)
- Flossmoor Golf Club
- Idlewild Country Club
- The vacant downtown parcels
- Heather Hill Elementary School

Potential detention locations were eliminated for various reasons, including open space too small, locations upstream of the project, complications from existing floodplain, and land assembly. The Flossmoor Golf Club would have been an effective solution, but they were not willing to work with the Village. Additional creative design solutions have been considered, such as splitting detention across multiple private properties. However, this type of solution would be achieved at a significant cost increase that would have a negative impact on our shared taxpayers.

To provide 100-year protection for the Viaduct, a much larger basin would be necessary. To achieve this, either the footprint would need to expand to include most of the area of Heather Hill school property or the depth of the basin would need to increase significantly, requiring pumps and vertical walls close to 20 feet surrounding the basin. Also, much larger pipes would be required to convey stormwater from the Viaduct, significantly increasing the project's cost.

The Village Board has concluded that Heather Hill School is the most effective, viable, and financially responsible option following this exhaustive review of alternatives by subject matter experts. Since filling your request for additional information, we identified a 1985 engineering study proposing solutions for several Village stormwater issues. Even then, it was determined that a detention basin placed behind Heather Hill School is the best option. An excerpt of that study is included as Attachment 2.

Funding and Support

At the time of the September 2019 storm event, the Village Board was already planning to go to referendum to finance bonds to accomplish a comprehensive street resurfacing program. The Village had identified approximately \$20 million in needed street improvements. With the extensive damage that occurred from the viaduct flooding, the Village pivoted and asked for funding to support stormwater improvements, street resurfacing and associated sidewalk work. **That referendum passed by an 80% voter approval rate.**

The Board then directed staff to pursue as much grant funding as possible for the stormwater improvements so more bond monies could be used for street resurfacing. Street resurfacing is considered maintenance, and grant funding is not available for that work. Some of the bond funds have already been used for the Berry Lane Improvements and Phase 1 of the street resurfacing. Of the \$10 million in bond funds received, the remaining bond funds for the Flossmoor Road Viaduct Project and potentially another phase of street rehabilitation work is \$5,683,612. The project is estimated at \$7.8 million.

The Village has secured \$3.2 million in grant funds over the past four years and is pursuing additional grant funding. Every year many communities apply for a very limited number of grant dollars; many do not receive any funds, let alone so many separate grant awards for a single project. We would be hard pressed to gather this amount of funding in the future. The success of this project in securing grant funding supports the validity and need for this project.

Heather Hill Basin Project Details

Flooding on Berry Lane is also improved with the proposed project. While the Berry Lane Improvements have already mitigated some street flooding following smaller rain events, the Heather Hill Basin is required to achieve 10-year event protection for the streets. Furthermore, homes on Berry Lane currently have ~25-year protection before structures begin to flood; under proposed conditions, this protection is increased to the 50-year event.

A dry bottom detention basin is safe. As designed, when at its capacity, the basin will have a maximum water depth of 12 feet. Modeling shows that it will drain in nine hours or less and will not provide an opportunity for mosquito larvae to form. The Village has had no safety incidents at any of its other existing basins, even wet-bottom basins. Attached are copies of emails to Heather Hill resident Ashly Giddens and David Linnear. Included in that material are examples of existing basins in Flossmoor compared to the proposed basin.

The slope is similar to Leavitt Avenue Park detention basin, which is at a depth of six feet unfenced, next to a park and nearby to a school. The fence is not a requirement, but added insurance for those who are concerned. Given its location adjacent to the wooded right-of-way, the proposed vegetation should not attract any additional suburban wildlife beyond what we already experience in Flossmoor. In fact, the natural vegetation will improve an area that Dr. Smith and other school officials have described as “marshy,” “perpetually soggy,” and “unusable.”

Additional Questions

1. Why hasn't the building owner at Flossmoor Road and Sterling Road worked to mitigate flooding by replacing doors, etc.?

Water could still damage the building and seep into other places. Buildings are not watertight. More importantly, the viaduct is over 4 feet deep at this point, which creates a major safety concern. At that depth, the water pressure against the building will cause damage.

2. Have you spoken with other municipalities about other options for the water?

A neighboring community cannot solve this problem for us. Creating detention on open space, commonly park or school district property in established communities, is a common solution within the greater Chicagoland area.

3. Are there any options for flood mitigation that involve Butterfield Creek?

Flood mitigation involving Butterfield Creek is technically feasible. This would entail the alternative plan to route a large diameter pipe to the creek, at a similar cost to the Heather Hill Detention Basin option, PLUS the development of a major regional detention facility along the creek to offset the additional flow. This additional project would well exceed \$10 million on its own as well as the need to acquire a significant amount of property and overcome the design challenges. A more expensive project impacts our shared taxpayers.

4. How long will the playground at Heather Hill be unusable during construction?

For the summer, though if it's important, we could likely develop a plan that allows the playground to remain open during the summer.

5. Can you provide examples/information about the impact on the viaduct if we get [3-, 6-, 8-inches of rain] in 24 hours?

The Critical Duration storm is a 2-hour event. For a 2-hour storm event: a 1-year storm is 1.61", a 10-year storm is 2.99" which results in 6.7' of flooding, a 25-year storm is 3.74" which results in 7.1' of flooding, and a 100-year storm is 4.97" which results in 7.3' of flooding.

6. What were the other options to address flooding at the viaduct?

There are no other options available that will provide a similar level of protection.

7. Why haven't options included using the north conveyance and sending the water down Flossmoor Road?

There is a limit to how much water we can push to Butterfield Creek before downstream properties experience increased flooding; within that limit the benefits to the viaduct are nominal.

8. What will be the impact from bugs/mosquitoes with the implementation of the detention basin?

The proposed basin and associated drainage improvements for the school property will reduce the frequency and duration of ponded water on the school property. Mosquito larvae need 72+ hours of stagnate water to mature to adulthood. The proposed project will limit the ability for water to pond that long within the improvement limits.

9. Why do you have to burn the vegetation?

Controlled burns are an important restoration practice to limit invasive species in natural areas. Controlled burns help prevent non-native and invasive plant species from invading and taking

over natural areas. Controlled burns are a particularly useful stewardship tool to keep invasive shrubs such as buckthorn under control while avoiding potentially harmful chemicals. Burns are conducted by Illinois Certified Burn Managers and trained staff, with consideration given to weather, surrounding areas, and other factors. Controlled burns are practiced elsewhere in the Village and there have been no complaints regarding air quality.

10. Can you just add a slow-release valve to the viaduct?

Adding slow-release valves or restrictors at the Viaduct would further increase the depth and duration of flooding at the Viaduct and areas upstream. This concept would increase and worsen the flooding problem.

11. Can't we send the water to the MWRD Tunnel and Reservoir Plan (deep tunnels)?

MWRD's Tunnel and Reservoir Plan (TARP), also known as the Deep Tunnel, is a system of deep, large-diameter tunnels designed to collect combined sewer (sanitary and storm sewer) overflows (CSOs) from MWRD's service areas with combined sewers. MWRD does not allow connections from storm sewers. The Village is very fortunate to not have a combined sanitary/storm sewer system. Further, the Village is not in proximity to the TARP system, and it would not be feasible to connect to it if it were an allowed option.

Village Transparency

The Village Board has discussed this project on several occasions:

- June 15, 2020
- August 3, 2020 (discussion on bonds)
- August 17, 2020 (discussion on bonds)
- February 1, 2021
- March 6, 2023
- May 15, 2023
- August 7, 2023

All the Village's agenda materials and minutes can be found here. [Meeting Calendar - Village of Flossmoor, IL \(iqm2.com\)](#). In addition, this project has been communicated to the public via e-news, newsletters, Village website, social media, HF Chronicle, and Village Open Houses.

We've included the following materials for your reference:

- Attachment 1 Rainfall Recurrence Information
- Attachment 2 1985 Donohue Storm Water Management Plan (excerpt)
- Attachment 3 Flossmoor Rd Viaduct – FEMA Benefit_Cost Report
- Attachment 4 2005 USACE Flossmoor Road Viaduct Sewer Improvement Report
- Attachment 5 2020 Flossmoor Road Viaduct Alternatives
- Attachment 6 2022 MWRD Stormwater Masterplan for the Butterfield Creek Study Area

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Attachment 7 Letters of support from Marty Max, Dean and Carolyn Armstrong, Maureen Mader, Chogie Fields, Ann Mitchell, Pam Bartusiewicz, Anthony and Lovera Walker, and Tracey Skinner

Attachment 8 Emails to Ashley Giddens and David Linnear

Conclusion and Request

As a result of all the study work that has been conducted, the Village Board continues to support detention storage behind Heather Hill School to provide flooding relief to the Flossmoor Viaduct/Central Business District and Heather Hill neighborhood. This solution is the most viable and cost effective.

Please advise if the School Board will support an easement for this use.

Thank you for your consideration,

Michelle J. Nelson

Mayor Nelson and the Village Board of Trustees