

# Questions from Spring Harbor Comment Period

6/13/21—The City received a variety of questions and comments from residents. Where questions were similar, the City summarized the main question in the “Generalized Question,” responded to that, and listed the specific questions from residents that the generalized questions is addressing beneath, where applicable.

## Contents

Kenosha Greenway .....	1
Forsythia Cunette and North/South Channel in Owen Park.....	7
Glen Oak Hills Park .....	11
Bordner Park .....	13
Gettle Ave Storm Sewer.....	13
Nautilus Drive Detention Pond .....	14
Yellowstone and Quarterdeck Drive Greenways .....	14
Masthead Greenway Ponds.....	15
Mineral Point Park .....	20
West Towne Mall Pond.....	20
Why can’t you put the pond in X location instead of Y.....	20
General questions .....	22

## Kenosha Greenway

1. Generalized Question: Why did the City allow volunteers to improve the greenway if there was going to be a proposed project in the greenway?

Specific questions from residents this question is addressing:

- *...complete disconnect between Parks, who have been encouraging (and facilitating) the residents here to reclaim the Kenosha space as park space, and Engineering who seem likely to turn the whole space into an open ditch, without much reference to anyone*
- *There appears to be no vegetation remaining in this entire area after the work is completed. Our S. Kenosha neighborhood has spent hundreds of hours in the last couple of years clearing this entire area of invasive trees, vines, poison ivy and invasive weeds such as garlic mustard, nettles and burdock. I think what we have is a vast improvement in the Greenway and greatly enhances the recreational value of the property. We have also been promised by the city a supply of native tree seedlings to fill in areas of this greenway. Some of us are also raising milkweed and native tree seedlings for replanting the area. We take pride in our neighborhood and the greenway and strongly object to what appears to be a clear cutting of vegetation in the entire S Kenosha greenway. We have invested sweat equity in these efforts and expect the city to respect these investments.*
- *We have worked so hard to clean up the Kenosha Greenway with city input and have a lot of pride in what we have done. If you were just going to dig it up why encourage our work?*

Response: The City did not anticipate that widening the Kenosha greenway would be necessary to reach their flood goals until we were closer to completion of the study. We have taken the concerns of the neighborhood into account and are going to try to look further into the modeling of this area. One issue is the need to replace the Regent Street Culverts, which are starting to fail and create sink holes in the roadway. We are looking into

ways to plan for the culvert replacements that can accommodate any future greenway work but will not require the greenways to be modified at this time. Funding was budgeted for some work in some of the greenways in this area but upon review of other project priorities those projects have now been put on hold indefinitely. We apologize for any inconvenience and frustration that this has caused and appreciate the volunteer's efforts to improve the native habitat. The improvements the volunteers made will be beneficial from a habitat and flood control perspective until the greenway improvement project is budgeted and constructed—see more information about the typical process for project construction on the [Watershed Studies Additional Information](#) website.

The City will be completing additional modeling in 2022 to explore additional alternatives to the project, and quantify the impact of the project based on updated conditions.

2. Generalized Question: Can you define how much additional flood reduction would result from widening the Kenosha greenway?

Specific questions from residents this question is addressing:

- *overzealous to assume that excavating the waterway between South Hill and Regent St is necessary, especially since the efficacy of other efforts (improved upstream water containment, increased drainage thru Regent St culvert, added swale at Burnett St, and removal of debris from the waterway by neighborhood work team) have not been assessed*
- *With past and current mitigation efforts, I submit that we do not have enough data to justify the proposed major construction project in the S Kenosha Greenway. Maybe after the Research Park projects are complete and we have a few rain events of sufficient magnitude to judge whether flooding is still an issue, we can then make a decision on whether the proposed project is even necessary.*
- *The dredging project seems overzealous. Won't what we do to improve upstream water containment, create a larger Regent culvert, keep the waterway clear of downfall and debris, and the new swale near Burnett be effective in preventing serious flooding?*
- *Regent St culvert replacement need not be tied to dredging the S Kenosha waterway but rather it is more convenient and less costly to do so.*
- *Potential impact of culvert replacement, newly created swale at Burnett, maintenance of waterway free of debris, and planned upstream water retention efforts have not been assessed. We submit that we do not have enough data to justify the proposed major reshaping of the S Kenosha Greenway.*
- *Additionally, it does not appear we have enough data to justify the proposed major reshaping of the S. Kenosha Greenway as the potential impact of culvert replacement, newly created swale at Burnett, maintenance of waterway free of debris, and planned upstream water retention efforts have not been assessed. The Regent St. culvert replacement also need not be tied to the dredging of the s. Kenosha Greenway, but rather it is more convenient and less costly to do so independently.*

Response: Due to the failing culverts under Regent Street at the Kenosha greenway, the City will be creating a series of updated watershed models that help to plan and phase this corridor.

The model will be updated to reflect current conditions, then the culvert will be sized for both long-term capacity needs once downstream flood mitigation protections are in place, and for short-term capacity needs where we will install restrictor plates to make sure we are not creating additional flooding downstream.

The City anticipates replacing and upsizing the failing culvert under Regent Street in 2023, however the culvert will not move more water downstream until downstream capacity improvements are made.

The additional modeling will help phase upstream and downstream improvements, as well as looking at whether a bypass flood relief pipe from Burnett Dr into the greenway north of Regent Street could mitigate or minimize future grading needs in the Kenosha greenway.

3. Generalized Question: Can we increase size of Garner pond or the retention pond on Whitney way to avoid expanding the Kenosha channel?

Specific questions from residents this question is addressing:

- *What about increasing the retention pond on Whitney Way or removing some of the woods just east of Garner Park?*
- *This small piece of nature is critically needed within the neighborhood. It is in solid shape with limited invasives. Garner is highly disturbed and has homeless people routinely sleeping there making it a more challenging space for kids to connect with nature. There are very limited options in this neighborhood. We would be incredibly grateful for efforts to save the mature trees and years of work to create a space that allows some native species to flourish and reminds so many people of the value of nature.*

Response: The Garner Park pond is located directly north of a piece of land the Water Utility owns and has flagged to be a future drinking water well. Due to the potential for groundwater contamination concerns, the Water Utility will not allow for the Garner Park pond footprint to be expanded. Additionally, the pond cannot be expanded west into the park because there is a significant hill there and there isn't space to expand flood storage.

4. Generalized Question: What is the difference between Glen Oak Hills Park and the Kenosha Greenway?

Specific questions from residents this question is addressing:

- *Due to public concern it appears that the Glen Oak green space has been revised. I would hope the Kenosha Green space could have the same consideration.*
- *The Parks Department advocates protecting old growth trees in Garner Park and Glen Oak Hills Greenway, while no similar recognition is noted of the importance of preserving the oak woodland on S. Kenosha. We believe this woodland should be valued as a complete entity, contiguous and all deserving of protection, despite historical divisions by streets, neighborhood boundaries or department oversight.*
- *Historical note: Many years ago, the Parks Department managed all this property. After the decision was made to turn the S Kenosha section over to the Department of Engineering, management was cut back and buckthorn and other invasive species overgrowth occurred and native plants were crowded out. Now the community is presented with further negative consequences of inconsistent management, despite recent efforts of the Department of Engineering to help revitalize the area*
- *The Parks Department advocates protecting old growth trees in Garner Park and Glen Oak Hills Greenway, while no similar recognition is noted of the importance of preserving the oak woodland on S. Kenosha. We believe this woodland should be valued as a complete entity, contiguous and all deserving of protection, despite historical divisions by streets, neighborhood boundaries or department oversight.*

Response: The Glen Oak Hills Park is a part of the official City of Madison park inventory and is documented in the Park and Open Space Plan. There are recreational improvements within Glen Oak Hills Park that Parks has installed and maintained. The Kenosha greenway is mapped a greenway, and is not a part of the park inventory or in the Park and Open Space Plan. Please see [Watershed Studies Additional Information](#) and the [Stormwater Drainage System](#) webpages, for more details on the differences between Parks and Greenways.

5. Question: How does the City weigh habitat and ecological loss against a particular flood solution?

Response: Wherever possible the City avoids tree loss. However, in developed watersheds, there is minimal additional space that the stormwater utility can utilize to either hold back, or convey stormwater. While trees are beneficial for the environment and habitat, they can impede stormwater conveyance—a large forested area slows the water down, which can add to flooding by causing increased backwater elevations. Additionally, channels with too much canopy tend to have erosion issues as the grasses and other vegetation that are necessary to stabilize the ground cannot grow effectively due to the lack of light, lending itself to bare ground. When we cannot purchase sufficient amounts of land to store more floodwater and slow/detain the water

down, another option can be to improve conveyance and speed the water up. In that situation, the common conflict with trees is that we need to deepen or widen a channel in order to move more water through quickly.

When a flood-related project is budgeted, has been through the detailed design process, and has been constructed, the City works to establish native vegetation which has deep roots that help stormwater infiltrate, as well as hold soil in place to prevent erosion. The native vegetation is also very beneficial for supporting the bottom of the food chain in our ecosystem. Insects need native vegetation to survive and when we have healthier insect populations by providing native vegetation for them to eat, live and nest, we support the bird and small mammal population as well. Please see the [Ecological Restoration in Stormwater Ponds and Greenways Storymap](#) for more information.

6. Question: Will there be plantings on the walls of the greenway to prevent the soil on the sides from eroding to the bottom?

Response: As with the majority of our greenway reconstruction projects, there would be native vegetation planted along the walls of the greenway to hold the soil in place. Please see the [Ecological Restoration in Stormwater Ponds and Greenways Storymap](#) for more information.

7. Question: Will there be a barrier or fence on the side of the greenway to keep children out?

Response: There would not be a barrier or fence to keep children out. The greenway will still be conveying the same amount of water as it currently does without a fence, it will just be better confined to the greenway area. Installing fences makes emergency access more challenging in an event that a rescue would need to occur.

8. Question: What will the greenway look like when it is not full of water?

Response: If reconstructed per the concept shown in Figure 31 the greenway will have native grasses and flowers, as well as some native trees such as oaks along the top of the bank. It would follow the typical reconstruction restoration planning process as detailed in the [Ecological Restoration in Stormwater Ponds and Greenways Storymap](#).

9. Question: When the greenway drains under Regent Street, what happens to the homes downstream?

Response: The Kenosha greenway reconstruction won't have an impact on homes that flood downstream. The purpose of the greenway reconstructions is to prevent S Kenosha Dr from flooding and provide emergency access to homes in a 4% chance event, and to prevent homes along Burnett Dr from flooding in the 1% chance event.

Expanding the culvert under Regent St, and allowing additional water to pass through the new culvert, would lead to additional downstream flooding near Gettle Ave. Due to this issue, we will not allow additional water to pass through the new culverts until there is more flood storage and conveyance downstream to manage the additional water. Additional modeling will be completed to look at alternatives as the Regent Street culverts are being designed.

10. Question: Is the function of the greenway water retention or to increase the rate of flow?

Response: The purpose of the Kenosha greenway reconstruction is to widen the greenway to increase the rate of flow through the greenway. Right now, the greenway cannot convey the amount of water that flows through it, so it overtops its bank and flows over S Kenosha Dr and backs up Burnett Dr, which has caused significant flooding of the homes at the Burnett and Kenosha intersection for several decades.

11. Question: The study projects the removal of 13,000 cu ft of soil from the Kenosha Greenway but does not define where this soil will originate. This amount of soil is approximately 40 dump truck loads, not an insignificant amount. Figure 31 needs to define this area more clearly.

Response: Figure 31 shows the existing and proposed contours for the conceptual project. When the project would move from a conceptual project to a budgeted project, we would collect detailed design data and refine the conceptual plans. At that point we would be able to provide a cross section to show the existing and proposed channel width.

Please see [Watershed Studies Additional Information](#) for more information on project construction.

12. Question: RE: Figure 30: Has the new large intake/outfall structure installed this last fall on the east side of Kenosha Dr just north of Regent Street been incorporated into the model? Effective movement of water under Regent is critical in the short term given the structural issues currently affecting this section of road. I hate to see this get rushed, or any emergency actions overtake what would be best from a holistic perspective for the entire greenway. Would a larger box culvert, installed as soon as possible, reduce the need for such drastic loss of trees on Figure 31? Would a large box culvert/storage option under Regent St prevent large changes to the greenspace?

Response: The model was built prior to creating a more robust inflow to the greenway at N Kenosha Drive just north of Regent, so that isn't included in the conceptual model, but it shouldn't impact the solution, as the water was flowing over the curb into the greenway. The City agrees that effective movement under Regent St is critical, as the culverts are not holding up well and are at risk of failing. The City plans to install the appropriate size box culvert under Regent Street in the near future, and limit the amount of water that can move through it with plates until downstream solutions are budgeted, designed, and built. The Regent Street culvert restrictor plates will be sized with the additional modeling the City is completing in 2022, as well as the phasing of upstream and downstream projects.

Unfortunately the volume capacity needed to hold back water to prevent flooding downstream, or upstream at Burnett, is far larger than what we could fit under Regent St. There is only space to convey water under the street, not create a storage facility under the street. This is due to limited footprint of the road, and the surrounding existing utilities. For more information on the infrastructure under our streets, please visit our [Hidden Infrastructure](#) webpage, and our [Flash Flooding Resilience storymap](#).

13. Question: RE: Figure 31: Is there a means by which less drastic loss of trees is possible? I did not see any other options evaluated for this section in the process, other than what is proposed. Is there a means by which to increase the channel size and bowl structure just south of Regent to increase retention capacity without destroying all the trees? Is there an opportunity to replace the degraded bridge due east of Trempealeau Trail with a berm/box culvert to increase retention in localized zone with less loss of trees? ? What about a change at South Hill or along the eastern edge of the park from South Hill to Regent where there is green space and less trees - build in meanders and ponds - something that would ADD VALUE to the neighborhood instead of clear cutting the park.

Response: The purpose of the Kenosha greenway reconstruction would be widening it to increase the rate of flow through the greenway. Right now, the greenway cannot convey the amount of water that flows through it, so it overtops its bank and flows over S Kenosha Dr and backs up Burnett Dr, which causes the flooding of homes. Therefore, simply replacing the bridge due east of Trempealeau Trail will not have the same flood reduction effect.

The City will be completing additional modeling that will help figure out if and which community suggestions are viable alternative flood reduction solutions—we will have that information available in early 2023 at another public meeting once the modeling is completed.

14. Question: Impact of putting in a properly sized culvert at Regent Street, and why it cannot be used for additional storage?

Specific questions from residents this question is addressing:

- *In particular, the Regent St underpass is reported as undersized in the Final Draft Report. If that is going to be upsized, there are multiple opportunities to engineer a solution beneath Regent St, including oversized box culverts, storage volume, etc.*

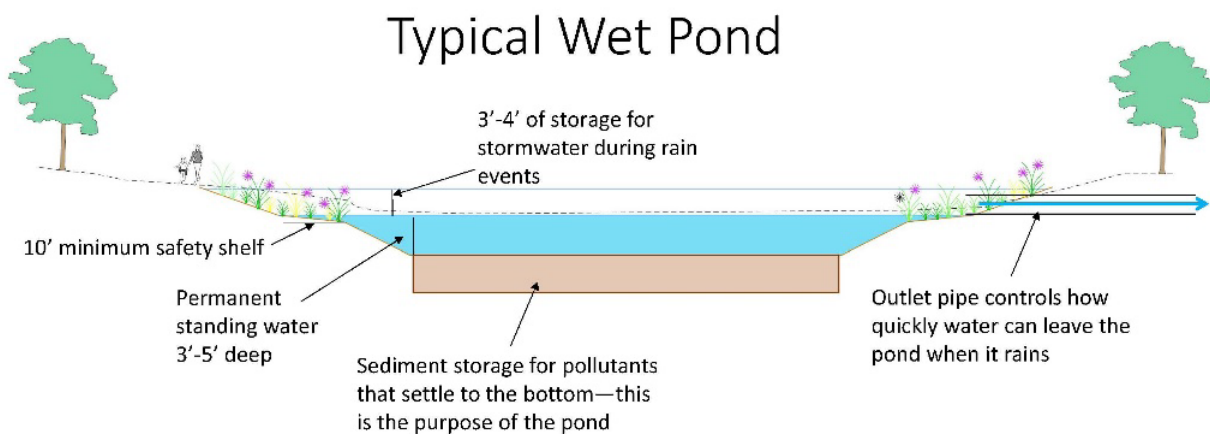
Response: There is 500 cfs of stormwater that flows through the Kenosha Greenway during a 1% chance event. That is the equivalent of 75,000 garden hoses turned on. Or, if you can imagine pulling a string from one side of a greenway to the other, the volume of water moving past is equal to ~500 basketballs passing under that string every second.

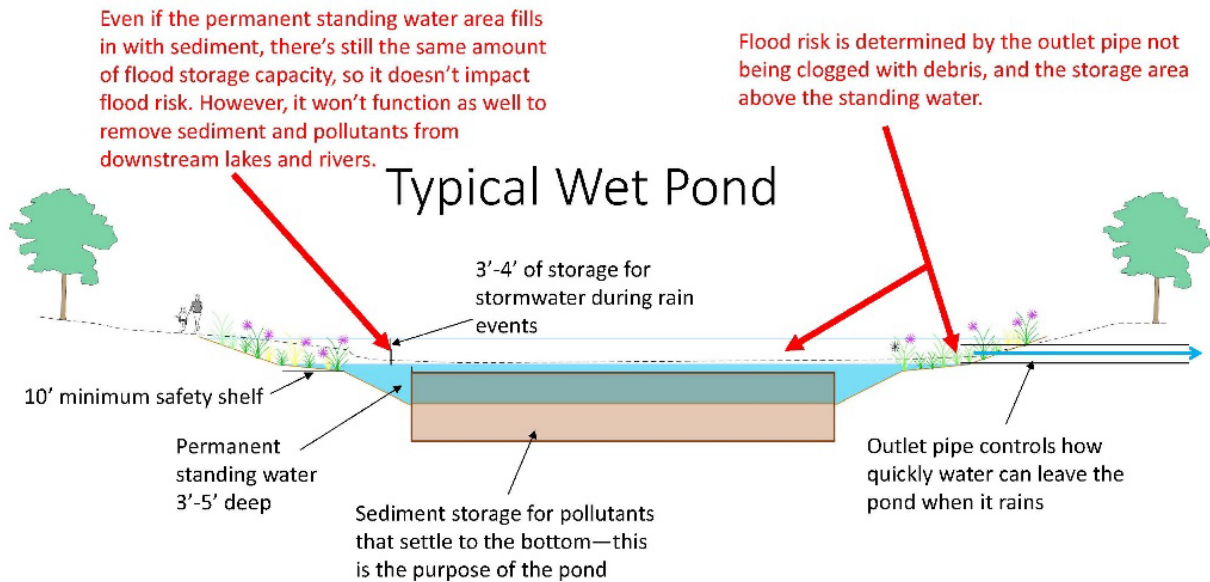
In order to create enough storage under Regent Street to reduce stormwater flows and nearby flooding, you would need to be able to hold thousands of cubic feet of water (or, imagine basketballs) beneath the road. Unfortunately, that space doesn't exist.

There is only space to move water under the street, not create a huge cavity for storage under the street. This is due to limited footprint of the road, and the surrounding existing utilities. For more information on the infrastructure under our streets, please visit our [Hidden Infrastructure](#) webpage, and our [Flash Flooding Resilience storymap](#).

15. Question: Can dredging Garner Pond help to reduce flooding downstream or minimize the need for the Kenosha greenway grading?

Response: Even though the Garner Pond is filled with sediment and needs to be dredged, that doesn't impact the pond's available flood storage. Therefore, dredging the pond will not reduce downstream flooding. If you think of a pond as a water bottle with a hole drilled in the middle, the water bottle will always hold water up to the hole, and when it you top it off (or, for a pond, when it rains), the bottle fills to the top, and slowly leaves the drilled hole in the middle bringing the water level right back to just below the hole. When a pond is filled with sediment and needs to be dredged, it just means the bottom half of the water bottle has a mix of sediment and water, but the water always is below the hole, and you have the same amount of storage above it. See the pond illustrations below:





## Forsythia Cunette and North/South Channel in Owen Park

1. Question: What impact will the N/S channel have on screening?

Response: There will need to be trees removed in order to re-build the channel. When the project moves from a conceptual design to a budgeted project, we would collect design-level data that would allow us to provide a more detailed design that would clearly show which trees would need to be removed to build the channel.

2. Question: What is the N/S channel depth and width?

Response: The conceptual solution for the N/S channel is 5 feet deep and 50 feet wide. The City anticipates that if and when this project is budgeted and in the detailed design, it will be refined to have a smaller footprint.

3. Question: Would digging the ditch deeper damage the area and spread of invasive species afterward? Would it be replanted with natives?

Response: The City works to minimize the spread of invasive species with its construction work. Following the channel construction, it would be replanted with native species. You can learn more about the Stormwater Utility's general restoration goals by reading the [Ecological Restoration in Stormwater Ponds and Greenways Storymap](#).

4. Generalized Question: What is the cost/benefit of N/S channel –homes flooded vs cost.

Specific questions from residents this question is addressing:

- *..cheaper and more protective of the land to just give money to that one house to fix whatever they need, rather than digging a new channel destroying the woods and forcing more water into the cunette, which is already overflowing.*

Response: Individuals are free to take flood protections on their property as they see fit, including raising structures. The City does not have funds, or a grant program, for private property flood proofing as City ordinances prohibits the use of stormwater utility funds on private property improvements if the solution does not also benefit the public stormwater management system. If residents who are most at risk are willing to sell their homes to the Stormwater Utility, or flood-proof their homes, then solutions could be re-assessed based on the structures at risk of flooding at that time. The City has limited ability to purchase homes however this is an

option if the seller is willing and the City has enough money to purchase the property. This study helps property owners assess their personal levels of risk so they are able to make decisions regarding public projects or about making modifications to their property. Property owners are encouraged to determine if improvements can be made to their property to reduce flood risks.

Based on the modeling, there are 16 structures that flood due to the N/S channel overtopping and the total assessed value of these properties is ~7x greater than the cost to re-construct the channel. Additionally, there is a secondary cost to the city in terms of lost tax and utility revenue for every home purchased.

5. Generalized Question: Cost/benefit of flood wall vs buying or protecting homes (clarify # of homes in 1% chance flood)?

Specific questions from residents this question is addressing:

- *if only one house floods at the east end of the cunette, maybe that house should be moved. Or maybe some structure could be added to that and whichever other houses flood along the cunette, rather than building a wall that goes to 11 ft. high.*

Response: Individuals are free to take flood protections on their property as they see fit, including raising structures. The City does not have funds, or a grant program, for private property flood proofing as City ordinances prohibits the use of stormwater utility funds on private property improvements if the solution does not also benefit the public stormwater management system. If residents who are most at risk are willing to sell their homes to the Stormwater Utility, or flood-proof their homes, then solutions could be re-assessed based on the structures at risk of flooding at that time.

Based on the modeling, there are 39 structures that flood due to the Forsythia cunette overtopping the berm, and flowing out towards Bordner Drive. The total assessed values of these properties is ~2x greater than the cost to build a flood wall.

6. Question: Instead of a floodwall, what other alternatives, such as flood mitigation on individual structures, or elevating the structures, considered? If so, why were they rejected?

Response: The City looked at widening the existing concrete channel, however the width of the channel expansion was limited by the wooded hill on the south side of the channel, and the widening did not show sufficient flood reduction. When the concrete channel was re-built 10 years ago, the City determined that the 2 sanitary sewers crossing under the channel could not be moved without re-building sanitary sewer throughout the entire neighborhood. However, recently the City determined a possible alternative that would allow for the channel to be lowered. The City will be completing additional modeling to see the impact of lowering and widening the channel and will share the results at the fourth public meeting in 2023 once the modeling is complete.

Individuals are free to take flood protections on their property as they see fit, including raising structures. The City does not have funds, or a grant program, for private property flood proofing as City ordinances prohibits the use of stormwater utility funds on private property improvements if the solution does not also benefit the public stormwater management system. If residents who are most at risk are willing to sell their homes to the Stormwater Utility, or flood-proof their homes, then solutions could be re-assessed based on the structures at risk of flooding at that time.

7. Generalized Question: Safety of flood wall—how is it designed to not fail due to water pressure?

Specific questions from residents this question is addressing:



- *I'm wondering how safe a big wall is anyway if there is an earthquake or tornado, although maybe that's too remote. But, if the wall were to fail due to water pressure, the bricks or concrete would be far more damaging than water.*

Response: Flood walls are designed to withstand the forces of the anticipated water depths, including a factor of safety. This level of engineering design is completed when the project is budgeted and in the design phase.

8. Generalized Question: Why can't re-development near West Towne Pond fix flooding by Crestwood?

Specific questions from residents this question is addressing:

- *The above proposals do nothing to address the cause of the flooding, which, as I understand it, is from development west of Crestwood, including West Towne Mall. And, I have heard that re-development will be done for West Towne Mall. Can't enough water mitigation measures be done in the re-development of West Towne to avoid downstream problems? It seems to me that the extreme measures being proposed in Crestwood will not solve the basic issues and, in addition, will be very invasive and non-natural, basically destroying the woods and natural environment that make Crestwood and Owen Park desirable*

Response: The water coming from West Towne Mall all ends up in the West Towne ponds. There is significant flooding around West Towne Mall, which impacts businesses as well as arterial roads that serve as emergency service routes. The watershed study proposes a conceptual solution at West Towne Ponds that mitigates flooding around the ponds, and does not increase flooding downstream. The proposed solution maximizes all available space, so there is not additional room to try to decrease the flows leaving this area. Also, to note, there is only a 36" pipe leaving the pond, which can convey 40 CFS, and by the time the stormwater is moving past Crestwood, the additional watershed area that contributes to the flow results in 1350 CFS flowing over the Forsythia channel (34 times as much flow).

However, as areas around West Towne Mall redevelop, they will be required to meet more stringent stormwater utility rules, and this may help slightly decrease flooding throughout the watershed. Due to the unknown timeframe for redevelopment, and the fact that the City is not in control of when private land would be redeveloped, this was not included in the model.

Additionally, the largest issue at Crestwood and Gettle Ave is that there is a large upstream watershed with significant elevation change that all drains to Crestwood and then Gettle Ave, where it is very flat. The flatness of the area, and therefore the storm sewer, slows down the water, and causes it to pool deeper and spread out as it cannot leave the area as quickly. The very large peak flows that are moving through this area make it especially challenging to reduce the flooding through this area.

9. Generalized Question: Could we use a pond where the cunette is and prevent the need of a flood wall?

Specific questions from residents this question is addressing:

- *The alternate solution is to dig a Floodwater Retention Pond in the unused floodplain south of the Owen Park portion of the stormwater stream.*
- *The redesigned cement cunette that goes through Crestwood property is inadequate and dangerous; several children (4) had to be rescued from it.*

Response: Due to the very large flows of water that are moving over the cunette, creating a pond along this area would need to be very big. Please see ["Why can't you put the pond in X location instead of Y"](#) explanation below.

The flood wall allows the stormwater to get deeper before it goes into the box culvert under Bordner Drive, which pressurizes the pipe and the water can enter the pipe more quickly—it's essentially pushed into the pipe by the stacked water behind it. A pond, in contrast, would need to hold enough water to reduce the peak stormwater flows to the rate that can enter the existing box. In order to do that in the main drainage spine, there would need to be significant tree removals.

10. Generalized Question: How big would box culverts need to be to manage more water? (equivalent box size of flood wall pressuring the box)

Specific questions from residents this question is addressing:

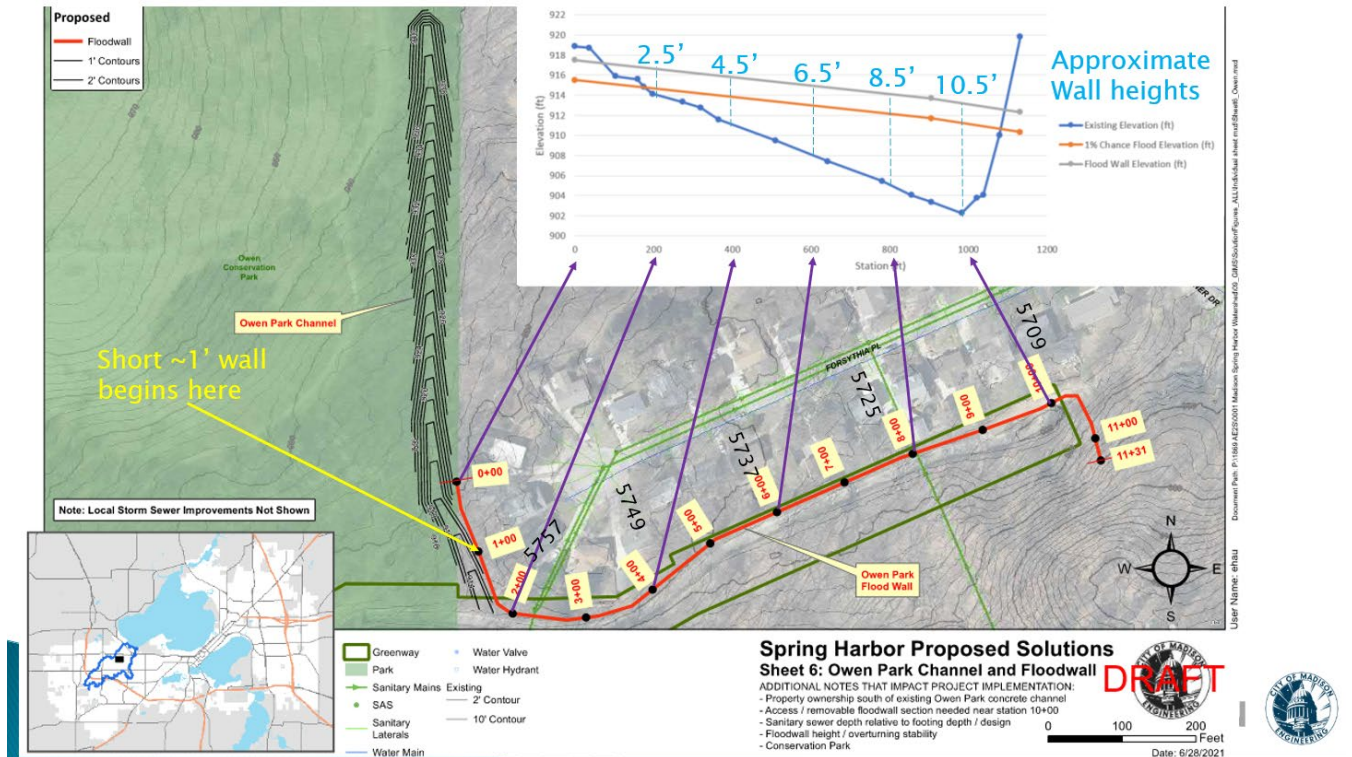
- *I urge you to find another solution, e.g. to expand the Box Culverts to manage more water.*
- *As a Crestwood resident, I urge you to go with the least intrusive/labor-intensive option, which seems to be increasing the capacity of the box culverts*
- *I find the flood-wall solution a complete overreach of the issue as an eye witness of the August 2018 rain events. What I witnessed was a failure of the Box Culvert that could not accommodate the amount of water it was supposed to divert into the Bordner Park channel causing a considerable back up of water that breached the cunnette up to my property at 5721 Forsythia. I believe that this could be prevented in future historical events by simply increasing the capacity of the Box Culvert. The cunnette as it is currently constructed did its job as expected the Box Culvert did not.  
The city has proposed increasing the capacity of box culverts as part of a comprehensive plan throughout the Spring Harbor Watershed which would not cause physical view obstructions to residents which is completely acceptable. What I find unacceptable is an 8-9 foot wall that would completely obstruct our view of the south woods and be a permeant eyesore in the Crestwood Neighborhood. It is my hope that we can find an alternative to the flood wall proposal that would lessen the negative impact and still meet water removal objectives.*

Response: Once the flood wall was added to the model, the box culverts were able to handle 70% more flow while not flooding neighboring homes. To make the box culvert large enough to handle these flows, and not flood neighboring homes, we'd need to lower the upstream water level, and still be able to pass the larger flows. We estimate the box would need to be double its existing size, and on the downstream end near Bordner Park, the box culvert is already nearly 70 feet wide. The area of public land and easements the existing culvert crosses is already completely occupied by the existing culvert. Therefore in order to make the box culvert large enough, adjacent homeowners would need to be willing to sell their homes to the Stormwater Utility.

11. Generalized Question: I also wonder when it comes to the flood wall height where does the bottom of the flood wall begin? Is it at the top of the concrete cunnette?

Response: The conceptual solutions proposed for the flood wall to begin at the top of the berm. However, the final details of the flood wall location and specific heights would be figured out if and when the project is budgeted, during the detailed design process.

Here is a drawing that more clearly shows the approximate wall heights along the cunnette that was shared with the Crestwood Neighborhood Association. Note, these are all based on the conceptual solution and would change based on the detailed, final design once the project is budgeted.



12. **Question:** Page 59 of the report says, “If the greenway crossings are completed first, serious discussions on buyouts / structure raises are needed. “What does that mean exactly? I do not want to sell my house. Is that a possibility?”

**Response:** If the City were to increase the size of the greenway crossings upstream of the Forsythia cunette, the peak stormwater flows would arrive to the Forsythia cunette area and Gettle Ave area more quickly, and cause additional flooding. This would essentially be moving the problem downstream and as a policy the City has chosen not to proceed in that manner at this time. The City’s plan and preference is to complete flood projects downstream prior to upstream so that we are not shifting the problem downstream before we improve flood resilience downstream. The City has limited ability to purchase homes however this is an option if the seller is willing and the City has enough money to purchase the property. This study helps property owners assess their personal levels of risk so they are able to make decisions regarding public projects or about making modifications to their property, including selling property to the City if they wish to do so and the City is also interested in purchase of their properties.

## Glen Oak Hills Park

1. **Question:** Could berms be densely planted with woody species (like big trees, and evergreens, and shrubs) to reduce visibility across clear-cut berm zone? Could berms be planted with natives, not just mowed grass?

**Response:** The berms would be replanted with native vegetation that will help support wildlife, and it is also beneficial for soil stability. Unfortunately we do not plant trees on top of berms because if the trees are blown over, and the root-ball is exposed, it could undermine the integrity of the berm and cause it to fail. However, trees would be replanted in areas that were impacted by construction. Please see the [Ecological Restoration in Stormwater Ponds and Greenways Storymap](#) for more information on the Stormwater Utility’s goals for revegetation after project construction.

2. **Question:** Could adjacent canopy tree cover near roads (where berms go closest to roadways) be protected to keep sense of a "forested park" and reduce the impact of a visual swath bisecting the park with a berm? (adjacent homeowners don't want clear-cut forest across the street... eek!)

Response: The City would work to keep as many trees as possible, including along the edges near the roads wherever feasible. Once the project is budgeted and in the design phase, Engineering, Parks and forestry would work together to create a planting plan that establishes the trees and vegetation. The plan would work to be aesthetically pleasing, promote habitat, and allow for maintenance once it's constructed. Please see the [Ecological Restoration in Stormwater Ponds and Greenways Storymap](#) for more information on the Stormwater Utility's goals for revegetation after project construction.

3. Question: Would construction be done in a way not to spread invasive species which many of us are controlling in the park?

Response: The City would include provisions in the contract to minimize the spread of invasives. Typically, once a project is constructed and restored with native seed and new plantings, the City hires a special restoration contractor to help the native vegetation establish in the first couple of years. Please see the [Ecological Restoration in Stormwater Ponds and Greenways Storymap](#) for more information on the Stormwater Utility's goals for revegetation after project construction.

4. Generalized Question: Figure 29: How would keeping the improvements to the box culvert east of Glen Highway along Gettle affect the "Retention solutions" on Figures 28 and 31? Would keeping this solution on the table, increase the ability to move water out of Gettle sag and thus allow less alternations upstream (i.e. less alternations to the Greenspace on Figures 28 and 31)? The use of Hampton Ct Park should be considered as another way to reduce the Gettle sag - that area is not highly utilized.

Specific questions from residents this question is addressing:

- *Maybe Hampton Court Park could be reconfigured along with the western edge of 400 block of Park Way to retain water? Rather than harming the trees at the northern edge of Kenosha Park with a berm, maybe remove Park Way (road) where it intersects with Glen Hwy, and incorporate a berm on adjacent Hampton Court Park. It is unused and of low recreational or aesthetic value since it is just mowed grass between 3 roads. Maybe it could be used to store or retain water?*
- *In particular, there is an open green space (Hampton Ct Park) immediately downstream of the Glen Oak Hills Park (between Park Way, Glen Hwy, and Hampton Ct) that could be utilized to install any number of features without degrading any of the old neighborhood trees.*

Response: Figure 29 was updated based on more detailed survey data that became available with the Old Middleton Road project. Updating the Gettle Ave pipe slope showed the existing pipe had more capacity than was in the original model, and therefore the culvert wouldn't need to be expanded past Glen Highway. Because the downstream pipe has sufficient capacity, increasing the pipes on Gettle Ave wouldn't impact the berm size at Glen Oak Hills.

The berms shown in Figure 28 for Glen Oak Hills are designed to keep water from overtopping the street and flooding homes along Glen Highway and Gettle Ave so modifying the solution in Figure 29 won't impact Figure 28. Hampton Court Park was looked at for storing additional water, but it isn't large enough to have an impact on volume, and in order to use part of the park as a berm, we would need to reconfigure traffic and streets in this area, and likely dead-end, Park Way and Glen Hwy which would have significant neighborhood impacts.

Additionally, the grading shown in Figure 31 is designed to have more of the 1% chance storm flows move through the greenway, as opposed to through the greenway **and** the street. Once the storm flows overtop the street, they flood homes on Burnett Dr.

5. Question: Figure 28---Glen Oak Berms and Box Culverts: Would the proposed berms be integrated aesthetically into the park space? Is there a representative example or rendering that could be shared? How would construction vehicles access the area of the berms? The City can specify a maximum size vehicle to prevent having to remove trees and to minimize the impact to the wooded area. Volunteers have worked very hard to maintain this area and install a trail system and would be nice to see any changes be designed with walking and

park use in mind. Trails should be repaired if disrupted. These trails are used daily no matter the weather/season.

Response: The berms would be integrated into the park space. Unfortunately, we cannot plant large trees on berms as it can ruin the integrity of the berm and cause it to fail if the tree falls over and the roots are exposed. We do not have a rendering to show what this would look like in the conceptual stage, but if and when the project becomes a budgeted project, we would collect more detailed design data, refine concepts, and be able to show renderings of what the preliminary designs would look like.

We appreciate all the effort of volunteers to maintain this area and install a trail system. Any improvements made in relation to stormwater would be designed along with specialized Park staff, as well as the community, to enhance existing recreational amenities wherever possible and improve native plant species. Please see the [Ecological Restoration in Stormwater Ponds and Greenways Storymap](#) for more information on the Stormwater Utility's goals for revegetation after project construction.

Once a final design is established, final construction plans would be developed to minimize construction impact on trees.

## Bordner Park

1. Question: Public presentation sounded "all-or-nothing" for this park (leave as is, or excavate to super-scary deep with cement walls.) How about a compromise? i. Bordner Park is great place for a reservoir/pond/wetland stormwater retention area. ii. Today = low in natural value (grass) and has really low usage. Not hiked on or used as park much, not natural or forested... so wouldn't damage much to use for stormwater area. iii. A pond with wetland-like planted edges could be nice looking addition to the area. iv. Maybe buy-out some chronically flooded properties near this park and convert to retention pond/wetland?

Response: Individuals are free to take flood protections on their property as they see fit, including raising structures. The City does not have funds, or a grant program, for private property flood proofing as City ordinances prohibits the use of stormwater utility funds on private property improvements if the solution does not also benefit the public stormwater management system.

Due to the uncertainty of whether residents would be willing to flood proof their homes, or sell their homes to the City, the solutions presented did not involve being able to rely on the assumption that residents could be convinced to do so. Therefore halfway solutions were not considered. The studies are intended to analyze what size of solutions are needed to meet the flood goals.

If specific residents were willing to sell, or invested in flood proofing their homes, the City would be able to re-analyze solutions to find a compromised solution at that time.

To better understand why the Glen Oak Hills is more beneficial to hold back floodwater as opposed to Bordner Park, or other areas within the main trunk line of the storm system, please see ["Why can't you put the pond in X location instead of Y"](#) explanation below.

## Gettle Ave Storm Sewer

1. Question: Could you make the storm sewer as big as possible (I think Amber said 22' x 6' is the biggest?) to help drain off water better or hold water.

Response: The purpose of upsizing the Gettle Ave storm sewer is to improve conveyance so that more water can move through quicker. The portion of storm sewer along Gettle Ave from N Rosa Rd to Glen Hwy is undersized and this "choke point" is leading towards additional flooding. The proposed pipe size solves that problem and creates near uniform capacity for the storm sewer from Bordner Park all the way to Spring Harbor. There is not a

feasible pipe size that would make the storm sewer function to hold water back—there is just too much water moving through the system, with limited road space and other utilities that need to take up the space under the road. For reference, the amount of space needed to slow down the water here is greater than digging Bordner Park 20' deeper. And, due to the downstream pipe capacity limitation (starting from under the railroad tracks all the way to Lake Mendota), adding additional capacity at Gettle wouldn't help Gettle because the additional water can't continue to move downstream.

2. Question: Can you buyout some houses on Gettle that are most prone to chronic flooding and remove them?

Response: Individuals are free to take flood protections on their property as they see fit, including raising structures. The City does not have funds, or a grant program, for private property flood proofing as City ordinances prohibits the use of stormwater utility funds on private property improvements if the solution does not also benefit the public stormwater management system.

If specific residents were willing to sell, or invested in flood proofing their homes, the City would re-analyze the impact on the conceptual solutions at that time.

3. Question: Can you add rain gardens there to retain water?

Response: The scale of the issue is so large that rain gardens would not make an impact. Rain gardens help in small storms such as the 100% chance storms (thunderstorms we experience annually), but these have a fraction of the volume as the 1% chance storms that are causing the worst flooding. Please find more information on green infrastructure and our watershed studies on the [Watershed Studies Additional Information](#) website.

## Nautilus Drive Detention Pond

1. Question: Could this be planted with more wetland species of trees, shrubs, and forbs? They drink water, provide needed wildlife and pollinator habitat, nature recreation, and would help make it prettier and lower the water table.

Response: The City has planted site appropriate native grasses, forbs and trees. Following the reconstruction of the pond and greenway, the City hired an ecological restoration firm that maintained the native seed that was put down in the areas that were disturbed by the construction, and planted 48 native trees. One American elm and three bur oaks that didn't survive were replaced in fall 2021. The trees will take years to fully mature, but progress is underway.

As of the City's Greenway Vegetation Coordinator's last walk-through in fall 2021 with the contractor they observed a lack of native forbs and heavy infestation with red clover. Native warm season grass establishment is good. The contractor will treat red clover and reed canary grass in 2022, followed by reseeding of native species not requiring winter stratification. Engineering staff will reseed native forbs requiring stratification in fall/winter 2022/2023.

With continued aggressive weed control under contract and spring reseeding of sprayed areas, followed by inter-seeding in fall/winter, this site should be in a much better place in 2023.

## Yellowstone and Quarterdeck Drive Greenways

1. Question: In addition to adding culverts here, could the park areas be regraded to add retention ponds? Since it's mostly just grass now and has low usage for recreation or viewing nature, runoff ponds would be an improvement. Using Quarterdeck Drive section to retain water might reduce need to destroy mature forest in Masthead Greenway

Response: Unfortunately, there are very low-laying houses alongside the greenway, so there is not a lot of available storage space to make a difference in peak flows. Additionally, these greenways compose the major backbone of the stormwater conveyance system, therefore there is more water moving through these greenways, and it is harder to make a notable impact in the peak flows (which are what lead to flooding). In both the Masthead and Kenosha Greenways, there is less water moving through the system, and therefore utilizing the existing space in those greenway systems to store water delays the peak flows moving through them. This allows the peak flow to move through the major backbone of the system, before the other peak flows join it, which is what causes the worst flooding at Gettle Ave.

Please see [“Why can’t you put the pond in X location instead of Y”](#) explanation below.

## Masthead Greenway Ponds

1. Question: If needed to slow water flow down, maybe add a couple boulder barriers at creek base without disturbing the forested areas?

Response: The model showed that we need a certain volume of storage to significantly slow down the peak flows through the greenway. Unfortunately this cannot be accomplished with boulder barriers.

2. Generalized Question: How is climate change considered when coming up with flood plans?

Specific questions from residents this question is addressing:

- *It is ironic that a plan responding to climate change would recommend clearcutting trees and removing all native vegetation from an active wildlife corridor. We would hope the city is focused on protecting existing tree cover to reduce urban heat island impacts, not to indiscriminately remove trees.*
- *Further, our understanding is that these retention basins will be nothing more than grass covered areas so they can be routinely mowed by city equipment. Deer, turkey, coyotes, foxes, and myriad birds all use the greenway which interconnects Owen to the Oakwood Village green space. This plan would be yet another loss of habitat that will negatively impact area wildlife when we know climate change will strain species.*
- *These new dry ponds will need to be mowed by city equipment, which will end up increasing the use of fossil-fuel-powered equipment. Again, a very counter-intuitive game-plan if the city is trying to reduce our collective CO2 footprint and combat climate change.*

Response: Much of the City’s consideration of climate change when developing conceptual solutions for watershed studies is in relation to infrastructure resilience for flooding. Knowing that more intense storms will occur more frequently, the watershed studies are even more important.

When pond and greenways are reconstructed they are revegetated with native species and managed by an ecological restoration firm for a couple of years to plan the native trees in the revegetation plan, and help establish the native seed. Native vegetation has deep roots that help stormwater infiltrate, as well as hold soil in place to prevent erosion. The native vegetation is also very beneficial for supporting the bottom of the food chain in our ecosystem. Insects need native vegetation to survive and when we have healthier insect populations by providing native vegetation for them to eat, live and nest, we support the bird and small mammal population as well. Additionally, once native vegetation is established, it doesn’t need frequent mowing or maintenance.

You can learn more about the Stormwater Utility’s general restoration goals, and the impacts of revegetating with native species by reading the [Ecological Restoration in Stormwater Ponds and Greenways Storymap](#).

Please see [Watershed Studies Additional Information](#) for more information on how climate change was considered in watershed studies.

3. Question: Safety concerns with new pond creation—will there be fencing?

Response: The City does not install safety fencing around stormwater infrastructure. Fences make emergency access more challenging in an event that a rescue would need to occur. The City designs stormwater infrastructure with safety features such as a safety bench around stormwater ponds with standing water, and gates on large pipes that pose safety hazards. A safety bench is a gently sloped area that is created so there is not a sudden drop off at the water's edge. These benches are typically 15 ft wide and installed at a 10:1 slope to encourage wetland vegetation to grow. The tall, dense, wetland vegetation creates a barrier to prevent people and pets from swimming and playing in the stormwater ponds, which is not advised.

The design details, such as the specific grading, will be figured out when the project is budgeted and in the design process.

4. Generalized Question: Will the implementation of the masthead ponds impact homeowner insurance?

Specific questions from residents this question is addressing:

1. *Although these are designed as dry ponds and meant to drain, the idea of 10' and 13' bodies of water backing up to homes with small children seems unnecessarily risky.*
2. **Safety.** *Many families have small children and animals which could easily fall into a quite deep retention pond. Will there be fencing? What will the gradient be from the start of the pond to our property lines? Has the city considered what the impacts to insurance would be?*

Response: Generally, Engineering staff have not noted an increase in insurance rates for properties next to a pond or greenway. However, if you have concerns you should contact your individual insurance provider.

5. Questions: In addition to the negative environmental and safety aspects of these retention ponds, we are naturally also very concerned about property values. As you can well imagine, the loss of this greenway will have significant negative impact to property values for residents on most of Island Dr and as well as the residents on the east side of Nautilus. It would be tragic enough to lose all of the tree cover, but to replace the green space with dry ponds that will only have grass and that would rely on the availability of city mowing would be unfortunate. Many communities require native plantings and landscaping in and around retention ponds in commercial areas for aesthetic and wildlife reasons. We're therefore very disappointed that the plan fails to make any attempt to mitigate property value loss with creative landscaping.

Response: The full restoration plans would occur once the project was budgeted and in the design phase. The Stormwater Utility's policy is to revegetate with native seed in our ponds and greenways. You can learn more about the Stormwater Utility's general restoration goals by reading the [Ecological Restoration in Stormwater Ponds and Greenways Storymap](#).

6. Generalized Question: If pond berms are determined to be small dams by the WI DNR, we have concerns about impacts to property values, property insurance rates, and increased flood risks:

Specific questions from residents this question is addressing:

- *It is also concerning that these ponds may have to be deemed small dams by WI DNR standards. We can only imagine that having such a designation in one's front yard or backyard could decrease property values further while increasing property insurance costs. We also question what the lifecycle maintenance costs are for small dams and whether this will be a priority for the city's budget long term.*
- *On page 71 of the document discussing sequencing, the plan indicated the Masthead ponds and outlets should be completed prior to increasing the capacity of the greenway crossings. We find this concerning because it assumes there will be no issues with draining the dry ponds prior to that increased capacity. Has this been modelled to assure that you're not creating a flood risk with potential for overtopping of these retention ponds? Given that new development such as Oakwood Village's construction wasn't modelled into*



*this study, under what circumstances could even a fully completed project result in overtopping of the Masthead ponds to create flooding risk that doesn't currently exist?*

Response: The Stormwater Utility is responsible for managing its public land in keeping with the goals of the utility—safely conveying and treating stormwater. The Stormwater Utility does not have an obligation to maintain the land in the same way as it has been historically simply because that is neighboring homeowner's hope or expectation however there is a design and public engagement process where concerns may be voiced to help inform design decisions.

Generally, Engineering staff have not noted an increase in insurance rates for properties next to a pond or greenway. However, if you have concerns you should contact your individual insurance provider.

Part of the modeling process was to analyze the impact of larger storms through the proposed conceptual solutions. The modeling shows that with turning the Masthead greenway into ponds, in storms larger than the 1% annual chance storm (i.e. the 0.2% annual chance storm) there is not an increased flood risk to homes in the existing vs proposed conditions.

7. Generalized Question: Can a retention wall be built to prevent the flooding of the one home near Inner Drive instead of building the ponds in the Masthead Greenway?

Specific questions from residents this question is addressing:

- *We are wondering, after reading in the report page 48 Section 10.5.2, that one home near Inner drive flooded during the 2018 storm, if there could be retention wall mitigation for that one home similar to what you are proposing for the drainage ditch area in the Crestwood neighborhood.*

Response: The purpose of the Masthead Greenway Ponds is to hold back water to reduce the flooding at Gettle Ave. Please see ["Why can't you put the pond in X location instead of Y"](#) explanation below.

8. Generalized Question: Why are the trees in the Masthead Greenway not given equal consideration to the trees in Owen Park?

Specific questions from residents this question is addressing:

- *City of Madison signs placed there call it "a Nature Sanctuary, enjoy don't destroy" and that is very much how I feel about it. Over the winter, I've been thinking a lot about the future of these woods. I see a lot of maintenance going on in Owen Park and the Crestwood Trails, clearing out invasive species and giving our native trees a chance to thrive. Our woods have been sadly neglected by the City but could be revitalized by similar efforts.*
- *The city did an audit of the trees that exist along the proposed Masthead pond area and found hundreds of oak trees and other natives. We are wondering why this issue is not as important in the Masthead Ponds project area and why it was not addressed in the discussions with city parks.*

Response: Owen Park is a part of the official City of Madison park inventory and is documented in the Park and Open Space Plan as a conservation park. There are recreational improvements within Owen Park that Parks has installed and maintained. The Masthead greenway is mapped a greenway, and is not a part of the park inventory or in the Park and Open Space Plan. Therefore projects that help improve the stormwater system are prioritized in these lands. Wherever possible the City avoids tree loss. However, in developed watersheds, there is minimal additional space that the stormwater utility can utilize to either hold back, or convey stormwater. When we cannot purchase sufficient amounts of land to store more floodwater and slow the water down in non-wooded areas, sometimes our only option is to create storage within existing greenways—such as in the Masthead Greenway. In that situation, the common conflict with trees is that we need to remove earth to create more water storage space, and in doing that, it can result in trees needing to be removed. To learn more about why the Masthead greenway is a proposed pond location, please see ["Why can't you put the pond in X location instead of Y"](#) explanation below.

Please see [Watershed Studies Additional Information](#) and the [Stormwater Drainage System](#) webpages, for more details on the differences between Parks and Greenways.

9. **Question:** We have concerns about the future maintenance of the area if this project goes forward; especially since the area will be a hole in the ground most of the time, not a pond. Are there any trees that could remain in the proposed pond area that could survive a flooding once in a while? Are there any areas that could be left at ground level to preserve the trees that already exist there?

**Response:** When a project is budgeted and enters the design phase, these details would be worked out. Typically, the process involves trying to minimize quality tree loss wherever possible while still meeting the flood reduction goals. Additionally, new tree plantings would consider the trees ability to handle flood depths for specific durations, and the anticipated depths and durations of flooding at different locations would inform new planting locations. Please see the [Ecological Restoration in Stormwater Ponds and Greenways Storymap](#) for more information on the Stormwater Utility's goals and the impacts on habitat.

10. **Question:** We believe that the clear cutting of all trees in this area and leaving what is essentially a big hole in the ground for this project will affect the aesthetics and property values of our entire neighborhood. The study draft lists the City of Madison Flood Mitigation Goals in the section "Modeling Guidance" (no page #). This includes goal #7 that projects are set up to "provide flooding solutions that do not adversely affect the properties downstream of the flooding area." We are hoping that the same consideration will be applied to the properties to those of us who live upstream. Is there true funding for the remediation of the area?

**Response:** The flood goals are specifically flood related. We make sure that our solutions do not cause additional structural flooding downstream of the flooding area.

The Stormwater Utility is responsible for managing its public land in keeping with the goals of the utility—safely conveying and treating stormwater. The Stormwater Utility does not have an obligation to maintain the land in the same way as it has been historically simply because that is neighboring homeowner's hope or expectation. However, the City does include a public engagement process in every public works project where concerns may be voiced to help inform design decisions.

To learn more about "Modifications to Vegetation and Screening," please visit the [Stormwater Drainage System Reconstruction](#) webpage.

11. **Question:** These are vibrant wooded areas currently which are home to many animals. Among these are hawks, deer, songbirds, turkeys and coyotes. This is part of what makes this neighborhood unique and wonderful. What consideration has been made for the wildlife in this area? How will it affect deer and turkey migrations within the larger area? This is one of the last remaining safe passage ways from Owen conservancy to the Research park open areas. Also, what would the downstream impacts be removing/decreasing some of these animals from the habitat on other animals and the ecosystem at large? Will other animals fill their place? This would be a significant disruption to a very well established ecosystem.

**Response:** Please see the [Ecological Restoration in Stormwater Ponds and Greenways Storymap](#) for more information on the Stormwater Utility's goals and the impacts on habitat.

12. **Question:** We bought our house, and happily pay our high tax rate, in large part due to the property backing up to a greenspace. We love the trees and wildlife that the greenspace brings. By clearing that all out it would greatly change the feel and desirability of the neighborhood. It also would become quite challenging for landowners on the Nautilus Drive side of things to have any sort of privacy in our backyards as we currently have. Island Drive is so much taller a fence would do nothing. This would greatly impact the homeowners and would greatly devalue our properties.

Response: The purpose of Stormwater Utility owned land is to safely and efficiently convey or store stormwater. For residents concerned about screening, we recommend planting trees and shrubs on their own property as the purpose of adjacent public property isn't for private property screening.

13. Question: What will the ponds be like when full? Will there be any mosquito or bug treatment plans in place for the large amounts of standing water? If there is an issue with smell or cleanliness, what are the city's plans to address this as it would make the area quite unpleasant?

Response: The ponds will look similar to the ponds in Owen Park when they are full, however, unlike the Owen Park ponds, in between storms they will completely empty and you will see native vegetation on the bottom once the water recedes. Because the water moves through the system quickly, there would not be standing water that could have an odor, nor a place for mosquitos to breed.

14. Question: The drop from Island drive down to the backyards on the Nautilus Drive side of things is quite steep. What will be done to prevent the hill washing out and eroding next to and under Island Drive?

Response: When the project is budgeted and in the design phase, the slopes of the new ponds would be designed to be stable based on flood depths, water velocities and shear stresses. Typically slopes are vegetated with native vegetation to hold soil in place, and in small areas that need more stabilization we install additional matting beneath the vegetation, or rock riprap boulders. Please see the [Ecological Restoration in Stormwater Ponds and Greenways Storymap](#) for more information.

15. Generalized Question: Why are you putting ponds in the Masthead greenway where there is more water, and less trees, in the E/W running greenways upstream of Owen Park?

Specific questions from residents this question is addressing:

- *The proposal to put two ponds in that location doesn't make sense to me. We already have two ponds very close by at Nautilus Point Park, supposedly controlling the flow from that direction. The Masthead Greenway creek joins with the water coming down from the Memorial High School area and goes under Inner Drive and through the Crestwood trails. The vast majority of that water is coming from the Memorial High School source that runs between Landfall and Keelson. In fact, at times, the volume of water is so great that the flat grassy area close to Inner is flooded and the greenway path between Quarterdeck and Inner is washed out. Compared to that, the Masthead Greenway flow looks like a trickle and is not the main culprit in causing flooding. Would the ponds not be much more effective in controlling water flow towards Gettle if they were placed beyond where the two sources converge? Would you please address this question at our next meeting?*

Response: Please see ["Why can't you put the pond in X location instead of Y"](#) explanation below.

16. Question: How much of this runoff down the Masthead area actually comes from Oakwood Village and the Research Park areas; and if it is considerable, how come the city cannot require those group to control the water runoff from their property?

Response: Oakwood Village and Research Park contribute about a quarter of the runoff that makes it to the Masthead Greenway. The City is unable to require that private property owners spend money on flood mitigation measures that have regional impacts without the private property developing or re-developing. If Oakwood Village or a portion of Research Park would redevelop (as it did at the Element), the City's Stormwater Ordinances would dictate the peak flow reductions they'd need to reach. To learn more about New Development/Re-Development Flood Prevention, please visit the [Watershed Studies Additional Information](#) website.

17. Question: Are there any trees that could remain in the proposed pond area that could survive a flooding once in a while?

Response: When the project is budgeted and in the design phase, engineers, landscape architects and restoration experts will look at where it is possible to save existing trees while still reaching the projects flood goals. The trees will be assessed as to whether that species can handle the depth and length of the proposed flooding—typically that is okay with trees on the top of the bank. Tree re-plantings would be planned in a similar manner. Please see the [Ecological Restoration in Stormwater Ponds and Greenways Storymap](#) for more information.

18. Question: Are there any areas that could be left at ground level to preserve the trees that already exist there?

Response: When the project is budgeted and in the design phase, engineers, landscape architects and restoration experts will look at where it is possible to save existing trees by maintaining the existing ground level, while still reaching the projects flood goals.

## Mineral Point Park

1. Question: Could part of this park be used as a reservoir? Or to slow water down in high rains? Could the adjacent public school's lands be used, too, for runoff reservoirs?

Response: Mineral Point Park, the area just east of the school and West of S Yellowstone Drive, is a landfill. We cannot store water on a landfill as it will prevent the gas extraction system from function, and it is not allowed by WDNR code.

2. Question: Memorial High and Jefferson Middle School could regrade and make some reservoirs on some of their lesser-used land. They could highlight wetland restorations, or use ponds for other educational purposes. Win-win. It would be really exciting to regrade the area between the middle school and Mendota Spring Harbor Greenway and create ponds, wetland edge plantings, etc.

Response: The school already does not have sufficient lands to sacrifice open space for flood storage. We looked into the possibility of underground detention as a solution in this area, and it is not cost effective. Mineral Point Park, the area just east of the school and West of S Yellowstone Drive, is a landfill. We cannot store water on a landfill as it will prevent the gas extraction system from function, and it is not allowed by WDNR code.

## West Towne Mall Pond

1. Question: I wonder if Madison Public Schools would let you put some retention ponds on their land across the street?

Response: The school already does not have sufficient lands to sacrifice open space for flood storage. We looked into the possibility of underground detention as a solution in this area, and it is not cost effective.

2. Question: Could the edges of the West Towne Mall Pond be planted with native wetland shrubs and wetland trees? Or maybe some wetland prairie edges? This would benefit pollinators, birds, and wildlife. It'd also be cheaper than mowing maintenance and look way better than just grass like now.

Response: Yes, the City would replant the edges of the new pond with native wetland and prairie vegetation. Please see the [Ecological Restoration in Stormwater Ponds and Greenways Storymap](#) for more information.

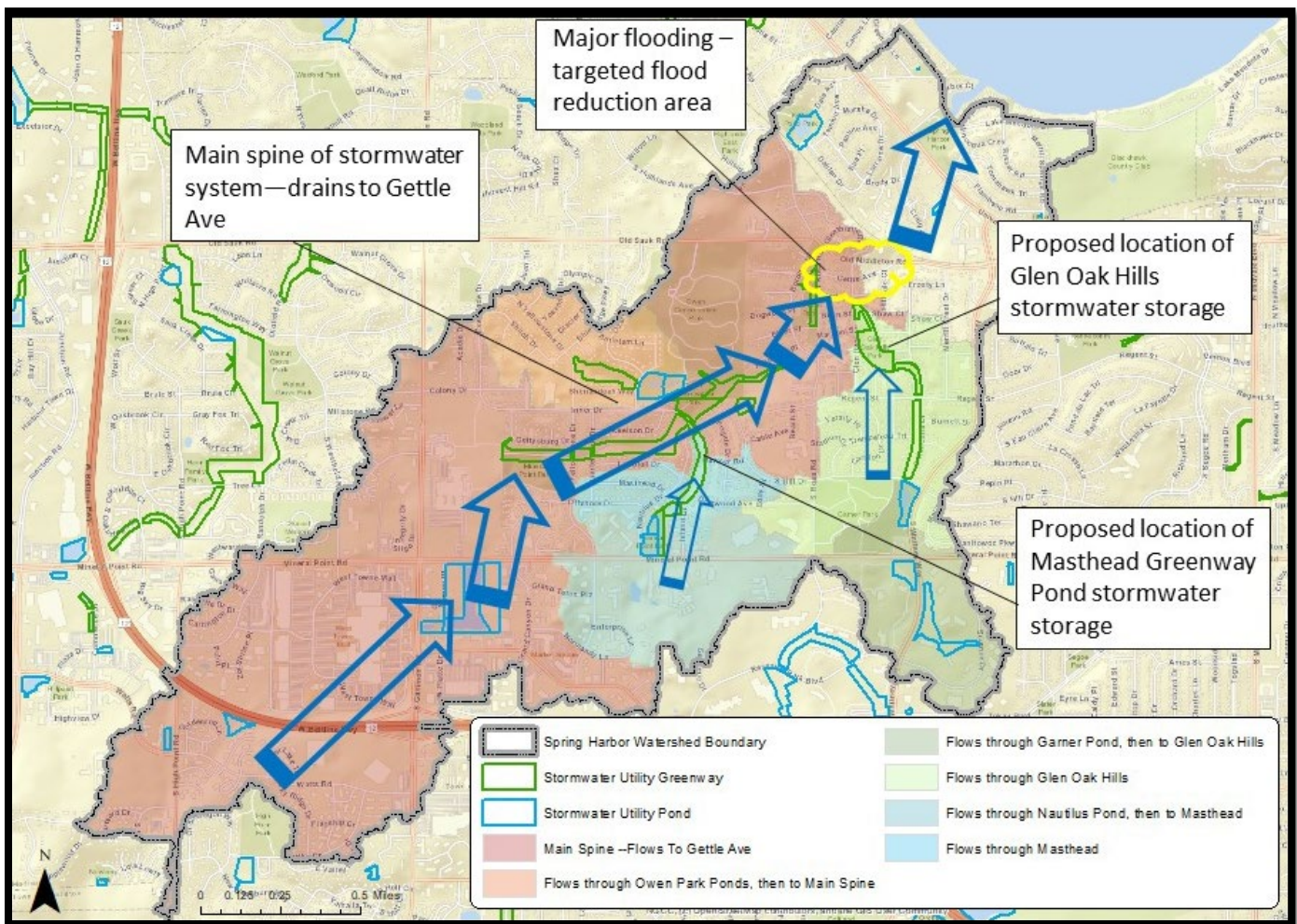
## Why can't you put the pond in X location instead of Y

A common question we've received is "why can't you put the pond in X location instead of Y." This was an especially common question from folks in the Masthead area who asked why the ponds cannot be placed in the greenways

upstream of Owen Park in the other greenways along Kneelson Dr or Gettysburg Dr, at Mineral Point Park, or around Memorial High School. While we understand why these areas are appealing (there are less trees), there are two very technical reasons why we have targeted flood storage in the Masthead Greenway and Glen Oak Hills Park/Greenway:

### 1. Delaying peak flows

This is a complicated stormwater concept. The flooding that causes the most destruction is the deepest flooding and it occurs when the largest stormwater flow, or “peak flow,” moves through an area. The Gettle Ave area is most impacted by flooding, and it is the most challenging to solve. In order to reduce the “peak flow” through the Gettle Ave area, we either need to hold water back upstream, or move more water downstream faster. We found that moving water downstream faster is very expensive, and wasn’t a viable solution—it would involve replacing a 17’x9’ box culvert under the railroad and all the way to Spring Harbor (~\$30 million), as well as completing the currently proposed pipe upsizing at Gettle Ave, and building the floodwall at Forsythia. That left the City with the option to hold water back upstream, to slow down the stormwater runoff, and reduce the peak flows.



See the image above. In this watershed, the area in red is considered the major drainage area, or “main spine.” All this water flows through the greenway system flowing west to east from Mineral Point Park, to Owen Park, to Gettle Ave. In order to make an impact slowing down the flows within this “main spine” you’d need a very large pond, and based on the narrow width of the limited public land, there isn’t a viable location for a large enough pond.

However, there are two branches of flow that connect into the main spine. One is in blue and flows through the Masthead Greenway. One is in green and flows through the Glen Oak Hills park/greenway. The flows through these branches are much smaller than through the main spine. Right now, the system functions such that the peak flow from the “main spine” reaches Gettle Ave at the same time as the two branches.

The intent of the proposed ponds in Masthead Greenway, and berms in Glen Oak Hills park/greenway are to hold back just enough water that the peak flows through these branches are delayed and they don't stack on top of the peak flow running through the main branch. This is easier to do in smaller branches because you need smaller ponds, and in these two branches, there are already ponds upstream which have already lessened the peak flows.

If you think about peak flows as volumes instead of flows, it's easier to think about a very simplified example—if you have a full bathtub and a full sink, and you can take 1 pitcher-full of water out of either one, it's going to have a bigger impact in your sink than in your bathtub. That's the general idea with why slowing down the water and creating ponds in the Masthead greenway works better than in the Quarterdeck greenway which is along the main spine. We'd need a much larger pond in the Quarterdeck greenway to slow down the greater flows of water.

## 2. Elevations of neighboring homes

In both Masthead greenway and around Glen Oak Hills Park/Greenway, homes are significantly higher than the centerline than the channel, and are not currently at risk for flooding. We are able to safely hold back water in these areas because there is vertical space to hold back water.

In the greenway system between Mineral Point Park and Owen Park, there are many low-lying homes that currently flood, or are very close to flooding. If we hold more water back in these systems, we will put new homes at risk of flooding.

## General questions

1. General Question: Can smaller Green Infrastructure (GI) be used to address flooding issues?

Specific questions from residents this question is addressing:

- *Starting with efforts to promote infiltration, trap runoff, and slow drainage (with native plants and smart use of rain barrels) would be a great, short-term measure that could make an impact. I like the inclusion of permeable pavement/concrete in the report too—I don't think we had discussed much of that prior to this report. I'd like to see the city encourage local efforts now/immediately and proceed with projects like these when we see the need for those bigger hammers*

Response: Please see the “Green Infrastructure and the Watershed Studies” section on the [Watershed Studies Additional Information](#) website.

2. General Question: Why report doesn't address water quality?

Specific questions from residents this question is addressing:

- *We also seem to have completely lost focus on the sediment, leaf litter, and water quality issues that were so important just a couple of years ago—where did those go?*

Response: Please see the “Water Quality and the Watershed Studies” section on the [Watershed Studies Additional Information](#) website.

3. Question: How does this study and proposed solutions improve the natural environment of Madison?

Response: Please see the [Ecological Restoration in Stormwater Ponds and Greenways Storymap](#) for more information.

4. Question: How do the proposed solutions address ground water recharge by increasing infiltration?

Response: The conceptual solutions were not intended to improve groundwater recharge. It is possible that specific projects could improve groundwater recharge, and that design aspect would be looked at when projects are budgeted and in the detailed design process. For more information, please see the “Groundwater versus Stormwater,” “Groundwater’s Role in the Watershed Studies,” and “Groundwater Recharge through Infiltration” sections of the [Watershed Studies Additional Information](#) website.

5. Question: What is Madison doing to improve natural features of these area some of which used to natural wetlands and waterways?

Response: Please see the [Ecological Restoration in Stormwater Ponds and Greenways Storymap](#) for more information.

6. Question: Holding ponds are a common mitigation solution to flooding. As low areas flood more, what responsibilities should all areas in the watershed have to minimize flooding in lower areas?

Response: The intent of the watershed studies it to figure out where flood solutions are most beneficial watershed wide. This means looking for upstream area to minimize flooding wherever possible. The City looked at what the impact of utilizing green infrastructure to reduce flooding watershed wide, and found that the results did not significantly reduce flooding in larger storms. You can read more about this on the “Green Infrastructure and the Watershed Studies” section on the [Watershed Studies Additional Information](#) website.

7. Question: Would there be a lower overall cost to abandon homes that are repeatedly flooded? Would the city purchase these homes?

Response: Please see the “Purchasing Houses, Buildings or Structures” section on the [Watershed Studies Additional Information](#) website.

8. It would be good to know that city planning prevents locating homes in flood prone areas today or that property owners are aware of the risks when they buy.

Response: Please see the “Purchasing Houses, Buildings or Structures,” and “New Development/Re-Development Flood Prevention” sections on the [Watershed Studies Additional Information](#) website.

9. Generalized Question: Will the City provide Commercial property incentives to mitigate flooding?

Specific questions from residents this question is addressing:

- *When participating in the Zoom breakout for the Masthead ponds, we asked whether there was a potential for the city to work with private landowners and/or to directly secure private land up-stream in order to better address storm water at its source. Specifically, we wondered about potential construction projects at Oak Wood Village, CUNA Mutual and other Research Park businesses, and whether there could be incentives provided to keep more of their storm water on their site, whether through permeable paving, storage or other solutions. We would find that preferable to the possible buyouts referenced on page 59 in the Construction Sequence section in the Gettle and Forsythia areas. We would hate to see the loss of affordable and sustainably smaller homes in the city and wonder why those same funds that could potentially be used for buyouts couldn't better address the genesis of storm water issues where there's significant impermeable surfaces due to commercial buildings and parking lots.*
- *How much of this runoff down the Masthead area actually comes from Oakwood Village and the Research Park areas; and if it is considerable, how come the city cannot require those group to control the water runoff from their property? That question about Oakwood was mentioned in the study document, but not answered.*

Response: Most private development does not have additional land to dedicate to extra stormwater management, even if the City funded the stormwater infrastructure. Development is getting denser and there is

not enough open space to make an incremental dent over what stormwater requirements are already required by ordinance.

Please see the “Purchasing Houses, Buildings or Structures,” “New Development/Re-Development Flood Prevention,” and “City-Funded Solutions on Private Property” sections on the [Watershed Studies Additional Information](#) website.

10. Generalized Question: How models will stay up-to-date and solutions re-assessed? Will the public be able to comment on updated models that lead to modified solutions?

Specific questions from residents this question is addressing:

- *Lastly, we are a bit concerned that other watershed plans – particularly the McKenna/Greentree watershed study – may end up modifying some of the options presented in the Spring Harbor plan and hope that the city will present updated information and provide for additional comment opportunities if that is the case.*

Response: Please see the “Watershed Study Model Updates,” and “Project Construction” sections on the [Watershed Studies Additional Information](#) website.

11. Question: The timeline of this entire project is not set as of yet. We realize it depends on the priorities set by the city using the software tool. When will this program be run and made public? When will we learn the priority scores of the Masthead Pond project and the Nautilus and Offshore and Inner greenway crossings?

Response: Please see the “Project Considerations” section on the [Watershed Studies Additional Information](#) website.

12. Question: Nowhere did I see addressed the beneficial biological aspects of natural ponds and streams addressed. How does this study and proposed solutions improve the natural environment of Madison?

Response: The study does not address the biological aspects of natural ponds and streams. The study’s intent was to figure out the scale of conceptual solutions needed to meet our flood targets. To learn more about how the Stormwater Utility works to improve the natural environment in Madison, please see the “Ecological Impacts of Solutions,” “Ecological Restoration in Stormwater Ponds and Greenways” and “Green Infrastructure and the Watershed Studies” sections on the [Watershed Studies Additional Information](#) website.