

Item 25-0723: Northland - Bellaire Flood Study Update

Utilities Committee

Tue, Jun 24, 2025 4:30PM

Aldersperson Vered Meltzer (District 2) 03:51

Now we have our information item 25-0723, the Northland Bellaire flood study update. That be director— Deputy Director Neuberger.

Deputy Director Pete Neuberger (Public Works) 04:02

Director three [ma'am], please. Thank you, Chair. There's a there's a memo attached to the agenda, and similar to the update that was provided to the committee back in March, we'd like to follow the same format, identifying completed tasks, ongoing tasks, and then future tasks, and then, because we've got some new members on the on the committee, if it's pleases the Chair, I'd like to talk to the to the items that were already discussed at the at the March meeting.

Aldersperson Vered Meltzer (District 2) 04:39

Wonderful.

Deputy Director Pete Neuberger (Public Works) 04:40

Okay, so I'll start with actually a little bit of project background then. So back in November 20, 2024 Common Council authorized DPW to contract with our storm management consultant Brown and Caldwell for the 2024d Northland Creek and Bellaire watershed stormwater evaluation. That was done in response to significant flooding that occurred following severe rainfall events in July of 2024. And the study limits are bound to the north approximately by I-41, to the east approximately by state highway 441, by Mason Street to the west, and Packard Street to the south.

Deputy Director Pete Neuberger (Public Works) 05:29

So, it comprises two previously studied drainage areas, again as the name says Northland and Bellaire. So those studies were generally done about 15 years ago, and they did yield several improvements that had already have already taken place, including the construction of several stormwater ponds within the Northland drainage basin, including the Memorial Park south stormwater pond. I call that one out in particular now, because I plan on bringing it up again later on in the discussion. Are there any questions about the study limits to begin with?

Deputy Director Pete Neuberger (Public Works) 06:14

All right, so then under completed tasks, I'll start with the tasks that had been reported back in March as having been completed at that time, and then I'll go on to talk about tasks that were completed between now and when the update was last provided in March. And then I think what I'll do is go through these completed tasks and then pause and see if there are any questions by any of the folks here.

Deputy Director Pete Neuberger (Public Works) 06:49

So, we had reported having completed a kickoff meeting with the—between DPW staff and the consultant, December 11, 24. We reviewed the location and description of the July 2024 and historic flooding reports with DPW. So, the July 2024 rainfall produced in the neighborhood of about 150 or 160 unique flooding—reported flooding incidents, more than half of which were within these two drainage areas, the Northland and the Bellaire, including what I would say was would be the significant majority of the most severe flooding, which included, included some structure flooding.

Deputy Director Pete Neuberger (Public Works) 07:36

The consultant updated the previously developed system models to reflect current industry standard rainfall distributions and depths. So, when the initial studies were done, the historic data tables that were used for the for the events that were evaluated, including the 1-, 2-, 10-, and 100-year events, had a certain rainfall depth associated with them, and those have been have now been updated to reflect the latest and greatest industry standards.

Deputy Director Pete Neuberger (Public Works) 08:12

They merged previously developed Northland model and the Bellaire model into one combined model and incorporating both watersheds. So, broadly speaking, a watershed is defined as an area where, if you drop—if rain falls within that area, generally speaking, the most of the water leaves that that given watershed area at the same location, at the downstream end of that of that location. So, in this case, there is some interconnectivity of the flows between these two watersheds. So, in some cases, there are overland flow paths that might travel from Northland into Bellaire and vice versa. Same thing with some of the storm sewer overflows. But it's just a good—it's a good general way to identify, broadly speaking, what the what the runoff patterns are.

Deputy Director Pete Neuberger (Public Works) 09:04

And then the other thing I would like to mention on that is the staff that make up the bulk of the Brown and Caldwell team were on the team that initially did the Northland study many years ago. It was a different consultant that had done the Bellaire study, and so the Brown and Caldwell team needed to familiarize themselves with the details of that model, make sure that they were comfortable with the with the design decisions that were made in the model, and then kind of bring the two into compatibility to make sure that everything made sense within one combined model.

Deputy Director Pete Neuberger (Public Works) 09:55

They also performed field site visits to verify previously modeled existing conditions, including flow paths. It's—this is kind of a way to, again, kind of test the accuracy of the model. The model includes flow paths, including storm sewers and overland flow paths. So, the two main ways that water is conveyed in real life and in the models is either through the city storm source system, or over land, which broadly means in the streets. Sometimes the water depth gets high enough that it'll over top the streets and start going into side yard easements or other properties. And then there are also, in some portions of the model, also constitute open channels. A good example of that would be the open channel that runs through Memorial Park and then goes underneath Ballard—or underneath Northland Avenue near Ballard road, continues east on along the south side of Ballard Road, eventually leaving the city limits at highway 441. So those are kind of like the major types of components of the model, in terms of conveyance.

Deputy Director Pete Neuberger (Public Works) 11:10

So, so again, the with the field visits, it was a way to put boots on the ground, put eyes on what was there, just to verify that the model components reflected what seemed to be happening in reality, based on the grades and where the storms sewer pipes and where culverts were and that sort of thing. So, I'll pause there briefly to see if there are any questions on these items that I listed as tasks having been completed before the last update.

Deputy Director Pete Neuberger (Public Works) 11:40

Okay. All right, so additional tasks have been completed since the last update, and that includes reviewing and updating the model based on existing and surveyed storm sewer information from the town of Grand Chute. So, there's a—there's a portion of the Northland drainage area near the northwest corner of the area that is in the

town of Grand Chute, and fortunately for us, they had some pretty good information about their system to share with us that we were able to build into our model.

Deputy Director Pete Neuberger (Public Works) 12:17

Another task that was completed was performing a sub-watershed level inlet capacity calculations. All right, so this is a high-level review of the of the street inlets and the backyard inlets that allow water to get from the ground service surface into our storm sewer system. So, the majority of that happens from the curb inlets that are in the city streets, and then there's also yard drains that would also contribute to that. And the reason—the reason that's important is sometimes the amount of flow that is conveyed with the system is limited by the capacity of the storm sewers, and sometimes the amount of flow that's conveyed is limited not by the storm sewers, but by the inlets that allow water into the storm sewers. So, they can effectively work as a throttle to throttle down the amount of flow, and at that point, it's actually the inlets that are the limiting factor there.

Deputy Director Pete Neuberger (Public Works) 13:37

So this part of the task is a way to not only to identify whether we're accurately modeling how much water is flowing through the storm sewers, but it also pointed us in the direction of trying to find locations where we might want to add inlet capacity either by taking existing inlets that what—are what DPW calls type C inlets, which are—they're the curb inlets that are in the—have openings in the gutter but not in the curb head, and evaluating whether there might be some advantage to swapping out those type C inlets to an E inlet, which is a higher capacity inlet that has an opening in the curb head. So—

Director Laura Jungwirth (Public Works) 14:35

[Starts talking but the microphone doesn't pick her words up well.] So, there's less li— [...] for clogging. So [...]

Deputy Director Pete Neuberger (Public Works) 14:48

Yeah, and part of the reason why that's important is as we make decisions about how to boil down how real-world conditions are reflected in the model components, one of the things that we need to do as designers is to determine the assumed amount of clogging that is taking place during a storm event. And there's different ways of taking a look at that, but broadly speaking, we try to choose, like, a middle of the road approach in most of these things, where we assume a moderate amount of clogging. And as Director Youngwirth pointed out, an E inlet that's got that big curb head opening on it, you're going to be—it's going to be much more resistant to clogging than a C inlet would be. And of course, when you have high rainfall event that's often accompanied by high winds, which can produce branches and leaves coming down, which can be a significant factor in what those inlets can actually take, take in under those conditions. So that's something we wanted to go in into with our eyes open.

Deputy Director Pete Neuberger (Public Works) 15:58

And we also then ran sensitivity analyzes for two different antecedent moisture conditions. This is something that we haven't done in prior studies, and as we reported back in March, we knew that the July events followed rainfall events that had resulted in higher moisture conditions within the soil at the start of the event than what we would normally see and normally model. So, this was an opportunity for us to see what the model would predict we would get for runoff conditions when there was more moisture in the soil than what we would typically expect to see. So, something relatively close to what we thought we had in terms of conditions leading up to the July 5 event.

Deputy Director Pete Neuberger (Public Works) 16:56

Broadly speaking, what that produces is very little difference in runoff from paved surfaces like rooftops, because a paved surface doesn't care really too much if it's wet or not. When the rain starts falling, generally, it's

going to it's going to run off something close to 100% of the water that falls on it. But when you start taking a look at open spaces with grass, that's when you start to see greater, greater differences in the amount of runoff. Because under drier antecedent moisture conditions, you're able to get a pretty decent amount of water soaking into the ground first. But those same areas, depending on the amount of moisture that it starts out with, you can see significant increases in the amount of runoff that you'll get to the point where, if you have saturated ground conditions, which is—I will say that we didn't have saturated ground leading up to July 5, but it was wet. But if you have saturated ground conditions and rain falls on that, it's not going to be a whole lot more absorbent than concrete. So can see there where it can make significant differences.

Deputy Director Pete Neuberger (Public Works) 18:15

We also ran sensitivity analyzes for concept level scenarios, using the 10- year and 100-year storm events to narrow down potential locations and types of practices for more detailed evaluation. I'll pause here and just define what we mean by when we say use terms like 10- year and 100-year events. A 100-year event, for example, is the event based on historic rainfall patterns that we expect to happen once every 100 years. I think a lot of us who have listened to weather reports have probably said, "How is it that we had a 100 Year event in 2024 when we also had a 100 Year event in, say, 2010?" and it has to do with that, with that definition. Maybe a more accurate way of describing it would be, rather than saying it's an event that probably, probabilistically will happen once every 100 years, a better way of looking at it might be to say it's a it's an event that has a 1% chance, or one over 100, a 1% chance, of having it happening in every given year based on historic precedents. Likewise, a 10 Year event is an event that has again based on historic rainfall patterns, a one in 10 chance of happening every year.

Deputy Director Pete Neuberger (Public Works) 19:36

There are other ways of defining these events too, not only in terms of recurrence interval, but also in terms of duration. You could have, for example, a rainfall event that lasts for 30 minutes. You could have a rainfall event that lasts for 24 hours, and that all goes into play in terms of the types of events that we that we model. Broadly speaking, the industry standard is to model 24 24-hour duration events. But sometimes we choose to lot—to model different durations. All right, two more. We began alternatives evaluations using the sense sensitivity analysis findings.

Deputy Director Pete Neuberger (Public Works) 20:21

Actually, I want to back up at this point a little bit and talk about what those, broadly speaking, what those initial findings were. So one of the things that we were interested in is taking a very high level look at whether, if we relied primarily on flood storage, either in the terms of surf surface storage, like a pond, or underground storage which would be think about, almost like a underground an underground vault, generally made of concrete, that works like a pond, but you don't see it because it's got ground on top of it, or a parking lot on top of it. So broadly speaking, a stormwater pond is cheaper per unit volume because you just dig a hole and you're good to go. But underground storage is another viable way to do it. It's just going to be more expensive because you have to build a structure that can support whatever you want to put on top of it. So, both are, both are valid tools that we're looking at.

Deputy Director Pete Neuberger (Public Works) 21:27

And this, this large-scale approach sensitivity analysis that we did was broadly intended to say, "What if we put huge stormwater ponds in at certain locations upstream of where we had some of the worst flooding?" kind of areas around Viola Street, south of Northland Avenue in that neck of the woods. And this is where I'd say we probably learned one of the most valuable things in the study so far, which is based on that high level sensitivity analysis, we learned that we could not—we could not expect significant improvements to happen relying solely on providing large storage volumes upstream of the flooding areas. There just simply wasn't enough storage that

we could feasibly provide upstream and get and get significant reductions. So, what that told us was we could still look at storage as part of a part of a system of improvements, but conveyance would—improved conveyance would also have to be part of that. And that kind of pointed us in the direction that we're currently looking at, and we'll continue to look at it in future tasks.

Deputy Director Pete Neuberger (Public Works) 22:44

And then the last thing that was completed was an initial utility conflict evaluation within the central Northland watershed area for potential storm sewer improvements. That's just basically a way of trying to take the blinders off and try to begin accurately identifying the costs associated with a different solution. For example, if we said we're going to upsize the storm sewer in a given stretch of street, say Northland Avenue, and that bigger storm sewer impacted a nearby water main or a nearby sanitary sewer, we would want to know the cost, not only of that bigger pipe and the pavement restoration; we would also want to know if there were ancillary costs associated with the utilities that might potentially have to be relocated. So that's the purpose of that part of the analysis. So, I'll, I'll pause there and see if there are any other questions about completed tasks.

Alderman Josh Lambrecht (District 1) 23:46

Was the July event one of the 100-year flood events? Just remind me again.

Deputy Director Pete Neuberger (Public Works) 23:54

So that's a really good question, and it's—the answer is a little bit more challenging than you might think, because we have to rely on rainfall gauge data. The official rain gauge data that we know is most reliable is the rain gauge at Outagamie County International Airport. There's also a rain gauge that we operate at the operations building on Glendale Avenue. So normally if you have a large storm system, those are two pretty good points to give you an idea of what fell within the city. But from what we can tell, the July 5 storm event was a very concentrated event, and the worst part of that event did not fall on those two rain gauge areas.

Deputy Director Pete Neuberger (Public Works) 24:46

So, there are some online sources that we were able to make use of. Most of them are privately owned. You can find them on different websites. And what we were finding when we started looking at this track that fell through the north central part of the city, this study area—we were seeing private rainfall gauge data that indicated higher rainfall depths than what we were seeing at the official gauges. So based on some of that private rainfall gauge data, we had some of them pointed to a 100 Year event, something in the neighborhood of about 100-year, one hour event. I think the rainfall gages and other locations pointed to something closer to about a 25-year event. Does that answer your questions?

Alderman Josh Lambrecht (District 1) 25:33

That does. The other question that I had, I guess, was, how frequently are those types of events? Maybe a 25-year event, let's say than the 100 Year event occurring in the Appleton area?

Deputy Director Pete Neuberger (Public Works) 25:46

Yeah. Another good question that goes back to what I said before about there's this duration component to it, and there's so many different ways to slice it. Like, are we just talking about 24-hour events or smaller ones? So, I think I'm gonna have to mostly go off of memory here and just talk about some of the bigger storm events that stand out in in my memory as, depending on which part of the city you were looking at, in which duration you were talking about, we could point to 25 Year and worse events occurring in 2024, 2018, 2013, 2010, 2003, and I think 2001. So—

Tue, Jun 24, 2025

Alderman Josh Lambrecht (District 1) 26:28

Six in the last 25 years.

Alderman Josh Lambrecht (District 1) 26:30

Thank you.

Deputy Director Pete Neuberger (Public Works) 26:30

Yep. And again, broadly speaking, these were not city-wide events. These were, these were specific areas of the city. For example, the 2003 event, it's almost like this extreme cell found Calumet Street and it tracked west to east across Calumet Street, and it produced some pretty significant flooding within that Calumet Street area. But in that same storm event, people on the north side of the city just saw normal rainfall, nothing unusual about it.

Deputy Director Pete Neuberger (Public Works) 26:32

Any other questions on completed tasks?

Alderman Vered Meltzer (District 2) 26:41

Alder Croatt, what mic number do you have? Go ahead.

Alderman Chris Croatt (District 14) 26:56

Thank you, Chair, and thank you Deputy Director Neuberger. I made some notes, but I want to make sure I heard you correctly. Could you just re-summarize the part about the findings from the high-level sensitivity analysis as it relates to large storage upstream of flooded areas? Because I know that was an idea that some have floated as a possible piece of a solution.

Deputy Director Pete Neuberger (Public Works) 27:41

So that part of the task simulated very large volumes of flood storage that could theoretically be built in in the Northland and Bellaire watersheds upstream of some of the areas that experienced the worst flooding, including Viola Street between Northland and the medical center. And these were, I would say, probably much larger volumes than we could reasonably expect to find just making use of, like parking lot areas and green spaces like that. They were really big. And again, it's because it was a sensitivity analysis. We wanted to pull big levers to feel like, if we maximalize this, we went all in on that type of an approach, what kind of benefits we could see in some of the worst flooding areas. And the takeaway on that was, even if we went all in on storage, without improving conveyance capacity in the system, we were not seeing significant reductions in the depth of flooding in some of the worst areas. We were seeing some, but I would go so far as to say not what we expected to see. We thought we were going to see larger benefits by providing large storage volumes upstream of the watershed.

Alderman Chris Croatt (District 14) 29:10

Okay. So, would it be fair to say large, very large storage would be as big as a city block?

Deputy Director Pete Neuberger (Public Works) 29:16

Bigger.

Alderman Chris Croatt (District 14) 29:17

Bigger than city blocks. Okay, okay, thank you. And then I think what I heard you say on your previous comment was, but this may not be a solution on its own, but in in conjunction with some other measures, it could provide some relief?

Deputy Director Pete Neuberger (Public Works) 29:35

That's correct, and that's going to be something I'll be talking about in more detail in the ongoing and future tasks.

Alderson Chris Croatt (District 14) 29:41

Okay, thank you.

Alderson Vered Meltzer (District 2) 29:45

Any other comments or questions? All right, please continue.

Deputy Director Pete Neuberger (Public Works) 29:50

Okay, so the next section is the tasks that are ongoing right now. So, we're working on an analysis toward developing a prioritized list of potential inlet capacity improvements based on the sub watershed level capacity calculations and other system information that I mentioned earlier. So, we took the high-level approach, and now we want to start to zoom into some of these areas where the high-level analysis said, "You know what? The model suggests that we could get, we could get more conveyance happening if we improved inlet capacity to get more water into the conveyance system." So basically, it suggested that maybe in some circumstances, the conveyance system was being under-utilized because there weren't enough inlets to make—to take full advantage of that.

Deputy Director Pete Neuberger (Public Works) 30:40

So, we want to work on that analysis, and that—I would say potential outcomes from that analysis are probably two-fold. One direction that that could go would be there may be areas where benefits could result strictly from improving inlet capacity but not having to rely also on storm sewer conveyance capacity. That could be—what might result from that sort of thing would be a project where it's like we're going to leave the storm sewer in the area the way it is, but maybe we look into that watershed and we say, you know, we're going to convert some of these C inlets to Es, and maybe we'll add more inlets in that area, and that might be enough to make a significant difference within that sub watershed area where we can, we can get a heavy hitting project just by doing some inlet work, which is not to suggest that we've identified that yet, but we want, we want to look at that.

Deputy Director Pete Neuberger (Public Works) 31:50

And then another direction that that could go would be a combination of inlet capacity improvements, conveyance capacity improvements, and potentially storage. All, all three that would work together to result in flood reductions.

Alderson Vered Meltzer (District 2) 32:07

Awesome.

Director Laura Jungwirth (Public Works) 32:07

I just want to add to that that as we've been looking at this, it's been really insightful to us as we develop future road plans and future designs that we're getting a better idea and a refined vision of how many inlets are appropriate per lane mile. What have you. So, we're really going to be taking this information and bringing it into our future work as well. So, it's not hoping here, it's something we're looking forward in the future to doing as well.

Deputy Director Pete Neuberger (Public Works) 32:10

All right. And then the other ongoing task is evaluating potential flood reduction benefits from increased stormwater detention within Memorial Park, among other locations, under multiple combinations of storage and conveyance scenarios. So, I mentioned earlier in the discussion that, after the study that was done around 15 years ago, that one of the stormwater ponds that was built was on the south side of Memorial Park. So, if you're if you're driving down Northland Avenue approaching Ballard road and you look off to your left at the south end of the park, you'll see a big storm water pond there. If you're familiar with Memorial Park, you'll also know there are multiple ponds there. I'll just mention at this point that the one closest to Northland Avenue is a stormwater pond that provides flood storage, and the pond and open water areas that are north of that are not designed for flood storage. One of those is a is a recreational pond that's been there for a long, long time. And then there's another open body of water that's associated with some wetland mitigation credits that were tied to a project that was done decades ago. So might be getting a little bit of, I'll call it, accidental flood storage in those north areas, but they're not designed for flood storage, and probably don't contribute significantly to that, to that situation.

Deputy Director Pete Neuberger (Public Works) 34:25

So again, right now we're, we're honing in on Memorial Park, which kind of, I'm going to peek ahead a little bit at one future task, and kind of talk a little bit here right away. So, this is, this is promising enough as a component that we've started talking to Park and Recreation staff about different ways that we might be able to expand the Memorial Park south pond that would add value both to the storm water storage and conveyance system and to contribute to recreational benefits within the park. And so more meetings need to take place, but we have begun those discussions. We've begun to talk about some of the elements that they're interested in incorporating into the south area of the park, in the general vicinity of Memorial Park pond. We've started thinking about how we could turn a project into a win, a win/win there, where you could have aesthetic benefits associated with the pond. And some of the things that Park and Rec has begun looking at, which I understand have been identified in previous capital improvement plans, including trails, trail lighting, and exercise stations in that area. So much more work to yet to be done in terms of coordination with Park and Rec. But those are some of the things that are on our radar. And it's looking pretty promising at this point I will say.

Director Laura Jungwirth (Public Works) 36:01

And there is [...] to put out there—

Aldersperson Vered Meltzer (District 2) 36:04

What? I can turn your mic on. What mic number do you have?

Director Laura Jungwirth (Public Works) 36:07

I didn't plan on talking this much, but can't help myself. I get excited about storm water. It's my background. The part of the reason we're honing in on Memorial Park as well is, you know, obviously owning the property, open space, it's going to be a much more fiscally responsible solution if we can optimize the spaces that we currently have while integrating some features that Parks is looking to add. So that's really high on our list to be looking at.

Director Laura Jungwirth (Public Works) 36:42

We are still working on, and I'm assuming Pete will get into it more detail—looking at other alternatives and options within that corridor as well. So, we're not isolating ourselves to this one, but I think on a priority list we're probably putting it up there.

Tue, Jun 24, 2025

Alderperson Vered Meltzer (District 2) 36:58

Thank you.

Director Laura Jungwirth (Public Works) 37:00

Thank you.

Deputy Director Pete Neuberger (Public Works) 37:03

Yeah, so, so kind of building off of what Director Youngwirth said, if you look at an aerial map at the Northland and Bellaire, you see an awful lot of built out areas. It's pretty difficult to find large patches of green. And when you, when you look at that, your eye's immediately drawn to Memorial Park as something that really stands out as being a rare example within that area of very large open space areas. And so, as you can, as you can imagine, when you have lots of developed paved surfaces that are contributing to run off, that means that, while you can get benefit from smaller storage volumes, we're really we're really trying to do what we can to see where the big areas are there where we can really hit hard with relatively large storage volumes. So, while, while we're not focused specifically on that, to the exclusion of other areas, there are other areas within the watershed that are on our on our radar, other open spaces that exist, and chances are, if you look at an aerial map and you see a big patch of green, we've looked at it, or we will go—we'll be looking at it.

Deputy Director Pete Neuberger (Public Works) 38:24

We're also—another one that tends, tends to catch our attention is larger parking lots, and that's where we might have to, you know, potentially start looking at some of the underground solutions that you mentioned before. We have done that that before. There's an underground flood storage area in the parking lots at Appleton East High School. It's significantly more expensive than surface flood storage, but we want to make sure that we're covering all the bases when we look at these cost benefit analyzes in terms of potential solutions.

Deputy Director Pete Neuberger (Public Works) 39:05

And there may also be areas where we have reports of properties that perhaps are under-utilized, that might present an opportunity that we might want to take a look at to too do some underground storage and that sort of thing. So, we wouldn't be prepared to talk about specific properties at this point in time, other than Memorial Park, but broadly speaking, that's kind of the rule of thumb on where we're looking.

Deputy Director Pete Neuberger (Public Works) 39:35

Let's see. All right, I'll just continue rolling right into future tasks unless you've got something you want to— Okay, all right. We want to continue to identify storage and conveyance improvements alternative within the watersheds. So, conveyance and storage are kind of a one two punch. So generally speaking, when you improve pipe capacity, that's means that water is going to get—head down slope more quickly. And you want to make sure that you don't simply move the flooding problem around which is—which can be of concern if you just put larger pipes in you could see—for example, in some cases, you could see that contributing to flood reductions at the high end of the pipe system, but you also want to be careful that you're not increasing flooding at the bottom end of that. So, one of the ways that that dynamic can be mitigated is by incorporating flood storage to create a buffer in the amount of water that you're doing there. So that's part of why it can be so effective to combine flood storage with conveyance.

Deputy Director Pete Neuberger (Public Works) 40:54

We're going to continue to refine potential improvements, check and adjust for potential significant utility conflicts. Again, those can those can influence the cost significantly sometimes. We want to develop a winSLAMM water quality models to identify potential storm water pollution reduction measures that could be

incorporated into alternatives under the consideration. So, we want to be good stewards of our natural resources, and the DNR and the EPA encourage us to do that by making us subject to a city wide MS4 permit, and so we have certain permit obligations there to make continual progress on improving the water quality of our stormwater runoff. So, we're using this as an opportunity to get a twofer on this. So anytime that we do a water quantity project, we look for opportunities to improve water quality at the same time.

Deputy Director Pete Neuberger (Public Works) 41:52

We're going to group the most highly ranked individual alternative components into three combined alternatives and present to utilities committee with recommendations for approval. So, we don't yet know what these might look like. Broadly speaking, what we're trying to do is take all these various individual components that seem to be potentially cost effective, boil them into groups of potential projects so that it's digestible information, focusing on the ones that we think are going to have the best bang for the buck, and then present those to the utilities committee for with—what could be a recommendation, and then hopefully for an indication from the committee on what's viewed favorably.

Deputy Director Pete Neuberger (Public Works) 42:36

Then we would look for developing design refinements for selected combined alternatives to facilitate resolution of utility conflicts in preparation of future design phases. Again, it's just continuing to focus in more to come up with more and more accurate cost estimates as we get closer to what we think could be viable solutions. And we would prepare a technical memorandum documenting the procedures, recommended improvements, and conclusions for all tasks under the project. And we do that, again, not only for the sake of being transparent in our processes, but also to set up our future selves and our future decision makers to as conditions might change and we continue to experience various events or the benefits of projects that might be implemented, we can continue to make informed decisions using well documented examples of the work that's been done to date. And that is the discussion that I have before committee, and happy to answer any questions about the latest round of tasks discussed.

Aldersperson Vered Meltzer (District 2) 43:51

Thank you. First, I am glad to see that we're moving along with this. I wasn't sure exactly where we'd be at, as far as, you know, ongoing tasks versus completed tasks. I think that definitely can see that a lot of hard work is being done. My first question that I have after this presentation is those three combined alternatives; when can we expect them to be presented?

Deputy Director Pete Neuberger (Public Works) 44:22

So, I'll preface my remarks by saying we want to make sure we get this done right. And sometimes, as we're going through the steps that I mentioned, things sometimes take us in a direction that we weren't anticipating early on in the process, and we want to make sure that we give ourselves an opportunity to follow those leads that might come up. Based on what we know today, I think before the end of the year we would be in a position, probably likely to prepare some to have some alternatives presented to the committee.

Aldersperson Vered Meltzer (District 2) 44:58

Thank you. Yeah, it is a little bit surprising that giant storage wasn't as much of a kind of solve-all as we thought it would be. So, I think there's definitely a lot for us to learn about storm water as we follow and engage with the process that you started. Any—Alder Croatt, or let's start with the committee up here. Alder Dougherty.

Aldersperson Denis Dougherty (District 15) 45:33

Oh, I didn't have a question.

Alderson Vered Meltzer (District 2) 45:35

Oh, okay, if none of us have questions, then, yes, go ahead, Alder Croatt.

Alderson Chris Croatt (District 14) 45:39

Oh, thank you, Chair very much, and thanks for the update and new information presented today. A couple things. This—the flooding area that occurred for the new members was—a lot of it was in district 14 just a couple blocks from my house. So very aware of what happened in that neighborhood, and you know, the ramifications of the flood, so appreciative of the work that's going into the study. Clearly, you know, we're almost a year from the event, and we're talking about end of year for possible action at the committee level. So, I think that alone says how much work going into this, you know, from the consultant and from staff. So, appreciate that.

Alderson Chris Croatt (District 14) 46:23

One thing I just want everyone to know is just because there's two people here today doesn't mean that there's not a lot more people following this. I sent out a note. I did get a couple of responses from my constituents. They are following it. They are, you know, looking for updates from me and from memos and things. One of the things that I did get asked for was, "Is there any additional documentation or information available that has not been part of the packet for these meetings?" And I think the answer is no. You referenced, you know, working with Grand Chute, looking at Memorial Park. I mean, that's all part of the study, right and the details of that will come out at some point?

Director Laura Jungwirth (Public Works) 47:04

Correct.

Alderson Chris Croatt (District 14) 47:05

Okay.

Director Laura Jungwirth (Public Works) 47:05

That'll be part of a full report. And right now, because it is such a fluid process, we wouldn't necessarily have anything concrete to—

Alderson Chris Croatt (District 14) 47:12

Share.

Director Laura Jungwirth (Public Works) 47:13

—disseminate and share.

Alderson Chris Croatt (District 14) 47:14

Okay, thank you. That's what I thought. I just wanted to ask. And then if this potentially, by the end of the year, as was stated, that would come back as some sort, some form of a proposal. Would there—is there a planned update between now and then? Would we—in like, two, three months, would we get another update as to the progress on tasks?

Deputy Director Pete Neuberger (Public Works) 47:36

That's correct. We're—broadly speaking, our goal is to provide updates every quarter, so approximately three months from now.

Alderson Chris Croatt (District 14) 47:43

Okay.

Director Laura Jungwirth (Public Works) 47:46

And I will add that while we won't have the options in front of you for definitive vote until the end of the year, consumption until towards the end of the year, on the back side of that, we're currently working on budget assembly, and so we are including dollars in our in our CIP to potentially allocate towards some of these. So, while we may not have an exact project in mind, we do want to allocate dollars to flood control in whatever shape or form that takes.

Director Laura Jungwirth (Public Works) 48:25

And I will also add to that, that this is not the only area that we are assessing. We've been doing internal modeling in the Fall Creek watershed, for example. So, we're going to have some options coming forth to you, because we want to be equitable throughout the entirety of the city, right? We—as Pete alluded to, there were pockets of storms throughout over the years. So, we recognize this is not the only area. So, we're keeping those, those allocation of dollars probably more broad at this point, so that we can allocate them appropriately once the time's come to make that—the time comes to make that decision.

Alderson Vered Meltzer (District 2) 49:08

I appreciate the proactive thinking and making sure that the money is set aside for the future allocation. I think that, especially with the budget coming up right now and the timeline that we're on, I think that we're well poised to be able to get right to work. I think that's important. You know, time is time—time is of the essence with dealing with this issue.

Alderson Josh Lambrecht (District 1) 49:33

So, one question that I just thought of, or maybe alluded to a little earlier about recognizing the frequency of these happening, these events happening maybe more frequently with changing weather patterns. Is some of those potential future forecasting of increased rainfall events included in some of the studies that you are doing, or is most of the data that you're looking at kind of the past, already completed events that may be, you know, as weather changes or patterns change, they might be out of date moving forward?

Deputy Director Pete Neuberger (Public Works) 50:10

So, the—we're using the latest and greatest. We're using current industry standards which have been updated since the since the time of the initial studies. Projections have been made by a federal agency whose name escapes me right now, but at some point in time, we do expect that a new set of standards will be published, but at this point in time we don't know enough about that to be able to make use of that effectively. So we're just saying we're going to use the standard that's identified in the ordinance right now. But we all we are aware that those standards could be coming down the pike, and I would suggest that one of the ways that we're able to keep that in mind would be to look at some of these conditions, such as increased antecedent moisture and things like that, that help us to kind of gauge what happens if things get a little bit worse than the current modeling standard that most communities use. So, we are keeping an eye on that.

Alderson Josh Lambrecht (District 1) 51:28

Yeah, I just wanted to make sure we're thinking about that, because as we're looking and utilizing some of this for future planning and future road construction, things of that nature, I'd love for those to be already ready to go and not have to worry about this anytime in the near future. So.

Director Laura Jungwirth (Public Works) 51:42

We do have in a lot of our watersheds such that that you were speaking to where we have it already laid out what storm sewer upsizing needs to be, those conveyance upgrades in certain areas, so that when we do get to that road, we grab that plan and we say, okay, that—all the modeling points us to needing to upsize to a 48 inch, or whatever it needs to be for that area. So, we are trying to be as proactive as possible with that.

Alderman Josh Lambrecht (District 1) 52:08

Thank you very much. I appreciate that.

Alderman Vered Meltzer (District 2) 52:15

Maybe this is just a point of curiosity, but is there such a thing as a 500-year storm in those metrics out there, and how proactive or how sensitive can we be to sort of something of a—on a scale that's just completely historically unprecedented?

Deputy Director Pete Neuberger (Public Works) 52:43

Yes, there are, there are statistics for 500-year events. And for example, FEMA flood insurance rate maps have started to include water surface elevations for 500-year events in addition to 100-year events. So, the industry standard on that in terms of flood plain zoning ordinances is to regulate based on the 100 Year event. So, City of Appleton, and I think this is true most communities, while we regulate on the 100 Year event, you can still look at a Flood Insurance Rate Map and a FEMA flood study, and you can still see what they predict will be there for the 500-year water surface elevation.

Alderman Vered Meltzer (District 2) 53:25

Thank you. Any other comments or questions? All right. Well, thank you very much for the presentation. Definitely really appreciative of all the hard work that your department and your teams and the consultant are doing.