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ITEM 1: CALL TO ORDER: Mayor Flaute called the City of Riverside, Ohio Special Council Meeting to order at 6:03 p.m. at the Riverside Municipal Center located at 1791 Harshman Road, Riverside, Ohio.

ITEM 2: PLEDGE OF ALLEGIANCE/MOMENT OF SILENCE Mr. Ken Curp, Councilmember led all those in attendance in the pledge of allegiance.

Mayor Flaute: Before we get started I'd like to let everyone know that we had a very unfortunate incident last night where one of our folks out in the service department was coming home from work and became involved in a fatal accident. Mr. Steve Bucholtz was killed last night. He was a 24 year veteran of our service department. It has been a rough day for everybody and our staff is dealing with it. So our condolences go out for him and if we could just have a moment of silence to acknowledge that I would appreciate that. A moment of silence please. Thank you very very much.

ITEM 3: ROLL CALL: Council attendance was as follows: Mr. Curp, present; Mr. Denning, present; Mr. Fullenkamp, present; Mrs. Lommatzsch, present; Deputy Mayor Reynolds, present; Mr. Smith, present; and Mayor Flaute, present (Mayor Flaute left the meeting at 6:57 p.m.)

Staff present was as follows: Bryan Chodkowski, City Manager; Emily Christian, Assistant City Manager; Mitch Miller, Service Department; and Bob Murray, Economic Development Director.

ITEM 4: EXCUSE ABSENT MEMBERS: All Council members were present.

Mayor Flaute: Before we get into the work sessions, I do have another meeting tonight. So it's one of those nights. I definitely will be paying attention to everything that is going on here and hopefully we can bring; once we learn what we are going to be doing we can bring this up to the neighborhoods or something like that. Believe me I'm leaving because I have to leave but I will be in touch with everything and Ms. Deputy Mayor Reynolds will take over the meeting in my absence. I appreciate everybody coming tonight, thank you so much for hearing what we have tonight and what we have to do.

ITEM 5: WORK SESSION ITEMS:

a) Storm Water Master Plan presented by URS

Mr. Chodkowski: As Council is well aware, storm water issues have become a recurring matter that city staff and city Council has been asked to look at over the last few years. Mayapple, Glen Martin, Fourth Street and obviously Lilly Creek have been issues that have all been addressed in some way, shape or form by staff or Council in the last six years. To try and address these issues in a more comprehensive manner, it was the recommendation of staff to commission a Storm Water Master Plan study to effectively look at the city as a whole to identify the specific areas of concern and issues that we were aware of that citizens in our community were aware of and have those issues looked at by professionals and have those professionals make recommendations on how we might be able to address those issues once and for all and be able to maintain improvements once they were undertaken. So to that, last year the city commissioned a Storm Water Master Plan with then URS, now AEComm. That study was finished earlier this year, I believe late June is when the study was complete and per Counsel's request we were able to finally coordinate a date, tonight to have a summary presentation of that document which you were provided, I believe it was three or four weeks ago for review. So with that, there are representatives here from AEComm and I will yield the floor to Mr. Jeff Kerr

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who will be one of the presenters tonight along with his colleague for the master plan to address any of Council's questions or concerns.

Mayor Flaute: Thank you Mr. Manager. Welcome Sir. We're glad you're here and we look forward to hearing your presentation.

Mr. Kerr: I am Jeff Kerr from AECOM. We have a brief presentation tonight, about 15 or 20 minutes and then we will open it up for questions after that. We will stay as long as you would like to answer questions. As Mr. Chodkowski said we wrote a Storm Water Master Plan over the last year and we originally looked at 13 problem areas and we ended up making recommendations for 11 capital improvement projects and about five maintenance projects. I realize that doesn't add up to 13. We actually split it up into a few areas and other areas we just recommended for maintenance. We did pass out a hand out. The Councilmembers all have one. What that is is basically an executive summary of the executive summary. We wanted to give you like five pages that boiled down everything that we wrote like we have the north and south problem area maps, problem area descriptions, recommendations and costs, a prioritization schedule and some projected annual costs. And we are going to cover the same material on the slides so those of you that don't have a handout, we'll cover the same material. So at this point I would like to introduce Josh Reinicke who will start off the presentation and then I will pick up after he is finished. Thank you.

Mr. Reinicke: So as Jeff alluded to, we spent a fair amount of time looking over the city's GIS information, we came down and visited it more than once and had city staff drive us around each of the identified problem areas from the city's perspective as to what the problem areas were. And then we went back to our office and started looking at all the other information that was provided to us from the resident questionnaires that the residents very kindly filled out and got back to the city and supplied to us. We created a database of those and mapped all of those. Again looking at the GIS information we looked at gaps in the storm water conveyance system that the city currently has and I'm sure as you are probably all well aware there are gaps in that defined storm water conveyance network within the city. So we looked at all those and started looking at how we could best define the problem areas. It would make sense for us to be able to find solutions. The first thing we had to do given the nature of the way Riverside is laid out, we split the city into a north side and the south side so that we could identify problem areas on both of the two sides of Riverside with basically the Mad River bisecting the city into its two halves. So from that we came up with is a list of seven problem areas in the north side of the city. I do have a map here and you folks have a map in your package of information. It is a map straight out of our Storm Water Management Plan report. The problem areas of the north side are the second page of this handout. And I will leave this right up here a little longer for those of you who don't have a map. I will walk through each of the problem areas on the map just very briefly. As Mr. Kerr said we've got 13 problem areas. I could spend probably 15 minutes talking about each one of these problem areas and bore everyone in here to tears. So we'll talk about them very briefly. In the summary of information that Council has, there is a large table that is page 4 that provides information that is also in the Storm Water Management Plan. And I will walk through this here momentarily as well. The table provides each of the problem areas, a description of the problem in one or two sentences and then the description of the recommendation in one or two sentences. And then what everyone is most curious about I'm sure is the construction costs. That's generally what I'm going to walk through. So we've got on the north side seven problem areas that are spread throughout the whole area. So to orient folks on the map, north is to the top. We are sitting down here somewhere. So our problem areas, some are large, some are small. Up here for example is really one property where the stream runs through the front of the property and of course is going to flood every once in a while. The city has done improvements out there to date. The

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recommendations we have for that particular problem area are maintenance; that is a maintenance project area. Make sure city staff goes out and maintains it and the culvert is clear and checks on it frequently after rainfall. Now on the flipside, rather than going through every individual problem area in great detail; so up here is maintenance and even here at Old Troy and Schwinn Drive it is maintenance because that is an open ditch where the ditch line has been filled in overtime. Sediment and grass is growing in it; it is a couple of culverts in the roadway. You should be able to go out there with the city backhoe and regraded, reseed and the problem will likely go away. But in these other areas, for example down here at problem area two at Rohrer and Pleasant Valley, it is a bit more extensive problem. Storm sewers that are under capacity and inlets that don't have the capacity to get the water off the roadways so the recommendations that we come up with down there are going to be more extensive with more storm sewer being installed, righting it to the existing city-owned retention pond; the Lorella Pond, which we will freely admit we do not fully understand today how water leaves that pond. All we know is that it does. It seems to just disappear into the ground wonderfully. It is a quirk in the geology I am sure. It is the kind of area that anything we come up with; right now we're saying let's take it to Lorella Pond it seems like a convenient place to put additional storm water. I'm not gonna say that is the end all result. It just happens to be the recommendation that we have in the report today. When someone goes out to design it in the future additional improvements may be necessary to make sure that we aren't doing anything adverse to the Lorella Pond property. So that; again I realize I glossed over the north side problem areas fairly quickly by just talking about a couple of them. I have no problem answering questions now or at the end of the presentation. I just want to be able to walk you through what some of these problem areas are. Most of the ones on the north side of the city are strictly related to conveyance and capacity which is basically how much water can you get off the surface of the earth with what you have out there today. And the reality is not a lot. Most of the problems in the northern part of the city are just the conveyance system isn't there today; there are gaps in the system. It is a roadside ditch that was there 30 years ago that has filled in over time so now instead of the water draining away from someone's front yard it sits in the front yard. So to improve that we are going to add storm sewers back in and we are going to add some sort of system in to get that water away from those properties. That is the north side of the city. On the south side of the city we have identified six problem areas, a couple of which I am sure there are multiple folks in the audience as well as yourselves that everybody knows there is significant problems there. The Airway Ditch being one and Lilly Creek being another one. And a couple of these areas have been split out into more than one solution. We will show it here in a couple minutes on the cost summaries you will see, like problem area 11, to solve that we have really broken it into two solutions. And where that problem area is for example; again to orient you on the map north is now the left, here is the Air Force Museum. Problem area 11 is this large area here. What we realized was that initially we thought this was just one large area because generally speaking the water all drains to the west into this creek system here. But once we start looking at it we realized there are two separate solutions because it is kind of two distinct areas. So this area has one solution and this area has another solution. So again these are where the problem areas map out with everybody's favorite Lilly Creek, Airway Ditch. There is one that is not mapped on here and that is the Springfield problem area, that is problem area 13. Because that is the railroad culvert debris has clogged it in the past. So that railroad culvert is clogged with debris and has caused flooding upstream of it and again it is a maintenance concern. You go out and clear the debris off of it. The debris is going to accumulate because it is a wooded area right there by the railroad culvert and if you go out and make sure it's clear, it's not something that is going to be requiring heavy maintenance on a regular basis. So in the south area, Lilly Creek as you will see here momentarily requires a bit more attention than some of the other areas. In the Airway Ditch there are jurisdictional issues that makes it difficult for us to come up with solutions with the known jurisdictional issues. And with jurisdictional I mean who maintains it? The city, the county, the Air Force; so there are jurisdictional issues related to the Airway Ditch that kind of had us backing off on much

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more than saying it should be dredged because there are a lot of storm sewers out there where we don't even know where they discharge because you can't see them because they are buried in the ditch line. So the ditch is going to have to be cleared out; a lot of vegetation taken out for us to better understand what the problem is with the ditch. And dredging it goes back to those jurisdictional issues of who is supposed be doing the dredging. So unfortunately we don't have a lot to say for Airway Ditch.

Mayor Flaute: Does Airway Ditch flood? Does it cause flooding?

Mr. Reinicke: The problems that were reported to us are actually areas that are tributaries to it but it is hard for us to say why those are flooding because we don't know if it is because the storm sewers have no outlet because they were underwater and under the sediment of Airway Ditch or whether it is a capacity issue backup in the area draining to it or further complicating it is the jurisdictional issue where you have Base housing scattered throughout here and it is a question of who is supposed to be maintaining it and should I be going to study this type of issue. So Airway Ditch in that regard is kind of a perfect storm of unknowns. I hate to say that one zone is paid to find solutions for you but Airway Ditch is kind of a nightmare in that regard. The south side problem areas are larger and more diverse in terms of what their problems are. Like I said the north side is largely capacity related; there simply is no system so therefore it floods. On the south side we've got a mix of Airway Ditch which might be capacity related because of the ditch system, Lilly Ditch is erosion and yard flooding which gives us a different set of solutions and then we've also got problem areas down here where maybe we increase the capacity of the system that is there today but in this problem area we are maybe going to build a diversion sewer to get water away from this creek because this creek is so close to people's properties, to their houses, to their garages and to structures that could be flooded and caused true damage to individual property owners. A slightly different solution than what we are going to come up with in the north which is largely just we are going to put storm sewers in and we are going to get the water away. So to jump to the nuts and bolts of this there are a couple of problems that we had to split into two. So problem area one on the north side of the city and problem area three also on the north side we split into two different solutions. You'll see based on these prices we have a low value of \$152,000 to do dredging on the Airway Ditch but then that's all that cost is is an estimate of dredging because again we don't know what else needs to be done in that area until the dredging is done and then we would have to go back and do another engineering analysis of some sort to figure out what really needs to be done to solve the problem around there. So in terms of actual capital improvement projects; as Mr. Kerr said we have capital improvement projects and maintenance. What you see listed here are the capital improvement projects so you will notice project area 4, 5, 7, 12 and 13 aren't listed. Those are all maintenance issues from our perspective. Those could largely be handled by city maintenance crews. If an additional report is done and it comes back and says our maintenance crews aren't comfortable doing that then it is something that you could come back and have an engineer prepare a plan and put it out to bid for a contractor. The project seem to be small enough for the most part for the city maintenance crews. They know the city very well and they know what they need to be doing to do some of these smaller projects. But these are the capital improvement projects. So aside from the Airway Ditch low value of \$152,000 the next lowest is the \$408,000 for the Ingleside/State Route 202 problem area. And then we go all the way up to a \$6 million price tag for Lilly Creek. This table lists out the descriptions and where the problem area is and then a couple sentence description of what the recommendations are for the area. Rather than going into each one individually, again when we go to answer questions I will happily describe exactly what the recommendation is on any particular problem area. But I didn't know how much detail you all wanted to get into with a listing of this many problem areas. A couple of things that I will point out, problem areas 8, 10 and 11 will certainly require an additional engineering survey; an additional study. The recommendations that we have in our report

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are preliminary at best. We think we've identified solutions that will take care of the problems but again in 8, 10 and 11 we need to study it more because there are things that we saw in the information that we had that said we need to look at this and little bit in greater detail. There are complications in the way the engineering will need to be done and we want to make sure we aren't causing problems elsewhere. And problem area 8 in particular you'll notice that we have this little asterisk next to the price tag, that's because that price that's up there is not actually one that we developed. That is one that LJB developed in a previous study for the city but the information that we had did not provide us any better recommendation than what they came up with. And again we've detailed that in the text of the report. So that's why that one's got an asterisk on it because we didn't develop that cost. So again that's an area that because of that will require additional study to really figure out what the best solution is. And then also problem area 3, as part of the solutions to the area there were two streets we recommend be taken from what we considered to be an open section today where the street goes right into the grass with no break line so the water runs right into the grass. The recommendation that we have is that curb and gutter be installed so that is a fairly significant cost but it also means that it is a roadway project so as Mr. Kerr will get to in a couple of minutes when we talk about funding and implementation, roadway improvement projects have other ways that it can be funded. If it is just a storm water specific project there are certain funding streams that aren't available if it is just storm water. Now if you're talking a roadway project, we are recommending curb and gutter so the roadway will be dropped 6-8 inches, you will get a curb at both sides, you will get a storm sewer underneath of it and that will convey the water away and the roadway itself acts as a flood routing path. So one very heavy rain falls if it can't get into the storm sewer it can at least stay in the roadway instead of going up into people's yards like it does today. Because today the curb line is just a flat surface where the water just spreads everywhere into people's front yards. So that's why for example in problem area 3 our costs are what they are of over \$1 million because you are installing 1100 to 1200 feet of curb and gutter roadway. So it is a complete rebuild of the roadway at that point. And aside from the engineering reasons for adding curb and gutter on the streets there are other neighborhoods in that area that have curb and gutter so it is kind of a gap in the curb and gutter area. So from a visual standpoint you get some consistency in appearance. So with that, you will notice that the total construction cost currently estimated is over \$15 million for all of these projects but with the expectation of additional studies that would needed to be done in three of the problem areas. I'm certainly not going to say that the costs are going to go down nor am I going to say they are going to go up, they are going to be different. That is the best I can say right now. Right now since they are preliminary maybe an alternative might be to put in a bigger pipe than it really needed because we are trying to be conservative for what we needed to deliver to you as part of this report. A further engineering study might make it a pipe that is a little smaller or pick an alignment that is a little bit different which will change the cost one way or the other; up, down or maybe it will stay the same. So I realize that is a very quick gloss over of what we did to get all of these problem areas and what the problem areas are but again rather than going into each problem area individually I wanted you to tell me what problem areas in particular you are most interested in and we can go into greater detail with those. Before we get into that greater detail I do want Mr. Kerr come back because he's going to talk about what we found was the project prioritization and some sort of approximate schedule based on what we've been told from city staff.

Mr. Kerr: Thanks Josh. I'll just wrap up with a couple slides here. We did prioritize the projects. We prioritize them based on input from the city, looking them over ourselves in this prioritization schedule is just for the capitalization projects not for the maintenance projects. The maintenance projects would be handled by the city on their own schedule depending on the time that it will take to do them. The ranking shows the Lilly Creek project as the highest rank project followed by the problem area 1 project which is split in half. Either one of them could probably be done first or they can be combined into a single project. The fourth-ranked project was

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the Charlwood/Harlou/Sheller area at \$2.9 million. We try to spread these out over about a 25 year period. They can go on a faster pace than that. I would say some of these larger projects will probably be a combination of grants and loans and maybe some local funding to build some of these larger projects. Some of the smaller ones through a loan or you could possibly fund them through storm water utility revenues. I will talk about that next; the possibility of implementing the storm water utility. What we haven't talked about yet are projected annual costs. Now annual costs are a combination of maintenance costs and capital improvement costs. Now this is a projection and right now I would say the city spends about \$180,000 a year on stormwater maintenance roughly. And so what we did with this table as we incorporated some of the city's actual costs such as street sweeping and some of the other ones and then we added some assumptions from working with other cities about the same size of about 30,000 to 35,000 people. We added in some typical other costs incurred. Now this varies greatly between cities because in your case you have a lot of ditches and in some cities they are all concrete pipe or storm sewers so there is a lot of interpretation in this table on how to come up with these numbers. So what we came up with, on the upper part of this table we show a capital improvement project of about one per year and we came up with about \$510,000 a year to spend out of your budget. And that will consist of an actual project that cost about \$400,000 plus engineering and a report and everything so ends up being about a \$500,000 project each year. Funding sources for these projects, you have some options. We commonly use Ohio Public Works Commission and OWDA loans. We also get grants from Ohio Public Works Commission. It is kind of hard to get them for storm water. Sometimes the Public Works Commission is more likely to fund a public transportation project so that sometimes we combine storm water projects with a transportation project so we can get our storm water funded that way. There are other sources of grants and loans that are out there. I have even started to list the number that are available but these are two of the most common; the Ohio Public's Work Commission and OWDA. A lot of cities have implemented a storm water utility and what that is is a storm water bill and it is based on a unit which is based on the average impervious area on a residential lot. We've worked with a number of cities on implementing these. A couple of examples include the city of Dayton, I think their 2014 rate was \$5.42 a month. And the city of Piqua that we are working with right now, their rate is about \$5.70 a month for residential customers. Now commercial and industrial customers are handled differently. You actually look at the impervious area on a commercial or industrial customer and you calculate how many ERU's would represent that customer and you come up with a monthly rate for a larger customer with a lot more impervious area. Based on other cities and what we know about Riverside we think that a monthly charge of about six dollars to seven dollars a month would raise somewhere between \$685,000-\$800,000 a year. This is what the storm water utility study actually tells you. You come up with a rate and you look at the number of customers and you look at all of the impervious area in town and you say here's how much money can be generated from a customer charge of this type. Two things that we wanted to mention that we think are your next steps, one thing that we think should happen is you need a further engineering study of Lilly Creek. We put our best effort into this, of course we are studying the entire city not just Lilly Creek and we came up with what I think is a good project. It is a combined retention basin project and is a little bit bigger than 6 acres and we also have a relief storm sewer on the lower half of the creek and it is a \$6 million project. We wouldn't just start to design a project of this size it needs a further evaluation. Like for example the upstream retention basin; the size of that basin can change and the properties that it's located on can change. We did do some surveying out on this but you need a further detailed survey of that area and another cost estimate. It could be done fairly quickly I would say but there are too many unknowns still. The required detailed survey out there plus there is the public input element that needs to be incorporated into this. So we'd say one of your next steps would be a request for the Lilly Creek engineering study for the next phase of it. The storm water utility study, we recommend the same thing. You need to set a legally defensible storm water rate to pay for the capital improvement projects and maintenance projects. What we've done can serve as a basis to define what

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needs to be paid for. It has to be legally defensible because it can be challenged by the residents and large customers especially who may or may not agree with the rates. So we think you should request an engineering proposal for a storm water utility study. So at this point will open it up for questions about anything that you would like to ask.

Mayor Flaute: Thank you Sir. Any questions from members of Council?

Mr. Fullenkamp: On the rates that I saw in the amount of money that one might collect at whatever rate you're going to charge? That's just residential customers, correct?

Mr. Reinicke: Yes.

Mr. Fullenkamp: The \$650,000-\$800,000 is just residential customers. Do you have a the feel at all for this city what commercial customers might add to that number?

Mr. Reinicke: The simplest way that we looked at it because the nature of this project and the information that we had, the rate that we came up with; the dollar value per month and then the overall revenue that could be generated strictly based on the number of parcels in the city, the total number of parcels. We didn't actually have the information at our office that was able to distinguish between residential properties and commercial properties or industrial properties. The thing that Mr. Kerr and I had discussed was that in all likelihood that number is simply going to go up. Like for a Lowe's for example, you can end up with a Lowe's or another big box retailer that could be the equivalent of over 1000 ERU's so instead of that six dollars a month they are paying \$6000 a month.

Mr. Fullenkamp: So much impermeable area we have in the city.

Mr. Reinicke: No, that would be part of any storm water utility study that is done. The very first thing that is done regardless of the specific methodology that is utilized to come up with revenue for utility, the very first step is how much impervious coverage is there within the city because to establish an equivalent residential unit you need to know what the average impervious coverage is on a residential property. So obviously houses are slightly different sizes; some are smaller and some are larger. So the larger the house the more impervious coverage; the smaller the house the less it has and you are seeking an average.

Mr. Fullenkamp: Are you seeking an average or are you seeking the actual for residential?

Mr. Reinicke: Most of the studies that have been done in the past tend to go for an average because then they can set a rate that everyone the city is paying equally who is a residential ratepayer. So every residential property pays the same amount.

Mr. Fullenkamp: So large houses would pay the same rate as a small house?

Mr. Reinicke: Correct. And that's why you kind of find out what the average is. Now in driving around Riverside the variation; obviously there is variation but you have some houses that have a 400 ft.² footprint for the total area and then other houses that have 10,000 ft.² per house, probably not. So the range is probably going to be such that seeking the average.

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Mr. Fullenkamp: It's not just house it's driveways and sidewalks.

Mr. Reinicke: It is typically all impervious coverage related with residential properties. And then obviously from there you scale it up to pick up the big box retailers with their large parking lots and rooftops.

Mr. Fullenkamp: So that's a discussion we would have to have. On Lilly Creek I noticed that you are recommending a dry reservoir at Shellabarger as opposed to a wet reservoir. Is there a reason?

Mr. Reinicke: Yes. If I may, I have a map in that way the other folks that are here can see what I'm talking about and what we are chatting about here. We expected this question. Let me walk folks very quickly through what they are seeing here up on the map and that I will get back to your specific question. This is Lilly Creek as everybody knows and loves it. Base housing property here. This is Shellabarger Park down here to orient yourselves. This is Burkhardt Road. This is Woodman. So Lilly Creek that is going through everybody's backyard, the solution that we have in the report and that Mr. Kerr referred to we are recommending a large retention facility back here and Shellabarger Park which will enable this section of the creek to have the benefits that are needed to get it to where the residence are likely to see less erosion and fewer concerns. Unfortunately the benefit of this detention pond runs out right around here partly because there are two storm sewers on Spinning and because of those two large storm sewers entering into Lilly Creek right here, if the detention pond was here, these two storm sewers would come in and then this section of Lilly Creek continues to have the problems that it has today just because the drainage area goes to these two storm sewers. So our recommended solution is at this point we would pick it up in a diversion overflow sewer and we will simply bring the water down here and discharge it into Lilly Creek here. That alignment right there is one of the primary reasons we are saying Lilly Creek will need another study because obviously we are going to pick up water here and I'm going to put it here. What am I doing to Lilly Creek here? I need to make sure I am not doing anything that would adversely impact what goes on down there. I also need to make sure that I can actually fit a storm sewer down Bayside and not interrupt any other sanitary sewers that are there or gas lines or water lines or anything else. So that's why it needs a bit more study. Now to answer your specific question about a dry pond versus a wet pond. Our expectation was that if we built the wet pond down here, depending on the size of that wet pond to maximize the storage is there, if I make a large wet pond there I have taken that part out of use. So now it is just a big body of water.

Mr. Fullenkamp: The entire park.

Mr. Reinicke: Well I've taken out the back half and that would make the park no longer usable as a park. So when we did our initial analysis of it, it was let's make the thing dry. We would leave the creek flowing as it does today. On a dry day like today you could go out there and the creek would still have water in it. It would actually have water flowing past the pond. We would then put an overflow structure in of some sort that would allow water once it reached the height of about 18 inches; if the water gets over 18 inches in depth in Lilly Creek it would come over an overflow wall and then fill that large area in and it would slowly bleed back into Lilly Creek through an overflow structure approximately here. Now we would keep it dry most the time so that the park could still be used as a park. People could still go out there and throw a ball around with their dog. I don't know that I would necessarily put soccer fields down in there because unfortunately that area is going to stay a little damp. We would do everything that we could is engineers to design it so that water would flow back into the creek.

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Mr. Fullenkamp: Do you say it would still be usable as a park space?

Mr. Reinicke: I think we could still design it to be usable park space.

Mayor Flaute: As a soccer field?

Mr. Reinicke: Maybe, it would depend on the exact nature of how we pulled off the grading. Our initial reaction to it was we may be able to get some soccer fields in there but the trade-off of the soccer field is depending on how serious these soccer players are. If it is a youth league and there is no true sanctioning body to it you could probably get away with it. And that any soccer field that is in there, the whole thing is going to be sloped.

Mayor Flaute: There are three of them out there right now aren't there? Two. So this would do away with just one?

Mr. Reinicke: Again it would depend upon how we graded it out and we would have to be careful how we do it because the analysis that we did right now was to very quickly maximize storage. For me to maximize storage an engineer I want the whole thing basically to come down as fast as I can get it to come down and then the whole thing is going to be sloped in one direction. But if I am playing soccer on a field where the whole thing is sloped in one direction my soccer ball is going to continue to go that way and that is not really ideal. So if we are going to put a soccer field in there and we are going to try and flatten the soccer field out then now we are cutting into my storage volume a little bit. So again in terms of how we actually graded it out, I think we could grade it out in a way that it would still be multiuse. At a bare minimum it would still be a grassy open area that could be utilized for passive or casual active recreation.

Mr. Fullenkamp: The pond itself will be actively drained or will it be based on infiltration?

Mr. Reinicke: There will be some infiltration because we are going to keep the grass there as much as we can. But then there will be a structure that basically pushes the water very slowly back into Lilly Creek. So again, imagine the whole drainage area leading up to Lilly Creek at this point.

Mr. Fullenkamp: It will be sloped towards Lilly Creek.

Mr. Reinicke: Yes will be sloped towards an outlet structure. For example we may have to put a small pilot channel in it just to make sure that everything drains properly so that it isn't a muddy, mucky mess all the time but it would actually dry out. And we will put a channel in it and we would put the water back into Lilly Creek which I know will may make some folks a little nervous but when I say we are going to put it back into Lilly Creek we are going to put it back into Lilly Creek through like a 36 inch pipe. So you have a really big drainage area going through basically a drinking straw. So that water is going to sit for a while in the park and then drain out.

Mr. Fullenkamp: So your goal is less than 5 feet per second velocity.

Mr. Reinicke: Correct. The end result is that we want to try and get the water in the creek to be less than 5 feet per second. Multiple studies have been done throughout the world that of shown that 5 feet per second in a velocity in water is what is going to take the banks out on a creek. And that seems to be the largest complaint out there is that the streambanks are eroding, the trees are falling in. So rather than trying to go out there and

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actually fix the streambanks, which as we point out in the report is another option, it's not a very good one. You can fix the banks or alternatively we can build a retention pond that holds that water back and brings that velocity way down.

Mr. Fullenkamp: And some of the banks still need to be fixed.

Mr. Reinicke: And some of the bank still need to be fixed. And in particular basically every roadway crossing along Lilly Creek. And again that is detailed in the report and it goes into that \$6 million price tag. Every one of the roadway crossings and wing walls and the face of the bridge needs attention. Some of the wing walls are falling in, there is erosion around it that needs to be corrected at the bridge sections. And then any erosion on private property after that, it would probably be a wait and see because again we know the erosion out there today is bad but if the retention pond were in place the question is how much benefit are we providing. The answer is I can tell you with the numbers in my computational model tell me but I don't have 100% guarantee that that is what is going to happen in the field because it is a dynamic system.

Mr. Fullenkamp: I have one more question and then I will let everybody else say something. We have determined that a closed system through there is an exorbitant expense. It is something in the order of what, about \$12 million?

Mr. Reinicke: Frankly I think it would be even more than that. So that everyone is understanding what Mr. Fullenkamp is saying, in an option that we very briefly looked at is saying that we just put the whole thing in a pipe the whole length of the street. As an engineer I can do that. I can get all that water into a giant pipe right down through there but the problem is that it is going to be an absolutely giant pipe and I have had clearance issues in terms of vertical clearance because again I have a known elevation here, I have a tie-in somewhere back down here so my two endpoints are set so the line between them has to be a straight line which isn't going to be too far off what is in the channel. So my vertical distance that I can put a pipe in isn't going to be very good; maybe 5 or 6 feet. We've all seen Lilly Creek and we have maybe a 5 or 6 foot high clearance. I'm a little over 6 foot tall so if I am going to put a 6 foot high pipe out there that thing is going to have to be enormously wide to carry the flow through there. And the other entertaining issue is that there are a lot of trees out there. I can't put in a pipe that is 5 feet high and 15 to 20 feet wide with the trees that are out there. So now the trees have to go away. And when I put grass back on top of the pipe you're probably going to get this much grass on it.

Mr. Fullenkamp: So the value is just not there.

Mr. Reinicke: No.

Mr. Fullenkamp: Okay thank you.

Mayor Flaute: I need to go. So have you checked about how much water is coming off of I-675 and coming out of Greene County? Is there any way we can recoup some money from those entities to try and help us with storm water?

Mr. Reinicke: We have not looked at it specifically for this study that was done to date. I know with the drainage area east of Montgomery County and the Riverside corporate boundary; I don't know off the top of my head but it is in the report and I can look it up quickly. It is on the order of about 600 acres I do remember that,

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maybe 700 acres east of the county line. So I didn't look specifically at what is coming off of 675 versus what is coming off of that 600 acres there. I kind of looked at it as 600 acres. If an additional study is going to be done that is something that we could look at a little more closely to say okay what percentage of the water that is going through this stretch of Lilly Creek is coming from outside.

Mayor Flaute: Do other cities work together to charge for the water coming in on their cities?

Mr. Reinicke: It's not to say couldn't be done but it doesn't happen very often. It could. There are properties just the east that are also open so when we pick Shellabarger Park for example to make it this big in a city-owned property it is because as part of our project we are looking for how we going to build a solution. We limited ourselves to the corporate boundaries. If I'm looking at it strictly as a drainage engineer as someone who looks at where the water is going if there is ground just to the east instead of taking over all of Shellabarger Park we are going to have a cooperation with Greene County but now we are going on privately owned land and not municipally owned land. You could extend the detention to the east and more of Shellabarger Park would stay the way it is today. Maybe Greene County is willing to partner on this piece or maybe there is a piece somewhere over here off the map that again is currently undeveloped that the folks in Greene County and Beavercreek for whoever's jurisdiction we happen to cross into at that point has said, you know we are not doing anything with that, we don't see any development on that maybe we can do some detention here to offset what's going into Riverside. Those are certainly all options.

Mayor Flaute: We can put a damn up.

Mr. Reinicke: Yes you could do that.

Mayor Flaute: That would be cheaper.

Mr. Reinicke: But again there are other options that would be part of that further engineering study. And this is the option we came up with that we think is the best bet given the limitations of the report that is in front of you that said stay with the solution that is within the confines of the city of Riverside. If we are going to go outside the city of Riverside, it could certainly be included in any further detailed study. There are other options, this is just the one that we are recommending for what we came up with in this report.

Deputy Mayor Reynolds: With being able to limit the water flowing down Lilly Creek, we could at some time start rebuilding that bank. Would that be wise for residents to do that if we limit this and know that the erosion problem is gone?

Mr. Reinicke: Yes, if the erosion problem is diminished by building a detention pond within Shellabarger Park, at that point it would make sense to look into how best to deal with the erosion downstream. There is currently no city-owned easement on any of those properties; it is all individual property owners so it would be up to the city to decide. As an engineer I can give you solutions I could tell you how to armor the bank not with gabion baskets; there are multiple ways you could do it. You could do it with hard armoring which would be concrete or rock of some sort, there is a natural channel design methodology that could be used which would see additional trees and other natural techniques used which would be limited given the space constraints back in there. So again as an engineer I can give you recommended solutions but I will point out again that all of those recommended solutions for erosion control between the edge of Shellabarger Park in this roadway crossing and then from this roadway crossing to this roadway crossing are all on private property. And I'm sure you guys are

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all fully aware of that. Again it would be up to the city to decide how they wanted to implement those erosion control practices because the concern that I would have as an engineer is if for example you have a third of the property owners that say yes or even two thirds of them say yes and then a third of them say no we don't want you coming onto our property to do this improvement because we are afraid it is going to kill our hundred year Sycamore that is growing at the edge of the creek. The problem that you would then have is that you have now immediately made the erosion on that one person that said no worse because the rest of the bank would be protected and it will force the water into the area that is unprotected. So it is a very delicate engineering and implementation of that. So again as an engineer I can certainly design something for you that would work but the caveat would be, it's got to be 100% participation for what I designed for you to work.

Mr. Fullenkamp: And there is some suggestion that the Department of Natural Resources has classified Lilly Creek as a stream. I've got some paperwork here that states that.

Mr. Reinicke: Given the drainage area, the appearance of the creek, yes. As soon as you start saying you're going to go on to private property over that length of stream you're also now going to have to be coordinating with the Ohio EPA and the US Army Corps of Engineers.

Mr. Fullenkamp: Yep, that was the Army Corps of Engineers that classified that.

Mr. Reinicke: To start getting the appropriate permitting to do it, which is again one of the other reasons we said, you know what let's build a detention pond over here and a diversion sewer within the city owned right-of-way because then it avoids those types of coordination things and it is something that you could implement more quickly. Even with a \$6 million price tag it could still be implemented more quickly than stream bank erosion throughout the whole stream.

Mayor Flaute: For the audience's sake we are going to take questions from Council first and then we will allow you to talk. At this point are there any questions from Council?

Deputy Mayor Reynolds: And it was an 18 inch and that will trigger the process to start filling and pushing?

Mr. Reinicke: Yes, when we initially sized this; again the analysis we've done to date which if you really wanted me to I could bore you with computational hydraulics and hydrology as to how we got to that point. I find it fascinating, I don't know if you all would. We set it at 18 inches because that seemed reasonable. That you would allow 18 inches to continue flowing down the Lilly Creek because I'm sure there is a love-hate relationship with Lilly Creek. Everybody loves having a creek in their backyard so I don't want to take all of that waterway and diverted into a detention pond. I want to let some water continue going so that the people who live there can say, you know I still do have a running stream in my backyard. But once we get over 18 inches it would flood into a pond and be held for some period of time.

Mr. Smith: On your diagram there where you have the pond, it is kind of centered with the stream. The ditch line there for Lilly Creek, there is not much distance between the creek until you get to the property line with those homes in the rear. So how close would that be?

Mr. Reinicke: Well actually what you're seeing here; the ditch line right here on the north side of Shellabarger Park and goes into an elliptical pipe and discharges back into the open channel. The way this pond would be situated is it would actually be probably 15 feet south of the current ditchline. And the only reason I say about

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15 feet is that is probably about how much room I would need to come up, have a little bit of a flat spot and then come back down again to get into the pond. So if you are standing in Lilly Creek looking to the west you would see something that looks very similar to what it does today as long as you aren't standing at the point right here where I build my overflow structure. So again that water is going to get to about 18 inches deep and over a length of about 50 feet right here it is going to overflow into the pond. But then after that you're going to walk down that currently concrete line channel and it is not going to look any different than it does today because I'm going to go all the way back up, give you a flat spot for maintenance that is about 10 feet wide and then I'm going to slip back down. It's just at that one point where I have overflow to get the water in. That's what I wanted to do, I want to keep one side high to keep the water away from the residents. And again how exactly that would work out; again I'm going to fall back on any of the additional studies that you did. I'm talking generalities here which again I did what engineers do best and I drew a box.

Mr. Smith: Okay. Are you going to change the path of the creek in Shellabarger?

Mr. Reinicke: We are going to leave it exactly what it is. Because again I don't want to get any other issues with permits, the EPA, the Army Corps or anything else. We're going to try and keep that creek right where it is today, build a structure that allows the water to get into a detention pond and then bleed it back into the creek downstream.

Mr. Denning: So it is a river spillway.

Mr. Reinicke: Yes.

Mr. Curp: Tell me again how the water gets out of the detention pond.

Mr. Reinicke: So if the water enters here there is a distinct chance that I would grade a shallow; we call it a pilot channel which is very much what it sounds like.

Mr. Curp: Like the one up at Eastwood and Woodman?

Mr. Reinicke: Yes. I would bring it from here where it overflowed in this corner and I would bring it generally over here. Because again if you go out to Shellabarger Park today there is a large corrugated metal pipe, elliptical in shape that does this kind of s-curve around the edge of the park and then it goes back, there are couple of gardens planted on top of it today and then it goes back into the ditch over here. We would add a catch basin structure, a pretty good-sized one here with a pipe that comes out of it and it would actually tie in to that existing corrugated metal pipe. So we would build a structure here that would then be graded into the side of the detention pond but in reality it would probably be a 6 to 7 foot high concrete structure with a small pipe down near the bottom and a graded lid on top of the thing so the pond; if for example you get a 500 year rainfall which is like 7 inches of rain in 24 hours, if you get something of that magnitude the pond doesn't overflow willy-nilly. I get a controlled outlet for it. So again I would have a low outlet which is how most of the water would get out and then at the tippy top of the thing; maybe a little bit below the pond itself I would have an extra outlet so if the water piles up that high it has a controlled way to get out and go into the downstream system.

Mr. Curp: Generally to what depth would you excavate in order to hold the volume of water that you want to hold on a temporary basis?

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Mr. Reinicke: If you've been out there and you've seen the existing ditchline, I wouldn't go any deeper than that because if I go deeper than the bottom of what the existing ditches are I am going to end up with a wet pond because I don't have an outlet for it. So typically speaking at its deepest point, again which will be approximately here, it would probably be six-ish feet deep plus or minus a foot depending on the exact grading that plays out.

Mrs. Lommatzsch: \$6 million doesn't count the diversion?

Mr. Reinicke: It does. That \$6 million, most of it is that diversion sewer.

Mrs. Lommatzsch: That's going down under the road on Bayside?

Mr. Reinicke: Absolutely. The whole thing would be buried under Bayside.

Mrs. Lommatzsch: I know where that creek is where that little bridge is. There is a little bridge on Bayside is that where you would tie it in?

Mr. Reinicke: We would tie it in right here at Spinning and then we just follow Bayside all the way down and then we discharge back into this part of Lilly Creek right where Bayside crosses over here. And I believe this is the swimming pool.

Mrs. Lommatzsch: Right and there is a creek there.

Mr. Reinicke: And that is where we discharge back into it. And then that will continue to the north as it does today. But again that's why as part of any engineering study I need to make sure that if I put additional water in right here I'm not going to cause problems here or back up this way.

Mr. Fullenkamp: Isn't that water going there now anyways?

Mr. Reinicke: It's going there now but it is going there here not here. And if I put it into a pipe is going to get there faster so I need to make sure that by putting it there faster and slightly upstream of where it is today I don't cause problems here. And there are already some erosion problems here and with me putting a pipe in of the size this one will be at 90° to the stream, I'm going to have to do something to direct that water downstream or there are going to be problems on the opposite bank. It's hard to see on here, it's in the text of your report; we are calling it a 58" x 91" pipe. I realize that is an odd size for those of you that don't do elliptical to round pipe conversions every day it is a 72 inch pipe equivalent. So it is the equivalent of a 6 foot diameter pipe but in this case it is elliptical so it is short and wide because it is the only way I can get it in under the road and still meet those two control points at the upstream and downstream ends.

Mr. Denning: So Bayside would also get repaved?

Mr. Reinicke: Yes. Probably actually about half of it based on standing out there before. There is a sanitary sewer in Bayside slightly to the south side of the roadway but based on my understanding of where the right-of-way is on the north side of the roadway we can just squeeze in a nearly 8 foot wide pipe north of that sanitary sewer and still get it in the right-of-way which means it would be partially under the roadway. The tree lawns,

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the sidewalks that's where the trench would be cut to put that pipe in. But yes it would be completely covered when you were done, you wouldn't even know the pipe was there.

Mrs. Lommatzsch: Is all of that connected from Bayside over to where you put it into the original Lilly Creek? None of that is military property? I'm talking about north of that piece right there.

Mr. Reinicke: This is.

Mrs. Lommatzsch: I know but that connector piece you talked about when you turn right off of Bayside.

Mr. Reinicke: That's why we stay on Bayside right here. And then we turn just barely under the creek and I have the depth of one property to get back into the creek so it's about 120 feet off of Bayside before it comes military property. We can do it.

Mrs. Lommatzsch: We don't have to get their permission?

Mr. Reinicke: We shouldn't have to, no. Because again we are putting the water in where it already goes. It is going to get there a little bit faster and a little bit upstream of where it gets in today. And actually this may benefit them, I haven't looked at it closely enough but the reality is where these guys are right here, if I take water out of this stretch of the creek and put it over here now I'm putting it on their backside not out in front of them and this might actually benefit them.

Mrs. Lommatzsch: That housing?

Mr. Reinicke: It might. Again that is a speculation on my part as of today.

Mrs. Lommatzsch: So there would be no water running down?

Mr. Reinicke: No, there will be still.

Mrs. Lommatzsch: What comes local would go into the creek.

Mr. Reinicke: Well what comes from the south side here; south of Bayside because of the depths of the storm sewers in relation to where this diversion would be every one of these storm sewers will have to tie into that diversion to continue to the west. However everything to the north of Lilly Creek will still go directly into the Lilly Creek.

Mrs. Lommatzsch: Natural.

Mr. Reinicke: Yes, and then again we've still got everything from up here that is still discharging into it because all I'm doing is picking up the storm sewer. I'm not picking up the creek itself. The creek will absolutely still have water in it. That is one of the concerns that I had was that we maintain some water in that creek because again it is that love-hate; people probably love the creek but the hate creek.

Deputy Mayor Reynolds: Any other questions from Council? Mr. City Manager, does staff have any questions?

Mr. Chodkowski: At this point in time no Ma'am I don't.

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Mr. Miller: The preventative maintenance for the area where the park is going to be, any cost estimates on that just out of curiosity?

Mr. Reineke: If this is a dry pond once it is regraded and receded it would have to be mowed.

Mr. Miller: If there is 100 year flood or 25 year flood and you have sediment.

Mr. Reinicke: You're going to have sediment in there but frankly if you get 100 year flood you've probably got to go out and maintain that concrete channel today. So in terms of what your maintenance expense would be, we would not expect it to be significantly higher than what you are already doing today. If we maintain it is a dry pond and it stays grass, if it is getting mowed today it will get mowed in the future. It will have a very shallow bottom slope such that a lawnmower can go across it; a riding mower, a push mower or whatever you happen to want to mow it with. It would still be perfectly safe for any mowing equipment to get in there and mow the thing out. Now if your mowing schedule happens to be Tuesday of the week and it rained heavily on Monday you're probably not going to be mowing on Tuesday you will be mowing it on Wednesday or Thursday because of water.

Mr. Miller: Parts of that park are swamp when it gets wet anyways.

Mr. Reinicke: Right, so again we would expect and hope that it would not be significantly different than what you've had in the past.

Deputy Mayor Reynolds: Mr. Miller anything else? We will open up the floor to the audience to ask questions. And Ms. Howell has requested to speak. Ms. Howell.

Ms. Howell: So, we are doing all of this and all it is going to benefit is the first third or half of the creek?

Mr. Reinicke: If the detention pond is built here, the benefit the detention pond provides gets to about here. The benefit the diversion sewer provides goes from here to here. So if both pieces are built; frankly the two pieces are integral, you can't build one without the other it wouldn't make any sense. If you build both you're providing the benefit on Lilly Creek from the point just west of Shellabarger Park all the way down to here.

Ms. Howell: Okay got it. Erosion, as far as I know, Lilly Creek has been running just fine. I've been gone out of town for a while and I talked to everybody; well not everybody but a lot of people on Lilly Creek to see if they still have problems. I know of one single person who is having an erosion problem and she is in the first third of that and I offered to build her a hardened retaining wall. Do you know more people that are having problems?

Mr. Reinicke: From the information that we've had from the city it has been recurring over multiple years across properties throughout the whole length of the creek. And then there is also; to be completely blasé about the private property concerns which obviously we are not doing, at the bare minimum the city has infrastructure here, here and here that are the three roadway crossings.

Ms. Howell: You're talking about the pinch points.

Mr. Reinicke: They're not pinch points from a hydraulics standpoint. Strangely enough my reaction would be that those culverts would all be passive pinch points. Strangely enough a 25 year rainfall event will go

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completely under every one of those roadways. But those roads; as I mentioned the wing walls are eroding and the bridges all need improving.

Ms. Howell: I agree with that.

Mr. Reinicke: So rather than doing massive amounts of maintenance on just the roadways it would make sense to say we are going to put in a detention pond and we are going to put in a diversion sewer and we are going to make the improvements on all of the roadway crossings because then we are not causing erosion to every property in between and then we are also protecting the city's infrastructure at those roadway crossings.

Ms. Howell: Well waterflow does not cause erosion and I'm not an engineer, just correct me if I'm wrong. Waterflow; no matter how much waterflow you have does not cause erosion. What causes erosion is when you have a pinch point and the water is brought back. Is that true?

Mr. Reinicke: Partially. So at pinch points you are going to get more erosion but you are going to get it locally upstream of that pinch point because as the water gets to the point if for example it doesn't go over top of the road it is being pinched. As soon as it starts going over the top of road.

Ms. Howell: That's what causes the erosion is the water backs up.

Mr. Reinicke: Not really. Erosion occurs naturally in streams every day. You will find a watershed that has no development in it at all and you will still see that the creek banks are slowly being eroded just by the action of the water going past them. There is a sure strength on every soil type so every soil can withstand a certain amount of force brushing on them.

Ms. Howell: And Lilly Creek has a small amount of force most of the time.

Mr. Reinicke: Most of the time but again every stream; it's kind of interesting there have been studies that have been done that find out that any creek has a native bedload. They call it the the bedload that is the sentiment that naturally flows through the creek. So what's interesting is once a stream meets stability; when a stream is in a stable pattern and a stable pathway the erosion that occurs is not zero basically. So there is erosion occurring but then there is deposition occurring so it doesn't appear that there is any erosion but there is material being moved away but the next slope of water that comes down is depositing material.

Ms. Howell: But that's not the main cause of erosion right?

Mr. Reinicke: That's in a stable stream. If you alter the way water flows to the stream the stream will then pick up.

Ms. Howell: Which is at a 90° angle.

Mr. Reineke: Well the water turns 90° or you put a house upstream or a parking lot upstream with detention or without detention you have change the dynamic of the water so the water is now going to flow at a different speed and in a different duration so now the stream is going to seek stability again and for it to seek stability it will scour more material out. So erosion is occurring all day every day out there on Lilly Creek unless it is totally dry. So that concern that we have is that for multiple rainfall events today the velocity in the creek rises

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above 5 feet per second. So to time a creek if anyone is curious you can literally go out there with a stick, drop it in the water and see how far it moves. When you've got lots of water moving more quickly the velocity; when it goes over 5 feet per second that is when the erosion really starts to get going on the stream banks.

Ms. Howell: Plus when you get backup that really causes erosion.

Mr. Reinicke: Backup, it can but the backup itself doesn't because if the water backs up too much the velocity actually does something kind of odd and it goes to near zero.

Deputy Mayor Reynolds: Mr. Reinicke, I think the gentleman behind Ms. Howell has a question also and it might play into this.

Mr. Reinicke: I've beaten that pretty good. I would be more than welcome to discuss erosion further but I was just going to finish up that again what we're trying to do is just keep it below 5 feet per second. That is our goal with putting that detention pond in.

Audience Member 1: My question is that I used to live in Dayton and Dayton used have this problem after years of growth. As Dayton grew in size their storm sewer system was not adequate. I think what we are trying to do here, maybe I don't know; rather than redo their entire system they went to what they called a watergate system that opens and closes in certain areas to allow the flow to move better. And I've got family that lives in Dayton now and they said years ago they had flooded basements and backyards flooded and that remedied the problem and they have not had any problems for years up until this abnormal rain we've had in this area. So a watergate system, are you familiar with that? That's what they call it. I know you mentioned that 18 inch and when we get above that limit.

Mr. Reinicke: There are obviously; and it becomes a more complicated method to control the flow. I'm not quite as familiar with Dayton, I am familiar with the city of Columbus which has portions of their sewer system that has gates that close automatically and then other portions that open when the water levels reach a certain point. To do that you have to have multiple electronic sensors and motor controls in place that obviously complicate the system tremendously. I personally am a member of the keep it simple methodology of engineering design which says, the storm water is simply used to going downhill so I'm going to do everything I can to keep the system as simple as I can to keep it going by gravity. I don't want to put a pump in, I don't want to put in detention ponds that are enormous underground and requires a pump to drain it. I want to keep it simple because if I keep it simple it is simpler for everybody here. It is simpler for city Council, it is simpler for the maintenance crews, it is simpler for you as a resident that you don't have to worry about it. If I know it is going to work under any condition because it flows by gravity; it is very hard to disrupt gravity.

Audience Member 1: So that could possibly be more expensive than what we are doing here.

Mr. Reinicke: It would absolutely be more expensive. Not just from construction, long-term maintenance it would be more expensive.

Mr. Miller: If you had a system failure where your power went out, you don't have backup generators and it is raining like crazy.

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Mr. Reinicke: Yes, gets out of hand very quickly. If I can keep it passive and keep gravity being my only controlling force we are good to go.

Audience Member 2: What is the longevity of the project you're putting in? This giant cement pipe on the roadway. What is the longevity of the pipe?

Mr. Reinicke: The pipe itself, if the guys building it at the factory are doing it the right way it can go 100 years. The road on top of it will be done in 15 to 20 years but the pipe under it will be good for 100 years. The detention pond, it is an open bowl. Basically you're just carving a bowl into the ground so as long as is mowed and debris is kept out of it.

Audience Member 2: A concrete drain pipe is that the most cost effective way compared to maybe a plastic type of pipe that I'm seen going in it other types of projects?

Mr. Reinicke: Plastic generally speaking is less expensive than concrete. In this particular application though because again my keeping with getting gravity to do what we needed to do, I have a hard control point right here which is the invert to the storm sewers. They can't get lower than the storm sewers; well it can be lower than them but I can't be higher than them but then my other problem is down here. I can't get lower than the creek. If I am lower than the creek I would have to put a pump back in. So for me to have to get those two points to be my straight-line points and even bring the one upstream down just little bit. One of my concerns is I did it a preliminary look at this and the road is going to be nearly as tall as the pipe. There's going to be very little separation between the bottom of the pavement and the top of the pipe and plastic pipes don't have the strength because basically the pipe is going to hold the roadway up. The walls on the pipe are going to be 8 to 12 inches thick. It is going to be pipe, asphalt, pavement so I would like to go with something a little less expensive if I could, I would but my first look at it right now is we've got to go with concrete because it is the only thing that is going to keep the road in place.

Deputy Mayor Reynolds: Are there any other questions from the audience?

Audience Member 3: Yeah I have a question. Because I've noticed a couple times you've used the word storm sewer and storm water. Regarding definitions and you're discussing a storm sewer, now technically storm water is the water flow going through homes and ditches and stuff like that is called storm water? Because there is only one definition of what becomes sewer and what becomes private property storm water.

Mr. Reinicke: As I have been using it, storm sewer is literally a sewer pipe; a physical pipe that is typically underground that carries the storm water away. So the storm sewer is just the physical system. Storm water is the more generic term it is really any water that hits the ground regardless of where it goes. The storm water definition is it begins with rain until it's the earth. As soon as it hits the earth it is storm water.

Audience Member 3: Yeah okay but; because I've been reading some legal definitions between the difference between storm sewer and storm water so that's why I was asking.

Mr. Reinicke: Again I haven't read the legal definitions of those in a while.

Audience Member 3: Yeah that's the big debate going on. Okay. And then somebody was mentioning the weird storms that we've been having this year. If you guys make this a dry pond; you know everybody's talking about

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the seasons that were having and the rains that are going to continue. This is not an abnormal thing and I suppose we are going to start seeing this in the future. So when you are discussing a dry pond it may not be a dry pond. It is going to be a wet pond if we keep getting what we are getting.

Mr. Reinicke: We had several discussions in our office about how best to describe; because yes I'm saying it is going to be dry but the question is how long after rains is it dry again. How long is it going to take for that water to drain out. If it takes three days for it to drain down and in that intervening time it rains again, well the water level has gone back up. So now getting back to the maintenance issue, do I actually have grass or do I just have dead grass with a whole bunch of water sitting on it all the time.

Audience Member 3: Then how much is going into your overflow pipe because once you hit your overflow pipe the velocity is going to go up and the people along Lilly Creek.

Mr. Reinicke: Yes and no because again that overflow pipe is still a control mechanism for the flow to get out so we are still holding water back.

Audience Member 3: But you still have two parts going out.

Mr. Reinicke: There is still a possibility of continued water going down which is why if we did any further study instead of just looking at a dry pond maybe I would look at a hybrid wet and dry pond where instead of making the whole thing wet as you'd asked about because that would be a very big loss of park space. I don't want to come in and say we are going to take over the whole park and make a big wet hole. But the hybrid that we can make which would make it easier for it to drain would be we would put a true pond; what everyone thinks of as a pond near the outlet. So where it would go back into Lilly Creek you would see a small wet area, a little pond. Then we would have a pilot channel that would get the flow from our overflow point into our little wet area and then it will go out. So we would do a little bit of both. And then a pond can be created to be an amenity to the community on the days when the water has gone down. But that also means that the distance from inlet to outlet is shortened which means it is more likely to go dry again because there is less distance for that water to have to go over a longer distance across the lawn. Again there are hybrids we can look at to try and account for variations in rainfall. For what we did right here, if you were to go to look at what I took pencil to paper and created out it is a hole in the ground and frankly no one in this room wants what I drew to get to that map.

Audience Member 3: And that's what were looking at rainfalls and everything and everyone is saying no it is not going to happen again. I have a feeling this going to keep up.

Mr. Reinicke: And as additional information comes in I can guarantee you that there are folks in my line of work that are far more interested in statistical analysis than I am. They are looking at the actual rainfall to determine; because I alluded to 100 year rainfall event.

Audience Member 3: Those numbers are gone now.

Mr. Reinicke: But what they are doing is shifting. I am still going to say it is a 25 year rainfall events but today on September 10, 2015 a 25 year rainfall event is about four inches in 24 hours. A year from now they might say 25 year event is 5 inches in 24 hours. So it is just redefining it because when I say 25 year events; I'm going to apologize and quickly go into statistics. A 25 year rainfall event is really a one in 25 chance that a storm of

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that event is either met or exceeded. So it is not really a 25 year events it is a 2% or 4% or whatever 25 is if someone wants do that math percent of rainfall. So it is always going to be that percent of rainfall event, it is just the value assigned to it that is likely to go up.

Mr. Fullenkamp: It's probability.

Mr. Reinicke: Yes it is all a probability.

Audience Member 3: I have one more final question. Right where the end where the Greene County line is, do you know what street or area that is?

Mr. Reinicke: This is just a county line.

Mr. Denning: It is a horse farm.

Audience Member 4: That is actually the Shellabarger's property.

Audience Member 3: Oh so thats on the back part too.

Audience Member 4: The Shellabarger's children own all of those 4 or 5 houses on Kemp going to the east.

Mr. Reinicke: So this right here is not a street it is literally the county line. The street is here and then there is a driveway and a couple houses here and then this is really defined as one large property owner. I realize there may be a couple smaller ones off the roadway but pretty much this whole thing back here is one privately owned property in Greene County.

Audience Member 3: I was just curious. I wasn't quite sure.

Mr. Reinicke: Sorry, the aerial photos are hard to see.

Ms. Gum: Mr. Fullenkamp mentioned that he hoped that the entire report that you have would be put on-line sometime on Friday or Saturday; it was his hope.

Mr. Fullenkamp: Yeah and I haven't brought that up yet with staff.

Ms. Gum: Oh I'm sorry. I didn't mean to speak out of turn.

Mr. Fullenkamp: But you stole my thunder.

Ms. Gum: No pardon me. I'm so sorry.

Mr. Fullenkamp: I would like staff to put this so that people can download it. It is a big file.

Audience Member 1: Is that the final?

Mr. Fullenkamp: That's what we received and this is what we will be working from so I would like that to be available to people.

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Audience Member 3: If that is done; okay we'll go back to it. If that is approved and done is there any way to get the hydrology figures that you said you had?

Mr. Reinicke: They are in the report.

Audience Member 3: All of the topo. maps and everything are in there?

Mr. Reinicke: There is no typography in there because we try to keep the maps at 11 x 17 so for example of someone like yourself or to print it you could probably go to the library and print an 11 x 17 map. I have a penchant as an engineer to draw big maps that don't print so well in a Kinko's or library setting. So to keep the maps a little bit simpler those 11 x 17's unfortunately don't have topography but they do have for Lilly Creek in particular is a map that shows the full drainage boundaries.

Mr. Fullenkamp: And they show elevations too.

Mr. Reinicke: There are some elevations scattered throughout there. So it has the drainage acreage and it's got the boundary on it. Is the boundary 100% accurate, no but nevertheless it will be. It's as close as we could get given the topography that we had for reference; the topography we use both for Montgomery County and in Greene County is the information provided to us by the respective county engineer or county auditor's offices for the topography they had. So the most recent topography available to us and the boundaries drawn on there are pretty good. But again the map itself, it shows those boundaries where the acreage is called out is most definitely in the report.

Deputy Mayor Reynolds: Ms. Gum we will make sure the City Manager gets those on for you all and they will be available for you all to look at.

Ms. Gum: And the technology that you love to work with but we wouldn't like to read, that's in there?

Mr. Reinicke: There is a surprising amount of detail in the report. You're welcome to read through it and I'm sure Mr. Kerr would say the same, we don't mind questions. If there is a specific question that you really are dying to know the answer to, as to why I used the Manning's N Value for the channel that represents roughness I have no problem with telling you that. But again it is down in the weeds in the details.

Deputy Mayor Reynolds: Ms. Howell has one more question.

Ms. Howell: Yes. Okay I live in 11.

Mr. Reinicke: Problem area 11?

Ms. Howell: Yes. I have a question about that and I have one final comment about Lilly Creek. I will check and see if any other 109 people are having problems anymore. As far as I know, one person on Lilly Creek has a problem with it. It is flowing good, it has been cleaned out.

Audience Member 5: Mr. Humphry's wall fell in; it is falling in. That big wall is gone.

Ms. Howell: Is there anybody else that you know of?

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Audience Member 5: No, he's just a few doors down from me. I haven't looked but I know that creek is full of falling down walls.

Ms. Howell: Right and we need to get that out of there because it is going to cause problems. Okay, so we have two people out of 109 that I know of.

Deputy Mayor Reynolds: Councilman Smith has a question also.

Mr. Smith: The piping that you mentioned putting in a long Bayside, you said is going to be real close to the roadway. Do we have to worry about heavy trucks crushing that?

Mr. Reinicke: Again, the concrete pipe that we would specify would be such that it would take a highway load. So it would take a highway load right on top of that pipe. I alluded to the fact that the pavement will nearly be on top of the pipe. There will be some gravel in between and then the pavement. So between that whole structure you can drive whatever you want down that. I mean I wouldn't necessarily drive and M1 tank down the roadway but any typical load that you're going to find will be fine.

Mr. Smith: Okay.

Mr. Reinicke: Okay am sorry, problem 11. Which part of problem area 11?

Ms. Howell: Harlou. We have drainage ditches in the front. Is that where you are seeing problems?

Mr. Reinicke: Yes.

Ms. Howell: You don't like the drainage ditches?

Mr. Reinicke: Well the drainage ditches are inconsistent in their grading, they are inconsistent in their ability to convey flow away from certain houses on the street so there is standing water that has been observed and they have been filled.

Ms. Howell: The only standing water that I know of was when my house, all of the sewer backed up and that's because the city had paved over manhole covers so there was no drainage. And that has been taken care of.

Mr. Reinicke: If you will notice, the solution that we have proposed here is not hugely intrusive. It is some storm sewer along Harlou and then south along Charlwood and then tying into Mayville.

Ms. Howell: So this part of Harlou would get to keep their drainage ditches?

Mr. Reinicke: Yup. Again, the only improvement is right here.

Ms. Howell: Okay we have no problems then. Thanks.

Deputy Mayor Reynolds: Are there any other questions from the audience?

Audience Member 6: Are you sure that changes can be made to Shellabarger Park from the original transfer of the property to Riverside?

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Mr. Reinicke: No. I didn't realize that there might have been limitations. Again I was looking at this from; I have an open piece of property that looked great as a detention pond. I can put storm water in it and bleed back in. Obviously if there are deed restrictions that were put on that property when it was given to the city of Riverside that is the kind of thing that we would need to look into a little bit further and maybe depending on how those deed restrictions work out it may be that it pushes the design one way or the other. Our expectation with any design that we come up with is that it is going to continue to be multiuse. I'm not going to put in a facility that is going to eliminate that whole part of the park from being a park. Is the usage going to be different than what it is today if a detention pond is out there, yes. Is it still going to be a park so that anyone in this room could go out there and throw a ball with the dog or kick a soccer ball around. If I have to build a small pond out there you could go fishing on it. But still it is going to be a park. Until it rains really hard and then it is going to be a big pond and then when it stopped raining it will be a smaller pond or no pond depending on how the engineering is done. Obviously if there are any further engineering studies we would look at any deed restrictions that may be on the property. And maybe if there are; maybe there are opportunities to then go talk to Greene County and say okay Greene County, a large part of this drainage area is actually coming off from you guys and maybe we can do something in a partnership so that anything done to Shellabarger Park would be smaller and then maybe something can be done in Greene County as well. So again we've got options. But again it is going to require additional study as opposed to me flying this off the top of my head.

Audience Member 3: Didn't we do this already?

Audience Member 4: Yeah three times.

Audience Member 3: Actually four times. This is four.

Mr. Reinicke: It has certainly been done before and we read the reports and I know some of the solutions that we are proposing here for detention were proposed previously. But I also know that one of the solutions that were proposed previously was a much larger footprint-wise than this and they weren't doing a diversion down.

Audience member 3: The park is 19.94 acres and and the pond retention they were going to put in back in 2011 was going to be more than 10 acres.

Mr. Reinicke: This one is under six.

Audience Member 3: But originally it was said I was going to be only about 2 acres so I am questioning; you are saying it is going to be this size.

Mr. Reinicke: Absolutely. You are welcome to question it. That is why I happily take the questions. There was another option that we looked at but this was the recommended one. The other option that we came up with was to take this diversion sewer and actually bring it all the way back to the park. We would be taking this large sewer all the way back to Bayside and bring it back to here and there would be nothing done to Shellabarger Park. It would strictly be a diversion sewer that would parallel the creek and take those high flows; again if we put in a diversion and it was 18 inches above normal flow and it would be a slightly larger pipe than what you are seeing here but it would be the whole length of Bayside. But obviously if you do that, the cost for that goes dramatically over the \$6 million that this is costing and it is all in pipe. So there are other options other than building a detention in Shellabarger. From our perspective this was the best combination that provided the benefit for the whole length of the creek. Obviously if there are other things that would need to be considered

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that's why I keep falling back on we would need to do an additional study and as part of that additional study that is when stakeholder involvement would be brought in. Residents will be brought in to give us specific concerns about not just the erosion concerns but also the solutions that we come up with for the concerns.

Audience Member 3: One of the major points back in 2011 was getting Greene County involved at that time. We were told it was too late to get them on board. Are we too late now? You have a timetable of 2016 which is next year.

Mr. Reinicke: It is absolutely not too late. Our 2016 date is really more of a when should the study begin to figure out what the solution is. Because what we've done here again is a general solution for the entire city. I would not ever expect anyone is going to go out and say yep that is what we are going to design right there. It's not what I want to design its just what I came up with. It is just a very preliminary look at what might work. Any future analysis; absolutely if the city tells us to go talk to Greene County we are going to go talk to Greene County and say guys here's what we've come up with, this isn't really ideal but ideal is maybe you guys come in and we work on a joint solution that has less of an impact to Shellabarger Park or maybe they can provide us with additional information on what is actually going on in Greene County. Because they do have detention facilities up in Greene County that we didn't really take into account because again this is kind of a high level study. If Greene County is involved now we are going to say, you know what the hydrology and the modeling that I did come up with a flow rate is going to include more and more of what Greene County did. And by doing that I am going to get a better understanding of what we might need for detention so maybe that pond starts getting smaller.

Audience Member 3: They built new houses and a detention up there in that area so there is some detention.

Audience Member 4: Yeah, Wagner Trace and going back further.

Mr. Reinicke: We didn't take any of that into account. I just looked at the topography, drew a boundary and said the land use in that area is single-family residential housing and therefore the runoff from that type of thing on this area is X. With detention ponds in place may be it is X minus something. That's why we would certainly need to look at it in far greater detail than we have here.

Audience Member 3: If you did do the pipe all the way would you have to get easements from each resident or have to buy the property?

Mr. Reinicke: No we would not. Actually that's why we picked Bayside. If we extend it we would stay within Bayside all the way back up and tie into the pond at the edge of the park. Or tie into the stream at the edge of the park. There would be no pond. So we would stay within Bayside so we stayed within city right-of-way limits so we aren't required to go get any easements because we aren't required to go onto private property. We would be very careful about picking an alignment that we keep us within the already city owned right-of-way which again when you're out there standing on Bayside, the road, the tree line, the sidewalks and then some distance behind the sidewalks I don't know the exact distance but it is a couple of feet behind the sidewalks. So we would be staying in that whole area deliberately so that the sewer can go through. There are other engineering challenges with doing that but we wouldn't have to get an easement.

Mr. Kerr: That was a \$10 million project.

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Mr. Reinicke: To do a diversion all the way back.

Audience Member 3: You are not ending the creek you are just taking most of the water right?

Mr. Reinicke: Similar to what we described here with a detention pond, the creek would actually continue through that s-curve in the corrugated pipe that is out there today, we would put a structure in somewhere a square in the parking lot that is out there at the northern end of the park today. We would go out there and put a structure in right where the pipe takes that final curve to go back to the west. We would set a large structure in there and then we would put a wall at the bottom of it, again about 18 inches high so that on a day-to-day basis a small stream flows and it just keeps going down that creek like it does today. So that everybody would see a little bit of water going down to the bottom of it. Once the water gets over 18 inches it is going to go both ways. A lot of it is going to go down the pipe; it would go down our new diversion pipe because it is a straight shot. As it makes this curve it is a straight line into Bayside this way so you would actually get more of the water into the pipe than you do down the creek. And then under really heavy rains it drains in the creek and the pipe but it still gets us to the point where we would hope and expect that the flow in the stream would drop enough that the erosion concerns should go away.

Audience Member 3: So can we get Montgomery County involved in it since they are the ones that diverted the original flow of the creek; the 90°?

Mr. Reinicke: As part of any discussion, study or information like that would certainly come out.

Audience Member 3: Because this was a drainage ditch left by the builder, okay. It was never made to be a creek or a stream or a water flow.

Mr. Reinicke: When it was originally designed it might not have been but it certainly is today. Again it is coordination a stakeholder involvement and you get everyone around the table together and say, okay guys I can come up with a whole list of solutions but who is game for what here?

Audience Member 3: But you said if you diverted the water that causes erosion.

Mr. Reinicke: No not necessarily.

Audience Member 3: Okay, so pinch points don't necessarily cause erosion that much. What are being diverted at a 90° angle doesn't cause that much. What causes it is the flow?

Mr. Reinicke: It's hard to say what the primary source of erosion is in any particular creek. It varies from creek to creek. If a natural creek has a 90° bend in it then yes there is going to be erosion on the outside of the bend. There is also going to be deposition on the inside of the bed. You will see that sandbar forming so one side will begin to cave and the other side will begin to deposit.

Mr. Kerr: We would add dumped rocks. We designed a project just like that.

Audience Member3: Right, you didn't diverted at a 90° angle. I know that.

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Mr. Kerr: We just designed a project just like that actually. It was just finished a few months ago and the flow at the end of the the divergent storm surges we had rock and trees.

Deputy Mayor Reynolds: Mr. Reinicke, I think that is something you may we all want to discuss after the meeting. I needed ask if there are any more questions.

Mr. Reinicke: We will stay as long as; if you guys have question for us we will happily stay and answer those as best as we can.

Deputy Mayor Reynolds: Any other questions? You know we thank you all for coming this evening. It is good to see you all out. We do have one other item on the agenda tonight. Mr. City Manager, the well field discussion.

b) Well Field Discussion

Mr. Chodkowski: Yes ma'am, thank you very much. Mr. Murray has been attentively following the changes to the Dayton Well Field Protection Program that Dayton City Council recently voted to enact. He is here tonight to provide Council with an update and summary of what that entails and how that impacts the city and what exactly we may or may not be able to do in regards to these changes through the city. I will politely let Mr. Murray stall wall Mr. Kerr and Mr. Reinicke collect their things.

Deputy Mayor Reynolds: While you are getting your copies, on behalf of Council, gentlemen thank you very much for your time. We appreciate all of the information and everything that you've done. You know the discussion will be ongoing.

Mr. Reinicke: Okay and again if you folks have any additional questions we can be out in the lobby for a couple minutes.

Mr. Murray: I just wanted to bring you up to speed about what's been going on in the city of Dayton and some of the changes that they made to the Well Field Program. I will just start with that. The Well Field Protection Program was established in 1987 and was adopted by the city in 1988. The changes here that we are looking at are being updated to reflect current size and the latest in water resource management practices. The program really hadn't changed since 1988 and now with improve science they are changing what you are seeing. The city of Dayton did pass these regulations in July 2015. The districts are being redrawn to more accurately reflect the aquifers. The existing is here. As you can see Riverside takes quite a lot of the well field into our city. Everything in the red is the geographical boundaries and the zoning boundaries are the dash lines that you see there. This reflects the study that was done by the city of Dayton. The yellow lines reflect the five-year time of travel. So if something is in the ground it will take five years following the passage that you see there to get into the well. You can see that the majority of the wells are in Riverside. 86% of the city of Dayton and the whole county's water comes from the Mad River. Right now we operate under an annual agreement that is passed around November of each year. They give us \$82,700 annually. Staff provides for that amount of money education, training and recruitment of businesses to the area. We assist the public health department in monitoring the businesses. We assist Dayton in monitoring by locating early warning monitoring wells. I think there are three out in Lorella pond. We are responsible for enforcing businesses that exceed the amount of chemicals that they can have on-site. We attend the well field board meetings, the pre-fund board meetings and multijurisdictional meetings. We participate in the annual Children's Groundwater Festival. We submit drafts

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and final versions of annual reports with their budgets and we compile and present risk point by grant applications to the fund board. And for that we received \$82,700. The big thing that we have taken advantage of is the Risk Point Buy Down Program. It is a major benefit of the program to us. Every business was inventoried in 1988 and they established what they call the total maximum daily inventory which is they went through every business and asked how many gallons of chlorine do you have every business and that's at the highest level that they are ever going to be allowed to have. Every property is entitled to a base amount of 160 pounds but of course many of them have much more than that. And I've got the total list of the businesses involved in the well field so that's available if you want to see it. The Risk Point Buy Down Program pays a business for decreasing their TMDI (Total Maximum Daily Inventory). So if they have 5 gallons of a substance and they reduce it down to two we will pay them for that reduction. Right now they are paying \$1.79 a gallon and it is going to \$4 a gallon. So they are greatly increasing the incentive. We have used the program before to purchase the RE Fair buildings that are now torn down as well as the Circle K. So we have taken advantage of this. The additional benefit was received from a low interest loan. The city received a loan that helped tear down the DAP facilities of which we still have an outstanding balance of \$109,000 to the city of Dayton.

Mr. Fullenkamp: Are there any businesses left; I'm not sure if I would call it benefit but can they use the buy down program?

Mr. Murray: I will address that in a minute but I don't think so. I don't think so, I think we are done and I will show you who I think the culprits are right now. The well field fund is managed by the Citywide Development. They hold the money for the program. Businesses in the well field right now; we have 85 businesses in the well field as classified by Montgomery County. Only 17 of those buildings are over 160 pounds of TMDI. That means only 17 are not legal. 23 of those 85 businesses are located at Wright Point so they are offices and people that don't really require a TMDI. And another 17 of those businesses are actually churches. Other notables are the Riverside Street Department, there is the Wake Avenue property. On there also is the Eintracht, the Elks, the Jaycees, Bishop Jacob Synagogue, the cemetery and Brantwood elementary school. The current operations of the; how we operate now is that public health, Dayton/Montgomery County department conducts on-site inspections. So they have two guys that run around to every business in the well field and try to collect data on how much is on-site. New businesses complete a zoning format application and is recorded as to whether or not they are located within the well field. So there is a checkmark on that form that says are you in the well field or aren't you. If you are in the well field we send that to Montgomery County and they check on how much chemicals they have on-site. Our BZA is all variance requests so even though they are set as a certain amount we as a city can let that amount to vary. So it is in our jurisdiction if we need to increase that a little bit. One of the ones that we did that for was the Dollar General on Valley Street. That exceeded what was allowed for that site. Our controlling documents to run this operation are section 1109.5(C) which is the well field protection overlay and that is in our UDO as well as the annual service agreement that I talked about a few minutes ago. Dayton's new operation; the number one thing that they did is change and prioritize well field zones. They created a whole new zone. They created a well field operations district which is only in the city of Dayton. That is where the actual wells are. The well field protection overlay district has been there for a while but they changed that. And the well field resource area is a brand-new area that the well field is expanding into. The well field resource area is a five year time of travel. So that is what we reflected on the original map, the yellow lines that you saw represent a five year time of travel. So this reflects what the changes are. The lime green there is what exists today, the red is the well field operations, the yellow is the one year time of travel. So again our area mostly is shrinking. It is mostly shrinking everything and again this is based on the latest hydraulics of the reports that they did. This is the area that is kind of expanding. Again they are creating a whole new area which

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is the well field resource area which is all of that in purple. So that will have new regulations on it. And this is just the same map but again it gives you the ortho version of what they've got. You can see that all of the west side of Riverside is taken into this five-year plan. Everything between Valley and Old Troy Pike is now in the well field. In Dayton's new operations they did increase fines up to a total of \$50,000 if somebody goes against this. They do allow for variances in the TMDI; a variance to increase the TMDI. It defines the BZA's finding of facts for granting a variance for a TMDI. So if some company wants to change the total maximum storage on-site they can go to the BZA and they have defined those facts for them. It increases prohibitive land uses so they added to the list I believe it was eight so it is up to 36 now. So what you can't do in these areas has increased. And they greatly increased the number of regulated substances. A regulated substance is something that affects the health of individuals. They established a new water resource area, the WRA, the purple area on the end of the map and they increased the number of monitoring wells by 150. That makes 450 monitoring wells surrounding the aquifers there. They also changed the name so instead of the Well Field Protection Program it is now the Source Water Protection Program. The new area, the water resource area again that Riverside is now totally in will have the ability to utilize the following products. The city of Dayton is making available an environmental consultant at no cost to the businesses to do things like create spill mitigation processes and help deal with the storage guidelines. These businesses also have access to the well field fund for reducing interest rates and receiving possible grants as well as taking advantage of free training that the city is going to offer. These are businesses that have traditionally been outside the well field; outside the one year flow but inside the five year and so they are going to help those businesses.

Mr. Fullenkamp: These are businesses in Dayton?

Mr. Murray: These are businesses in the purple area so they would be businesses. The well field in Riverside, right now we've got about 1463 acres. Now this is what is currently in the district on that first map that I showed you. The proposed acreage goes down to 1104 acres, not in the whole area that, doesn't count the five year it only counts the one year. So the areas being most restricted is actually being decreased for us. The lighter restrictions are covering more area. We have 69 businesses according to the city of Dayton, as I showed you Montgomery County had more than that they had us up to 85. And for most businesses it will go down to 50 but it will be different businesses.

Mr. Fullenkamp: And that's not in the pink area.

Mr. Murray: Those are not in the pink area, that is exactly right. There are many changes in the new district called the Water Resource Area which takes in most of the west side of Riverside. So that is the biggest change to us. Riverside's adoption, we would have to rewrite the UDO combining pieces of Dayton zoning ordinances listed there and Chapter 53 which is their water department regulations. We would have to go through each of those to rewrite our ordinances. At this point we have not received a formal request to do anything. So this is just talk and I just want to make you aware of it. There are some things happening downtown, they are actually working to increase the fee for water for this protection program to another \$.80 and now I think is the time to talk about it and enter discussions with the city in case that needs to be a dollar for anything that we might be doing. Staff recommendation, these are just things I'm thinking about as I went through this. Again they are asking us to do something and we might ask them to do something as well. Now these are just my suggestions again. The first one is forgiveness of the Center of Flight for \$109,000. It might be something that is easier to do than what we think. As I told you, Montgomery County currently does our inspections. They have people in the public health that are running through Riverside talking to our businesses and I'd rather bring that inspection in-

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house. The city of Dayton fire department does their inspections not public health. So maybe we get another part-time position that also does more fire inspections along with looking at the well field stuff. Expand uses of the well field fund to include participating government entities infrastructure improvement projects that would improve water resources. We just talked about the storm water and right now we can't use that well field fund for anything other than helping businesses and I think that is a little shortsighted in that there are a lot of other things that affect the well fields besides just businesses. So right now they're going to be setting aside \$1.5 million a year in the well field fund to handle things outside of the normal operation of the fund and wouldn't it be impossible to take \$250,000 to do infrastructure.

Mr. Fullenkamp: Could you give us some examples?

Mr. Murray: Yep. The first one is this, I got called into a meeting with the city of Dayton, the well field people and the Ohio EPA and they are very worried about this section of Riverside, this is old Troy Pike. This section does not have sanitary sewer and is right across the street from the well field. So again the concern was brought to me by Ohio EPA. So putting in a sanitary sewer to help the people that have very small lots. The area here, these sewers have been in existence for a very long time and they are in very small lots and they are starting to fail right in this area. So that is a hazardous waste. And so the idea would be to pull this out and see if \$125,000 a year wouldn't pay for the build out of that area. You also notice that there is very little development on that side and some of that has to do with the fact that there are no utilities on that side. We could greatly increase the density and have the utilities in place to handle that.

Mr. Fullenkamp: Is there a sanitary sewer there or is it septic?

Mr. Murray: It is all septic, everybody has septic. They are very little lots so it is going to get very expensive for a lot of people fairly soon.

Mr. Denning: The Eintracht is on septic?

Mr. Murray: Yes.

Mr. Fullenkamp: The EPA is about ready to start registering all septic systems in the state of Ohio.

Mr. Murray: That's probably a good idea. So again, the other one is; the thing that would help our position is to host a user's group meeting where all of the jurisdictions outside of Dayton, all the people that are in Dayton and see if we can't team up to see if we can get some changes made.

Mr. Fullenkamp: And that would be Harrison Township, Huber Heights, Vandalia.

Mr. Murray: Yes. The other thing is ask for them to expand the fund board membership. Right now there are three people from the city of Dayton and one from Montgomery County and they've yet to have that one person from Montgomery County go against the city of Dayton. And so maybe on the fund board we could have the other jurisdictions involved to have more of a say as to where the money goes. And those again are just recommendations. It is something to think about now because this is quickly becoming a money topic at the city and they are going to be talking to people. I don't know if staff or the people to initiate these or if it should be more at a political level but these are just ideas. The other method I have here shows the area that we are protecting. So all of Montgomery County receives benefit from the well field program. So not only do more

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people pay into it but we are also faced with the regulations that are in place there and we get paid \$82,000 a year to do that. Centerville pays the same amount that our people do but they don't have the regulations. Washington Township, Oakwood, Kettering they all pay the same amount but they are not overly burdened by the regulations. So in my mind an equitable position would be for us to receive more benefit than what we are at some point.

Deputy Mayor Reynolds: We are protecting more water.

Mr. Murray: We are protecting their water.

Mr. Denning: That also means that our businesses can't expand. We can't have as many different and diverse businesses because we are in the well field protection area. They can't do as many different things because of that and so therefore indirectly we are handicapped because we can't develop.

Mr. Fullenkamp: We are directly handicapped.

Mr. Denning: Well yeah, we are directly handicapped.

Mr. Murray: That is a different issue. So that's my two cents worth. That's where we are. That's where I think we are. Again, we only have like 16 businesses that exceed; that have huge amounts and that is going to be Jurgens, UPS, our Street Department, the Marathon on Brandt, companies that are going to change. We have very little use for the buy down there.

Mr. Fullenkamp: So what's going to happen in the pink area there? How many more businesses are included in the pink area and what is the impact on them?

Mr. Murray: I don't know. Now the difference between being in the pink area right now is the amount of regulation you are faced with. If you are in the pink area there is no regulations they are asking you to be a better citizen.

Mr. Fullenkamp: Oh so there are no requirements.

Mr. Murray: No requirements.

Mr. Fullenkamp: So there really are no limitations in the five year flow area.

Mr. Murray: That's exactly right. They are asking you to do something. Now they are going to start monitoring that and they are going to do drive-bys to see what everybody's doing and if somebody isn't behaving properly somebody's going to hear about it. Inside that area it is still the standard penalties and fines but the fines go up to \$50,000.

Mr. Fullenkamp: That's what's inside the pink?

Mr. Murray: No that's in our area. They want us to adopt that.

Mr. Chodkowski: In light of the recommendations that you are making Mr. Murray what is the leverage that the city can bring to bear with regards to the suggestions that we are asking for. I mean obviously the terms and

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conditions for the program exist as they are so in order for us to be able to maneuver Dayton and the county to then amend this legislation; this program to our benefit. There is obviously some political influence or some kind of other influence that needs to be exerted so what would we need to bring or our neighbors; be able to bring to the table so that Council was aware of what the other shoe is.

Mr. Murray: All enforcement of the program is with us; within our district. And as I just said 86% of the water for the whole county comes out of the Mad River which is Center of Flight. So our regulations are what dictates Riverside. They can ask us to do things but they are responsible for keeping the water clean not us. So do we want to sign this? Do we want to continue the program? \$82,700 doesn't seem to be quite as equitable as we want. The other thing that I'm asking for to be equitable is Centerville and Kettering. It's not so much Dayton. The things that were asking for are the same things that would benefit Dayton probably. Dayton would benefit from all of the things that we are asking for us to participate in. So the leverage is not to do this anymore. Let's put a manufacturing facility in on Center of Flight, let's put a rail yard on Center of Flight, let's do something other than what we are doing if that's okay with you guys. Nobody has asked us to do anything. Nobody's come to us and said here's the model.

Deputy Mayor Reynolds: So we don't have to sign an agreement with them. We don't have to take the pittance or whatever they determine. So at that point we turn and walk away?

Mr. Murray: I think we are getting our fair share here and you guys are putting in more monitoring wells anyways so it is kind of after-the-fact. I think you are moving your protection to prevent it before it happens to after it happens. So what they're doing is sinking the wells in the ground surrounding the well field's and they will shut off the wells as those models dictate. The reason we are pumping so much out of the Mad River is because the larger one, the Great Miami is surrounded by hot areas and the faster they pump it out the faster it comes in so they are laying off pumping out of the Great Miami to keep that safe distance between a hotspot and where the wells are. We don't have that here so much. So anything even on Valley I think from the map you will see that it doesn't this early fit into that area. The Center of Flight surely does, the Trey Landfill surely does, Wright Point surely does. It seems like we have a lot in our area that we can deal with where we could say look we are just looking to be equitable here.

Mr. Fullenkamp: And prevent problems rather than detect them.

Mr. Murray: Yeah and I think our argument is in fact that maybe we are going overboard protecting the well field. We've been doing more than you did. We are worrying about our sewers failing and coming in. If you're not worried about that, all right, we won't put it in. So we are trying to exceed I think their concerns; exceed their safety with what we can offer.

Mr. Fullenkamp: Should we reach out to these other municipalities as politicians?

Mr. Murray: I think they're willing to do that. Just a thought. And I just wanted to bring you up to speed as to where we are and what some of these suggestions are. But again, what they are doing is fabulous it really is. It works, it is a good idea for everybody but let's just make it fair and get a more equitable.

Deputy Mayor Reynolds: You'll be starting those discussions and negotiations soon? So you have leverage points that you're going to use. I don't think anybody has any problems with that.

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Mr. Chodkowski: I think our best approach would be to wait for Dayton to approach us and in the interim we would have discussions with our law director about the nature of this program. So maybe it's not so much we are going to remove ourselves from the program but we do not like the structure of your program so if they can legislatively enact this what prohibits us from legislatively enacting our own? If they have the power to assess these fees what would preclude us from having the powers to assess these fees?

Mr. Fullenkamp: Because they produce the water.

Mr. Denning: They put it on the water bill right. It's part of the water bill.

Mr. Fullenkamp: They pump the water out of the wells.

Mr. Chodkowski: Well the issue would be for us; I think there is a legitimate argument to me made if Mr. Murray's positions are correct positions and I think that they are that there is a certain amount of an equity benefit the from the program based on the responsibility that we are being asked to assume; or an increase in responsibility that we have been asked to assume. So if there is not a way for us to establish equity through the existing system why can we not maintain the responsibility under our own system which provides us that equity. So rather than those funds being collected and distributed in the percentage and the amount that they are why couldn't we not hold the responsibility. It is voluntary to begin with.

Mr. Fullenkamp: I don't understand how we are going to collect the funds.

Mr. Chodkowski: Well I don't know the answer to that question that's why I am saying we need to talk to the law director. I'm just saying that the position of give us more money or else we will leave and do what we want I don't know is necessarily an approach we want to take when the water that is produced in close proximity to our jurisdiction is the water that supplies 750,000 other residents in the county.

Mr. Fullenkamp: But I think that is our leverage. It does supply 750,000 residents. If you want us to play so that the water is protected I think that's part of leverage.

Mr. Denning: I think the answer is; and if I get what the Manager is saying we will wait for Dayton to come to us and say this is what we want you to do and would look at them and say that's great but what's in it for us.

Mr. Fullenkamp: Yeah but we could have done that years ago. We should've done this years ago.

Mr. Denning: I don't disagree but this is the time to do it because but they want us to change our rules that we already have on the books is what they are going to come and ask us to do.

Mr. Fullenkamp: But they are going to let the clock run out right? They are going to let the clock run out and hand us legislation in November and ask us to pass it.

Mr. Smith: You don't have to.

Mr. Fullenkamp: I understand that we never have to.

Mr. Denning: Is that kind of what you are saying?

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Mr. Chodkowski: Look I'm just saying that I don't know publicly that we want to go on the record saying, really to heck with the 750,000 other residents here, we are really in it for us and tough. There is a difference between having a discussion and executing a policy decision based on that discussion.

Mr. Fullenkamp: What is the value of bringing in these other municipalities at this point? Should we start these discussions with Harrison Township?

Mr. Murray: Yeah. See if they have benefit and see if they agree with the positions. See if they think there is value there.

Mr. Fullenkamp: So how do you think we formulate that and how do you go about doing that? Do you want to work with that?

Mr. Murray: Yeah I can work with that, I can give them a call. I talked to one of them today. I talked to Harrison and they are looking forward to it.

Mr. Denning: Maybe they have some ideas.

Mr. Chodkowski: I mean the issue is one of the better ways to address this is if we have uniformity amongst those of us that support the program periphery to date. That is one of the best ways to go about doing it. It is one of the best ways to facilitate change positively for all of us who participate in the program and to do so in everyone's best interest. So while I am not disagreeing that we need to consider a way to improve the city's condition for the impact of this program all I'm asking is that; all I'm suggesting to Council is to be considerate and thoughtful about the various methods that would be available to us. One of them is to simply say we are done. I'm not saying that that is the best approach. I'm just saying that the initial discussion point was, okay here's what we want Dayton and if we don't give it to us we are leaving.

Deputy Mayor Reynolds: I just need to ask a question. We talked about the five points on here. Forgiveness of debt, in-house inspections, expanded use of the well field participating group, host a users group, expand the board. Expand the board is just asking for a place at the table is that correct?

Mr. Murray: That's right.

Deputy Mayor Reynolds: To express what we need and what we want. We just looked at the fact that we are protecting the vast majority of their water by not being able to develop any land that we have in ways that we need to develop it where we can see an increase in revenue and bring benefits to our city. And we are looking at the in-house inspection and I believe there is a fee charged for each one of those?

Mr. Murray: No the county receives money, over \$100,000 a year to do our inspections.

Deputy Mayor Reynolds: That's right. So there is a fee that is charged. Forgiveness of the \$109,000 for the Center of Flight, those are leverage points that we can say and looking at the possible help with the storm water on Troy. Those are things that protect the water those are things that we can go to the city of Dayton and say this is what we need. This is what our problems are. Because we have a developable land that we can't use now versus any other group that we talked about; they can do whatever. I think that is the argument that we take to them and at some point in time; sometimes you walk away. I don't even know that that is an option or that is

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something that we wanted to do but at some point we have to be able to say that these are the things; if we are protecting the vast majority of your water by not being able to do things in our city while there is a compensation piece there that we ought to do.

Mr. Fullenkamp: That's right and I think the other cities that don't have any well field protection areas, they ought to be more than willing to say, absolutely. Maybe we need to go to them too rather than just concentrate on the people in the well field protection area.

Mr. Murray: If I take that map to Centerville, the map from the EPA that shows here's the threat, could we use some of this money to protect this water over here. Maybe it's common sense and they have nothing at stake.

Mr. Fullenkamp: But they do have something at stake.

Mr. Murray: It's minor, they don't have the money at stake. So it's Dayton's money is the way they perceive it and so Centerville would be voting to give up Dayton's money kind of.

Mr. Fullenkamp: And they might be okay with that.

Mr. Murray: They might be very okay with that. But again I look at how long is this program going to be in existence? 100 years? Forever? So couldn't we do storm water at some point, absolutely. Just keep the ball rolling.

Mr. Denning: I think you gave us a lot of information and I think teaming up with other folks is probably a good idea and we just move forward with that and see where things roll.

Mr. Murray: Just to get it in the minutes, these are my ideas only and these are not placed on anyone else.

Mr. Fullenkamp: What is our next step?

Mr. Murray: That would be to put the other jurisdictions in the room and say what are you thinking.

Mr. Chodkowski: I think that's where we start, with the outliers.

Mr. Fullenkamp: So that's going to happen quickly?

Mr. Murray: I can do that next week if you want.

Deputy Mayor Reynolds: When will that happen?

Mr. Chodkowski: We can start making phone calls tomorrow or Monday and as soon as we can get representatives from every jurisdiction in a room.

Mr. Denning: What you think Dayton is really going to try and get us to pass, something in November?

Mr. Chodkowski: I don't know.

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Mr. Murray: I asked three weeks ago for a formal letter requesting changes and I haven't received it yet. So I think that tells you something. And then they're going ahead with trying to get more money so that train has left as well so we may have to catch up.

Mr. Fullenkamp: So what is the current rate? And they're going to double it?

Mr. Murray: I think it's almost double. I think it would be a 50% increase it is a little over a dollar and they want to raise it \$.80. They show a declining balance but they don't quite show where the expenses are. But they do talk about putting aside aid once a year, \$1.5 million to citywide to do risk point buyouts.

Mr. Fullenkamp: Because I understood that Montgomery County and the city of Dayton are going to mandate high flow toilets. They want to get a higher usage.

Mr. Murray: Absolutely. Their prediction for increases is 1.002 as increased water usage.

Deputy Mayor Reynolds: Mr. Murray thank you very much. Mr. City Manager do you have anything else to be brought before Council this evening?

Mr. Chodkowski: No Ma'am. Just a point for Council I guess enclosing discussion with regards to the presentation we had earlier tonight from AECComm they had two recommendations. One if the city is interested in pursuing improving the storm water conditions that there be a detailed storm water utility study as well as a detailed study on the Lilly Creek assessments as that was their priority project. We do have an opportunity to schedule discussion at the next work session; the next meeting in September if that would please Council for the discussion. Then we could reach out to Mr. Kerr and Mr. Reinicke and have them get some preliminary information at least regarding cost. Since this is also in advance of the 2016 budget discussion. So if there aren't any objections we can schedule that for the work session on Thursday.

Deputy Mayor Reynolds: Is that final Council?

Mr. Fullenkamp: Are they ready to have that discussion?

Mr. Chodkowski: Mr. Kerr and Mr. Reinicke?

Mr. Fullenkamp: Yes.

Mr. Chodkowski: To the extent that the only real information that I'm going to ask them is what is that going to cost because we need to decide ultimately based on the information that came out of the study there are limited one-time maintenance improvements that we can make and to go back and be able to continue to ensure that those improvements function the way that they are supposed to is going to require additional expense to the city. Obviously we've already seen the long-term thoroughfare improvement plan and were talking 30 some million dollars. The local streets is \$15 million and now you've just heard \$15-\$20 million today so obviously the utility is going to be a necessity if the city is going to pursue that.

Mr. Fullenkamp: I'm a little concerned that we seem to have fallen behind on the maintenance of the storm water in certain areas around town. There are three or four examples that they didn't included in their estimate because they are maintenance issues. Why are we unable to maintain those?

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Mr. Chodkowski: By and large we just don't have the personnel and at the time those maintenance issues were the responsibility of Montgomery County.

Mr. Fullenkamp: At the time you mean 20 years go?

Mr. Chodkowski: Correct. So this isn't an issue where at least I can't recall in my time here where we've driven around and seen folks filling in ditches and we don't address it or where we interact with the residence and they say look I don't want to maintain my ditch if I buy the pipe we lay it. We've done that several times. But a lot of these issues that we are talking about aren't areas that are being developed so effectively what happens is 30 years ago or 35 years ago or whatever the case may be, Joe Blow homeowner said I'm tired of cutting that ditch and I'm tired of weed whipping that thing so I am going to just fill it in. Some people just filled that in, they put in gravel aprons and at that time the county had enforcement jurisdiction and as things have happened over the last 20 or 30 years we are where we are today.

Mr. Denning: It's evolved to that point.

Mr. Fullenkamp: Some of it was attributed to people fill in ditches in. Other than specifically stated maintenance issues; failure to maintain.

Mr. Chodkowski: Well I think that's what he was referring to. I don't know that there is an issue with regards to the responsibility under the ORC. The law is specific that it is the abutting property owners that are responsible for maintaining the ditch and it is our responsibility to provide them with the tile. That was the provision under the ORC as it applied to Mad River Township. Now the law becomes much more vague as an incorporated jurisdiction on who has the right and responsibility to maintain the area in the public right-of-way immediately abutting the property. So common-law dictates that it is the adjoining property owner but there is nothing specific in the Ohio Revised Code that says within incorporated jurisdictions like cities it is the abutting property owner that has the responsibility to maintain the right-of-way. Local jurisdictions have and we will be bringing forward legislation in the future that specifically says that the local law is that you as the resident are immediately responsible for the public thoroughfare; the public way immediate to your property. But this other part of the issue is why that is compounded. But there aren't any immediate issues where we were cutting the grass in ditchline's three years ago and suddenly said, hey we're not doing this. Most of the maintenance issues at least as I am told from that report are that those various ditches were filled in years and years and years ago.

Mr. Fullenkamp: I just thought I'd ask.

ITEM 6: ADJOURNMENT

A motion was made by Mr. Denning to adjourn. Mrs. Lommatzsch seconded the motion. With no further discussion a vote was taken. 6 were in favor; none were opposed (Mayor Flaute was absent). **Motion passed.**

The meeting ended at 8:26 PM.

William R. Flaute, Mayor

Clerk of Council