



Charlotte City Council

## Environment Committee

Meeting Summary for February 26, 2014

---

### COMMITTEE AGENDA TOPICS

---

- I.    **Subject:**        **LED Streetlights**  
          Action:        None.
- II.    **Subject:**        **Focus Area Plan Update**  
          Action:        None.
- III.   **Subject:**        **Illegal Dumping**  
          Action:        None.
- IV.    **Subject:**        **Coal Ash at Mountain Island Lake**  
          Action:        None.
- V.     **Subject:**        **Extension of Mitigation Options**  
          Action:        None.

### COMMITTEE INFORMATION

---

Present:                John Autry, Ed Driggs, David Howard, and Kenny Smith  
Absent:                 Claire Fallon  
Time:                    1:30 p.m. to 3:08 p.m.

### ATTACHMENTS

---

1. Agenda Package

### DISCUSSION HIGHLIGHTS

---

I.    **LED Streetlights**

Chairman Autry called the meeting to order and asked everyone in the room to introduce

---

# Environment Committee

## Meeting Summary for February 26, 2014

Page 2 of 14

---

themselves. He stated that the first item for review is LED Streetlights. He then turned it over to Phil Reiger and Rob Phocas to begin reviewing the subject.

Mr. Phocas and Mr. Reiger reviewed and discussed the "LED Street Lighting Update" presentation (copy attached).

Autry: So we are not going to be going after the sodium vapor fixture at this point?

Reiger: At this point we won't. This rate won't allow us to do that, but Rob will talk in a minute about what we are doing with Duke to continue to move in that direction. We believe Duke is committed to do that. About 90% of our lights are high pressure sodium so you will notice the vast majority aren't available for replacement yet.

Driggs: I was looking at the numbers trying to get an apples-to-apples comparison because there are a number of moving parts in there. The upfront cost looks like you've got about a 4 to 5 year payback period on that up front capital investment. Would that be right?

Reiger: If you do the numbers it is more like a 20-year payback period on that \$178,000. The way I calculate that is I take the \$7,800 that we save annually and compare that with what we would have spent if we didn't change out and it takes us about 20 years to get there. Understand these lights have about a 12-year life so you will see the return on investment when we put the pilot in or bid the pilot. All of our traffic signals have LEDs in them and we did that about 10 years ago and we saw substantial reductions in technology costs over time and we are seeing that in the street lighting industry as well. We wanted to get in front of that so that we were ready when the tipping point hit and we are there now because of the rate that Duke is giving us now suggests that we need to be putting in LEDs rather than high pressure sodium.

Driggs: The calculation I did was the buy down from the \$21 which was the normal cost and I was just looking at the terms of that deal in terms of if you paid \$178 and got a reduction from \$21 to \$7. Is that the model for a large scale installation? That is a high price capital right there.

Reiger: To go a little bit deeper, a LED light can cost anywhere between \$400 to \$1,000 depending on the intensity of the light. That is a standard streetlight. Duke can buy high pressure sodium for \$150 to \$200 so there is a substantial cost difference for Duke and that is why you see the \$178,000 up there. We think the buy down option was obviously the best option if you compare \$7.16 to the \$21.50, but when I was calculating the return on the investment I was comparing the \$7.16 to what we are paying today.

Driggs: I would like to see more visibility on economics and I think it is a superior technology and there is no question. Headlamps in cars are going in that direction and in fact there are some cars now that does not have a single incandescent bulb in them anymore, but I do think if we are headed in this direction that we need to have really good transparency on what the cost comparison is. I just put that out there for future.

Howard: The doorstep for the cost comparison needs to be replacement cost of the old

---

# Environment Committee

Meeting Summary for February 26, 2014

Page 3 of 14

---

technology compared to how long these lights last as well as what other benefits we get. You talk about the kilowatt savings, but I'm not sure we know that down to a bulb if that is possible. Does this technology come automatically with the smart monitoring? I guess the smart monitoring is telling us when the lights are out. Does this automatically come with that? This is really two technologies, the LED and the monitoring is not one in the same.

Reiger: That is right and the smart monitoring technology does not come automatically with LEDs and contrary to what we have seen with the LEDs as far as the price reduction, we haven't seen that price reduction happen in the smart monitoring technology so there is going to have to be a different approach to be able to bring that in an affordable way. Currently, if we wanted to continue to expand on that technology it would cost us an additional \$2.50 per pole per month. If you do the math across our system that is about \$3 million. It is really not an affordable choice yet; however, we are still talking with Duke about how Duke can take advantage of that smart monitoring technology in other parts of their business so we get the ancillary benefit through the street lights to be able to make that a viable choice. Duke can read meters with this technology; they can do a lot of other things. They can do some of their smart energy now work where they are adjusting, for example, people's water heaters during peak periods to keep loads down. This is the technology that helps them do that and they are still exploring those opportunities.

Howard: I would hope that we start to look at the possibility of rolling this out through a lens other than just utility costs. Maybe if we start rolling it out in neighbors and what is coming to mind is those five areas that the CIP is covering and that is one of the improvements that we make in that area.

Smith: You may not know the answer to this but from a technological standpoint do we foresee situations and what is the life cycle for improving beyond 12-years or is that sort of the maximum?

Reiger: Once we install the lights, given our current relationship with Duke, it is Duke's responsibility to keep them burning and we pay the monthly tariff rate. The lights last about twice as long, sometimes longer, than the standard technology. We get 3 to 5 years out of the high pressure sodium light. We expect to get about 12 years out of the LEDs and the technology is starting to prove that.

Smith: Is the cost savings reflected in the lower rate in the capital costs associated with the lighting? Is that coming down as that market gets more competitive or is it purely on the energy savings side?

Reiger: Duke tells us yes and we are still in discussions with Duke about their rate and as Duke learns more my guess is that their rates will adjust accordingly.

Howard: Since we have Jeb Blackwell in the room, I was thinking if we have a future project where we could start to use this technology should we look at it or should we just do it? Some of these projects have already been budgeted out so maybe what we should be talking about is just looking at the option. We are going to spend \$900 million on a bunch of different projects and where we can use technology like this to get in front of the curve we should do it and not put in

---

# Environment Committee

Meeting Summary for February 26, 2014

Page 4 of 14

---

the old stuff just to come back and have to do it in a couple years.

Blackwell: We always work to put in whatever the City's standard is. What I'm hearing here is that we are establishing LED as the new standard and I'm expecting to do that on our projects.

Autry: Whenever we are making this evaluation about the cost, etc. how do you put a price tag on reducing our carbon footprint? How do we put a price tag on the perception of the community that more of these lights are being left on and not being interrupted for service because of the sodium vapor bulb going out? How do we measure? I'm not asking for an answer now, but I just think that should be part of the consideration to Mr. Driggs' point what the total cost and what the total benefit to this community is.

Driggs: I would just say it is an established practice for costing these things out including the annual maintenance costs so that you arrive at a fully loaded per annual cost per lamp. Then your next step in cost benefit is to go to the qualitative thing and say here are the dollars and here are the non-financial costs and benefits. Some people think this light is very cold, for example, but on the other hand it provides better illumination and people's safety. You might reach the conclusion that we are spending some money here and we are getting some real benefits but let's be completely clear about how much we are spending and then identify the benefits as well as we can.

Yi: The real benefit to the City is really on the energy consumption and the quality of the lighting. Any benefits that accrue from the reduced amount of maintenance actually accrue to Duke and not us.

Driggs: It comes back through the rates. If it is higher we will pay it and we won't necessarily get the benefit if it is lower. The point is, it is not just their problem that enters into our discussion.

Phocas: A couple of your questions are great segway's into what I'm going to talk about next, the transparency as well as the technology. (Continued the presentation starting with page 10)

Howard: I know I heard it, but I'm trying to relate it to this conversation, what the out front capital costs is to doing this compared to doing regular sodium light?

Phocas: I don't have the numbers with me, unfortunately the Airport person isn't here but I can get those for you. I believe there are a little more upfront costs, but again over the life of a light it is going to pay out to use these.

Howard: I would like to know what it is between the capital and the kind of operations.

Driggs: I was going to say I assume these costs savings are just operating costs?

Phocas: They are. Also, operating includes the tariff rate which is what Phil was talking about earlier.

Driggs: The process to which the tariff is set and how the capital costs find their way back to us

---

# Environment Committee

## Meeting Summary for February 26, 2014

Page 5 of 14

---

through the tariff may be beyond the scope of this meeting, but I'm just saying I think we need to get to the bottom. If it is a longer life then you've got lower average maintenance costs and these could be more fragile for example, be more sensitive to temperature or shocks so we need to know all the different dimensions of the comparison and try to bring that down to a couple of key costs and performance matrix.

Howard: Have a true comparison, putting the cost of emissions and some of those other things that have impact on our lives maybe through the livability study we are doing we could put some measurers in there or something so we can start to try to figure out what that is. Mr. Driggs said something a little while ago and I've been trying to figure out the difference between the two. He said some think of the LED lights as cold and I hadn't thought about it, but that is just the fact that they are not as warm as the solar lights.

Driggs: In some situations they actually create a harsh light and I've heard people comment that it starts to look like a military zone or something. I think the technology has progressed since some of the earlier implementations but again they can be a very harsh light.

Reiger: It used to be the LED lights were that bluish and real sharp, but now you can buy LED across the major spectrum of temperatures. We bought the white light.

Howard: I was in Charlotte when we went to the orange solar lights and I remember coming down Third Street when I was younger and they had changed them, but you are right it seems to put a lot of soft light on a lot of things, but this puts real strong light. On the picture of the Hall of Fame I did notice there were shadows in place where you did the LED lights. We should think about all of this because it did leave some real strong shadows I think in places around the Hall of Fame that could be issues.

Autry: In shooting production work I have LED instruments now that give me a temperature dial on the back. I can dial 5,600 or I can dial them back to 3,200 degrees. It is not an issue; it is a matter of determining what we want. Could you share with the Committee Asheville's approach to the LED lighting?

Reiger: Their energy provider is Progress Energy so that is important to know because they have a different rate structure than Duke Energy. Now since they have merged and even though they have merged they have separate rate structures. Progress was interested in technology; they were interested in energy savings so they approached Asheville and Asheville used stimulus dollars to fund the capital costs. What they did and what Progress has done and Duke Energy hasn't is developed a City owned fixture option. So, Asheville bought the fixtures and owned the fixtures and it is really equivalent to our buy-down. They bought the capital down to get a cheaper tariff rate and they have been taking the savings that they have received from the cheaper tariff rate and have created a revolving loan fund effectively to reinvest. They have a system of about 9,000 lights in over a three-year period and have been able to reinvest their savings and completely change the lights out. What is important to know is the differences that the rate structure that Asheville had under Progress was very favorable for that type of setup and we didn't have that option here, although Duke, in order to give us a buy-down option actually had to get permission from the Utilities Commissions to do that and they are willing to do that on a pilot basis. The

---

# Environment Committee

Meeting Summary for February 26, 2014

Page 6 of 14

---

other thing that Asheville had was they were moving in that direction around the time the stimulus program came about so they used what I call cheap money. It is an important issue in the summit arena, municipalities want to have a municipal owned option because we believe we have cheaper financing either through grant money or bonding than what Duke's standard rate of return is on that purchase. They charge standard rate return in those rates so we believe we can bring forward cheaper financing which would save us some money, but right now Duke doesn't have that offering so we have been talking with Duke and I imagine we will continue to talk with Duke through the summits and through the Rocky Mountain Institute about those potentials.

Driggs: The \$178,000 bought down the rate from \$21 to \$7; for how many years?

Reiger: It is a five-year contract that we have on that. After that five years is up we will have to renegotiate it and we will see where that goes.

Autry: Thank you all for the information; let's move on to the next agenda item.

## **II. Focus Area Plan Update**

Yi: Based on the Council Retreat, staff went through the Environment Strategic Focus Area Plan (copy attached) and took our best shot at updating it. I thought it was in pretty good shape to begin with so the most significant change that we made was to change national to global and the changes that we made are in bold so you can see the changes.

Autry: Let me share something with the Committee members; just coming out of the Housing and Neighborhood Development Committee, we asked to have this column of example indicators removed from the document because it tended to be more of an item of confusion and misunderstanding than anything definitive about what the indicators are to measure our success. We suggested they remove that column from the document and then prepare a presentation for the Committee in the future to outline what indicators would be used in determining success and the initiatives in the Focus Area Plan. That would be in the public record for all the items, all the indicators; it would also provide Council with the tools needed to go out and communicate where success points are with the community and our constituents.

Howard: I know the Chair of that Committee wants these to be as short as they possibly can be, but a lot of times the initiatives don't start to explain some of the ideas behind how we are going to achieve them. The word "example" actually stands out a lot and that implies a lot more to it than just those. It is getting way too general for me to not be able to understand exactly how, if I had ideas about how we were going to do it, to insert that.

Autry: That is why we were going to have that presentation from staff so that all of that could be out in the open and discussed, vetted, measured and not necessarily make it a part of the document. That is just part of this discussion.

Howard: Over the four years that I've been on here this went from four pages down to one page and now we want to take it down to a half a page. That makes me nervous when it comes to actually being able to track what we are trying to achieve.

---

# Environment Committee

## Meeting Summary for February 26, 2014

Page 7 of 14

---

Driggs: We did have that discussion in the meeting and we are going to need to conform these somewhat so I guess we can get a broader decision whether that column comes out but the thing we did talk about that I think is pertinent here is defining initiatives in such a way that there is some sort of indicator as to whether or not we achieve what we set out to do. That was a lot of our conversation and the Chair raised the point that we ought to have a matrix and they said we are getting down in the weeds on the detail and the general point is look at this and think about what it really means. The only suggestion I would make is if we have indicators that they go more to the kind of consequences and things we are setting out to do and how we can demonstrate success.

Autry: I don't want to get into wordsmithing at this point but we should provide staff with all the feedback that we want to give them on this document and be prepared for approval at our meeting next month so it can go before the full Council for approval in April. Let's move on and switch the agenda around and talk about the recent illegal dumping.

### **III. Illegal Dumping**

Mr. Yi introduced Barry Gullet, Charlotte-Mecklenburg Utility Director.

Gullet: Today I will talk about what happened in our community a few weeks ago. On February 6, we had a very unfortunate incident that took place in that someone dumped a large amount of chemically contaminated waste material into a grease trap behind a Food Lion grocery store off Harris Boulevard. That incident really had the potential to cause a great deal of serious harm to people and to the environment. I want to talk to you a little bit about how the City's planning and preparation and investments that we made and the teamwork that took place in responding to this event prevented a real serious disaster, a real serious situation with the environment and with people.

Howard: Can you talk about the fact that a grocery store had a grease trap real quick? Was it inside or outside?

Gullet: They have a deli and they have food prep areas and they cut meat so they have a certain amount of grease, fats, oil and grease that gets into their system so when oils and grease get into the sewer system it clogs the pipes. The grease trap is outside. It's a big tank and waste comes in one side and the way the pipes are configured the grease and the fats float and the water comes off underneath so it separates the fats, oil and grease from the water. The water goes into the sewer system and the fats, oil and grease has to be pumped out periodically and that is one of the reasons you see grease traps as a common site of illegal dumping because the same trucks that come to pump out that grease periodically, can be used to put stuff in instead of taking it out. It is not supposed to happen that way, but unscrupulous people will do that. That is what took place here.

The thinking is that in the middle of the night somebody pulled up in a truck that would normally be used to clean it out, but it was full of this PCB contaminated material and they in fact pumped it full instead of pulling out. They pumped this material in and as they pumped it in of course the

---

# Environment Committee

## Meeting Summary for February 26, 2014

Page 8 of 14

---

liquid went down the sewer system. The dumping site is about 10 miles by pipe and it takes about 7 hours for it to get to the treatment plant.

Howard: This liquid that the put in, where would you normally dump it? I'm trying to figure out why someone would want to illegally dump it. They didn't have some place else to go or was it expensive to dump it somewhere else?

Gullet: It is very expensive to dispose of PCBs and there are a lot of dangerous waste materials that are very difficult to dispose of. They are highly regulated and PCBs have been banned in the US since 1979 and there are still a lot of them around. They were used in electrical transformers; PCBs are an oily type material; it is actually a family of chemicals, there are several hundred actual chemicals that fall into that category. They were used for different purposes but a main purpose was as an insulator and a coolant. They are almost non flammable and they provide insulation and thermal protection.

So, after the material was dumped, it went into the sanitary sewer system and it followed the sewer pipes about 10 miles to the treatment plant. We had a very sharp operator who noticed that something was different and that the material coming into this wastewater plant wasn't normal and he diverted the flow into what we call a flow equalization basin. That is a 5 million gallon open basin that we have at this wastewater treatment plant that we use during wet weather or we use during an emergency when we can't flow through the plant. At this facility, the operator had the training; he had the background and experience to know this is not right so he started sending it to the flow equalization basin. He called the Charlotte Fire Department; our Hazmat folk because when this stuff is coming in you don't know if it is explosive; you don't know if it is flammable; you don't know how toxic it is; you don't know what it is. You just know it is different and it is probably wrong.

The Fire Department responded and Hazmat helped us determine pretty quickly that it was not explosive. We still didn't know what it was but we had this strong odor so we were able to start following that odor up stream. The crews left the plant and we had a small army of people leap-frogging all the system because literally it could have come from anywhere on that map (copy attached). That is generally the service area for the Mallard Creek Wastewater Treatment Plant so there are thousands of manholes, thousands of locations where this could have been put in. We started tracing it up stream and luckily where they dumped it follows the main line pretty much all the way to the treatment plant and that main line also follows the greenway. It really facilitated tracing it and tracking it so we were able to pinpoint exactly where it was introduced.

We get dumped on quite often actually. Usually it is not anything that is as hazardous as PCBs but very rarely can we pinpoint the source of where we were dumped on. In this case we did, which is fortunate because this was such a hazardous material. PCBs are in the top 10% of EPA's list of toxic materials so this is a pretty serious incident. We traced it up stream and in the meantime we were taking samples of the material coming into the treatment plant to take it to our laboratory to figure out what it was. We were able to determine pretty quickly that these were PCBs. We found out there was another chemical in there called trichloridebenzine and that was the smell that we were picking up. Then we were able to start responding to what we knew at that point.

---

# Environment Committee

## Meeting Summary for February 26, 2014

Page 9 of 14

---

The Police Department was brought in. We knew this was a criminal activity and we were zeroing in on where it might have occurred. As you know the Mayor and City Manager then established a criminal investigation task force which is still investigating this incident. They are working with the Fire Department, with our staff, with US EPA's Criminal Investigation Division and the Highway Patrol on that task force. We continued to maintain the treatment plant; we were working 24/7 responding to this emergency trying to figure out how to deal with what we had there.

Then on Saturday evening after we had worked 24 hours on the Mallard Creek incident we had a call from the Sugar Creek Plant and they were getting an unusual material into that plant. We had to assume that it was a very similar material. We went through a similar response with Hazmat folks and our lab. There is a field test that the Hazmat folks can conduct for PCBs, it is not entirely conclusive and it has a lot of things that can interfere with it. Their preliminary field test indicated that we had PCBs at Sugar Creek as well. We started responding accordingly and again we have a flow equalization basin there and we started diverting flow into that. It turns out in the end it was not PCBs, it was some fuel type product that had a high concentration of ethanol and toluene in it so we were actually able to treat that in the wastewater plant.

One of the things that I need to point out and I tell people this all the time, it is a real important concept, everyone needs to realize that wastewater treatment plants and even water treatment plants are not magic. They don't make anything disappear; what they do is separate things and they try to take bad things and allow us to either make them less bad and to put them where they belong, whether that is in a landfill or in some other place. We have to put them where they do no harm. PCBs are not very water soluble; it is an oily type material that sticks to solids, fats and grease. Now we've captured this PCB and virtually captured every bit of it. The amount that went into Mallard Creek is very tiny and in fact we don't believe we actually had any environmental impact on this at all because of the response that we took at the treatment plant. Now what we have is a lot of PCB contaminated material, some of it is very high concentrations in the treatment plant that we've got to get rid of. That is the next phase of this project and it is probably going to take us 6 to 12 months to fully process and get that material where it belongs. It will be pretty expensive and depending on the concentration, we will have to dispose of it in different ways, some of it may have to be trucked to different states for proper disposal and treatment so this is going to be an on going issue that we are going to have to deal with for quite some time.

Howard: I asked for this to be referred to this Committee and thought we should start vetting the conversation but I don't want to feel like we are rushing it. City Task Force reviewing this will be an ongoing process, right?

Gullet: Yes, it will. We heard this morning from the Police Chief that the Task Force is going to stay; they are releasing some of the folks to go back and do some of the things they normally do, but the Task Force investigation as I understand it is going to continue. This is a serious issue in the community. There were some cities in South Carolina that were hit similarly about 6 or 8 months ago and they are still recovering from that. They spent a lot of money cleaning up their plants. The City of Belmont had a dumping issue just a few days ago and it turns out it was more

---

# Environment Committee

Meeting Summary for February 26, 2014

Page 10 of 14

---

similar to our Sugar Creek Plant material. It was still an illegal dumping but it was a fuel base type material instead of PCB base type material. They are working through that. The Task Force is involved with that as well. There is a lot of work going on from the legal side and from the operation side and from the emergency response side.

Howard: For me this comes down to a couple of broad categories. It is communication to the public about when we have these issues and the accountability, but it is also explaining to the community the harm that these types of acts can have. It seems we should have some kind of communication plan. There is a budgetary issue that I would suspect would come back to this committee in a future report of some sort as well as the full Council and the one that probably gives me the most pause is the vulnerability that this community has that it could happen anywhere, at any time and now the public understands what happens in the City when that happens. It could shut us all down. That vulnerability is something that I'm wondering if we should look at some recommendations around ordinance changes. Should there be a fixed security required around grease traps? There are a full range of things that we should look at and I don't think we are going to do it in the next 15 minutes and I don't want to even try to do it. Those are the things that I would like to see come back to this conversation, the communications, the criminal, the budget and whether or not we should adjust what we require some kind of way.

Gullet: Mr. Howard, what you've laid out there looks like our work plan for exactly what we are doing going forward, particularly around the communication and the planning about mitigation and prevention. It is not just a Charlotte concern; that is an industry concern.

Phipps: I just want to comment to staff for the response and reporting out. This was somewhat a scary situation and I appreciate how it was identified and contained and the vigorous action taken to follow-up.

Gullet: Thank you and I want to emphasize that this was very much a team approach. We had a lot of staff from various City Departments; including, Mecklenburg County's Water Quality Program, US EPA's representative from Atlanta who drove up here and spent several days with us as we responded to this, the Fire Department and the Police Department. Everyone has really been on board and been supportive and helped us try to protect the environment, protect the public and figure out how we can prevent this going forward.

## **IV. Coal Ash at Mountain Island Lake**

Mr. Yi stated that this topic is on the agenda because of what happened at the Dan River and we have a Duke Energy Power Plant at Mountain Island Lake called River Bend which has a coal ash pond and I think this was intended so that the community could get some more information about the coal ash pond and what Duke might be doing about it at the River Bend station.

Autry: Also, understanding what the risk is to our water supply.

Yi: I think staff's approach to this is to try to at least raise the awareness of the Committee members about what is going on as part of the conversation. I think there are two things we can do. First, we can take a field trip out to the River Bend station and actually see it and actually understand what is out there and what it is and then have some conversation with the Duke

---

# Environment Committee

## Meeting Summary for February 26, 2014

Page 11 of 14

---

Energy people while we are out there. I think we are looking at the Chair and the Vice-Chair's calendars to see if we can schedule that. The second thing that we can do is there is an offer from Duke Energy to come and do a briefing and I think it is up to the Committee as to whether you would want that briefing at the Committee level or at the full Council level.

Autry: I think it should go before the full Council. I think this issue is pertinent and I would anticipate that the public would want to be able to be assured that this body, the full Council was involved in this issue and ready to move in a way to insure that we continue to have good quality drinking water for 760,000 residents of the City and a million people who live in the county.

Howard: It would be nice for staff to add some conversation about if there are next steps that need to be taken and maybe the vetting of those next steps. The public just needs to know that we care about these issues and that if there is something the City of Charlotte needs to do we are more than happy to facilitate that, even if it is just conversation.

Autry: Whenever you set up this workshop presentation briefing I'd also like to hear from some other group like the Catawba Riverkeeper to get their understanding and take on it. I understand they have done lots of testing of the water and have qualified personnel who can speak from a professional stance about what we are really dealing with from an environmental impact perspective.

Yi: We can do that and I will work with Rob and the staff that puts together the Council agenda to see when we can schedule this.

Autry: That would be great if we could have the first one in March that would be better.

### **V. Extension of Mitigation Options**

Mr. Yi introduced Daryl Hammock of Engineering and Property Management who will talk about the extension of mitigation options. He stated that this is a follow-up from the Dinner Briefing that was referred to Committee.

Mr. Hammock began reviewing the "Extension of Mitigation Options" presentation (copy attached).

Motion was made by Councilmember Howard that we recommend to the full Council that we extend the period to December 31, 2018. Councilmember Smith seconded the motion.

Autry: The maps with the stars are where the mitigation fee was paid with the temporary option, correct?

Blackwell: Correct.

Hammock: In the last two years we've had 14 redevelopment projects that have taken advantage of this temporary mitigation option so those 14 sites as you see on your map with the orange stars, those are the sites that have benefited from this temporary provision. The blue circles are

---

# Environment Committee

## Meeting Summary for February 26, 2014

Page 12 of 14

---

the ones that have paid the fee in accordance with the original approved ordinance from 2008.

Autry: My concern was in asking for some of this information this map was generated from was because I was curious about having the mitigation fee in the distressed corridors, I was not opposed to having it throughout the entire City; I had questions about it. Of course the best way to deal with the runoff is at the source of the runoff, but I also recall from an earlier meeting I had a couple years ago with Mr. Hammock that there was a lot of good that was coming out of the money that the mitigation fees were providing the City to do these regional projects that were indeed improving and helping our water quality. I just wanted to make a point that it wasn't just about a lot of development in the southern wedge taking advantage of the mitigation fee that there were indeed these projects being done all over the place and as I see here from the map, it is not necessarily just proportionate with the concentration of where development is occurring, especially redevelopment and that is what we are really talking about here.

Smith: The red boxes, do they represent redevelopment projects or new construction as well that the ordinance would not apply?

Hammock: The red boxes are new development or redevelopment; they could be either one. They are just folks that either built on site measurers, probably in most cases they have built on site measurers.

Autry: I really think that even though you think there is other information to come forward, I think you did a good job of laying out where the mitigation fee is having impact and Mr. Hammock has obviously showed us where the positive outcome is from that.

Howard: The reason why I moved so quickly is that I kindly came in on the tail end of when this was originally being voted on and then a couple of years ago when we amended it to do the sliding scale to make sure that we did accommodate redevelopment in the urban areas, I moved quickly because I just knew a lot about it and felt it has been positive so far.

Smith: I think it is a very good medium and compromise in which we can achieve goals for the environment and we can achieve goals to keep our business partners out there with ability too.

Driggs: I think it basically helps us to avoid undue costs related to the ridged enforcement of the rules so as long as we are achieving the same overall goals in storm water and it doesn't impose this other burden which is not captured by the calculations here in terms of the redevelopment options that are taken off the table if we don't get them resolved. I would support the extension.

Howard: Just to make you feel better Mr. Chair, the ordinance in itself is to actually deal with exactly what you said. The developer is going to figure out if they want to pay; the fee was strong enough so it makes them think about whether or not it was easier just to put it on site. This will only be places where it actually makes some sense. There are not a lot of sites in the areas that we are concerned about where that is going to be the case. It would be cheaper just to put it on site. It will only be used in places where the value makes enough sense where they would do that. The area we are concerned about we don't have many of those.

---

# Environment Committee

Meeting Summary for February 26, 2014

Page 13 of 14

---

Blackwell: It is really redevelopment.

Hammock: There is some redevelopment that won't even qualify for the option of mitigation.

Blackwell: I think all redevelopment will.

Hammock: If you are adding a certain amount of surface area you don't. I think 20,000 square feet is the trigger.

Smith: There are redevelopment opportunities out there that won't qualify; I think it is a good program.

Blackwell: If I could say one other thing in favor of this; all redevelopers have always got to manage a lot of difficulties in building projects. There are unknowns that are challenging for them and on infill sites those tend to be tougher. There are costs that they have and they know about up front and they build that into their plan, but when unknowns cause a cost to come in late that comes straight off the bottom line. So if they have a tight site, which redevelopment sites tend to be tight and this becomes difficult, it is especially problematic so if they know and have an identified cost up front, it should be helpful.

Autry: I would want to add also that part of the influence behind this to extend this is that our economic situation is such that it needs more to broaden the opportunities for redevelopment in certain areas. I don't think that we can expect anything to be normal going forward. We are just going to be coming back in December 2018 and saying it needs to be extended again because our economy is not back under good solid legs like it was before 2008.

Howard: Are you recommending it be permanent?

Autry: No sir. That would not be my offer. My offer would be to not have any more extensions at all just because I think the responsibility should be on the developer to deal with their runoff on site. That is the easiest way to deal with it and the point where it should be dealt with, but I understand how economics and commerce works also.

Howard: The only thing I would add to that is on a small site you want to be able to maximize what you are getting. You have to buy a structure, tear it down and then put something back. I don't want to penalize and this is an option to try to help people who are trying to help us with certain things. The fee needs to be set at a rate to make sure that it is something that you reach for and not something that you just kind of grab. That is the reason I feel comfortable with it. If the Chair is asking for until March I'll take my motion back. I'm good on waiting until March and make sure that if there are things we need to talk about, we do.

Driggs: I just wanted to get back to the point of the economist. I don't think this is a presumption that the economy in 4 ½ years time is not going to be stronger than it is now so I do regard this as a kind of response to the events of the last few years. Again, we need the jobs, we need the kind of economic stimulus that comes from allowing this redevelopment to occur and I think, particularly given that we are realizing money that we could use for storm water that this is a

---

# Environment Committee

Meeting Summary for February 26, 2014

Page 14 of 14

---

program that makes a lot of sense. We can always kill it in 2018.

Autry: We can come back next year and kill it.

Driggs: I just think the economic situation now is such that in my mind the stimulus benefit and job creation are important considerations.

Autry: I'm glad to see that you like stimulus programs.

Howard: The only thing I would ask you to bring back next month is how this fits into the conversation that the Manager and the Mayor asked which was to look at all fees and how the net effect works. This would have to play into that conversation some kind of way so next month if we could understand what the thought process is from the Manager's office about extending this to 2018, are they going to come back after looking at permitting and say we should do something different? How this fits into that conversation is something we should consider.

Yi: We can do that that.

Autry: There is a motion.

Howard: I took that back.

Autry: Great, wonderful, I appreciate that because I'm looking forward to having some more information.

Yi: If you have any further questions you would like us to address between now and the next meeting, send me an e-mail and I will capture it all and I will send it to the right people to address between now and the next meeting in March.

Autry: Great, the next meeting is March 26<sup>th</sup> at 2:00 p.m. in this room.

The meeting was adjourned at 3:08 p.m.



## COUNCIL ENVIRONMENT COMMITTEE

Wednesday, February 26  
1:30 p.m. – 3:00 p.m.  
Room 280

---

### AGENDA

- I. **LED Streetlights**  
*Staff Resources: Hyong Yi, Phil Reiger, Rob Phocas*
- II. **Focus Area Plans Updates**  
*Staff Resource: Hyong Yi, Pat Mumford, Rob Phocas*
- III. **Extension of Mitigation Options**  
*Staff Resource: Daryl Hammock*
- IV. **Illegal Dumping**  
*Staff Resource: Barry Gullet*
- V. **Coal Ash @ Mountain Island Lake**  
*Staff Resource: Hyong Yi and Rob Phocas*
- VI. **Hot Topics**

#### **Next Scheduled Meeting**

April 9 at 2:00 p.m. in Room CH-14

---

Distribution: Mayor/City Council  
Bob Hagemann

Ron Carlee, City Manager  
Stephanie Kelly

Executive Team  
Environmental Cabinet



## Environment Strategic Focus Area Plan

“Charlotte will become a **global** leader in environmental sustainability, preserving our natural resources while balancing growth with sound fiscal policy.”

The City of Charlotte recognizes that environmental stewardship is fundamentally important to quality of life and essential to maintaining a vibrant economy. Protecting our natural resources, promoting conservation, and improving the environment all enhance the City's mission to preserve **its citizens'** quality of life.

Charlotte will become a **global** leader in environmental sustainability by:

- Promoting and participating in the development of an environmentally sustainable community;
- Leading by example by practicing environmental stewardship in City operations and facilities;
- Seeking and supporting collaborative and regional solutions to environmental problems;
- Facilitating the growth of the clean energy industry, including the alternative energy sector.

Specific initiatives in the Economic Development and Transportation Focus Area Plans (FAP) relate directly to Charlotte's environmental goals. The Economic Development FAP includes an initiative to grow and retain businesses in several industry sectors, including the energy/environmental sector. The Transportation FAP includes an initiative for enhancing multi-modal mobility, with measures such as reducing vehicle miles travelled and increasing access to public transit.

| FY2014 Initiatives  | Example Indicators  |
|---|---|
| Promote and participate in the development of a sustainable community                     | Reduce residential waste  |
|   | Maintain a significant and healthy tree canopy  |
|   | Maintain a safe and adequate drinking water supply for the community  |
|   | Continue the positive trend in community reductions of emissions that result in ozone   |
|   | Reduce impacts <b>of waste and energy usage to air, water, and land quality</b> through community engagement  |
| Lead by example by practicing environmental stewardship in city operations and facilities | Reduce energy use   |
|   | Reduce storm water pollution  |
|   | Reduce air pollution emissions from and improve fuel economy <b>of</b> the City's fleet   |
| Seek and support collaborative and regional solutions to environmental problems           | Collaborate and participate in public and private sector partnerships to positively impact air quality, energy efficiency, water resources and reduction of waste |
| Facilitate the growth of the clean energy industry, including alternative energy sector   | Work with partners to attract and grow the clean energy industry sectors in Charlotte   |



**CHARLOTTE**<sup>SM</sup>

LED Street Lighting Update  
Environment Committee  
February 26, 2014

- Why LEDs?
- City/Duke Background
- LED Street Light Pilot Overview
- What's happened since the pilot?
- What's next?
- LED Street Light Summit
- LEDs & City Facilities
- Next Steps



## Why LEDs?

- Use less energy = less carbon emissions
- Longer service life
- More durable = Less maintenance
- Comparable light quality

The only remaining question is **cost**?

## Ownership:

- Duke Energy is the owner/operator of City street lights.
- NCDOT owns interstate lighting (I-77, I-85, I-277, I-485, parts of US 74).

## Quantities:

- There are approximately 72,000 street lights in the city.
- City adds approximately 1,300 lights annually.
- Average Price: \$11.50 / light /month.



## LED Pilot Project: **Cost**

- **\$178,610** paid for the purchase and installation of the 229 LED street lights.
- In return for paying the upfront fee, the City received a lower monthly rate of **\$7.16** per month per pole (instead of \$21.51/month/pole).
- The installation of 229 LEDs saves approximately **\$7,800** annually.
- Duke Energy provided the smart monitoring technology at no cost to the City.

## LED Pilot Project: **Outcome**

- Energy Savings: **168,144 kWh/yr.**
  - Equates to:
    - 119 metric tons of CO2
    - Greenhouse gas emissions from 25 passenger vehicles.
    - CO2 emissions from 13,300 gallons of gasoline consumed.
- Maintenance: Only three failures reported to date.
- Citizen Response: Positive.



# LED Pilot Project: **Aesthetic Benefit**



Before



After

## What's happened since the pilot?

- In January 2014, NC Public Utilities Commission (PUC) approved Duke Energy's first standard rate for LED street lights.
- The LED rates are cheaper than traditional street lighting (approximately 7%-15%) in most cases.
- The LED rates are limited to only new street light installations and mercury vapor replacements.
- The City is adopting LED street lights as its new standard.

## What is next?

- While Duke's rate case was before PUC, several North Carolina municipalities were discussing converting to LED street lights.
- The North Carolina League of Municipalities (NCLM), on behalf of these cities, filed a motion in Duke's rate case and had discussions with the PUC public staff.
- Results:
  - PUC established the new LED rates
  - PUC ordered Duke Energy to meet with NC municipalities to discuss next steps in LED conversions.

- Discussion among consortium of NC cities
  - How do we advance adoption of LED street lights in a cost efficient manner ?
- Cities recognized the need for a “street light summit” modeled on one held in Michigan.
- Asheville, Raleigh and Cary moving forward with LED conversions (all in Progress territory except a small part of Raleigh).
- Evolution of monthly meeting with Duke Energy: focus on street lights.

- The City of Charlotte and Duke met to introduce the idea of a summit.
- Duke agreed to host.
- The summit will allow Duke to comply with PUC Order.
- Duke hosting 3 full day summits in 3 locations across the state.
  - February 27<sup>th</sup>, Cary
  - March 6<sup>th</sup>, Hickory
  - March 13<sup>th</sup>, Greensboro

- Four general areas of discussion:
  1. Duke Energy Outdoor Lighting: Where are We Today and Tomorrow?
  2. Financing strategies for municipal ownership.
  3. Municipalities' experiences with LEDs.
  4. Small group breakout discussions.

## Next Steps after Summits

- NCLM filed an answer to PUC order requesting the establishment of a working group.
  - Currently, NCLM is awaiting PUC's response.
- Rocky Mountain Institute invitation to eLab Accelerator: A Bootcamp for Electricity Innovation. 3/31 – 4/3
  - RMI brings together project teams from around the country to advance innovative work at the distribution edge of electricity system.
  - Project Team:
    - Charlotte;
    - Raleigh;
    - Duke Energy;
    - UNC School of Government;
    - 3<sup>rd</sup> party expert (TBD).

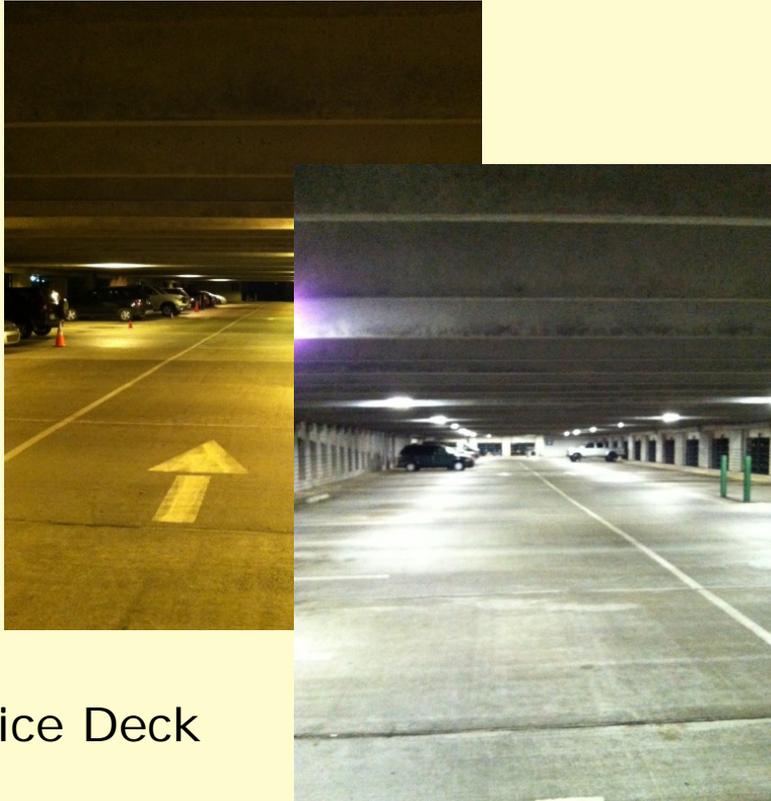
- Airport:
  - Arrival area LEDs.
    - **12** light fixtures
    - Energy use: **28%** reduction; **6,300** kWh saved/yr.
    - Cost savings: **\$550/yr.**
    - CO2 reduction: 4.5 metric tons / yr.
  - New Entrance roadway LEDs.
    - **53** light fixtures
    - Energy use: **40%** reduction; **27,857** kWh avoided/yr.
    - Cost savings: **\$4,000/yr.**
    - CO2 reduction: 22 metric tons/yr.

# Airport LEDs: Before & After

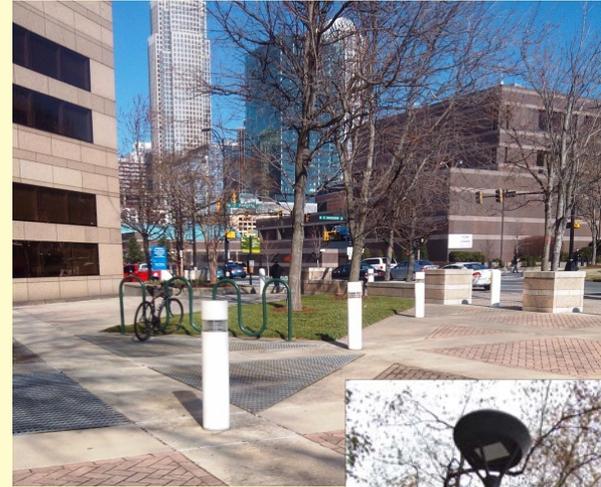


- E&PM Projects
  - CMPD Deck Replacement
    - **301** lights; 24/7 use
    - Energy use: **307,000** kWh saved/yr.
    - Cost savings: **\$12,000/yr.**
    - CO2 reduction: 215 metric tons of CO2/yr.
  - CMGC Plaza lighting
    - **17** poles, **2** flags, **54** bollards
    - Energy use: **9,000** kWh saved/yr.
    - Cost savings: **\$700/yr.**
    - CO2 reduction: 6 metric tons of CO2/yr.

# E&PM: Before & After



Police Deck



CMGC



- Street Lights:
  - Set street light policy to include LED Street Lights
  - Participate in street light summits
  - Continue discussions with RMI
  - Develop working group with Duke Energy
  
- Facilities:
  - Staff currently evaluating lighting options on a case by case basis (induction or LED).
  - Developing city-wide energy management strategy as part of Internal Environmental Operations Plan.
  - Strategy will require use of energy efficient lighting where feasible (induction or LED)



**CHARLOTTE**<sup>™</sup>

**ENGINEERING & PROPERTY  
MANAGEMENT**

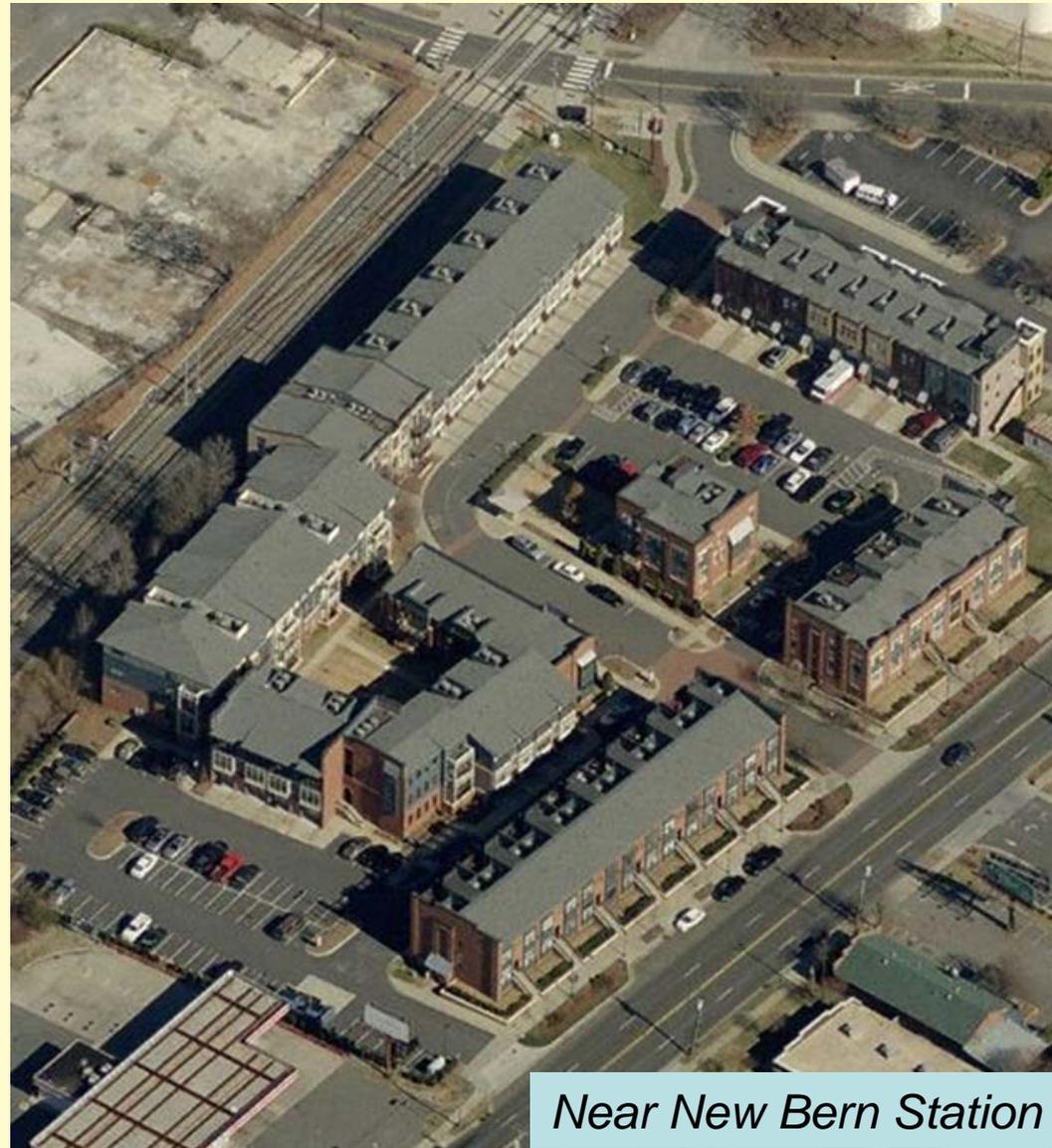
# **Extending Mitigation Options in the Post Construction Controls Ordinance**

Environment Committee

February 26, 2014

## Synopsis

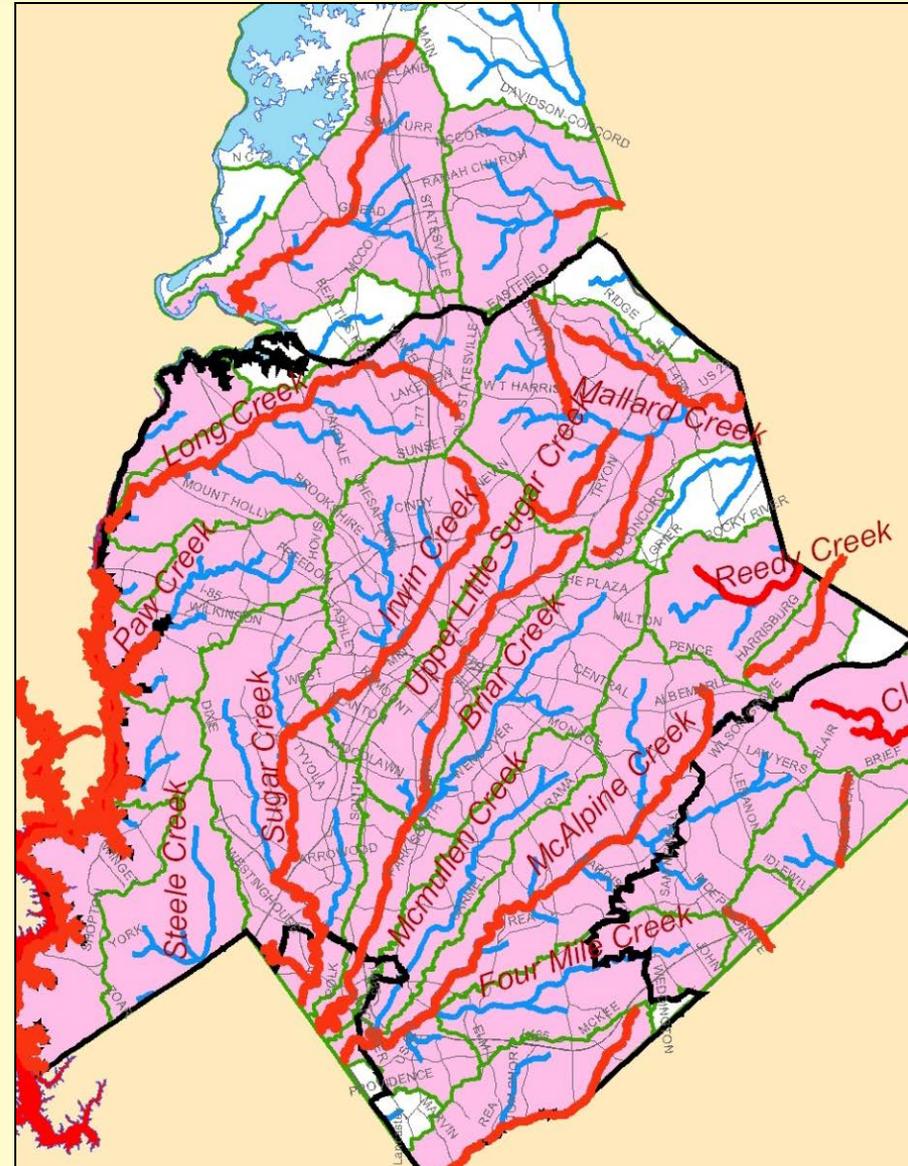
- Paved surfaces causes runoff that impairs surface waters
- Post Construction ordinance requires on-site measures
- Redevelopment faces challenges accommodating storm water controls on-site
- A mitigation fee caps compliance costs and increases flexibility
- A mitigation fee promotes surface water protection
- Staff proposes to extend the temporary mitigation option



*Near New Bern Station*

# Runoffs' Harmful Effects

- All Charlotte streams are designated as *impaired* by Clean Water Act Standards
- Urban runoff is the stated cause, and conditions must improve
- Existing impervious contributes to existing impairment
- The ordinance lessens pollution and flooding as sites redevelop

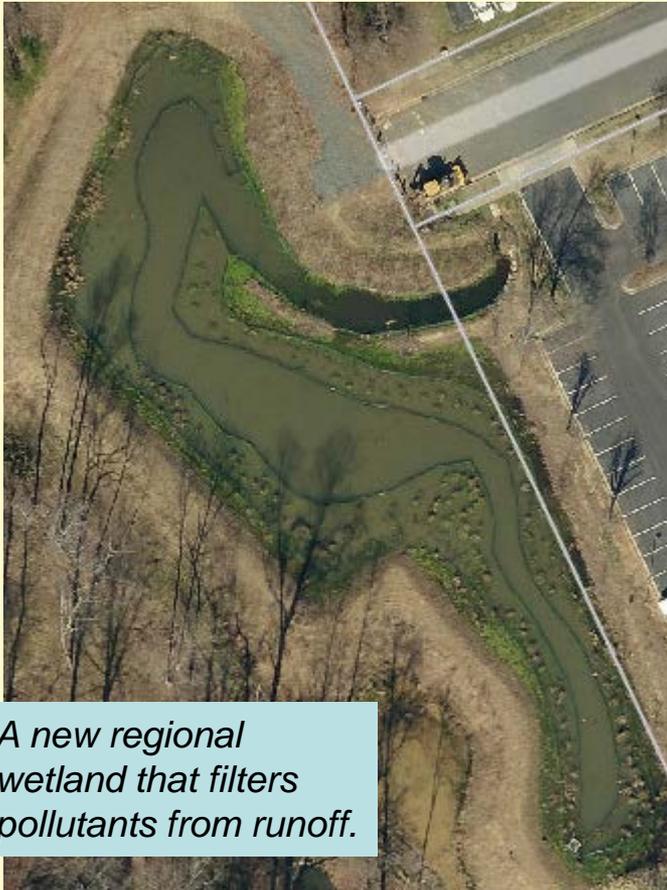


# The Benefits of Extending the Mitigation Fee

- Redevelopment sites often face substantial challenges accommodating runoff controls on-site
- Caps the compliance cost of affordable housing, redevelopment projects, and increases economic development opportunities
- Increases flexibility, and predictability for redevelopment projects
- Reduces greenfield development by making redevelopment more affordable
- Accelerates watershed recovery by encouraging redevelopment over green field development

# Fee-in-Lieu Mitigation Projects

Mitigation fees are used to construct regional, cost-effective control measures



*A new regional wetland that filters pollutants from runoff.*



*A regional pond retrofit project*



*A new "Rain Garden" filters and controls runoff from a parking lot*

# Fee-in-Lieu Mitigation Projects

| Mitigation Project       | Watershed |
|--------------------------|-----------|
| Birnen Pond              | McMullen  |
| Chantilly Wetland & Pond | Briar     |
| McAlpine Wetland         | McAlpine  |
| Pickway Pond             | Irwin     |
| McDonald Pond            | Irwin     |
| Lakewood Sand Filter     | Irwin     |

Acres Redeveloped: 79.7

Acres Mitigated by City Projects: 153.7

Assurances are in place to ensure environmental and cost effectiveness.

- The temporary expansion for redevelopment in all areas expires in April
- Expiration will result in mitigation option only being available in transit corridors or revitalization geography
- The Storm Water Advisory Committee unanimously recommended extension
- Recent State legislation requires unanimous Council approval for ordinance changes
- Staff recommends continuing this option for all areas of the City through December 31, 2018



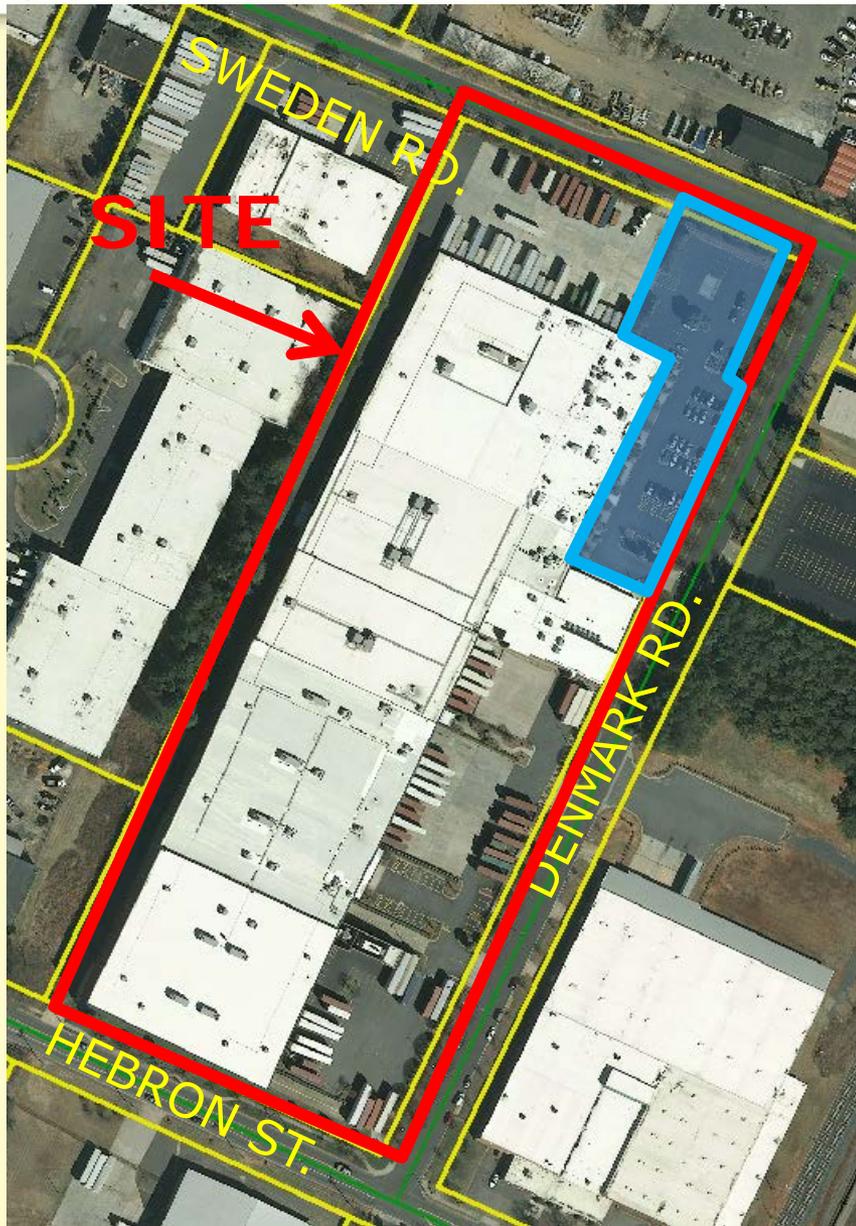
**CHARLOTTE**

- Extra information...



CHARLOTTE

# Example



- Site owner wishes to add a new building
- Ordinance requires stormwater management facilities on-site
- Site is just outside of Arrowood Transit Station Area; not eligible for mitigation fee option
- Only place on-site to install underground stormwater management facilities is within the truck delivery court, which requires critical 24-7 operation

Redevelopment sites often face substantial challenges accommodating stormwater controls on-site

- Difficult topography
  - Underground utility conflicts
  - Lack of available space onsite
  - Economic considerations
  - Brownfield sites
  - Maintain site operations
- 
- Accelerates watershed recovery by encouraging redevelopment over green field development
  - Extending the mitigation option adds flexibility for developers and may be a catalyst for more redevelopment



# Proposed Fee Structure

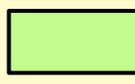


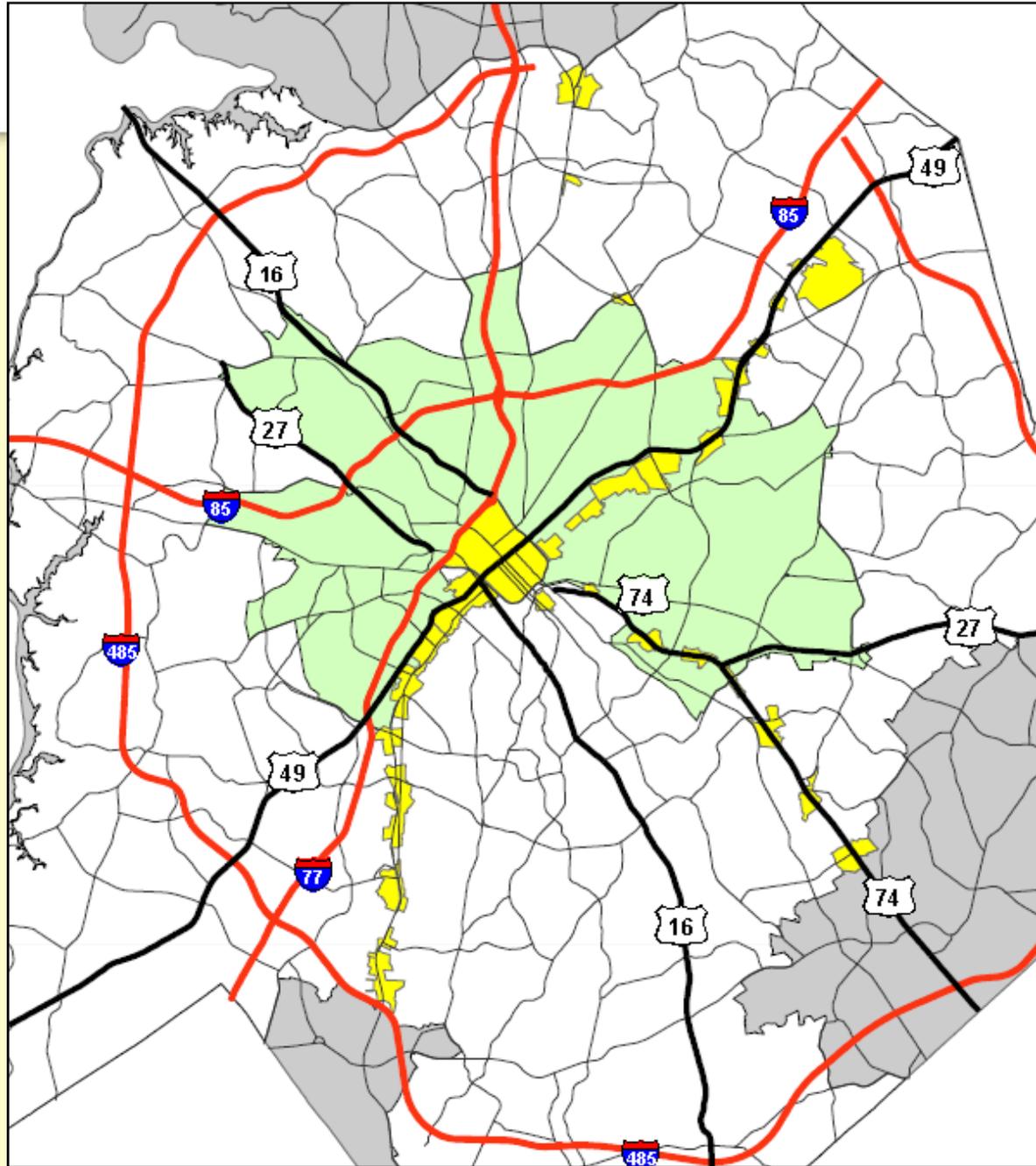
*For Example, a 2 acre redevelopment site outside the transit/distressed areas would pay a \$150,000 fee in lieu of onsite controls.*



CHARLOTTE

## Mitigation Fee Options Available Since 2008

-  Business Corridor Revitalization Geography
-  Transit Station Areas
-  City Limits + Extra Territorial Jurisdiction



# Chantilly Plan

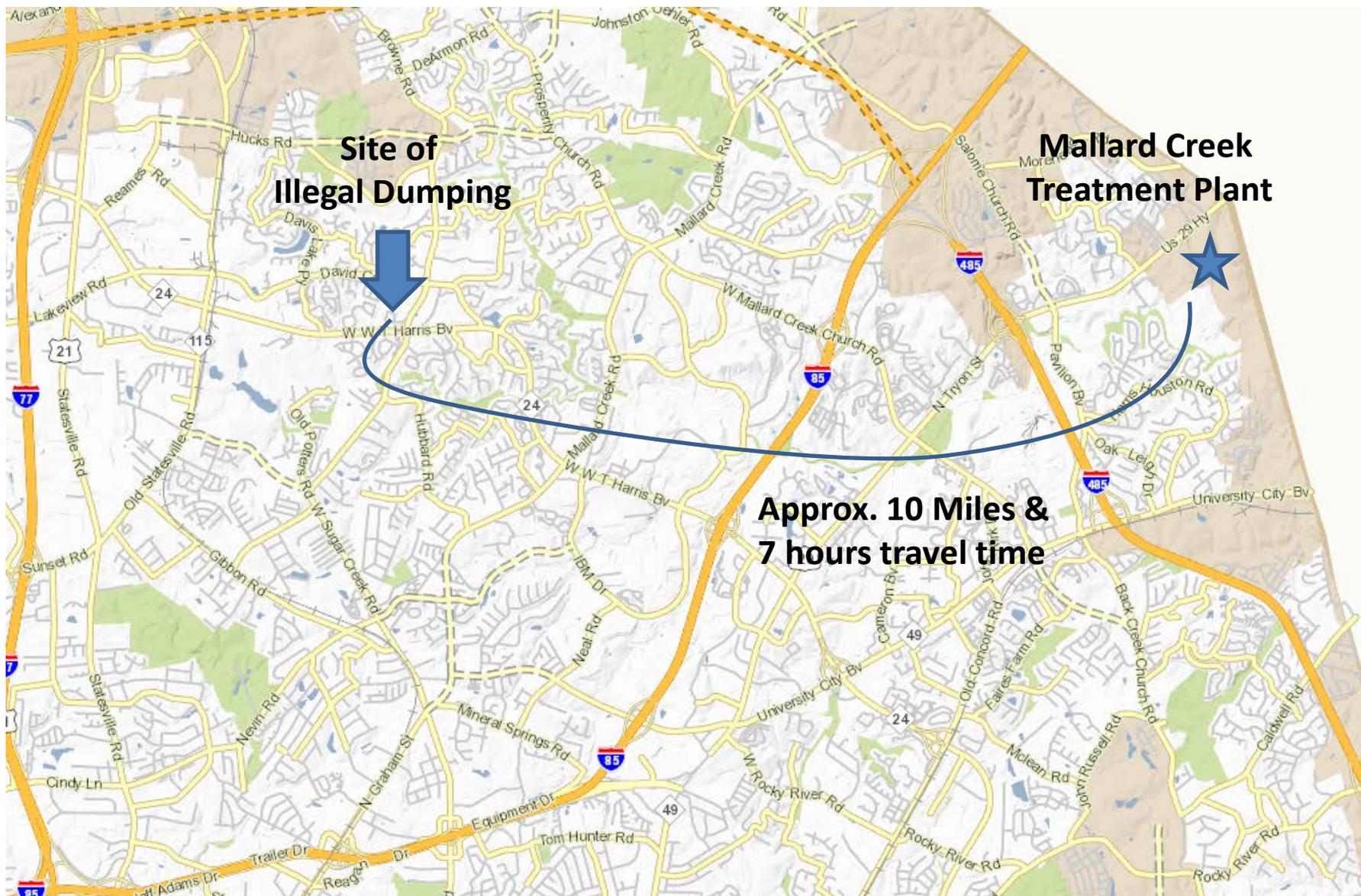


# Centers, Corridors, & Wedges Framework

- Provides a vision to grow and develop to meet the needs of an expanding and changing population
- Sets an expectation for additional infill and redevelopment as a key part of future growth
- One of the guiding principles is to bring redevelopment to economically challenged business and residential areas



*“How the City responds and accommodates growth, with redevelopment being the highest priority, will determine the type of city that Charlotte will become.”*



**Site of  
Illegal Dumping**

**Mallard Creek  
Treatment Plant**

**Approx. 10 Miles &  
7 hours travel time**





