

**PUBLIC WORKS AND SAFETY
STANDING COMMITTEE MINUTES
Monday, April 24, 2017**

The meeting of the Public Works and Safety Standing Committee was held on Monday, April 24, 2017, at 5:00 p.m., in the 5th Floor Conference Room of the Municipal Office Building. The following members were present: Commissioner Bynum, Chairman; Commissioners Philbrook, Markley, Kane, Johnson; and Jeff Bryant, BPU Board Member. The following officials were also in attendance: Gordon Criswell, Melissa Mundt and Joe Connor, Assistant County Administrators; Henry Couchman, Senior Attorney; Misty Brown, Senior Attorney; Ryan Haga, Attorney; and Alan Howze, Chief Knowledge Officer.

Chairman Bynum called the meeting to order. Roll call was taken and all members were present as shown above.

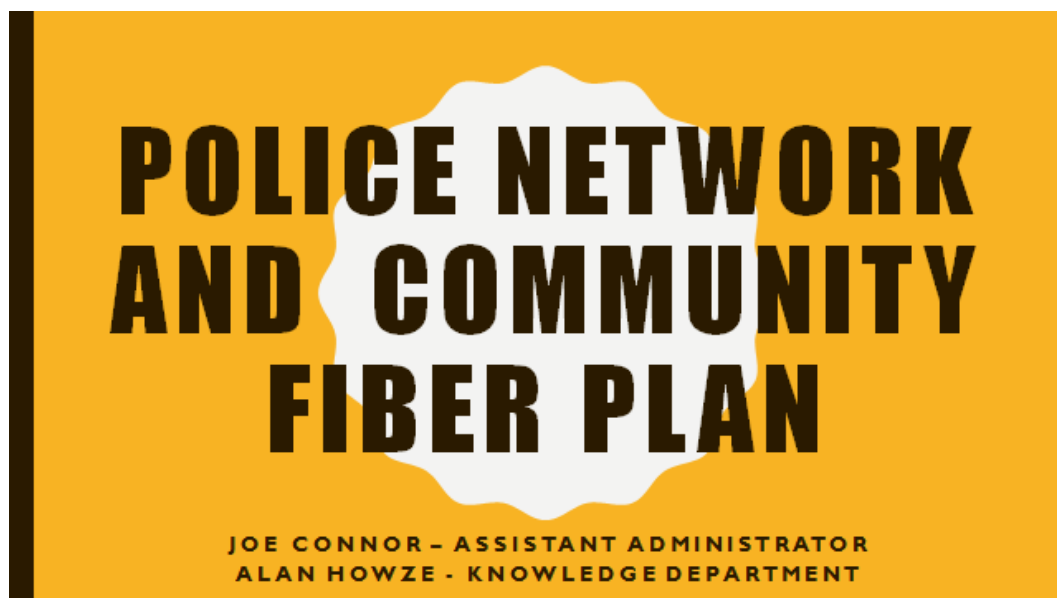
Chairman Bynum said we have one revision to tonight's agenda. We have Item No. 3 which has been added. It is a resolution regarding BPU lines on Leavenworth Road from 38th to 63rd St.

Approval of standing committee minutes for February 13, 2017. **On motion of Commissioner Philbrook, seconded by Commissioner Markley, the minutes were approved.** Motion carried unanimously.

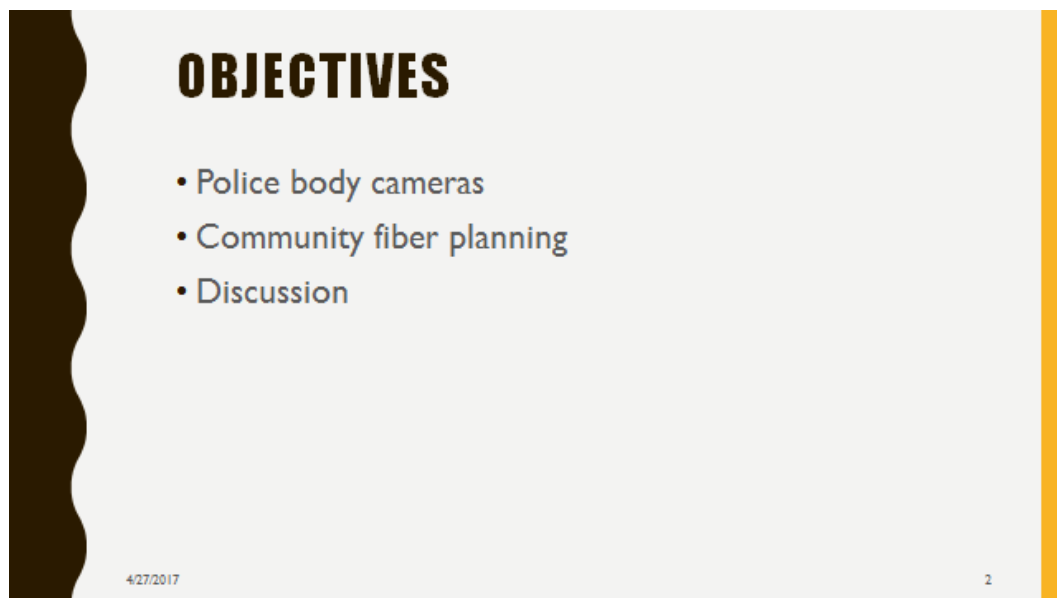
Committee Agenda:

Item No. 1 – 171094...UPDATE & DISCUSSIONS: FIBER NETWORK

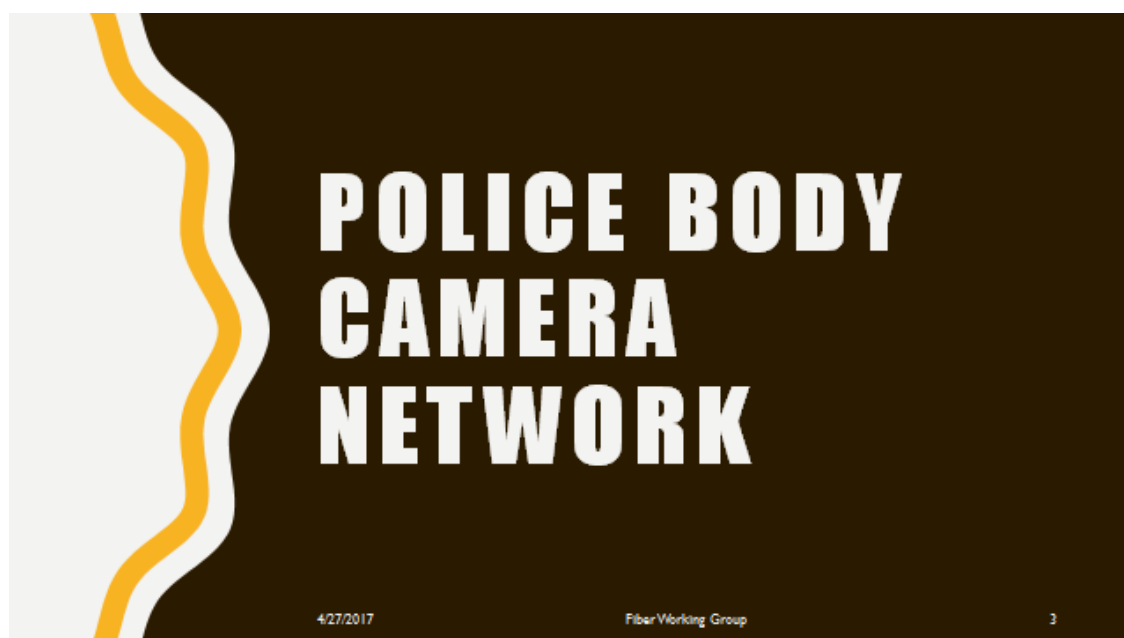
Synopsis: Fiber network update for police body cameras and long-term fiber network for the UG, submitted by Joe Connor, Assistant County Administrator.



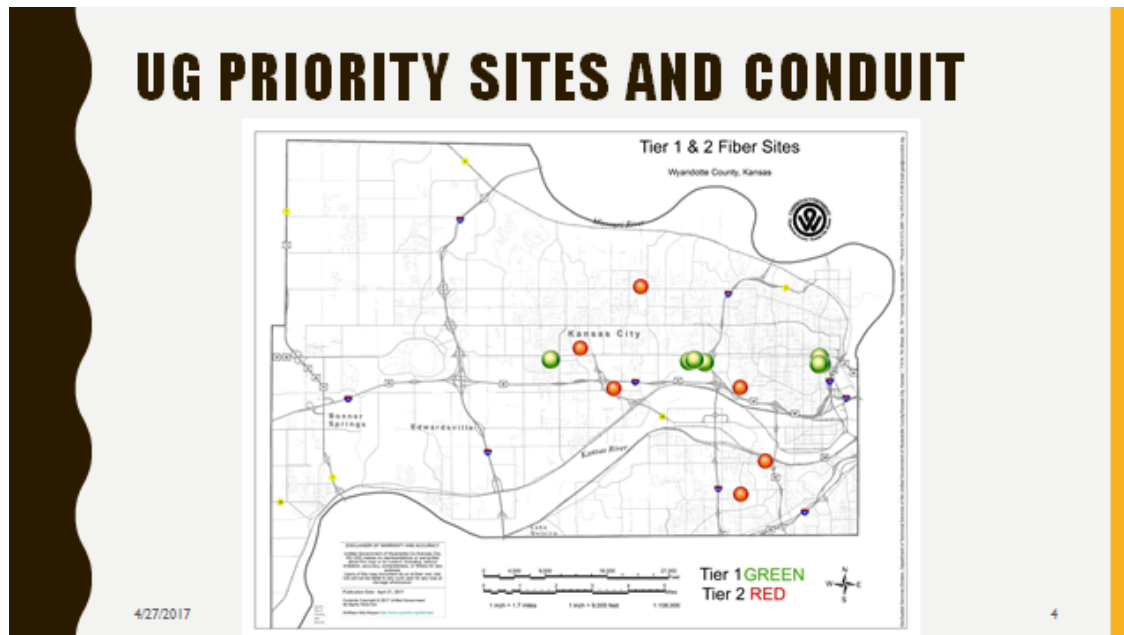
Joe Connor, Assistant County Administrator, said we want to just provide an update and start some discussion about fiber and fiber planning in our community. I think that one of the things that's happened as we've gotten into this topic with the police body camera's is there could be a higher purpose or more use for fiber across the community. It's one of those topics that I think Alan and I kind of knew something about. Public Works knew some things about it, but it wasn't anything that anybody was a real expert on. Every time I go to a fiber meeting I learn something new and I think it's a great topic. Again, with the body cameras kind of spurring our thought process we want to talk a little bit more with you, as a policymaking body, to decide if this is something you have real concerns with it or if we want to continue to pursue it or how we want to go about it. That's kind of the premise of our conversation.



I'll start with some of our objectives for the meeting, update on police body cameras, community fiber planning, and then just have some discussion. Body cameras have been in front of you numerous times and I think that we are finally getting to the point where that system is going to become a reality probably within, I'll say probably in 2018, as far as the entire system. There is a lot of moving parts with that, but we're just one piece of that.



April 24, 2017



This map kind of shows kind of the priority sites for the Police Department, kind of a Phase I, Phase II. Phase I would be those sites; the patrol stations, the fleet center, those kind of places where the police officers go quite often in their vehicles. The overall goal is to be able to not disrupt the police officer's work or daily routine by having body camera information taken from them either from their car or the one they wear on their body. As we get the equipment that will kind of decide how that works.

The Priority 1 sites are where the police officers are at the most often, the Priority 2 sites are other police facilities but not necessarily tied into the bulk of the body camera work.

POLICE BODY CAMERA NETWORK

- Large amounts of data that needs to be transmitted and stored
- PD identified Priority 1 and 2 locations
- Obtaining price estimates
- Estimate completion of Priority 1 locations by 2017 year-end
- Next steps
 - Build PD network
 - Develop specifications for body camera equipment
 - Plan network to support multiple uses
 - 'Community Connect' that integrates video from multiple sources
 - Interconnections to regional law enforcement organizations
- Catalyst for fiber network planning

4/27/2017 5

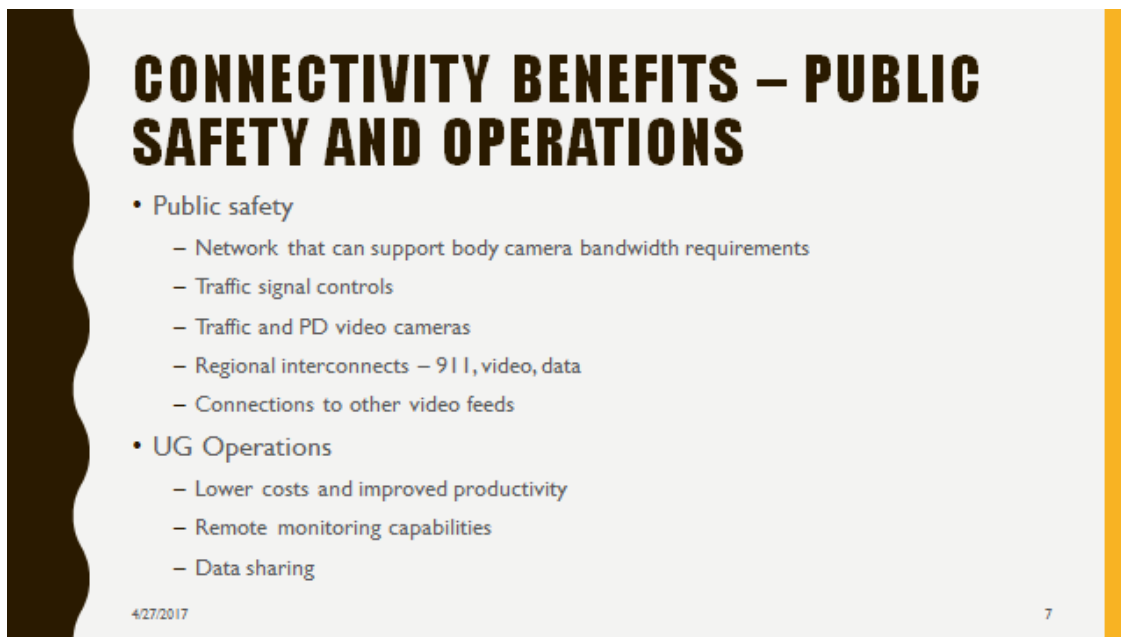
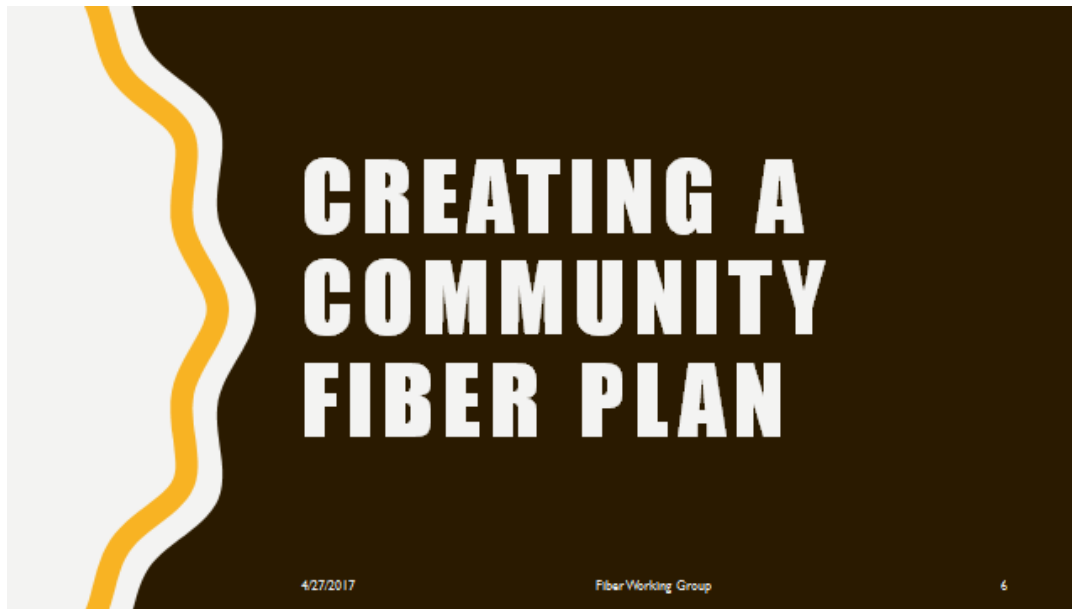
As you are well aware, when you get into the body camera business there's just large amounts of data that need to be transmitted and stored. That's part of the other planning of, I'm sure we can get the connections made, but what are we going to do with it when we start getting it. As I said, they've identified Priority 1 and 2 locations. We're still working on price estimates for the network to build it out, the equipment that's needed any maintenance costs and things like that. We estimate by the end of this year, we feel pretty good about this estimate, that we'll have the Priority 1 sites wired up and ready to go. Kind of a parallel track what Alan is working with the police department on the equipment itself, what kind of specifications are you going to have so we can start to go out for bid and get prices for that equipment as well. We're kind of working on parallel tracks. We want to build the PD network, develop specifications for body camera equipment and then network to support the multiple uses.

As I stated when we first started this conversation, as you start looking at fiber and its potential we thought a little bit bigger than just the police department network, what about the UG organization, what about economic development or other community purposes. As we're building this out we're trying to keep that in mind, future use, expansion, different applications that may come down the road that we want to take advantage of. If we have the right network in place, we should be able to seamlessly be able to take those projects on without a whole lot of extra costs. Kind of thinking about it now, looking at the investment now, hopefully will get us

well into the future. I'm going to turn it over to Alan and talk about what we're doing to create a community fiber plan.

Commissioner Philbrook said you said Priority 1 locations by the end of 2017. Did you say something about the secondary locations, what you had in mind for that or is that strictly, I guess at this point? **Mr. Connor** said we're getting costs for those. We're focusing our costs on the Priority 1 sites. What we want to do going into the future is to continue just to build out not only the Priority 2 sites, but also kind of what we're going to talk about, other UG facilities and locations, but the Priority 2 sites will certainly be in the near term, but we just don't have a—I wasn't comfortable giving you a date at this particular point and time for Priority 2. **Commissioner Philbrook** said so you said a possibility of building out into some of the other departments being on this. Would it be something, because I don't know who's on what network right now, like Codes, that sort of thing? What network are they on now? **Mr. Connor** said I think a lot of our buildings have individual drop locations so like AT&T or Time Warner, one of those providers gets a lot of our buildings individually. I think kind of part of our vision is that if we're running nearby we can make one connection and we'll have some short-term savings for not having a drop at every location. We would also be able to provide enough bandwidth to where they could run their application smoothly and not have any issues. Again, trying to anticipate the future, we don't know what app is the next app for Code Enforcement or the next app for the Appraiser's Office or things like that where they may need more bandwidth. Everybody is going to need more. We don't have an answer for that part, but we're just trying to plan for it.

Alan Howze, Chief Knowledge Officer, said I'll just one thing to that too which is on the security side of this. As we think about building out the police body camera network we're very aware of the sensitive nature of the content that's coming across there and the segregation of that traffic from any other traffic on the network so they came in from the beginning the security consideration on this as well.



As Joe mentioned, this work really serves as the catalyst for thinking about some of the broader community requirements. We sort of put it into a couple of buckets. There is Public Safety, there's UG Operations, there's Economic Development opportunities and broader community benefits. We thought we'd just kind of touch on those first. We've talked some about the Public

Safety benefits. There are a number of other beyond just body cameras. We talked about traffic signal controls and the ability to control those with fiber, the video cameras that are on the poles themselves are useful tools both for traffic as well as for law enforcement and for fire and first responders. The ability to expand regional interconnects where all kinds of different data-across state lines, and across county lines to improve that connection and connection to other video feeds. Commissioner, I know this is an interest of yours, there are other models in other communities where you're able to specifically pool data feeds from a combination of federated group of sources whether they're publicly or privately owned with the right controls there to provide additional visibility for law enforcement at events or for other things.

UG operations as well thinking about how do we use fiber and connectivity for lower costs for improved productivity. We have some applications that potentially could be moved into cloud, for example, but the big constraint there is you have to be able to move data up and down and around.

Remote moderating capabilities; again, for Public Works as we're thinking about our different sites there as they're thinking about what their needs are, their network connectivity plays a big factor into that.

Data Sharing; more broadly both within the boundaries of the community as well as the outside.

CONNECTIVITY BENEFITS – ECONOMIC DEVELOPMENT

- Network is a core requirement for business
- Companies need networks that connect to other locations
- Insufficient network hinders development
 - Discourages new businesses formation and incubators
 - Impossible to locate knowledge based businesses
 - Harder for existing businesses to grow and meet market demands
- Directed fiber connections reduce dependency on carrier investment decisions
- Allows for the creation of Innovation zones – e.g. 10G corridors

4/27/2017 8

Development Benefits; you really see and hear that network capacity has really become a core requirement for a lot of businesses so it's no longer even nice to have the category. Companies need networks that connect to other locations. People want to have a location here. They want to be able to connect outside of the boundaries of the county to other locations. The flipside to that is that insufficient network can hinder the development whether it's business formation, whether it's the location of knowledge-based businesses, whether it's the growth of existing businesses. We've heard this some from conversations with, for example, folks in the Village Community and others that are thinking about Google Fiber and the core through the base commercial applications of connectivity as their step one if you really want to take that to the next level. That is really hard to get that kind of bandwidth in a lot of parts of the community. **Commissioner Philbrook** asked can you be more specific about that, parts of the community. **Mr. Howze** said sure, the carriers have a business model that they build out towards so they haven't made connections into every part of the community. I've heard from some of the conversations you know to just use the downtown district as an example; Google Fiber isn't running down Minnesota Avenue. This is second hand but it's expensive for them to dig in an already built urban location. The costs benefit analysis becomes a difficult one for the investment of private sector carriers into some areas of the community so their business model has to sort of match up to the goals or objectives of the community. Am I making sense? **Commissioner Philbrook** said I understand what you're saying. At some other time could you give me a map of what we're talking about, about where the low areas are. When I say low, where the areas are that they haven't really supported yet. **Mr. Howze** said we're working on that. I don't have that map to share with you, but that is an active conversation. **Commissioner Philbrook** said when they get around to sharing all of that information with you, if you would share that with us, I'm sure we'd like to see that because I know it's going to affect our economic development and some of the other stuff, especially some of the small businesses because they really do have to have that sort of thing.

Commissioner Johnson said I was under the impression when Google came in that Wyandotte County was selected because of its old infrastructure. I see my fellow commissioner raising his hand so maybe he can address that. I thought that was one of the benefits that we had as opposed to other competing cities. Maybe I was reading the wrong thing. **Commissioner Kane** said there were a lot of promises that were unfounded. They couldn't deliver the package that was

delivered to us. In fact, they claimed that only their workers could do the work and it's the same stuff BPU has been doing forever. In fact, I won't even have them hooked up to my property because of the way that they did it. We were told that everything was being included and they did not deliver that package.

Commissioner Philbrook said I'm going to waive the flag for Commissioner Bynum. If it wasn't for Commissioner Bynum and some other folks stomping around all over the place to get people to sign up for it, there would be a lot of areas that wouldn't have Google Fiber right now. For me it was a nasty piece of work the way it came down. I'm deeply disappointed in the company for being that way, but I guess you can do that when you're big.

Mr. Howze said we'll come back later this spring or summer with a more fulsome update on Google, the connections, and give you more detail on that. I don't want to go too deeply into it on this conversation, but suffice it to say that part of what this conversation is about is how can we more control our own destiny in the development of the fiber assets that more broadly support our operational needs but also economic development community needs.

CONNECTIVITY BENEFITS – COMMUNITY ACCESS

- Creating new opportunities to connect residents
 - Employment opportunities
 - Continuing education
 - Student achievement
- Recreational and entertainment opportunities
 - Increased demand for bandwidth for community programming
- Conduit is an asset that can be leased to providers – cable, cell phones, internet, etc

4/27/2017 FiberWorking Group 9

The community access again; thinking about as we get into the planning process what are some of the opportunities that create new ways for residents to connect to employment opportunities, education student achievement and this is not getting into the fiber business, just to be clear about that, that's not what we're thinking. As a broader community fiber plan thinking about the full range of how providers can expand opportunities for our residents. Recreational and educational opportunities, for things like the amphitheater and other venues like that that require more of that bandwidth, how do we think about that as part of our planning. How do we think about our conduit which we have in the grounds and really it is an asset. In addition to being a cost, it's something we put into projects that really can be used as an asset and can be leased back to providers of all different kinds.

**STRUCTURED APPROACH:
SHORT-TERM**

- Complete existing projects
 - Police network buildout
 - Conduit in public works projects
- Establish UG Fiber Working Group
- Support immediate economic development opportunities
- Develop network architecture
- Identify corridors and nodes
- Conduct fiber needs assessment for UG departments
- Establish connection to “carrier hotel”

4/27/2017 10

We're taking a structured approach here in the short-term. We want to complete some existing projects. The police network buildout we talked about including conduit and Public Work projects that are going live this year that are happening. We've established a UG Fiber-Working Group. I'll talk more about that in a minute. There are immediate economic development opportunities that Greg Kindle or others identified and we want to support those however we can. We'll be looking to develop a network architecture so working with consultants that Public Works has to create the detailed network architecture that we need to make sure that we've dotted

all the i's and crossed all the t's on the technology side. Identify those high priority corridors or nodes. Conduct a fiber assessment so again looking at what are the needs of different departments, how are they thinking about their technology and network needs and establish a connection to what's called the "carrier-hotel" in downtown Kansas City, Missouri.

Commissioner Philbrook said so on the "identify the corridors and node", one of the many things it might relate to would be new development for the economic development part of it that would come in with infrastructure when you're putting other stuff in, you would be putting in fiber at that time? **Mr. Howze** said fiber or at least conduit so that you have the option in the future to go in and put it in at low cost. **Commissioner Philbrook** said the conduit so they just pull it through. **Mr. Howze** said the cost differential—it orders a magnitude different—**Mr. Connor** said we are kind of equating—those of you who have been around a little bit longer we started to talk about Complete Streets so when we do street projects now we consider the needs of pedestrians in every project. We didn't get to do that before. Now when we're running doing street projects we want to have fiber as part of the conversation, at least be thinking about it and planning for it even if we're not going to pull anything through it right away. **Commissioner Philbrook** said so in other words, we have a runway, so to speak, for all of our utilities. **Mr. Connor** said yes.

CONNECTING TO THE 'CARRIER HOTEL'

- Regional hub for internet connections
- Brings together network carriers, large businesses and internet providers
- JOCO and KCMO are in the carrier hotel
- Wholesale internet pricing
- "Unlimited" bandwidth potential
- UG looking to establish up to 40 Gigabit connection
 - Future proofing to meet needs well into future
 - 130x more capacity than today

4/27/2017 FiberWorking Group 11

Mr. Howze said what is the carrier hotel and why are we talking about it; it's a quick primer on this. It's a location in downtown Kansas City, Missouri, it really is the hub for internet connections for network carriers so all your long haul fiber carriers, large businesses, internet providers, Time Warner-Spectrum, all of those come into one location. It is really the wholesale pricing and it is available through there. You have bandwidth that's available, ranges we don't have access to right now. To give an example, we could get up to a 40 Gigabit connection and that would serve our needs for the next 10 years or so and would be 130x more capacity than we have today. We would be getting that at a wholesale price and buying it, sort of as we need it by the drink, as opposed to getting locked into a long-term contract that doesn't necessarily meet our future needs. We think that there is a lot of benefit to getting into the carrier hotel. Johnson County and Kansas City, Missouri are there as well so it also provides an opportunity for direct connects into other jurisdictions. As an example of why that matters, if we want to have a backup center for our 911 center, we're able to make that connection there and route traffic to other centers for 911 or Emergency Management or any other number of things that you sort of dream up as possibilities. **Someone** asked a question but it was in audible due to mic not being on.

Mr. Connor said I don't know if I'd call it exactly a grid. We're looking for ways to redundant. If we're all three in a carrier hotel and we connect it the correct way, if one leg goes down, we can just bypass the leg that's down and stay connected. Then, again, with the Emergency Management type planning 911 centers are a pretty big key. If we can keep all of our 911 centers operating at the same time, then we have a redundant way to do that, that's a better way for us to do business.

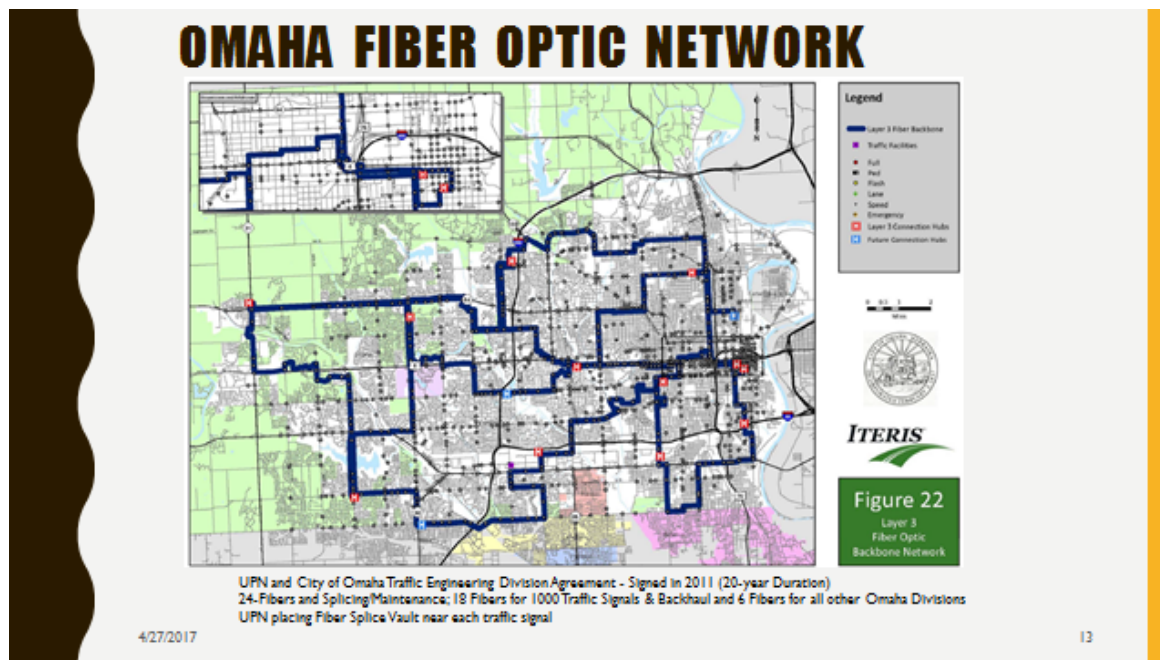
**STRUCTURED APPROACH:
LONGER-TERM**

- Identify assets and needs
- Develop standards
 - Inclusion of conduit in future projects
 - Specifications for conduit size and type
 - Standards for right-of-way management
- Incorporate into Public Works asset management
- Engage regional partners
- Develop community fiber plan

4/27/2017 12

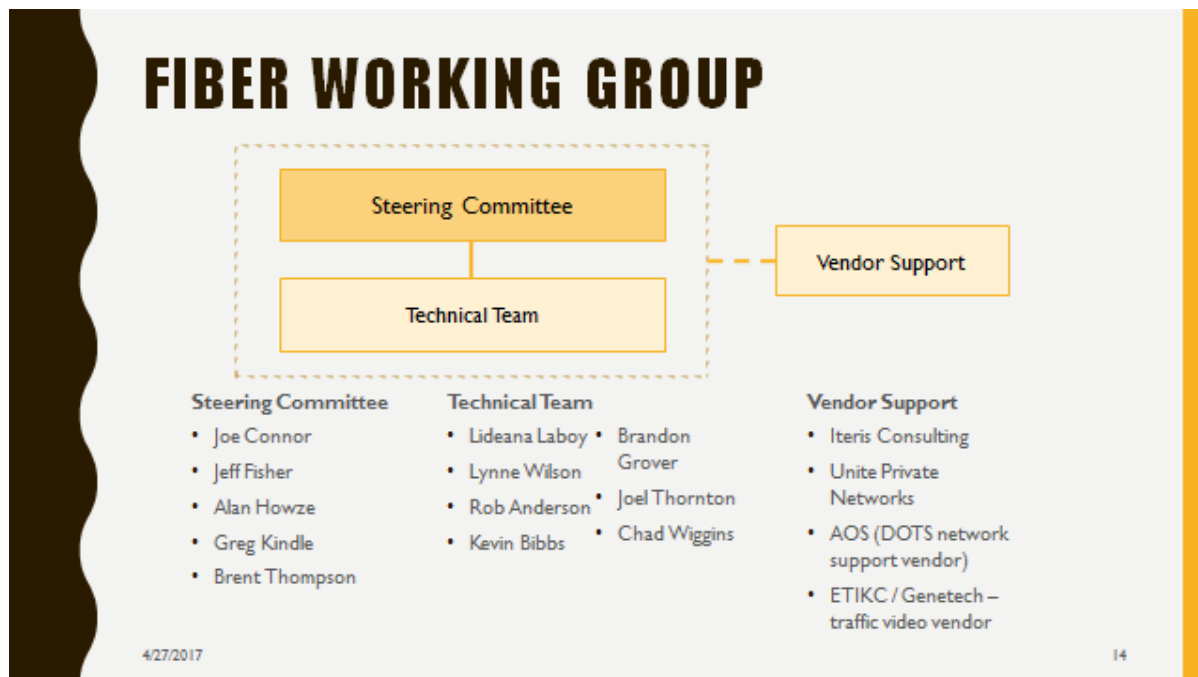
Mr. Howze said so longer-term what we're looking at is identifying the assets and the needs so these are conduit assets we have in the ground and the future needs for departments, developing standards for future inclusion in projects, conduit size and some of the basic blocking and tackling around this right-of-way managements, how we're looking at that. This ties in very closely with what Public Works is doing with their development of asset management and more structured asset management approach so we've been working very closely with the Public Works team on this, looking at and engaging our regional partners through MARC, CORE4. There's a lot of commonalty both in terms of being located at the carrier hotel, but also how the departments and Health Department, IT Department, and others are thinking about sharing the data across the jurisdictional lines.

Commissioner Philbrook said so with regional partners, one of our partners would be BPU; we're working with them on this design so we're putting things in at the same time and not—**Mr. Connor** said yes, we already have a relationship with them on our traffic fiber network now so as we build that out we partner with BPU for our signals and there's already a partnership going on. We've been working with them about the body camera design as well. **Commissioner Philbrook** said then the Complete Streets too then, they're working with us on the Complete Streets? **Mr. Connor** said I'm assuming so. That's a Public Works function. I think there has been a lot more cooperation between our CMIP planning and the BPU Capital Projection Planning. We're trying to get those two married up.



Mr. Howze said to give you a visual of what something like this could look like we looked north to Omaha and they have for several years now been engaged in a similar planning effort using the same consultants. You really see the development of a set of interconnected loops there that provide a redundant grid essentially there. Some of the interesting things that they noted was the red h's there are their hubs for different parts of the circuit and they decided, well, our fire stations are 24/7, they're always on, then have backup power and that would be a good place to locate them. There are models that we can look at and turn to and say how have other communities done this, what have been some of the things that worked well, some things that we

would want to perhaps adjust to our own community. To take it from words on a page to conceptually what could this look like and it begins to breakout into grids as well, the ability to tie in the traffic signal network so you will be able to control more of your traffic signals using a fiber network as well as other operational needs.



We created this Fiber Working Group. It's just a Steering Committee and we've got a Technical Team that's looking deeper into it and then we've got vendors who are already currently on contract in different areas of the organization through IT and Public Works that we've engaged as well.

Commissioner Philbrook said the Fiber Working Group, without anybody throwing anything at me, is it possible to include somebody from BPU on some of this stuff to work along with us? **Mr. Connor** said we certainly can. We've been in communication with them from day one. I think that the challenge that they have is that their network is kind of theirs and they've got a very sophisticated network and it's very secure, a great network, whereas our focus is a little bit

different, but we can certainly add them to the mix, that's not a problem. **Commissioner Philbrook** said to the conversation anyway, is that possible? **Mr. Connor** said yes.

Chairman Bynum said I think even it's more as a communication tool, like you said they have their own network, but it might be good just for information sharing. **Mr. Connor** said sure.

ACTIONS COMPLETED TO-DATE

- ✓ Identified internal stakeholders and convened working group
- ✓ Developed map of existing UG conduit
- ✓ Developed map of existing UG fiber
- ✓ Developed list and map of facilities
- ✓ Identified connection to “carrier hotel”

4/27/2017 15

Mr. Howze said the actions completed to date; we identified the internal stakeholders, we've convened a working group, we've developed a map of the conduit that is already in the ground, and what fiber assets we have. We've developed an initial list of facilities and identified the potential connection to the carrier hotel.

IDENTIFYING COMMUNITY LOCATIONS

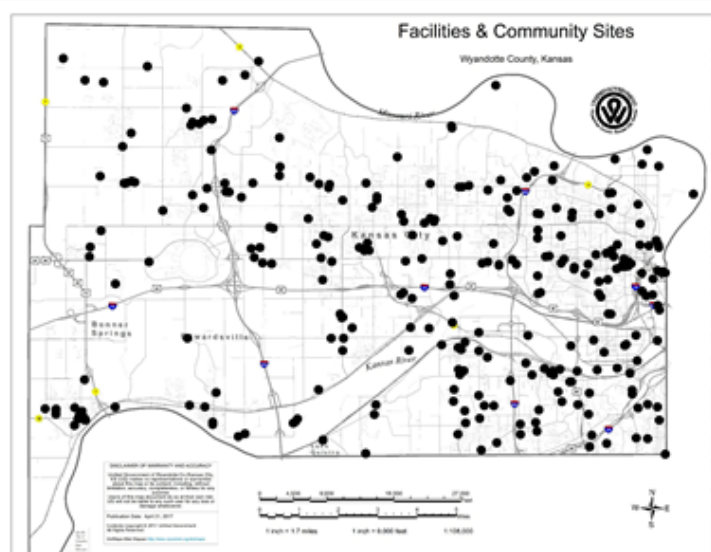
- Government facilities
- Police stations
- Fire stations
- Recreation
- Education
- Libraries

- Public works sites
 - Treatment plans
 - Sewer pumps
 - Storm pumps
 - Fleet and storage

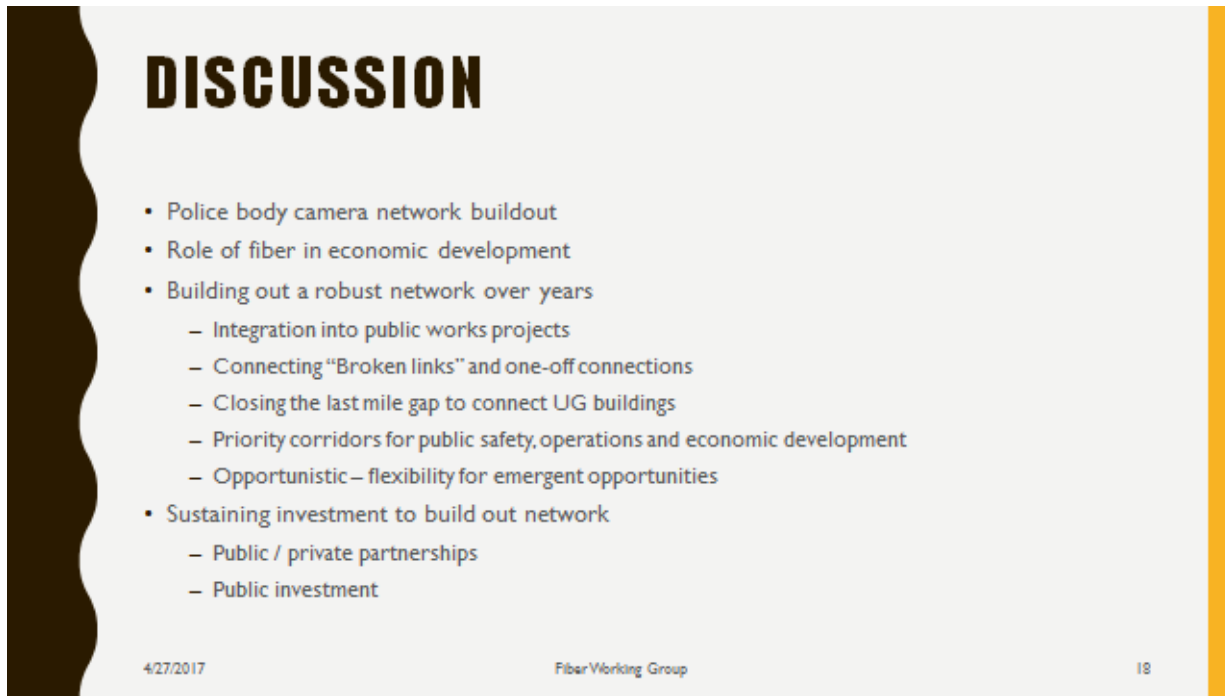
4/27/2017 FiberWorking Group 16

What are those community locations; we've got a big list going here but we just tried to go through and identify what are the government facilities, police stations, fire stations, recreation, libraries, education, Public Works sites, kind of the whole start big and then we can always narrow it down. What it turns into is sort of a game of connects the dots. Let's go to the next slide.

IDENTIFIED LOCATIONS



There are several hundred locations around the community and this doesn't mean that all of them are suitable or priority or we'd ever connect them up to fiber, but at least now we know where they are and so as we think about what are the potential routes, what does a potential network begin to look like we can maximize the use of those investments to connect along the way. How this connects back to the police project is as we go down to connect up to a police station are there other places we could put a drop box in along the way so at some future point if we want to come back and connect to it, we can. It's a lot cheaper to do it when you're doing the build out then it is to come back and retrofit it. That's the kind of thinking that we're taking into this process.



DISCUSSION

- Police body camera network buildout
- Role of fiber in economic development
- Building out a robust network over years
 - Integration into public works projects
 - Connecting “Broken links” and one-off connections
 - Closing the last mile gap to connect UG buildings
 - Priority corridors for public safety, operations and economic development
 - Opportunistic – flexibility for emergent opportunities
- Sustaining investment to build out network
 - Public / private partnerships
 - Public investment

4/27/2017 Fiber Working Group 18

Mr. Connor said we kind of had a little discussion already. We’re just trying to stimulate some thought and get some feedback from you about this direction. Again, this kind of grew out of talking about fiber for the Police Department. It’s starting to spread north Leavenworth Road, south into Argentine, up and down State Avenue and Parallel and we started thinking well, gosh, is there any other thing we can be doing about this and we’re starting to propose. You can kind of read what’s up there on the slide, but those are the kinds of things we’re thinking about and again we’re trying to plan for the future and with technology it’s always faster, faster, faster, right? We’re just trying to try to stay, not ahead of the curve, but at least be a part of the conversation instead of trying to play catch up later. Didn’t know if there was any other thoughts from the commissioner at this point.

Chairman Bynum said it started when we first came forward with the Police Body Camera Grant and we kind of stopped because we discovered the fiber piece was so expensive that we kind of stopped. **Mr. Connor** said I think the body camera piece also had some expense too because of having to replace cameras. The initial feedback was the replacement of equipment and things. **Chairman Bynum** said and the data storage and I like the direction that it’s taken in terms of it’s so much bigger than police body cameras and how to store that data and build out that network. Have you reached the point where we know costs? We know costs probably for

'17 because you talked about having that Tier 1 built out by the end of this year. Are those costs in the current year budget for that fiber planning that we identified with the police body cameras? **Mr. Connor** said for the fiber itself. **Chairman Bynum** said that's in the current year budget? **Mr. Connor** said we think that the bulk of it is there. We're not completely done with our cost estimate yet. We are trying to identify funds to make that work. That's why we don't have any specifics on that particular piece, but we feel like we can make it happen for those core sites this year.

Commissioner Kane asked can we get a quarterly report? You guys come speak to us and tell us where we're at. It's been awhile since we've talked about this. I kind of want to keep in the loop as your moving along. **Mr. Connor** said body camera specific? **Commissioner Kane** said yes, that's the one I'm looking for. **Mr. Connor** said we can certainly do that. We've got an agenda item coming forward in May, I think, about the policies around that. That's with the police and the sheriff to make sure we're on the same page. I know that's coming forward commissioner. There will be others, that will be fine. **Commissioner Bynum** said I started to make that note because policy was on my mind and then I realized this has nothing to do with body camera policy. This is much, much bigger than that.

Commissioner Philbrook said he requested quarterly updates. I'm going to say yeah, what we're moving forward on, some successes. What kind of things you're seeing actually do fit in to this big, I know you don't like the word grid but it's a way of expressing, you can call it a web if you want to. It's a way of communicating back and forth in all different kinds of directions. I want to keep up-to-date on this because I get repeated questions from constituents about why we can't find out about this, that, or the other thing. I can't answer that question because I can't get to everything yet. **Mr. Connor** said I will be glad to.

Commissioner Johnson said on page number 9 where you talk about creating new opportunities to connect residents and I might have been having one of my moments where my mind was somewhere else, which is not uncommon, can you repeat that? I'm just thinking about constituents because as we're talking about living in time when we don't have a local newspaper, I think we've talked about that a few times, constituents are still not able to get information from the UG and other municipalities in some means of format. Would there be opportunities at some

of these hubs for it to be open to the community, for the lack of a better term. I'm just really out there somewhere, I don't know if I'm even asking a relevant question, but a place where people can go to get information via this technology that we're putting in. **Mr. Connor** said yes. It's all in what you want to access. The connectivity, I think, can be once we get this kind of built out is more the easier part, getting the folks to access to get information is the harder part. I think the answer to your question is yes. We can wire up a community center, make it as fast as we want, and people can go there and get free internet. To be able to access a program or information that's kind of where we see the win is if the programs that require some kind of high-speed internet with video or whatever to host a program, that's a great way to share information. It makes it more visual, it makes it more appealing and quite frankly it's just kind of the way things are going nowadays. **Commissioner Johnson** said I suppose that's down the road, that would be something that would be down the road a little bit. It's just something in my mind. A lot of my constituents don't have, still don't have access to technology and internet in their locations.

Mr. Howze said having the fiber backbone is essentially the back haul capacity for wireless. So when you think about wireless all of it is sort of different permutations, it all does go back to a fiber connection somewhere so by expanding out a more robust network you create new opportunities to think creatively about how you provide service to the community, service for at large and that's not just public, publicly provide a service but service from all sorts of different providers.

Commissioner Philbrook said then what I'm hearing is that it sounds like a lot of our community centers like Eisenhower and some of those places would be able to be fitted with wireless internet so people can come in and use that area. **Mr. Connor** said that's why we're kind of doing some planning. Where are the facilities and where are the applications. You don't want to spend money wiring up a building and not have anything happen with it, right. Police is a good example. Once they hit the ground running there going to be having just tons of data running through that network and hopefully up into the cloud for storage. We want to be thoughtful about it and not just start hanging stuff everywhere, but as we develop applications I think Alan and the way he's running his office now, things are starting to funnel up through him so he can kind of manage the expectations of folks. As we get these opportunities to bring things online we'll do it and then we'll have an application to follow.

Chairman Bynum said we will keep in touch, Commissioner Kane, and I think we could all agree that maybe more frequent updates would be really helpful.

Acton: For information only.

Item No. 2 – 171095...UPDATE: TURKEY CREEK FLOOD REDUCTION PROJECT AND FLOOD WARNING SYSTEM

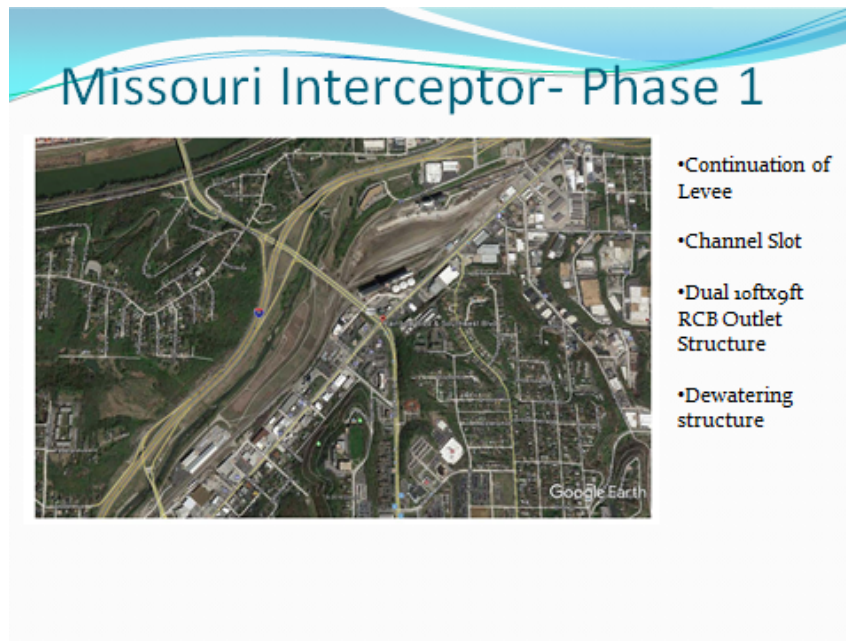
Synopsis: Update on the Turkey Creek Flood Reduction Project and an overview of the flood warning system that was implemented last year for Turkey Creek, submitted by Sarah Fjell, Public Works.



Sarah Fjell-White, Project Engineer, Public Works, said I'm going to give just a quick update on Turkey Creek Project and talk about our Flood Warning System that we have in place. That picture there, some might think that that's rapids in Colorado, but that's actually at the tunnel in Turkey Creek. It's one of our urban streams that we have that is a great resource, but it also has a lot of flooding potential.

The reason this is a joint project with KCMO is that they pay more. They're at about 26% or 27% that they pay because they get the benefits along Southwest Blvd. of where a lot of that water used to go. It would miss this tunnel and it would go in here.

April 24, 2017



Let me just talk about two of the projects that are in construction right now or just finishing up. Missouri Interceptor Phase I, Missouri Interceptor is the final phase of the Turkey Creek Project. Construction started in 2007 and this is the final section. It is slated to be done in 2020. Right here is where it goes under I-35. This is called the environmental enhancement area. Phase I takes this levee that's right here, the railroad is right here and the levee goes along here and it extends this levee to close that gap. This is ABC Roofing just to get your bearings. Phase I is a continuation of the levee, it's a Channel Slot that lowers the channel before it goes into the tunnel. The reason we have to do a Channel Slot is we are accepting the dual 10 x 9 ft. RCB Outlet Structure which has slot gates on it. That's carrying a low of flow and that Phase I is putting that in. The other thing we are doing as part of this project is were installing a dewatering structure that will actually dewater Turkey Creek before it gets to the tunnel in order for them to do the Channel work. The positive thing is that the dewatering structures are actually going to leave some of the structure in so that when we have to dewater the tunnel every 10 years we'll be able to utilize that.

Missouri Interceptor-Phase 1



Here is a picture of the construction. They got started this past summer and this is slated to be done in February of 2018. Right there is the mouth of the tunnel there.

Restored Channel Phase III



- Flood Wall at 44 RR Bridge
- Levee
- Flood Warning System
- Mill Street Up-And-Over
- Stop-Logs
- Channel Stabilization
- Two Flap Gates (Internal Drainage)

Restore Channel Phase III; this is the area between the drive-in which is right here and Mill Street Bridge. The construction on this finished up this past year and we just actually had our warranty walk through on this. This is included lots of different components, mainly this levee along here.

What made this project really big is this was where we installed the Flood Warning System. Right here is the railroad bridge that was built using this Turkey Creek money in order to allow for more water to pass under the bridge.



Here's some pictures of the different project components. As you can see here this levee helps—this is built for a 100-year event. This is going to keep the water out from flooding the area behind which this includes the drive-in and those houses in-between Southwest Blvd. and Turkey Creek. One of the things that had to be put in with Mill St. and the different constraint there's the railroad tracks, there is I-35, I-35 and I-35 overpass. Mill Street Bridge, the bridge wasn't able to be raised up enough that it wouldn't flood because of the upper constraints of I-35. This bridge is designed to overtop in approximately a 15-year flood event. That is why we had to have a Flood Warning System because the road does close. We did close it twice this past year and that's why we wanted to make sure before raining season started we ensure everyone that we are on top of this.



This is the railroad, this is looking north. This has an up and over and this area is where we have the stoplogs installed.



Our Flood Warning System; there are two sensors one here is on Mill Street Bridge and the other is on the flood wall upstream and that's kind of the backup one. These sensors, there is a sensor

April 24, 2017

box right there. It measures every 30 seconds, I believe, measures the distance down to the surface of the water. It's measuring how much the water fluctuates. It does not measure flow. It's a carrier and it measures down. This is then connected to a radio signal that sends a signal to Kaw Point and has the receiver there.

Chairman Bynum said it's measuring every 30 seconds and it's sending that data to where?

Ms. Fjell-White said Kaw Point has the receiver—our Wastewater Plant has a receiver and then all of this data is housed in a system called Contrail and One Rain is the company that manages the data.

Commissioner Philbrook asked does that the data go into the—when we were having the last kind of flood event and we were looking on the internet to see what the height was for the different areas, that information goes to that federal site? **Ms. Fjell-White** said the stormwatch, yes.

Ms. Fjell-White said these also are hooked up to our road closure signs. We put three different road closure signs and four gates because we do not want people to get trapped between the railroad tracks and the bridge along there. We set different warning levels, threshold levels, so when it reaches a certain height then it sends a signal to us, via email and text message saying that the water is at a certain height. That tells us to send our street crews out to close the road closed gate. It also signals these to start flashing so that people know that they're not supposed to drive on that road. This is kind of a first line of defense in letting people know because that's automated and then we get out there and close the gate. We actually just had a training, I believe it was two weeks ago, with all of the superintendents as well as all of the workers in the district; the street crew in that district, to make sure everything was going. That is about a 10-15 year flood event. The rain that happened, I believe it was beginning September end of August this past year, it was a pretty heavy rain, that almost got to that event. It almost got to where it would start going over Mill St. It didn't set off the thresholds so we still had about 5 ft., but I went ahead and sent out the crews to shut it.

Commissioner Philbrook said that was the one that was kind of bubbling up in Armourdale.

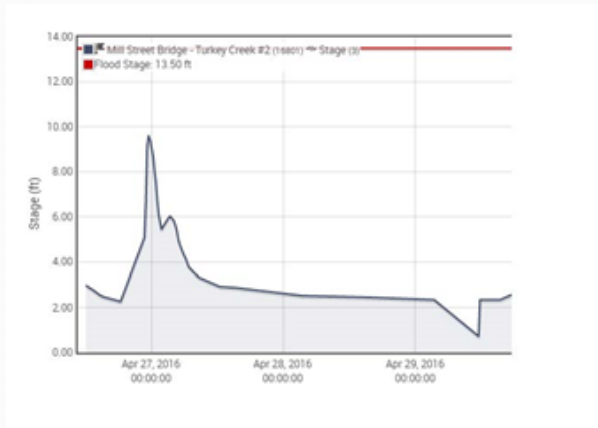
Ms. Fjell-White said yes. That was kind of that event. The event that happened in May and the

event that happened at the end of April, that I'll show you here in a little bit, this past year those did not set it off either so that gives you kind of an idea. That will happen more often than when we'll have to do this.

Ms. Fjell-White said the levy is designed for a 100-year flood but since we had the road there we couldn't protect Mill St. there so any given occasion it's at a 75-year event, except for when we put these stoplogs in and the road is already closed, we put the stoplogs in to go across that connects that levee and makes it a 100-year protection. These stoplogs are past the width of the road. They weigh about 200 lbs. It takes about 3 or 4 workers to carry those. Those get dropped in here and then that provides that protection. They're housed here and if you've driven by and wondered what that building is that is our stoplog shed and those are just accessed from there and carried over to put up. One thing about this is even though Turkey Creek is a very flashy flood, flashy creek, we will know in advance if we're going to need to put these up. We'll be able to schedule that, if we're getting to the 75-year event we're going to have a lot of other issues going on. We'll be able to schedule the placement of this, but the road will be closed for a long time.

Commissioner Kane asked do we ever practice putting those in. **Ms. Fjell-White** said yes. As part of our training that we did a few weeks ago we also put these in. We closed down the road and did that. At a minimum we're supposed to do this training once a year. We're planning on doing that in March in preparation for the rainy season so that our crews know how to do it.

Flood Warning System



Part of our thing is we have access to all of our data through one rain. This was the event April 27 last year. I would have had it updated but we were having a little computer issue today. This got up to about 10 ft. its normal stage, it runs about 1.9 ft. is the normal stage. You can see it jumped up here. The red line is the flood stage. That's when the warning goes off so that's at about 13.5 ft. is when that warning goes off.



I didn't know if I was going to be at the computer or not so I won't do the live demo, but stormwatch, we send all of our data to stormwatch. If you go to that, it's open to anyone; you can click on Turkey Creek. Then you go to Turkey Creek at Southwest Blvd. it gives all of our data and then you'll see all along Turkey Creek the different data that's given. These were pictures that I took last April. This is here at Mill St. so you can see its pretty high up, this is during the day. This is at Turkey Creek and Southwest Blvd. there. We have this painted with reflective paint so that you can see the different stages and the street crews know when it hits a certain stage to close Southwest Blvd. We thank the Corps and our co-sponsor KCMO for partnering on this project because just within the past year with all of the different flood events, I mean, rain events that we've had these areas would have been flooded. We had a lot of partnering with the drive-in because it's where the construction is taking place. They said that this past summer was their most profitable year and it was actually one of the wettest summers and they did not have any flooding. They said that they would have probably have to have been closed down most of the summer during those rain events if not for this project. We definitely have a very successful project.

Chairman Bynum said Commissioner Markley took us to Stormwatch.com so anybody that might want to see that there's our sensors. I believe the drive-in theater there on the boulevard

had a 50-year anniversary so it's nice they were able to have their most profitable season. I can't remember now if it was 25 or 50 years. **Commissioner Markley** said I think it was 50 or 60.

Chairman Bynum said let me just reiterate, \$151M over a decade starting in '07 and 11% of that was ours to pay so our investment has been \$17M. **Ms. Fjell-White** said well we have paid about \$14M so far and we have about \$3M left before the end of the project.

Commissioner Kane said when it got started it was \$11M, as prices could go up with construction and everything else. **Ms. Fjell-White** said the original authorized project cost was \$87M and that went up a couple of times. This latest one is \$151M. **Chairman Bynum** said so that's almost double.

Commissioner Philbrook said as I understand, because I went on one of those barge trips last year, and one of the gentlemen from the federal government said that some of the slowdown on this was not us, the UG, but it was the federal funds that were being held up. **Ms. Fjell-White** said right. They took this to Washington to get this increased and so right now it did get put in the budget. I don't know all of the ins and outs of it, but their waiting to allocate that so we can continue the project. **Commissioner Philbrook** said I understand some of the politicians did a little conversation around that and helped move that forward so whoever they were, thank you very much.

No one from the public or audience came forward.

Action: For information only.

Item No. 3 – 171097...RESOLUTION: BPU LINES-LEAVENWORTH ROAD; 38TH TO 63RD ST.

Synopsis: A resolution declaring the necessity and authorizing a survey of lands for electrical distribution and transmission lines both above and below ground along Leavenworth Road from 38th St. to 63rd St., submitted by Ryan Haga, Assistant Counsel.

Ryan Haga, Attorney, said this item is regarding passage of a survey resolution for any condemnation or action that may be needed in relocating BPU lines in regard to the Leavenworth Road Improvement Project. It's a fairly routine resolution as required by state law before we would initiate any sort of condemnation action that may be required.

Action: **Commissioner Markley made a motion, seconded by Commissioner Philbrook, to approve.**

Commissioner Kane asked is this the one where were putting the powerlines under the ground?
Mr. Haga said that's my understanding, yes.

Roll call was taken and there were five "Ayes," Bryant, Philbrook, Markley, Johnson, Bynum.
Commissioner Kane voted no.

Chairman Bynum adjourned the meeting at 5:55 p.m.

Adjourn

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