

**City of Leawood
Planning Commission Work Session
Distributed Antenna System [DAS]
Election of Officers
June 10, 2014**

In attendance:

Commissioners: Mike Levitan, Kelly Jackson, Len Williams, Marc Elkins, Wayne Walden and Kip Strauss.
Absent: Ken Roberson and William Ramsey.

Staff Members: Mark Klein, Richard Coleman, Michelle Kriks, Ursula Brandt, Franki Shearer, David Ley

Others: Tim Asta, ExteNet and Dan Kerr, ACI

Distributed Antenna System [DAS]

Tim Asta, ExteNet, made the following presentation with accompanying photos:

Mr. Asta: I am Director of Municipal Affairs for ExteNet Systems. You may hear other people in the industry call the DAS Small Cells. We'll look at some examples of the technology and look from a high level. We have a pending application with the City of Leawood. We've been very active over the last couple years in Overland Park and Olathe. We're excited to work with you as well. ExteNet is a telecommunications utility. We do not sell phones. My customer base is the companies such as Verizon, T-Mobile, AT&T and Sprint. They contact us when they have coverage and capacity issues. The Smartphones are doing more than phones did ten years ago, and the companies are struggling with keeping up with the capacity challenges and, in some cases, coverage challenges. There's a unique niche we fit into that we'll talk about. We're a registered utility entity. We're located in Lyle, Illinois. We work in the US and Canada. We have a number of joint use agreements with utilities to use their infrastructures, and we work in about 32 states. We have agreements with KCP&L, and we're working with BPU. We've been very active in the region, and we're excited to work with you in Leawood.

Comm. Pateidl: How long have you been in this metropolitan area?

Mr. Asta: We've been working in this area since 2012. One of the things I'd like to point out in the pictures is we will always put an antenna at the top of the poles. This is still line-of-sight technology, but one of the things we're hoping you will agree with is this is pretty discreet, less intrusive than traditional towers and essentially serves the same function.

From a technology perspective, Distributed Antenna Systems have three primary components. A node is a single unit that could be a utility pole, a street light, a traffic signal or any structure that is roughly 35 feet tall. At the top, we want to affix an antenna. On the pole, we usually want to attach some equipment; although, KCP&L has different thoughts on that. The nodes themselves need to be connected with fiber-optic cable, hence the term "system." These are not standalone sites. The sites often terminate at a tower site. In the case of Sprint, who is looking to build here in Leawood, we would be routing the fiber back into Overland Park. There is a soccer complex at 135th and Antioch, and there is a huge compound with antennas on the sports lighting. That is where this system would start and then follow KCP&L corridor to connect some of these node sites. Most of these are discreet; even the ones on utility poles are pretty unobtrusive. When we are contacted by the industry, is it because there are only so many rooftops and water tanks. These companies are trying to improve coverage and capacity to upload and download. In addition, carriers have limited frequency. The federal government has only auctioned off a tiny portion of the radio spectrum, so a lot of times, the carriers actually struggle and look to us. A dense metropolitan area may have antennas all over, but the tall buildings cause a canyon effect. Trees in residential subdivisions do the same thing, and people can't use their phones in their house. These smaller low-power sites will benefit

the end user in this regard. In some cases, tree cover acts as a wave guide for us and keeps our signal below the trees.

The industry always talks about coverage and capacity. I'll start talking about coverage. Our earliest networks were in Detroit, and they just didn't have coverage. We built about 40 utility poles through 7 different municipalities, and we provided services for Verizon and AT&T. There are also areas with high capacity: New York City, Las Vegas and the Chiefs Stadium. In Las Vegas, the city wanted us to use their light poles. Unfortunately, they weren't strong enough, so we built standalone sites next to them. They have since taken down their poles and put their luminaries on our poles.

Most DAS systems need access to public right-of-way. As a utility, we are supposed to operate in the right-of-way. Where we need to connect our networks with fiber-optic cables is almost impossible to do on private property. We need to work with the cities. A challenge in some cases, such as this one tonight, is that many zoning ordinances do not specifically address this infrastructure, leaving the process unpredictable and causing exposure to situations with the desire for the technology but uncertainty in how to approve and accept applications for it. We have actually entered into a franchise agreement here in Leawood and are also hopefully close on a street light agreement. We understand you are actively removing KCP&L poles, which puts your street lights in the forefront. I've been doing this for ten years, and it is rare to go through the zoning process. Some communities even put up a moratorium on the ordinance in place. I don't know if this is the situation, but perhaps amendments to your code may be applicable for this type of technology. Right now, in Section 16-4.12, it talks about antennas, but it is specific to towers. Hopefully, I can address some of that and give advice on those recommendations. The majority of what I have done for ten years is residential almost exclusively because that is where the demand is. Hopefully, these sites are discreet enough. Thankfully, these are very low in power. I'm sure people are concerned about the antennas. These only cover ¼ mile. It is like a router in your house or Wi-Fi in Starbucks. I'm pleased to see that the RF safety seems to have dissipated.

Comm. Strauss: Is this just underground fiber you're using? What do you do when there are no overhead lines?

Mr. Asta: In Las Vegas, they had the Clear Skies Program, which is similar to what you are working on. They have eliminated all the distribution lines in and around the strip. They still have the big transmission lines, which are 90-foot-tall towers. When we cannot use existing poles for our nodes in the fiber, the fiber goes underground, and then the nodes go on a new pole. In Las Vegas, we put conduit in the ground via directional bore technology all over the strip. We have about 70 of these nodes out there, and we had to dig for every one of them.

Ms. Shearer: We've talked about that here, too; it is what will happen here.

Mr. Asta: We do have a couple areas that we're hoping we can still string aerial fiber where KCP&L exists and you don't have the imminent plan to get rid of it. For example, on 143rd, you are actively getting rid of the KCP&L poles. We will then participate and put our fiber underground. However, at 135th, maybe you don't have a plan for another two years to get rid of those poles. We would respectfully ask City Council to grant us a resolution to use those poles in the meantime. Then, when the collective effort goes in to remove all the poles, we will bury the fiber then. If we dig and then you rip up the place in two years because it is your right-of-way, it can be a major disruption to our network. We wouldn't ask to string new fiber cable aerially anywhere it doesn't exist, only where KCP&L currently has the poles that aren't going away in the immediate future. We understand your code requires underground; we are hoping to make a couple arguments to use what is there.

I'm sure you've talked about the Telecom Act. A lot of municipalities see the technology and think there will be no more towers. Be careful because if you have a DAS network, you have a much better chance of encouraging that to continue, but right now, if another tower application came in and you want to deny it because the DAS is coming, it is hard to legally digest. At the same time, you can encourage this,

put amendments in your codes and express a preference for using existing structures, smaller sites and step technology. There are federal laws that say you have to work together in a reasonable amount of time.

A couple years ago, President Obama talked about broadband for the nation. A lot of states are getting on this bandwagon. The bottom line is that this is essential infrastructure. Mobile communications are not luxury items. People use them for everyday businesses. We have a lot of first responders that come to our meetings and tell us they have to use their personal handsets when they are out of range on their two-way radios. We need more robust mobile communications for a number of reasons. Does anyone have questions or comments so far?

Comm. Strauss: When you build your DAS network, you're opening it up to all the telecommunication providers.

Mr. Asta: Yes; ExteNet is a neutral host. We can have all the carriers on our networks. We need them to initiate the build. I've been with ExteNet for ten years, and early on, we thought we would go to the high end cities and proactively build a network that the carriers would come on. It never worked that way. The carriers choose the area and come to us. Then, once we're in the area, other carriers ask to extend the network.

Ms. Kriks: How far apart does each node need to be? As long as we have the line of sight necessary, are we looking at ½ mile or ¼ mile? I'm assuming it's not every 200 feet?

Mr. Asta: No, as a matter of fact, you'll see areas we're not even proposing to serve because Verizon and Sprint claim to have sufficient coverage and capacity. We are only trying to fix the problem spots. In an area that is flat with no trees, the coverage extends more. Here, with the rolling topography and mature trees, it all depends on where the site is placed. Some will propagate well; others will need three clustered together. The RF engineers have modeling data that considers topography. On average, it would be ¼ mile, but in some cases, we are not proposing them at all. The good news is I only have one node in a residential subdivision; everything else is on the main roads. That is primarily due to the fact that Verizon and Sprint's customers are complaining on the main roads.

Ms. Kriks: Theoretically, if you have two major carriers with the same capacity issues, we could have a pole for Verizon and one for Sprint. Is there ever interference?

Mr. Asta: No.

Ms. Kriks: Frequencies crossing, then, is not a concern in this type of situation?

Mr. Asta: No, and that is part of the reason ExteNet has been so successful. We have some networks in the Northeast with areas that are very dense, and we actually have Verizon, AT&T and T-Mobile on the same site. Things get a little bit cluttered, but they actually will use the same antenna. The antenna at the top of the pole is a passive device with 12 ports on it that need 12 cables coming off. That allows us to function for all the carriers. KCP&L is not allowing us to put anything on the pole. We have a ground-based utility cabinet that is lovely with the landscaping. Under the cabinet is an H-frame where the equipment can be bolted on with enough room for another carrier. The reality is that Verizon and Sprint may or may not need the same pole. Sprint has a defined area around 143rd from Nall to Windsor, and Verizon needs to be much farther north. In the future, they absolutely could use the same sites, and I hope they do.

Comm. Elkins: It is wireless from the antenna to the node, and then you hook into your fiber underground where the cabinet is? Since the electric utility won't let you hang a wire, you have to do wireless from the antenna to the node?

Mr. Asta: No, there are cables contained in standup brackets on the pole. We don't care for that; it's kind of ugly. It is a conduit on a standup bracket. Other utilities we work with allow it to be U-guarded on the pole, so it's closer to the pole and less noticeable. We have cables that come down and go underground to the cabinet. That is where the remote radio head is, and that is where we interface with the carrier. Then the fiber-optic cable actually is on the pole and continues on to the next node and goes back to the site. We can hang the fiber and antenna, but they don't allow any equipment; whereas, a lot of other utilities have equipment and we don't have anything in the ground at all. It's a unique feature of working this region.

Comm. Elkins: Do you have to lay your own cable in Leawood?

Mr. Asta: We would be building our own fiber cable. Now, one of the challenges is where we need to go, other providers may not have sufficient capacity. In most cases, Verizon requires 8 dedicated strands of fiber per node, and those are homerun fibers. In order to IRU [Indefeasible Rights of Use] that from existing providers is difficult. We contacted Google because we want to build by the Plaza. Google had no interest in giving us fiber because we needed too much. The major in Kansas City, Missouri said to ask them if we could use it before we built new. The fiber demands are pretty significant, and if we also are betting we're going to get other carriers, then we'll actually put in 144-256 strands for future capacity.

Unknown Speaker: A node will accommodate how many carriers?

Mr. Asta: It is actually more technologies; it is probably 3, but once we get to that point, each carrier has equipment and then also a backup battery. It starts to get cluttered. In some cases, I'm telling people it's actually 2 at the most just because every carrier wants to have a backup battery because commercial power gets disrupted.

We use KCP&L poles where they're available. We have an agreement with them. We have a bunch of them built, but at the same time, there are a number of areas where the poles either don't exist or are slated for removal. That is why we target the light poles. We only have one in a residential subdivision at Nall and 160th. One option is a ground cabinet; another is with the equipment on the pole. The antenna will be at the top; cables are inside the pole. They go to the same kind of cabinet that is on the KCP&L pole. We have had quite a bit of feedback from Overland Park that a lot of their street light poles have a breakaway base, and they are concerned with the cable running through, eliminating the breakaway capacity. We have been working on a scenario in which the radio is on the pole. Other things still need to function in the network: backup battery, meter socket and a disconnect switch. If we hang the equipment on the pole, the box goes from roughly 13 square feet down to 3-4 square feet. This does not have a distance limitation, and it could now be 400 feet away in a utility easement in somebody's back yard. It's something to consider as you wrestle with the issue of wanting everything on the ground and only antenna on the poles or allowing the radio on the poles and no huge cabinet. Last week, David and Joe Johnson were very gracious in allowing us to do a couple mockup installations. We're working with Sprint and Verizon, and they use different equipment nationwide. They are augmenting their systems with different radios. We mounted a small Sprint radio on the pole. I hope you would agree that it is pretty unobtrusive; it doesn't look any different than any other municipal attachment. Verizon needs two cabinets with two radios because they have more frequency than Sprint does. They use their radios differently in order to provide cellular and PCS, and they have a larger customer base. I personally think these look pretty good. The alternate is nothing on the pole and everything goes in a bigger cabinet. I'm sure you will discuss this at some point, and this is the reason for the mockup. You may have a scenario with each site having its own solution depending on commercial and residential areas. The equipment can be painted; it is pretty discreet. Standing alone, it is noticeable, but it blends in with other attachments on the poles.

Comm. Pateidl: What is the rough estimate of cost hanging it on the pole versus ground mounted?

Mr. Asta: We'll be replacing the poles anyway, so from a structural perspective, we have the cost built in to put a brand new pole in place. If we hang the radios on the pole, it will be cheaper because we're not going to need as large of a ground cabinet, and we're not going to have to landscape it. I know we will on some of the smaller pads. I know in some parts of Johnson County, if it is small enough, the pedestal doesn't require landscaping. I would say the cost is almost half to hang it on the pole. Also, we have the safety factor with a breakaway base that still functions the way it was meant to function.

Comm. Elkins: If one of our drivers happens to take out a light pole, what does it do to your network?

Mr. Asta: The good news is it doesn't affect the other nodes. Depending on the severity of the hit, sometimes the pole just goes down and the fiber is still intact and the node will still function. We have power outages all the time that are monitored in real time, so we would know instantly when that node is not functioning. One of the things we are building into some of these agreements is spare poles available. The node would be out for a couple days while we replace it.

Mr. Coleman: If the pole is knocked down, is the antenna still operating?

Mr. Asta: It may; it depends upon the severity of the hit.

Mr. Coleman: Let's say it is operating; does that pose a danger to somebody who walks up to the pole?

Mr. Kerr: If I could please jump in, if the pole gets knocked down, all the connectors in the bottom are breakaway, so it will be dead on the ground. The only reason that wouldn't happen is if the pole literally fell over and the base did not come away from where it goes to the ground.

Mr. Coleman: The bolts shear, right?

Mr. Kerr: You buy a frangible base, which is basically a brittle metal base, and it shatters and falls over. It will pull all the connectors apart.

Mr. Coleman: Depending on how fast the car is moving, but if it is a minor hit?

Mr. Kerr: It might stay on.

Mr. Coleman: How fast will you be out there to address it?

Mr. Asta: We have to be out there that day, depending on the event. If there is a tornado, there are other priorities and it could be a couple days or a week. From Sprint or Verizon's perspective, our maintenance window is probably a day.

Mr. Coleman: To work on the antenna, you have to shut it down, right?

Mr. Asta: That is part of the reason we have a disconnect switch.

Mr. Coleman: So, if it does fall over like a tree, it would still be on, so somebody who is not aware of the radius and radiation emission, he could walk up to it.

Mr. Asta: Correct.

Mr. Kerr: Typically, if a pole falls over, the police will be aware because it's an accident, and they will move the light out of the street. With Olathe and Overland Park, we are actually building a mockup that we'll use to

train their people. They are shut off the same way the street lights are shut off because they wouldn't want their street light line active when the pole is lying on the ground because the luminaries are probably going to be shattered with a potential for exposed wire. They will probably pull all the plugs out immediately. We will work with them to determine when everything is safe. The likelihood that there will be a problem with a civilian being exposed is slim.

Mr. Coleman: So, all of our police officers need to be trained?

Mr. Kerr: No, he's talking about the public safety guys who are going to come out. Once the pole gets knocked down, they'll come and move the pole out of the road, making sure things are not in the way.

Mr. Asta: We also talk about what's considered a safe distance and a time equation. If you're sitting in front of the antenna, I think it is 3.7 feet, which is the absolute maximum the equipment is physically designed to produce. The carriers don't operate that way, but we felt it was worth doing the worst-case scenario. With multiple carriers operating at the same time, it is 3.7 feet horizontal for an hour. If someone wants to sit there and look at the antenna for an hour, it would not be a good idea. Just because somebody walks by doesn't mean he will be affected. I've yet to hear one instance of an issue other than someone being front of the large radio towers that the military built years and years ago, and those are 20,000 times the output power of these. These are like a Wi-Fi 33 router in your house. We put a sticker on the antenna, but we're not required to do so. It's on the cabinet on the ground.

Mr. Ley: We would need to inform the police. If there is a light pole in the street, they will pick it up and toss it to the side. Our street light is done by a contractor, so we would just need to work with them.

Comm. Strauss: To be clear in my mind, to build out the DAS network, it is not to get rid of existing cell towers; it is just to prevent new cell towers from being built. Is that correct?

Mr. Asta: I wouldn't use those words.

Comm. Strauss: I just want to be clear that this is not meant to eliminate existing cell towers.

Mr. Asta: Correct; this does not replace what is there, but rather, it augments it. In other cities like Leawood who can control the future as opposed to simply responding to tower requests, if a system is built and is operating and another tower request comes in, you can say that you already have a DAS that can just be expanded.

Comm. Strauss: Even when we have the Special Use Permits come up for renewal, we can't switch them over?

Mr. Klein: I don't think we can force them to go over.

Mr. Asta: With new sites, I think you can nudge it. I've seen some cities express a preference or list the priorities. For example, before you approve a new tower, you would require proof that the existing towers couldn't solve the carrier's problem. You will have tools at your disposal, but understand that the laws very much support what the industry is trying to do. At the same time, if they can't justify it, shame on them. I think Overland Park may even have that in there as well. It says that they would prefer the less obtrusive scenarios first, and if the other can be justified, there is a bigger need than they thought.

Comm. Elkins: The reason that Sprint and Verizon would be supportive of your application would be to fill a gap. The traditional example is the shadow across the street from Sprint World Headquarters, and the

people across the street can't use their cell phone. Your case is that these would fill those gaps. Do you find them supportive of your applications, or do they resist?

Mr. Asta: It all depends. In most cases, they're supportive, but I have had a couple unique situations in which they have not been in other states. About 15 years ago, nobody wanted towers near them; now, citizens come to the meetings in support of them. We just have to make sure communities have the tools to facilitate them. Every case is unique, but generally speaking, we have received a lot of support.

We very much respect the visual integrity here in Leawood. I wouldn't want to compare you to anyone else in the region. There is a reason people pay good money to live here. We are just hoping to work with you on some reasonable scenarios. We like to think that the pole mount is a pretty good scenario because of the safety factor. At the end of the day, these are your light poles; this is your right-of-way, and you'll tell us what the design considerations are going to be, assuming we'll be able to move forward.

Mr. Kerr: After our demo in the field, we did the top-bottom for Verizon. Not everybody warmed to that. It was my idea, and I hate to admit it, but I don't like it. I spent the weekend designing new mounts, and I have renderings of how to mount them back-to-back lower. It looks a lot more like one radio than two.

Mr. Asta: Dan's point is that there is a different way of hanging the two radios. It would be like a sandwich.

Mr. Kerr: We spent the weekend doing that, and on Monday, we ordered some sample brackets so we can make sure everything fits properly. The idea is to make it more compact.

Mr. Asta: There is clearly another way to do this.

Mr. Kerr: Verizon likes these better.

Mr. Ley: Would you remake that handle on there?

Mr. Kerr: Probably not because it's more of a future-proof thing than anything else; plus, I've already got 20 poles.

Mr. Asta: This last picture makes my attorney cringe. This is in Overland Park with some ornamental lighting. I only have one site in Leawood in a subdivision. Thankfully, it is the taller J-style pole that we've been looking at for a while. In Overland Park, there are a lot of these 12-ft. ornamental poles. We have been successful in coming up with other design solutions. They are not perfect, but the reality is we're able to still achieve the objective, put in a slim antenna, re-introduce that same lighting feature, ornamental arm and any equipment hidden in the cabinet. The point is if we get a site that is deemed by the planning department to be sensitive in nature, we can probably come up with a decent solution. Lastly, we do use traffic poles quite frequently. In Chicago, they have us put the equipment on the very top of the pole with the antenna off to the side so the cap can be accessed. In Indianapolis, the same antenna is at the top with our equipment in a cabinet just like the traffic control box. There are a lot of ways to do it that are discreet.

Mr. Ley: Did you replace those poles for them?

Mr. Kerr: In Indianapolis, we didn't; that pole happened to be very stout.

Mr. Asta: In Chicago, we do, partially due to the fact that a lot of the poles in the city were older. We also had to replace the foundations on a lot of them, too.

Mr. Ley: On the slim-line antenna, what is the disadvantage of putting that on a 30-ft. pole?

Mr. Asta: We would need a lot more sites. When we were dealing with Overland Park about that one node, we looked at the site. They asked if there was a different antenna we could use, and I said there was but it wouldn't perform as well. We went to Sprint and convinced them they had to use it for that site.

Mr. Ley: That is for single?

Mr. Asta: That is a single-carrier site.

Mr. Kerr: And it might not be able to accommodate additional frequencies. It is a dead-end solution.

Mr. Asta: This antenna has 12 ports. It actually allows the industry to do a lot of things, including upgrading radios. At the same time, we've talked a little bit about the hub, which is where this all terminates. There is computer equipment there to switch these things on and off.

Ms. Kriks: Do you foresee a need to expand the existing hub to be able to accommodate more equipment?

Mr. Asta: As a matter of fact, all we need to put in there is basically one small rack of equipment. We have a couple situations in St. Louis where Verizon wants to add a generator to some of their sites. I don't think that has been the case out here. They deal with that aspect of it because we don't have any ownership of the hub itself. It's pretty rare that they have to expand them. Typically, they are just adding equipment inside those shelters.

Ms. Kriks: I just didn't know if a shelter ever hit capacity.

Mr. Asta: There were times they did, but thankfully, the equipment is actually getting smaller. Lastly, I'll show a preliminary map that is purposely impossible to read. Sprint has a coverage/capacity issue at 143rd; whereas, Verizon is looking farther north. We'll connect the two networks with fiber along Mission, but the reality is they had very different coverage needs. In total, you will see roughly 24 sites all on existing poles, whether the roughly 15 city street lights 10 utility poles. At the same time, if the KCP&L poles go away, we would need to come to you for a light pole. Then we have some aerial fiber in areas we believe you will not relocate for a couple years.

Comm. Elkins: Without getting into a lot of detail, could you comment on the comparison of the cost to the carriers of operating using your service versus what they pay for a tower to cover?

Mr. Asta: We are more expensive.

Comm. Elkins: So, it is not incentive for them to move off existing towers.

Mr. Asta: No; as a matter of fact, there are a lot of tower leases that Verizon, T-Mobile and Sprint will pay \$1,500 a month; whereas, in our instance with maybe 6-7 nodes per tower, we will get a fraction of that \$1,500 a month, but they will pay us more than they will pay a tower lease. Then, there may be municipal fees as well. The first couple of years we did this, the carriers did not like us very much because they knew that municipalities would drive them in this direction and we were more expensive. Now, they realize this is the only way they will go into certain communities.

Comm. Elkins: It seems like, under Section 253, if they decide to go with a tower and ignore you, there are those that would argue there is very little we can do about that.

Mr. Asta: That is true, but one of the points I was making earlier is I think you need some additions to your code. One of those is a priority list that I can send that basically requires justification for a new tower. It

doesn't give you a guarantee, but it does give a good opportunity to go through the process with them. If they really need the tower and can justify it, it is what it is legally.

Comm. Elkins: If you were to have the go-ahead and start tomorrow, how long would it take you to build?

Mr. Kerr: If you asked my boss, he would say I have to be done by the end of next week. I would think first quarter of next year.

Comm. Elkins: It's not like AT&T's project with a 2 ½-3-year exercise to lay the additional cable?

Mr. Asta: No; basically, we would bring the Sprint sites together with the Verizon sites, and I would look for feedback on how to ultimately deliver the applications. The Sprint stuff, we've been waiting on for quite a while because you are getting rid of the wooden poles and you are putting together a street light agreement now. We are looking to mobilize on the Sprint items this summer. Soon enough, we'll deliver the Verizon applications as well. We'd like to be building this year, for sure.

Comm. Jackson: How tall do you like your poles there?

Mr. Asta: Basically, the poles need to be consistent. They can be as low as 25 feet or as high as 50 feet. KCP&L has some pretty tall wooden poles. A lot of them are 40-45 feet. We like that, but street lights are usually only about 30. We can use those, too, but I would say anywhere between 25 and 50 is where we would like to be.

Comm. Jackson: How tall are Leawood's light poles?

Mr. Coleman: 30-40 feet.

Mr. Asta: We would probably be replacing them with a like structure with a heavier gauge to handle additional weight. We wouldn't be increasing the height, but the antenna would add 2 feet to the top.

Ms. Shearer: Whose code is this?

Mr. Asta: That is Overland Park. It is actually very similar to yours if you add my suggestion. I think it gives them a lot of protection, and basically, it is the hierarchy of not approving the tower without proper justification of need. Also, Overland Park encourages co-location. By encouraging it, they approve it by administrative review only. Effectively, they say that as long as the height is not increased by more than 20%, it will be approved administratively. Exceeding the height requires a Special Use Permit. Of my 20 sites built, only two have required SUPs because of the cabinet; everything else has been approved administratively. I know your code mandates SUPs in every case. At the same time, we comply with the intent, so I hope there might be some flexibility to see if some can be approved administratively. Again, I respect your position on that.

Mr. Kerr: That is one nice thing for the radios mounted on the street light poles: it is a very small cabinet we can hide, so it won't have much residential opposition to a cabinet in the front yard that has to be landscaped, which makes it more difficult for us to fix a location. If we put the radios on street lights, it is fairly unobtrusive and in the right-of-way.

Mr. Asta: I think it's appropriate to mention if there are no radios on the pole and everything goes into a cabinet, we have a distance limitation of about 10 feet. That was the reason for a couple permits; the easement was farther away in Overland Park, and I had to put it in the public right-of-way, which wasn't

allowed in the code. If the radios come out of the box and go on the pole, the cabinet gets smaller and can go next to a transformer.

Comm. Elkins: I'll make a comment for me and not the whole commission. With the incumbent carriers in prior instances, I think it has been a disservice that they have piecemealed it. Obviously, you already have a plan together for all of Leawood, but I would encourage you to present us with an overall plan. This permits us to do better planning, I feel.

Mr. Asta: I appreciate that comment. As I mentioned, these are not standalone sites. It needs to come in as one application. I would probably argue that the Sprint network, which is 8-9 nodes, would be one application and the Verizon network would be another application, assuming you would accept it that way. Something that makes a lot of sense is to have the planning department come look at the sites with us so we can explain our reasoning. Not all of your 10,000 poles are usable. When Verizon takes us out to an area with 20 poles but only 2 are usable, the planners need to see that. We are trying our best to solve the problem while being considerate to the municipality and citizens. Seeing the areas in real-time is better than a photographic simulation with an isolated view.

Comm. Strauss: Does your map indicate no gaps in northern parts of Leawood? Also, you talked about needing more and more capacity all the time. Rather than just looking at the gaps today, is there a way to forecast and have a more comprehensive look at where this network should be?

Mr. Asta: I would love the industry to participate in that. My background is planning. I appreciate the comprehensive nature. That is proprietary information that Sprint and Verizon won't give out. They are admitting they have coverage/capacity issues.

Comm. Elkins: They give us coverage maps on RF coverage.

Mr. Asta: On that individual site. I would be able to provide why we need these sites. I was asked last week why we weren't covering the entire town. I said I would love to one day, but this is just Phase 1. Your point is well made, but this is very capital-intensive. Even though we would like to build the entire town, it just doesn't work that way. It will probably be a phased approach. I don't see them all over in Leawood because you have existing facilities, but there are very clear areas that are in need.

I will end with a bit of a sales piece here. We are genuinely grateful. We feel it's a privilege to speak with you. We believe we are investing in your infrastructure. This is very expensive; it is significant. We are not asking for a dollar from the city. We are paying to be in your right-of-way and to use your poles. We consider that to be a fair trade. In addition to providing these facilities, we believe that the industry is committing to doing this in a better way. Once Sprint and Verizon start building these nodes, they're not going to come back for towers. It's not to say AT&T won't, but at least these two carriers are committing to this in Leawood. As a planner, I know these are not invisible, but I think they are visually superior to traditional towers and rooftop antennas. There is a lot of built-in capacity. They can accommodate multiple users. We talked a bit about public safety benefits, and I'll point out that we have heard back from municipalities that have had major storm events. Our sites were able to function for about eight hours on a battery backup, and we could bring generators up as necessary. First responders were able to use their personal mobile phones during the event when no one had commercial power or landline phones. There are indirect safety benefits at no cost to the city. Any backup is a good backup. Thank you very much.

Mr. Klein: We just have a few things we want to run through as far as reemphasizing what Tim said as far as what a DAS is and what it can do compared to traditional sites. The DAS is a network of spatially separated antenna nodes connected to a common source via transport medium that provides wireless service within a geographic area or structure.

Ms. Shearer: Tim, if you have a better or more concise definition, we would love it.

Mr. Asta: I try not to get too technical, admittedly. I think that's a good definition.

Mr. Klein: Currently, we plan on bringing a Leawood Development Ordinance Amendment to you on June 24th with regard to the DAS system. We are looking at how they will be regulated. The section on wireless communication facilities currently indicates that everything would require an SUP as it is currently defined. We would like to talk to you about looking at an alternative to that and looking at the design considerations with regard to each of these sites. As Tim indicated, there are a lot of design considerations. The antenna will actually be mounted on top of the light pole or possibly a power pole. Then, there would be a box that could potentially be mounted on the pole itself. If it is mounted on the pole, the box on the ground could be smaller and farther away from the pole. If it is not going to be located on the pole, the box has to be much larger and will also be within 10 feet of the pole. ExteNet was kind enough to come out and do a mockup to show us what the antennas would look like. The antenna will be a single color to match the pole. The top portion is what contains the antenna itself, and the bottom portion has rods and connectors to allow the cables to provide service to the antenna. The antenna itself is about 54 inches in height and has a diameter of about 14 inches.

Mr. Asta: The antenna itself is actually 24 inches. The reason I point that out is some communities have a maximum height on the antenna itself of about 48 inches. I just wanted clarification.

Mr. Klein: I appreciate that. The detail shows how the antenna will be mounted on top of the pole.

Mr. Kerr: We're actually trying to shorten that whole thing from 54 inches and make it a bit more compact. That is the reason for the mockup. If we can shorten it by a few inches, we will.

Comm. Williams: By putting the dimensions, which appear to be installation dimensions, in the LDO, are we trapping ourselves in the future as technology changes? For example, we could do height and rough diameter, but do other mounting dimensions need to be in the LDO?

Mr. Klein: At this point, we haven't written anything specifically as far as dimensions. We want to talk to you about that. We want your input as far as what should be included in the ordinance as far as the types of design dimensions.

The antenna mounted by Sprint was a single radio with one box. It is a little bit longer, narrower and flatter than the one used by Verizon, which has two boxes. The view from the side shows the thickness. It is about 12 inches in height, 11 $\frac{3}{4}$ inches in width and 5 $\frac{1}{4}$ inches in depth.

Comm. Elkins: Does the width include the space of the pole, or is it just the depth of the box?

Mr. Klein: It is just the depth of the box.

Mr. Asta: I'd like to comment on this piece of equipment. This delta node is actually something that ExteNet developed with a company out of Sweden. It is no longer exclusive to ExteNet, but it is something that we designed. This has the capability to expand. It still can maintain a small profile, but to get a second carrier on the pole, it could easily be added.

Mr. Klein: Do you add it to the back?

Mr. Kerr: It is back to back.

Mr. Asta: There are a couple ways to do it. We did it that way in Las Vegas, which they actually wanted it perpendicular to the pole to allow all the carriers on it to scale.

Mr. Klein: You also indicated that one of the carriers might have one that is 5 feet in length.

Mr. Kerr: There are different units for different scenarios. One is 5 feet tall and about 1 foot square.

Mr. Asta: All the carriers have their own manufacturers that they work with and allow them to integrate these sites into the network. It's a challenge for us because I wish we had a "one size fits all" solution. Antennas on rooftops or water tanks have different equipment, too, which is part of the reality of the industry. We're trying to set maximums and allow flexibility because there will be some differences down the line. It is getting smaller; it is just slowly.

Mr. Klein: Verizon has a pole with two radios mounted on it. There may be another way to mount these. The example shown is 17 inches wide, 19 ¾ inches tall and 7 ½ inches thick. It is a little bit thicker and wider but not quite as tall. We talked about mounting these side-by-side. With regard to the boxes, they also covered this as well. If they are allowed to mount the radio on the pole, the box will be smaller and placed farther from the pole. Is 400 feet maximum?

Mr. Kerr: It probably is the maximum. When we're using these radios mounted on the pole, the only thing we're bringing to the pole is electric. When the radios are mounted in the cabinet, we have to take the RF signal to the pole, too. Because it is such high frequency, many signals are lost in a very short distance in cable; that's why it has to be so close to the pole, or the cables end up being huge.

Mr. Klein: That is a good point that we didn't talk about. There will be wires that will actually come out of the pole and then feed up to the antenna. They will be external to the pole by about 1 foot.

Mr. Kerr: It will be somewhere between 8 and 12 inches. We're going to go down and bend them into the pole as soon as possible. The electrical will come up from the bottom and come out and feed the radio. RF will come out of the radio and feed the top of the antenna. We try not to have so many cables.

Comm. Strauss: Not from a visual clutter standpoint but more safety, is there any problem with these mounted things on signs? There are other things going on with the pole. There is nothing about mounting other things near signs.

Mr. Ley: Some of our signs are mounted on power poles. With the reflectivity of our signs, it draws attention to the sign.

Comm. Strauss: I know they're mounted on power poles. It's just that there's another box maybe right above the sign and maybe one below.

Mr. Kerr: We'll always be on the back side of the pole and never on the front where the sign would be. It will never be the first thing that catches your eye.

Comm. Strauss: Then on the flip side, can one of the boxes be behind the sign to be a little bit more obscure?

Mr. Kerr: It depends on height. We definitely don't want stuff where people can grab the cables. The first handhold is going to be at 8 feet.

Comm. Jackson: Is there a reason they can't be up higher on the pole?

Mr. Kerr: Mostly it's wind bloating. You'd have to have a heavier duty pole we could put them higher on the pole, yes.

Mr. Asta: There have been some situations when it was higher on the pole because it was a tall traffic structure.

Mr. Kerr: They're steel and much bigger around.

Mr. Ley: They can also take banners, so the radios can be mounted on banners on these light poles.

Mr. Kerr: We try to take poles that don't have anything on them, but it doesn't always work that way. We did design it to accommodate a banner for strength.

Comm. Jackson: What do you mean by a banner?

Mr. Kerr: Like your Leawood signs.

Mr. Klein: Again, if the radios are mounted on the poles, the boxes are smaller and can be farther away. In general, the pad is almost 48 inches tall and probably about 3-4 square feet. If the radio is not mounted on the pole, it would have to go within 10 feet of the pole itself. We would require landscaping around it. Tim showed radios mounted on one pole. The wires connect to the antenna. The one you saw earlier would have another housing as he showed in the mockup.

Mr. Kerr: Yours wouldn't have to have it, but Overland Park insisted on it.

Mr. Asta: We did those simulations with both scenarios and asked for a preference.

Mr. Klein: The next simulation showed both sides of it. That simulation is 54 inches in height.

Comm. Elkins: Does the proposed plan call for these boxes to be in the same right-of-ways as the utility boxes? Are we effectively adding yet another series of green boxes up and down the same street?

Mr. Klein: If it is located adjacent to the pole, it would be pretty close to the ones you see. If it was one of the smaller ones with the radio on the pole, there would be more of an opportunity to hide it.

Mr. Coleman: They're independently located.

Comm. Elkins: One of the things I harp about is the row of green boxes. On Nall, there are 12-14 of them. I'm concerned about the visual clutter along that same right-of-way and then a whole other series of boxes could be added.

Mr. Klein: Leawood does require screening. They are showing an example of a similar requirement. We would add even more on the side.

Mr. Kerr: The ones on Nall are switchboxes and splice boxes. When the cables get buried, they don't like to bury the splices. They can only get so much cable on a reel, so about every 1,500 feet will be a big splice box. On the Overland Park side, we'll hide them behind transformers.

Mr. Asta: This is one of the few areas where the electric company just doesn't allow anything on the pole, which is what necessitates all of the cabinets. There are areas where there are quite a few of them. Most

other places, everything is on the pole. We try to reduce and eliminate the size of those cabinets by putting stuff on the pole. We try to bugger both scenarios.

Mr. Klein: Those are some of the design considerations we want you to think about as we talk about this. With regard to the approval process, we are thinking that all the DAS sites would be required to get recommendation by the Planning Commission and approval by Governing Body; however, two different processes would be available. One would be a Special Use Permit, which is traditional. If it didn't meet certain design considerations, it would be required to take this route. If it met those considerations, it would take a different path with notification by regular mail within 200 feet of the pole as opposed to certified mail, return receipt requested, within 200 feet of the parcel and also an interact meeting within 1,000 feet by regular mail. With regard to the associated ground-mounted utility boxes we were talking about, we would allow the Leawood Development Ordinance's current regulations with regard to the ground-mounted boxes to rule. The first consideration is if they are in residential or commercial districts. Residential is a little more restrictive. Within the residential districts, a height less than 36 inches and a footprint of 5 square feet, it can be approved administratively. Something greater than 36 inches but less than 66 inches in height and has a footprint less than 16 square feet can go through a Final Plan with no notification associated with it. If it is taller than 55 inches or greater than 15 square feet, it would require a Special Use Permit. With regard to the boxes you saw earlier, if it is one of the large boxes, it definitely would need a Special Use Permit because it exceeds that requirement. If it is one of the other boxes, it would probably require a Final Plan, which would not require public notification. Commercial districts are a little different. Administrative approval is available if less than 55 inches and 15 square feet. A Final Development Plan would be required for anything that exceeds that.

Comm. Elkins: Unfortunately, I won't be here for the June 24th meeting unless things work out really well, but I'd like for you to consider if there is a way that we can build into this approval process in the ordinance a requirement for an overall plan. You talk about the Final Development Plan, and we have a tendency to focus on a particular site or installation. Since we're starting from scratch and these don't function independently, somehow, the requirement would be that when they come in with their first installation, an overall plan would need to accompany that. In some ways, it is almost the kind of thing you would see in a mini version of a developer's plan for a subdivision. The first time we approve a particular antenna, in order for us to do our job, I think we need to see where they intend to lay out all the antennas to avoid the kind of consternation that at least I had with AT&T's project. We could write it into our ordinance so they could show us their current overall plan for this network.

Comm. Williams: Are you referring to the overall plan for the city or the section of the city or a neighborhood?

Comm. Elkins: It looks like they have it set up for the city, so I would ask for the city if possible. I want to know if they're going to put in 10 antennas or 25 antennas.

Ms. Shearer: As the person who has to write this, I think if I heard Tim correctly, I don't know that they know. You probably know how many for now, but that's not to say there won't be 5-10 more in the future.

Mr. Asta: It's a fair question because I'm trying to get the industry to be more comprehensive in its approach. I agree that the industry deserves all the "shame, shame" it's getting for the piecemeal approaches over the last 20 years. That is partially due to funding, partially due to proprietary secrets of the various carriers. I don't know if there is any way to guarantee the entire city or entire areas of the city will ever be covered because they could be sufficiently covered today. I'm not sure how we put that in. I think it is fair to require all the sites in one package. I actually think that's appropriate. I think getting 12 SUPs, each one on its own merit, is a difficult thing to do. I think it should be approved as a system; I just don't know

how you mandate coverage everywhere in the city where it may never get because it's being served with other means. It's a fair question; I just don't know how to add it in.

Comm. Elkins: I wouldn't mandate it, but he just showed us an aerial photograph that has virtually all the installations on it.

Mr. Asta: I'm ready to deliver applications for all of that for both Sprint and Verizon.

Mr. Coleman: Where are all the back haul locations for all of these? You pointed out one.

Mr. Asta: The Sprint back haul is the north side of the soccer complex. I can provide you with the Verizon stuff. Verizon has a different requirement: they can only have 5-6 nodes going back to a hub, so it will be 4 hubs.

Mr. Kerr: For the whole job, there are 10; there are 3 that affect Leawood.

Mr. Asta: We would include that in the map to show you where those nodes are going.

Mr. Coleman: For the entire city, where are their hubs?

Mr. Asta: I wouldn't even know yet because we haven't designed any of that. It would only be driven by the carrier. Again, ExteNet tried early on to proactively build these networks, and it doesn't work.

Mr. Kerr: We can tell you the locations of the hubs.

Mr. Asta: You see that we're still south of 435.

Mr. Coleman: I'm thinking north of 435. That's half the city.

Mr. Asta: At that point in time, it would be pure speculation.

Comm. Elkins: I understand, but they have a system. IN our last experience, they knew where they were putting the boxes, and they chose to bring in 2-3 at a time and refused to answer our questions about where the others would be.

Ms. Shearer: You're asking for more of a deployment plan that would have to be revised.

Comm. Elkins: It could always be amended.

Mr. Kerr: Sprint and Verizon do it from hub location; from wherever the source of the fiber is and out is one unit of construction.

Mr. Asta: We can do that on what we have thus far, but any areas that have no current plan for a DAS would make it difficult. I think it would be our obligation when we come in for that plan to show the whole thing. I don't suspect we'd be coming in for one or two sites.

Comm. Elkins: I'm inclined to require it.

Comm. Pateidl: I can see where a comprehensive plan for the city would be difficult for them. I've got a little question as to how this whole process will go. What I think I'm hearing is if we take the Sprint project and they come in and give us a plan for the whole project and we say the plan is fine, there are certain parts

where we want to give the department administrative control, but if there is a need to build boxes and add landscaping, an SUP would be required.

Mr. Coleman: We require that now if the boxes are larger. Their boxes won't meet that threshold; they'll meet our administrative approval threshold. For the nodes, we are proposing that instead of an SUP, they are submitting a Final Plan where they would notify within 200 feet of each node so that residents are aware this is going in. It would then come to you and City Council as a Final Plan approval.

Comm. Pateidl: We wouldn't have a Preliminary Plan.

Ms. Shearer: You would have a Site Plan like they submit now for a cell tower.

Comm. Pateidl: One of the reasons for that is that it is on public property, and then the right-of-way tracts are so large that if we wanted to buy them, it would be notifications to thousands of people and would be too cumbersome. We thought this was a good compromise. This way, adjacent property owners know what's going on, but it also reduces the application requirements that a normal SUP would get.

Comm. Jackson: You have the node and 200 feet around the node, but what about the box?

Mr. Coleman: That would be part of the application plan where those boxes are. If they were larger than a certain size, they would trigger an SUP. If they're small, under our current ordinance, we can administratively approve certain utility boxes, and we do.

Comm. Jackson: Do those people get a notice if it's going in their back yard?

Ms. Shearer: They'll follow the same rules our utility boxes currently follow.

Mr. Coleman: They would have to get an easement if it went in somebody's back yard. If it's in the right-of-way, it's just administratively approved.

Mr. Asta: One of the things I want to share about that is the box itself, in either of the scenarios, doesn't exceed the maximum. They are actually about 12 square feet. As far as the placement of the cabinets elsewhere in Johnson County, if we had been allowed in the public right-of-way, it has always been behind the sidewalk so it's not between the roadway and the sidewalk, which could be a safety issue for a vehicle veering off and hitting it. In a lot of areas with relatively recent development, you folks are mandating that developer put in a dedicated utility easement 10 feet wide. That is probably where these would go. Going back to the pros and cons of putting the equipment on the pole, if that does happen and we are allowed to put them on the pole, the ground cabinets we need are tiny and could literally go anywhere. They would be in the utility easement with other things, and it is a lot easier to landscape around it. Admittedly, I don't think the boxes become an issue for a size or location concern. At the same time, you do have a process in 16.1.4 that does talk specifically about the utility cabinets, and we can definitely follow those.

Ms. Shearer: Those are the rules we were contemplating.

Mr. Coleman: What I wanted to do was get the commission's opinion on modification of the application process for this type of system and whether or not you would support it.

Comm. Jackson: I would want it written to encourage those smaller boxes. Marc is always complaining about the line of view along the street. If they're going to put them where they won't be seen, that's when I like the administrative approval because it makes it easy for them and they're more likely to do it.

Comm. Pateidl: I don't think you need to write that in because what you're going to have is antennas on the pole at about half the cost of the larger box. The economics of the system will drive that.

Comm. Jackson: But if a piece of it is the line of sight and not just the size.

Comm. Pateidl: I understand that's the net effect; I'm just saying I don't think the system is going to rely on larger boxes to any great extent because of the cost. There is an economic incentive to keep them.

Mr. Coleman: They won't all be on the poles.

Mr. Asta: We can propose them on the poles; we would prefer that, but there may be a site-specific scenario that requires flexibility.

Comm. Elkins: Flexibility with a preference.

Mr. Coleman: We can certainly write it to reduce the visual impact of the utility boxes.

Comm. Walden: You said you were going to mount on the power poles, so you can't put the radios on the poles and will have the ground units.

Mr. Asta: For the 10 KCP&L installations, assuming that City Council allows us to do them, those are within 10 feet of the KCP&L corridor.

Mr. Coleman: I wanted to get direction from the commission if that type of application comes through.

Comm. Pateidl: Admittedly, I didn't think I would talk about a Distributed Antenna System today, so this is kind of new to me. I understand Tim's function and his presentation, and I appreciate it; it's been very comprehensive. It has certainly been toward the positive side. We've heard all the reasons this is a good thing. What is the opposite side as far as the community is concerned from the perspective of city planners, other cities' response toward these systems?

Mr. Klein: The other side would be aesthetics. Basically, we have clean poles right now that are located along the infrastructure. These would be mounting equipment on those poles. The city may be able to allow certain things on the poles, but like everything else, there is always a line between what looks good and is pretty unobtrusive and cluttered. Say a company comes through with a much larger box and it is much more obtrusive than what is there. Each company has its own technology, and Tim alluded to this as well. It's not like you get a consistent look down the street. There is a chance that one pole will have this kind of technology on it and the next will have a different technology.

Mr. Coleman: There are other companies besides ExteNet that do this, too, and they have their own protocol.

Comm. Jackson: Is anybody mounting these on individual homes?

Mr. Coleman: I don't know.

Mr. Asta: I've heard that Sprint has given boosters to some residents. I've not seen what it looks like, though.

Comm. Strauss: We've had some illustrated pictures with and without a pole, but it might be nice to get a view down the street of what it would look like on some poles versus the ground so we could see that perspective.

Mr. Klein: It is my understanding that maybe Sprint will come in and they might be on one pole, and ¼ mile away will be on another pole, and then Verizon goes on the next pole with another carrier on the following pole. If the boxes are adjacent to the pole, nearly every pole could have these large boxes.

Mr. Coleman: That could be a downside.

Comm. Pateidl: You'd have Mr. Elkins over the edge.

Mr. Coleman: It is possible.

Comm. Pateidl: I think we need to contemplate that inside the ordinance, and that is not an individual company. I don't know how you avoid having a monopoly-type situation from the result of your ordinance.

Comm. Elkins: We could certainly encourage co-location.

Mr. Coleman: Then you would end up having more of these cones on each pole.

Comm. Elkins: He said he could handle a certain number off each.

Mr. Coleman: Each one has three antennas in it. That's for one carrier.

Mr. Asta: No, the antennas can function for multiple carriers. The radios function for that carrier.

Comm. Pateidl: You'd have a Verizon radio, a Sprint radio and AT&T radio.

Mr. Asta: I think these are all good questions. I'm glad you're asking them. Some cities have said it's not a matter of how many boxes; it is overall cubic footage. That is another way to view it. That way, you don't have one box allowed that is the size of the refrigerator. It's really more of an overall cubic footage. Another way to think about it is no one piece of equipment can exceed 250 pounds. There are a couple ways you can protect yourselves.

Comm. Pateidl: I would request and encourage the planning department and you to provide us with copies of some of those ordinances or reference parties that we could contact to discuss the issue. The other issue I have before we leave to consider if this is good or bad is I view this very similar to cable companies coming to town with pole attachment requirements. You're putting this system on the poles, and I believe we have a provision for financial responsibilities for removal if they abandon the system. Back in the days when I was working, they were pole attachment funds. Frankly, they are heavy financial responsibilities. Can you provide that?

Mr. Asta: Through the franchise agreement we have with the City of Leawood to operate in the public right-of-way, there were bond and insurance requirements built in to that.

Comm. Pateidl: I don't know that the franchising issue deals directly with the pole attachment I'm discussing. I would defer to Franki to address that. I would encourage the city to have that. If so, I would like to see some assurance with the application.

Mr. Coleman: I thought we had a provision for removal of all equipment.

Ms. Shearer: Let me double check with the franchise because we have provisions in the franchise. The pole attachment agreement is something we've been working on. There is contemplation of removal of equipment addressed.

Comm. Pateidl: I'd like to see confirmation that the financial instruments guaranteeing that provision is available, and I would encourage the planning department to have that as part of the application procedure. There is no sense in approving these things or even considering them unless you know you can have that financial responsibility in the end. That's basic provision requirement, and I can tell you from experience that they are difficult to get. To assume you just call up your insurance agent and say you want it is a mistake because it doesn't work that way. It's an on-demand financial instrument.

Mr. Coleman: We'll probably need some more time to delve into that.

Mr. Klein: Before we wrap up, I'd like to talk generally about design considerations that might take effect with regard to the process. It would be number of housings for the antenna per pole. Typically, we thought it would be one housing for an antenna per pole. Are there other applications out there with two of those located on a single pole?

Mr. Asta: We've never done it, but yes, AT&T self performed in St. Louis and actually had two antennas on a wooden pole.

Mr. Kerr: At a speedway or a very large venue, when typically, the pole is owned by the venue, if they were going to put up a DAS system, everyone would be on a single structure with multiple antennas.

Mr. Coleman: I've seen pictures in California with multiple carriers on a single pole, and it's pretty terrible.

Mr. Klein: Then the size of the housing for the antenna, we talked about a little bit. Len brought up a point as far as being careful when writing the ordinance and restricting what is allowed while being flexible to go back in and revise things if something changes. The number of radios mounted on a pole would come into play if there were two carriers with 2 radios. I don't know if technology would change and anyone would require 3 or 6 radios, so the number of radios on a pole might be a consideration. The size and configuration of the radios mounted on a pole would be a consideration as well as the exterior color of the equipment.

Comm. Pateidl: I think Tim had a pretty good suggestion with a total cubic footage that really does anticipate technology with these things shrinking. You might go from 2 to 6 radios and not exceed reasonable cubic footage. As far as configuration on the pole, I believe that is an issue for you in the planning department. Our involvement in that is academic and cumbersome, and I think it just gums up the cards.

Mr. Kerr: Another thing we have run into is how big of an antenna on the pole are we allowed to have. The pole height not increasing more than 20% has been a very nice benchmark. Most of the equipment we've run into, we can make fit within that framework.

Mr. Asta: I like that requirement we've seen elsewhere in Johnson County. It's less about how big the antenna is and more about how much of a percentage increase over the original structure. I think 20% is a fair number, and that was in the code of Overland Park, Olathe, Lenexa and maybe even Wyandotte County. If you have a 30-ft. pole to start with, you can't go higher than 36 feet to the top of the antenna. That's almost a self regulator.

Mr. Kerr: Going much smaller than that, if you're working on utility poles, they only sell them in 5-ft. increments. You're automatically 5 feet taller; plus, you have electrical clearances from the top power cables.

Mr. Coleman: Are you planning on putting in a wooden pole?

Mr. Kerr: No, I'm sorry; I was just thinking if you're writing an ordinance for an approval process within the city limits and it is on a power company pole or on an existing wooden structure.

Comm. Pateidl: Do we have any wooden poles in Leawood?

Mr. Klein: Just the KCP&L poles. Eventually, those will all go underground. That's pretty much it. The other consideration is the time limit it would be good for. Right now, as far as our wireless communication facilities, we have a limitation of maximum of 5 years. Then we also have the antenna match the structure they're located on as far as monopole or monopine. By ordinance, SUPs have a maximum of 20 years, but as far as this new system we're looking at and the type of permit, a limitation on that is another consideration.

Comm. Williams: On the Special Use Permit, didn't we have a vision of ownership change and a new Special Use Permit?

Mr. Klein: Apparently the way the ordinance is written, it goes with the operator or the owner. That's all I have with regard to that.

Ms. Shearer: Is ownership part of the franchise agreement?

Comm. Elkins: Is the franchise agreement able to be signed?

Ms. Shearer: Yes; they have to notify us if they change names or are acquired. Then when it comes up for renewal, the new company comes in.

Mr. Coleman: How long is the renewal?

Ms. Shearer: It is 4 years.

Comm. Elkins: That limits it some.

Mr. Asta: Thank you all very much. I realize I have an industry view, but I am a planner. I do take that very seriously. I would like to share more information with you gentlemen about what other cities are doing regarding sizes. I think your design considerations list is fair. As far as I'm concerned, if I was putting together a regulation, I would want it.

Mr. Klein: Thank you for the information.

ELECTION OF OFFICERS

A motion to nominate Len Williams for Chairman of the Planning Commission was made by Jackson; seconded by Strauss. Motion passed with a unanimous vote of 5-0. For: Levitan, Jackson, Elkins, Walden and Strauss.

A motion to nominate Marc Elkins for Vice Chairman of the Planning Commission was made by Pateidl; seconded by Levitan. Motion passed with a unanimous vote of 5-0. For: Levitan, Jackson, Elkins, Walden and Strauss.

Chairman Williams: Thank you for a very worthwhile discussion. Hopefully we can get the concerns addressed. One of the things that touched me with one of Tim's comments was even doing this, it doesn't necessarily rule out that another carrier will come in and ask for a tower. I think that's what we'd like to get rid of. The comment about hop-skip poles with Sprint on one and Verizon on another brings up the question of clutter that we don't want to see and then still end up with poles on top of it.

Mr. Coleman: They weren't the first to ask people to come to the city. The other people went away pretty quick.

Ms. Shearer: They're the only ones I know of. They're the same company but a different guy.

Mr. Coleman: They were so different I thought they were a different company.

Chairman Williams: I did think he did a nice job. Maybe overemphasized the fact that he was a planner.

Comm. Elkins: Their operations chief is a former Leawood resident.

MEETING ADJOURNED