MACHINE TRANSCRIPT · CORAGGIO CONSULTING

Fairfax County Land Use Policy, Tuesday, October 17, 2023

Date	Tuesday, October 17, 2023
Place	Fairfax County Board of Supervisors, Virginia
Length	1h 39m (video)

- Official meeting video (Fairfax County): https://video.fairfaxcounty.gov/player/clip/3070
- Official Board of Supervisors page (Fairfax County): https://www.fairfaxcounty.gov/boardofsupervisors/

> Machine transcript (speech-to-text) produced by Coraggio Consulting. Not an official county record. Names and numbers may be misspelled; check the video at the timestamp before quoting.

Speech-to-text: whisper.cpp, model large-v3-turbo. Produced 2026-11-03. Each paragraph starts with its time [HH:MM:SS] in the meeting video.

[00:00:02] Good morning. I'm going to call the Land Use Policy Committee to order. The first thing on the agenda is the meeting summary from the last meeting. Does anybody have any corrections or additions to that? Okay, seeing none, that will stand as accepted.

[00:00:19] The first item on the agenda is the consolidation of Virginia erosion and sediment control and stormwater management regulations. And so we will go right to that. Matt or John? Okay. John, take it away. good morning everyone i'm john friedman with land development services on my right is matt hansen also with land development services i'm here to provide the board an update on the consolidation

[00:00:52] of the virginia erosion and sediment control and stormwater management regulations so here's a brief timeline of how we got to where we are right now in 2016 the virginia erosion and stormwater Management Act was adopted. And at the time, it was intended that they become effective of the 1st of July 2017, or 30 days after the adoption of the associated regulations,

[00:01:31] whichever is later. Just this last legislative session, because they hadn't actually gotten around to consolidating the regulations, VESMA was amended to be effective July 1st, its coming year with a promise from DEQ that they would actually get the consolidated regulations finished. And they were able to do that. They were adopted by the State Water Control Board on June 22nd of this year. They haven't yet been published in the Virginia Register. My

[00:02:10] understanding is that last time I looked, they were still over at the governor's office for one final run through so what what's required of the county is that by july 1st of next year we need to adopt changes to our erosion and sediment control ordinance and our stormwater

[00:02:39] management ordinance i'm having trouble with my back up here one slide so the the the regulations when they were, or excuse me, the law when it was adopted exempted the regulations from the Administrative Process Act. And what that means was that there was never a public hearing for the

[00:03:18] consolidated regulations, but it also stipulated that they couldn't make any changes to the criteria, that they were only combining up the existing technical criteria in the two different regulations. So in addition to combining up the ENS and the stormwater regulations, it also included the certification regulations. All plan reviewers, inspectors, program administrators

[00:03:53] have to be certified as being competent in both areas. So that's why the certification regulations are included. So as stated by the State Water Control Board, what the intent was to clarify the program requirements, eliminate redundancies, and correct inconsistencies between ENS requirements and stormwater management requirements. So again, there was no substantive changes just from the

[00:04:30] consolidation. There have been a couple of changes since 2016 to the stormwater management and erosion in sediment control laws, but most of that is very minor and don't have any impact on us specifically. So we need to update, you know, our county code to be compliant with the act and the new regulations. We're not required to combine our ordinances, and we're not proposing to do so.

[00:05:04] at this time. So with the regulations being essentially the same as before the consolidation, there was one major change with the act, which I need to get some input from the board, kind of a sense about what they want to do with regard to our current exemption for single family homes, separately built, not part of a larger plan of development, from water quantity and

[00:05:43] water quality controls. When the state amended the law, they got rid of our ability to exempt these types of projects from quantity control, but they still left as a local option as to whether or not Chesapeake Bay localities like ourselves could regulate for quality control, i.e. BMPs, all the way down to

[00:06:14] the 2,500 square feet for these types of infill development plans. And so the current exemption that we have, which was actually modeled after a previous exemption that was in the old Chesapeake Bay regulations, which is where the 18% number comes from, which actually was back in 1993, that was supposed to have been the average imperviousness across the entire county was

[00:06:52] 18% at that time. So when we talk about like single family homes separately built, it includes additions and accessory structures. That's our interpretation of that. So currently, If the total imperviousness is less than 2,500 square feet or 18% of the lot area, whichever is greater, or the total area is a half acre or less and no more than 500 square feet, a new impervious area will be added.

[00:07:31] We can keep this as it is, but again, it would only apply to quality control. The quantity part of the exemption is gone. The state law did away with that. So in summary, again, we have to comply with the state law by July 1st of next year.

[00:08:05] There's the minimum substantial changes to the technical criteria. Again, water quantity control is required, and we'd like to get some feedback from the board on whether or not we should also get rid of the exemption for quality control.

[00:08:35] That's done for the start. I'm sure you all have some questions. Okay, John, can you go back to slide nine, please? Okay, I think one of the important things for the board to understand is going to be what would the impact of keeping the quality control.

[00:08:58] One of the things we talked about was purchasing credits, and so I think we need to understand if we decide that we also want to require quality, what does that mean to the homeowner, and what's the process there, and then what's the effect overall.

[00:09:16] May I answer this? Go ahead. So John and team have pulled a recent sample of those infill lot plans, a sample of the plans that you're asking about. In the last 85 of them, a little less than 18% of those plans utilized this exemption.

[00:09:35] The rest of them, more than 80%, were not in this exempt category. They complied with water quality and quantity under the Stormwater Management Ordinance. So we're talking about that small subset of plans. It is only water quality that we're talking about, which is not water quantity where a lot of the money is in building things that need to detain stormwater.

[00:10:01] So that marginal cost on top of water quantity, a detention that might be required for a home addition or a new home, just the quality portion, if you're buying those credits, is somewhere in the $2,000 range on the high side for an average project. Yes.

[00:10:19] Just a question on that, because I was following you along fine, and we know that quantity, to handle quantity, you usually have to put something on site, typically. and if you are doing that, aren't you already, by virtue of that mechanism, addressing quality at the same time? In other words, give me an example of where you can accommodate water quantity and not by default also be addressing water quality. This is kind of a location thing, and it depends

[00:10:54] on what type facilities you can use for the quantity control. If you have well-drained soils and you use infiltration, then it would provide both the quantity and quality control without any additional expense. If you're in poor soils, you would basically be providing probably some sort of underground detention on the lot. But since it wasn't infiltrating, you wouldn't be getting

[00:11:25] any quality control or BMP credits for that. And that's where, you know, we say the marginal cost to providing the quality control for those kind of project acts is in the $2,000 range.

[00:11:47] So it could be really like anywhere from zero if you have well-infiltrating soils to purchasing credits if you don't. And remind me again how many times that happens. In other words, we know that a lot of people have to address quantity, and when they're doing that, they're addressing quality because of the type of mechanism that they install.

[00:12:09] To accomplish one, they're accommodating both. How often do we have someone who addresses quantity with a mechanism that does not address quality? I didn't pull any samples on that. I would, off the cuff, say half the time that people are putting in devices that also treat water quality at the same time as quantity.

[00:12:35] Okay. Okay, so need some feedback about the quality piece because quantity we don't have a choice about they're going to have to do the quantity piece and the other thing we just discussed about with staff is that we can always have both options when we go to advertisement so that we can get more

feedback so in comments uh supervisor gross i guess my answer to the question on slide seven would be yes um to require water quality controls

[00:13:08] on for all land disturbing activity of 2 500 square feet or more i'm thinking of lake barcroft and Lake Akatink and the issues that we have there. Lake Akatink and Grady Amore, Lake Barcroft is a privately owned lake, but I would think that just those two alone and the challenges that we know that we have for the lakes would say, yes, let's require the water quality controls.

[00:13:41] My one question would be the capacity of staff to review all this sort of new stuff if we're going to require them on all land-disturbing activity and no longer have those exemptions. Do we have staff to be able to, you know, handle that workload?

[00:14:00] Yes, absolutely. This is within the capacity of our existing staff reviewing these plans. Okay, thank you. I have Supervisor Herity then walking through. So you mentioned the $2,000 cost. Does that include the design cost, the testing cost, the engineering cost, and the permitting cost?

[00:14:20] as your rough example? Well, the $2,000 figure is based on purchasing credits from an off-site nutrient bank. Okay, so not actually doing anything, just purchasing credits. So that wouldn't help the Akatink or the Barcroft? No, it wouldn't. I mean, that's also something that's stipulated in the state law that there's an allowance for that, that we can't not allow

[00:14:49] them to purchase credits if they want to. And in my view, you know, as an engineer, that would be the cheapest way for the homeowner or the developer to do that would be to purchase the credits rather than trying to redesign some facility that didn't already require, provide for infiltration to somehow or other, you know, do something else to provide quality controls. So that's interesting.

[00:15:23] And I'm not trying to say you're saying this, but it sounds to me like what we're doing here is adding a cost without actually getting any benefit in most cases. If that's what homeowners are going to do rather than go through the process, they're just going to pay into a nutrient credit bank.

[00:15:43] And again, the Akatink and the Barcroft don't really get anything. It sounds like that's kind of the direction most homeowners would go. I wouldn't say most in that case. Certainly many avail themselves of the off-site nutrient credit options.

[00:16:00] We do publish our local Fairfax County details on how to use bioretention planters for stormwater detention purposes as a way to help people with a design that we've vetted to do both at once because we believe water quality is important.

[00:16:15] We would like to see more people use it locally, but the option exists in local and state law to do the off-site credits. Yeah, and I clearly would like to see improved water quality. Again, it's the cost-benefit, but it sounds here like you get a cost in many cases without a benefit.

[00:16:31] To go back to kind of the line of questions the chairman was asking, because, you know, it's understanding what the impact of that 18 percent. if about half of them, half of them are already ending up doing this because they've got good soils. So we're talking about 9% and what kind of impact on our water quality are we really having for that 9% for the increased cost is kind of what I'm trying to understand. I mean, it seems like a pretty small number without really knowing what the impact is on that 9%.

[00:17:09] I mean, water quality has always been a difficult thing to, like, measure out in the field when you go out to the streams. I would say that the way the nutrient banking system is set up, those credits would be in the Potomac River watershed.

[00:17:35] And there's a hierarchy where it's like it has to be closest to the watershed that you're actually in. and then if there's nothing available there you can like move farther and farther away but you're always supposed to be in the potomac river watershed so it would contribute to whatever requirements are associated for the county as a whole with complying with the chesapeake bay tmdl requirements there's some like minimal benefit you know to that but your point is well taken

[00:18:13] Okay. Yeah, and again, I'm going to lean on the side of no here because we've got an affordable housing issue here, and this is going to add, in this case, 2,000 to whatever that 18 percent is. Thank you. Supervisor Walkinshaw, then Fett.

[00:18:34] Okay, so just so I understand, we're not talking about adding a new requirement for water quality control on 2,500 or over. that's the current requirement. The question is, do we retain our current requirement and exemption? The question is that roughly 20% of these infill lot grading plans today, in our latest sample of them, are exempt from the water quality requirements because that's what our stormwater ordinance says. Because they're under 2,500. Because they, John had a slide about

[00:19:13] there are some specific categories of less than 18 percent imperviousness and no more than 500 square feet of new imperviousness in total and that that happens to apply to backyard amenity projects some some tear down and rebuilds of houses when the existing use is rather intense think large patios sprawling patios around a small old house tear it down and your total imperviousness doesn't go up more than 500 square feet for the whole lot those are the sorts of Projects that make up that 18% of projects.

[00:19:46] Let me clarify one thing here. This only applies to plans where the land disturbance is greater than 2,500 square feet. Right. All of the existing single-family home additions that are less than that are totally unaffected.

[00:20:10] They're still exempt. They're exempt today, and they would be exempt if this were... Yes, so we're only talking about the ones where the land disturbance is large enough for it to actually require some sort of a grading plan. And currently, we only enforce quantity for that category, or we enforce both quantity and control dependent on the exemptions that you laid out? Currently, our stormwater management ordinance exempts these projects, and so in those

[00:20:48] cases where projects are exempt from the stormwater management ordinance, we still leverage our erosion and sediment control ordinance to get as much quality treatment as is necessary in cases where there are damaged or eroded streams immediately downstream or anywhere downstream of these projects. It's a bit difficult, and it is a great simplification of our regulation that the quantity exemption is going away so that everybody's treated under the same ordinance for water quality to prevent flooding problems. Got it. Okay. I think my inclination would be to advertise both because, you know, I suspect we're going to want to hear from folks on this. I think

[00:21:25] it also would be useful to the extent it's possible to do a look back over, you know, pick a number of years to determine if we were to include this requirement of water quality for disturbing activity of $2,500 or more, how many new projects are we talking about that would have requirements that

would not under the current status quo? Does that make sense? I think I'm just trying to get a feel for the range of like how many people would be in that category of having to purchase credits or do something that they otherwise would not have to do.

[00:22:04] Well, that makes sense that we can make sure those numbers are in a staff report about this. I mean, in the limited sample we looked at it, again, it's about 18% of our current, what was it, like 500 infill lot grading plans fall under this exemption.

[00:22:24] So when I extrapolated that out, it was about 85 plans a year. Got it. Okay. Thank you. Supervisor Faust. Actually, I thought we were closer to 1,000 infill grading plans.

[00:22:52] And over 500 were in Drainsville. That's, seriously, I mean, that's not correct. It sure feels like there's 500 in Drainsville. There are numbers we will discuss about active projects, and that's where we've got roughly 2,000 active site-related projects in the county at any one time.

[00:23:14] A thousand of them are in the northern three districts, and a large subset of them are in Drainsville, but I don't have that number memorized. Okay. That was an aside. The issue on credits, okay, I mean, it was said that there's no benefit to the credits, but, I mean, they don't come from nowhere. As I understand, and correct me if I'm wrong, some entity could do, for example, a stream restoration and dramatically improve water quality in that stream

[00:23:53] and then have the right to sell credits? Is that where credits come from? Where do credits come from? Absolutely. John mentioned earlier that credits come from some state system of hierarchical closeness and proximity to projects that exist.

[00:24:12] Those projects come from things like you mentioned. It could be a stream restoration project. There's a lot of ag land conversion into forested open space, things that have water quality benefits. So by the rules about proximity to projects and the state's close supervision of what those projects are, there are real benefits that come to the Upper Potomac watershed.

[00:24:34] For anybody who buys credits, these are real projects that exist in the Upper Potomac. They're just, they don't exist here in Fairfax County. Okay. Yeah. And we know, well, given that and given the need to control, to improve water quality and quantity retention, I mean, I think this is a good idea.

[00:25:04] I mean, it's a modest cost and addressing a humongous problem. And via the incentivizing, you know, the creation of these credits, we're doing a lot of good for the Chesapeake Bay.

[00:25:23] So until proven otherwise, that will be my position. Supervisor Harrity? Well, you know, I don't think we have a data on this massive problem, but you can prove me wrong by providing the data.

[00:25:41] But, you know, if we're going to move down this path and include less than 2,500, I think we need to go back and look at some areas where we are out of line with our surrounding jurisdictions. For some reason, we treat pervious pavers as impervious surface.

[00:26:00] I would think that would be something I would want to look at to try to reduce that number and the impact on our homeowners. Two, we treat, for some reason, we treat swimming pools as impervious surface when they're actually stormwater collection devices. People don't pump water out of pools, they put water into pools. And I think we're the only jurisdiction in the region that treats pools as impervious surface. So if we could take a look at those things and maybe look to, I don't know whether that's ordinance and regulation or whether that's just policy, but we're going to go down this path.

[00:26:35] I think we need to take a broader look at impervious surface versus pervious surface. So we are just talking about over 2,500 square feet, correct? Not under? That's correct. Only projects that are above 2,500 square feet. Only above 2,500 square feet. Yeah, it's only above 2,500 square feet.

[00:26:56] And so the question, right now we are able to exempt people for quantity and quality. Now with the changes at the state, we can no longer exempt for quantity. So the question in front of the board is whether we no longer exempt quality.

[00:27:13] I think that the board is going to want to see this with both options as we move forward, and I would hope that the questions we've heard here we can get some more specific answers about, perhaps in a memo. And related to that, you know, I'm often thinking about our One Fairfax policy, as you know, And small builders are at a different place than some of our larger builders who can hire consultants who might build all of this stuff into their plan.

[00:27:46] And the one thing that's giving me pause isn't necessarily what is being proposed if we were to not grant that exemption any further. What I'm concerned about is does it take a whole lot of extra time for somebody trying to get through the process to just build a handful of homes a year that already has a tough time getting through our process because they can't hire a million consultants to help them get their plan approved.

[00:28:15] And so I want to drill down a little bit more on, I know we're saying this doesn't cost county anything extra, but I'd like a description of what one who would either pay the $2,000, it wouldn't have any impact on them because they wouldn't have to modify their plan or do anything, they'd just cut a check.

[00:28:35] But for the people, if we really want people to do the work as opposed to pay the credit, if this requires them a whole other extra step and a whole lot more time to get their plan approved, then we're shooting ourselves in the front. Because, you know, I've talked to some of the small builders.

[00:28:51] They'll pay the fee because they don't want to deal with the engineering and the extra complexity of their plan and the time it takes to get that plan approved and all the steps that they have to go through. So what is unclear to me is how there can be no extra cost really or time for the county to review these and how that translates to the applicant.

[00:29:13] And I would like to get some written description of that and what comes back to us so that we can measure that moving forward. Because my fear is if we do the right thing, we require this. And then a couple months later, the small home builders start complaining to me that they're trapped because they can't get a permit because they put water quality in their plan.

[00:29:31] and now they're going through another process and they have to do another sheet and all of a sudden we're going to be pushing everybody into the 2,000 category. So I want some guarantee that through the process this really doesn't affect the timeliness of plan approval.

[00:29:49] And so on slide 10 where it addresses that staff is going to begin outreach early next year, I think there's a lot of issues that were raised. Matt, did you want to? No, I was jumping back from the clicker as I was not the only one advancing the slides. Okay. But Supervisor Gross and then Palachuk.

[00:30:08] I'm not sure I heard Supervisor Herity correctly, and I want to make sure that this is clarified. I thought I heard you say that swimming pools can be considered as stormwater ponds to bring stormwater into pools.

[00:30:24] And I don't know of a single constituent who has a pool who would want that. So I want to make sure that I clarify, because what I heard was something that I thought, no, no, no, no, no. So if they have a pond, yes, it might be, but a swimming pool is something different.

[00:30:40] No, I did not. We treat the actual pool surface as impervious when it is not an impervious surface. It actually collects rainwater. I didn't say it was used as a stormwater collection device. It is for the limited area of the pool. It's a stormwater collection device, but outside of it, certainly don't want to drain it.

[00:30:57] So it's the stormwater that is coming down, not that it's flowing over land. Correct, yes. Thank you. I appreciate the clarification. I thought, no, no, no, no, no. As a pool guy, that would be really bad. Exactly. I think we've had a court case on that. Thank you. Okay, Supervisor Palachuk, and then I'm hoping to get us to the next agenda item.

[00:31:15] Okay, thank you. No, I mean, clearly, I think I and many of us support what we're trying to do with this. Clearly, it's very complex. There was one other thing that I heard. I think it might have been Supervisor Herity again that I just want to clarify. Maybe when we bring back information, if we're talking 2,500 square feet or more, um any impact that may have on affordable housing i heard that said and so rather than that going out there um there's not a lot of affordable housing at that level um and so if there's any data we have on that in addition to the other information you're bringing us i would find that

[00:31:54] very helpful thank you for your time thank you thank you i did not have my mic on um all right All right, we're going to get ready for our next presentation that's related to the board matter that the Chairman and Supervisor Stork and I did asking staff to look at guidelines for data centers.

[00:32:31] Carmen, am I going to have you kick it off?

[00:33:18] Yes. Good morning. I'm Carmen Bishop in the Zoning Administration Division, and I'm joined by Katie Herman in the Planning Division. We'll be providing the presentation for you this morning, but we are joined by Tracy Strunk, Director of the Department of Planning and Development, Leslie Johnson, Zoning Administrator, as well as three members of our interagency staff team, William Marsh with Land Development Services, William Barrick with Wastewater Planning in the Department of Public Works

[00:33:53] and Environmental Services, and Matt Myers with the Office of Environmental and Energy Coordination. So we are here to provide a status update on the Guidelines for Data Centers project, And that's the title of the board matter that was approved on May 9th, and it directed staff to research the environmental issues and mitigations for data centers to develop locational guidelines to review how data centers should be approved and to consider if guidelines should be in the comprehensive plan and or the zoning ordinance.

[00:34:31] Good morning. Here is a summary of our project schedule. Again, this project is intended to provide preliminary analysis and recommendations to the Board of Supervisors, and then maybe in the new year, we envision the Board potentially directing staff to prepare proposed amendments to the comprehensive plan and or the zoning ordinance, and those amendments would go through their own process, including public hearings before the Planning Commission and the Board.

[00:35:07] During our research phase, we met with many stakeholders, some of which include Fairfax Water, Dominion Energy, Data Center Industry, the Occoquan Watershed Monitoring Lab, the county's

Environmental Quality Advisory Council, and many representatives of other environmental stakeholder groups.

[00:35:31] I'd be remiss if I didn't mention that we also have significant help from our county partner agencies that Carmen introduced some of our members but we also have additional folks within these three departments as well as the Northern Virginia soil and water conservation district who have been wonderful partners and a huge help for us and lastly we wanted to make sure that we acknowledge the importance of this project and this type of use as it has connections to the county strategic plan specifically related to some of the

[00:36:06] strategies and the economic opportunity and environment and energy outcome areas of that plan so when we say that something is in the cloud of course we mean it's actually in a data center a data center is a purpose-built facility to house computer servers and their network connections for the purpose of our project we're not focusing on a small server room or an it closet but where all or most of the building is designed for this purpose now a data center they are designed with

[00:36:41] the optimal cooling and other systems to support the servers they have a secure environment because of course we want to keep our data safe and they are built for that 99.999 percent reliability because when you tap your visa card your doctor wants to access your health records or you just want to stream netflix you want it to work now of course there has been growth in data centers over the past number of years, and that growth is expected to continue, spurred by more and more people online, all of the business apps, finance, entertainment, health care, education, all of the aspects of our digital lives.

[00:37:20] And then, of course, new things coming with features such as artificial intelligence and autonomous vehicles. If we want to see what data centers look like, we don't have to go far, of course.

[00:37:36] Loudoun County is the leading place in the country for data centers, and I think it's probably even up there in the world. They have over 100 data center projects with over 24 or 25 million square feet of data center space.

[00:37:54] Prince William also has some data centers, and Fairfax, we have our share as well. Now, I'm trying not to get too hung up on the numbers because there are lots of ways to count data centers. When I say that there are 12 or more in Fairfax, that's counting parcels, not individual buildings.

[00:38:13] So we have about 12 parcels that have existing data centers. And there are a few more that we're still looking into that may have smaller data centers as well. These existing data centers, they range in age, and they range in size from about 30,000 square feet to 500,000 square feet.

[00:38:32] Now, we also have about five data center projects that are in progress. And what I mean by that is they are somewhere in the pipeline. If they needed entitlement approval, they've already received it. And they all have a site plan and building permit approval for at least a first phase or one building.

[00:38:52] And these range in size from about 240,000 square feet to over 2 million square feet. And I'll just add that of those five, some are under construction, some are not. And then there's one additional data center that is the subject of a pending rezoning and special exception application.

[00:39:11] Carmen mentioned earlier, there is an increasing demand for data centers based on the increased use and need. And as with many other industries, the business model for data centers has evolved over the years. On one hand, a majority of the data center space in our area is being used by larger

companies like Amazon and Google, who are cloud vendors. They typically own and operate their own facilities for their own purposes or sometimes agree to co-locate with other companies. On the

[00:39:47] other hand, enterprise and edge data center users lease out the space and typically provide network capacity and power as well as the cooling equipment that keeps server temperatures down. There are also a variety of users and facility operators in the data center market right now.

[00:40:07] Another data center trend is a growing focus on sustainability. This industry has recognized that it's in their financial interest to increase energy efficiency and environmental friendliness. As computing capacity continues to increase to keep up with the demand of emerging technologies like AI, machine learning, big data, and the Internet of Things, sustainability of data centers has grown in significant importance.

[00:40:43] Based on that summary that we've provided, we wanted to quickly touch on a few existing guidelines within the comprehensive plan. We have an Appendix 12 in the land use element of the policy plan that includes performance criteria that are currently used to review special exceptions for data centers in industrial planned parcels.

[00:41:07] These criteria ensure that proposals are compatible with surrounding uses and take into consideration five items listed here. The zoning ordinance also defines a data center.

[00:41:26] It's in the industrial use classification. Data centers are currently allowed, they're allowed by right in the C3 and C4. Those are medium and high intensity office districts, but they're only up to 40,000 square feet of gross floor area is by right.

[00:41:42] In the I-2 and I-3 industrial districts, they're also allowed by Wright, but again, only up to 80,000 square feet in those districts. In all four of those districts, a larger size is allowed if they are repurposing an existing building or with a special exception approval.

[00:42:00] Data centers are also allowed in the I-4, I-5, and I-6 industrial districts, and also in certain of the planned or P districts, they're allowed, but there, of course, they to be shown on an approved development plan the zoning ordinance also requires all cooling and other equipment including generators to be enclosed and that standard applies in all of the zoning districts where they're allowed except not in the i4 i5 and i6 districts so moving on to the next part of our presentation as we started this project we formed six topic areas of research

[00:42:40] and this is related to the language in the board matter we have not focused on transportation or schools because data centers do not have large impacts on those facilities so the next six slides we're going to offer some high level takeaways on each of these topics and then that in turn will be used to inform our considerations for guidelines and standards which will be the last part of the presentation so starting off first with energy demand through our interviews with various stakeholders, we found that data centers require a significant amount of power,

[00:43:17] which is the result of two major items. One, the need to keep the servers and related IT equipment cool. And the second is to actually run the servers themselves. Some data centers have cooling systems that use more energy than the servers themselves. So our team asked stakeholders about these types of systems available and discussed the pros and cons of both. There are two prevalent cooling systems that are used in Northern Virginia, air-cooled and water-evaporative systems, both of which provide critical functionality to keep the equipment and servers inside the

[00:43:54] data centers cool. And just like any other HVAC system that you may see in a residential property, whether it be a boiler running off of natural gas or an electric heat pump, there are pros and cons to both systems. And we've heard from the data center industry that they are looking to innovate and evaluate systems used elsewhere in the country, those of which may come to Fairfax in the future. We've also been learning how the industry is looking into different types of cooling technology, such as different types of liquid cooling, geothermal, and renewable energy

[00:44:32] sources. However, it's an important thing to note that cooling systems selected for data centers are very much dependent on the design of the data center's clients and the proposed functionality. With a wide array of systems available, any impacts are also dependent on the system that's selected as part of the project's design. Fairfax is served by Dominion Energy and Novak, and we know these utilities are working to add green energy into their business models, especially related to the Virginia Clean Economy Act requirements.

[00:45:10] This act was passed in 2020 and asked Dominion Energy Virginia and the Appalachian Electric Power to produce 100% renewable energy by 2045 and 2050, respectively. However, expanding power users like data centers may make it more challenging for these utilities to meet this goal.

[00:45:33] Additionally, some of the large power, some of the large data center developers have net zero energy goals and that they are working to achieve them, which will also help reduce emissions. Moving on to water demand, as I mentioned previously, the water usage is also dependent on the type of cooling system selected for these facilities.

[00:46:00] Each facility's cooling system is designed within the unique characteristics in mind, which can include the structure design itself, the IT server needs, and other technological considerations. Some data centers do not use water cooling systems, and air cooling is used, which greatly reduces the need for water uses.

[00:46:22] Staff has coordinated with Fairfax Water and asked them about who the large water users are in the county, And the top 10 water users in Fairfax County are government facilities, hospitals, universities, larger apartment complexes, and one light industrial manufacturing business.

[00:46:46] So generally speaking, we found that on a square foot basis, data centers use more water than in office use, but less than retail or hotel uses. Again, I'll mention that there's been a real growth in water reduction innovations, such as using rainwater to help cool the facility, or water reuse systems, as well as water recycle programs in which they're continuing to use and explore for future designs.

[00:47:20] Moving on to water quality, we were researching the potential impacts of data centers on water quality. One potential area of concern includes the increase of sodium and bromide-based chemicals or salts that may be released ultimately to the Occoquan Reservoir from discharges into sanitary sewer systems from those data centers that may use evaporative cooling systems.

[00:47:49] One thing to note is currently the Upper Occoquan Service Authority, or UOSA, nor the Fairfax Waters Treatment Plant, are designed to remove these chemicals. Monitoring and research and pretreatment may be needed and could be explored.

[00:48:05] With regard to stormwater runoff, data centers are regulated like other uses or other similar uses and are required to provide on-site systems to reduce the volume and runoff to address that runoff. Data centers also have backup emergency generators, often large numbers of them, which require on-site

storage of diesel fuel, about 5,000 gallons per generator. However, this is regulated by the state's Department of Environmental Quality in order to help prevent

[00:48:40] leaks and spills, and site design considerations related to containment needs may be an option. Staff has also been researching air quality impacts. These are related to the use of the emergency generators. The generators are subject to air permits issued by the Virginia Department of Environmental Quality, and these permits do limit the amount of pollutants. In this case, primarily nitrogen oxides they also limit the number of hours that a generator can be run

[00:49:15] and the time of day that they can be run during ozone season so i do want to emphasize that the generators are only for emergency use they do need testing and maintenance however typically it ranges somewhere between five and 15 minutes of run time each month per generator and diesel generators they really are the industry standard right now of course you know they're looking you

[00:49:42] know to other options in the future but currently they are the industry standard all right for noise impacts it varies considerably based on the location the site design as well as the type of equipment that's used data centers they do have extensive cooling systems and they also have large numbers of generators. As an example, a large hospital might have three to five backup generators where a data center, one that we have in Fairfax, for instance, that's about 400,000 square feet,

[00:50:20] it has 20 generators. So it could, you know, there can be a lot. And these are the things that generate the potential for noise impacts. However, the good news is that there are a lot of things that can be done to mitigate those impacts. Again, type of equipment matters. So choosing the right equipment, upgrading equipment, equipment modifications like silencers or baffling, enclosures, as well as site design can be used to mitigate the noise impacts. We have also heard concerns about the constant low frequency hum of the cooling systems. So at this point, I would

[00:50:58] like to play a couple of videos for you. And the first one is of an air-cooled system at a data center and then the second one is going to be of a generator being tested and both of these are at stack infrastructure and manassas so let's see if this works but it's only nine seconds yeah

[00:51:26] here's the generator on to aesthetics regarding aesthetics the data centers they are industrial

[00:52:05] buildings they can take on the appearance of a large warehouse or another industrial building the difference between a warehouse and a data center can be that some data centers are tall the maximum height that's allowed in the i-5 and i-6 zoning districts is 75 feet and of course a taller height can be requested with special exception approval some jurisdictions are enacting standards to improve the aesthetics of data centers standards such as requiring screening of equipment facade differentiation a defined entrance feature and so forth on this slide

[00:52:40] you have on the left two images of data centers that were approved through a rezoning process. On the top right, you have an existing, well, under construction data center approved by Wright. And then on the bottom right, you have a data center in Ashburn that shows a defined entrance feature. So with all that being said, we thought we'd close our presentation out with

[00:53:12] Just a couple more slides that would present some considerations based on all of what we've heard and our research. All right, so potential approaches with the zoning ordinance for permissions.

[00:53:31] One approach that could be considered would be to consider establishing a maximum size, for instance, maybe 250,000 square feet that would be allowed by right in the I-4 through I-6 zoning districts. And then a larger size could be allowed with special exception approval.

[00:53:49] This would create a parallel structure to what we have in the C3, C4, and the I2 and I3 districts, where you can have a certain size and then a larger size with the SE approval. Now, I do want to say that by right doesn't have to mean carte blanche.

[00:54:05] It can be by right subject to meeting certain standards. And so I'll be touching on a few suggested options for standards in just a moment. Now, of course, another option could be to require special exception approval for all data centers, regardless of size.

[00:54:25] Other locational considerations could include setbacks, screening, additional screening requirements, and other performance criteria when a data center is located near residential. For noise standards, it could be considered to expand that equipment enclosure requirement to include the I-4 through I-6 zoning districts.

[00:54:46] Noise modeling could be required for all data centers, and this could include consideration of pre- and post-construction modeling, as well as providing that frequency octave band information.

[00:55:04] And then lastly, consideration could be given to establishing standards for emergency generator usage and testing. For water quality standards, monitoring could be required prior to discharge to the wastewater system.

[00:55:22] And then if the monitoring indicates a need for pretreatment, then that could be required to be provided on site. In the UOSA service area, and that then flows into the Occoquan Reservoir, a requirement could be for using non-chemical or non-water-based cooling, or if not, then to provide that on-site pretreatment.

[00:55:47] And then added safety features for diesel handling and spill containment could be considered as well. For aesthetics, standards could be added for facade differentiation, defined entrance features, screening, et cetera, and different means could be required for conducting a viewshed analysis from nearby residential if a project is going through an RZ or SE project.

[00:56:13] Thanks. And for the comprehensive plan, I think that would build off of not only the current guidelines that we have in Appendix 12 of the land use element, but also piggyback off of what may or may not come forward with the zoning ordinance.

[00:56:32] So there could be some really nice complements in regards to noise study guidelines and further requests for additional information regarding noise analysis as well as design submissions for the diesel tank storage for those emergency generators as well as sewer capacity needs.

[00:56:53] We could also have some guidelines regarding LEED certification for data centers at a silver level or greater. a salt management plan for exterior spaces, maximizing tree preservation and tree planting to the greatest extent possible, and, where applicable, establishing conservation easements or dedications to the Fairfax County Park Authority.

[00:57:23] And I believe that concludes our PowerPoint presentation. So we are open for questions or comments. Thank you. I appreciate the presentation. I have a couple of questions, and I'm going to turn to the chairman. My first question is process.

[00:57:40] I know we're having this presentation, and you're not done with your work. A lot of times, by the time we have a presentation here, there's already a white paper. So could you just kind of tell us your timeline and what work you still have to do with this? Sure. So we're having this conversation, you know, with the Land Use Policy Committee this morning.

[00:58:02] Later in October, I guess it's next Thursday, we're meeting. with the PC's Land Use Process Review Committee. And then in November, we're going to be working on the report and pulling that together with a final submission by the end of calendar year in December.

[00:58:23] Thank you. And then there will be the process, and I know you referenced this in your discussion, that once we get that report, then if the board chooses that we want to do anything with the Comprehensive Plan or the Zoning Ordinance, that will go through our typical process that includes reaching out to the community, planning commission with public hearings, board with public hearings. And so it will be a very public process to do that. I know, Carmen, you touched on by right, but I think there's a lot of confusion in the community that when something says by right, you can do what you want, no matter

[00:58:59] where um and so just talk about the process if somebody's by right a little bit what happens with that sure absolutely um so the zoning ordinance has uh use specific standards uh and so those can be added so we already have a section in the zoning ordinance uh for data center and it includes for instance the requirement um for the equipment enclosure and so and sometimes i'll say the zoning ordinance allows if you don't meet a certain standard you can pursue

[00:59:34] say a special exception but not always it can just be here's the permission and here's the standards and you have to meet them and that's that um sometimes there so sometimes there's a way out and sometimes there's no way out uh but absolutely um you know this report and then if the board so chooses um to have us pursue zoning ordinance amendment that's where we would really be looking at what standards would staff recommend to be added to the zoning ordinance.

[01:00:03] I appreciate that. And then my last comment on slide 17 in the noise section, I'm sorry, in the screening, permissions and location, it says consider setback screening of performance criteria when near residential. I think I'm going to want to see if we should do any of that in other areas where it's not just residential, just for us to know.

[01:00:25] should there be more setbacks in industrial, because sometimes we do change some of our zoning. So I would be interested in that. I'm going to turn to the chairman now. Thank you very much. Excellent presentation. I know we're on such a short timeline, so I appreciate this getting to us as quickly as we had asked for it. I guess I have a couple questions and I just want clarifications on. First, as a part of our research, did we look at what other jurisdictions are or what is considered a national best practice in terms of regulations, even in Virginia?

[01:01:05] Absolutely. We have a report that's being finalized by Clarion Associates, and they've done a lot of jurisdictional research for us, and then staff has also been doing some digging as well. And that's been very helpful to see what other jurisdictions are doing.

[01:01:22] And those, what they're doing largely framed some of the questions here or potential standards that we could have. In other words, if we adopted, hypothetically, everything in here, would that be

considered in alignment with best practice, or is it all over the place in terms of what works in some places and may not work in others?

[01:01:47] I think that's a great question. Some of it, certainly, like the aesthetic standards, some jurisdictions have things that I imagine are more complicated than we might even need to go to. But data centers are, in terms of zoning regulations, are a bit of an evolving topic.

[01:02:10] And they themselves, as we've learned, are really evolving as well. And so what maybe made sense a few years ago might not make sense today. So, we're doing that jurisdictional research, and it will inform our decisions, but I don't think that there's just a single template that is out there that would make sense that we could just say, just adopt what, you know, a certain jurisdiction has.

[01:02:37] Okay, and I'm presuming in these standards or recommendations that are in here that all of those, we have the ability in Virginia under Dillon rule, we have the option to implement everything that's in here. There's nothing in here that would require any legislation at the state level then at this point. We're not aware of the need for any legislation. Okay. And then a couple granular questions. The generator, the videos that you had there, I'm having a hard time

[01:03:11] understanding and and maybe it's variable um but are those is that the noise one hears 24 7 is that a peak noise i mean what how because that constant hum um you know it's like people who live right next to airports uh sometimes forget they're there even though there's constant noise all the time because they just get used to it but is that what we're dealing with here this is something that runs all day every day or not really so the first video of the the cooling system yes that runs all

[01:03:43] the time now i'm going to maybe um elaborate on that first one so the first one i took that video i was standing on the roof and i i took the little video with my iphone um when i was in the parking lot honestly i couldn't hear it at all they are up on the roof so um you know it although it seemed loud in the video honestly it wasn't loud when i was standing on the ground i couldn't hear it um and i think that you know with if you were off the property i don't think that you would have

[01:04:19] heard that particular one now certainly there are other data centers where you know it's been reported that they are heard off-site um so i think it just really depends on the equipment and the design um the generators though they are not run all the time there's no reason why a data center would want to run their generators more than they absolutely have to. But they do need testing, as I said, and, you know, it varies, but somewhere between five and 15 minutes a month for each one, they need to be run. And they're, you know, a little bit louder, but they are enclosed

[01:04:56] and they can have, you know, enhanced enclosures even, you know, to dampen that sound. And so, is part of your required noise modeling for all data centers by right and RZSE and consider lower decibels, is part of that looking at that distance piece of it? Because it's one thing if you're right next to it, as you said, it's another if you're a long distance. Are we looking at, and this is sensitive because I've dealt with industrial properties that do have very loud noise, and we know all the challenges with our noise ordinance and how to enforce it,

[01:05:29] And so I'm just wondering if we've given any consideration to distance from where the noise is being generated to the next either property or structure or what the decibel level reading would be to be acceptable there. Certainly, distance can help when it comes to noise.

[01:05:49] The noise ordinance, as you know, establishes standards by zoning district and activities. I personally think that the modeling is really the way to go because it really varies considerably by what type of equipment they use.

[01:06:08] And I have visited some data centers myself where I was in a nearby residential area and I could hear it versus others where I couldn't hear it. So that's where the modeling could be really informative based on the specific location and equipment that's chosen, whether they need to, you know, add additional measures to mitigate the noise from the sensitive, you know, receptors, if you will, the residences and others in the vicinity.

[01:06:37] So if they made those commitments and they later changed the equipment, would we be left only with our noise ordinance as a regulator? Yes, I'm not sure that there's been a case where they've really changed the equipment out to something more noisy, but...

[01:06:58] I mean, I ask it, obviously these are all relatively new, the ones we're talking about, so maybe it wouldn't come up at this point, but I just want to make sure as we're going through the process, especially on ones that may be by right, if we were to commit them to a higher noise standard than what our noise ordinance was, would we be able to enforce that even on a by right case?

[01:07:22] Chairman McKay, Leslie Johnson, zoning administrator, I think what we are looking at perhaps is putting these standards in the zoning ordinance versus the noise ordinance, which I think would give us a better, I mean, we'd still need to do some kind of, if we put a decibel level or something specific for that use, right?

[01:07:40] And so, but we'd still need to be able to measure it, and we may have to borrow some, you know, some of that from the noise ordinance, but I think we would be able to do that or, and we have done this in other instances, require the provider to demonstrate that they're meeting the requirements.

[01:07:59] You know, our readings say you don't, show us that you do. And if you can't show us that, then you need to fix it or we'll move forward with some type of violation or what have you to mitigate that. I mean, I think that's how it would work. So on cases that aren't by right, obviously we could get commitments.

[01:08:17] The board could get commitments to exceed what's in the zoning ordinance, even if we put in a new standard for this. But for by right ones, they would be guided by what's in the zoning ordinance and or what's in the noise ordinance. Right, and we do enforcement based on those use standards today.

[01:08:34] Okay, and then my last question for now, I mean, I have a number of other ones later, but in terms of the utilities, Fairfax Water, we mentioned earlier they don't have the equipment to be able to deal with the salt issue per se. We know that Dominion Power has areas of the county that are challenged, that have had brownouts and other issues over the years.

[01:08:58] And so for a rezoning, are we currently, and if not, can we, require utility letters from those providers saying that this is not going to have the impact on their operations and or this is how it's being mitigated as a part of the process, the same way we get, you know, letters from schools on school capacity and some of the other entities that are built into the staff report.

[01:09:25] You know, that's question one, what are we doing now and can we do that? And then, do we have any authority to require the same on a by-right application? Chairman McKay, Tracy Strong,

Department Director of the Department. I can't remember. Sorry. In terms of what we're doing now, we don't, I don't know that we require a letter, but we absolutely do send for a rezoning or application.

[01:09:47] We do send those out for review for the agencies, and we do get a letter from them saying whether there is an issue or not. So it's not that we're requiring them to say they have to give us, that they have the ability to support the use that's proposed, but we do absolutely get letters that say whether they do or do not have the ability to support that use.

[01:10:08] So we're doing that now. As far as if we could require that later, I think we'll take that into account and we'll look at that question. Yeah, I'd like us to look at that, and then also whether we can require that and through what mechanism on a buy-write application. That's a requirement that can be extended to those as well.

[01:10:24] I'm not saying necessarily you could not approve one because of that, but I think for the people who live around here, they need to know, even in a buy-write application, if this is going to have an impact to those utilities, what it is. We'll look at that. Okay. Thank you. It's been an interesting process, too, since I'm going through this data center case in Sully, and these issues have come up with the community, you know, where the applicants offered to do the noise study post-construction.

[01:10:52] So I think this has been informative for staff and for the applicant doing better. Go ahead. I was going to say, I think one of the big, on the electric, and I've got other comments I'll save later, is not just whether you've got enough of it, is what infrastructure is required and what the impact of that additional infrastructure.

[01:11:14] I know that's the big concern in a lot of communities. So it's beyond just, do we have enough, but what's going to be required to get it there? Yeah, and I think that was part of it, and how do they mitigate it, which is, this is how we would provide that level of support, because I do think that's important, because obviously, they're in the business of providing power. So they're going to provide it one way or another. The question is, is through what mechanism and what does that mean? So I have Supervisor Walkinshaw. Thank you, Madam Chair. You know, just one of the earlier slides had a couple bullets on

[01:11:53] the growth, you know, reasons for the growth in data centers. And one thing that's left out that I always talk about, because I spent a decade of my life working on it, is the growth in data centers has, and large data centers, is largely because of the closure and consolidation of small data centers. So before there was a 100,000 square foot data center, and a lot of the growth in our region is related to the federal government use of data centers. Those data centers existed before.

[01:12:21] They were just in closets and in basements, including in this building, and they were much less efficient. Now, obviously, we're all using more data, but on a per terabyte basis, a large data center is much more efficient in terms of energy use than storing that data in a basement or in a closet plugged into the outlet on the wall. So I just think that's important, you know, because unless we're going to all start using less data or be comfortable with our phones working a lot slower than they do now, our choice is between large data centers located somewhere,

[01:13:00] and obviously there's localized impacts that we're discussing here, or going back to data centers stored in closets, um, that use a lot more energy and are less efficient. Um, and question just, just on the transmission line, and maybe this is a longer answer than we have time for today.

[01:13:16] The, the SCC process, um, for a new or extended transition line, um, when does that start? So in other words, somebody has an interest in building a new data center in Fairfax County, maybe the transmission line that they need doesn't exist or doesn't extend far enough. Do they start that SEC process before they come to us to seek a special exception, or does the SEC process

[01:13:50] happen after there's a land use approval, or is it case by case? Supervisor Walkinshaw, William marsh land development services uh yeah i think as i understand it it can be both an example currently a special exception that got approved last year was the renaissance data center of route 28 they have an sec process something on their docket right now to add a sort of a loop or a stent off of an existing transmission line to service that property as i understand it some of their property can be served now on the grid maybe their first building but the next three or four buildings. There has to be the new transmission line and the new data center. Okay. What we've

[01:14:28] also heard from Dominion is that sometimes they have general reliability needs to expand transmission. Sometimes that coincides with data center developments. Sometimes it doesn't. Okay. So, so the applicant makes a decision, maybe they made a calculated risk in this case to go through the land use process first and believe that the SEC will approve what they need to have approved.

[01:14:48] That can happen. Yeah. Okay. Just on the, on the water quality issue. And for me, this is, I mean, this is the biggest one that jumps out at me, is the evaporative cooling discharge and wastewater and the potential for salinity and salt.

[01:15:04] And it sounds like the technology exists, or correct me if I'm wrong, the technology exists and there are data centers that treat on-site to eliminate the salinity and other potential chemicals from the wastewater discharge before it enters the wastewater system.

[01:15:24] That exists. Yes. Bill Barrick, Wastewater Planning and Monitoring Division. Yes, that does exist. There's also the technology that doesn't involve water cooling, such as air cooling or closed-loop glycol that you could use as well.

[01:15:39] Gotcha. But in the case of water cooling, there are data centers in northern Virginia that treat the wastewater on-site, so no salt, bromide, et cetera, enters the wastewater system. Does that happen now? I don't have that example in front of me right now, but I have heard of those instances, but I don't know if that's in Northern Virginia today right now.

[01:16:01] Okay. All right. So, you know, I think we need to take a very hard look at that. Does that technology exist? How widespread is it? Can we include that kind of a requirement in either a buy-write scenario or a special exception scenario?

[01:16:18] And then on the diesel generators, and you pointed out, I think it's the case. I have neighbors who have diesel generators, and I hear it every month when they run it to make sure that it's functioning, I guess, and the diesel, you have to run the diesel so it doesn't go stale once a month, roughly.

[01:16:35] But presumably, we could also place some parameters around when and how that can occur, right? So that has to happen in the middle of the day and not early in the morning and not late at night, and it can only occur, are there different types of diesel generator technology where maybe it can occur less often or the length of time is shorter?

[01:16:57] So the noise ordinance actually allows for testing of the generators between 7 a.m. and 9 p.m. currently. But then during ozone season, which is roughly summer, DEQ further limits it.

[01:17:16] And so to like, and I forget the exact hours. I don't know if anybody else remembers it. But like during the middle part of the day, they can't be tested. So they've only got a little bit of a window during some of the months when they can test. And I think they do need to each be tested each month.

[01:17:34] That's what we've been told, but only for a few minutes, each one. Supervisor Walkinshaw, I would also note that the noise ordinance does exempt in an emergency situation from the noise ordinance. So there's no. Thank you.

[01:17:51] Thank you. Supervisor Lust, then Harrity, then Greg. Thank you, Madam Chairman. I'll start by saying I appreciate the comments that were just made by Supervisor Rockenshaw, acknowledging, as you said in your presentation, there's so many drivers for data, autonomous vehicles, more sensors, more cameras, all these things, you need more data.

[01:18:13] So let me ask on the energy demand side, you mentioned the use of renewables and figuring out how we can incorporate those more. Can you maybe talk a little bit about what are some of the maybe best practices or if we want to include this in the response from the chairman?

[01:18:34] Because I think it might be helpful for us to acknowledge. I mean, I haven't been in a data center about four years, but the last time I went, when they talk about it, it's almost like you have kind of a series of options in case the power goes out.

[01:18:53] So the first is you have the UPS battery backup system inside the building that allows the system to run, and I think I've heard, 24 to 48 hours. I don't know if that's still the case, but this is from years ago. And then second, what happens is when that battery system goes down, you then are going out and going to the diesel generator, which will then give power for three maybe or more days.

[01:19:20] But the question is if you don't need to go out from the UPS battery system, then you don't ever have to get to the diesel lift-up. So I don't know if there's places in the country where they are not maybe deferring to the diesel backup, and they have other ways to address that for the interior of the facility.

[01:19:44] So for emerging technologies related to energy demand, which I think was like the core part of your question, I think there's been a lot of new technology that's gone into this, And it could be a suite of options that create a package of better energy utilization.

[01:20:11] So, you know, anything from just the facility and site design components, the LEED certification on the structure and the parcel, as well as renewable energy credits that could be purchased by either that particular data center user or operator, as well as, you know, water reduction uses within the structure.

[01:20:40] structure, again, depending on if it's going to be evaporative cooling or, you know, air cooling systems. And then there's always conversations about solar and using solar as an option for interior types of lighting and that sort of thing to offset as much as possible. So yes, we are looking into those things. And there's a lot of really interesting examples out there that we've been reading about. Okay, because even the solar to me could help keep the UPS system up as for even a longer period of time possibly. The second part of the question I wanted to ask is

[01:21:18] I've seen also in some of the buildings where they'll have the computers and the servers the place where the cooling and cooling systems are going specifically to. So they've got like an enclosure around that technology as opposed to the entire room. So like in this space, instead of cooling all of the space in this room, you would just cool the portion that the servers and the racks are contained in. So the question is, is that something that we could, you know,

[01:21:50] recommend? Is this something that is being done in other places? Yeah, I do think that that technology is being used in other facilities, and it's something we could continue to look into it may be more appropriate for the comprehensive plan and we would encourage that and even as such okay and then the last point is on aesthetics I appreciate the renderings and I'll make the point the board we had a self storage facility at the last board meeting which looked like an office building and for me personally I think if we can mimic that with these

[01:22:28] facilities as well articulation building treatments and facades making it look more like an office building because I'll be frank when you drive to some places that have these it's like just a sea of concrete and really no visual interest whatsoever so obviously there might be some ways that we can maybe put in some thoughts around how to regulate that as well with that Madam Chairman thank you. Thank you Supervisor Herity then Griff. Yeah I'll try to keep mine

[01:23:02] And a brief, you know, data centers are kind of going to be like the environmental issue of our future when you look at the requirements of power, the requirements of water, the impact on air quality, and we all contribute every time we take a picture or a video.

[01:23:20] We're soon to drive crazy cars, but, you know, while they're a great source of revenue for the county, I think they really do need to be properly situated, and that's what we're here to talk about. I appreciated your thoughts and discussion on 10.

[01:23:40] I think, you know, the demands and the counterbalance with VICA, Virginia, what is it, anyway. And that's limiting our ability to provide power. While that's not really a discussion for here, it's one I think we need to have in our legislative session.

[01:23:58] You asked about why would they run diesels when they didn't have to. well, we don't have enough power in Virginia if that's when they have to, which is what they were looking at doing this summer and have backed off of that. But I think that is an important state question that we need to look at.

[01:24:14] And I know there are a lot of studies being undertaken in the state. I met with Novak's new president. It was interesting. It was probably a couple of months ago. And I knew the power requirements were pretty crazy. But he said right now 20% of their power comes from less than 5% of their customers, which are data centers. I think it was in 10 years, 95% of their revenues, which means their power generation, is going to come from less than 5% of their customers, and that is data centers.

[01:24:46] But going from 20% to 95% was a pretty stark realization for me on just the power. And again, those aren't all going to be in Fairfax County, but a lot of what we need to do and pay attention to power, so we don't end up in brownout situations and impacting all of our residents.

[01:25:08] But again, that's probably bigger than what we're going to do in this zoning ordinance. A couple of comments on the zoning ordinance you had on slide 17, consider maximum size by right in I-4 and I-6 with SE for larger size or SE for all districts regardless of size.

[01:25:28] You clearly want to exclude RC from that, I would assume. If not, you should. I don't think these belong in RC. They already are excluded from RC. But you said SE for all districts regardless of size.

[01:25:47] That was just intended to refer to the districts where it is permitted. Okay, got it. All right, I just want to make sure. When you said consider setback screening and performance criteria near residential, the biggest concern I've heard is really looming.

[01:26:05] I mean, I think we need to add height to that and the height ratio with residential and the distance from residential. We went through the whole looming thing with, what do you call it, where they pop the tops off the house and build them taller.

[01:26:21] What's the right word for that? I'm drawing a blank. Pop-ups? Well, McMansions, pop-ups, anyway. But I think looming is one that we ought to add to that. I think you've covered water quality good.

[01:26:42] And then electrical, I think I already made my comment on electrical. Really, it's the infrastructure requirements that are in addition to the actual impacts of the data center itself. You've got some electrical infrastructure impacts as well.

[01:27:00] So I have Supervisor Gross, Stork, and then Walkinshaw. Thank you, Madam Chairman. Thank you to staff for some good recommendations. I like the flexibility of some of these proposals. I think we need to be careful about where we put these. Comprehensive plan is a guide. Zoning ordinance is law. So let's make sure we don't get those mixed up because I think our constituents do confuse them sometimes. Looking at, you know, this is this generation and next generation of business. Businesses need redundancy offsite.

[01:27:36] Yes, the tech closet and the stuff in the basement may still be there, but you've got to have redundancy. Every business, every financial institution has to have redundancy. It needs to be off-site. Sometimes it's dual locations. They need to be able to do their failovers really fast, and that's what these data centers will allow. The proximity to residential, I'm wondering about how close to residential. I have heard people say, I don't want to see it. Well, that's not something that we can put into our zoning ordinance or our comprehensive plan that

[01:28:15] nobody should be able to see it. Let's get real, folks. We will need more, not fewer, data centers in the future. This is the wave of the future. I had to chuckle a little bit about Carmen taking a video with her camera, with her iPhone, at a data center. You couldn't have done that without that data center. So I think people don't recognize sometimes just exactly what the system's technology is for things like this. They want to use their devices, but they don't

[01:28:49] want to see where all of that data resides in a safe place. I agree with you, Supervisor Lusk. The architecture needs to be addressed. There's a photo here of the QTS in Ashburn, and I'm looking at that and I'm thinking, you know, there's a cube storage unit along I-395 in Arlington that looks almost exactly the same. Who knew? You know? So let's get to the things that really, really, really matter. So let's not do brutalist architecture, but let's be,

[01:29:23] you know, something that is maybe softens the hard edges. You can do that with a lot of landscaping and so forth. Generator test noise. We have a generator at the Mason District Station. They test it every month. It's loud for about 15 minutes, and then you go along your way. And once you get in the building, you really can't hear it. So I think a lot of things here are mole hills that are becoming mountains, and I really think that we need to keep in mind that they're

[01:29:59] they're not mountains. These things should be addressed. Everybody is looking for additional devices, additional opportunities to use their devices, additional broadening of whatever is available, and we need to get on board with that. It's a current and future industry for Fairfax County, and we shouldn't just be saying, oh, go somewhere else. It needs to be right here. Thank you. Thank you. Supervisor Stork, then Walkinshaw, then Pelt. Thank you, Madam Chair. And as a

[01:30:35] business owner who's been part of this transition, the core issues that have transitioned my business are, frankly, the reliability has changed from where you had that closet because it was far more reliable than the internet or any other connection. And then the other thing that's now driving that is cost. And the final piece is that big brother, if you will, of the big software companies um they want you whether it's quickbooks or you name it they want you online because they can charge you so much per month which means your costs are going to be up no matter what so i'm just from a small business perspective those are the things that's changing

[01:31:14] and most small businesses don't have a whole lot of control over that two things i wanted to ask about. One is the ability for this board to require some sort of solar collection or geothermal use, et cetera. What are our options? And if that's a broader issue that only needs to be discussed in closed session, I understand. But is there something that limits the board now from explicitly requiring certain types of additional environmental energy, you know, minimization?

[01:31:51] And it's okay to get back to us on some of this stuff. That's what I was going to say. I think that's something we'll have to look into. Okay. I'm on the VACO Energy and Environmental Committee, and this has been obviously a big source of discussion.

[01:32:11] One of the most involved persons is from loud supervisors, and the point is that we can't solar collect our way out of this. we can't, if you will. There's not a key way because of the point that I think Supervisor Herity was making earlier about where we see this going in terms of energy use. But we're going to have to do something to try to find a way to reduce that. And for Fairfax County, we made a commitment. By 2030, we would reduce our energy use by half of, I see by 2040, we reduce it by half. So in essence, by 2030, we'd reduce it by a quarter. So every data center we add clearly

[01:32:51] makes that challenge a lot harder for the government, for the county itself, but obviously for our CCAP process and the community overall, that further adds to that challenge. So the power part of this is real and significant, and I think we have to keep looking. I'm not suggesting that we don't do it because there's power requirements, but I know we have to keep it as part of our discussion and focus. And last, is there a map of existing locations of data centers of various types, and is that available? And I don't know how widely available, but it is something that

[01:33:28] I've been asked about. I don't recall if there is something out there or not. We have been working with our GIS team to have some maps developed, and we'll certainly include those in our report. Thank you. Supervisor Walkinshaw, then Palachuk.

[01:33:44] Thanks. Just a quick point. Supervisor Herity mentioned height and looming. And I think it's important as we go through this that for issues that are not data center specific or unique to data centers, and clearly there are some, right? The water discharge, diesel generators, energy use, transmission lines. I don't think we should be creating different standards for data centers for issues that are not data center specific.

[01:34:14] So height and looming is an issue anytime you have an industrial or commercial building that's next to a neighborhood. I represent some. There's no reason that a data center, I don't believe, should be held to a different standard than another commercial or industrial building that's close to a residential community with respect to height.

[01:34:35] Other issues here, absolutely and certainly, But if it's not an issue that is a unique issue or concern with data centers, I don't think we should have, I don't think it would be fair to have a different standard.

[01:34:51] Otherwise, it would be hard for me to explain to folks that I represent who live next to commercial warehouses that loom over their neighborhoods why we are going to require data centers to be lower than a commercial warehouse. So I wouldn't be comfortable with that. A lot of the other stuff in here I think is great.

[01:35:07] Thanks. Thank you. Supervisor Pope. Thank you. Madam Chair, thank you to all the staff here who've worked on this. I guess I'm sitting here and agree with a lot of what's being said. Clearly, this is a constant change, right? Constantly changing technology impacts everywhere from environmental impact to our communities, whether it's noise, power, electricity.

[01:35:30] So I think, number one, I fully agree that we need to be very cautious and understand where technology is now and where we can mitigate and understand that impact. The number one thing that I think that stands out to me is we don't have all the answers today.

[01:35:50] So I would ask, request that as we did a little bit with Zmod, I think this needs, in my mind, probably yearly review, if not every couple of years, because I want to know what's happening, right? Are there new technologies that really are able to get more and more away from water use to the air systems to mitigate some of what's there now? I don't know how far the technologies are, right? I know there's a lot being done to reduce water and energy use and power use, but how far are they? And how do we continue to encourage those, I guess, you know, and not have

[01:36:28] unintended consequences? So I think for me, that would be really important. Understanding the impact on land use on the economy uh environments one thing i haven't heard i'm sitting here and looking at at william's official title now um is uh it as you put together the maps what are we seeing in our more urban areas right as we think about what's appropriate where i'm not seeing this popping up but i don't know that that doesn't mean there are there aren't ways that that's going to do that how does that impact our placemaking or other urban investments and hopes for our more urban

[01:37:07] areas. I don't see these large data centers really working there. And so I know that hasn't been brought up today. I don't know if you have more information on that. This is the one thing I haven't heard today is how that impacts our more urban placemaking areas. Yeah. So I think that for our review we are focusing on the larger facilities but um as we mentioned the when we're talking about the different types that katie was going over um we hear you know edge is is like a newer term for some of the they're still data centers but as i understand it they're smaller

[01:37:45] and that they might um integrate into a more urban fabric um but i think what we need to find out is do they have the same impacts and concerns so you know i think we're concerned about the ones that you know are uh noisy and have water quality problems and so forth um so that's what we've been kind of focusing on the larger ones okay no and i appreciate that because i've been wondering if smaller

ones will be coming along i haven't seen them yet but you may have um and then the the final point and question as we look at those um and we look we're balancing right the economic

[01:38:23] impact hopefully positive economic impact and hopefully continues to remain that way but also I don't know how these industrial areas and the uses I know I've heard from several constituents about the need for industrial areas and I don't know if they're if we're seeing an impact of these data centers having any negative impact on other industrial uses that's just a question um and i do want to make sure that we do allow for diversifying our economy um but we also don't

[01:38:57] have to do it all in fairfax county so it seems to be a little bit of a regional issue um so yeah i think we need to be cautious continue to monitor it um and try to i guess stay ahead of technology on this one i is my question um i i think it's more that we've heard rumors that they're getting more efficient but would want to make sure that that's really happening and that we're encouraging that thank you and i think that's what staff is doing and i've been reading through lots of articles where they they really are focused on being more efficient so it's more than rumors um

[01:39:32] okay i want to thank staff for all their work on this i know they have more work to do and we'll look forward to getting your final report and thank you to my colleagues for all their questions i'm sorry we went over this meeting's adjourned

