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Ian Blanding: Welcome, everyone. I am Ian Blanding with the Pacific Northwest National Laboratory and I'd like to welcome you to the US DOE National Energy Codes Conference seminar series. Considering the NECC is postponed, this weekly series has been developed to share insights and spur discussion on a collection of timely and emerging energy code topics. Today's seminar will cover electronic construction permitting, best practices and implementation. Looking ahead, this series will cover other timely topics such as low-load homes, virtual remote inspections, the 2021 IECC, Advanced Technologies and more.

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We hope you will join us Thursdays at 1:00 Eastern Time and keep the conversation going.

Now, without further ado, I'd like to turn things over to things over to our moderator, Moses Riley, who is an Energy Policy Associate with NEEP, to begin.

Moses Riley: Well, hello, everyone. Thank you so much for being here today. We're really excited to be here for the second webinar in Department of Energy's 2020 Building Energy Codes seminar series. We're excited to have you to join our discussion regarding electronic construction permitting, best practices and implementation. I am Moses Riley and I work as the Energy Policy Associate for Northeast Energy Efficiency Partnerships.

NEEP is a regional nonprofit organization that works to advance the energy efficiency of homes and buildings in the Northeast and Mid-Atlantic through research, technical assistance, technology and market transformation. We cover 13 states from Maine down to West Virginia, but if you are tuning in from outside of this region –

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don't worry, you are not alone, we are one of six regional energy efficiency organizations or REEOs across the country as you can see here on this map. So if you haven't already, be sure to get in touch with your respective REEO. We have resources and guidance available and are always happy to help you and assist you to achieve your energy efficiency and carbon reduction goals.

We've got a lot to get through today and the purpose of the webinar this afternoon is to provide all of you information and guidance on implementing and transitioning to electronic permitting, plan review and virtual inspection systems in your state or community, given the many benefits and the need to work remotely due to COVID-19. I will begin by providing an overview of what these systems are before turning it over to our great guest panelists, Michael Jozwiak with the Borough of Lansdowne, Pennsylvania and Celina Patterson with the State of Oregon, who will showcase the systems they administer in their communities.

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We will follow up these presentations with some time for discussion and question and answer from the audience. As Ian mentioned, if and when you do have questions, please type them into the chat box, as we'll be monitoring that throughout the webinar. We will have time at the end of the event today, as I mentioned, to answer these questions, and if we do run out of time and your question isn't answered, we'll be sure to follow up afterwards to make sure that your answer is addressed.

Before we dive in, I want to get a sense of who we're speaking with and what your profession is. So Ian, if it's possible for you to launch the first poll, we'd love to see what your profession is. So you can pick from one of the options there and if you don't see one that closely aligns with your profession, you can type it into the chat box.

Ian Blanding: Excellent. So we'll just give it a couple – or a few more seconds here. We're at 60 percent.

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So lock in your answers. Okay, I'll go ahead and close the poll and share the results.

Moses Riley: Great, all right. So a lot of architects and engineers, a lot of code officials, but a very good mix of professions today. So, thank you so much all for joining us. We hope you find this informational. I want to launch one more poll before we dive in. Ian, if you could launch the poll about whether or not jurisdictions are already using some of these technologies.

Ian Blanding: Sure thing. There it is.

Moses Riley: So is your jurisdiction already utilizing or considering using one of these tools? We'd love to know so we can tailor our discussion later on to match your needs.

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Ian Blanding: Give it about five more seconds. So go ahead and get your vote locked in. Okay, we'll share the results here.

Moses Riley: All right. So a lot of people are using permitting and plan review already, with a slightly smaller group of people using virtual inspections. So that's great. So hopefully today, between our introduction and our panelists, we can give you some new information on how you might use these systems that are already in use and improve upon them so you can get more out of them.

All right. So as mentioned, we are gonna be exploring the opportunities and best practices with regards to implementing electronic construction permitting in your community's building or licensure department. Electronic permitting really is what it sounds like, –

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it's converting the paper permits, plan reviews and construction drawings and inspection and compliance documents and any other related documentation and data into digital form. At a high level, this of course can streamline many processes and save consumer and departmental time by making these documents and information more accessible while helping building departments continue their work as social distancing and work from home measures sustain.

But it can also expend beyond that, to help communities improve the productivity of your permitting office and the energy efficiency of your home and building stock. Electronic permitting systems can not only handle permits and plan reviews, they can also schedule inspections, collect relevant fees, track the progress of projects as they are underway and improve communication between the consumers and the administrators of the building department. They also do all of this remotely, right, meaning there's no need to appear in person to a permitting office to obtain or receive a permit, –

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pay any of the relevant fees, all of this would be done online.

Advanced electronic permitting systems, like I just mentioned, with these functionalities, can create a consolidated process or one-stop location for everything related to building permitting, plan review and inspection processes that is more accessible for consumers and more organized for the building department. And this, of course, brings many benefits.

On the consumer end, these systems lead to shorter approval times and better coordination with other entities, like the fire department, which can expedite and even increase construction in some cases. Instead of having to go into the local state municipal office, like we're used to, obtaining a paper permit, going back and filling it out, returning it with relevant documents and any drawings, and then awaiting approval either by mail or by going back in person and picking it up, sometimes there's a negotiation or a discussion about some concerns about the permit –

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again, all of this would be done online, over the phone or on the permit portal itself without the project manager having to leave their home or business.

And then on the industry side, the automated recordkeeping and fee collection system saves time and operational expenses, makes files and permit tracking much, much easier to do and is a viable remote alternative during lockdown and social distancing. And foe, this communication between departments can be really critical. So consider for a moment if a house is putting solar panels on it, that could be indicated or should be indicated automatically on the permit application and should automatically alert the fire department so that if they respond to a hazard or an event at that location they would get a notification because of this system that there's a solar system on top of this home or commercial building and they need to therefore address that before they go in and handle whatever hazard has arisen there.

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So this communication can be really important for these electronic permitting systems for health and safety.

Ian mentioned that remote inspections is gonna be covered at one of the later webinars, so I don't want to spend too much time on

this topic, but I do want to identify that there is an opportunity to tailor online electronic permitting systems to accommodate remote inspections. Remote inspections, of course, is an interactive video or photo inspection performed by somebody on the construction site such as a contractor in coordination with a code official or inspector.

In addition to the inspection being scheduled through the online permitting system, the video feed and photos, whether it be FaceTime, WhatsApp or some other hired software, can be added to the file for the respective project and be used to track progress with the construction process as it's ongoing.

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And this provides the opportunity for inspections and plan reviewers to have records of inspections that can be used for trainings or simply quality assurance of that project as it is ongoing.

The very last thing I'll say about remote inspections is that my organization, NEEP, recently launched a new project funded by the Department of Energy on prefabricated construction and virtual inspections and will be coordinating with parallel efforts by ICC and other organizations to help develop best practices and guidance for implementing these work methods in your community or state.

So next year be on the lookout for resources on these topics from NEEP and be sure to tune into the webinar on Thursday, November 5th if you're interested in learning more, to learn what ICC is doing in this regard.

All right. In the NEEP region, the Northeast and Mid-Atlantic, –.

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we have seen an uptick in electronic construction permitting, especially since the COVID-19 pandemic uprooted our normal work methods. And this screenshot on the right of your slide is from a recently published brief NEEP published on electronic permitting raising efficiency, and it shows all the communities in this region that have adopted electronic construction permitting. Though, as we know from our speakers, there are many more across the country where this is happening.

And these systems come in all shapes and sizes, right. There's not really a cookie-cutter method or version that communities can *[interference]* jurisdiction. These different systems vary from having originally developed software to purchased software. They have varying sources of funding. They scale from individual towns to entire states. And some even include roles for third party specialists.

Through our research and stakeholder engagement, to make this brief, we identified funding and –

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website maintenance as the primary barriers to making this transition, despite the many benefits that these systems can have for your building department. We found that the most common scenario for funding online permitting systems comes directly from permitting fees with a couple of communities implementing very slight increases to fund these systems.

Some municipalities that have more limited resources have pooled what they do have to create a system that accommodates several jurisdictions and even contracted with third party specialists to help them review plans and permits to take the burden off of the workforce. And again, you can click on that image on the right to view those examples in more detail and read this brief that NEEP has published.

In addition to streamlining the permitting, plan review and inspection processes, though, these systems also have the potential to be a powerful data collecting tool that can help improve the resilience, comfort and energy efficiency of your community's homes and buildings.

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Traditionally, these systems track and record construction permits, how many you have, whether they're approved and perhaps which type of building it is. But more and more municipalities that have these systems are recognizing that they can use them, given the time and resources that they already save, to track even more useful information. And one way they've done this, perhaps most impactfully, is including specific fields that would measure or indicate energy code compliance.

The energy code, of course the most common one being the

International Energy Conservation Code or IECC, constrains how much energy a home or building uses on an annual basis by prescribing insulation and window insulation values among other parameters. The energy code is often not considered a life safety code and therefore not enforced as regularly or as rigorously as other codes. However, complying with the energy code –

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can bring substantial cost and energy savings to consumers, while simultaneously improving the resilience, health and safety of the structure.

Designing systems for electronic online permitting provides the opportunity to equalize the use of the energy code and emphasize energy code compliance. For instance, the electronic permitting system can be designed to require an application or to answer some questions in order to apply for the construction permit in the first place. And having all of this data and using it with other municipal data can be really, really powerful for communities and states.

Aggregating data such as home energy ratings or ERI scores, the cost and type of construction, the compliance path utilized and the level of energy efficiency with other municipal data can help states in many ways. It can help them craft energy efficiency policies, forecast construction trends, establish asset rating –

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or disclosure initiatives for your homes and buildings, analyze ongoing energy efficiency program performance, and even prepare the industry for future changes to the energy code.

Energy code compliance data, specifically what you see there on the slide, window U factor, insulation R value, things like that can also be used to craft targeted training opportunities and educational compliance collateral for inspectors. And when you're measuring this type of data regularly, this data that's normally found in a code compliance baseline study, if you're doing this continuously you're essentially measuring compliance with your home and building stock ongoing and you can use that information to, as I said, target trainings for areas of common noncompliance or create new resources for those who work closely with energy code compliance. And all of this together leads to overall building life, safety, resilience and health.

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On the right you can see a couple of the resources NEEP has published on this. One I have mentioned already, the online electronic permitting raising efficiency brief, excuse me. You can click there to see how we talk about this in more detail. I'd also encourage you to look at our energy codes or our life safety codes, a one-pager. This outlines how energy codes not only can improve the energy efficiency of your homes and buildings but also the health and life safety of the occupants as well. So be sure to check those out if you're interested in learning more.

Overall, the benefits and opportunities afforded by online permitting systems, particularly the potential to ensure energy code compliance, support virtual and remote inspections and provide expedited permitting outweigh the cost, training and system maintenance barriers that you might be facing. And I think you'll see from our panelists today that those barriers can be overcome.

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And states and communities are doing this now to correlate the operational efficiency of their building departments with that of their home and building stock. So I'm excited to explore the examples that we have today from two very different parts of the country, Lansdowne, Pennsylvania and the state of Oregon, but before we dive in I do want to know from the audience what your major concerns for transitioning from this paper to digital system are. So Ian, if you could launch the poll that would ask people what their major concerns are, what the obstacles they're facing for implementing these systems.

Ian Blanding: Sure, that poll is now open.

Moses Riley: And again, if you don't see an option here that aligns with what you're experiencing, please type it into the chat box.

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Ian Blanding: Give it about ten more seconds. All right, I'll close the poll and share the results.

Moses Riley: All right. So it looks like a majority is technology failures and learning and training on new tech and that makes a ton of sense, right. This is different than we have been doing it for a very long time, and learning new tech, training on new tech and

incorporating new tech into your existing systems can be a challenge. So I'm really excited to get to our panelists because I think that they're going to be addressing these issues very directly.

All right. So, without further ado, I'd love to introduce our first panelist, –

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Michael Jozwiak with the Zoning and Code Enforcement Office for the city of Lansdowne, Pennsylvania. Michael, are you there?

Michael Jozwiak: Yes, I am. Thank you very much, Moses.

Moses Riley: Thank you, take it away.

Michael Jozwiak: Can you hear me?

Moses Riley: Yes, we can.

Michael Jozwiak: Okay. Well, first, I'd like to apologize here because actually we had done a study before on my computer at work and I decided to work from home today and I had two different laptops and, of course, none of them will provide me with a camera that you can see where I am here in person, but I am here, I am real and thank you very much for the opportunity to present what we have done and hopefully help you out in your decision and what you do to facilitate our current permitting and technologies in your business and where you work. So next slide, please.

So one day we're in the office, the next day we're not in the office. Big, big question, okay, we are closed, –

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Borough Hall is closed to the public. I, as director, am considered an essential personnel so I had to report to work. The secretaries, the finance department, the receptionist, they are all at home. All construction is halted. What do we do now? Do we panic? No, we don't panic. It's a question of if we do not produce and if we do not make revenue we do not support our residents, we will be out of a job.

So the big question leads to where do we go from here? Everything I had heard some issues about other people that are using virtual inspections, electronic permitting. I reached out to them. I reached

out to the ICC and said what do we do and where do we go. So our big thing was is that the need for continuation of services and community outreach –

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not just for the codes department but for the entire borough itself. And again, with the lack of public access to the building, it was more of a question about keeping people informed, keeping a continuation of services for them once construction got back into play. Again, revenue generating for the borough.

So what we had done, we actually took it a step further as to say not just permitting but any other things that we do, we do the resale inspections, we did do rental inspections, so all those processes where people were either mailing in or coming up to say that I want to pay for my rental fee, I want to pay for my license for my business, those people, again, were shut out. So it was a question we decided to work with our vendor that we had and explore the situation with them about going virtual –

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and how had they done it in the past.

It was a very countrywide corporation and vendor that we used who had some experience in dealing with virtual or ecommerce, with electronic permitting. And part of all this was also to reduce paper and again, to go electronic with paperless files. So next slide, please.

So, again, what we had and what we could adapt to meet our needs. You know, one of the things we had looked at was, again, to create a main permitting portal that would be linked off of our website. Therefore, just all we have to do is to point everybody to our website. The portal link is there. Once they log in, they actually create a profile _____ _____ _____ –

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that links them to the property address _____ _____ everything that they want to do electronically within the Borough program. And part of that also was the ability to have them apply for, submit details, specs, plans and also have the ability to take their funds and pay by credit card or e-check online.

Part of the problem that we had is that our vendor only used a particular type of payment vendor, so we had to look at _____ _____ one which was Authorize.net, there's PayPal, there's a whole bunch of other ones out there. But one of the things was that if we did not use a preferred payment vendor or conduit into their system they were gonna charge us $5,000.00.

So one of the things we looked at, because we had Authorize.net, we piggybacked off of Authorize.net to go into our vendor –

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and then it goes into that process, which relays into another vendor which directly corresponds and deposits right into our bank. So part of that was, again, automatic deposits. People may still want to mail in applications. We take all that, we turn it into electronic formats. The only thing that I am processing when I'm all done is a check that goes into finance for deposit and that's the end of the game.

So as far as paperwork goes, we have drastically cut back on the need for paperwork in the Borough of Lansdowne. Before we had a room that was dedicated for nothing but paper files, that was approximately 60 to 100,000 files. Out of that today, we basically have now put nothing back into that room, everything is electronic. So, you know, that's the good thing about that. Next slide, please.

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So for online applications and payment one of the things that we wanted to know is that when people had applied for it, when payments were made, so we linked that into our vendor who says we have the ability to e-mail you when people apply and when people pay. So that comes across my e-mail, it's a no reply message, that there has been an application received, that there has been a payment received.

And what happens with that, we're talking about accountability and all this stuff, it goes into my task list within my own permitting software that says I have a task and I am to take action on it. So I would open it up and open up the application and then there is a dropdown list that we can use on that to say it's either – it's under review, it's issued, it's waiting additional information or the permit itself has been issued and it's been closed. So you have that ability to do such.

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And then once we change the designation of the file on the program, the system automatically sends them an e-mail whether it be their application is under review, whether it needs additional information that they can e-mail us back on or whether the permit has been issued, at which time we go through and we send them their approved permit. So in a matter of 20 minutes I can have a permit in my hand, I can review it, issue it and mail it back to them that they could never do based upon somebody walking into –. By the time they drove to the office they have their permit in hand.

So a lot of ways has increased efficiency and people just seem to – I get a lot of feedback saying it's great, they love it, wish I had done that a long time ago.

As far as e-plans go, we use an OBDC, which has a great ability to customize stamps. They do – they have a module in there for plan review and that ties right into our vendor that also accepts e-plans, whatever, and –

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that goes right in and becomes a document scan that becomes a part of the property file. And so our town, we're driven by address. Some people may be driven either by _____ number or such, and the whole idea about when we adopted this system, that I was looking for a holistic approach that you just type in one address and everything you ever wanted to know about the property based on permitting, based on plans, complaints, whatever, are right at your hands either via tab or whatever information you would need based on that property information. So, you know, so that's really easy to do also.

Again, online job specs and details, they can submit them with the application, PDF files, they come in, we look at them right there. We can remark to them via e-mail, you know, highlight them and all that stuff. Any other problems we have, we can talk to them via e-mail or they can call the office. And again, the approved plans and the plans and the permits –

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are e-mailed back to the applicant or the contractor or both as need would be. So next slide, please.

And again, we had talked about – Moses had talked about an upcoming webinar with regards to virtual inspections. The ICC _____ ICC _____ _____ _____ addressed that issue about recommended practices with regards to remote virtual inspections. It's a handout that they have in their store but it's pretty cheap to purchase. I looked at that and I also had attended a couple of webinars from ICC based upon virtual inspections and how they conduct them and all that stuff. And we have taken that – their guidelines and incorporated them into do our virtual inspections.

So right now, we do virtual inspections basically for resales, rentals, general building permits that are general and basic.

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Anything that's major you still really want to put eyes on it at this point in time. So next slide, please.

So again, virtual inspections, what do they encompass and all that stuff. So we always ask them for the first thing to do is send me some pictures and pictures can be provided either by the contractor or owner. One of the things we would tell people to do if they mail them in, you know, that the authenticity of the picture can be always validated by the photo metadata and we can tie that right into the third party software that will actually give you GPS coordinates, whatever, and pinpoint it on a map, the actual location of that. So that's one of the things where you can actually validate a picture when it comes in either e-mail or if you really want to take a picture yourself and tie it back to the property. So that's a good thing.

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We also do video inspections via FaceTime or Zoom. It seems like everybody likes that idea. You know, again, for inspections it could be either for – right now, for minor and basic projects, only because until the contractors really get, you know, the curve, learning curve for them also, is that _____ we just want to maintain to the minor and basic projects only.

Again, for video stuff, I mean for an outside property for a front elevation, will show the property address there for you, you know that the live videos for a Zoom session is actually at where they are supposed to be. You know, everything else is sort of the same. You just go through and you tell 'em what you want. Again, with the guidelines for virtual inspection, to make sure every inspection is

done the same way, therefore you're really not going to mess up or miss anything what the inspection should have.

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You want to make sure the contractor has their proper tools, whether it be a flashlight, the approved plans, yardstick, measuring stick, whatever _____ _____ to prove what they are installing is actually what is supposed to be *[interference]*. Again, also we can do this, provide instrument documentation via e-mail. If I do a report and I do a virtual inspection there is something that's not done, I usually follow up with the electronic inspection form and that is also e-mailed to either the contractor or the owner so they know what we have done, what we have seen and what problems they have to correct from that inspection.

Again, when this job is done we also want to issue the appropriate paperwork for the project and we want to final out and close out the permits, and we can also get it online also. So we have a good tracking of permits through the process of inspections and when they are closed out also. Next slide, please.

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So what do we have so far and what do we have running virtually since March of 2020? This is definitely efficient permit processing and inspections with less manpower. Basically my secretary has been working from home since this all started. She's still working from home as the Borough Offices are still closed. So I am in here and I am running permits and running virtual inspections and very, very efficiently doing it with just one person, me.

Again, of course, the scalability of that, depending upon how many people do you have in your town. I come from a small urbanite town basically with 11,000 people in town, with about 6,000 properties and businesses. So that's how you can sort of say that one person can do that, but the efficiencies that this has provided us, yes, you can.

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Again, based upon the COVID-19 issues, it limits the public contact. You know, you're doing everything remotely, e-mail, so there's really minimal contact that you may have unless you really have to go out one site with a big project, you can then – most of your big projects are following their own COVID-19 bases of

dealing with the public and workers and all that stuff, so yeah.

Other big thing too is about the efficiency use of time management. We usually try to set up one or two days where it's virtual inspections, so that gives you some – a lot of the time you just say today is just for that and it gives you some other time that you would be out in the field and traveling around where there's more free time to do what you have to do, and it cost you and it tells you to manage your time more efficient because the program itself sort of tells you what you have to do. You know, e-mails come in, permits come in during the show –

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it's telling you what's next, what do you have to do next. So yeah.

The big thing about Zoom, Zoom sessions are always able to be recorded and you're allowed to take that recording and throw it right into the property file with our vendor. So there is proof of the inspection, proof of deficiencies that we found, and it's always there to fall back on because it's made part of the property file and property folder within our vendor. We can do the same thing with regards to violations for property maintenance. You can take a picture of the violation that you see and throw it right into the property file which is electronic, which is always there and made part of the property folder.

The downfalls you have with that, again, or things about technical problems with it is that, you know, if you're dealing with somebody that is a virtual Zoom session or FaceTime and you get poor quality of the Internet, especially in basements –

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and buildings that contain a lot of concrete and steel, you lose signal. Then you have to wait for buffering and stops, it's on pause, you have to wait for them to grab a signal itself. So that's one of the things that you are seeing – that we currently see here, is with regards to poor quality Internet and disruption of virtual inspections that way.

Again, one of the things we have here is the limited transfer of data into our property file. Currently it is 25 megabytes at a time. So if you have a lot of pictures and, you know, a lot of big pictures, whatever, you're gonna have to do multiple downloads into that. We're looking to revise the system where we either can delay a

GIF optimizer or a JPEG optimizer to reduce the size of the file and all that stuff so we can transfer more at one time than multiple transfers into the system.

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So that's where we are with that. Next slide, please.

So the next steps in scaling up. Technology seems to be on an upswing. Everybody wants to _____ the latest technology. So one of the things we're looking at, again, is the technology to upload the data from each property through unique barcodes, which would be basically a laser scanner that you would pinpoint the property where you want to do an inspection or a permit inspection at. It goes up to the satellite, it downloads the link for the GPS, it knows where you're at in the property. And at the same time, you can go into your car, whatever, and hit your barcodes either for violations or deficiencies or approvals and have that automatically upload to your system on the file, and therefore produce an electronic document for approvals or deficiencies and have that e-mailed right to the contractor or the owner of the property.

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The other big thing we're looking at is drone patrols for property maintenance. That's a big thing that my boss is looking at, is to say that the – have a drone and preprogram it based upon your GIS mapping system of the town and let the drone go out there and just take videos of property maintenance which would be _____ of housing that need paint and tall grass, abandoned cars, trash on the lawn, trash in the back yards, those type of things here. So that's one of the things we're going to be looking at in the future.

Scalability, again, depends on the ability of the foundation to withstand the growth and increase the data load, which means is your vendor prepared for this, what type of scale and what type of ability they have to have a massive amount of input electronically coming into their system. We have not encountered that at all but again, we're only 6,000 properties in town. I'm sure there's other big towns out there that may run into this, –

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but so far we've been good in doing that. So next slide, please.

So the recommendations I have would be to consult your existing

permitting software provider and determine how they can provide, what information they have with regards to virtual or remote inspections that if they can integrate into the system to help you out. Our vendor has been fantastic. Any type of changes we have I can usually get changes done on the fly within a matter of minutes. Major changes I can probably get done within a day or two. And I know there's a lot of companies out there. I want to put a promo into our vendor, but our vendor has been absolutely fantastic, so. And if you do want to hear about who our vendor is, I'll be more than happy to have – send your e-mail to Moses or Ian and I will be in contact with you via e-mail.

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So next – and the other – and we're gonna hold questions I believe to the – at the end of all the presentations. All right.

Moses Riley: Great. Thank you so much, Michael. That was such an informative presentation on how much you do with virtual and remote inspections and the fact that you're still accepting paper permitting I think is good to hear, that this transition, you know, you have the option for online but if people are more comfortable with paper or for whatever reason need to submit things with paper you can still accommodate that. So –.

Michael Jozwiak: Correct.

Moses Riley: Thank you so much for your presentation. And I see your questions coming in, everybody, and we're excited to get to them but I do want to get to our next speaker first. It's my pleasure to introduce Celina Patterson with the Building Codes Division for the State of Oregon. Celina, I think you might have your video working, if possible we'd love to see you and hear what you have to say about Oregon's ePermitting system.

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Celina Patterson: Hi there. Good morning from Oregon and good afternoon for the rest of the country there. So I am the manager for the ePermitting Program, State of Oregon Building Codes Division, and kudos to Michael for standing up for having stood up an electronic permitting system so quickly. That's quite amazing.

We have been doing ePermitting for quite some time and I'm gonna kind of walk you through our process, but before I get started, let me just switch my slide here, or next slide.

Oh, can we go back a slide? So one of the things that's a little bit different about the state of Oregon is that we adopt a statewide building code and we also, –

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in effect, kind of own all of the building programs in the state in that we could run everything in the state as a building department but instead what we choose to do is we delegate those programs and the cities and the counties can implement or adopt those from us. And so most of the cities and counties in the state have adopted and run their own building programs. We, at the state, still run two of the counties that did not want to implement their own building program.

And the other thing that that gives us is the ability to regulate and oversee those building department programs, and we do that for consistency sake and ePermitting has come about as part of that. And so I work for State Building Codes Division, and we provide an electronic permitting solution which is available to any of the cities or counties in Oregon that wish to participate. It's a voluntary program.

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And as you can see, as of now, as of this state, we have 41 cities and 29 counties who are participating in our full program. We have nine basic service jurisdictions. That's a throwback to when we first got started. So those jurisdictions just offer – use our website to issue trade permits, so electrical plumbing, mechanical permits, and then they do the rest of the process and the rest of everything else in their own systems.

We have also grown so much that we have also – one of our sister agencies, the Department of Environmental Quality, came to us and we implemented their onsite septic program through our system. There is a lot of overlap between construction and the building of septic systems and so it made sense in some of our counties that participate in ePermitting do septic and then DEQ's program also came onto ePermitting. So their customers can use our website and then they, in the back office, can track all of their permits and inspections.

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We have a lot of contractors, obviously, who do all of their ePermitting through our system but then there is also realtors who do a lot of property research. There has been a huge uptick in that and just people looking to see what's been permitted on a particular site before they do sales. Architects and engineers can also apply through our system, and then of course homeowners, both for looking up information and doing some of the building permitting process.

Manufactured home industry, one of the things, because we are a state agency, we have also been tasked with issuing home ownership documents for manufactured homes and that was something – it didn't sit beautifully within our ePermitting system but we were able to stand up something so that people can apply for their home ownership documents through ePermitting.

We also, as the Building Codes Division, run statewide inspection programs. I actually used to manage our statewide inspection program for elevator boilers, pre-fab housing, and so our elevator program does its permitting and inspections also through ePermitting.

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And then, of course, the general public looking up information on our website. Next slide, please.

So the resources that we have to do this, that's a lot of program support there, and we actually have a relatively small staff given how much we do. So obviously there is me, I'm the manager. We have one individual who is our training and outreach coordinator and he spends a lot of time going throughout the state doing training of contractors on how to use the system and doing – working a lot with the inspectors throughout the state, teaching them how to use our mobile inspection apps and providing just technical support for them if they're having issues using the app.

We have two full-time help desk staff, which I think has been really helpful, especially during COVID. So what my help desk staff, and actually I also manage – even though we are working remotely, so everybody is working from home in our office, –

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we still have a help desk phone and e-mail account, and we monitor those throughout the day and try to make sure to get back

to people within ten minutes that call and that's been helpful 'cause there has been a huge uptick in people, obviously, using the electronic permitting system and so we have a lot of new users and so having a real person be able to talk to you on the phone to help you with the first time you do something has been really helpful for folks.

And then in terms of the team that we have, we actually implement this program, so that means that when we're bringing on new jurisdictions the numbers that I showed you on the previous slide were our current participants, we're still bringing on jurisdictions. We're doing about six new jurisdictions a year, cities and counties, as well as some add-on projects withstanding the system that we offer. And so that gets done by – I have got four project managers/implementation specialists.

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So they'll work with an individual jurisdiction. We do all of our implementations actually through Go To Meeting and those are done as a weekly meeting where they'll actually meet with a project manager and then they'll do a training session. So during our implementation which is usually about a four month to six month implementation process, that could be speeded up but the biggest time suck of all of that is usually doing data conversion as well as – and I'll get a little bit more into this later on in the presentation, is developing an address parcel in the owner load for each jurisdiction because we have to – in order to be able to serve such a huge breadth of the state, we have to basically mark up every single address with the jurisdiction that provides services. Because, for example, you might have one address in the city and maybe the city provides structural, mechanical and plumbing services, but maybe the county provides electrical services.

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And so each address has to be marked up with each of the appropriate service providers.

So the other half of my kind of more technical staff, we have four folks who do those data conversions, help do the address parcel and owner loads, work on scripting for automating and improving the permitting product that we provide to our customers, and then report writing takes up a whole bunch of our time. Being a cloud-based ePermitting system, anything that you want to print out of the system has to be written as a report and so that takes up a huge

amount of time, given that every jurisdiction wants a report that is done a little bit differently.

So we do a lot with a relatively small number of people. Our program is funded by a 4 percent statewide surcharge on all building permits in the state. So whether a jurisdiction participates in ePermitting or not –

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the surcharge on the building permits, which is actually a 12 percent surcharge, which is used to fund different percents on different types of things within the state, but 4 percent of that money is what pays for this program.

So our jurisdictions don't have to pay anything to participate in it, and it's actually been one of the places where I think doing an enterprise solution has worked really well. Many of the jurisdictions that we serve would not have been able to afford the size and scope and kind of the bells and whistles of the system that we're able to provide. It would be way out of reach financially. But again, because of our funding mechanism we are able to provide that to them and, you know, again, at no cost to them.

The only kind of, you know, hidden cost to them are obviously they have to take credit card payments, 'cause we do online payments. So for some of them that are really small, even just that percentage of the credit card transactional fee –

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is a little bit – you know, it takes a little slice out of the budget, and so they have to think about that. And then also purchasing hardware, having dual monitors if you're gonna be doing electronic plan review. Having iPads and smartphones for inspectors who are using mobile inspection apps, you know, those are the types of things that they do have to pay for. Next slide, please.

Okay. So our progression has been a little bit different than what Michael described there. We started ePermitting really way back in 2006 and it was an ask from our contractors who back then said, hey, you know, we'd like to see more electronic permitting and more electronic options. Technology is obviously the wave of the future, we don't see it happening as much as we'd like to through jurisdictions. And so we, as a division, responded and said okay.

And so we built a homegrown website back then and that was the basic services. I mentioned that a little bit earlier.

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And that was just a website where the contractors could come in, they could purchase trade permits, they would pay for a credit card, get a work authorization and then the rest of the process would happen with the jurisdiction, the inspections and the actual permit would get issued there. But that was kind of a proof of concept for us. It worked well. The contractors said yes, we like it, we want more of it and so they went to our legislature back in 2009 and they said, yep, we're willing – we want this and we want it enough that we're willing to add onto the surcharge that is paid for on all of our building permits. And so that's how we got our funding stream and that, you know, propelled us forward to develop full servicing permitting.

We did not want to grow our own website and permitting platform, that was a little bit more. We wanted an off-the-shelf product. So obviously the first portion of things was to go out for an RFP and choose a vendor and negotiate a contract that worked with that.

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After doing that we started with our first implementations and for us that was Lane County and the city of Springfield, and those first implementations took us a year and a year and a half, respectively. And we worked with our vendor, who was training us on how to do the implementations and do scripting and do report writing and all of that stuff, and we learned from the vendor to do things the way in which a vendor would do it, which is basically that you sit down with the jurisdiction, you map out the business processes. You take that – you build that, they test it, and then you do this back and forth of, you know, putting in features and developing out the permitting system until basically usually you run out of time or money.

And so you know, we finished that off. Originally our first legislation we were a ten-year pilot program, and so after a year and a year and a half of doing implementations we thought, boy, that – we've got to speed things up a little bit or at the end of ten years we're not gonna be very far along in implementations.

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So back in 2014 we put together a group of jurisdictions and we said, hey, you know, in order to try to speed this up a little we'd like to get you to agree to some consistencies. So say the naming of inspections, let's get some coordination there and let's agree on a predefined list of inspection names. Or how about we agree on the workflow and what steps will be in a workflow. So we did some of that.

But with those jurisdictions, we also did quite a bit of customization. So we worked with each individual jurisdiction. We set up their system. And at the end of it, the deal was with these first jurisdictions, we did all the customization and then we handed it over to them. They were still gonna be hosted by us and by our vendor and we would provide technical support, but for the day-to-day things like adding users or updating fee schedules, they were gonna do that administration.

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And at the end of that process, you know, it's still – those implementations still took us quite a bit of time. It was a little bit faster where there was definitely some time savings there, but we were still going, there's got to be a quicker way to do this to be able to bring on more of the jurisdictions that wish to participate in our system and do it more quickly.

And so starting in 2015, we developed something that we call the Oregon Standard Model, and basically what it is, is that we have prebuilt the entire building module with all of the different application types that you would want and all of the scripting that might be in place. So for that we have residential and commercial permits. We have structural permits, mechanical, electrical. We have revisions, deferred submittals. We have agricultural equine exemption types of things. We have phased permitting. So we really have all the bells and whistles and all the different types of application types that you use in a building department as well as scripting –

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that does things like make sure that you can't final out a building if all the fees haven't been paid and all of the inspections haven't been done.

So we put all of that in place, and so now when we go to do an implementation we provide that package to the jurisdictions and

we limit the amount of customization that they get to do. So obviously they have their own fees, they get to do their own fee schedules, we build that for them, their users, their inspection calendars are going to be different. Some of the user groups and commissions are going to be different. But the applications and stuff we don't really customize those per jurisdiction. As you saw, we have 70 jurisdictions, cities and counties of all different size using it and they're able, all able to work their business processes that work with the different application types.

We built it out so that it works for the largest jurisdictions, and if you're a smaller jurisdiction and you don't collect a certain piece of data, you just don't collect it. You don't need to collect it, but it doesn't come off of the form –

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because one of the things that we learned was that even small customizations mean a large amount of work from maintenance when you have things like software upgrades. Can we go back? Okay.

So we did the standard model there and that's now what we implement for our customers. We also developed one of our first apps back then. We worked with a vendor and we developed a scheduling app for folks, and I'll get more to that when we move on to the next slide.

One of the things that also happened was that when I first started in this job, so I haven't been here from the beginning, I started back in 2016 as a manager of this program, and I was going around meeting with our different jurisdictions, trying to, you know, sign up customers, as it were. And one of the things that I was finding is that we had a lot of people who were interested in joining onto ePermitting on the building department side of things but maybe back in the '90s they had implemented some type of electronic planning system, –

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and maybe they had integrated their building and planning departments together and they didn't want to lose that integration.

And we had always had an option where they could pay for a license from our vendor and get an implementation from planning but a lot of our jurisdictions just frankly couldn't afford to do that.

And so we found a way to stay within our contract but be able to provide also a free planning module and a free code enforcement module. So we developed that in 2016.

I forgot to mention that as part of the standard model, we now also do all of the maintenance for our jurisdictions. So we do all the testing when there's a software upgrade and we also, as part of the model, we improve that model for everybody. So when we make an upgrade or we add a new record type or we add a new report, we don't develop it for an individual jurisdiction, we roll it out to everybody. So it's not a static thing, it allows us to grow and provide that support to everybody and continue to grow and improve upon what we provide.

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Then, as we've gotten bigger, so in 2017, we had the struggle of the fact that we provide support to a lot of different jurisdictions, a lot of different contractors, a lot of different members of the public. And so that's been a little bit of a struggle for our workload to keep on top of all of the things that we have to do. And so we implemented a cloud-based help desk software that allows, when our jurisdictions send us an e-mail, it automatically creates a ticket and then we track our tickets and we assign them through our help desk software and that's been a big help just to keep track of all the things so that things don't fall through the cracks.

In 2018 is when we brought in the DEQ onsite module, and then again, having created planning and code enforcements some of our jurisdictions, especially our cities, said, hey, could you also add on public works and engineering employees. So in 2019 we built on an engineering and public works module that we provided.

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And then this year, you know, we've been fortunate that we had already kind of implemented a lot of this, and so with COVID hitting, we didn't actually have to make that many adjustments. More we just found we had a greater volume of people using the system. But for us, one of the things that we are doing is, again, as we continue to grow and have more workload because of the increased use, we are also implementing a new project management software that allows us to kinda better track the time that we spend on projects and do a better job of kind of predicting how long it's gonna take us to make some of these changes or do some of the maintenance that we have to do.

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We have also rolled out a new Oregon inspector app, so mobile inspection app. Our vendor provides one and a lot of our customers have used that for a long time and like it, but we saw some things and some ways to make some improvements and so we did make those improvements. One of the pieces of that is also the ability to do virtual inspections, and I'll get into that more a little bit later. Next slide, please.

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Okay. So what do we provide? We provide a website for the customers to come into, for the contractors to be able to apply for permits, upload electronic plans, schedule inspections, search for information, see the status of the permit, where it is in the review process. We provide what we call the back office which is where the jurisdictions keep track of their permits, get their alerts that something has come in online, do their – let's see, you know, manage their inspections, schedules, their workload.

We provide electronic plan review tools. So we've been through quite the process with that. Currently we're providing Adobe Acrobat Pro and Bluebeam which allows them, our jurisdictions to do markups, but is not really great at helping with like version control or the communications between the customers.

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And so we have been looking at – and I think it's going to be a two-step process of a better integration of plan review into our permitting system, and I'll discuss that a little bit more towards the end of the talk.

So we offer GIS integration if the jurisdiction desires it, which basically just, again, let's, you know, expands people's ability to incorporate some of the information from the permitting system into GIS and vice versa. We offer daily financial batches, so all of the financial transactions that go on in ePermitting get exported so that people can import that into their financial systems, expiration batches for their permits that are about to expire to be able to send out letters to people letting them know that so they can take action before they expire.

Address, parcel and owner, again, a really big portion. I never, before starting this job, never realized how important addressing is

and how difficult it is across jurisdictions to get consistency. But we make sure that our jurisdictions update those.

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Often that information comes from a county assessor's office and that helps ownership updates for properties.

Then we have a bunch of inspection scheduling tools. So we have a lot of different options for the customers. They can submit through our website. They can do an automated phone call. They can do an automated texting, that's one of the newer things that we developed with our vendor for –. And then we have an Oregon scheduling app that they can use. And the one big advantage of the scheduling app is that they can do a shopping cart, which you can't with the other methods, they have to do one at a time. With the Oregon scheduling app, if you've got a contractor who is doing a subdivision and having to schedule multiple inspections on multiple different properties, that can be really time consuming, and so the shopping cart is a really big time saver and they are big users of the scheduling app.

We have remote inspection tools, so we have our vendor's inspector app, the one that we have developed. And then I'll talk a little bit more about this a little bit later, but we also have –

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another mobile app. We have been working on video inspections for quite some time and gone through several different iterations with that, and we'll talk a little bit later about that.

And then document management is a big deal, in terms of how you do your archiving and your time, you know, keep track of the time limits for different types of documents. Most of our jurisdictions move their documents off into another actual document management system like _____ or we have a state homegrown solution that some of our jurisdictions use as well. But we leave that up to each individual jurisdiction to deal with that. Next slide, please.

Okay. So what have we learned over the process? It's been a long process. One thing is I don't think we could ever have done this if we hadn't built it in pieces. You know, we designed our original contract with our vendor so that we didn't have to put out all the money to be able to go statewide upfront. We gave them a chunk

of money for our first jurisdictions and then we did a pay as you go in terms of adding jurisdictions.

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And once we had actually kind of proven and knew that this was a success, then we renegotiated it and we were able to actually buy what we call a site license, so we now have unlimited access to being able to build as many things as we want. And again, I think it's actually been one of those places where the enterprise way of doing things has definitely saved money. It's been very cost effective, the amount that we have spent for the number of jurisdictions and the type of service we've been able to provide has kind of been unparalleled.

Don't get too invested in one way of doing things, absolutely. I mean we have had to reimagine things like how we provide training, time and time again. How do we do an implementation? Just because, you know, you have to be able to really – and be willing to say this isn't working, we need to do a better way of doing it. That was certainly the case with our implementation process, first the customization, less customization and now the way in which we do things.

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And also, you know, just because that's – constantly looking at how you're doing things is the way in which you come up with new, better ideas and because technology changes you have to understand that you may not be able to do things the same way next year, right. And so you have to be able to be agile enough to be able to pivot and be able to do things and go along with the flow of how things are going.

The other thing we learned, especially from our early jurisdictions, was not to overbuild the system. Sometimes people really think that they want other things to be done exactly the way they're currently doing it on paper or they want – think that they want to track a whole bunch of different things but they're not really realizing that each of those things is a click that somebody has to do in the work process. And if you're gonna build that in there then you need to have everybody buy-off that they're willing to do that work to do it. So you either need a leader who is gonna say, you know what, we're gonna keep track of all this stuff and you're gonna, you know – we're all pulling together and we're gonna agree to do that –

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or you need to be realistic about what you actually can and can't do.

Work with good vendors that you have and maintain those relationships and get, you know, outsource where you can, consistency, documenting all the things that you've done. We learned that the hard way is, you know, you're always so busy as you do an implementation it's hard to necessarily keep track of everything you've done and then you have to recreate a lot of work. And then using external software tools to prioritize your work, and obviously cross-training all of our staff. Next slide.

Okay, ongoing challenges. For us it's gonna be a little bit different than some of the other jurisdictions, but maintenance. Serving as many jurisdictions as we do it's been hard just to juggle everything that we have. And at the same time, to be able to stay nimble, keeping track of the new technologies, the new things that you want to do, and you know, trying to make sure that you haven't built something that is difficult to –

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you know, move on to the next thing.

And also keeping all of our people, all of our jurisdictions engaged and making sure they're aware of all of the changes that we've made. So we have definitely, you know, struggled a little bit with trying to make sure that we reach out to those folks. We do lots of training. We travel around the state and provide refresher training to our jurisdictions, just to touch base and to make sure that things are going well with them and that we know what their needs are and to make changes accordingly. And then obviously keeping on top of evolving technologies. And let's go to the next slide in terms of what's coming up next.

So I'd like to talk a little bit about video inspections, since Michael talked about that and since we've had some interesting experiences with it. We did a pilot program with it starting three years ago with one of our app developers and we were really excited about it because it was a fantastic app, it geocoded where the contractor was, you know, it had great information, you could take photographs and videos in the course of the live inspection –

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and have them attach to the inspection result and it's fantastic. However, when we went to pilot it at one of our counties, Deschutes County took it up and for many of the things that we wanted to use it the reception just wasn't good enough. It was too frustrating for the contractors and the inspectors to be out there and be on a cell tower and you can't get the reception to work. And so we actually scrapped that for the time being. It's a fantastic app but was not going to do – you know, was gonna be too frustrating to use on an ongoing basis.

We had that same app developer develop an offline video/photo inspection thing for us and we are rolling that out in two weeks. And what that does is, we're gonna use it for our minor label program, which is a simple, you know, low risk type of installations that contractors do. And so what they're gonna be doing is the contractor is going to install say an AC unit. They will then have a set of instructions. They'll use the app to take pictures –

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and a short video of the installation and then they'll submit that, and the inspectors – it won't be a live discussion but it will be uploaded in an inspection format. It will be geocoded with the actual location and can imbed a short video. And then the inspectors will do the inspections on those and we're gonna see how that works.

Our inspection app also has the ability to do live inspections, and so we're kind of thinking about how we roll that out without it being frustrating, because obviously, I think Michael also mentioned, that the loss of connectivity is a very frustrating portion of things. And I know people have gone with it because, you know, it's COVID and we have to do what we have to do but that's not an ideal way in which to do things. And so we're kind of working through how to make that work.

For us, the other thing that we've noticed, you know, partly because of COVID, is obviously there is more interest in electronic plan review.

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That's always been the least utilized portion of our system, not that we don't offer it. Every jurisdiction has that. But a lot of the jurisdictions, especially the smaller cities, have not really put in place the processes, right. Because electronic plan review, it's not difficult to do the markup and put the stamps on it, but the process of how you move the plans around your office, how you get different people to sign off and you deal with the timing of that, that is a little bit more difficult.

And so we are looking at different things. We're probably gonna do a two-step process. One where we do a simple integration into our base permitting software which allows a better version of revisions tracking and allows the different entities in the back office, so the different departments of the jurisdiction to see each other's comments and markup in the process.

And then the second part is probably gonna be the PL plan review out of the permitting process. Have a separate electronic plan review system, so that entire process happens in its own software. You get some benefits to that as in a better ability –

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to keep track of all the communications between the customer and the jurisdiction. And so for posterity you have everything in one place that goes along with a plan review, and I think that's gonna be kind of the evolution of our improvements to electronic plan review.

The other thing is that a lot of jurisdictions are expressing, again, and I think Moses mentioned this at the beginning, data, right, the ability to mine data. We obviously have reports that do simple things like count out permits and new residential construction starts, but there is an interest in doing more and more things. There is the ability to integrate some very powerful new tools. We happen to be hosted Microsoft Azure and they have a new _____ iTool which integrates into that and that's not plugging them. I know there are different ways of doing that but that's going to allow our jurisdictions to be able to organize and plumb their data in a better way.

And then the last thing for us is basically we are going to look at having – currently our –

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front-end website for the contractors is just for ePermitting jurisdictions. We would actually like to grow that so that we're one hub where you'd go in as a contractor and whether a jurisdiction participates in ePermitting or not, you'd put in the address and we would direct you to the appropriate service provider, which in our metropolitan areas where you have overlaps of service between different cities, it's hard to know if an address belongs to, say, the city of Portland or perhaps the city of Beaverton. And so we would provide that service even if those jurisdictions were not on ePermitting.

So that's kind of where we're at and kind of what we're growing towards and I think that's what I have for everybody. And if you have any additional questions for me, there is my e-mail address, phone number. I'm happy to answer any questions about how Oregon does things from any of the participants today.

Moses Riley: Great. Well, thank you so much, Celina, for that really comprehensive presentation.

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It's such an impressive system that you have out in Oregon, being able to manage all of those cities simultaneously and how much you've added to it since you started. I'm really excited to get to our discussion phase. So I want to make sure that Michael is here and can hear us speaking. Michael, are you there?

Michael Jozwiak: Yeah, I'm here. Can you hear me?

Moses Riley: Yes, we can. So thank you both so much for taking the time today to present your two very different systems for electronic building permitting, from different parts of the country. I noticed that both of you – kind of the impetus for getting this kind of came from the industry. The industry was kind of asking, you know, we want to have this, this is something that we need to see.

I was curious, when you started these processes, and Celina, I'll ask you this first, did you face any pushback or resistance when this was coming? I know the industry was requesting this but was there any resistance when you were trying to implement it, and if so, did you need support materials, allies, anything like that in order to push it forward?

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Celina, can you answer that first?

Celina Patterson: Yeah, there was – you know, there wasn't so much – you know, the contractor organizations were totally onboard for that. Obviously, individuals in a given jurisdiction sometimes, you know, grumble about that. We certainly get that in our help desk calls and that's part of why we are training an outreach coordinator. He goes out and meets with contractors and especially some of those folks who aren't so used to technology. He will work one on one with folks and he is very generous about providing his information to try to help those folks that do have some resistance and difficulty.

And again, all of our customers can still apply through paper and not have to use the tools, right, but we do try to help them be able to navigate the tools for doing things like inspection scheduling so.

Moses Riley: Yeah, and I think that's great to hear because I think Michael mentioned it as well, not everybody really wants to use the online permitting systems.

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So making sure that both are available is great. Michael, what about you, was there any pushback or resistance that you faced trying to implement this in your city of Lansdowne?

Michael Jozwiak: Not as far as the _____ _____ government _____ _____ the government was behind us to do it. Council and mayor is something we had to do. But again, and I agree with Celina that, you know, our biggest problem was _____ contractors that have been doing it the old-fashioned way for the past 30 years, you know, saying, hey, welcome to the 21st Century and you have to do this way. You know, that's one of the reasons why we still take in paper files because there's still people out there who says, you know, they don't have corporate credit cards for their company, you know, and that's how you pay online, either via e-check or credit card. So in that realm, we're still dealing with, you know, paper applications and checks. So, you know, yeah.

Moses Riley: It's still going well.

Michael Jozwiak: But I think – I'm sorry.

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But I think the big feedback is just the positive – the things we've gotten back from contractors and all this stuff, and with us being a suburb of Philadelphia, they said, well, man, too bad Philadelphia doesn't have this type of thing, you know. So yeah.

Moses Riley: Mm-hmm. Yeah, it sounds like both of you have implemented systems that have kind of grown quite rapidly once they were offered. Do you attribute that solely to the industry being like this is great, we want to use this or are there other factors? Michael, do you want to answer first?

Michael Jozwiak: I think it's just because it is what it is that we're – we have to find a way to just to continue business in some manner, you know. I think the positivity of what I'm hearing back and just the number of paper permits we're getting versus being permits that's applied for online have turned the tails, you know. And I think that once the contractor realizes that, you know, he can apply for it and get a permit within –

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a matter of hours, you know, it's a great thing of say, you know, well, I have to – it's mailed in, now I gotta wait for the mail delivery and, you know. So that definitely speeded up the process and they're welcome to it. Yeah.

Moses Riley: And what about you, Celina, has the industry response really supported the growth of this or have there been other things that have contributed to it?

Celina Patterson: For us, yeah, it's definitely been industry and jurisdictions as well, and it's definitely a snowball kind of effect, is that you – people see it. I mean we noticed we had some, you know, jurisdictions that maybe at first were like, well, we're not sure we want to do this, but then their contractors would be working in neighboring jurisdictions that did have ePermitting and they would be talking it up to this jurisdiction. And so it's been, you know, I don't really have to go out and sell our program so much anymore, people come and call me and say, hey, I think we're ready to go.

And yeah, the contractors definitely – it's very nice, because we have the help desk and we have people, we answer the phones and –

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we talk to the contractors and homeowners regularly, it's really nice to hear the feedback, especially during this time. A lot of people are just like thank you, we really so appreciate that you have this available and this option 'cause it's kept business going. You know, we didn't even really have a downtime. So.

Moses Riley: Yeah, that's something that we've seen at NEEP which is that since COVID-19 put everyone on lockdown there's actually been an increase in permitting in a lot of areas. Have you seen that in your areas as well?

Celina Patterson: I'll take that, yeah, definitely. And we had a big uptick. You know, construction still seems to be going strong and then now especially 'cause we had the wildfires, we are likely to have quite a bit of rebuilding going on for quite some time and it's been really helpful to have – already have the infrastructure there to be able to help people out, so.

Moses Riley: Yeah. And what about you, Michael, in Lansdowne, have you seen uptick in permitting since March?

Michael Jozwiak: We have seen an uptake in permitting but again, you know, our permitting also takes care of –

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resales, of homes being, you know, or _____ _____ resale inspections and they're required to apply for a use and occupancy permit, and you know, those have drastically gone up. And one of the things, you know, the realtors were inquiring, well, you know, because of the COVID-19 how are we going to handle this, and I usually send them an e-mail once I've found out that an application has been applied for and paid for, that, you know, there's other ways we can handle it. One, you can send me these pictures and I give them a list of what pictures I need to see. And then or else we can set up a FaceTime or a Zoom session. So yeah, I think definitely an uptick in permitting, yes.

Moses Riley: All right. Well, I am gonna move on to some questions from the audience that we're gonna answer. The first one is gonna be posed to both of you and I think I'll start with Michael for this one. COVID-19 not only has apparently led to some increase in building permits but it's also caused a massive economic downturn and a lot of loss of jobs in the industry across the country.

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So one of the questions is concerned that automating this process could take jobs away from people who need them. Michael, is that a concern of yours in your area? Have you seen that happen?

Michael Jozwiak: No, because I think what it could be is based upon, you know, _____ _____ and you get back into normal things. I think there is just going to be maybe an uptick of additional personnel needed because, you know, I think you have the ability and it's specialized, as far as electronically you can take it and put it into separate specific jurisdiction of what you want to do. So you may hire additional people just to handle those type of issues. You know, we even may become more specified as to what a multirole inspector may do or just have 'em specialize in one thing. Because I think in that case, because it is –

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you know, they have more of an ability to sort of channelize or categorize your _____ that are coming in. So you know –.

And I think on the other hand, I think once the contractor – like I said, I put out in a newsletter, there's really no reason for an inspector to go around and say, you know, you have – there's no permit on the job because just for the ease of us saying you can apply for and pay for a permit online, there is no reason why you don't have a permit, you know, and that has gone around _____ to everybody, it's word of mouth in town that, you know, if you're working in Lansdowne you better get a permit first. So, you know, so I think – so that in itself is an uptick for later down the line once COVID breaks, is that there may be an upswing for additional personnel.

Moses Riley: So actually quite the opposite of what was – they were worried about. So Celina, what about on your end?

Celina Patterson: No, I don't think overall that it does result in a loss of people.

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I actually think that technology, in general, you know, it offers some time savings in some places but often creates more work on another side of things, in that you're doing more things with it. So one of the benefits of technology is that you're tracking data better, right. You're doing a better job of documenting things and you're communicating in a more consistent fashion with the customers,

but that doesn't mean that it doesn't take work to do that, right. So I don't see – we don't have a decrease in the numbers of permit techs.

You know, Michael is touching on the one thing that I think people have questions about, is what happens on the inspection side of things. When you start doing remote inspections do you need as many inspectors, and again, I think that is a question in terms of how that will play out. Although, the fact is that there is – right now what's happening is that there hasn't – that particular workforce is actually kind of aging out and there hasn't been an influx of new inspectors.

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And so it may be that it's, again, one of those places where you move the resources into training a different set of different skillsets that may be is a more IT skillset or tech, you know. So overall, I don't think that that is a concern. I think the jobs and the time just shifts a little bit.

Moses Riley: Great, thank you. I did have a question come in for you, Celina, regarding the system that you use Oregon statewide. The question was regarding how many different apps that you had to manage the different types of permitting and the different types of services that you provide. The question is, do these apps communicate, are they all provided by the same vendor? How exactly does that work?

Celina Patterson: So the apps do all communicate and they are not all provided by the same vendor. However, our vendor and our core software, one of the things that happened is they developed what are called APIs, which are a technological tool that you can use that app developers can use to be able to communicate to the base software.

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And so we have several different vendors that we've been working with on developing apps. I will say the one thing that we've learned that's kind of a downside and that's difficult about apps is that because you have to develop different apps for Apple systems versus Android systems, it's really a lot of work because they're not the same and so technologically you have to maintain two apps for every one app that you put out there. And so that's one thing just to be aware of as you're looking at doing app development, is that it doubles your workload because of the fact that there are two platforms for it, so.

Moses Riley: But even still, the apps are being used successfully and people really like them.

Celina Patterson: Absolutely, and the app developers that we have are really mobile and agile in staff. So compared to our software vendor, they are able to make changes much more quickly and, again, that's part of why we developed a redundant app for the inspectors just because we are able to add so many more features and –

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with our relationship with the vendor just get things done so quickly, so.

Moses Riley: Great, great, thank you. That's so interesting. Michael, I have got a question for you about the technology integration into your office. You mentioned that there is always a learning curve when you're introducing new tech and you even indicated that you're gonna be exploring some even newer tech including some drones. What does that training process look like? How are you gonna be accommodating that new technology and training your staff to use it?

Michael Jozwiak: Well, you know, as far as staff goes, I am staff. So you know, right now it's me, myself and I, but I think part of it is _____ _____, you know, everybody knows what a drone does and it's a question of how to integrate that into the existing system that we have. You know, again, at the – it's on the wish list from council, it's on the wish list from the Borough manager, so it's something that we're still investigating.

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You know, eventually as drones get better, technology gets better, I think – and also – I mean there are places that do use drones for inspections. So you know, I think that's – I think ours is just a little bit different than just using a drone to set up and do a roof inspection or a chimney inspection or construction site inspection. Ours would be actually, we'd do programs to travel the streets up and down each street, whatever, you know, and taking pictures of or video of, you know, fronts of houses, grass and all that stuff. So ours is a little different than just using a drone just for permit inspections, you know. Yeah. But we're looking forward to it, so.

Moses Riley: Yeah.

Michael Jozwiak:	You know, it's at the very early stages of investigating, you know, what's out there, what to integrate, what changes do we have to make to integrate it into our existing system, so yeah.
Moses Riley:	Well, it actually segues nicely into my next and final question for today –

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	from the audience again. Which is when you do these inspections, whether it be through a drone or through videos and photos, how long do you store that information is the question from the audience. Do you keep it for a long time or do you get rid of it after a certain amount and does that require changing the size of the file? Michael, can you answer that first?
Michael Jozwiak:	Well, you know, any data that you get is good data and especially with regards to pictures because not only it shows you what your current infrastructure is, but it gives you a chronological order of history of town. You know, so that in itself is very valuable, you know, especially if you have a historic town sort of like Lansdowne is. So that in itself is very valuable and I plan to keep that around as long as I can. So yes.
Moses Riley:	Yeah. And Celina, what about you, how long do you keep those photos and do you have to finagle with the size of them at all, or the files at all?

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Celina Patterson:	Well, so that's part of why we're using the apps for doing our inspections, because it gives you a little bit more control over the size of what you're getting. So our apps, you know, the photos come in at a certain resolution and those get created into a PDF in those inspection documents. And then the videos that are taken alongside of it are actually stored over in Vimeo so they're in a separate spot and so it's a link to it that's provided by our app provider. So again, that kind of takes care of some of those size controls with us.
	Document storage, again, mostly we leave that to our jurisdictions. We store everything on our _____ forever unless somebody tells us to do something because each city or county is gonna have its own – you know, we have statewide archival requirements for how long you're required to keep things and so that's kind of up to them to

manage that. We just leave it up there.

But again, we're also on a cloud-based storage, so we don't really have as much of an issue in terms of, you know, coming up against size limitations either.

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Moses Riley: Great, great. That's really good to know. Well, we've reached our time. It's 2:30 PM here on the East Coast where I'm tuning in from, so I want to thank Celina Patterson and Michael Jozwiak, and I think Ian is tuning in?

Ian Blanding: Yeah. Just want to wrap things up. So yeah, thanks again, Michael and Celina, and Moses, that was all really interesting and certainly a timely topic and a lot of good resources and best practices that are available there. So I just want to make a quick plug again. Thanks for tuning in for the NECC Seminar Series. Again, we hope you will join us every Thursday at 1:00 PM Eastern from here until December 17th.

Next up next week is a discussion on HVAC for low-load homes. So if you're tightening up that envelope, you know, what does that mean for the HVAC system, and as you can see, we have a lot of other great topics –

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that are lined up as well. And so you can learn more and register at EnergyCodes.gov, 2020-Building Energy Code Webinars. And we hope you enjoyed it. So again, we thank all our speakers and attendees for visiting and we hope that you will tune in next week, 1:00 PM Eastern Time and continue the conversation. So thanks again, everybody.

Celina Patterson: Thank you, bye-bye.

Michael Jozwiak: Thank you.

[End of Audio]