



WEBINAR SERIES – USING BENTLEY INFRASTRUCTURE CLOUD PLATFORM (ICP) FOR 3D REVIEW QUESTIONS

Project: TxDOT Digital Delivery Program
Date: February 26, 2025 | 9:30 AM – 11:00 AM CST
Location: Microsoft Teams

| QUESTIONS/RESPONSES | |
|---------------------|--|
| 1. | Where is the comment for this screen? Or is it only the links to the comment? (Eddie Gonzalez) All forms available for each project are located on the right side of the home page. Click on Design Document Review, and you will see the form created for San Antonio. The forms do not need to be the same. For a preview of the form, click on it and then you can view what information the reviewer needs to fill out. This can look different for every project, but we are working towards standardization. |
| 2. | Can the comments be exported like a checklist for the big overview? (Patrick Coyne) Yes. Under the Project Dashboard, you can view all comments here. Scroll down to Filled Out Forms area. Click on the three dots at the right to download comments as a CSV or BCF files. |
| 3. | Is there a file size limit for iModel creation? For big projects, iModel will be so slow to operate. Is there any best practice or method to solve this? (Ghazal Sokhansefat) One issue can depend on your network connection. Also, a new project file is pretty large. We suggest breaking down the discipline containers so that you have a smoother connection and faster processing. A smaller project may not have any issues. A five-mile project with frontage roads, ramps, and main lanes, etc. needs to be tested. |
| 4. | Reference to above question, if multiple reviewers are reviewing at the same time - is it going to be even slower or bog it down? (Aswin Kumar Srinivasan) No, we have not experienced any slowness. One of the advantages of iTwin is allowing multiple people to be in an iModel and multiple people can review a PDF at the same time. |
| 5. | What is the downside of using ICP VS regular ORD integrated with ProjectWise and the learning curve? (ie model size & references) Are there different levels of access? (Nicola laneselli) Yes. One of the major benefits of iTwin is that when we create a connected project by invitation, multiple people can access the project at any given time. In ProjectWise, if someone wants to review an alignment file, only that person can be in that file, open it as read only. The iTwin platform allows an unlimited number of users to open and review files at the same time. It has a lot of advantages. To add to this, there is the advantage of not having to ask someone that may be as familiar with ORD into a web-based application. The learning curve is small. It is a Bentley product meaning a lot of the functionality is similar to the ORD experience. |
| 6. | Sounds like ICP is only the review process? ORD w/ PW would still be the design format? (Eddie Gonzalez) Correct. |
| 7. | This is great to see the use of iModel. We are trying Bentley IFC and we came across issues while processing 2D sheets and some profiles not showing up completely in the list, Have you seen similar issues? Could you please share step by step guidelines on how you built iModel on IFC? (Vishal Salunkhe) No, we have not experienced the issue of profiles not showing. Yes, we have an iModel creation guidance document. It can be accessed by everyone on our external site. There is also an export function within the platform for IFC that we are still testing if you want to export your iModel to IFC. There is an export feature in iTwin that works well. However, the IFC feature in ORD is not as reliable as the iTwin. Two different platforms with two different results. |



| | |
|------------|---|
| <p>8.</p> | <p>(John Padilla)</p> <ul style="list-style-type: none">• Have you tested out synchronization through Saved Search or Document Sets as opposed to Model Containers? If so, have you noticed any difference in performance? No, we have not tested that process yet. We utilize the saved searches within ProjectWise to filter what are design files versus what are reference files that we are using for base design, but not like the iModel container synchronization.• Has there been any experimentation with Nested or Referenced iModels? Separate iModels per discipline could be beneficial for reviewers and then rolled up into a Master that facilitates IDR. We've tested that on a hypothetical basis but have not put into play within real projects yet.• Have you tested use of TxDOT GIS mapping in the iModel and do you have any guidance for this? We have not. Please send us any tips that we can test. We do have a GIS portal for the pilot project on the digital delivery website, but it is not currently synced to any iModel. |
| <p>9.</p> | <p>Is there a pre-defined file folder structure in Documents that TxDOT has established or is this file structure configurable by each District? (Greg Cleveland)</p> <p>We are testing a new template for this. We have a different folder structure for the pilot projects than we do for production. The fluent process is still a work in progress but goes in tandem with our file naming convention as well.</p> |
| <p>10.</p> | <p>Are we going to be able to extract pdfs of plans? Some of us need those to submit to various agencies when trying to apply for permits. (Michele Wilkins)</p> <p>Yes. For example, TCEQ still requires PDFs for the permitting process. You can still create PDFs as normal and create iModels. All regular work can still be established and reviewed through the iTwin platform. We did this for the first digital delivery pilot in San Antonio District. We provided the SW3P Environmental Permits, Issues, and Commitments (EPIC) form in traditional 11 x 17 format. The environmental coordinator used that with an Environmental Compliance Oversight System (ECOS) for TCEQ permitting. There is a misconception that digital delivery is going to completely eliminate PDFs. There is still going to be a PDF component to our projects.</p> |
| <p>11.</p> | <p>In regard to deliverables, is the plan to submit just roll plots/exhibits with the models or do we still plan to submit full plan sets? (Colby Chandrasoma)</p> <p>We are planning to reduce plan sets. This was our process for the FM 1977 pilot project. We are trying to minimize the sheet generation and consolidating a lot of information into what we call roll plots. Roll plots were our first stab at still providing some PDF documentation to the contractor. It was communicated to us that a lot of subcontractors, especially smaller firms, require those PDFs and have trouble intaking the plans. This was our first bridge to still providing a PDF deliverable. To expand, this is part of the phased approach we are taking and stair stepping rollout of initiatives. At some point in several years, we will be going completely away from any plan sets. In conjunction with our digital delivery pilots, we are producing full plan sets as backups. But as the digital pilots go out as model as legal documents (MALD), we are currently producing those reduced plan sets with the roll plots.</p> |
| <p>12.</p> | <p>I have Surveyors and SUE designers who say that ProjectWise doesn't meet TxDOT's security requirements and refuse to work on PW. Is there somewhere I can find official guidance for how those disciplines can use ProjectWise securely? (Michael VerHoef)</p> <p>We are not aware of any restrictions. ProjectWise currently meets all TxDOT requirements of security. Regarding our future state, we will be implementing lease privileges where not all users will be able to have read access within TxDOT. They will only be able to access based upon their discipline, if that is their concern. But we do meet all current TxDOT security requirements for both internal and external users. This is in part, why we have been conducting district outreach and holding the roadshows. To disprove some of those concerns and ideas. And talk through the questions, "what are you hearing about?" and "what are we doing within the division?" We encourage anyone not using ProjectWise for any reason to share their</p> |



| | |
|-----|---|
| | <p>concerns. Reach out on the digital delivery website because it is important that we get everyone on ProjectWise to collaborate and have that common data environment. We are happy to update and address concerns as needed. In our future state for digital delivery, ProjectWise will be more secure than before but it currently meets all TxDOT security requirements. In fact, Bridge Division is exploring having their calculations in ProjectWise because we've implemented lease privileges in future state.</p> |
| 13. | <p>Are we able to reference files in this new platform and if so, do the comments for the reference file show up when referencing as well? (Shirin KamaliRad)</p> <p>Yes, you can treat it as a regular reference file in ORD or MicroStation.</p> |
| 14. | <p>Is this going to replace the way we usually receive PSE comments from TxDOT (pdf)? (Jessica Sezikeye)</p> <p>Yes. This is the goal and why we are testing these platforms. We will be fully digital within several years as we work through the process.</p> |
| 15. | <p>Is this the website: https://www.itwinjs.org/learning/imodelhub/imodels/createimodel/ (Nicola Ianeselli)</p> <p>Answered after webinar concluded: The IFC export functionality is still being piloted at this time. Refer to TxDOT's Digital Delivery website for more information on current best practices for iModel creation, as well as Bentley Communities.</p> |
| 16. | <p>Have you imported point clouds into the iModel? If so, could you share the steps you took?</p> <p>How about we import an orthophoto to represent the current field scenario in our iModels instead of using the Bing Map background? (Jonatan Martin)</p> <p>No, but we have the capability of referencing 3SM files that are collected. There is capability within the platform but has not been tested. It also speaks to the amount of data being imported. It might be better to process that point cloud and refine that data before importing. The point cloud data can be pretty sizable at times.</p> |
| 17. | <p>When will this be rolled out for everyone to start using? (Jessica Sezikeye)</p> <p>ICP will be rolled out as soon as it is tailored and working well for TxDOT. We are currently using it on our pilot projects, but not within the production environment. We are working to get all the wrinkles out and make sure that its security model is in place to meet TxDOT's needs. The other component is considering the enterprise solution and ensuring, not only the security side, but the suitability needs of the entire state, not just a handful of projects. There is a lot to vet out in the program to make sure it handles what we need. No specific time frame for rollout has been identified yet. As we roll through the pilot projects, we will be implementing more as we work with the districts. We may take a similar approach with Synchro, which is the construction side of iModel, being rolling out through the districts once we feel comfortable with the platform. If you are actively using ProjectWise to house your CAD data, you can access Bentley ICP through your Bentley subscriptions and synchronize your data as discussed. In order to do that, a request to the ProjectWise administrators is needed to make that connection. Once the project in ProjectWise is ready to get connected, our ProjectWise administrators will work with the Bentley partners to add permissions. We at the design level are unable to process this without a request.</p> |
| 18. | <p>Could this be considered a full Digital Twin? Could it be used for Asset Management and Operations? (Nicola Ianeselli)</p> <p>The goal is to be a Digital Twin platform and we are working out all of the intricate processes, tactics and SOPs.</p> |
| 19. | <p>On the form when you say 'Who it is assigned to' is that the designer or the reviewer's name? What if you don't have some of the information to fill out the form, can you skip and just place your comments? (Beke Bedada)</p> <p>There are some required fields within the forms, demarcated with asterisks. When you work in the iTwin environment, you have an invitation to work in the project and you will have the information to fill out. If not, those issues need to be worked out during form creation. When you create that form, it will show who</p> |



| | |
|-----|--|
| | has been established in that project and assign it. Once comment is placed, it will show that is from the reviewer and assigned to the designer. |
| 20. | <p>Is TxDOT looking to leverage Item types for review purpose and Project quantities? (Aswin Kumar Srinivasan)</p> <p>Yes. We are still building out the item type library and reviewing that rates are being applied correctly, and tied to our bid items. Once it is applied to that model element, whether it be 2D shape or a 3D corridor element, you will be able to view that within the design review platform when clicking on that certain element. Within the 3D corridor of the iModel shown earlier, you can zoom into the template drop and click on a certain mesh, for example, to get the top surface. You can go into the properties, see the selected item as it is in the corridor model but shown below is bid item information related to the item type applied. You will also see the volume and quantity as it relates to how that bid item should be quantified. One thing to note is that we are still working with Bentley within our workspace for the actual calculations. If there is a conversion to tonnage, for example, some of those calculations don't exist yet. But we continue to work on these components on our end to make the workspace better.</p> |
| 21. | <p>Will TxDOT ICP be accessible for all firms or does every firm need to have its own ICP? (Ghazal Sokhansefat)</p> <p>Anyone with a subscription can access. TxDOT users are subscribers and pay for that service. Each firm will have to pay for that service independently of TxDOT to access it. To clarify, if you are a consultant working and reviewing a TxDOT project, will they have access to ICP via TxDOT's license? We are working with Bentley on this. There is not a current direct path forward due to issues with how Bentley manages its users in ICP. However, our goal is to eventually provide some form of external access into our system. It's not clear yet where the licensing will come from nor who will lead the overall management.</p> |
| 22. | <p>To follow up on Digital Twin question, will this be fully considered as a MALD? Every stakeholder will be using / implementing / interacting with it, and it will pass from the designer to the contractor to the client (O&M)? (Nicola Ianeselli)</p> <p>There are a lot of moving parts on this because we are not fully 100% digital. There are aspects of the project that are not in a model. Disciplines like traffic or bridge are not yet incorporated. For what we deliver, partially yes, but we haven't developed the entire project to be modeled as a legal document. We have been showing the design review side of Infrastructure Cloud. When it moves to construction, we are moving it over to Synchro side, at least for how the software is set up to date. We are working on the workflows and processes that need to be considered for model as a legal document to make sure we are verifying those files. Another consideration is for our pilot projects right now, Synchro is only being used internally within TxDOT during construction inspection. It is not being provided to the contractor for construction. It will also depend on what we get from Bentley overall and what we find between TxDOT security and other considerations, on how we will be able to deliver the interface beyond design review.</p> |
| 23. | <p>Related to the quantities question, how are quantities to be reported out of the iModel for things like E&Q which include cost? How will this translate to TxDOTConnect? (John Padilla)</p> <p>We are still testing out how this will be fully shown within our reduced plan set. On the San Antonio pilot, we provided an estimate and quantities through TxDOTConnect in the reduced plan set, along with summary sheets. We are still looking at how to get all of the information housed into TxDOTConnect and how best to standardize it. There is no automation process. This project was just submitted at beginning of year and processes were being piloted. The iTwin platform is constantly evolving so we did not have an opportunity to fully test anything of this nature. we can export quantities from the iModel, but not in a format that we can use nor that we can translate into TxDOTConnect.</p> |
| 24. | <p>Will this platform replace the TxDOT forms for supporting documents (Form 1002, etc), or will they need to be uploaded as PDFs? (David Stroud)</p> |



| | |
|-----|--|
| | <p>Through the documents folder you can comment through PDF markup. It is part of the package. When we submit our sheets in PDF format, comments can be made on them. To clarify, when we are talking about forms here, it is a comment form. It is not a TxDOT form. The TxDOT forms, Form 1002, DSR Form, stage gate checklists, will still be required. The forms within ICP are where you type in your comment. A good designation of two different forms. We have not explored building any of the standard forms as Bentley has not built the calculation model for forms in this platform like they have in Synchro. Replacing those forms does not take place until Bentley gets the same forms engine from Synchro. We would need to engage Bentley to start this work.</p> |
| 25. | <p>Do you anticipate the "Measurement" and "Payment" portion of most specifications changing in near future as a result of DD? (Mort TaShoor)</p> <p>We do not anticipate any specifications changing. The 2024 specification book has been written with digital delivery in mind. Some of the terminology in the specification book clarifies that plans can include digital deliverables. Not many modifications were needed this first digital delivery pilot. We added a special notice to the contractor to clarify any information that might be confirmed with the measurement and payment for the specifications. The digital delivery section is also working with maintenance and starting conversations with them on how to potentially revamp bid codes in the future. As the specification book gets updated, the bid description code changes. When we look at the life cycle of a project, especially with full digital twins, having to capture that information throughout the life of an entire section's (i.e. roadway), you could have multiple bid codes trying to be captured. We are trying to develop a new bid code source that would not change as often, live with the digital twin, and be referenced more quickly than switching it every 10 years.</p> |
| 26. | <p>Do the iTwin / iModels have an option to send a link to an external user to view the model? (Bob Pearson)</p> <p>Yes, however the user must be invited to the project to access. A link can be sent but it would not provide access. When you receive the invitation to the project, you are provided a link. But until we can get Bentley to build out that process, with approval from security, we are restricted.</p> |
| 27. | <p>Is this going to be available on VR / AR? (Nicola Ianeselli)</p> <p>We have tested and piloted that system for SSD where the full model was used in preconstruction for bidding purposes. It was not an official bid process, but they did bring in the VR set to allow contractors to walk around the proposed model building to see all the details to spec it out. We have not started that conversation nor looked into it on the digital delivery side for infrastructure purposes. But it is an option to consider.</p> |