



WEBINAR SERIES – USING DIGITAL DELIVERY ITL FOR 3D BREAKLINE CURATION QUESTIONS

Project: TxDOT Digital Delivery Program
Date: February 25, 2025 | 9:30 AM – 11:00 AM CST
Location: Microsoft Teams

	QUESTIONS/RESPONSES
1.	Comment - I think timing is the question on everyone's mind. (John Padilla)
2.	<p>If the contractor can't use the feature definitions (or we aren't willing to force them too), how does that work legally with the engineer's seal? What are we sealing? That the names in the template are correct so the breaklines work? (Blake Knox)</p> <p>You are delivering a DGN file that has MicroStation elements within it. Those elements have a feature definition associated with them that is used by the civil vertical portion of OpenRoads to manipulate that geometry. The file also has MicroStation properties that are directly consumable by any downstream user. When contractors receive that data, they don't use your model as you deliver it because of extra work they do, especially if the contractor is using automated machine guidance. The data gets broken up, repaired, and reused. The difference between this current method and what we've done in the past is that we're delivering it in a way that significantly reduces the contractors need to completely redesign and recreate the design to make it usable for their daily work plans or their automated machine guidance files. If there is a question between what was done by a contractor in the field versus what was delivered, we have a separate workflow. For signing and sealing, we are testing several different solutions to provide provenance for what was delivered. This will likely be in a future presentation.</p>
3.	<p>When will this workspace be made available? I might have missed that. (Bryson Lawrence)</p> <p>We are targeting Q1 but are still working on final refinements with our partners in the IT Division and our Bentley resident engineers on the means and methods of getting it posted into our current workspace.</p>
4.	<p>Can you elaborate a bit more on how new itl/dgn lib updates will be released with respect to Bentley releasing updated versions of ORD? (Bradley McConnon)</p> <p>With a typical ORD release there, you have a boolean situation or the data schema and the underlying architecture of those has been changed or it hasn't. The schema will change if they've added a new civil feature or functionality that requires new fields, with new values for that functionality to work or if a modification to historic schema is needed. If there is a schema change, we take our existing feature DGN libraries, upgrade them through the schema upgrade process and then move forward. The ITL and DGN libraries are going to be compatible with TxDOT's approved version. Despite any Bentley releases or their expected frequency, ITL and DGN updates will be based on the approved version that TxDOT is using, posted to our website, and is compatible with our workspace. If someone chooses to update to the next version, we can only guarantee that the workspace ITL/DGN libraries and everything associated will work with the versions approved at TxDOT. Use of the ITL or DGN libraries or workspace in a version not tested by TxDOT is at your own risk.</p>
5.	<p>Where can the training videos for the Trimble Business Center be located? (Mallory Karasek)</p> <p>https://community.trimble.com/viewdocument/trimble-business-center-tutorials?CommunityKey=d961b046-1661-40f3-8d7e-0bde6866a14d&tab=librarydocuments</p> <p>Within Trimble Business Center, the home screen will link you to all of the videos and training materials that Trimble publishes. The help menu will also take you to a Trimble web page. Trimble provides a good combination of videos on how it works and how to use it for various situations. They also provide</p>



	downloadable training data sets. Good content can also be found on YouTube. We will be producing videos that show some basic Trimble workflows for checking break lines, for QC, and give an idea of what it looks like for that downstream user. Potentially your next best source, outside of videos, are contractors.
6.	<p>Comment - My two cents on the "bottoms". Numbers might make more sense as people tend to associate letters with types or specs. (John Padilla)</p> <p>It could be a means and methods of how the designer wants to portray that as long as it's communicated to the contractor. To cover my bases, I chose numbers and letters for now with the intent to let the community at large tell me how it should be. The key is to have the granularity. With types of specifications or for pavement types, different HMA or stone mix, there are variations that use letters to differentiate each. The way we determined the initial passes was to review all of the pavement design documentation from TxDOT. A chart was created to show statistically, on average, which types of materials are used in which sections of pavement. This was the initial starting point for providing granularity between binder base, sub base, subgrade and the materials that are available.</p> <p>If your project is statistically average between the number of layers of pavement and what material you're using in those layers, then you are covered. If there is an edge case or something missed, this is the kind of feedback that we hope to receive. We don't want users to have to add additional granularity to the workspace. This level of granularity was not accounted for in the early workspaces and all the break lines were landing in the same place requiring a lot of add on pieces in other states. This feedback will be critical for the next releases. There will be a learning curve, but we really want to understand how things are working and how we can improve it. Please feel free to use digital.delivery@txdot.gov to give us feedback.</p>
7.	<p>Can we use this new feature definition library with current ORD version (10.12 release) or previous ORD version (10.10 release)? Or will this only work with upcoming new workspace releases? (Jacob Sundin)</p> <p>This can be used with any ORD version approved by TxDOT. We are making sure this is agnostic and that we can use these resource files in any version of ORD that is released.</p>
8.	<p>Could we just create a "natural ground" level, say 6" thick that would serve as a bottom that is not proposed to be disturbed during construction? (Jeff Miles)</p> <p>It is a possibility, but there might still be an overhang issue. How do you determine what was undisturbed? We could discuss how that would actually look for the bottom. It's easier to add bottom points because the components are made-up of points and those points need a feature definition and point name. It is easier to add the feature definition and points then let the downstream users decide how they want to handle a situation with multiple bottom surfaces and potential overhangs and letting them decide how much to strip out of additional ground if they have exclusion. We have not discussed excavation below subgrade because that's another potential consideration.</p>
9.	<p>Will this workspace be available to consultants? Will consultants need to "upgrade" their files before submitting to TxDOT or will it be a smooth transition? Assuming they're using the latest ORD. (Brandon Cuellar)</p> <p>On the pilot projects, if the project is close to completion, the legacy information is being used. You can keep using legacy pieces if the project is at 90% and not change the model. However, if the project is at 30% and will have substantial modeling changes, those additional levels of granularity should be delivered to the contractor. The DGN library can be loaded into the workspace with the template libraries before reprocessing the model. It depends on where your project is and its complexity. This is why we've built a separate template library and separate DGN library. The workspace will be made available for our consultant partners to make sure everyone has the same tools, to ensure everyone has the same results. This ties in with standardized workflows. Results will be the same no matter who is designing the project. Guidance will be sent out on whether a project will need to incorporate the changes. We don't want to be unreasonable but also want to make sure this new direction is understood and is where we are going. We</p>



	are not following the model that strings everyone along a legacy software, etc. that we are are ready to be discontinue. Guidance will be made available to everyone. It will be posted on our website too. Please make sure to check the website periodically for updates.
10.	Is the ITL available to consultants now? Could you post a link in the chat to the ITL? I can't seem to find it on the DD sites. (John Harvey) We are targeting this ITL release in Q1. It will be posted under the TxDOT Workspace tab.
11.	Can you discuss who is responsible for changing the model if, for example, a convenience store is constructed with new driveways after the design is completed and prior to construction. (Greg Cleveland) We are exploring this item. Our pilot projects, completed internally by the DDP staff, are under DDP staff responsibility for construction phase services. Internal staff will handle the unexpected items in construction, (i.e. like a driveway not seen until letting) and will manage the change order process. Going forward, we're exploring some options. Some DOTs add a bid item that allows the contractor to manage the change order process. It is a quantity listed as either an as-built or construction phase services or it may be that within the PEPS contract, we extend the construction phase services through the duration of construction to ensure that the company is responsible for making any changes required during construction. If it's an internally designed project, that district will likely be responsible. A decision has not been made.
12.	Comment to question above - There's the question of responsible and then the question of capable. (Blake Knox)
13.	The new ITL has almost all of pavement feature definitions or point names, but what action needs to be done if there is a pavement layer that is not listed there in the ITL, can we use another feature for that? (Ghazal Sokhansefat) In other words, what should be done if there is an edge case where there is a layer of pavement and/or a material within a layer of pavement? In that situation, please reach out to the team and communicate that edge case to capture it for the future. We could work with you if you need help to create a set of features that are unique for that situation. The features would have to be created to provide the granularity for that particular layer. There are a number of ways we can help build a unique layer or make changes needed to a project if you are not familiar with the workspace modifications. It is imperative that the edge case be documented and communicated to the contractor as they use the standard documentation as a go by. Bring up the edge case, communicate it, build it into your project, and deliver it with documentation so that it can be handled downstream. If you come to us at 30% and have identified an edge case that is more than a one off, the team can discuss if it is something we have missed. We could work internally to push out a minor update to be used right away. It depends on timing and whether it is a situation that happens more than once.
14.	Is Digital Delivery meant to be software agnostic? I see that the workflow is geared to TBC; however, what if a contractor is using Leica or Topcon machine control? (Robert Anguiano) It is built the way it is and being tested on Trimble because TxDOT uses Trimble. We have not presented other options because the lowest level common denominator with every single application for surveying that's ever been built is the level that the element is on. This works with every application.
15.	Is there any consideration of using generic names instead of material specific names? I understand and appreciate wanting to have level names match the model. But, in my career, I've had several instances of having to change the pavement design at 90% or later. And if some of the template point names need to be changed, wouldn't that be a time intensive process? I can give examples if requested. (Mark Herber) The point names are only useful for the for the modeler. The downstream user does not see your point names. The software uses your point names to generate linear features that we then use for break lines. We typically curate the point name so that the modelers all have an idea of what that object represents in the real world. We just have a standardized approach. What does matter is the level it lands on. Yes, there



	<p>is an opportunity to create a generic name, a catch all with a generalized generic field for the material to be applied generally. At the end of the project, level names can be changed to match. Take generic value 1 and rename that to your pavement. Generic value 2 can be renamed to sub base or base course. A valid question is what happens? What exactly needs to change? If the workspace accommodates a combination of the pavement in the layer of pavement that you need, you can update the feature definition of that point and the point name. You can double click on the point, click on the new value from point name list, and it will automatically update the feature definition. The model is reprocessed and done. The issue comes if there is an edge case, like we mentioned before and it does not exist. Another example is having a generic 12345 value for the materials, applying those values and then providing documentation. The problem with this and one we are hoping to avoid, is that every time a project is delivered, that generic field value of 1, 2, or 3 might be completely different for each project. If a contractor has 5 active projects, they now have to remember which project value belongs to which pavement. The goal has been to make this process as easy on the contractor as possible. From a designer's perspective, it does not always go as planned. We appreciate the comment and will look into this further.</p>
16.	<p>Adding Construction Phase Services may create its own set of issues. Some of these projects will take years to complete. That will add additional risk to our design contracts. (Bradley Peikert)</p> <p>We need to have someone that will be able to assist, as necessary. This is a process that is going to change the way we do things. Yes, it will be different. But we need to find the appropriate way for us to ensure any changes in the field are handled by the right people. We are exploring all the options, not just this one. It is an option that we are highly considering. In reality, there is a reduction in risk when you don't have contractors sifting through break line information, linear features on the default level, to determine what they represent. Or looking at plans in another application, and building a new corridor based on what they <u>think</u> it is from the information they have and building off of that new corridor, hoping they do not run into problems. And if there is an engineering decision to be made and deciding which way they should go, contractors then making that decision. We don't want that. We want the engineers to make the engineering decisions because they're the ones ultimately responsible. This is the risk in not doing this as well.</p>
17.	<p>Follow up to response on Ghazal's question, can we not use a feature definition that's existing and override the level name when creating the template? Using the same name format as the standard, your clarification is in the description. Something I didn't see in your example but thought this would apply for sawcut points or special ditch features. (Blake Knox)</p> <p>You could potentially apply a level name override. Keep in mind, these are just the points in your template. These feature definitions are not the features you might lay out in 2D and apply a profile to. If you are laying out your edges of pavement, your lane lines, your saw cut lines in your plan view, you are providing a profile. These feature definitions are not changing from what you have done in the past. The feature definitions are specific only to the ones that are in your template. With respect to feature name overrides, you could if you had a feature definition that landed a point but would need to think about this more. Yes, you need to model sawcuts to properly model TCP phases (Bradley McConnon)</p> <p>If widening without full rehab, yes we model saw cuts (Blake Knox)</p> <p>We have some responses of yes, for TCP phasing and if widening without full rehabilitation, we do model saw cuts. This is good information to add saw cuts back in.</p> <p>Those will not change the level display that they are looking for to show in construction phase I think (Ghazal Sokhansefat)</p>
18.	<p>Is there any guidance for Null Point naming or Feature Definitions? Not sure it would matter, but could be necessary to cut down on "noise". (John Padilla)</p> <p>We have a whole set of template only point names and feature definitions and null points for specific use cases. For example, we can have a null point that's specifically called switch and another specifically</p>



	<p>called search used for switches with parametric labels to turn on and off components within the template. They are differentiated from the ones actually seeking something and causing a change with a display rule. There is an entire subsection of non-modeling points.</p>
19.	<p>I tend to use feature name overrides to knit the breaklines together (especially with mega-templates with say a series of possible ditches with display rules) and create continuity on the models. I'm trying to imagine how that will work now. (John Harvey)</p> <p>There is nothing to prevent you from using feature name override functionality to tie points together. When you pick from the point list, it is a starting point for the feature name. Then the feature name picks the feature definition. The feature name override check box allows you to connect those points together across templates. As long as your points in the different templates have the correct feature definition, then they will land in the correct place. There is nothing within the workflow that prevents you from doing this. This hasn't changed. The responsibility is on you to make sure your feature definition is consistent between templates if you are going to be using a feature name override.</p>