

**Using 3-D Drawing Software in Civil Works Planning
Planning CoP Webinar
April 5, 2018
Q&A Session**

Mr. Stephen Stello, Nashville District Civil Engineer, presented the 5 April Planning CoP Webinar on his experience and successes using 3-D drawing software in Civil Works planning documents. Mr. Stello has been using Sketchup and other 3-D drawing software to create 3D models of USACE projects including flood risk and navigation projects, and shared information on how these 3-D software tools can be useful in the planning process. He also demonstrated how modeling efforts can be scaled from simple to complex, which complements SMART Planning concepts. Mr. Stello emphasized that while some USACE projects are difficult to understand through written descriptions and plan drawings, use of 3-D tools can help Planners better communicate designs with Project Delivery Teams, project sponsors, stakeholders, vertical teams, and decision-makers. Examples of renderings of projects using 3-D software by Mr. Stello and his colleagues can be viewed [here](#).



Please note that the PowerPoint presentation for this webinar will be uploaded in the near future. Any questions in the meantime or requests for tutorials can be directed to Mr. Stello.

This summary of the Question / Answer session of the webinar is not a transcription; questions and responses have been edited and reordered for clarity.

Do you plan to do a tutorial on SketchUp? If not, what is the best source for more information on how to use the software?

I can certainly provide a tutorial, which is often the easiest way for others to learn how to use the software. In addition, a large number of SketchUp tutorials are available on YouTube and provide information aimed at both beginners and advanced users. Also, we don't have to be limited to just SketchUp. It is the easiest software to use by far and there is a free version you can use at home, but there is other good software out there as well.

Do you use a free version of SketchUp or did you buy a more advanced version?

We did buy the "pro" version of SketchUp, but there is not a whole lot of difference between that and the free version. However, the free version is not meant to be used for business. We are currently working with HQ to obtain an enterprise license for SketchUp so that staff can avoid having to purchase individual licenses and can just download the software on the Corps app portal. Access to the software will keep growing, and people should keep an eye out for SketchUp on the portal in the next month or so.

Is Lumion approved software for the Corps?

At this time, Lumion is not an approved software for Corps computers. However, I am planning to put in a request to ACE-IT so it should be approved and available on the Corps apps page within the next six months

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or so. I will definitely be looking into getting a license for Lumion, as well as for the new Unreal Studio software that was just released. The goal is to get a center of expertise up and running rather than having everyone do 3-D modeling and renderings on their own.

The issue with some of the nicer software is not the price of the license, but the fact that you need a nicer “gaming” desktop or laptop that can actually run it. Otherwise, it will take a significant amount of time to render even one image. Right now, I use it on my own laptop at home because ACE-IT doesn’t support it.

USACE has a nation-wide contract for Autodesk 3ds Max, which is more complex than SketchUp and similar to Lumion.

3ds Max is something I would have on my machine if I could install it given issues with Windows 10. The 2018 version, which won’t be available to the Corps for another year, has a lot of useful water animation functionality for creating flooding videos. I definitely don’t want us to be limited to just SketchUp and I know there are a lot of people using 3ds Max and other products. However, the learning curve for these software products is much higher – similar to CAAD. SketchUp is much more accessible and can be learned fairly quickly, which is why we’re encouraging it in the Planning community.

Why not use the normal computer-aided architectural design (CADD) tools like MicroStation to do the modeling and rendering?

It always comes down to time and money. In my opinion, it’s generally three to five times more expensive to create modeling and animations in CAAD than it is with easy-to-use software like SketchUp.

Aside from this presentation, do you have a summary of talking points that Planners can use to discuss investments needed for the software and staffing resources required to produce 3-D renderings? We will likely have some challenges convincing other CoPs (e.g., Engineering) about the value of this type of work.

My approach is to create the work and demonstrate it as opposed to developing a bunch of talking points and trying to sell it. Project managers are excited about the type of work I’ve shown here, especially the animations. If you can get a little bit of funding and a chance to produce some work, you can prove that the investment is worth it. If people are interested I can absolutely put together talking points, but I think right now our focus should just be on showing what we can do.

In addition, as I create a cleaner work flow and continue to help others learn how to use the software, I can better nail down how much a certain type of effort costs. As an example for now, the four minute long animation in the presentation took approximately a week to create.

The goal of this presentation was to give you all an understanding of what’s out there. The more we use this software and see its application, the more widely we will see it used across the Corps. We’ll be doing a few other webinars on this topic and encourage everyone to get involved and start using the software for their own projects.