

Building High Fidelity 3D Landscapes

On day two of the 2010 GeoDesign Summit, Jason Lally discusses building high fidelity 3D landscapes in a design charrette setting with participants using GIS, CityScape, and augmented reality.

<http://video.esri.com/watch/123/building-high-fidelity-3d-landscapes>

Video Transcription

00:01 Morning. I'm here representing an organization called Place Matters.

00:05 We're a nonprofit based in Denver.

00:07 And what we do is we apply novel and emerging technologies and techniques to traditional planning problems.

00:16 Today I'm going to talk about high-fidelity participatory design.

00:19 In particular, thinking about both, not...not just high fidelity in terms of imagery but high fidelity in terms of experience as well for...

00:27 ...for the public participants.

00:30 What we believe at Place Matters is that if we apply the right tools and techniques to a process and make it informed, make it equitable...

00:39 ...we can have sustainable outcomes.

00:42 But, as we all know in this room, that public process can often be very, very messy to go from abstraction to reality like pictured here.

00:51 And the planning profession has done pretty well at developing tools and techniques on top of GIS. Here's CommunityViz.

01:01 There's INDEX and What if? and another...a number of scenario planning tools that help people chart the future through indicators...

01:09 ...See map-based projections, but there's a gap, and that gap is in the visualization or the imagery around concepts like design and...

01:23 ...especially density.

01:24 That...that becomes a really hard one for...for the public to...to munch on.

01:29 We do have a lot of tools in...in the 3D realm that give us really great output like 3D Studio Max or Maya...

01:37 ...but they're incredibly labor intensive and require a...a lot of expertise.

01:41 And then on the lower end we have tools like SketchUp which have really pushed us into...into this realm of...of rapid urban modeling...

01:48 ...but are better on a neighborhood or...or building scale and don't produce as high fidelity images as...as could be.

01:59 So, Place Matters is looking at ways to evaluate tools that can fill this gap.

02:06 And there are three basic criteria, they're a work in progress, but one...

02:11 ...we're looking for tools that increase the visual communication of concepts and potential futures.

02:17 Two, we want tools that bring the public more fully and richly into an iterative design process including low-cost digital feedback loops.

02:27 And three, we're looking for tools that...excuse me...streamline workflows to save time and money.

02:35 One such tool, and this is just an example, given time constraints, is a tool called CityScape.

02:42 It's basically, in a nutshell, it's Sim City for planners.

02:47 It allows you to produce high-fidelity, 3D simulations in real time, and it...it's a rapid urban modeling framework...

02:58 ...where you can manually edit roads, create dif...distinct blocks that operate as blocks, which is really important for planners...

03:08 ...pull in buildings from other modeling programs or develop buildings right in the program...

03:13 ...and pop them up just like you would in SketchUp.

03:16 More importantly, you can dynamically manipulate this environment in real time...

03:21 ...literally moving mountains, reconfiguring blocks, and reconnecting road networks, all with the click and drag of a mouse.

03:30 They produce imagery like this, and this is in real time.

03:33 This isn't something that you send off to a server farm to get rendered and animated.

03:37 This is...this is operating in a gaming...a gamelike environment.

03:40 Where you'll notice is there are cars there.

03:42 Those do move.

03:43 They are simulated.

03:45 You can actually import traffic models from traffic modeling programs.

03:51 So it's very interoperable which...which is something that we like about this product in particular.

03:58 This is another example of...of something that produces and, if you want, you can even simulate flying through your city...

04:04 ...in your very own personal plane.

04:07 But back down on the ground, they're...more important to the people in this room, it interacts with GIS data.

04:15 One thing you can do is you can import elevation data, road networks like you see here, building footprints...

04:24 ...and then you can pop those buildings up pretty rapidly, texture...add texture to them...

04:29 ...and then you have a real urban environment that now you can add to and...and manipulate in real time.

04:36 Now, this is just an example of a tool. I...

04:41 The main takeaway f...of this presentation isn't that CityScape is the latest and greatest and you should all go out and buy one right now.

04:48 But that there...there are other tools.

04:50 There...there are tools that are emerging such as Scenario 3D from Placeways and makers of CommunityViz...

04:58 ...CityEngine by a company called Procedural and...and various augmented reality apps that are mostly in the lab right now in...

05:07 ...in universities across the world, looking at ways to...to do real-time planning with 3D...3D images on top of...on real maps.

05:17 So there's...there's no silver bullet solution.

05:21 What we're looking at is...is that the tools are finally catching up with the need to clearly communicate concepts...

05:30 ...such as d...design and density to...to the public and also to engage them in iterative design process.

05:37 The role of Place Matters and the academics and professionals in this room should be to...to push for the...

05:47 ...the...the use of appropriate and emerging technologies and processes so that we can bridge the gap that...

05:58 ...that I talked about earlier in...in...in visualization and help turn abstraction into reality.