3D analysis with ArcGIS Pro

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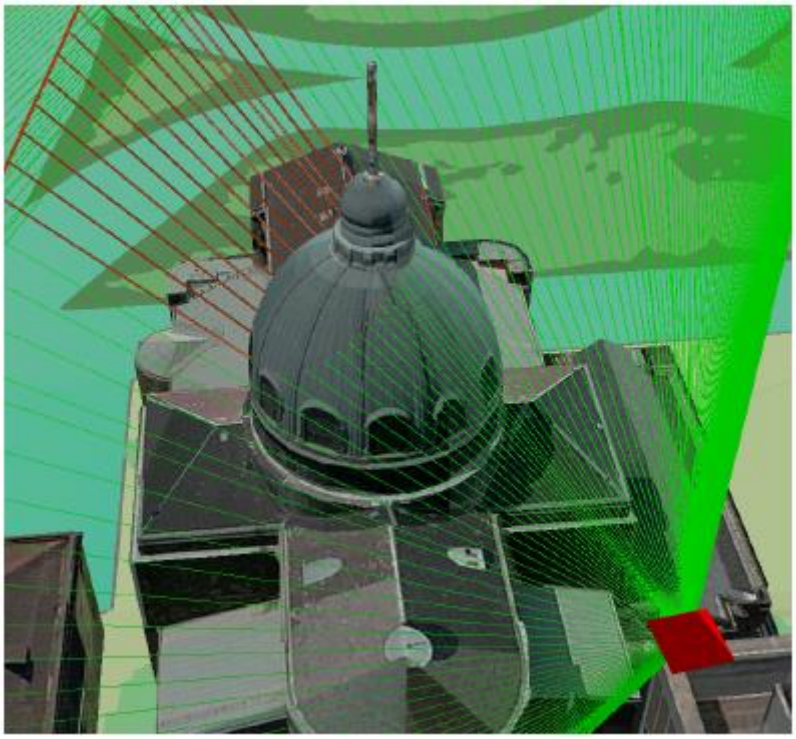


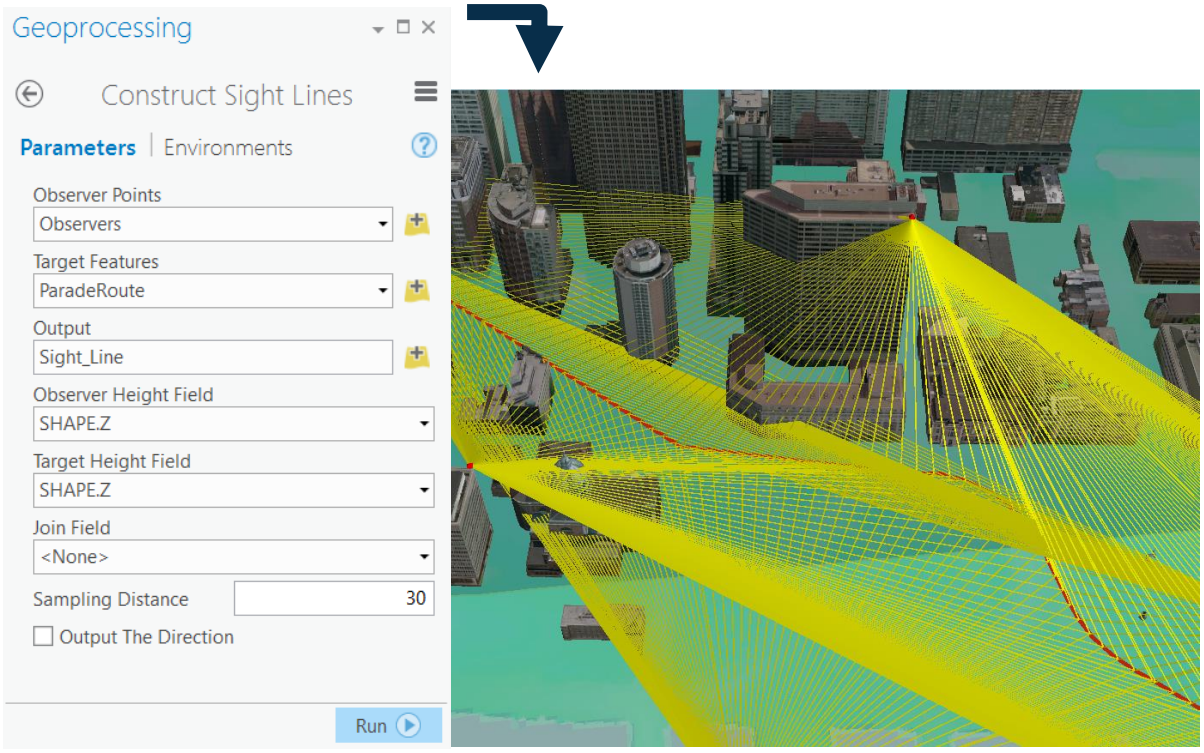
A line of sight is a graphic line between two points on a surface that shows where along the line the view is obstructed. The color of the line indicates the locations where the surface is visible and where it is hidden. The status bar indicates whether the target is visible or hidden. ArcGIS Pro and 3D Analyst can assist you in answering spatial problems that can only be resolved with 3D analyst.

In this tutorial, we are using data from Philadelphia, USA to demonstrate the functionality of the 3D analysis in ArcGIS Pro. We are using line-of-sight analysis to determine which locations can be seen by the security during a parade around Philadelphia.

Analyse a line of sight

First you need to determine the lines of sight for each of the observers. Select the Construct Sight Lines tool and fill in the parameters as below:

- Observer Points – these are the points that serve as the location of the observer, in this case, security personnel
- Target Feature – this is the feature that is the target of the analysis, in this case, the route of the parade through Philadelphia
- Output – how you will save the analysis output in your geodatabase
- Sampling Distance – the larger the value of sampling increases the number of lines of sight generated

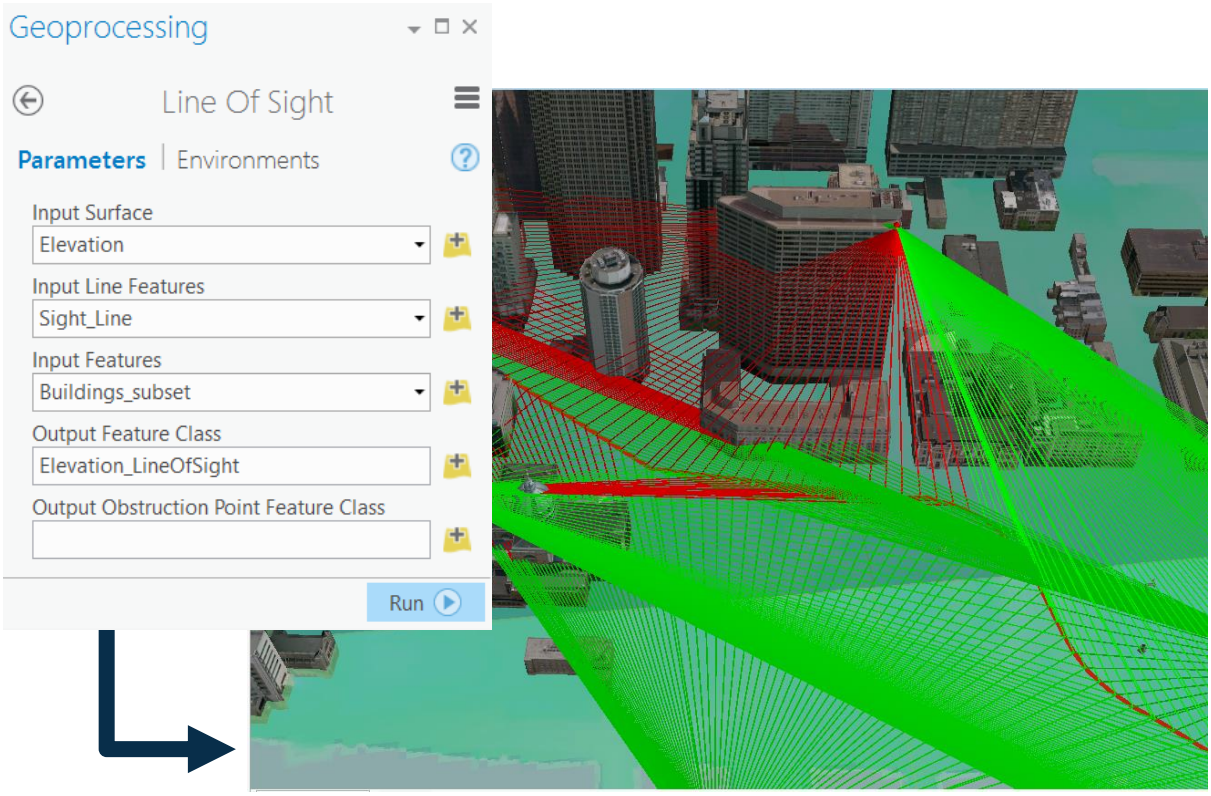


After the tool has been run successfully, you can zoom in to the lines generated in the image. You will see it displays a lot of lines leading to the parade route.

Next, you have to determine the visibility between Observer Points and the parade route. Run the Line of Sight tool with parameters as below:

- Input Surface – the surface used for the 3D calculation. This surface can be DEM or another surface with a height value
- Input Line Features – these features are generated from the analysis of the Construct Sight Lines
- Input features (optional) – 3D features that becomes obstacles or hindrance to Lines of Sight, in this case, the building
- Output Feature Class – this describes where you will save the output of this tool. Please save it in your geodatabase

If you are successful the tool will produce a line that has been classified into two, namely, visible and hidden.



The green line shows which areas are seen by observers who were on top of the building, while the red line shows area that cannot be seen by the observer because it is hidden by buildings.