

Arc GIS® or Google Maps®?



ArcGIS® Pro and Google® Maps

Ok, Ok, this might not be an apple to apple comparison, but hear me out. I have been a user of ArcMap® (predecessor to ArcGIS®) before I ran into Google® Maps. Now since ArcGIS was released in 2015, I decided to see what improvements have been made and do a platform check on the two. So here it goes...

ArcGIS

First of all, ArcGIS® is a Windows App. That means you have to install software on all computers that want to run the software. They offer a free viewer App similar to Acrobat Reader, Plant3D, CAD, et al. Otherwise, you are paying a yearly use subscription....which can add-up. Also there is a distribution license cost as well. What does this mean? When you create your ArcGIS project you have to deploy it to the cloud for other people to use it. This may require a distribution license. What if you miss a subscription? Do you risk losing your right to maintain your projects? Good question. I could not pull that from the available documentation.

There is also a Cloud version of the software much like Office 365 and a JavaScript API (for you non-geeks, Application Programming Interface) for web page support. I did not try out the Cloud version but I did mess around with their API since I am more familiar with that platform. ArcGIS® can generate both 2D and 3D representation of your data. Key words here are “representation” and “your data”.

ArcGIS® is all about representation. It takes your data and gives it visual emphasis. It has many map types to choose from for the background. Terrain and Topography are really useful. If you need to know what cities and counties you are interfacing with, these maps are available. One example screen is shown below. Really cool, right?

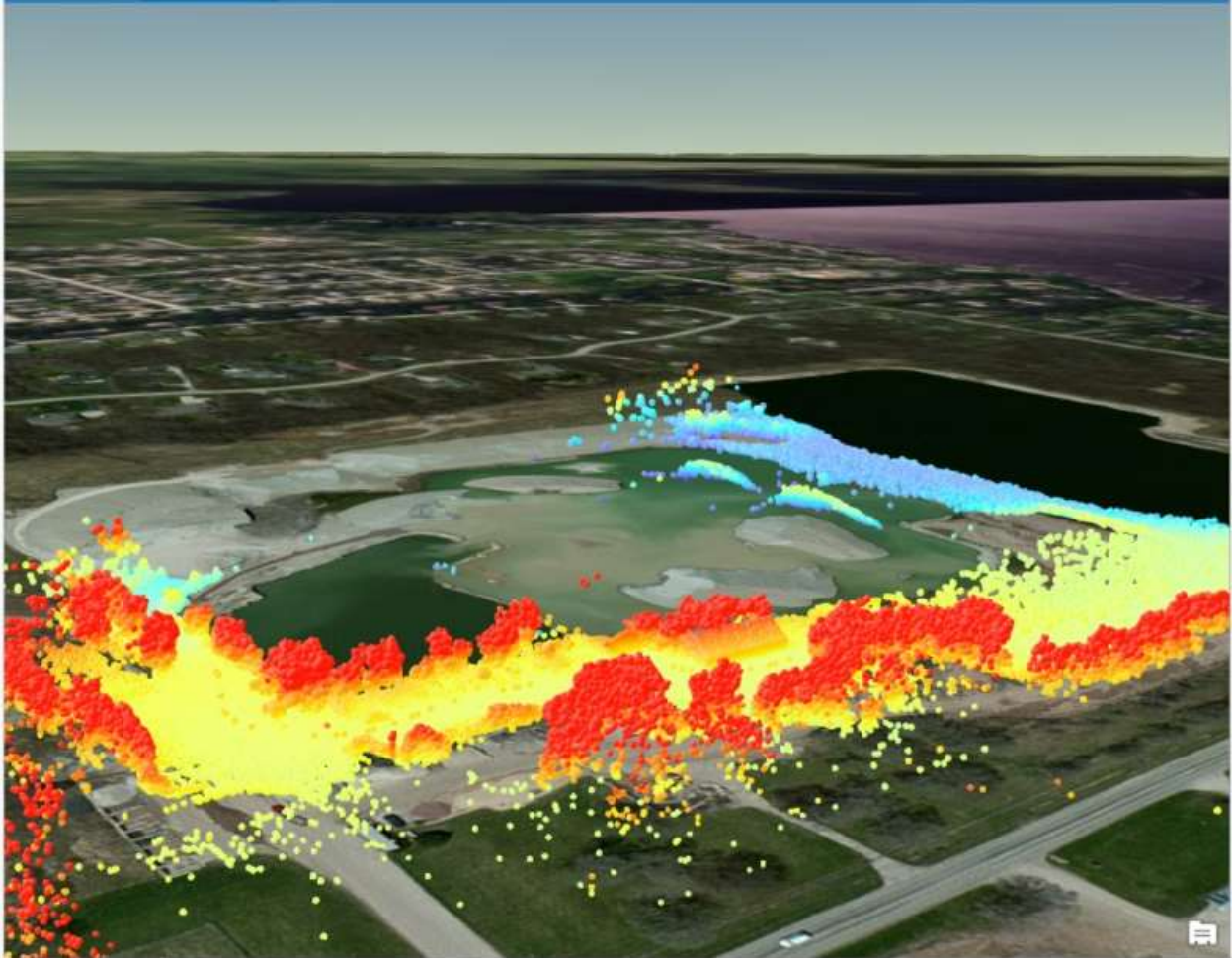


Photo Courtesy of ESRI ArcGIS® Pro

Now let's discuss the phrase "your data". ArcGIS® needs data to display. As you work with ArcGIS® you will find that data is imported and is called a layer (Similar to CAD layer). The data can be entered manually, via an Excel import or via a DB import. But in all cases this import is converted to an ArcGIS® layer. When you run your report view, deploy to the cloud server, this data is fixed. If you data changes, you need to repeat the process. Hmmm.

There is an option to share your data to ArcGIS® Online, but this is a log-on feature so it does not appear to be true “web browser” sharing. Also these files can be very large. If you are forced to delete features to reduce file size, then you start to lose representation resolution and the value of the image. Hmmm again.

Google Maps®

Now, if you are reading this section, you are probably wondering if there is an alternative. Well, the answer is “75%” yes. That would be Google Maps®.

First Google Maps® is a web application. It runs inside your browser and no software is needed to be installed or licensed other than the browser. Essentially it is free. Google Maps® has been around for a long time and has an extensive following, user groups and well documented API. One would post the web site with your active map on a web server and people, would view the information via a browser. Very simple.

Currently it has three (3) background maps that include, Roads, Terrain and Satellite. It is 2D but who knows the future? Layers are created and displayed by using client side JavaScript code. With it you can draw just about any shape and mouse-over, on-click events for metadata, chart and graphs, documents, etc. One could plot out property lines, well pads, unit boundaries and asset whether they be asset points or segment lines or arcs.

For road, city and county information the Road Map would be used. One can see the boundaries but the metadata is not provided. For terrain data one could use the satellite map. So how do we make all these beautiful looking maps? With code, of course.

Interfacing code for Google Maps® can be created in just about any language including .Net, PHP, JAVA, Python, C++, et al. Do you need to create this code yourself? Well, you can, but it is also available from software shops like HCI Systems. But where is the data? Good question.

HCI uses a .Net platform, so we use that to generate the JavaScript code for generating our Google Maps®. And, our data is stored in a database. The data can be entered manually via our web forms, imported via Excel files or automatically via an interface with a location service provider or similar system. This last one is used to track who is where data. So how about an example.....

An Incident Example

So let's walk through an example incident with both interfaces. An incident occurs. It has a type, description, location, weather data, time, who was involved, some photos, maybe a severity rank, injuries and some other information.

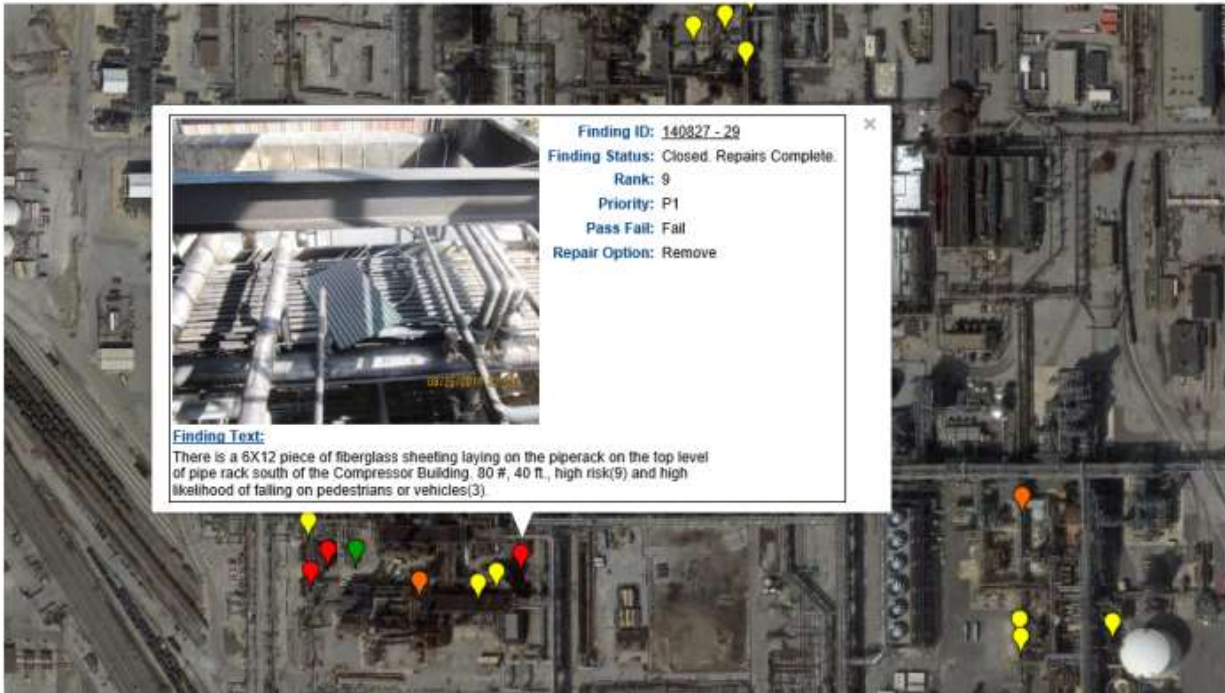
If your system is a clipboard, a sheet of paper and a camera, you need to update your process. There are many tablet Apps out there that have forms capability, including ours. But, continuing, you fill out the form and come back to your computer and initiate the incident management workflow process. It could be an Excel spreadsheet, a Windows App or some form of a database App.

With ArcGIS® you have to update the incident data layer for each new incident. This can be an Excel import, a database connection or database table import or manual entry. The ArcGIS® project needs to be re-compiled and then re-deployed and/or re-generated for a new report. This can be viewed using an ArcGIS® viewer App or the report can be emailed as an attachment. This is performed by someone that really understands ArcGIS®. Which on a scale of 1 to 10 on complexity it is about a 7.

With HCI's Incident Manager with a Google Maps® interface it would go like this. The investigator takes his tablet (intrinsically safe) to the site and gives the incident a name, fills out the form and clicks "Save". The incident is now open and active. The investigator takes and uploads photos, clicks "I Am Here" icon to set the GIS coordinates and the incident record is updated. This is performed by someone that understands incidents and a web browser. On a scale of 1 to 10 on complexity it is about a 2.

The incident is immediately converted to a user configurable icon on the map. The mouse-over event shows the incident information and an on-click event shows reference documents and procedures that are available for that incident. All data is stored in a database. KPI charts and graphs can be coded for analysis.

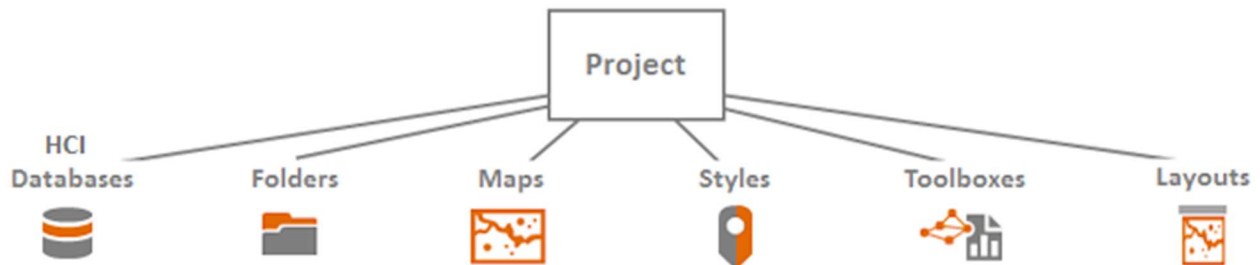
The screen shot shown here is what this would look like with very minimal coding. The user elected to use Pins to represent the incident. In this case a near miss. The various colors indicate the risk rank values on a 3 by 3 risk-rank table. Filters and a text search engine would be used to search for the incidents. The information widow can be coded to show more or less incident information, relevant documents or, as in this case, a photo of the incident and the suggested repair option and status.



Simple Example of an Incident Google Maps[®] Interface. HCI Systems, Inc.

Concluding Remarks

If your business really needs the diversity of available background maps offered by ArcGIS[®] Pro, then your decision is made. In which case, we suggest utilizing HCI's tablet forms interface for creating an Incident Tracker and then using ArcGIS[®] database connector tool to connect to that data. (See image below.) At least you are minimizing data entry effort.



ArcGIS[®] Project Architecture with HCI Database Connector. Courtesy of ESRI.

If you are looking for an interface with up-to-date maps, then that is another story. The Geological services cannot update all the backgrounds at once. It takes time. So you will



have to live with some percentage of inaccuracy. This is true with both ESRI's Arc GIS[®] Pro and Google Maps[®].

If you are looking for low cost alternative, then Google Maps will be where you are headed. In which case, your search is over, HCI's platform has integrated Google Maps[®] in its base solution. Check us out.

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