Virtual Site Visit (VSV) Web template

Background: The Virtual Site Visit web application was designed to support organizations that must collaboratively review site locations, usually on a recurring basis. The original use case is a local government planning board that meets monthly to review land development applications. Each land development application takes place on one or more properties and is subject to review for compliance with government regulations.

View live app - http://bosdemo2.esri.com/vsv
Download app code - http://www.arcgis.com/home/item.html?id=302fc073b1df49e895a1fafc0ecd488d

The Virtual Site Visit web application (VSV) supports the above use case by allowing the compilation of a list of locations of pending land development applications known as "sites". A list of all sites currently under review is provided from which each site may be reviewed individually. An individual site is displayed as a highlighted property parcel(s) on an interactive map and a "Ground Conditions Report" is dynamically generated for the site.

The Ground Conditions Report, a.k.a Report, checks the location of the individual site against configured reference layers such as wetlands, floodplains, zoning designations or soil types. If the site exceeds a configurable proximity threshold, it is denoted in red and may be worthy of further investigation.

Some anticipated uses of the VSV application include:

- As a decision support tool for a Planning Board, Committee or Council. The VSV web app may be projected on screen or monitor during a meeting as the each site is reviewed.
- Local government staff may use VSV to quickly review one or more sites.
- A citizen may use the VSV, as hosted by a local government office, to discover land use applications currently under review.
- Proximity reports can be dynamically generated for multiple data layers for lists of locations. Because the VSV is so flexible and configurable, it can be used as a generic Overlay (http://resources.arcgis.com/en/help/main/10.1/index.html - /An_overview_of_the_Overlay_toolset/00080000009000000/) solution for any applicable situation.

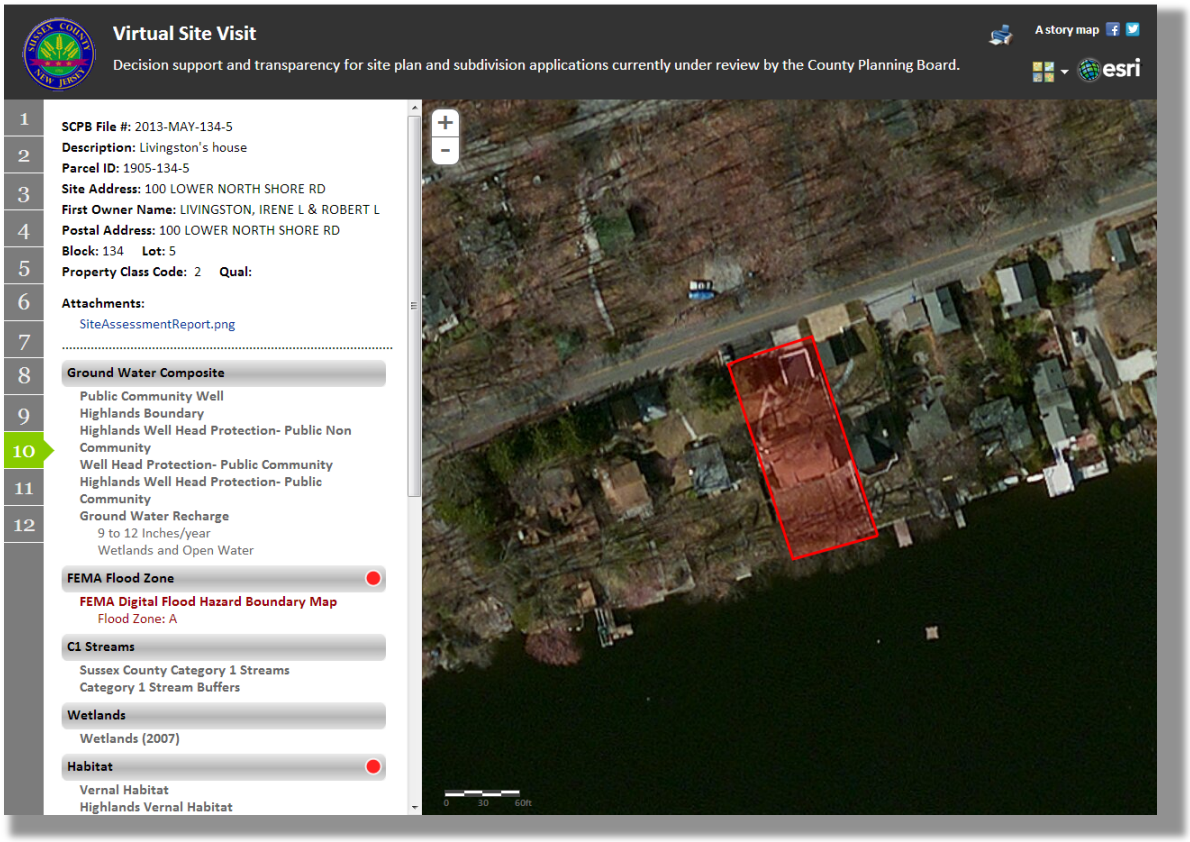

Figure 1: Viewing Site #10 in the Virtual Site Visit web application.

VSV also includes a secure administration page which is used to keep the list of sites up to date. Authorized users can add new sites, delete existing sites and add related files, such as photos or reports, to a site.

Create the VSV group:

Create a group in your ArcGIS Online subscription that is shared with your organization. Assign a name to this group though we will refer to it in this document as the VSV group. Only invite people to be members of the VSV group that need to be able to use the VSV Administration page. The Sites feature service will be added to this group later in this document.

Create the ArcGIS Online web map for your VSV:

Use the standard ArcGIS Online functionality to create the web map that will be used in your VSV. Assembling your content, symbolizing layers and configuring attributes is likely to be the most time consuming part of creating your VSV. Content can be continually refined after the initial publication of the web map if desired.

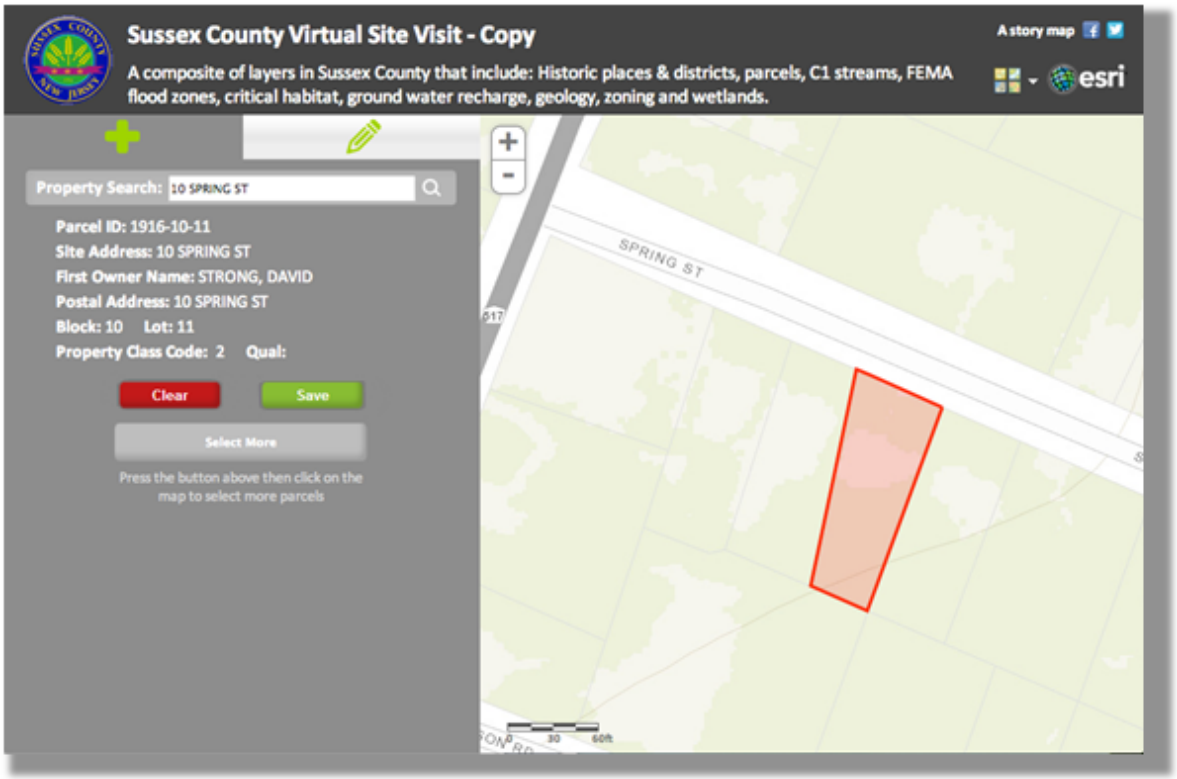

Figure 2: The secure administration interface of VSV. Authorized users can add new sites, delete existing sites and attach related images and documents to individual sites.

Choose a Basemap: Use the basemap of your choice in your web map. Generally, we have good results with the Topographic base map, especially if your jurisdiction contributes data to the Community Maps Program, http://www.esri.com/software/arcgis/community-maps-program. Remember that the VSV app allows the user to dynamically switch to any of the free, Esri basemaps.

Add Parcel Layer: Add your parcel data as a layer in the web map. Set the layer name to "Parcels" so that the VSV app can readily identify this important data layer. Also, the parcel layer is used in the VSV Admin Page to locate and store sites.

a) **Configure Search Fields**: In the web map, specify up to two (2) search fields for the parcel layer. Commonly these fields are site address and the unique identifier though they could be any search fields. Choose the "Configure Popup" on the parcel layer, select the "**Pop-Up Contents** Display:" drop down menu to "A custom attribute display" and click the Configure button as shown in Figure 3. Use the format `searchFields=PARCELID,SITEADDRESS` where values to the right of the equals sign are the fields to be searched.

b) **Configure Report Fields:** Specify the fields to be included in the report by clicking the "Configure Attributes" on the Pop-up Properties panel for the parcel layer.

Check the checkboxes in the “Configure Attributes” box as shown in Figure 4, and choose a short and friendly alias for each field.

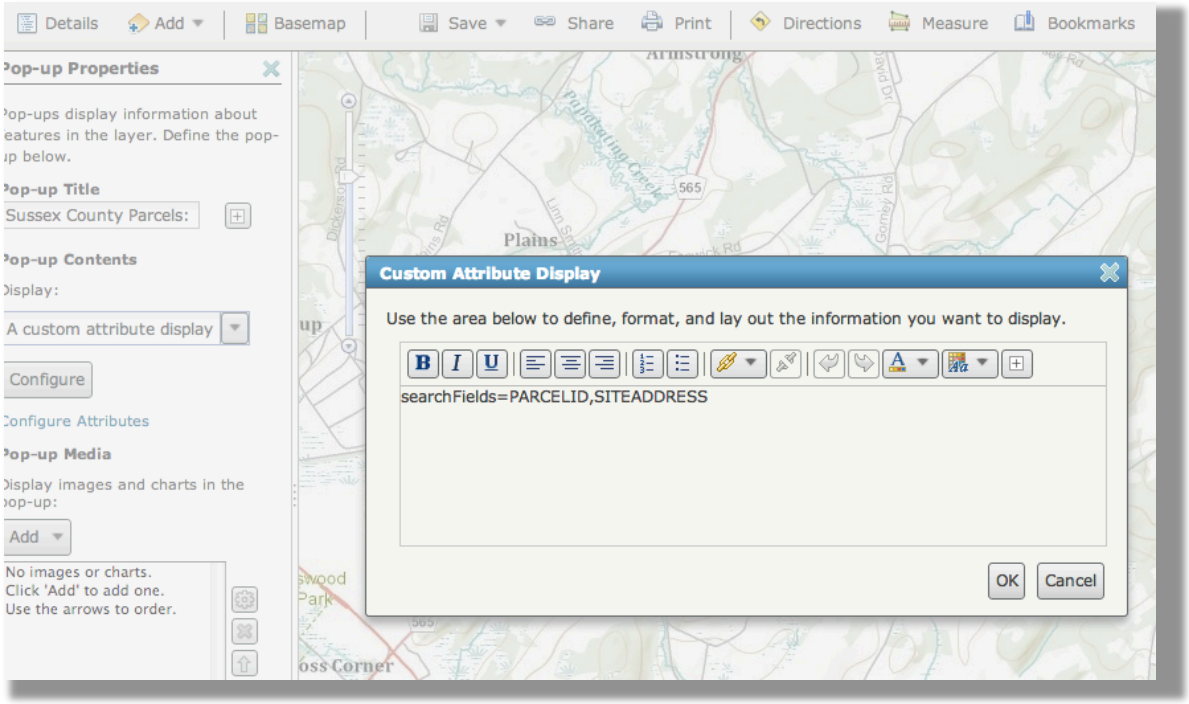

Figure 3: Define up to two (2) search fields for the parcel layer. These fields will be searchable from the VSV admin page.

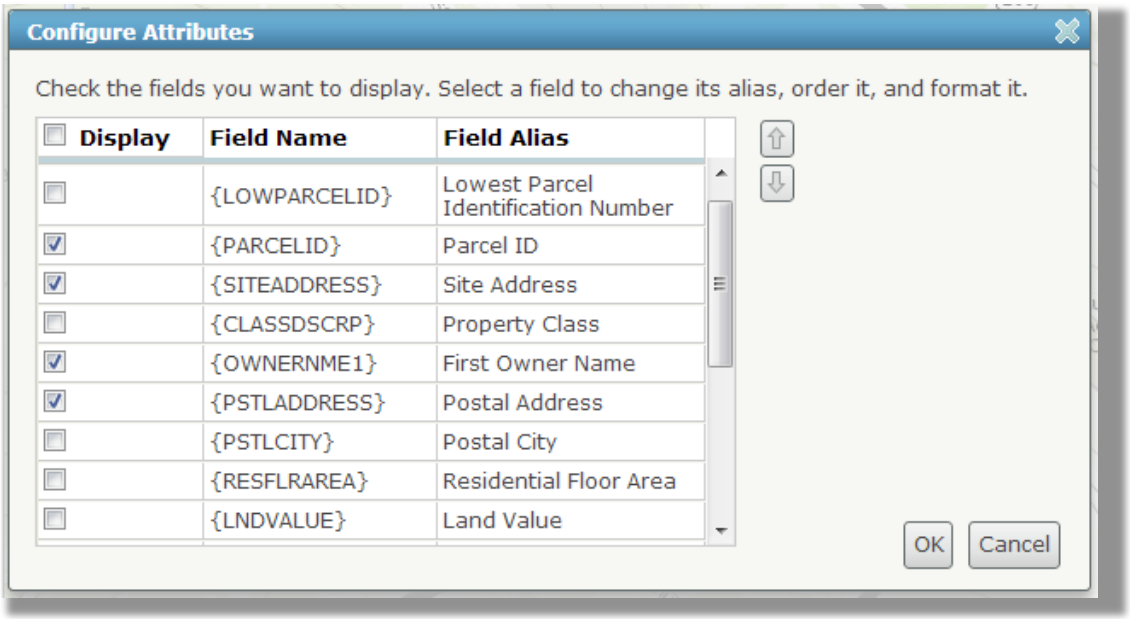

Figure 4: Use the “Configure Attributes” box to select parcel report fields and set aliases.

Add services as ground condition layers: As layers are added to the web map keep in mind that every layer added in the web map will be included in the Report when a user is looking at a particular site. Layers in the map must be queryable such as a feature service (ArcGIS Online hosted or ArcGIS for Server) or a dynamic map service from ArcGIS for Server. Tiled services from ArcGIS Online are not supported as they cannot be queried. At this writing, VSV has not been tested with data files that are loaded into the web map itself, http://resources.arcgis.com/en/help/main/10.1/#/Adding_layers_from_files/01w10000073000000/. Also, change the layer names to something short and easy to understand as these names will appear in the Report.

Because the Overlay operation happens on the fly, the Report will use the most up to date information from the layers included in your web map. That is, when the data that powers a map service used in your web map is updated, the VSV Report also uses that updated information. This creates a high level of trust for your users as they can expect the latest information to be available in the VSV.

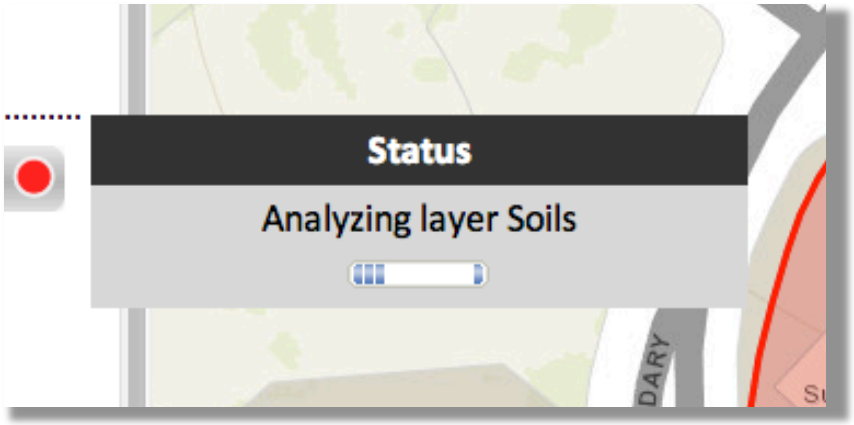

Figure 5: The Overlay operation shows this status as it dynamically analyzes each layer for the currently viewed site.

a) **Define simple symbology and remove scale dependencies:** Take the time to configure easy to understand symbology. The simpler the better. Remove all scale dependencies on each layer in your web map so as to support large scale display required when viewing an individual site. If the resolution of a data layer is not appropriate for use at large scales, consider removing it from the VSV web map entirely.

b) **Turn layers off:** Please be sure to toggle the visibility of all the layers in your web map to off by unchecking the check box next to the layer name in the Contents list. This ensures that VSV has a clean and fast drawing map. The VSV app will toggle layer visibility as needed depending on the user interaction.

c) **Configure Attributes:** Configure the aliases and visibility of attribute as appropriate for each data layer in the web map. Understand that these fields will appear in both the Report and the feature popup when the user clicks on the map.

By default, VSV will perform an overlay with each layer and return the visible attributes for features that touch the site. There is also the opportunity to specify what conditions trigger "red" results in the Report. Results that are displayed with red text and a red circular indicator are intended to draw attention to a potential issue that may require further investigation or follow-up.

Figure 6: Red text and a red circular indicator draw attention that this site may be in a flood zone and warrants further confirmation.

Please define the conditions determining a red result by setting some simple parameters for a layer in the web map. Choose the "Configure Popup on a layer, select the "**Pop-Up Contents** Display:" drop down menu to "A custom attribute display" and click the Configure button as shown in Figure 7. To show a red circle indicator and red text in the report when a layer's feature touches the site, add the line "*alarm=true*" without the quotes. If desired, further refine the alarm condition by including a query statement on a new line beginning with the parameter "*alarmValues=*" without the quotes.

In Example 1 if a feature touches the site and that feature has a value of 'A' in the FLD_ZONE field, that layer will have a red indicator icon and red text in the Report to call attention to this potential issue.

Example 1 where {FLD_ZONE} represents the name of a field:

```
alarm=true
alarmValues={FLD_ZONE} = 'A'
```

Example 2 where {LNDSCP_RAN} represents the name of a field:

```
alarm=true
alarmValues={LNDSCP_RAN} = 3 OR {LNDSCP_RAN} = 4 OR {LNDSCP_RAN} = 5
```

In Example 2 if a feature touches the site and that feature has a value of 3,4 or 5 in the LNDSC_RAN field, that layer will have a red indicator icon and red text in the Report.

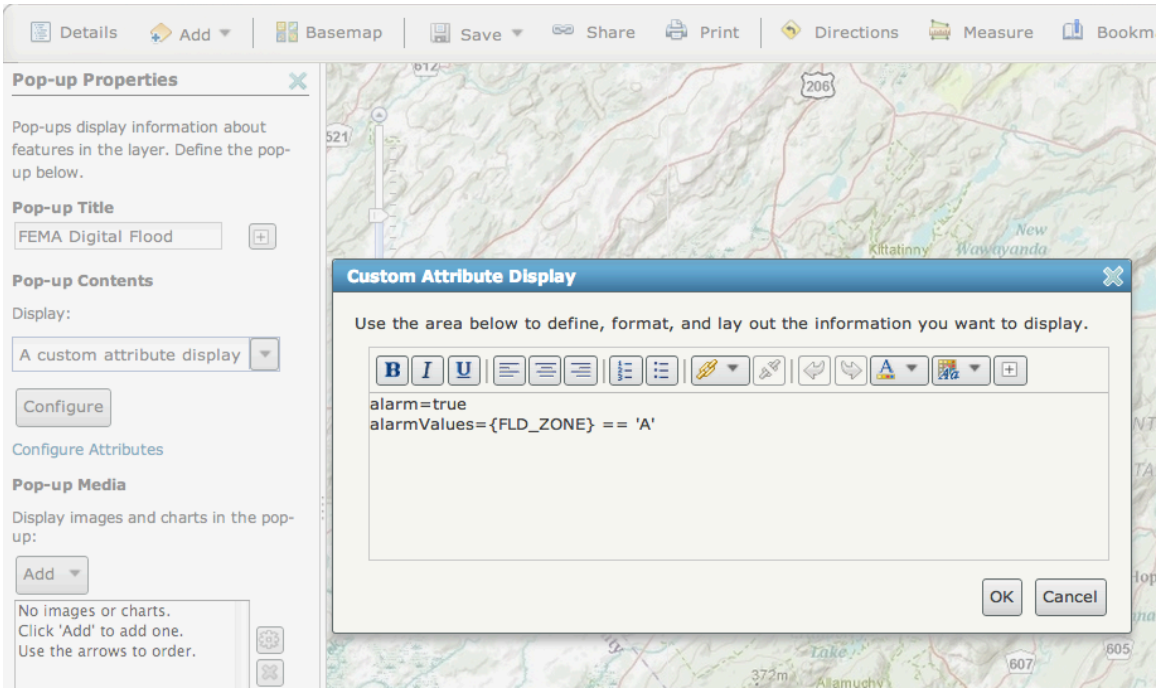

Figure 7: Use the Custom Attribute Display box to set "red" conditions in the Report for a layer in the web map.

Remember that VSV is only as accurate as the data provided. Please only provide data that has suitable spatially accuracy and resolution for the desired task.

The web map should be shared with "Everyone (public)" and may optionally be shared with VSV group (recommended). Assign a name to this web map though we will refer to it in this document as the VSV web map. All services that are used as layers also need to be publicly shared.

Create the Sites feature service:

VSV discretely uses a feature service to store all of the sites features, attributes and attachments. VSV expects a very simple field structure for this service. Complete the following steps to create the Sites feature service using ArcGIS Desktop with the map package provided in the VSV download. .

1) Click VirtualSites.mpk to open the template Virtual Sites layer with ArcMap

2) Click menu File > Sign In and type your username and password to sign in ArcGIS Online.
3) Click menu File > Share As and select "Share As Service". Choose "Publish a service" in the "Share as Service" window, then navigate to the next window.
4) Choose "My Hosted Service ([Your organization's name on ArcGIS Online])" for "Choose a connection" and input a name for the feature service as shown in

Figure 8. Then navigate to the “Service Editor” window by clicking the “Continue” button.

5) Click **Capabilities** in the left panel to edit the service’s capability. ” In the right panel, enable **Feature Access** by checking the corresponding checkbox and uncheck **Tiled Mapping** (see Figure 9).
6) Click the sub item Feature Access in the left pane of the Service Editor to set **Operations Allowed**. Make sure checkboxes for Create, Delete and Update are checked (see Figure 10).
7) Select “Sharing” in the left panel to edit the sharing properties for the service. Check the checkboxes for your organization, Everyone (public), and the member of the VSV group created above for the VSV application (see Figure 11.)
8) Click the “Publish” button to complete the publishing of the Sites feature service.

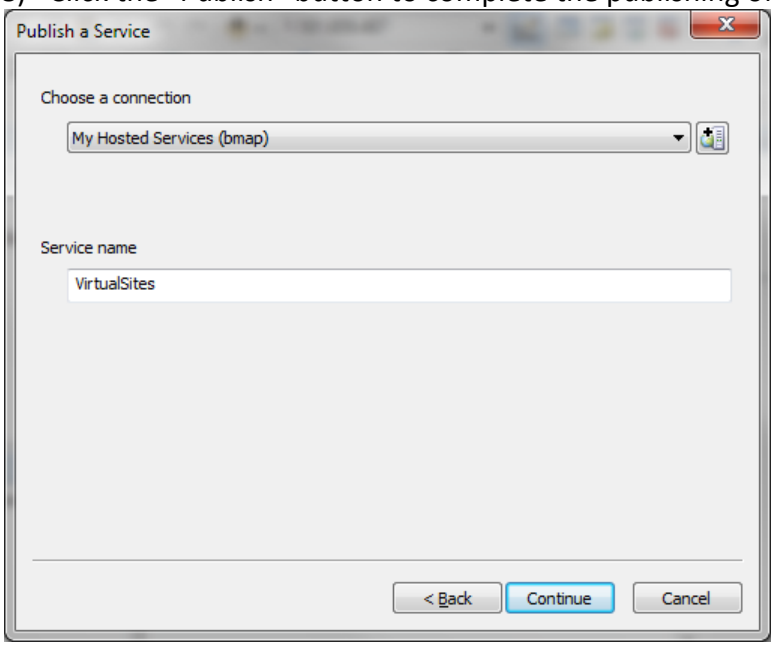

Figure 8, Select the connection to your ArcGIS Online subscription to publish the Sites feature service

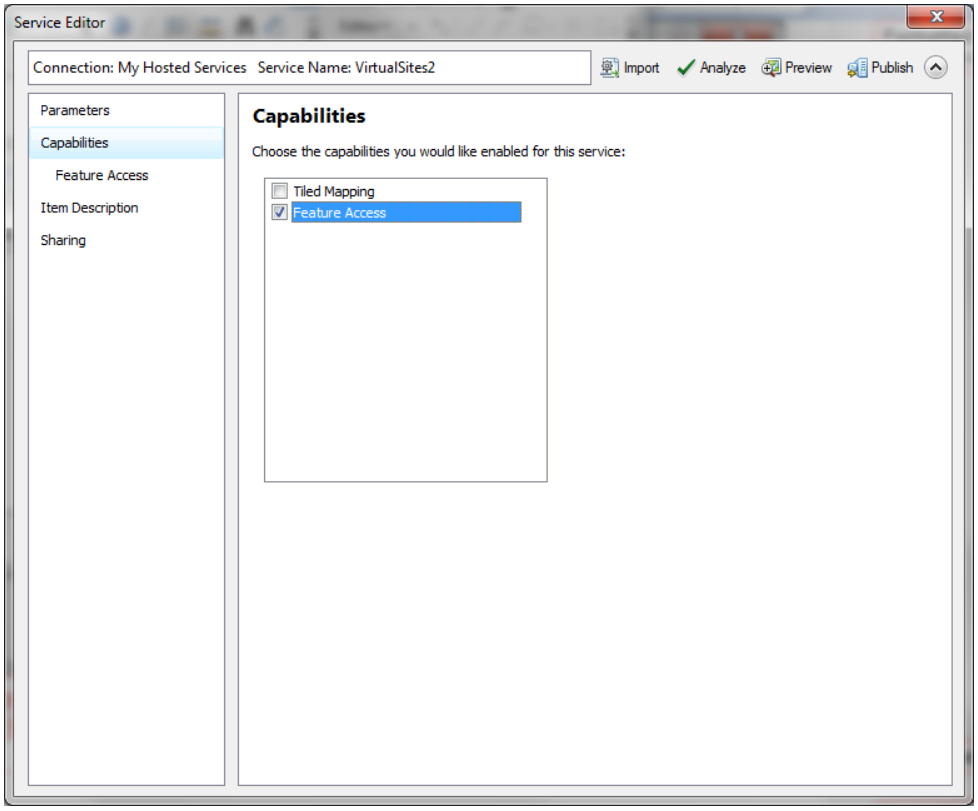

Figure 9. Enable “Feature Access” capability for the Sites feature service

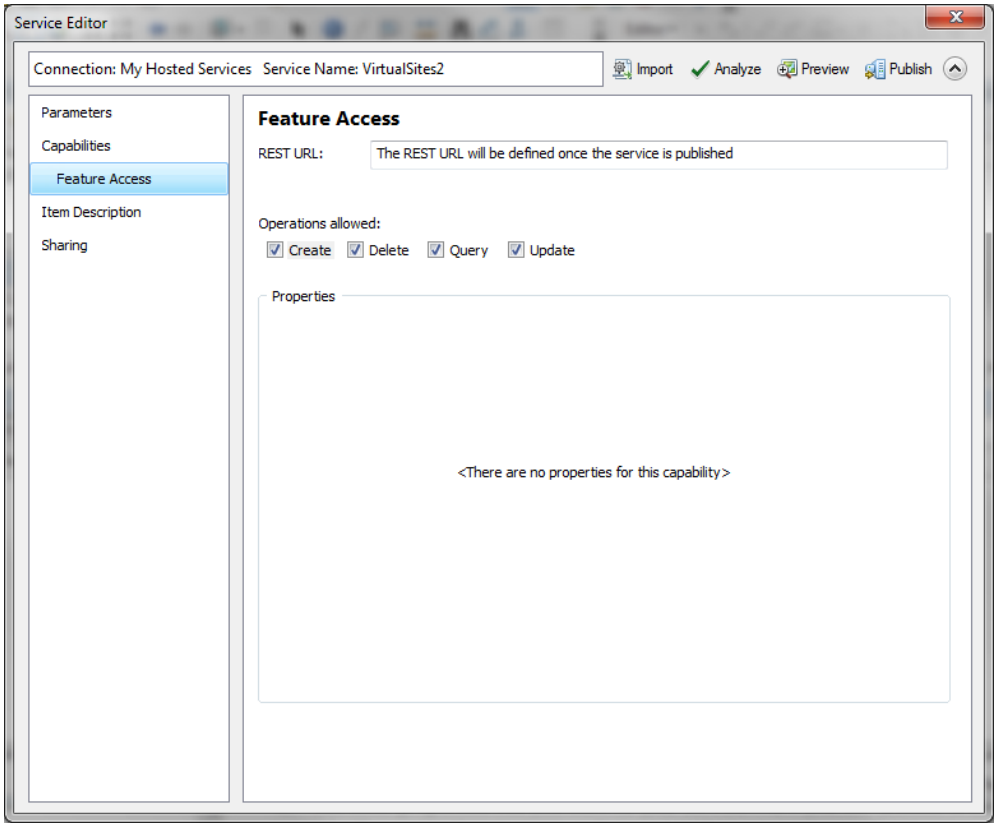

Figure 10. Set allowed operations for the Sites feature service.

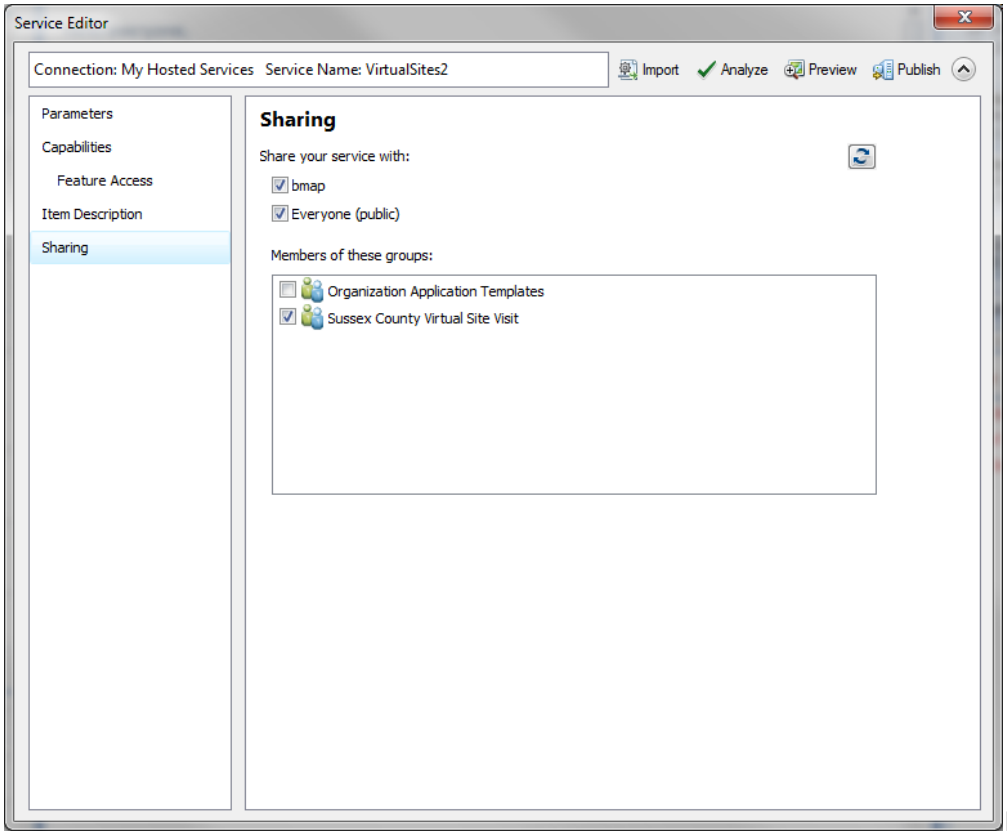

Figure 11. Share the service with your organization, Everyone (public), and the member of the VSV group that was created for the VSV application.

Publishing the Sites feature service using ArcGIS for Server on a local server will also work just fine.

Regardless of how the Sites feature service is hosted:

- Share the Sites service with Everyone
- Share the Sites service with **the VSV group**. This is essential for the proper functioning of the admin page!
- Make sure the Sites feature service is editable

The Site service should not have any features in it initially. VSV will dynamically write and delete features to the VSV service.

Install the VSV application:

At this writing, VSV is intended to be download and installed on your publicly accessible web server. Download the VSV zip file and decompress it.
Copy the "vsv" folder to a web accessible folder, and make it a web application.
A common example on a Windows server is "C:\inetpub\wwwroot\vsv".

Configure VSV on your web server:

Every web map has a unique identifier. To determine the id of the VSV web map, view the map details and copy the ID from the URL in the top of your browser. The section to copy is bolded in the following URL: arcgis.com/home/webmap/viewer.html?webmap=**5ae9e138a17842688b0b79283a4353f6**.

Navigate to the config.js file at < - VSV directory on your web server - >\vsv\javascript\config.js and open it in a text editor such as notepad. Find the "webmap" parameter and replace the default value by pasting in the ID of your VSV web map. Please be sure to leave the comma at the end of the line in place!

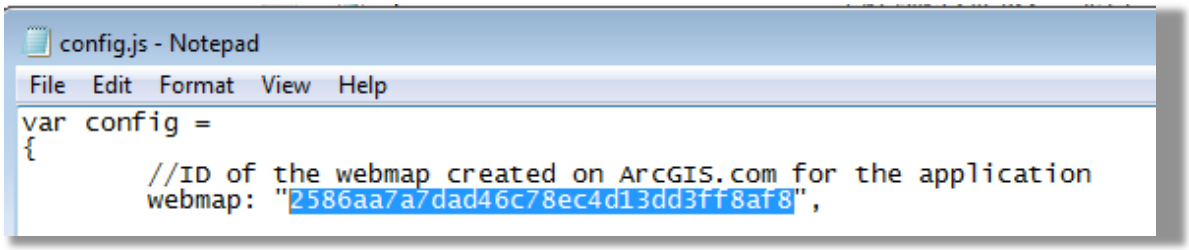

Figure 13: Replace the sample value with the ID of your VSV web map.

The other piece of needed information is the URL of the Sites feature service. Visit the item details page for your Sites service and copy the ID from the top of your browser, for example, http://bmap.maps.arcgis.com/home/item.html?id=**03e93eb1a77a400f98d7d7e3f73cd08a.** Paste the Sites service ID after the "siteFS:" parameter in the config.js file.

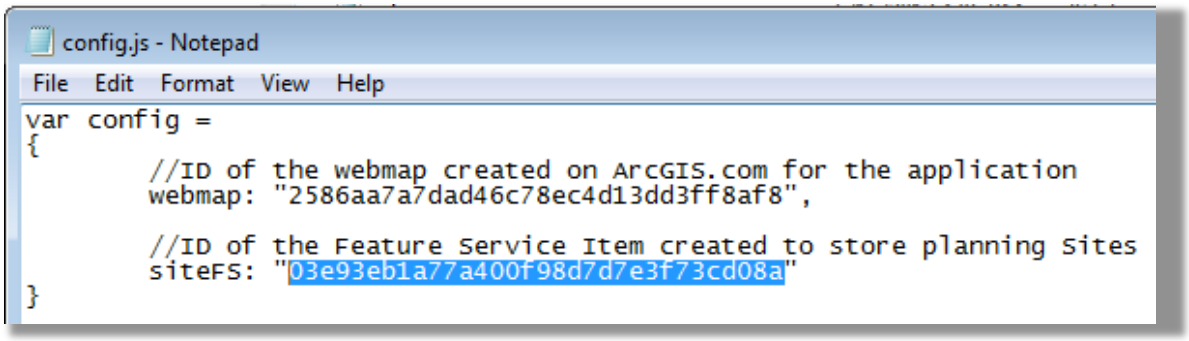

Figure 14: Paste the ID of your registered Sites feature service, replacing the sample value.

Configure VSV in your ArcGIS Online subscription:

Customize the title, subtitle and logo image of the VSV application. In a web browser, navigate the item details page for the VSV web map and be sure to login.

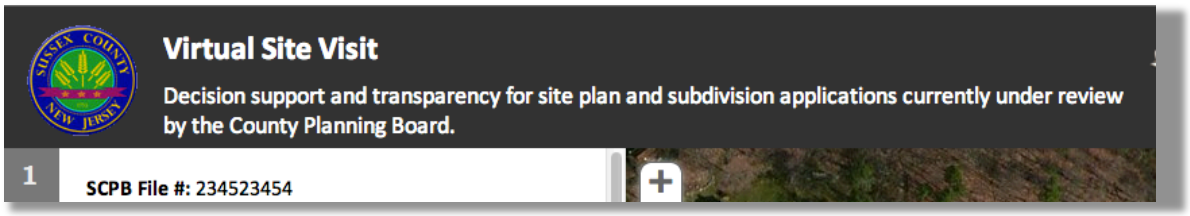

Figure 3: Customize the logo, the logo's URL link, the title and the sub title of the VSV.

The VSV app dynamically reads elements of the VSV web map details page. The title that was set for the VSV web map is the title that will appear at the top of the VSV app. The text provided for the Summary will appear as the sub title in the SVS app. In the Description section, add the URL to an image to be the logo in the top left of the VSV app. This may be the logo of your organization or any other desired logo image. Finally, also in the Description section, insert a hyperlink to the web page for the user to go to if they click on the logo image in the VSV app. Save your edits and your changes will appear in the VSV app after the browser is refreshed.

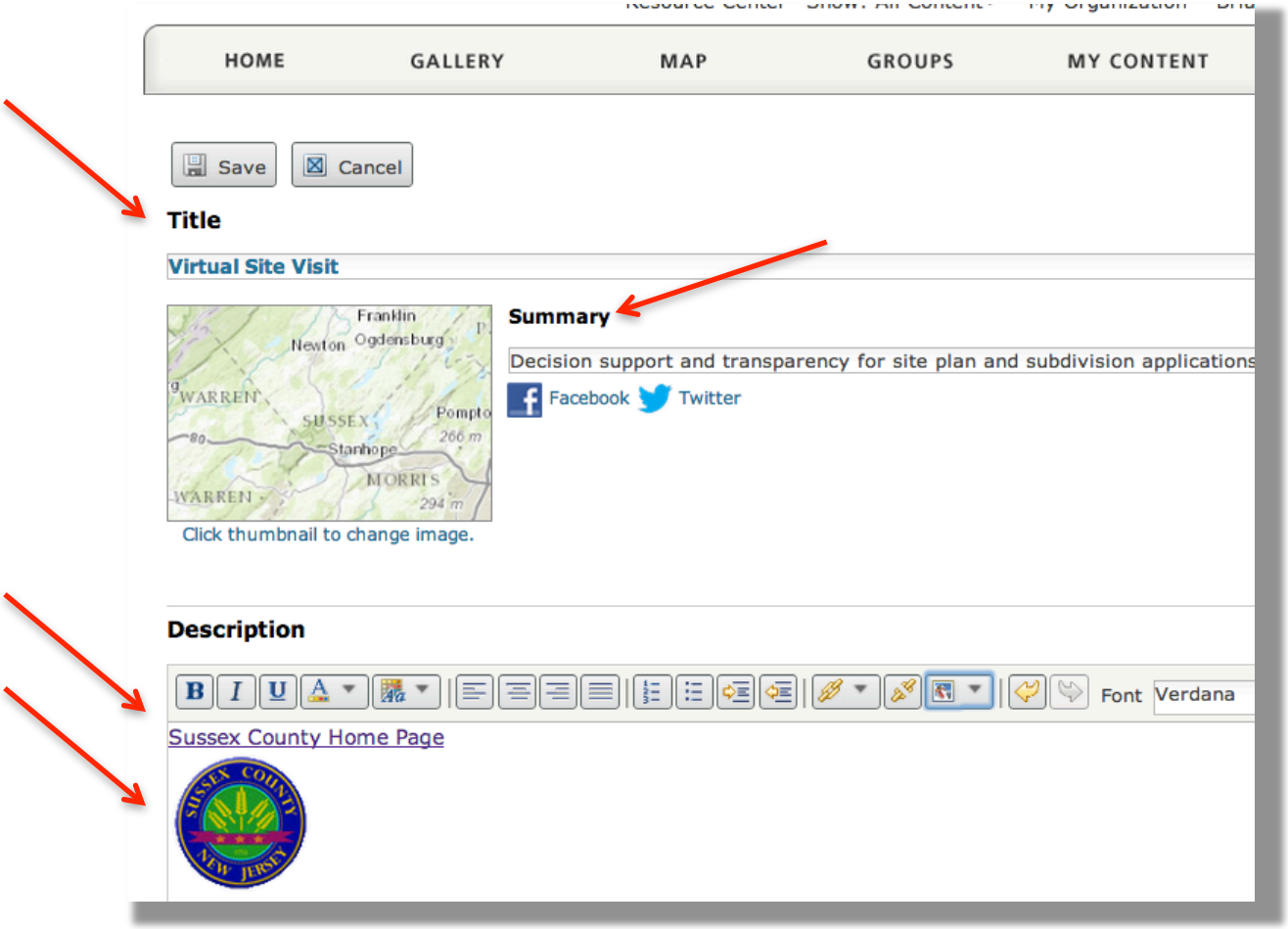

Figure16: Define your branding for VSV.

Test it out by visiting http://<your web server URL >/vsv/ in a web browser.

Optional: Register your VSV application in your ArcGIS Online Subscription