California Infrastructure Map

Wood Products Site Planning Tool Guide

Joint Institute for Wood Products Innovation

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Draft Copy

About This Document

[The Joint Institute for Wood Products Innovation (Joint Institute) California Infrastructure Map, Wood Products Site Planning Tool web app](#) can be used to understand the proximity of critical infrastructure to potential wood products- or innovative wood products-related businesses in California. The data featured in this tool come from a variety of authoritative sources and provide information on the location and nature of infrastructure in addition to dominant vegetation lifeform and public land ownership.

This web app was developed by the California Department of Forestry and Fire Protection (CAL FIRE) Fire and Resource Assessment Program for the Board of Forestry and Fire Protection (BOF), the Joint Institute for Wood Products Innovation, and their collaborators.

This set of directions is meant to further illustrate instructions on how to navigate and utilize the web app. Although much of this is written out in the Map Info section of the application, these directions elaborate on additional functionality.

Infrastructure services are publicly provided by the University of California Agriculture and Natural Resources program, US Energy Information Administration, California Energy Commission, California Department of Fish and Game, California Department of Transportation, US Forest Service, California Department of Conservation, California Air Resources Board, US Environmental Protection Agency, US Bureau of Labor Statistics, and CAL FIRE. The State of California (State), CAL FIRE, and the BOF make no representations or warranties regarding the accuracy of data, maps, or reports. The user will not seek to hold the State, CAL FIRE, or BOF liable under any circumstances for any damages with respect to any claim by the user or any third party of account of, or arising from, the use of data, maps, or reports.

Map Layers

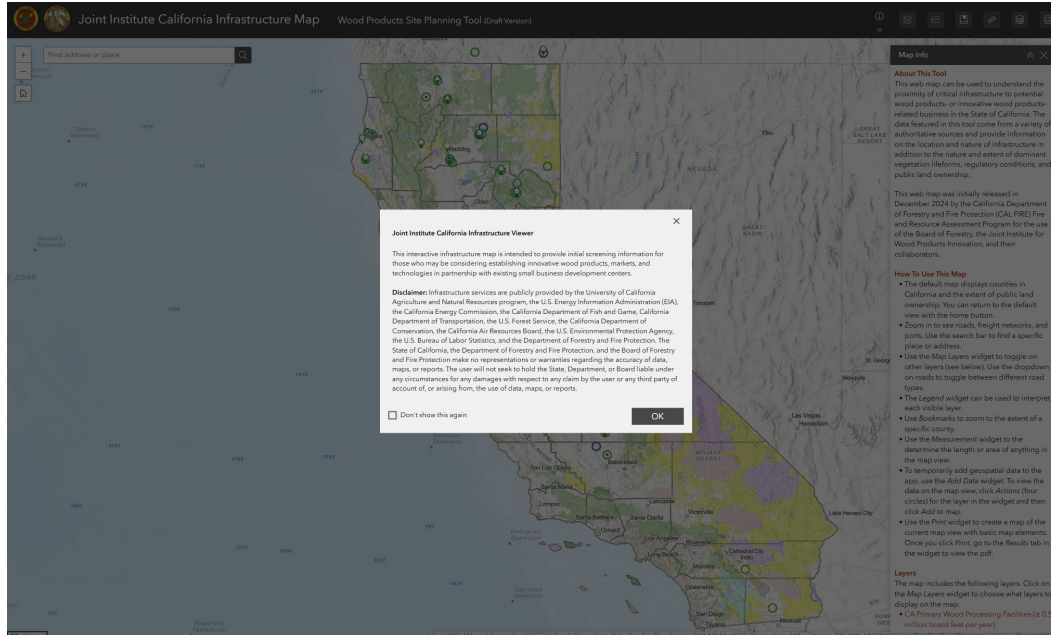The map includes the following layers and their authoritative sources:

- **CA Primary Wood Processing Facilities -** [UC Agriculture and Natural Resources](#)
- **CA Biomass Facilities -** [UC Agriculture and Natural Resources](#)
- **US Natural Gas Pipelines -** [US Energy Information Administration](#)
- **US Petroleum Product Pipelines -** [US Energy Information Administration](#)
- **CA Electric Transmission Lines -** [California Energy Commission](#)
- **CA Ports -** [California Department of Fish and Wildlife](#)
- **CA Freight Rail Network -** [California Department of Transportation](#)
- **CA Major Road Systems -** [California Department of Transportation](#)
- **CA Minor Road Systems -** [California Department of Transportation](#)
- **US National Forest Road Systems -** [US Forest Service](#)
- **CA Air Districts -** [California Department of Conservation](#)
  - **Download authoritative data from** [California Air Resources Board](#)
- **CA Electric Load Serving Entities (Investor & Publicly Owned Utilities) -** [California Energy Commission](#)
  - **Electricity rates available through the** [California Public Utility Commission](#)
- **CA Electric Load Serving Entities (Other) -** [California Energy Commission](#)
  - **Electricity rates available through the** [California Public Utility Commission](#)
- **CA Public Land Ownership -** [California Department of Forestry and Fire Protection](#)
- **CA Vegetation Landform -** [California Department of Forestry and Fire Protection](#)
- **CA Fire Hazard Severity Zone -** [California Department of Forestry and Fire Protection](#)
- **CA County Boundaries -** [California Department of Forestry and Fire Protection](#)
- **US Air Pollution (Ozone and PM2.5) -** [US Environmental Protection Agency](#)
  - **See the** [National Interagency Fire Center](#)**'s resources for more air quality data**
- **US Unemployment -** [US Bureau of Labor Statistics](#)
  - **See the** [Governor's Office of Business and Economic Development](#)**'s resources for more demographic data**

Click on the *Map Layers* widget to choose what layers to display on the map. Further directions on how to use this widget are included below.
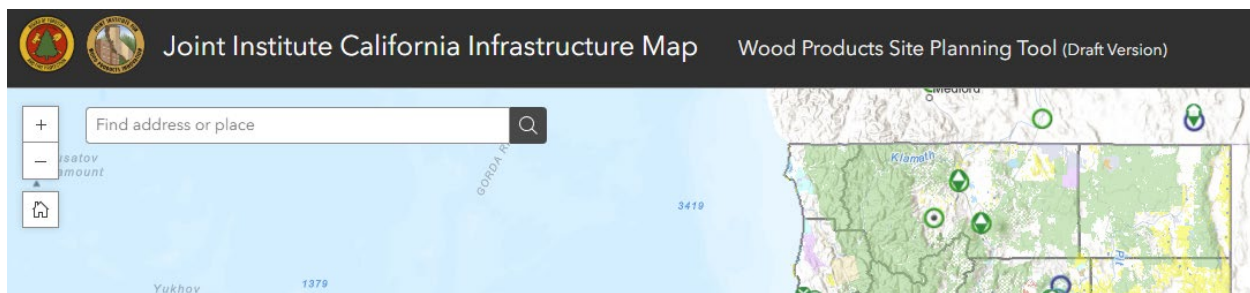
How To Use This App

When you first open the Joint Institute California Infrastructure Map, Wood Products Site Planning Tool web app, you will be presented with a splash screen describing the purpose of the app and a disclaimer (see below). To view the map, click the *OK* button. If you no longer wish to view the splash screen, you may check the box titled *Don't show this again*.
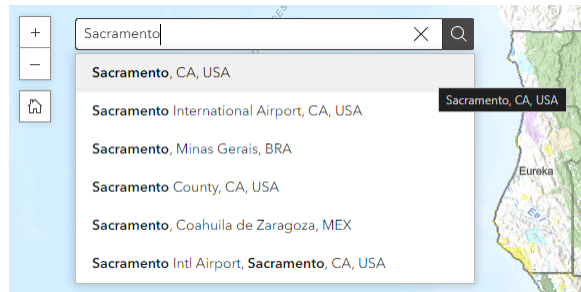

At the top left of the app, the logos of the BOF and Joint Institute are shown next to the title of the app (see below). Clicking the logos will bring you to the [BOF homepage](#), while clicking the title of the app will bring you to the [Joint Institute homepage](#).
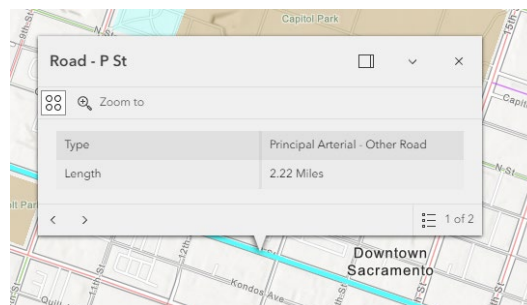
Below this are the *Zoom, Search,* and *Default Map View* widgets (see below). Clicking the plus symbol will allow you to zoom into the map area, while clicking minus will allow you to zoom out of the map area. You can also use the scroll wheel on your mouse to zoom in and out of the map.
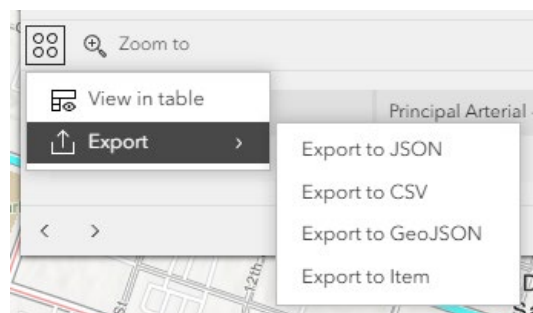
To zoom to a specific place, use the *Search* widget to type in an address or the name of a location, click the result that matches the place to which you would like to zoom, and then press enter or click the magnifying glass to zoom to that location. The *Default Map View* widget will return you to the original zoom level of the app if you click on the home icon.

To navigate around the map at a set scale, use your mouse to left click, hold, and drag. To rotate the map's orientation, use your mouse to right click, hold, and drag. To learn more about features on the map, use your mouse to left click features. A pop-up, like the one below, will feature several attributes describing the highlighted feature. Note that features in the Basemap and in the CA Vegetation Lifeform cannot be selected.
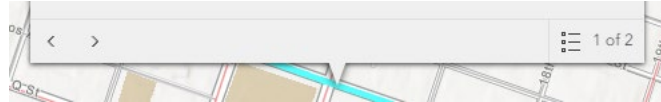

At the top left of the pop-up, there is the *Action* widget (four circles in a box) and *Zoom to* widget. The *Action* widget allows you to view the selected feature's tabular data in the *Table* widget (see below) and/or export the selected feature to a variety of tabular outputs. Clicking the *Zoom to* widget will bring you to the selected feature's full boundary extent.
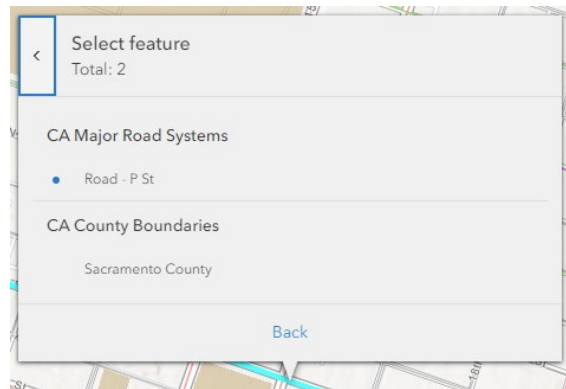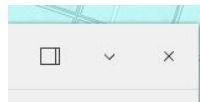
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At the bottom of the pop-up, there are the *Previous, Next,* and *Select feature* widgets. If you selected a location where multiple layers are displayed, the web app will only select the top-most layer by default. At the bottom left, to toggle the selection to the layer below, click the *Next* widget. To toggle the selection to the layer above, click the *Previous* widget.
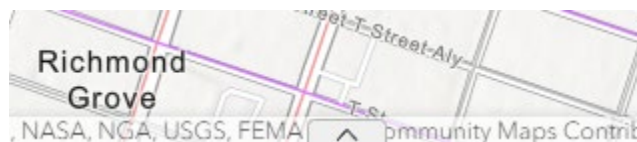

At the bottom right of the pop-up, the *Select Feature* widget will allow you to see what layers can be toggled between with your current selection. You can click which layer you would like to select and view a pop-up for here.

At the top right of the pop-up, from left to right, are the *Dock, Collapse,* and *Close* widgets. The *Dock* widget will snap the pop-up window to the top right of the map. Clicking the widget again (now called *Undock*) will bring the pop-up window back to the map view. The *Collapse* widget will hide the table, *Action*, and *Zoom to* widget. Clicking the widget again (now called *Expand*) will show these elements. The *Close* widget will hide the pop-up and unselect the feature.

At the bottom of the map view, you can open the *Table* widget by clicking the carrot. The *Table* widget is where you go to view any tabular views you activate in the pop-up or *Map Layers* widget. To close the widget, click the carrot at the top of the panel.

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Once open, the *Table* widget will allow you to view multiple tabular views at the same time. To toggle between tabular views, click the title of the table that you would like to view. To close a table, click the X button. To select a feature from the table, click the record. Once you have done this, you may click the *Show Selection* and *Clear Selection* buttons at the top right of the *Table* widget (see below). To unselect a record, click it again.

To sort the tabular view by a particular attribute, click the two carrots to sort from smallest to largest or A to Z. Click the button again (now just the up carrot) to sort from largest to smallest or Z to A. Click the button again (now just the down carrot) to remove the sort. These options can also be toggled by clicking on the three dots at the top of each attribute.
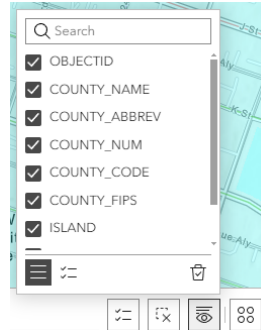

At the top right of the *Table* widget, from left to right, are the *Show Selection, Clear Selection, Show/hide columns,* and *Actions* widgets. Once records are selected, *Show Selection* will hide all records except those selected. Click the same button (now *Show All*) to view all records again. *Clear Selection* will unselect the records that you have selected.

Regardless of whether records are selected, *Show/hide columns* will allow you to toggle attributes on and off by clicking the check box. The *Search* bar can be used to find specific
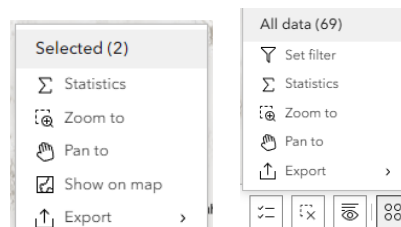
attributes. At the bottom left, the *Show All* and *Show Selection* widgets will allow you to toggle between all attributes and only visible attributes. At the bottom right, the *Clear Selection* button will unselect all attributes.

The *Actions* button will allow you to complete several actions on the features listed in the tabular view. If any records are selected within the table, there will be an option for these actions to only be applied to those selected records. If you have selected features (under *Selected*), *Statistics* will allow you to run quick statistics on any attribute within the selection. *Zoom to* will adjust the map to the full extent of the table's selected features. *Pan to* will adjust the map at the current scale to the center of the table's selected features. *Show on Map* will highlight selected features and adjust the map to the full extent of the selected features. *Export* will allow you to export the table's selected features to various formats (see above).

For all features within your tabular view (under *All data*), *Set Filter* will allow you to define a query and hide features on the map that do not meet your conditions (see below). *Statistics* will allow you to run quick statistics on any attribute within the feature service. *Zoom to* will adjust the map to the full extent of the table's features. *Pan to* will adjust the map at the current scale to the center of the table's features. *Export* will allow you to export the table's features to various formats (see above).
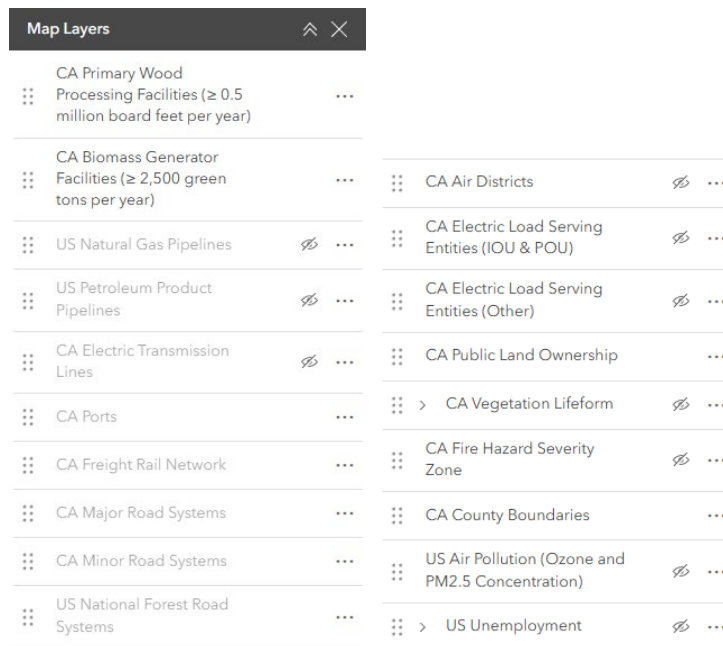

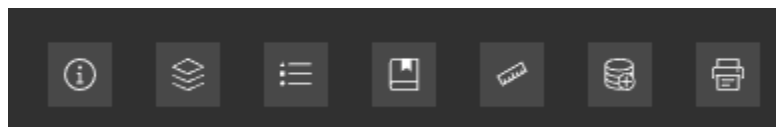At the bottom left of the app, the *Scale* widget provides a visual scale for the map view.

Note that US Natural Gas Pipelines, US Petroleum Product Pipelines, CA Electric Transmission Lines, CA Ports, CA Freight Rail Network, and CA Major Road Systems are only viewable starting at the 1:1,500,000 scale. CA Minor Road Systems and US National Forest Road Systems are only viewable starting at the 1:80,000 scale. You will be able to determine if a layer is visible or not by looking at the *Map Layer* widget (see below). Layers that are viewable at that scale are in black, while layers that are not viewable at that scale will be in gray. To view a layer that is not visible at your current scale, you will need to zoom in to view the layer.
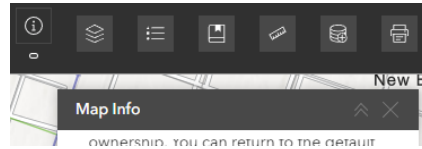

The *Map Layers* widget is accessible at the top right of the app along with the *Map Info, Legend, Bookmarks, Measurement, Add Data,* and *Print* widgets (see below).
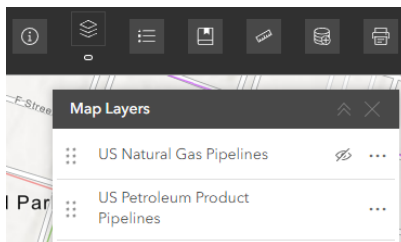

The *Map Info* widget opens by default. The widget includes text describing information under the titles *About This Tool, How to Use This Map, Layers,* and *Disclaimer. About This Tool* is a brief summary of the background and purpose of the web app. *How to Use This Map* is a brief in-app reference for how to utilize various widgets. *Layers* lists all the feature services shown on the map and has links to their data source and descriptions. *Disclaimer* states the app disclaimer.
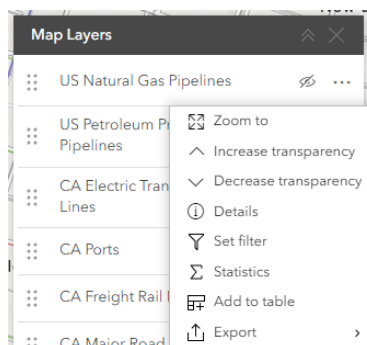
To manipulate the appearance of this panel and all other panels that appear when using the widgets at the top right of the app, use the widgets at the top right. To collapse the widget, click the carrot or *Collapse* button. To close the widget, click the X or *Close* button. To open another widget, click on its icon. Note that only one widget from this menu can be opened at a time.
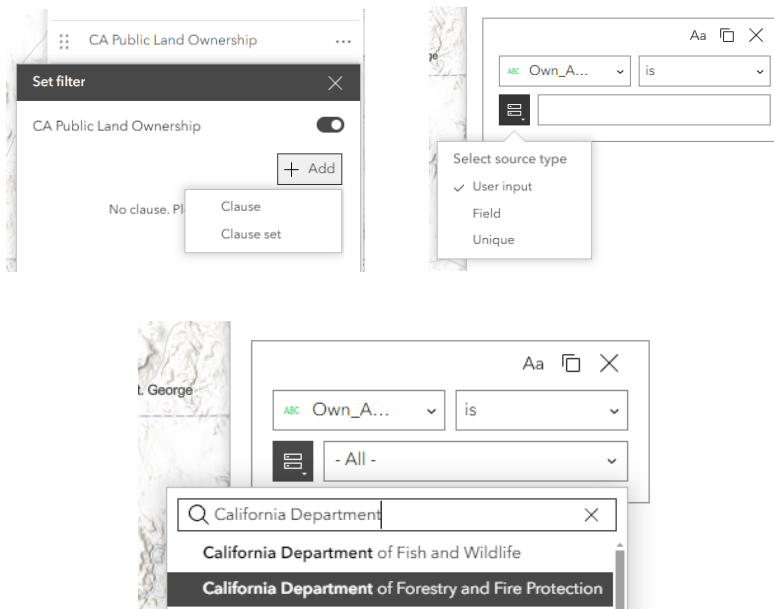

The *Map Layers* widget allows you to manipulate specific layer properties in the map view. To toggle the visibility of layers, click the eyeball or *Visibility* button. In the example below, the US Natural Gas Pipelines layer is not visible, but the US Petroleum Product Pipelines layer is visible. To change the order of layers on the map, click the six dots at the right of the title and drag the layers to the level at which you'd like to see them.
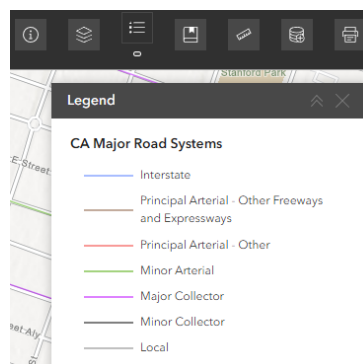

The three dots at the right of the title allow you to complete several actions. *Zoom to* will adjust the map to the full extent of the layer. *Increase* and *Decrease Transparency* will allow you to decrease or increase the opacity of the layer. *Details* will direct you to the feature service's source URL. *Set Filter* (see below) will allow you to define a query and hide features on the map that do not meet your conditions. *Statistics* will allow you to run quick statistics on any attribute within the feature service. *Add to Table* will allow you to view the feature service's attributes in the *Table* widget (see above). *Export* will allow you to export the tabular data to various formats (see above).

To utilize the *Set Filter* widget, toggle the filter on using the switch at the top right and click the *Add* button to create a *Clause* or *Clause Set*. A *Clause* is a single condition, while a *Clause Set* is a series of conditions that can be concatenated with either an AND or OR requirement. To create a *Clause,* select an attribute from the top right drop-down list and a logical operator from the top left drop-down list. Use the *Select Source Type* button to manually type in a string or number (*User Input*), select another attribute field (*Field*), or select an existing attribute from a drop-down menu (*Unique*) in the adjacent box. In the example below, I used the *Unique* option to search and select CAL FIRE. Once a clause or series of clauses has been defined, only the features that meet the filter's requirements will be visible on the map. Remember to click the switch at the top right to view all features.
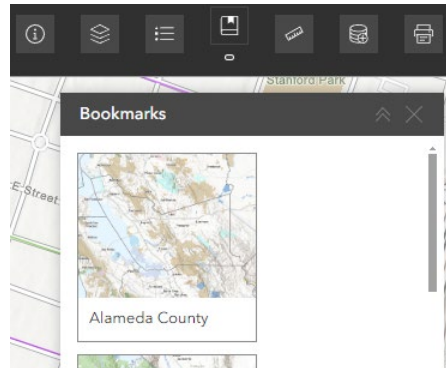

The *Legend* widget can be used to interpret the symbols used to display each feature currently viewable on the map. Note that layers that have not been made visible on the *Map Layers* widget or are not visible at the current scale of the map will not appear here.
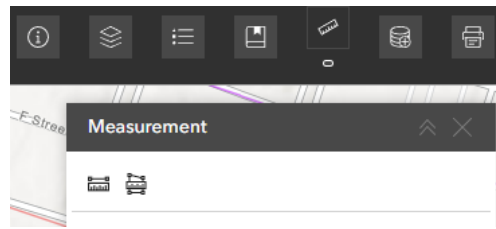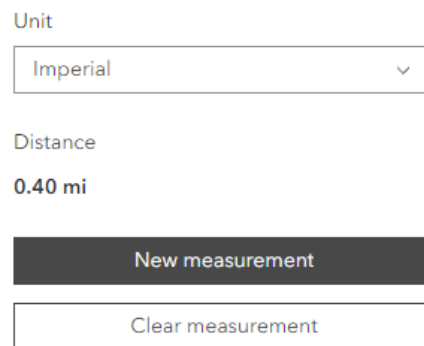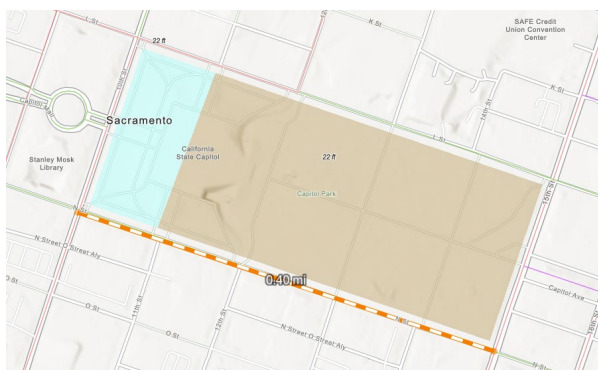
You can use the *Bookmarks* widget to zoom to the boundary extent of a specific county. All 58 counties of California are listed here for your convenience.
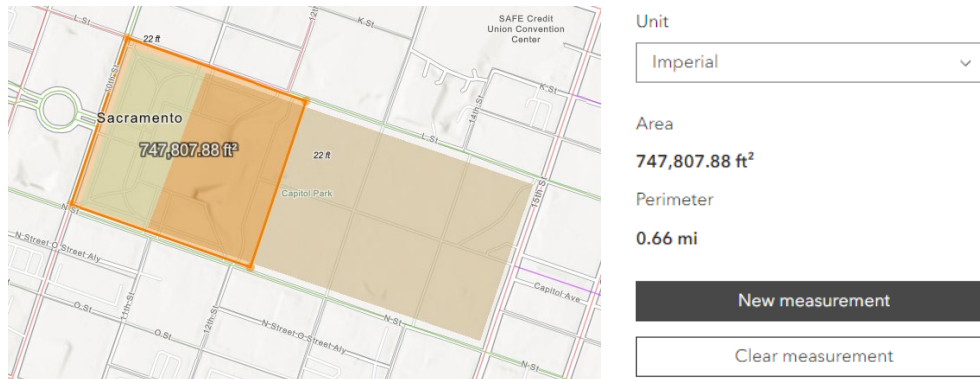

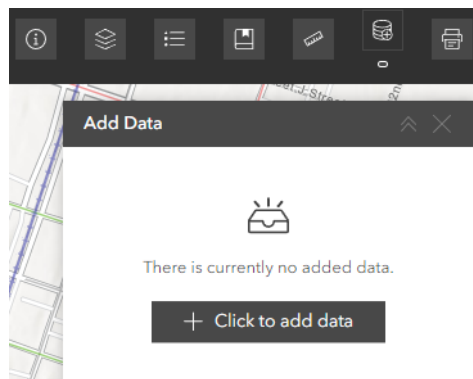Use the *Measurement* widget to the determine the length or area of anything on the map.

To measure distance, click the ruler with the line at the top left of the widget. To start, click a location on the map and then move your cursor. Note that you can snap to vector features on the map view when you are making measurements. Click again to drop another point. The length of your segment on the map and *Measurement* widget will dynamically change as you draw your line. When you are done, double click to finish. You can click and drag points once you are finished to adjust your measurement. You can change the units shown using the *Unit* drop-down menu in the *Measurement* widget. Both *New Measurement* and *Clear Measurement* will remove your current measurement and allow you to begin drawing another one. Closing the widget will not make the current measurement go away.
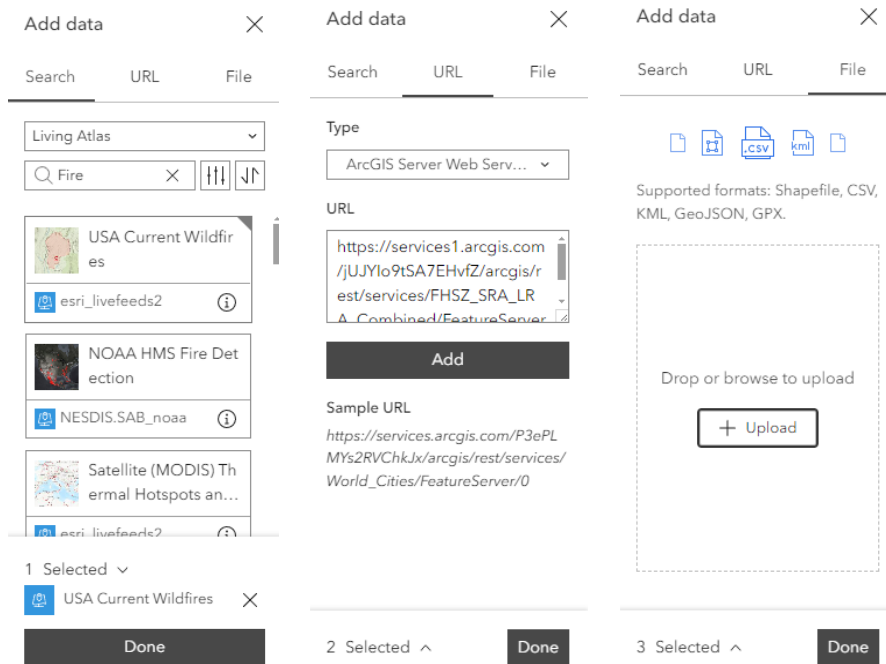
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To measure area, click the ruler with the polygon at the top left of the widget. All functionality is the same as the measure distance option. Note that you do not have to click the first point to complete a polygon, all you have to do is double click on the last point you create. In addition to perimeter distance, area will also be shown in the *Measurement* widget.
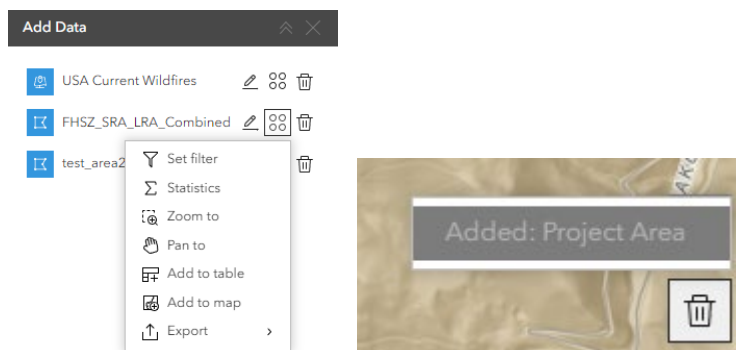

The *Add Data* widget can be used to add data from ArcGIS Online, a feature service, or a file on your computer to the map view. To add geospatial data to the map view, click the *Click to add data* button. This will give you the option to add data from *Search, URL,* or *File*.

Under *Search,* you can lookup data from different parts of ArcGIS Online using the drop-down menu. Click on the feature service to add it to your queue. Under *URL,* you can select the type of feature service from the drop-down menu, paste the URL of a feature service into the text box, and then click *Add* to add it to your queue. Under *File,* you can drag and drop or click *Upload* to browse to either a zipped Shapefile, CSV, KML, GeoJSON, or GPX file to add it to your queue. Once you have selected the feature service(s) and/or file(s) that you would like to add to the map, you can click the *Done* button at the bottom right to add it to the *Add Data* widget.
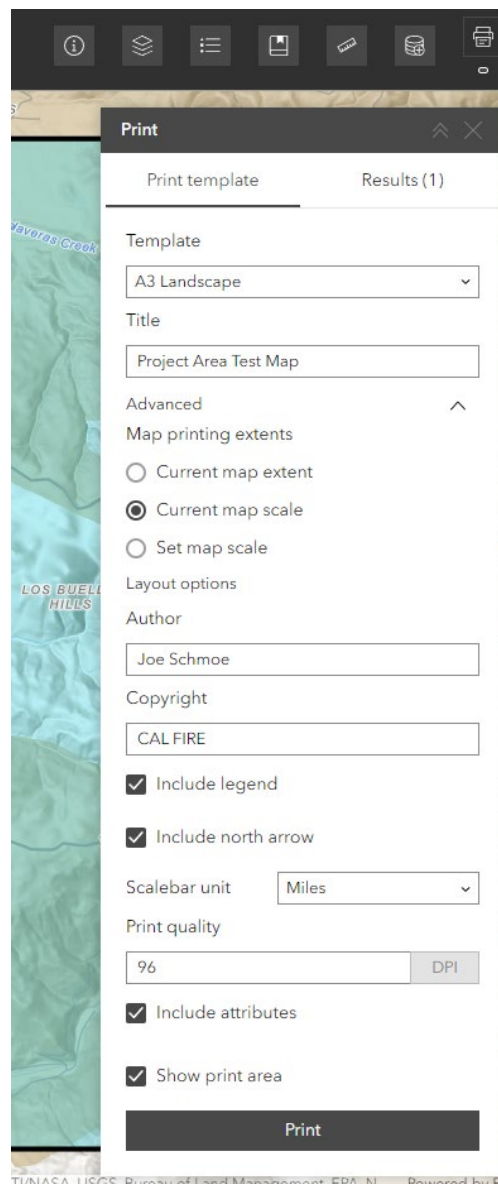
There are several actions you can take once the layers have been added to the *Add Data* widget. To change the name of a layer, click the *Rename* button (pencil) to rename the layer. The *Actions* button (four circles) allows access to several tools. *Set Filter, Statistics, Zoom to, Pan to, Add to table,* and *Export* were previously discussed in detail when reviewing the *Map Layers* widget (see above). To view the data from the *Add Data* widget on the map, click *Add to map.* Note that data you have added using the *Add Data* widget will not be visible until you click this button. Be aware it is not possible to alter the symbology of data you add to your map; if you'd like to make the feature you added easier to see on the map, you must change either the layer order or transparency in *Map Layers* (see above). Finally, the *Remove* button (trashcan) will allow you to remove a layer from the *Add Data* widget. To add more data to this widget, click the *Add Data* button (plus symbol) at the bottom right of the panel. To remove data from the map, exit the widget and click the *Clear Results* widget (trashcan) at the bottom right of the app. Select the layer that you'd like to remove.
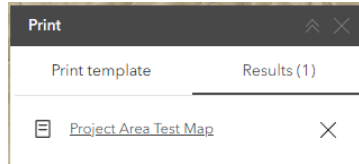
The *Print* widget will allow you to create a map of the current map view with basic map elements. In the *Print Template* tab, you can select a template to use from a drop-down menu and a title for your map. If you are interested, you can click the carrot next to the *Advanced* tab to configure several advanced options. *Map Printing Extents* will allow you to select either use the current extent of the map, the extent of your map based on the current scale, or a custom map scale. If you'd like to see what will be included in your map based on your selection, check the box next to *Show print area* at the bottom left of the panel. There is also a place to type out your name under *Author,* a place to specify *Copyright,* an option to *Include legend*, an option to *Include north arrow,* an option to select a different unit for the scalebar, a place to define the output's DPI, and an option to *Include attributes*.
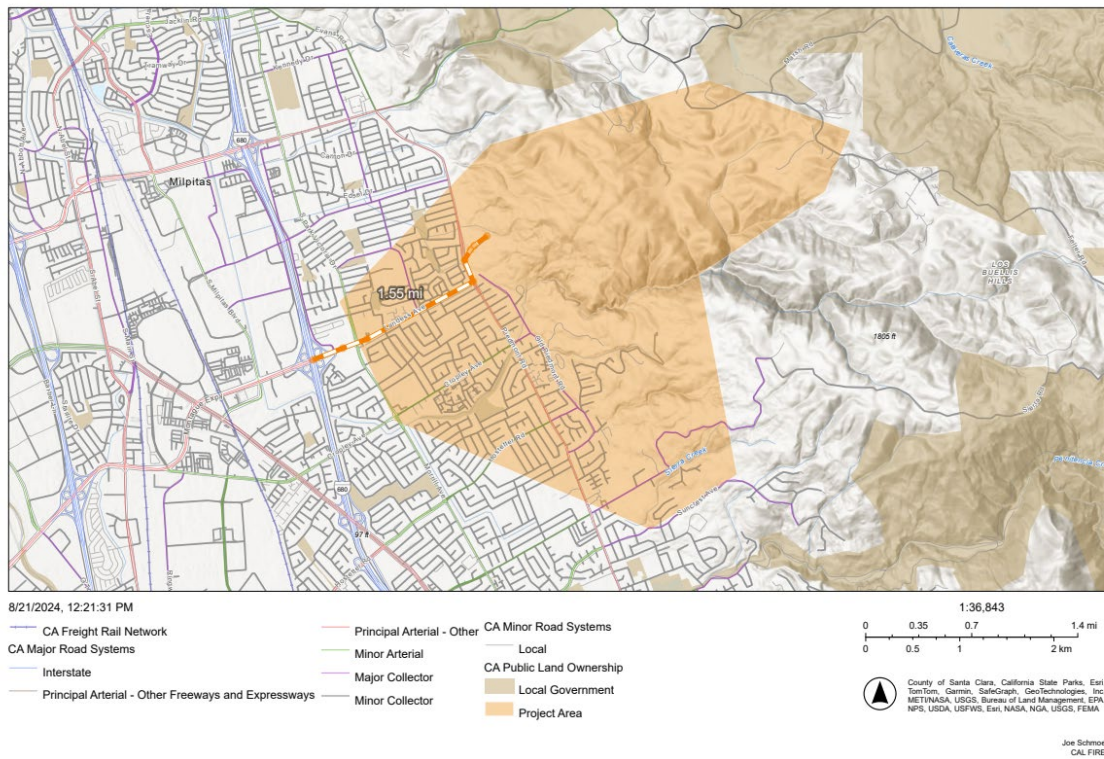
Once you are finished configuring your map, click *Print*, and then go to the *Results* tab at the top right of the widget to view the output pdf in your browser. When the widget is finished processing, you can then print or save the map in that window.

Here is an example of a map that can be created using the *Print* widget. Note that all measurements are included in the output.
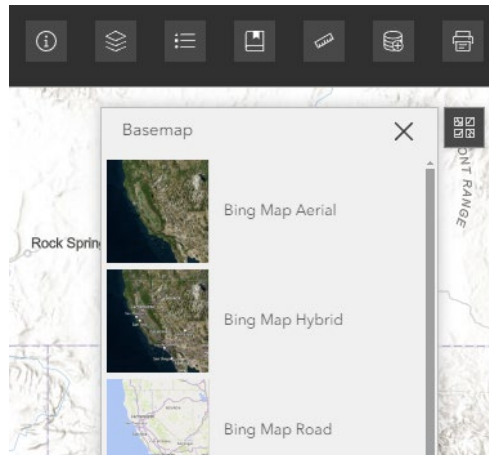

At the bottom right of the app, you may click the *Fullscreen* widget to make the map take up your entire screen. Note that you will not be able to view the title, logo, or any widgets at the top right if you do this; this mode is primarily for data exploration. To go back, click the *esc* button on your keyboard or click the *Fullscreen* button again.

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Finally, at the top right of the app underneath the seven widgets on the title bar, you can access the *Basemap* widget. Note that you may need to exit out of these widget panels to view the *Basemap* widget. Here you can choose from a variety of basemaps to show under the data on the map. Terrain with Labels is the default basemap.

This concludes the detailed instructions for the Joint Institute California Infrastructure Map, Wood Products Site Planning Tool web app. If you have any further questions about the functionality of the web app, feel free to
email the developer at thomas.crimmel@fire.ca.gov.