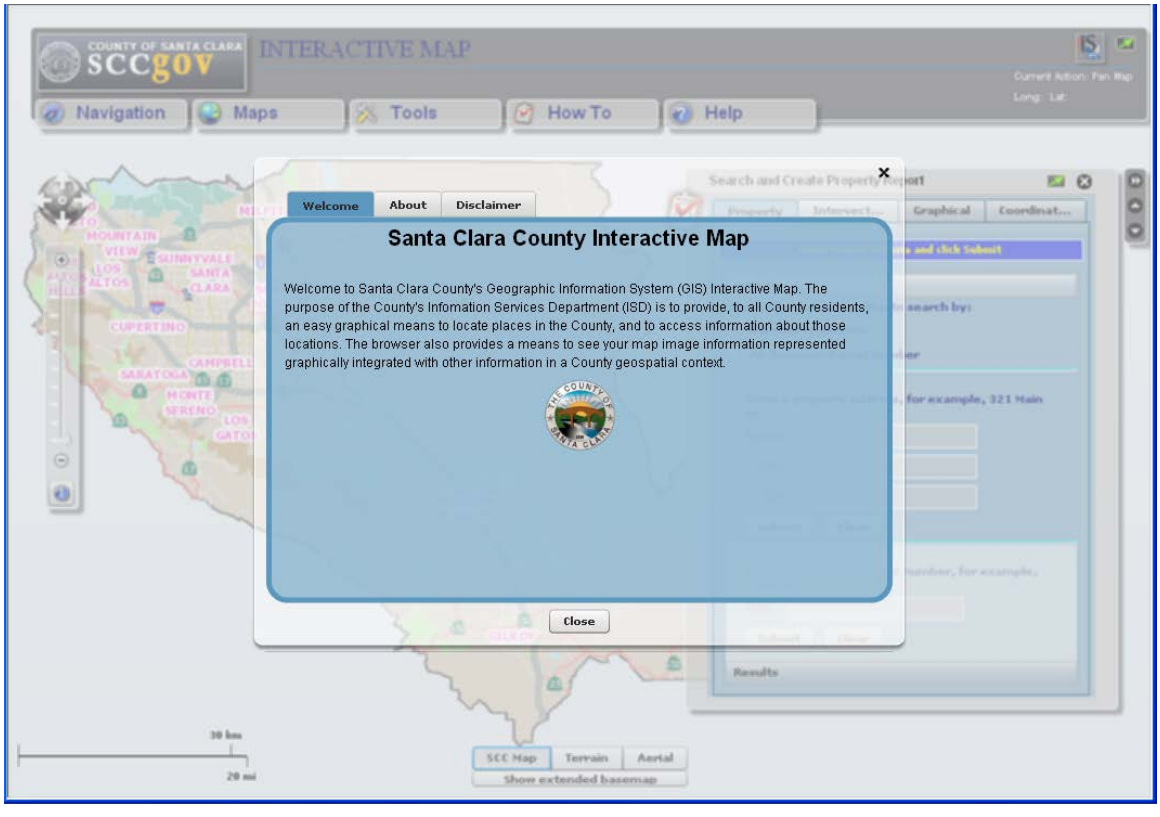
County of Santa Clara

Interactive Map Training Manual



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Objectives

The objectives of this User Training Manual or Tutorial are to enable the user of the Santa Clara County Interactive Map to:

1) understand the overall organization of the Interactive Map;
2) locate the right "widget" of the graphical user interface (GUI) to perform the task or function the user wants to perform;
3) perform the specific functions listed in the menus of the different widgets;
4) navigate the map displayed in the main window, the Overview Map, and the map in the Property Report window;
5) search for a property or location using the various means provided;
6) save or print a report on a property or perform other functions available in this application;
7) use the on-line Help, the FAQ, and this Tutorial; and
8) report problems or give feedback to the authors of the application and the Tutorial.

Overview of the County's Interactive Map

The County's Interactive Map is a web-based application designed for querying property data and other data that has been digitized with its location in a coordinate system and can be represented on a map and in a GIS. What is a GIS?

There is more than one meaning in use today for this term. The acronym traditionally has stood for "Geographic Information System" and this is still its primary meaning. For example, the USGS defines a GIS in the strictest sense as a computer *system* capable of assembling, storing, manipulating, and displaying geographically referenced information, which is features identified according to their locations. GIS practitioners also regard the total system as including operating manuals and the data that go into the system. Some GIS practitioners, however, regard the "S" in GIS as standing for *science* (in this sense sometimes also abbreviated GISc or GISci or GIScience), since the spatial location and structure of data is important to the statistical analysis of a wide range of problems of a scientific nature, such as the analysis of urban growth and its effect on animal and plant habitats.

GIS is not just "canned maps." A GIS has the ability to construct maps "on the fly" in response to an interactive query or mouse action. These maps make possible the integration of different kinds of data: geographic coordinates (or "where things are") and sets of attributes (or "what things are like"), processed according to rules defined by the application and the user. This process can require a high level of computer power, since one can potentially draw an infinitely variable set of coordinates at infinitely variable scales, and thus may

require a multi-tier architecture of data server(s), application server(s), web servers, and desktop or web-based client(s).

The County's Interactive Map is a web-based client or component of this type of multi-tier architecture. The architecture consists of a data server, ESRI's ArcGIS Server running on an application server, and an Apache-Tomcat web server. ArcSDE running on the data server manages the data stored in an Oracle database on the data server. The web component was built using Adobe's FLEX API which calls ESRI's ArcObjects in the application server to construct maps and return information dynamically in response to user actions. Maps or map services generated by this architecture can, for examples, show the intersection of property boundaries with jurisdictional boundaries, demographic data, environmental data, and natural landscape features and thus have the potential of being a GIS in both senses of the word defined above.

System Requirements and Browser Settings

In order for the Interactive Map application to work, your browser must have the latest Adobe Flash Player plug-in. To download the free Adobe Flash Player add-on, go to http://get.adobe.com/flashplayer/ and follow the instructions for your browser.

It is also advisable to have the Adobe Reader plug-in installed on your viewing device and configured for use by your browser because some of the outputs of the application are PDF files. Version 10 or higher is recommended.

The minimum recommended screen resolution for viewing map data is 1152 x 864. The recommended screen resolution is 1280 x 960. Use the standard aspect ratio of 4:3 for your screen resolution. At monitor display sizes of greater than 21" the application window may need to be reduced for the map of the County to be visible at its fullest extent.

The application has been tested primarily in Internet Explorer 7.0 and higher and Mozilla Firefox 3.5 and higher. The minimum compatible browser applications are Mozilla Firefox 3.5, and Internet Explorer 7.0. For users of Firefox 4 third-party cookies must be enabled. Go to the Menu Bar and select Tools tab and then Options. On the Options window, select Privacy and check the checkbox to accept third-party cookies. For this change to take effect the Firefox cache should then be cleared. Select Tools from the Menu Bar and then Clear Recent History and check the Cache checkbox. Go to http://wikis.esri.com/wiki/display/ag93bsr/ArcGIS+Server+Supported+Web+Browsers for information about all browsers and browser versions supported by the version of ArcGIS Server which underlies this application, which is version 10.

The following are the recommended settings for browsers we have tested for viewing this application. For Internet Explorer, go to Internet Options > the General tab > Tab Settings. Enable tabbed browsing, and check all the options under this. For Mozilla-Firefox, go to Options > Tabs and check the option that new pages should be opened in a new window. Configure your browser to user

Adobe Reader as a helper application.

Getting Started

There are several ways you can start up the application. You can go directly to the application by entering

http://www.sccgov.org/arcgis/giswelcome

in your browser; or go to the County's website, Agencies and Departments tab, search for GIS, go to the Agency website and click on the link for GIS Data Browser that is displayed on the first web page or under Quick Links on this same page. Read the **Disclaimer** and click the **Acknowledge** button on the first page that comes up to acknowledge that you have read it; this launches the application. Review the information in the different tabs of the **Welcome** window which is displayed over a County map, especially the **About** tab which lists the system requirements, and if your browser meets these requirements close the Welcome window so that you can see a map of the County, an opened **Search and Create Property Report** widget, and other widgets such as the **Help** widget. Browse over the menu items in the **Help** widget, each of which has a tool tip, and click on the **FAQ** menu item. This opens a document in Adobe Reader which provides answers to frequently asked questions about the application. Click on the **Tutorial** menu item to open this document in Adobe Reader, which will provide you with a step-by-step approach to learning the functionality of this application. You can save this document in PDF format for consultation as you progress through the application or for later study.

To report a problem with this application or the data

Send an email to **TLC@isd.sccgov.org** to report a problem accessing this application or with the application itself or with the data. Include the error message if it was displayed.

To request new features or new data for the application

Send an email to:

GIS@ISD.SCCGOV.ORG

How to find and use the User Training Manual interactively

Close the Welcome window, expand the **Help** widget, and click on the **Tutorial** menu item. The Tutorial is a document in PDF format and will open up in Adobe Reader if you configured Adobe Reader as a helper application. You can also download and print the document to your local file system from Adobe Reader if you prefer to work with a printed document.

How to find a FAQ for this Application

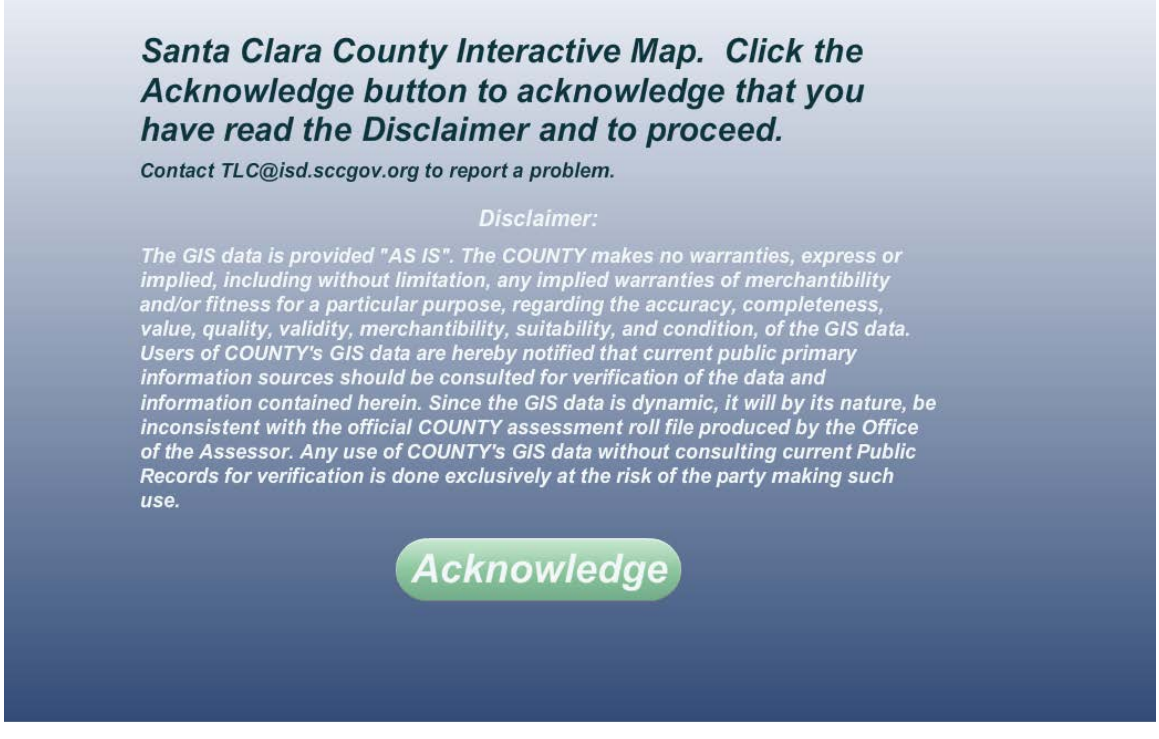
The **Help** widget contains a menu item for a FAQ (Frequently Asked Questions)

for this application. When you click this the FAQ document opens in Adobe Reader.

Overview of the main application screen

The application opens in your browser with a **Disclaimer** and **Acknowledge** button. Read the **Disclaimer** and click the **Acknowledge** button to launch the first page of the application itself, which is a Welcome screen overlaid on a map of all of Santa Clara County and an opened but not yet activated **Search and Create Property Report** widget, as well as several unopened widgets along the Banner of the web page including a **Help** widget. See **Figure 1** below for a view of the **Disclaimer** and **Acknowledge** button and the title page of this document or **Figure 5** below for a view of the **Welcome** screen which is launched when you click the **Acknowledge** button.

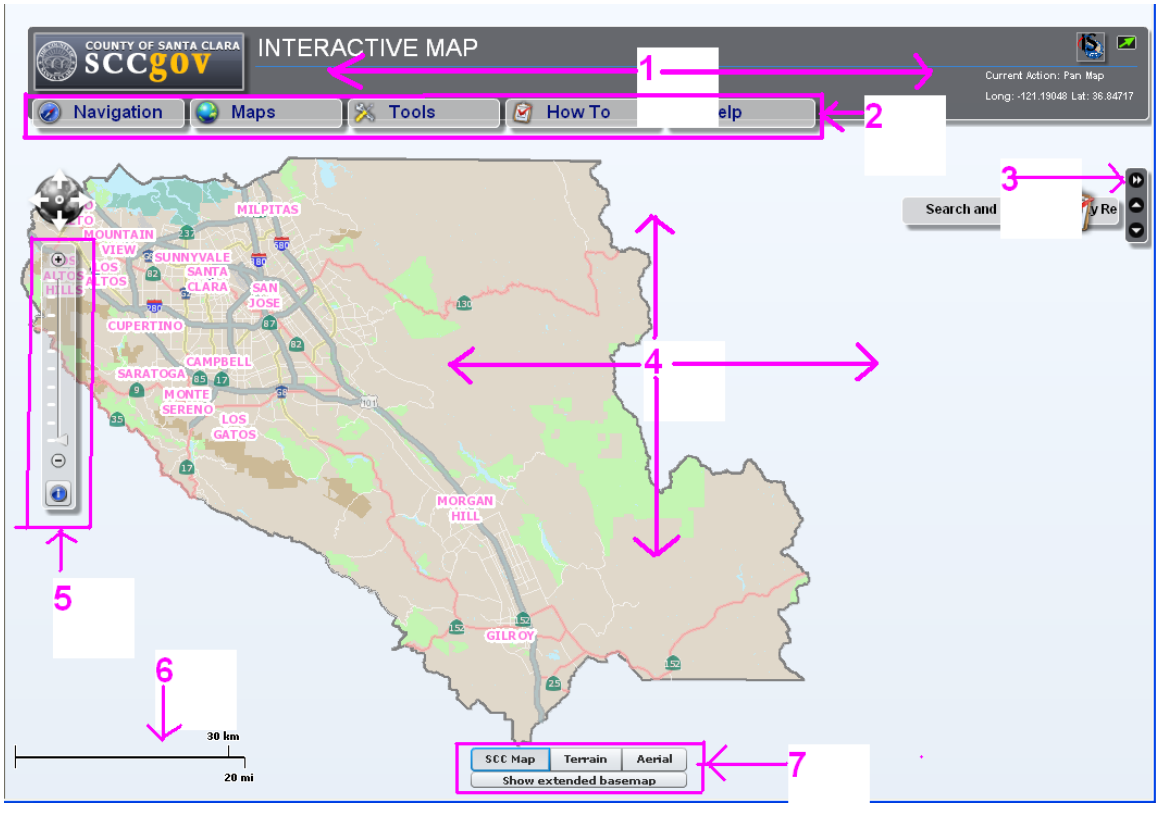
Figure 1



Zone diagram of the application

The following **Zone Diagram** divides the application screen or GUI you see when you close the Welcome page into zones for easy reference as you complete the training exercise provided in this manual.

Figure 2



Zone 1 on the diagram is the Interactive Map's "Banner Box", which extends almost the entire width of the application screen. A link to the County's public website, the Current Action in the application, and the current Lat/Long coordinates of the mouse's position are displayed in the right-hand corner of this zone, and you can also get to the County's public website by clicking on the County seal in the left-hand corner. The Banner can be minimized or collapsed just like a widget and then only has the label "Menu". When you expand the Banner again, all the widgets will be visible again on top of it.

Zone 2 contains the icons for the widget groups. These are overlaid on the Banner Box. A widget group or widget is simply a collection of actions or functions hidden until the user exposes them by mousing over the icon and picking a function from the drop-down menu. The current widget groups are "Maps", "Navigate", "Tools", "How To", and "Help". Only the "Help" widget and the Search and Create Property Report function of the "How To" widget are activated initially. The others become visible when the user closes the Welcome window. The functions included in the individual widgets will be discussed below.

Zone 3 is the Widget Control display which allows the user to hide or display again all the minimized widgets or navigate up or down the stack of opened widgets to get a better view of one or more of them.

Zone 4 is the map display area. The initial map displayed is a map of the entire County with only a few layers of information visible to orient the user. On the right-hand side is a stack of minimized widgets which were previously opened from the widget groups on the Banner Box.

Zone 5 contains a sliding scale for zooming in and out to various scales of the map and a control above this for panning up, down, right or left on the map. In the center of this pan control is an icon you can click to return to the initial view of the map of the entire County. At the bottom of the sliding scale is an **Identify Map Feature** which you click to activate or de-activate. When you then use the cursor to click on any feature on the map a "You are here" banner and basic information about the feature is displayed. You would typically use this tool when you have zoomed in to a scale where the property layers are visible. The control changes color when it is activated or de-activated. Be sure to click this control off when you are not using it otherwise this banner and information will display every time you click on the map.

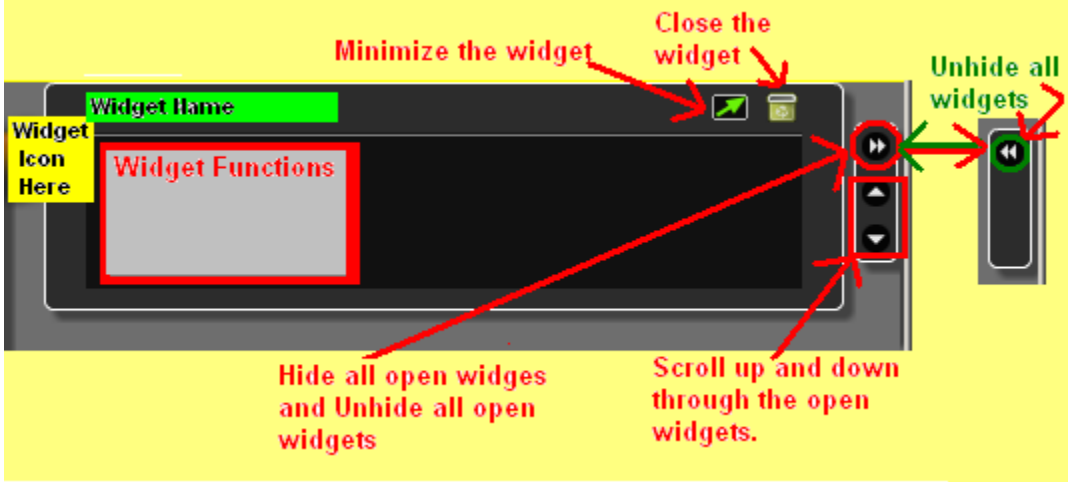
Zone 6 is the map scale, showing the relationship of a distance measured on the map to the actual distance on the ground in the real world.

Zone 7 is a set of controls or buttons for changing the basemap. The SCC Map basemap is on by default. There is a button under the buttons for the different basemaps labeled "Show extended basemap" for displaying a basemap beyond the County boundary for the SCC Map and Terrain basemaps.

Widget icons and controls

There are icons and controls which are common to all widgets. **Figure 3** shows the location of these icons and controls. Each widget has a unique Widget Icon displayed over the upper left corner of the widget. In the top banner of the widget are the Widget Name and controls to Minimize and Close the widget. *(The Close icon is now an "X" inside a circle.)*

Figure 3



If the Minimize Widget control is selected, the system minimizes the widget to the right side of Zone 4 as shown in Figure 4. Only the Widget Name and Icon remain visible.

Figure 4

If the Close Widget control is selected, the system closes the selected widget window. The only way to reopen it is to click on its icon in the appropriate widget group on the Banner. If the Hide All Open Widgets control is selected, all the active widgets are hidden and only the Unhide All Widgets Control is visible on the right side of the screen as shown in the lower part of Figure 4 above.

Tour of the Interactive Map Functionality

Create your first Property Report

Creating a property report is the primary function of the application. The user is given an opportunity to search for a property within the County, select a single property from the records that are returned, and then preview, save, and print a detailed report showing its location and other attributes recorded in the Assessors' database. The widget containing this functionality is activated when you close the **Welcome** window that displays when you first launch the application. Note, it is important to close open windows and widgets when you are done with them before activating a new widget or tool, otherwise you will get unexpected results. **Figure 5** shows a view of the Welcome window concealing the **Create and Search Property Report** widget on the right-hand side of the application window and **Figure 6** shows a view of this widget activated when this window is closed. Note the controls in **Figure 5** to the side of the widget, in Zone **3,** for hiding the widgets or making them visible again and for scrolling up or down a stack of widgets.

Figure 5

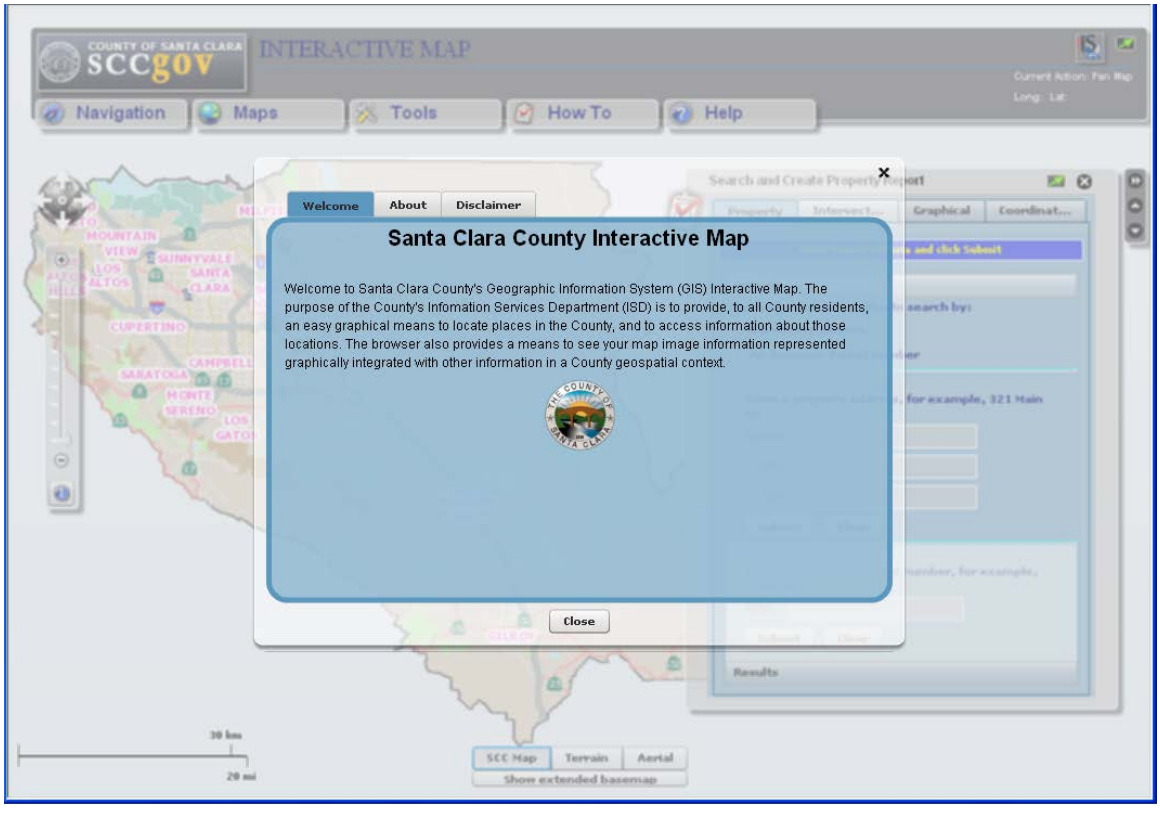
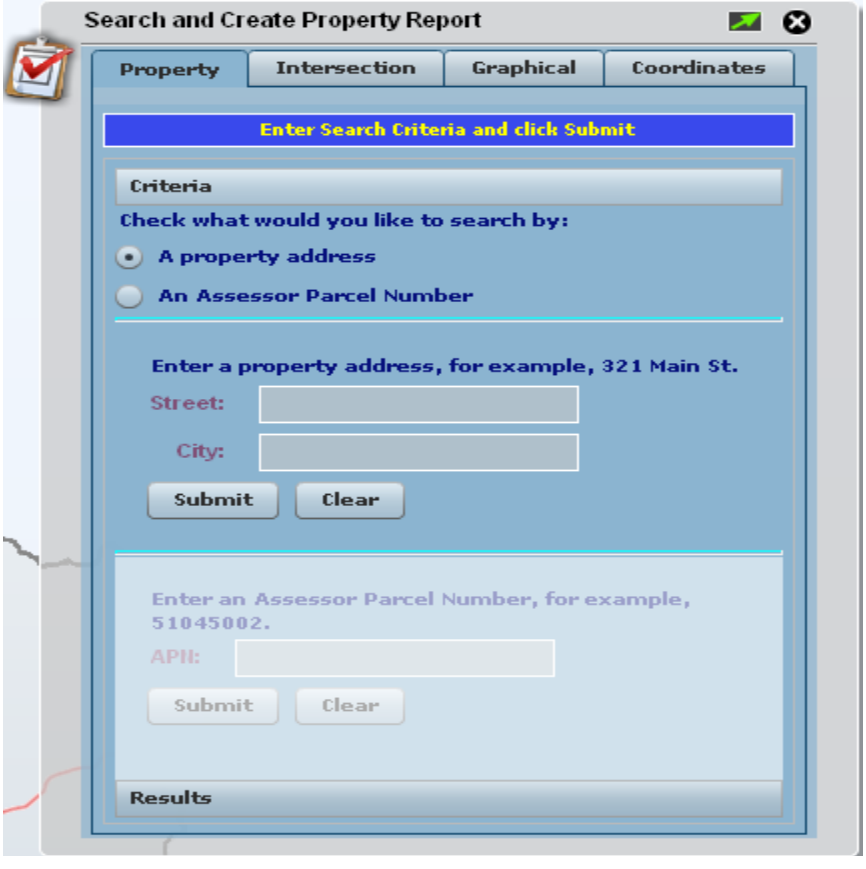

COUNTY OF SANTA CLARA
SCCgov
INTERACTIVE MAP
Navigation
Maps
Tools
How To
Help
Welcome
About
Disclaimer
Santa Clara County Interactive Map
Welcome to Santa Clara County's Geographic Information System (GIS) Interactive Map. The purpose of the County's Information Services Department (ISD) is to provide, to all County residents, an easy graphical means to locate places in the County, and to access information about those locations. The browser also provides a means to see your map image information represented graphically integrated with other information in a County geospatial context.
Close
Graphical
Coordinat...
Results
SCC Map
Terrain
Aerial
Show extended basemap

Figure 6



Notice the four tabs at the top of the widget in **Figure 6**. Each represents a different method of searching for a property. The **Property** tab is open by default. It allows the user to search for a property either by its street address or the Assessor's Parcel Number (APN). The areas labeled **Criteria** and **Results** are both expandable components. Clicking on **Criteria** will expand it to allow you to enter data to search for a property. Clicking on **Results** will display the records for the properties that match the search criteria you entered as soon as you submit the search and then allow you to create a report for one of these results. Each tab in this widget has a Criteria and Results component similar to these. Within the Criteria component the search by property address option is checked by default. If you wish to search by an Assessor Parcel Number you check that option instead, and the corresponding section of the component becomes fully visible to allow you to enter and submit an APN. *(Note, if you accidently close this widget you can retrieve it by opening the **How To** widget on the Banner and clicking on the appropriate menu item.)*

To start the interactive tutorial:

a. Search for a property using a street address. Enter the text "651 Boulder" in the data entry field labeled "Street:" and "San Jose" in the "City:" data entry field and click the **Submit** button under these fields. *Note, if you enter data in just one field, you can hit the Enter key after typing in the data to submit your query.*

b. RESULT: The Results component expands to show a list of address records with the address highlighted at the top that best matches the search criteria. Its location is also highlighted on the County map as a brightly colored point, the map zooms in and is re-centered on that point, and the **Create Report** button is activated. See **Figure 7** for a view of these results. Accept the default property selection in the expanded Results and click the **Create Report** button and wait for the processing to complete *(An animation of a clock with spinning hands indicates that the processing is still in progress.)*.
c. RESULT: The Welcome window pops up again this time with the **Disclaimer** tab open displaying a Disclaimer about the data and a Copyright notice. See **Figure 8** to view these documents.
d. Close the Welcome window.
e. RESULT: A preview of the detailed **Property Report** for this property is generated in a separate window. See **Figure 9** to view this Report. The Report shows a map of the selected property with its boundaries highlighted just as it was shown in the main map. A scale bar on the left allows you to change the scale of the map in the Report. You can also use the cursor to pan the map and change its focus. Essential information about the property, extracted from the Assessor's database and also computed from the application layers, is printed to the left of the map. A scrollable table at the lower left allows you to see all the information the Assessor has for the property. A link to the Assessor Map for this property is also provided in the upper left. When clicked the Assessor's map book page for this property, which is in PDF format, opens in Adobe Reader.

Figure 7

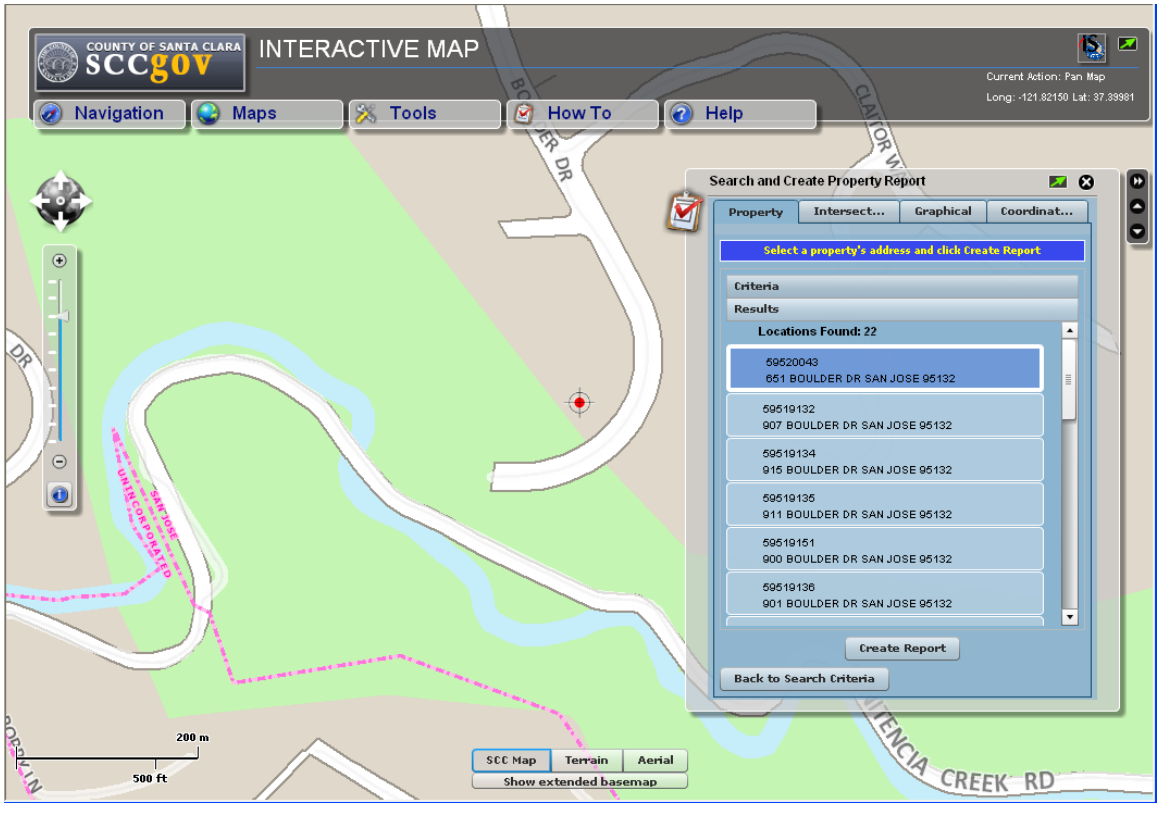


Figure 8

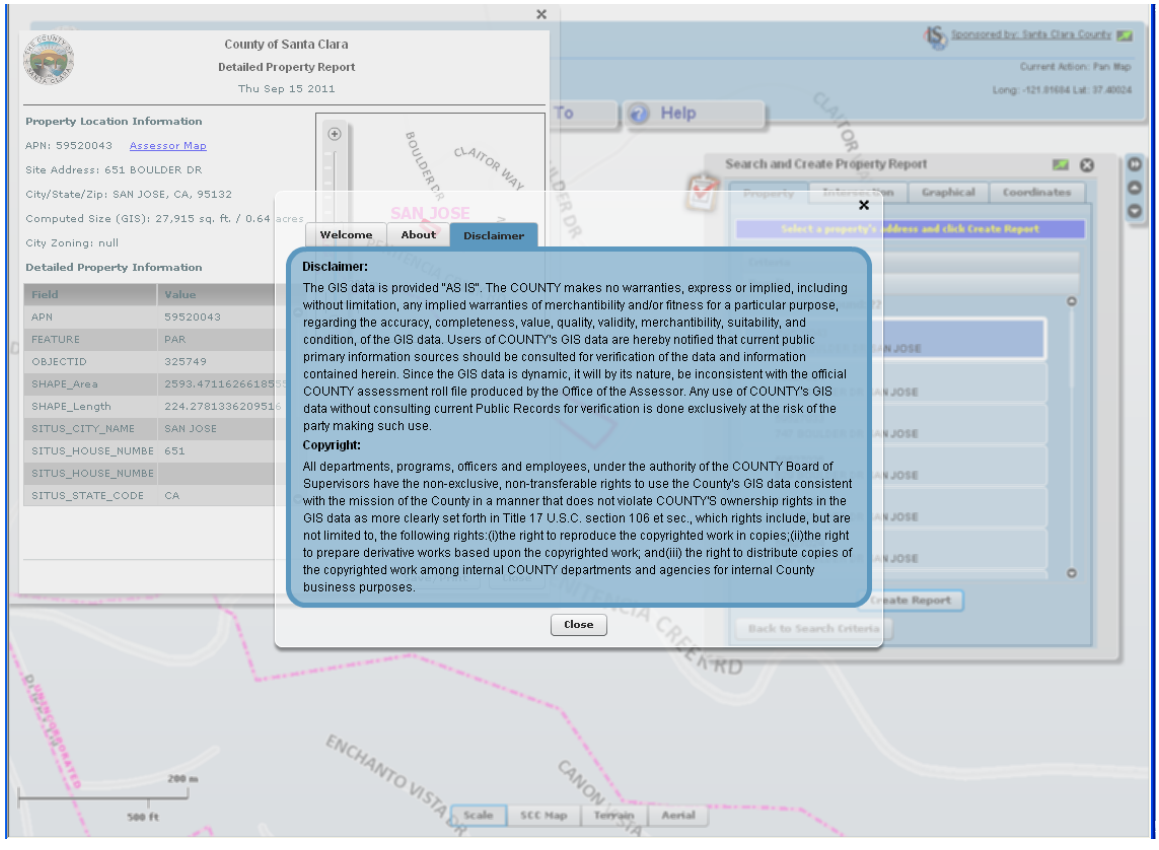
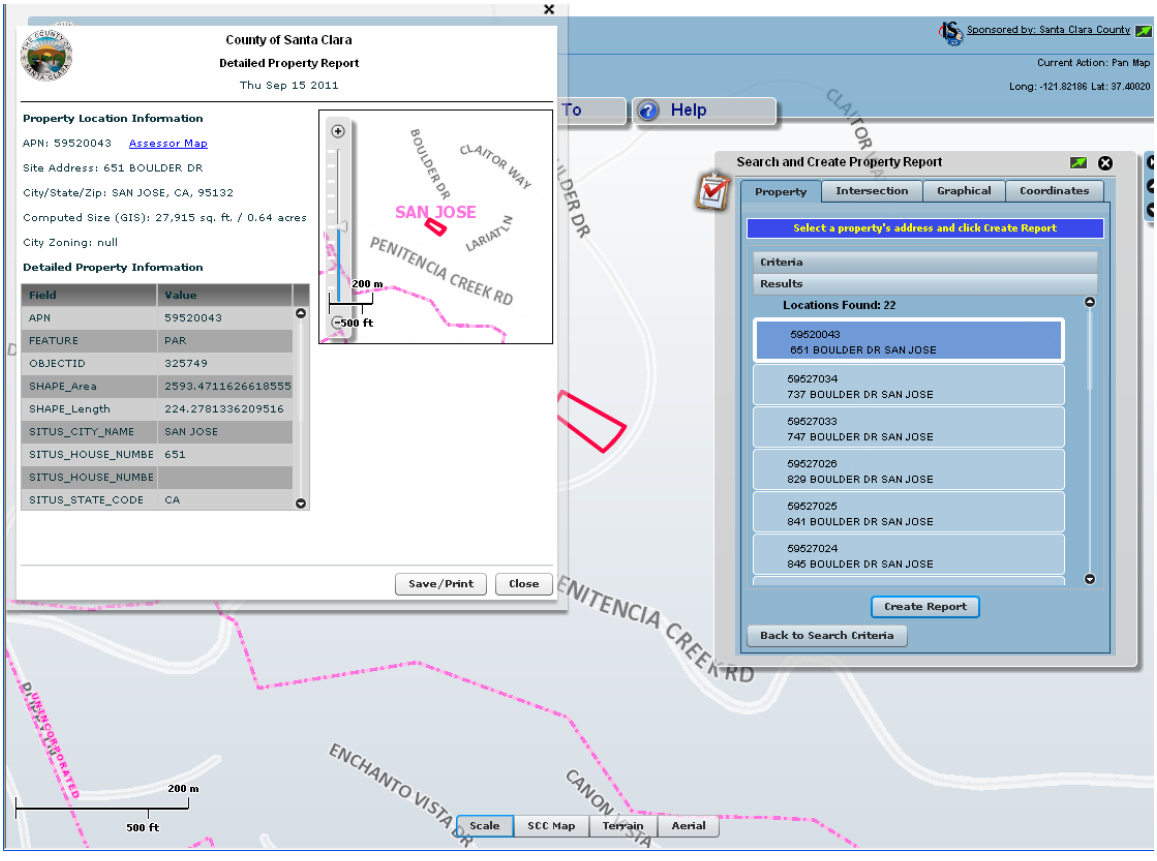

County of Santa Clara
Detailed Property Report
Thu Sep 15 2011
Property Location Information
APN: 59520043 Assessor Map
Site Address: 651 BOULDER DR
City/State/Zip: SAN JOSE, CA, 95132
Computed Size (GIS): 27,915 sq. ft. / 0.64 acres
City Zoning: null
Detailed Property Information
Field
Value
APN
59520043
FEATURE
PAR
OBJECTID
325749
SHAPE_Area
SHAPE_Length
SITUS_CITY_NAME
SAN JOSE
SITUS_HOUSE_NUMBE
651
SITUS_HOUSE_NUMBE
SITUS_STATE_CODE
CA
Welcome
About
Disclaimer
Disclaimer:
The GIS data is provided "AS IS". The COUNTY makes no warranties, express or implied, including without limitation, any implied warranties of merchantibility and/or fitness for a particular purpose, regarding the accuracy, completeness, value, quality, validity, merchantibility, suitability, and condition, of the GIS data. Users of COUNTY's GIS data are hereby notified that current public primary information sources should be consulted for verification of the data and information contained herein. Since the GIS data is dynamic, it will by its nature, be inconsistent with the official COUNTY assessment roll file produced by the Office of the Assessor. Any use of COUNTY's GIS data without consulting current Public Records for verification is done exclusively at the risk of the party making such use.
Copyright:
All departments, programs, officers and employees, under the authority of the COUNTY Board of Supervisors have the non-exclusive, non-transferable rights to use the County's GIS data consistent with the mission of the County in a manner that does not violate COUNTY'S ownership rights in the GIS data as more clearly set forth in Title 17 U.S.C. section 106 et sec., which rights include, but are not limited to, the following rights:(i)the right to reproduce the copyrighted work in copies;(ii)the right to prepare derivative works based upon the copyrighted work; and(iii) the right to distribute copies of the copyrighted work among internal COUNTY departments and agencies for internal County business purposes.
Close
Search and Create Property Report
Property
Graphical
Coordinates
Help
SAN JOSE
Scale
SCC Map
Terrain
Aerial

Figure 9



f. Click the **Save/Print** button at the bottom of the Report.

g. RESULT: The Report is opened in PDF format in Acrobat Reader if your browser is configured to use Acrobat as a helper application. If you use the arrow to show the next page you will see that the information in the scrollable table will be saved or printed in additional pages to the first page. You can use one of the controls at the bottom of the window to save or print the file, or click **File** > **Save As** in the new browser session that Acrobat is displaying the PDF to save it. When the Save As dialog comes up, pick a directory on your local drive, enter a file name, and accept PDF as the file type. *If your browser does not supply a file extension for a Save or Export operation, check your Windows Operating System folder setting on "Hide extension on known file types". When you uncheck this option, the file type will be included.*

h. RESULT. The Report is saved in PDF format on the user's local drive.

i. Click the hot link **Assessor Map** on the Report.
RESULT: The link takes you to the Assessor's website where you

can search for the property by its address or APN and when the Property Information web page comes up you can view the Assessor's map book page in Adobe Reader and save it to a PDF file. Right-click on the document for the command to rotate it clockwise for easier viewing. If you want to view the Assessor's map side by side with the main map you can convert the PDF file to a JPEG or PNG format using a commonly available tool like Adobe Reader Pro, then open this image in the **Conflate** tool in the **How To** widget. See the **Conflate** tool exercise below for more information on how to do this.

j. Close the Save/Print dialog and the Property Report window and click on the **Back to Search Criteria** button on the Search and Create Property Report widget.
k. Check the radio button with the label "an Assessor Parcel Number", enter an APN in the field marked "APN", and submit your query.
l. RESULT: The Results component expands with a single record of information for that APN. Create a property report for this APN using the same steps you learned for an address search.

We will next test some of the other ways to search for a property that are available in this widget.

Search for a property using the nearest intersection

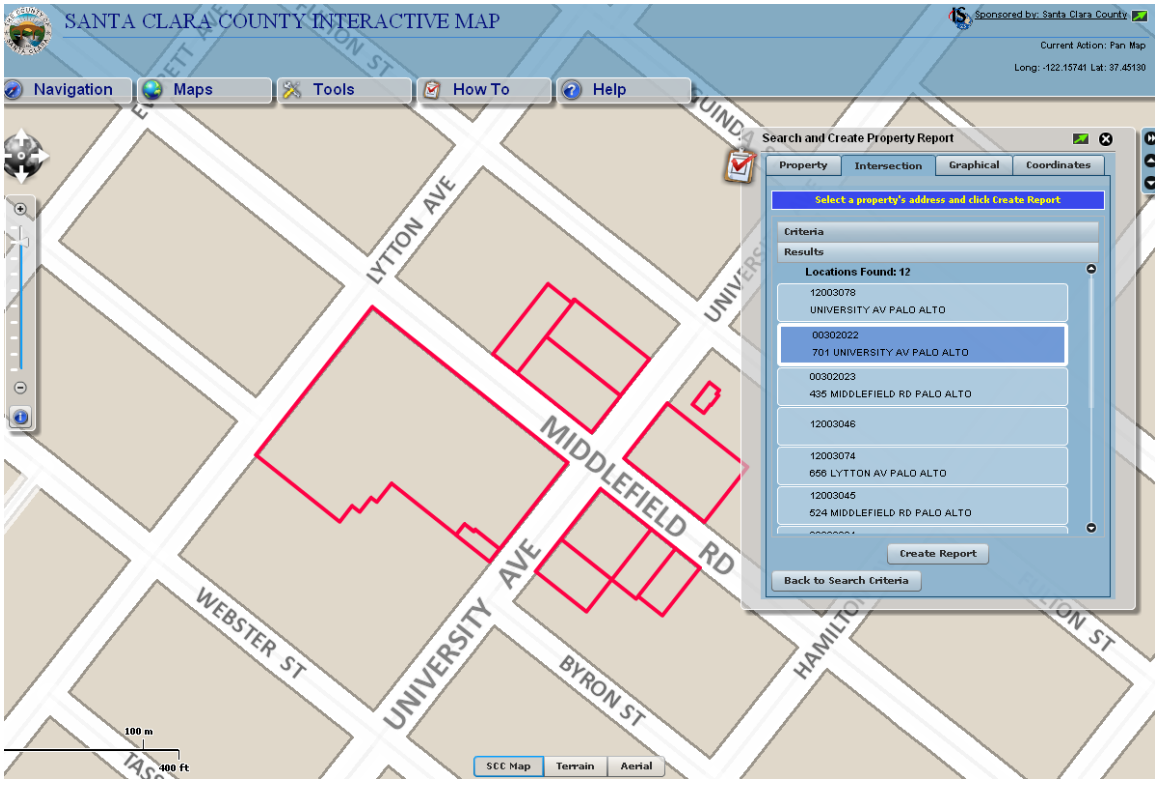
You first used the search criteria in the **Property** tab to create your first Property Report. But what if you don't know the address or parcel number of a property you are interested in? Other means of searching for a property are provided, and these are represented by additional tabs on this widget labeled "**Intersection**", "**Graphical**", and "**Coordinates**".

User will:

a. Click on the **Intersection** tab to open it.
b. Enter "Middlefield" in the data entry field for "Street Name 1:", enter "University" for "Street Name 2:", and click the **Submit** button. *Note, if you enter a multi-part name for a Street Name in either of these fields, be sure to add the street type at the end, e.g., enter "Blossom Hill Road" for "Blossom Hill", otherwise no locations will be returned.*
c. RESULT: A record is displayed for each of the addresses found within a predefined distance (300 feet) of this intersection in the expanded Results area; the first part of the record contains the APN for the property and the second part the street address. The property boundaries are highlighted for each of these addresses and map is zoomed into the location of these properties.
d. Select the second record returned in the Results list.
e. RESULT: The map is re-centered on the location of this property and the **Create Report** button is activated. *Note, you must select a record to activate this button.* See **Figure 10** for a view of the results. Note that one of the addresses returned - 656 Lytton- is not

on Middlefield or University. This is not a mistake. It was returned because the actual address for one the properties within the predefined distance of the intersection happened to be on Lytton. The true street address is always returned by the search operation.

Figure 10



f. Click the **Create Report** button.

g. RESULT: The Property Report is opened for this property in a separate window. The format of the report is the same as it was for the previous report you generated.

h. Complete this alternative method of generating a Property Report by closing the Property Report window or first any other windows that are opened from it and then the Property Report window itself.

Identify a property using a graphical tool

Another option available for finding a property is using a tool to draw a graphical shape on the map that intersects or is within the property boundaries.

User will:

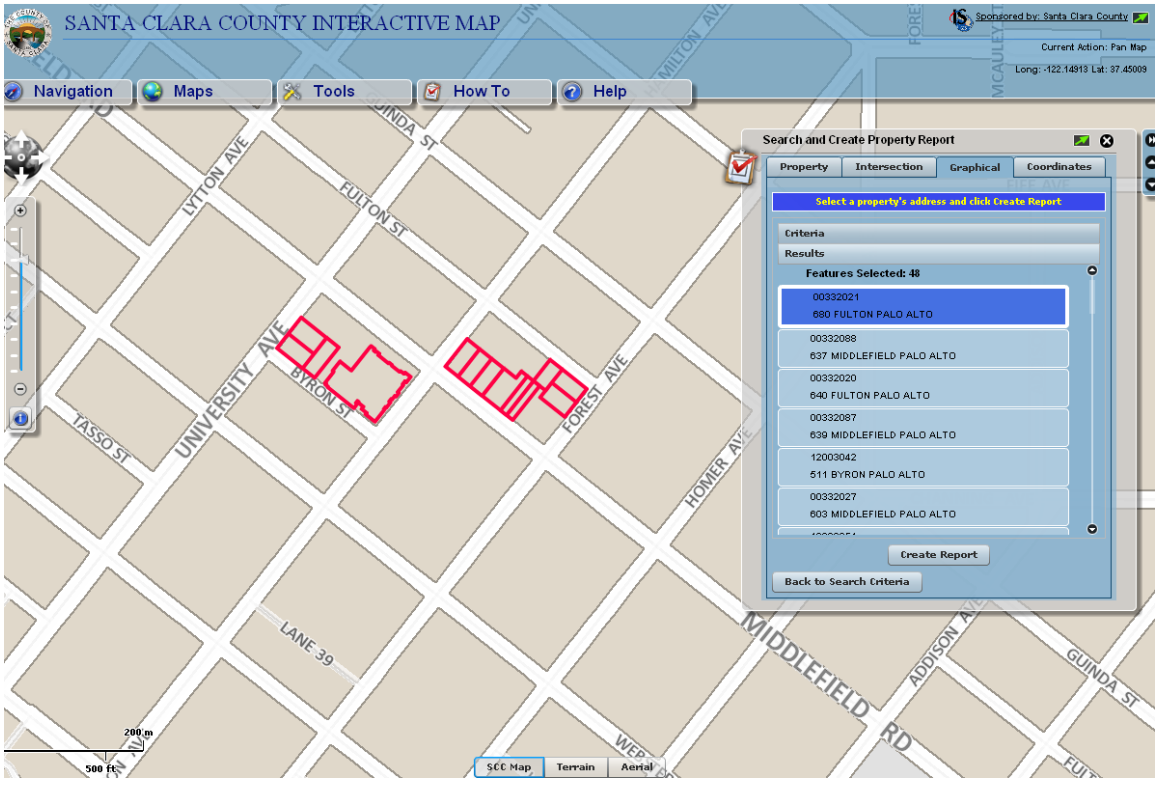
a. Click on the **Graphical** tab to open it.

b. Use the **Pan** tool displayed in the widget or zoom to a scale where you can see individual property boundaries, click on the **Line** tool icon, one of

the graphical tool icons displayed along the top of the tab, and click on one property or block, then double-click on another non-adjacent property or block to complete the line. *Hint: You can use one of the other search tools to zoom in close to a specific address then clear the highlighting on the properties before using one of the graphical tools to select your properties. Use the **Pan** tool in this widget to terminate selection by any of the graphical tools.*

c. RESULT: The property boundaries intersected by the line are highlighted on the main map, the map is re-centered on these properties, and a list of records for the selected properties is displayed in the expanded Results section. The tool that you used to select properties is also highlighted as a reminder of what tool you used.
d. Choose one of the records displayed.
e. RESULT: The map is re-centered on the location of that property, and the **Create Report** button is activated. See **Figure 11** for a view of the results.

Figure 11



f. Practice redoing a search by clicking on the **Back to Search** button. (You can also click directly on the Criteria component to re-enter search criteria.)
g. RESULT: The **Criteria** component is expanded in place of the **Results** component and the graphical search tools are once again visible. You can of course now click another tab to use different search criteria to find a property but let's try out another graphical tool first..

h. Click the **Clear All Results** button to clear the existing selection of properties on the map, then select the **Rectangle** tool and drag a rectangle around a group of properties.
i. RESULT: The property boundaries are highlighted on the map and a list of their property records is displayed in the expanded Results area.
j. Click on one of the records and observe how the map re-centers on its location.
k. To confirm the basic information about a specific property returned in the Results component click on and activate the **Identify Map Feature** tool at the bottom of the zoom scale and then click within the boundaries of one the properties you selected using the graphical tool. If there is a property there an info box with the header **You Are Here** will pop up and display the same information that was returned in one of the Results records, as well as the approximate area and perimeter of the property. This info box stays open until you click on another location on the map or disable the **Identify Map Feature** tool.
l. Click the **Create Report** button.
m. RESULT: the Property Report is created for the record you clicked on property with a map which shows its location on the main map and other information as displayed by the previous search methods you used.
n. Close the Report window and any subordinate windows to complete this exercise.

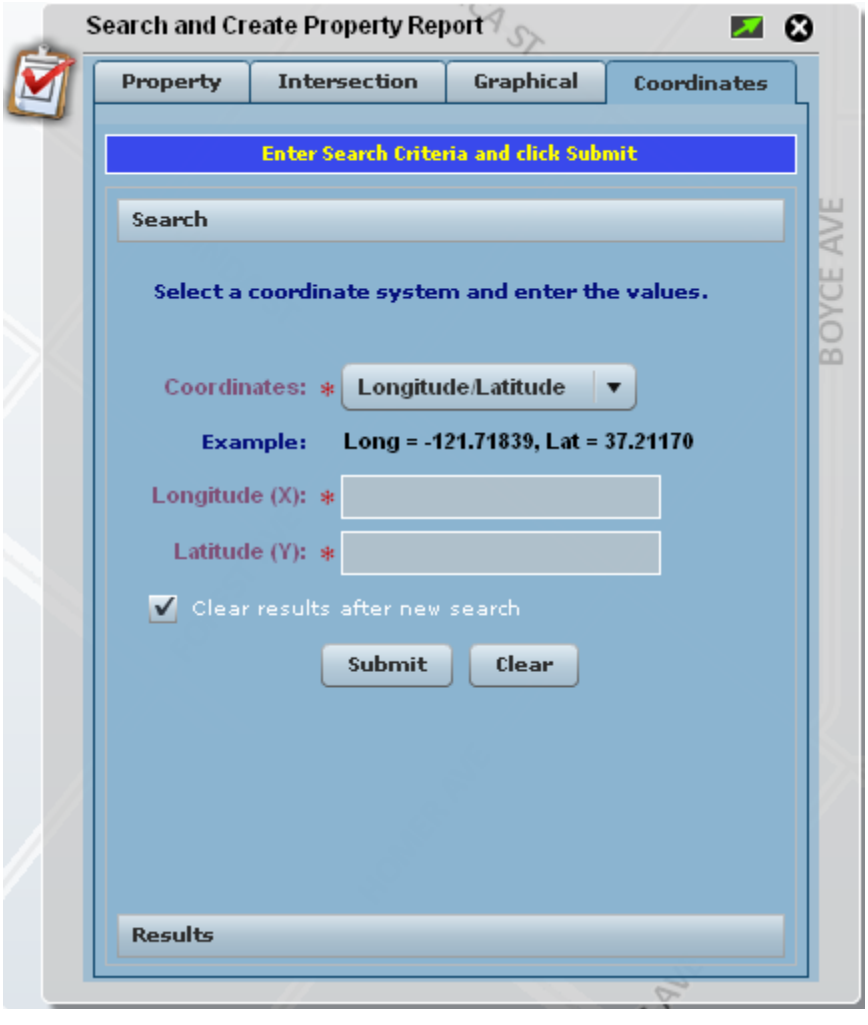
Identify a property using its coordinates

If you know the longitude and latitude coordinates of a property from a GPS device or by simply mousing over the main map and seeing them displayed in the Banner, you can enter these in the ap**propriate fiel**ds of the fourth tab in this widget which is labeled **Coordinates.** See **Figure 12** for a view of this opened widget. Note you can choose a different coordinate system from the default Longitude/Latitude by using the drop-down list for Coordinates. The longitude and latitude must be entered in decimal degrees, without any embedded spaces, as in the example on the tab. The more decimals you enter for the degrees the more precise the location will be that your map zooms to.

User will:

a. Click on the **Coordinates** tab to open it.
b. Zoom into the main map to a scale where individual property boundaries are visible and mouse over one of these properties to get its coordinates, which will be visible on the right-hand side of **Zone 1**. Leave Latitude/Longitude as your choice of a coordinate system. Keep the checkbox checked for clearing your results after a new search. Click the **Submit** button.
c. RESULT: The map zooms to the location of the coordinates you entered. Check that the location is correct by mousing over that location and comparing the coordinates displayed in **Zone 1.**

Figure 12



How to retrieve the Search and Create Property Report widget

If you unintentionally closed this widget while you were doing any of these operations you can retrieve it by opening the **How To** widget and clicking on the **Search and Create Property Report** menu item.

Minimize the **Search and Create Property Report** widget as we will now be testing another widget.

Customize the Map

Draw on your map and measure objects – the Draw Widget

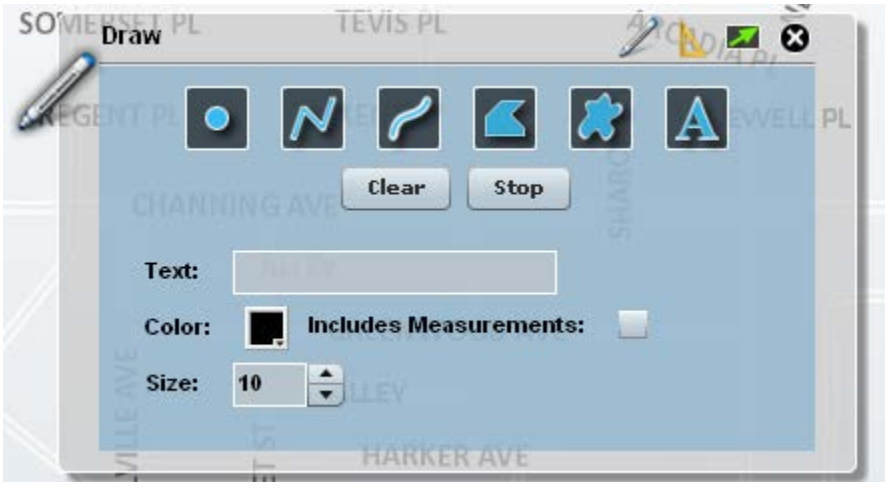
You can customize the main map with drawings and annotation that you can print or save with the main map or display on the map in the Property Report.

You will:

a. Mouse over the **Tools** widget on the Banner and select the **Draw** tool from its menu. The **Tools** widget contains simpler, more basic tools that do not involve multi-step processing.

b. RESULT: The **Draw** widget is opened on the right-hand side of the main window. See **Figure 13** for a view of this widget showing the graphical tools available for drawing or displaying text on the map or displaying the measurements of objects drawn on the map. Mousing over a tool icon explains its purpose. You can use one of these tools to get the approximate area or perimeter of a property or of an area you draw on the map. *(The **What's Here** tool can only display the area of a property. Note, to get the precise, recorded dimensions of a property click the Assessor's Map link in the Property Report which will take you to the Assessor's website where you can find the Assessor's map-book page for this property.).*

Figure 13



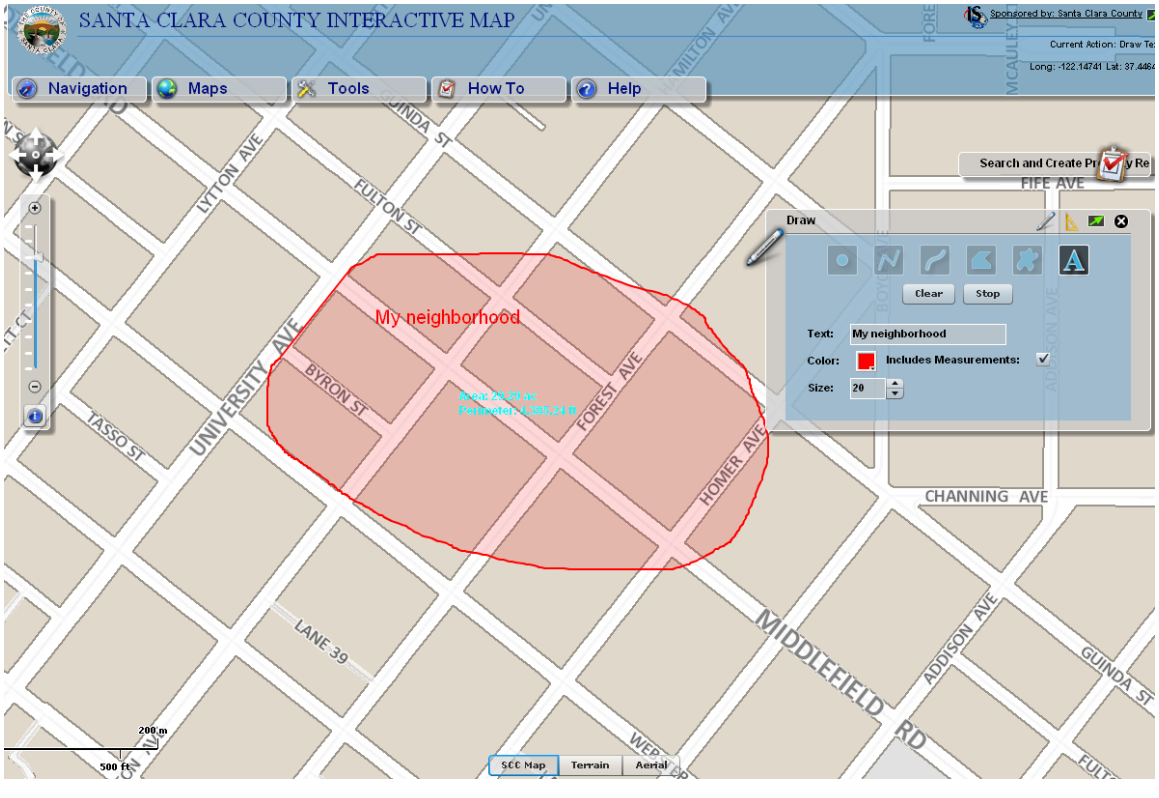
a. Use the cursor in **Pan** mode or the Pan tool in Zone 5 to move the map to where the property or location on which you want to draw is fully visible and /or zoom into a scale until it is fully visible. *Note, click the **Stop** button to stop the drawing and change the cursor mode to **Pan** to pan the basemap.*

b. Check the **Includes Measurements** checkbox, click the **Measurements** icon at the top of the widget, and change the Distance Units to Feet and the Area Units to Acres if they are not already set to those values. Click the **Draw** icon to the left of this icon to return to draw mode.

c. Mouse over and select the **Draw Freehand Polygon** icon from the row of tool icons.

d. Click on the **Color** symbol and select the color of the fill of the polygon that you want to draw.
e. Draw a polygon freehand over a property or area on the map; release the mouse to complete the polygon.
f. RESULT: A polygon is drawn on the map as you drew it freehand with the partially transparent color you selected and the area and perimeter of the polygon you drew displayed within it. The icon for the tool you chose to draw with is highlighted to remind you of what tool you used.
g. Select the **Draw Text** icon from the row of tool icons.
h. Click on the **Color** symbol and select the color of the text that you want to display within the polygon. Select the font size from the **Size** drop-down list.
i. RESULT: Your text annotation is drawn within the polygon with the size and color of type you specified. See **Figure 14** for a view of the results of all these actions.

Figure 14



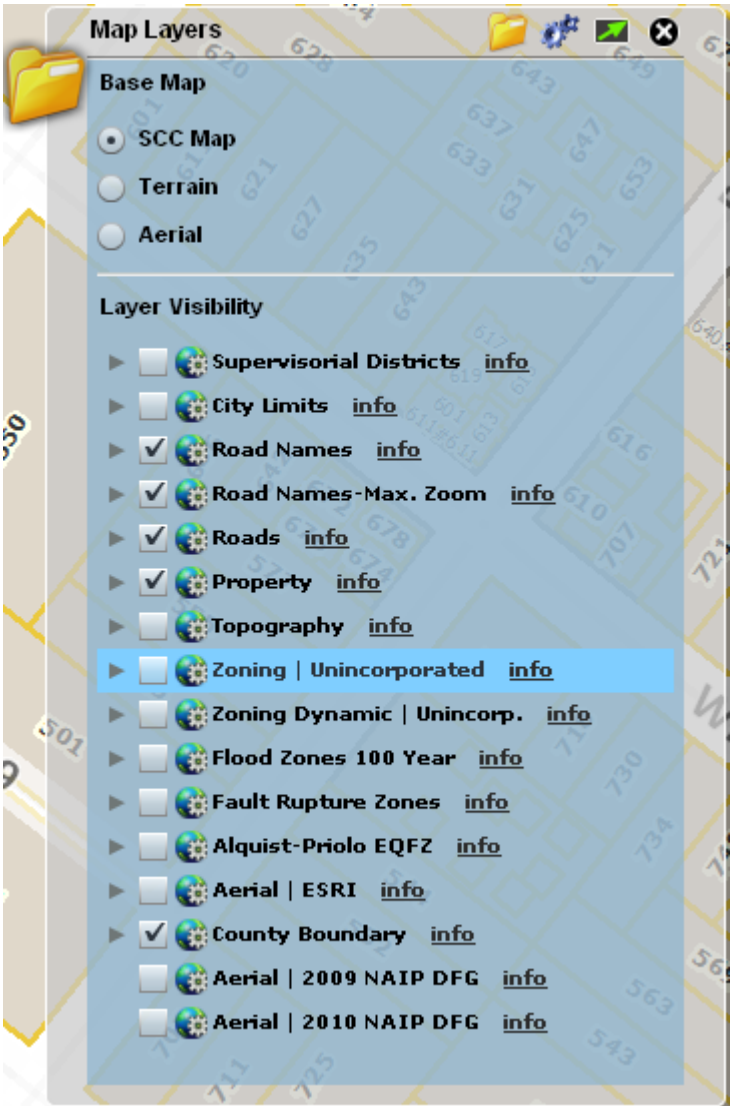
j. Get the address or APN of the property you are drawing on using the **Identify Map Feature** tool, maximize the **Search and Create Property Report** widget again and enter this address for the search criteria and click the **Create Report** button.
k. RESULT: A Property Report is created in a separate window with your drawing and its measurements and annotation visible on the map that is part of the Report.
l. Use the Clear button to clear your work and repeat the same process

with the Draw Freehand Line tool. Note that the Size drop-down box controls the thickness of the line you want to draw.
m. Repeat this exercise in a rural area, to show its use in measuring and labeling other areas such as a fire perimeter area.
n. You will learn how to save or print your drawing, measurements, and annotation with the main map when we discuss the **Print and Save Map** function.

Select map layers to display – the Maps Widget

a. Close or hide the Property Report window and close or hide the **Draw** widget. *Closing it will erase your drawing and annotation but we won't need it for the rest of the exercise. If you want to keep your drawing and measurements you should hide the widget rather than close it, or print or save the main map immediately.*
b. Mouse over the **Maps** widget, and select the **Map Layers** icon.
c. RESULT: The **Map Layers** widget is launched on the right-hand side of the map. See **Figure 15** for a view of this widget.

Figure 15



The main purpose of this widget is to display all the map layers that are available to display on the main map over the basemap that you choose and to control the visibility and transparency of these layers. Notice that the same **Base Map** option is automatically selected here with a radio button that is selected with a highlighted button on the main map. You can change the base map by clicking on another radio button here or by selecting another basemap button on the main map. For this exercise we will change just the layers that are visible over the base map. A scrollable and checkable list of these layers is displayed in the **Layer Visibility** section. Note the following points about these layers:

- The layers that are checked to be visible are displayed on the map in the reverse order of how they are listed on this list;
- Only layers that you are authorized to see are included in the list, so that the view of the visible layers you see here may be different than that for another user;
- Some layers have sub-layers. Click on the arrow to the left of the layer to see the sub-layers. If there is a checkbox next to the sub-layer,that means

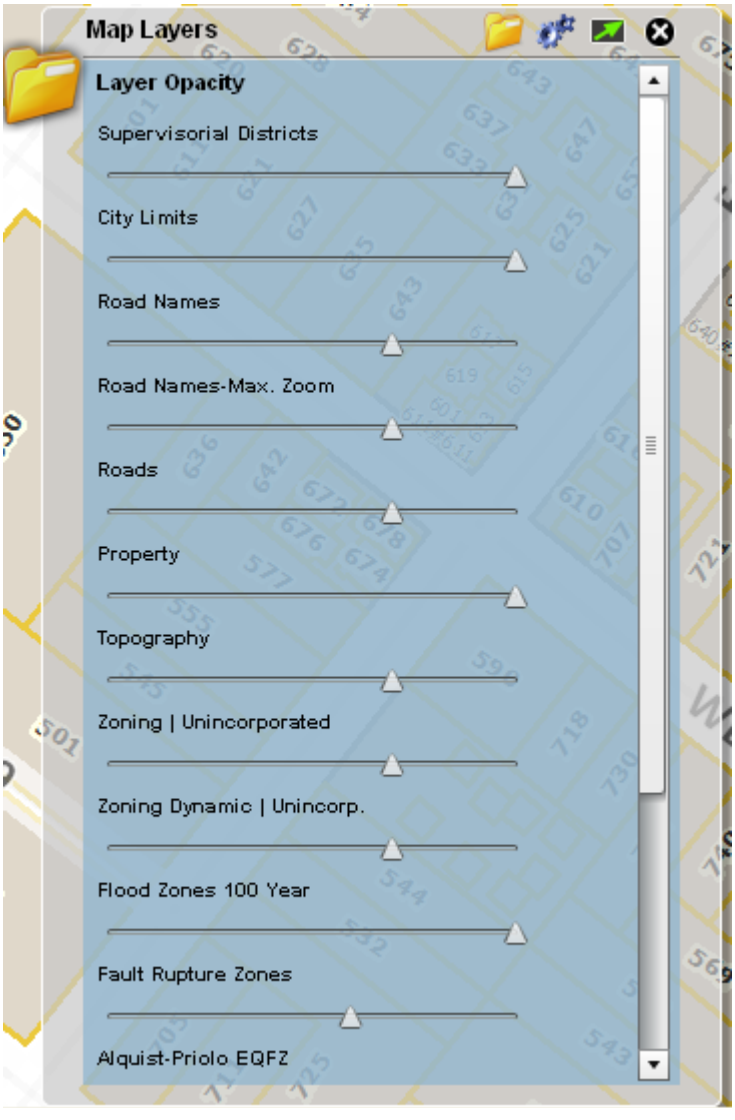
it can be turned on or off. If the sub-layers do not have checkboxes, that means the entire layer had to be cached as a unit to get good response time.

- Some layers are shown only at certain scale ranges, so you will have to zoom in to see them on the main map;
- The base map **Aerial** layer is also included in this list, as **Aerial | ESRI**. Turning this layer on and off allows you to display what is actually visible on the ground by leaving the **SCC Map** basemap turned on or by turning on or off other layers. You can also compare layers by turning on any of the Aerial layers and another layer such as Property Data and use the **Swipe Layer** tool, which we will illustrate later, to see what is underneath, for example, a property on the ground. The County Boundary layer masks out the area beyond the County boundary, so unchecking it and checking on the Aerial basemap reveals, for example, a much wider area. We will only practice changing the visibility of a few layers here.

You will:

a. Check the Property Data and Topography layers in the **Layer Visibility** list if they are not already checked.
b. RESULT: You can now see the boundaries of properties within the extent of your current map view overlaid on the terrain in which your property lies. If you do not see any contour lines indicating terrain, pan the map to an area that you know is hilly and try this test again. You can zoom out and turn on the Aerials basemap to help you find hilly terrain.
c. Use the zoom scale to the left to zoom into the map until you see contours lines with their elevation indicated. Use the **Identify Feature Tool** at the base of the zoom scale to get an address or other information to identify a specific property you are viewing on a visible layer.
d. You can change the transparency of the Property Data or other layers overlaid on the basemap by clicking on the **Layer Opacity** icon at the top of the widget *(Mousing over any of these icons displays what the function of the icon is, as in the other widgets.)* and adjusting the position of the symbol on the sliding bar. Moving the symbol to the right increases the opacity of the layer, moving it to the left increases its transparency. If a layer such as the Property Data is made up of more than one layer, the transparency is adjusted for all the layers at once. See **Figure 16** for an image of the widget showing how the opacity of the map layers can be adjusted with the sliding bars.

Figure 16



e. Return to the list of layers by clicking on the **Folder** icon. Scroll down the list of layers and expand a layer such as the Property Data to see if it is actually made up of several layers. Turn on or off different layers to see how the data displayed in the main map changes.
f. Click on the **info** link for one of the layers to see what information is provided about the layer.

Other tools accessible in the Maps Widget

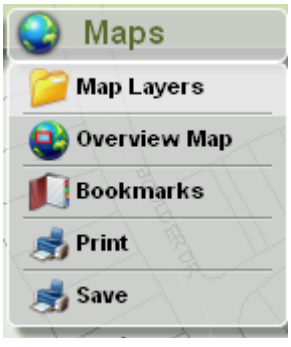
We will now test other tools accessible in the Maps Widget.

Overview Map

You will:

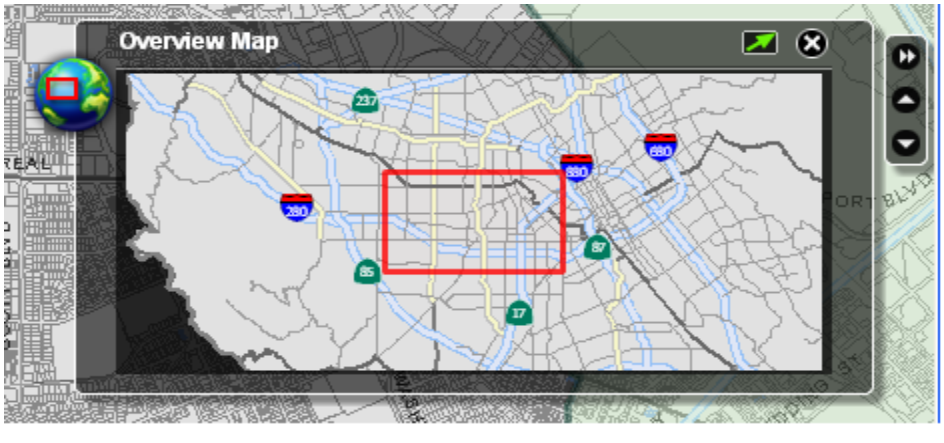
a. Hide or minimize the **Map Layers** widget and select the **Overview Map** function from the expanded **Maps** widget menu. See **Figure 17** for an expanded view of this widget and its menu of functions.

Figure 17



b. RESULT: an **Overview Map** of the County is displayed in a separate window in Zone 4. This provides a dynamic "bird's-eye view" of where you are on the main map, useful for finding your location when you are zoomed far into the main map and it can also be used for navigating around the main map.
c. Zoom far into and out from the main map and pan across the map.
d. RESULT: Note how the location of the bounding box and the view of the map in the Overview Map changes. See **Figure 18** for the appearance of the red bounding box within the Overview Map. Only a few map layers are displayed in this window, just enough to orient you.

Figure 18



e. Test toggling this window on or off by using the Minimize control.
f. When the window is open click on the red bounding box and drag it to another section of the map.
g. RESULT: The main map is redrawn in Zone 4 to match the new location of the red bounding box in the Overview Map.
h. Select a different base map using a button on the main map.
RESULT: The base map changes in the Overview Map as well.

Bookmarks

If the user wants to bookmark a certain view of the main map in the Interactive Map, the user can use the **Bookmark** tool for this purpose.

User will:

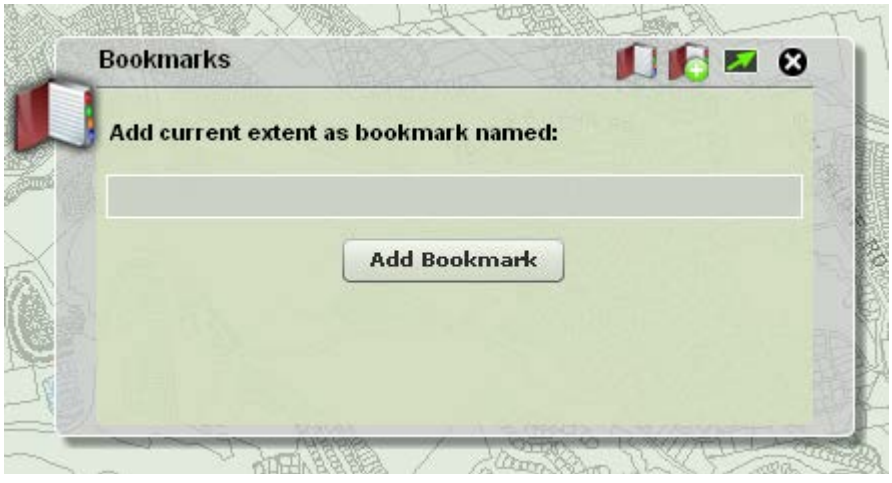
a. Leave the Overview Map widget open and select a view of the main map using the zoom and pan tools or dragging the bounding box.
b. Optionally turn layers on and off in the **Layer Visibility** list of the **Maps** widget.
c. Optionally select a property using one of the methods in the **Create Property Report** widget.
d. Select the **Bookmarks** icon in the menu of the open **Maps** widget.
e. RESULT: The **Bookmarks** widget is launched to the right-side of the main application window. See **Figure 19** for a view of this widget.

Figure 19

Note that there are default bookmarks already defined for the full extent of the County and other areas such as cities.

f. Select the **Add Bookmarks** icon from the top of the widget.
g. RESULT: The initial Bookmarks window changes to a window which allows you to add a bookmark with a name of your own choosing. See **Figure 20** below for a view of this window.

Figure 20



h. Enter a name for your bookmark, click the **Add Bookmark** button, then click the **Bookmarks** icon at the top of the widget.
i. RESULT: Your bookmark is added to the list of existing bookmarks with the four x,y coordinates of the current extent of the map.
j. Click on one of the existing bookmarks, note the change of focus in the map, then click on the bookmark you just created.
k. RESULT: The map shifts its focus from one bookmarked location to another.

Print or Save Map

If the user wants to **print** the map exactly as it is visible in Zone 4, with an optional Title or Subtitle and other typical features of a map layout view, the user should use the **Print** tool in the **Maps** widget menu. If the user wishes to **save** the map exactly as it is visible in **Zone** 4, without the Disclaimer, for possible inclusion in another document, for example, the user should use the **Save** tool in the **Maps** widget. The **Print** tool gives the user the option to **preview** the map before printing or saving it. *Note, these tools are for printing or saving the main map, not the Property Report map. Use the print function available in the Property Report for this purpose.*

User will:

a. Open Property Report widget if it is not already open, and locate and zoom into the intersection of Monterey and Bailey on the map.
b. Zoom out to a scale of 1:16000 or until a bounding box for this area is visible in the Overview Map window.
c. Select the Map Layers icon in the Maps widget and turn layers on or off to select the layers you want on the map. Adjust the center of the map using the Pan function so that the selected property is not obscured by the Overview Map or any other widget.
d. Select the **Print** icon from the **Maps** menu.
e. RESULT: the **Print Map** widget is launched on the right-hand side,

bumping up any other open widgets in the stack.

f. Enter a title and optionally a subtitle for the map.
g. Check the box for a Legend and click the **Edit Legend** button.
h. RESULT: The **Edit Legend** dialog comes up with a selection of layers in the left box that you can drag to the right-hand box for inclusion in your map. See **Figure 21** for a view of the **Print** widget options and the **Edit Legend** dialog.
i. Follow the instructions for selecting the layers you want on the Legend by dragging them from one box to the other and then clicking the **Save** button on the **Edit Legend** dialog to save your selection. See the instructions for dragging a group of layers. Only the first seven layers you select will be visible in the Legend on the map, so select more than seven layers so that you can preview how these additional layers will be printed at a later stage of this exercise.
j. To preview the actual extent of the map you want to print in relation to the map in the application window, click the **Show Preview Extent on Map** button.
k. RESULT: The extent of the map is outlined by a red rectangle on the map. See **Figure 22** for this result. If you cannot see the full outline of the map, adjust the height and width of your application window. If you wish to change the extent of the printed map, by adjusting the scale of the main map or using one of the navigation tools to pan or zoom into or out from the map, note that the extent of the map currently being shown immediately becomes obsolete, so you must click the **Remove Preview Extent from Map** button that now appears on the **Print** widget, and the **Show Preview Extent on Map** button that now replaces it, to refresh the extent preview. *Note, close or move the **Edit Legend** dialog while you are doing this in order to get a better view of the map outline.*

Figure 21

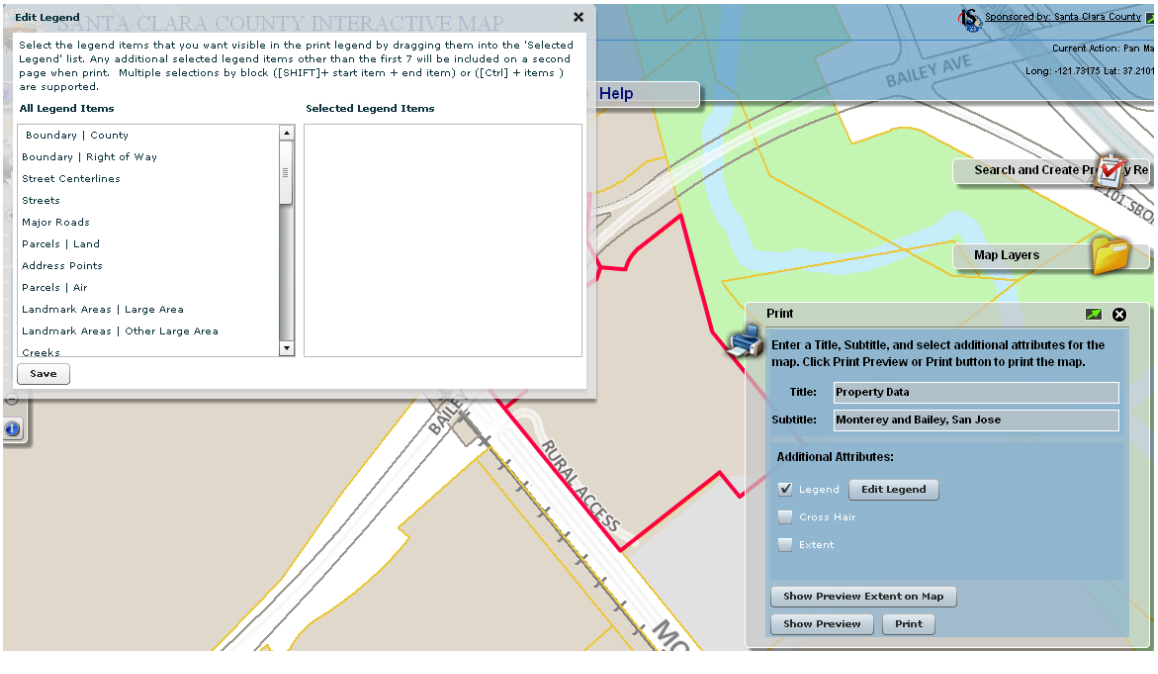
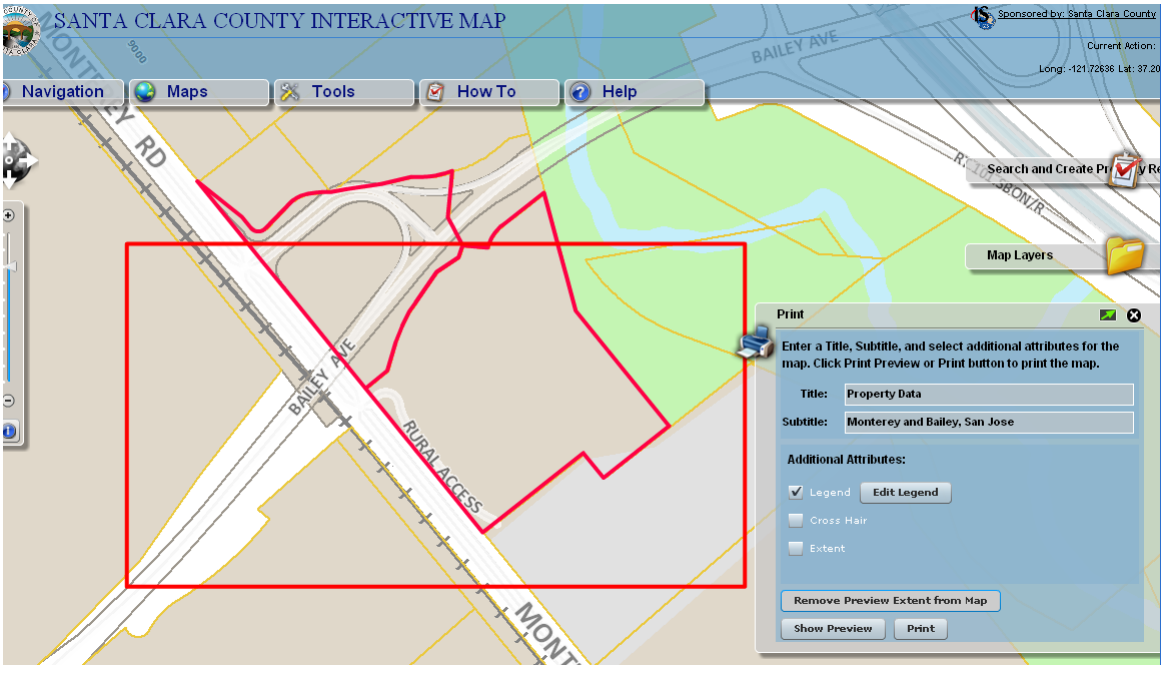


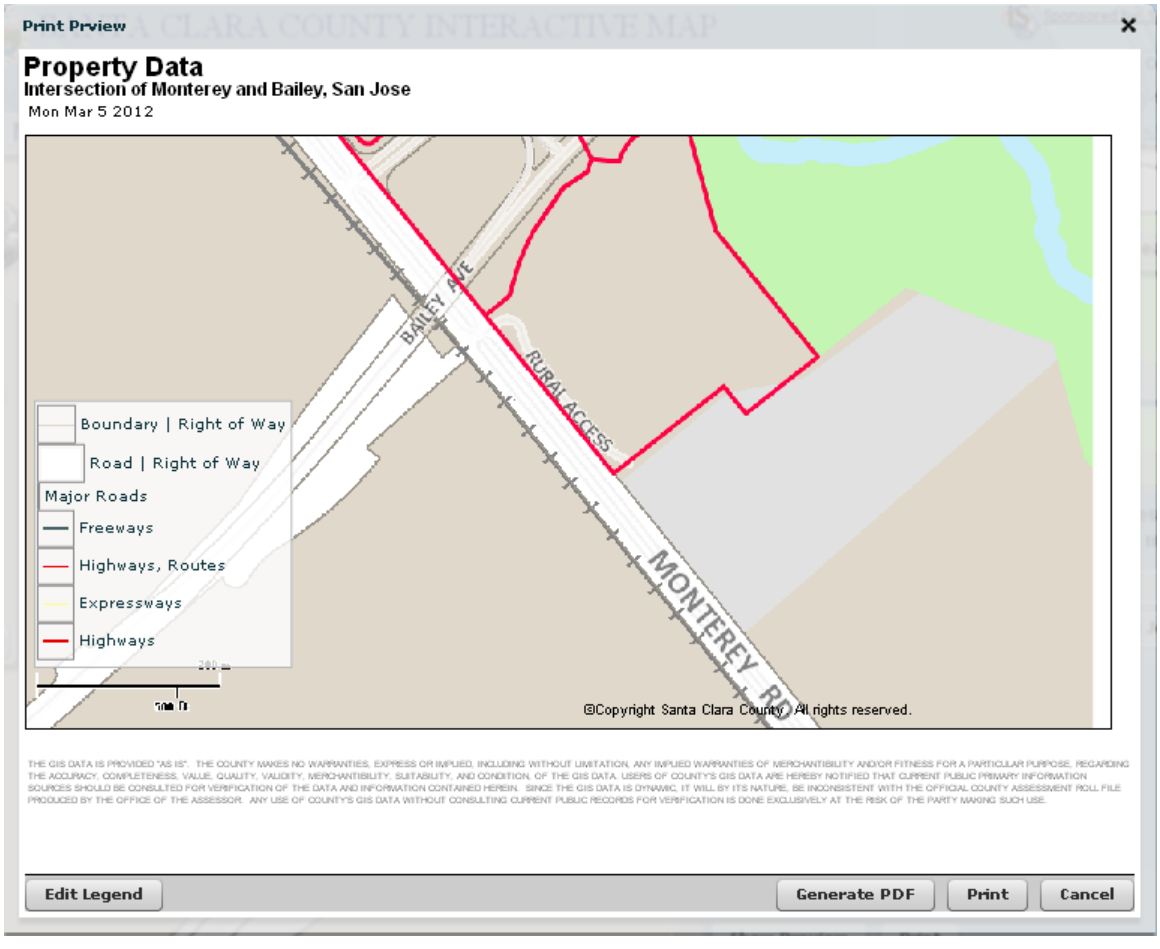
Figure 22



l. Click the **Remove Preview Extent from Map** button if it is visible and click the **Show Preview** button on the Print widget.

m. RESULT: The main map is displayed in a separate window in a landscape orientation with all the options you specified plus additional map elements such as a scale bar and the coordinates of the extent of the map, a copyright notice, a Disclaimer concerning the data, and buttons for further action. See **Figure 23** for the result. The view you see here represents the default location of the map elements on the map you have created. All the elements, however, except the scale bar and the Disclaimer can be moved to a new location on the map, which you should practice doing now to produce a better looking map. *Note, if the map does not fill up the area defined for it by the neat line, adjust the height and width of the application window until it does.*

Figure 23

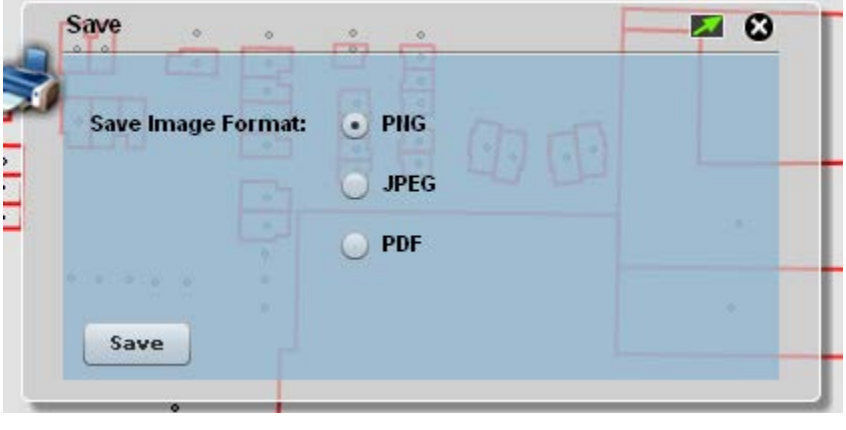


n. Click the **Edit Legend** button again. This gives you a chance to revise the list of all the layers that will be visible in the Legend. Click the **Save** button to save your final choice of Legend items and click the **Generate PDF** button to save the map file to your local drive as a PDF file. Note that only seven lines were printed in the legend visible on the map itself, and the limit of seven includes any multiple symbology defined for a layer; the rest of the legend has been printed on a second or even third page of the PDF output if that was necessary. To preview the entire legend when it extends beyond the initial page, open the PDF file you saved earlier and scroll through the second and third pages if necessary to view all the items. *There should be a distinct symbol beside each layer name unless it is a header for a group of items, but if you do not see a symbol it may be because the connection to the server has timed out and the symbol may no longer be accessible. To restore the symbols, remove the layers from the right panel and drag them back to the right panel again. Again save your final selection of Legend items before proceeding.*
o. Now select the **Print** button on the **Print Preview** window, and a print dialog opens up allowing you to print the map to a local printer of your choice in a size, resolution, and orientation supported by your printer. A

landscape orientation will provide the best view of the map. *Note, if you choose a landscape layout for printing, remember to change the page orientation in the Page Setup menu under the File menu to match your preference.*

p. Click the **Cancel** button on the **Print Preview** window. The **Cancel** button allows you to close this window and cancel any actions related to previewing the map.
q. Minimize the **Print** widget and select the **Save** button on the **Map Layers** widget.
r. RESULT: A dialog opens up allowing you to save the map as a file in one of three formats. See **Figure 24** below for a view of these formats.
s. m. Select a Save Image Format in which to save the map.
t. n. Click the **Save** button.
u. In the new window that pops up navigate the file directory to find a location for your file, specify a file name, and click Save.
v. p. RESULT: An image of the main map with the specified format and name is saved to the specified directory.
w. q. Close the **Save** map widget window to end this exercise.
x. *Note, if you do not wish to preview the map before you print it, you can simply click the **Print** button in the **Print** window and choose the options which the standard Print dialog gives you for printing your output.*
y. *And if you know from the start that you want to save the map or do not wish to preview the map before you save it, you can simply click the **Save** button in the **Maps** widget menu and save it to one of the provided formats.*

Figure 24



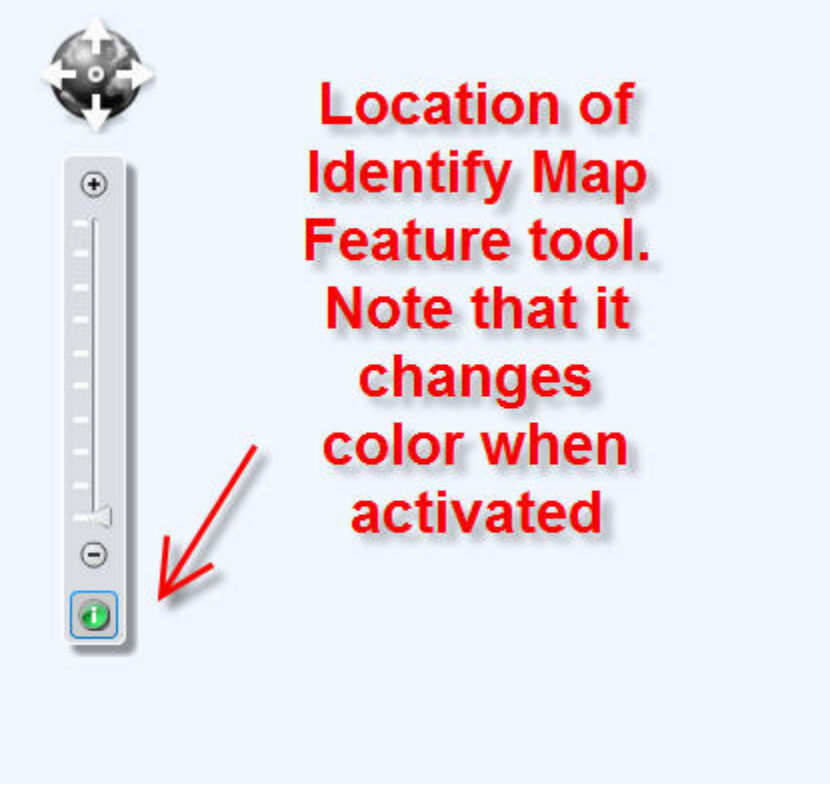
Map Navigation Tools

Tools for navigating the map are grouped in a single widget called **Navigation**. **Figure 25** shows a close-up of the menu of navigation tools which is visible when you mouse over the **Navigation** widget.

Figure 25

The **Zoom In**, **Zoom Out**, and **Pan** functions can also be performed by using the tools in **Zone** 5 which have a similar appearance to the navigation controls in Google Maps and Google Earth. Let's review these. The **Pan** tool is above the sliding bar; at its center is a symbol labeled "Recenter Map" which when clicked zooms your map view out to the full extent of the County map and recenters it. A sliding scale with a Zoom in and Zoom out control allows you to zoom in and out on the map. See **Figure 26** for a view of this group of tools in Zone 5, with an arrow pointing to the location of the **Identify Map Feature**. Note, to use the slider bar you must be in **Pan** mode. The initial mode of the mouse cursor when the application is loaded is Pan mode so you can pan or drag the map immediately when you bring up the application without selecting a tool in **Zone** 5 or from the **Navigation** widget. You can also zoom into an area of the map by holding down the Shift key and dragging the mouse which will form a rectangle, and pan the map by holding down the Shift key and clicking on an area away from your current focus.

Figure 26



For this tutorial we will be practicing map navigation using only the **Navigation** widget.

Zoom In

The user will:

a. Select the **Zoom In** tool by clicking on the **Zoom In** icon in the **Navigation** widget menu.
b. Draw a box on the map with the mouse for the desired area. Press down the left mouse button on the lower-left corner of the desired area, keep the mouse button depressed, and drag it to the upper-right corner of the desired area and release the button.
c. RESULT: Program zooms in to the desired area in the main map in Zone 4 and re-centers the map on this area. A red box in the Overview Map outlines the new map viewing area. The arrow on the Zoom In/Out slide bar in Zone 5 moves to the new map scale; you can click it to determine what the map scale now is.

Zoom Out

The user will:

a. Select the **Zoom Out** tool by clicking on the **Zoom Out** icon in the **Navigation** widget menu.
b. Draw a box on the map with the mouse for the desired area. Press down the left mouse button on the lower-left corner of the desired area, keep the mouse button depressed, and drag it to the upper-right corner of desired area and release the button.
c. RESULT: Program zooms out from the area and re-centers the map on this area. A red box in the Overview Map outlines the new map viewing area. The arrow on the Zoom In/Out slide bar in Zone 5 moves to the new map scale; you can click it to determine what the map scale now is.

Pan

The user will:

a. Select the **Pan** tool by clicking on the **Pan** icon in the **Navigation** widget menu. To move the map, press down and hold the left mouse button and move the mouse in any direction and then release the mouse button.
c. RESULT: Map is redrawn according to the new map focus in Zone 4. A red box in the Overview Map outlines the new map viewing area.

Full Extent

The user will:

a. Select the **Full Extent** tool by clicking on the **Full Extent** icon in the Navigation widget,
b. RESULT: Program zooms out to the extent of the entire County in the main map in Zone 4, the same extent as the initial viewing area. A red box in the Overview Map outlines the new map viewing area.

Previous Extent

The user will:

a. Select the **Previous Extent** tool by clicking on the **Previous Extent** icon in the **Navigation** widget.
b. RESULT: Program zooms back to the scale of our previous map extent in the main map in Zone 4. A red box in the Overview Map outlines the new map viewing area.

Next Extent

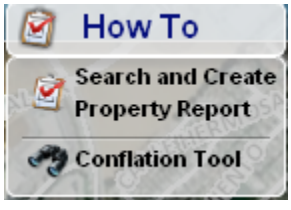
The user will:

a. Select the **Next Extent** tool by clicking on the **Next Extent** icon in the **Navigation** widget.
b. RESULT: Program zooms back to the map view and scale which you defined previous to zooming to the Previous Extent in Zone 4. A red box in the Overview Map outlines the new map viewing area.

“How To” or more advanced tools

The **Tools** widget group contains basic tools such as the **Draw** tool, in contrast to the **How To** widget group which contains more advanced tools with multiple sequential steps, similar to a wizard. The functions visible in the **How To** menu when you mouse over this widget are shown in **Figure 27.** The **Search and Create Property Report** widget was launched automatically when the application was opened. The presence of an icon for it here allows you to open it again if you earlier closed it. We have discussed above how this widget functions.

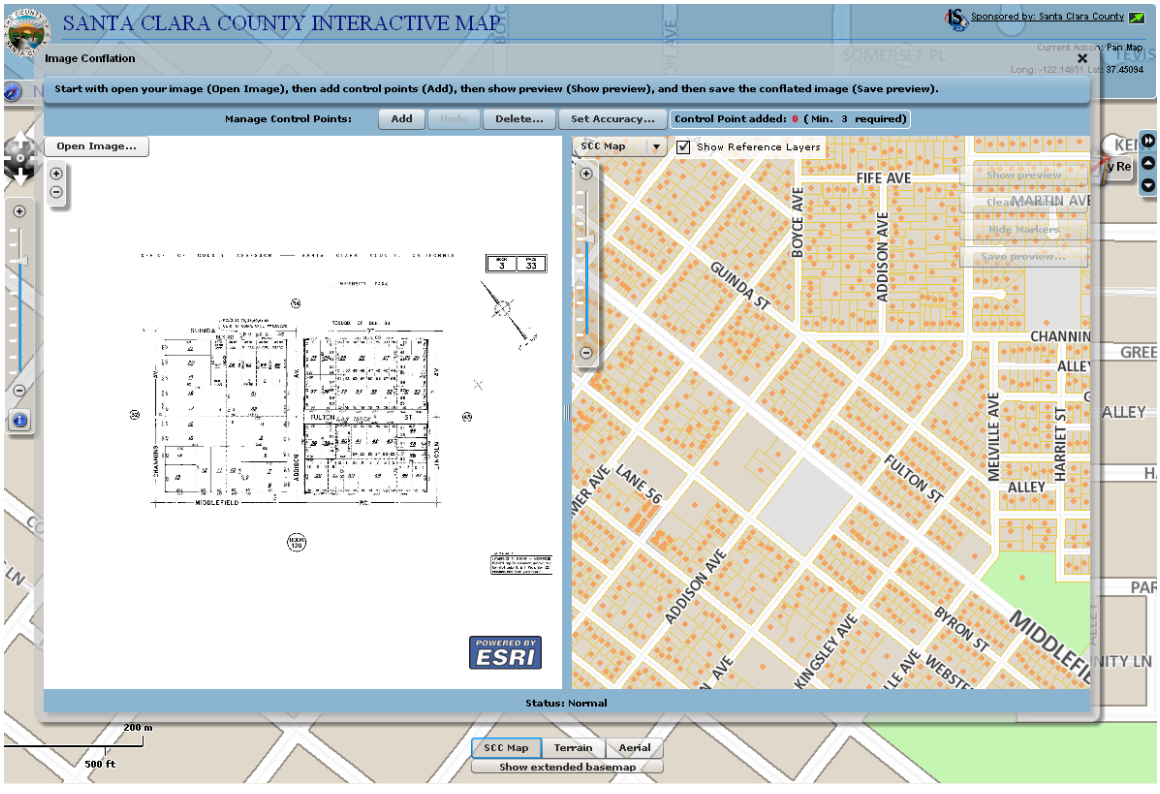
Figure 27



Conflate an image to the map

If you have an Assessor’s map or some other scanned image of a property or drawing to scale of a development you can use the **Conflation Tool** in this widget to locate it precisely on the georeferenced main map using just a few points – “control points” - in common between the image and the map. See **Figure 28** for the layout of this tool when an image of an Assessor’s map has been opened and imported into it.

Figure 28



In the right panel is an image of the main map at the same scale at which you have been working and with the default basemap selected and the reference layers displayed because that option is checked. You can change the basemap visible in this panel by using the drop-down list at the top left corner of this panel. You can also check on and off the reference layers using the checkbox just to the right of this drop-down list. The reference layers, which are displayed over the basemap, consist of roads, road names, and the current property layer, which displays, if you zoom in far enough, the house number of the situs address of each property. The reference layers are intended to help you orient the imported image to the main map. A slider zoom tool and scale bar are visible on the left similar to those on the main map and you can also use your mouse to pan the map to adjust its focus in the panel.

In the left panel is a typical Assessor's parcel map image which has been imported to be conflated to this map. Zoom in and zoom out tools are available here also for adjusting the scale of the image and you can also pan this image with your mouse. Above the image is a button labeled "**Open Image…**" which you use to import an image into this panel. The image must be in PNG or JPEG format to be imported.

Visible over the banner above these panels is text indicating the basic workflow of conflating an image, buttons for managing the control points, and a status zone for indicating how many control points you have added in comparison with the minimum required. The basic workflow is first to open the image, add

matching pairs of control points on the image and on the map, show a preview of the image conflated to the map, and then save the conflated image to a file. The buttons for managing the control points include a button labeled "**Add**" to enable adding control points, a button labeled "**Delete…**" for deleting control points as part of the adjustment process, an "**Undo**" button which becomes active when you add a control point for undoing your last action, and a button labeled "**Set Accuracy…**" for setting the minimum number of control points required to do the conflation. (Note, three dots after a button's name indicates that it activates another window for more choices.) By default the minimum number of control points is set to three, for a flat terrain, but you may want to increase the number if you are conflating an image to an area that has uneven terrain, or your initial result was unsatisfactory, or if you just want to add more points for a better fit. Once you increase the required number of points that number will be displayed in the "**Control points added**:" status zone. More features of the interface will be revealed as we do the exercise.

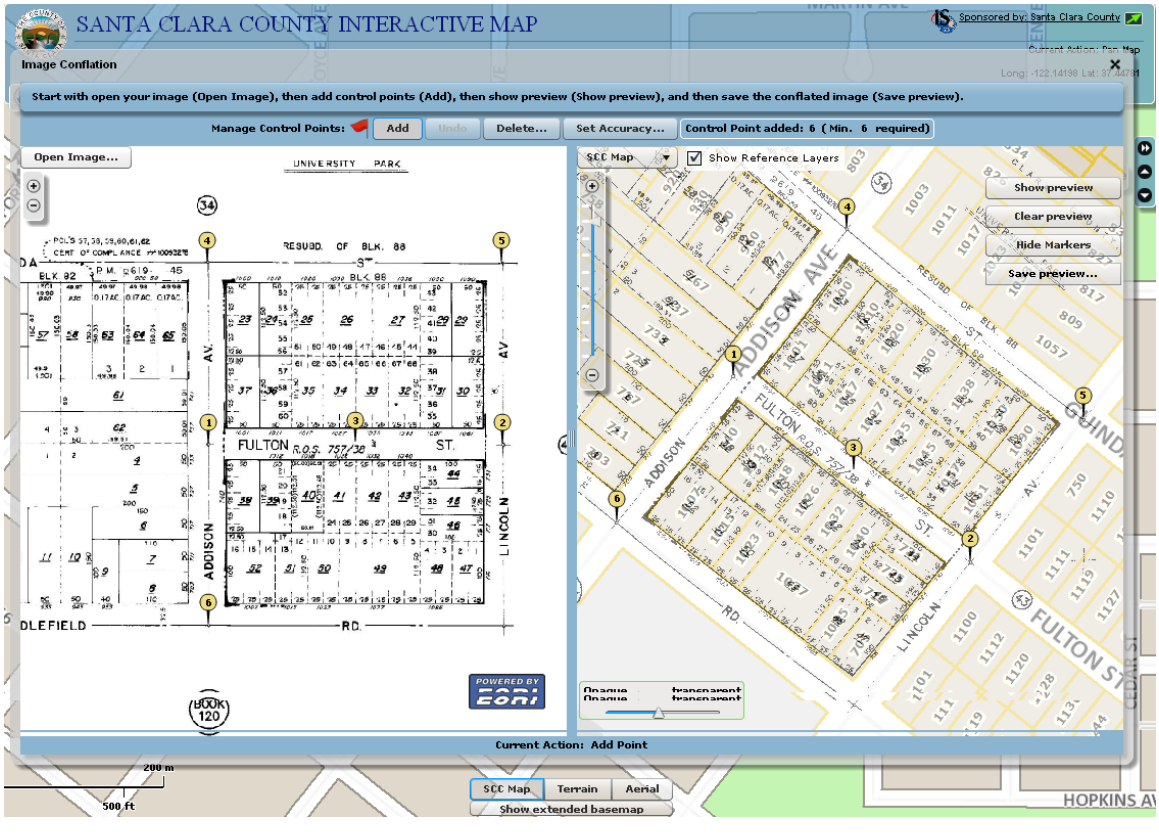
The user will:

a. Use the **Intersection** search to zoom to the location of Addison and Fulton streets on the main map. When the main map has zoomed into this location, clear the highlighted parcel boundaries on the main map by opening the Criteria component and clicking the **Clear** button so that you can see the road labels better.
b. Open the **How To** widget and select the **Conflation Tool** from the menu.
c. RESULT: The **Conflation Tool** opens in a separate window and the current location on the main map is visible in the right panel of the **Conflation Tool.**
d. Click the **Open Image** button in the left panel and import the Assessor's map book 3 page 33 image which corresponds to this location and which has been converted to a JPEG or PNG format. The location of this image will be identified for you by the instructor if you are doing this operation in a training class, otherwise you should plan to have this map book page available for importing for this exercise.
e. Click the **Set Accuracy…** button and increase the minimum number of points required to 6, or to the next marker on the scale. The new number is displayed for you after some descriptive text at the bottom. If you click on the marker you will see another number displayed. That is the order of the polynomial equation that will now be used to do the conflation. Even though the terrain is flat in this area, we are increasing the number of required control points to increase the likelihood of an accurate result. Close the **Set Accuracy** window.
f. Click the **Add** button.
g. RESULT: A red flag is displayed beside the **Add** command indicating you are in that mode and can add points.
h. Create a minimum of six points on the Assessor's map and at the corresponding locations on the map in the left panel. Zoom into the image and the map and pan both if necessary to find the precise matching locations. Be sure always to pick a point in the center of the image and points at the full extent of the image and in this case at the

intersection of the centerlines of the roads labeled on the image to increase the likelihood of an accurate result. When six corresponding pairs of numbers have been added the **Show Preview** button becomes active in the map panel. Click this button.

i. RESULT: The Assessor's map image is conflated to the map in the right panel of the widget even though the orientation of the map and the original image were originally different and the image was not georeferenced. See **Figure 29** below for a view of the result. Note how the same numbering of points on the imported image and the map help to relate the locations**.** Note several new controls that are visible in the upper right-hand corner of the map panel. These can assist if you need to redo your conflation. Note also a labeled sliding scale visible at the base of map. This is for making the image more or less transparent over the map, which also can be used to help you adjust your choice of common points.

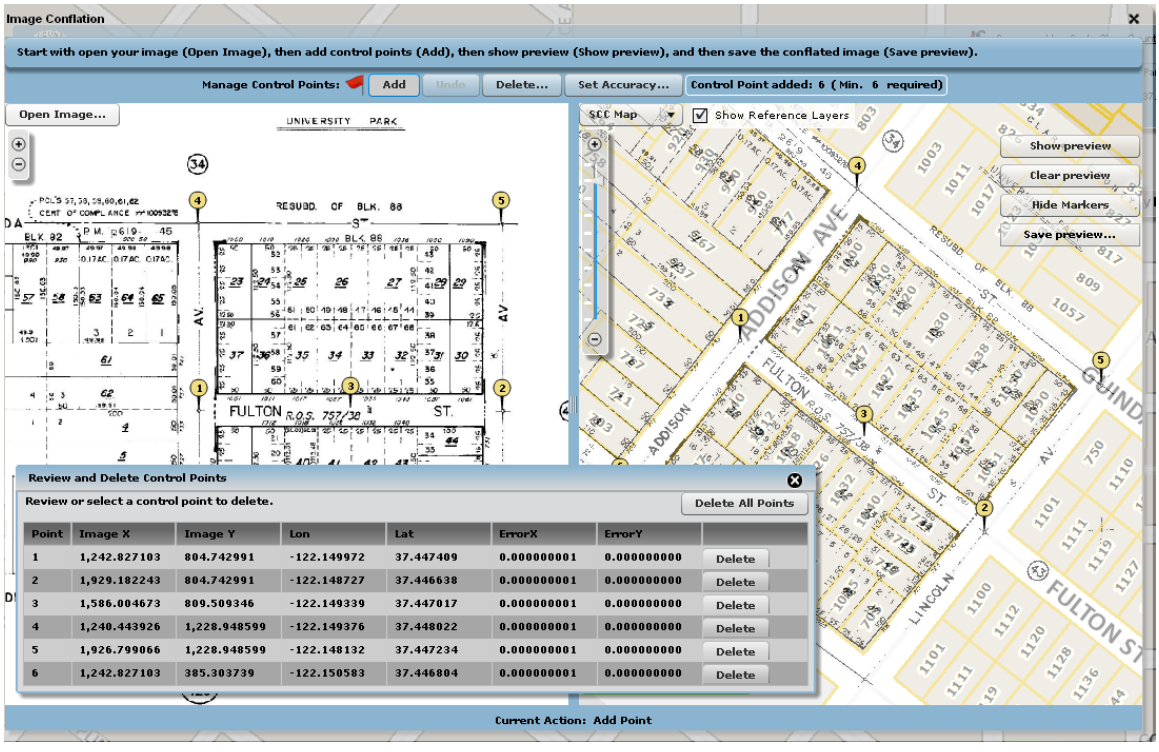
Figure 29



j. Before saving the result, let is look at another button and window for helping you to revise your collation. Click the **Delete…** button.

k. RESULT: A window pops up containing a table with a row for each point you have added, columns describing the content of each field, and a button for deleting the row. There is also a **Delete All Points** button available on the table. See **Figure 30** for a view of this table.

Figure 30



The Image X and Image Y values refer to the pixel locations on your screen. The Lon and Lat values refer to longitude and latitude locations in projected space. Since the conflation we just did was extremely accurate, the values of ErrorX and ErrorY are very small. If they were larger, you could delete the points that had the largest values, add more points, and then preview the result again. Note, you will not be able to get rid of all the errors after each **Show Preview** operation because errors are unavoidable in trying to fit a polygon image to a curved projection system. If you delete enough points that you fall below the minimum accuracy you have set, the **Show Preview** button which you see in this figure will become inactive, to alert you to the fact that you don't have enough points yet to preview the collation.

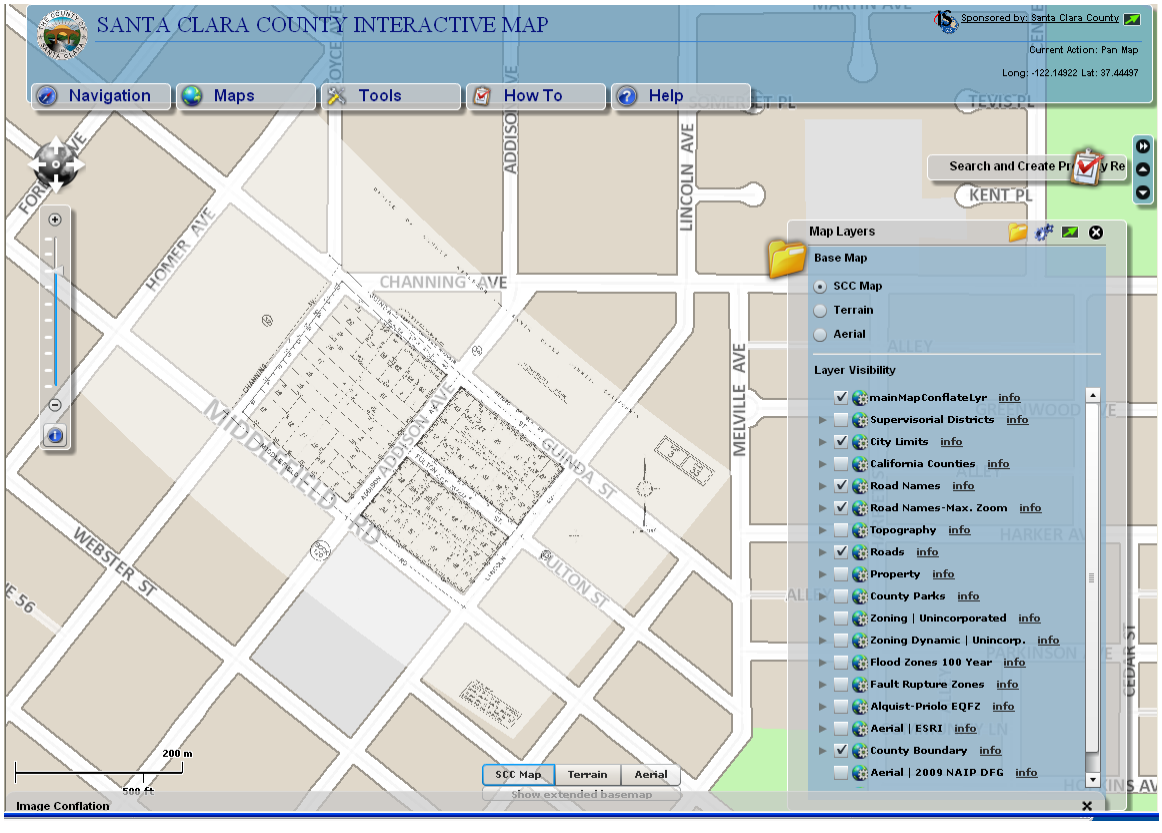
You can drag any column header in the table to the left or right to make them more visible; for example, you can drag the "Lon" and "Lat" columns to the left of the Image X and Image Y columns if that helps you visualize the points' location on the map. You can also sort the values in any column by clicking on the column header. The original point ID will not changed when you do this.

l. Note a **Clear Preview** button is visible now as well as a **Show Preview** button in the map panel, to allow you revise or redo the conflation operation. There is also a **Hide Markers** button which is useful if you have added a great number of points in close proximity to each other and it is now difficult to see their location on the map. You can continue to add pairs of points even after you have a preview of

the image shown on the map – the red flag beside **Add** doesn't go away - then click **Show Preview** again to adjust the conflation, or first **Clear Preview** to check their locations and perhaps also **Hide Markers** and then **Show Preview** to adjust the collation.

m. When you are satisfied with the result, close the **Review and Delete Control Points** window and click the **Save preview…** button to see what the options are for saving the image.
n. RESULT: A menu appears with several save options. These are listed as:
   To main map…
   As graphic…
   As KML…
   The three dots after each one indicate there are more options for you to choose for each option. **To main map…** allows you to overlay the conflated image on the main map. **As graphic…** allows you to save the image to a file in one of several graphical formats. **As KML…** allows you to export the image to a KML file for uploading to Google Earth. Click the **To main map…** option for this exercise.
o. RESULT: Another window pops up with two options and instructions for choosing one or the other. You can click the **Show Preview on Main Map** button and see the conflated image overlaid on the main map or click the **Clear Preview on Main Map** button and clear the image from the main map. The latter option should be chosen only after you have first clicked the option to show the preview on the main map. Click the **Show Preview on Main Map** button and drag the **Image Conflation** window down the screen until it is almost invisible. Open the **Map Layers** widget.
p. RESULT: The image is visible conflated on the main map, without any of the control points visible. Pan the image to the left so that it is not obscured by the **Map Layers** widget. See **Figure 31** for a view of this result.

Figure 31



q. Note there is a layer added to the **Layer Visibility** list called "mainMapConflateLyr". This is added automatically to the list when you save the preview image to the main map. It can be turned on or off just like any other layer. Once the image is conflated to the main map you can now use all the tools available for the main map to view it with other map layers in the Map Layer list or against a different basemap, or print or save it with your choice of basemap and layers overlaid on the basemap to a file. You can also export the image now conflated to the main map to a KMZ format for viewing in Google Earth by clicking the **Export Image** button in the **Maps** widget.

Here are some additional tips for using the **Conflation Image** tool:

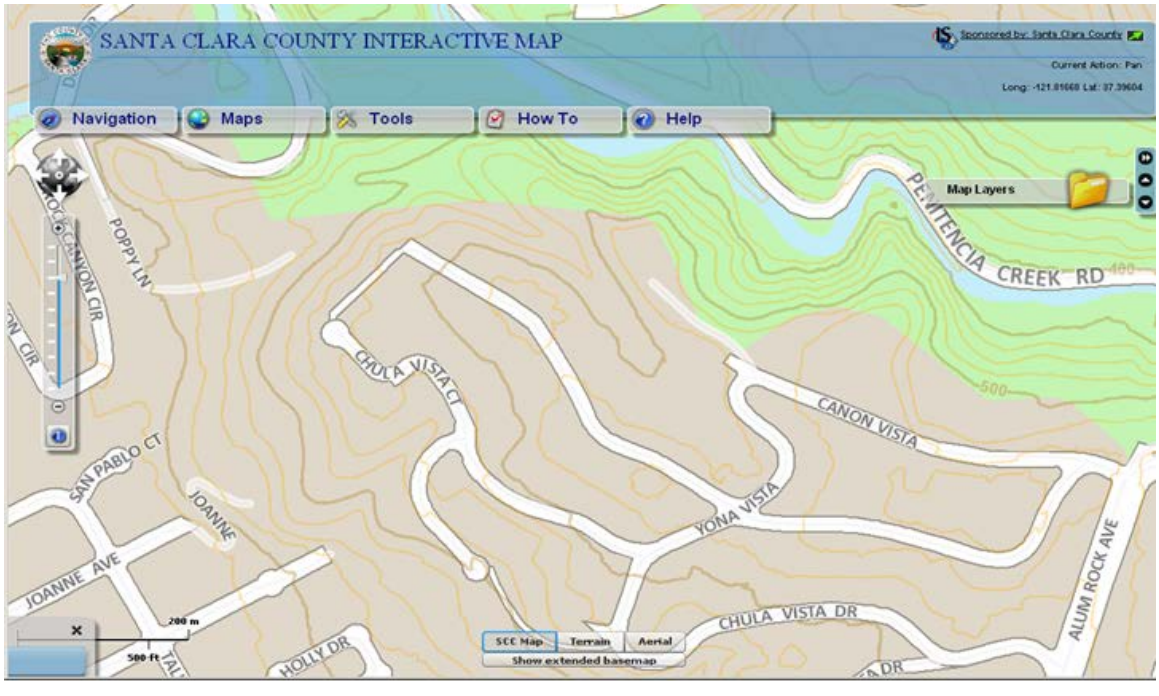
1. *Only one new image layer can be added to the layer list per session and the name is fixed. The layer will disappear when the session is ended, but you can save or print it as part of the map as indicated above.*

2. *If you have done a **Show Preview** and then zoomed into the map in the right panel so far that you cannot see the entire conflated image, and then clicked the **Save preview… As KML..** options, the image that is exported is just what you see in the right panel, not the entire image. If you want to export the entire image, zoom out to a point where you can see it completely in the right panel, and then*

click these buttons. If not enough detail is visible in the exported KMZ file, then do several exports one to get the overall view and others to get more detailed views. All of these files or views can then be mashed up together on Google Earth and they will be georeferenced to each other.

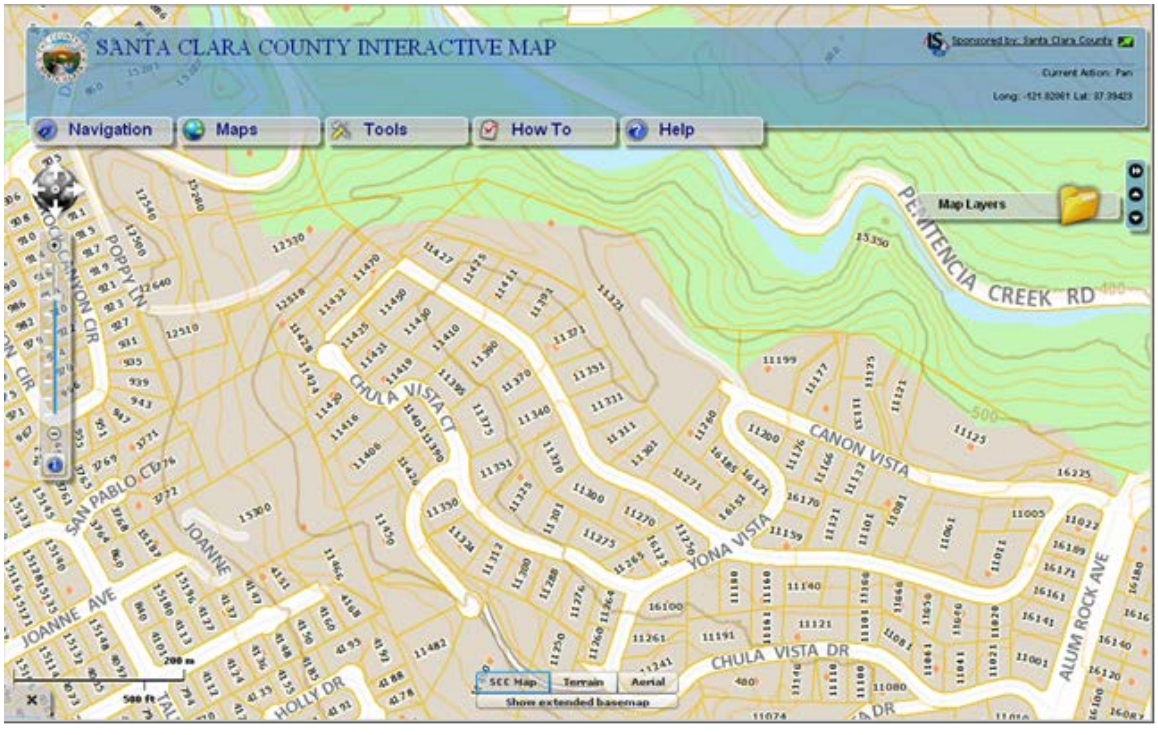
Now let's try a more advanced example of trying to conflate an image on steep or uneven terrain. You will see in the next series of figures how adjusting either the required accuracy or adding more control points while keeping the other setting unchanged can gradually improve the fit of the image to the map surface. For this exercise you will add an entire mapbook page 599-25 rather than a map of a single parcel. First search for the intersection of Alum Rock Ave and Canon Vista in San Jose, to a scale of 1:4514, and adjust the focus to match that of **Figure 32**. Turn on the Topography layer to see the contours of this area.

Figure 32



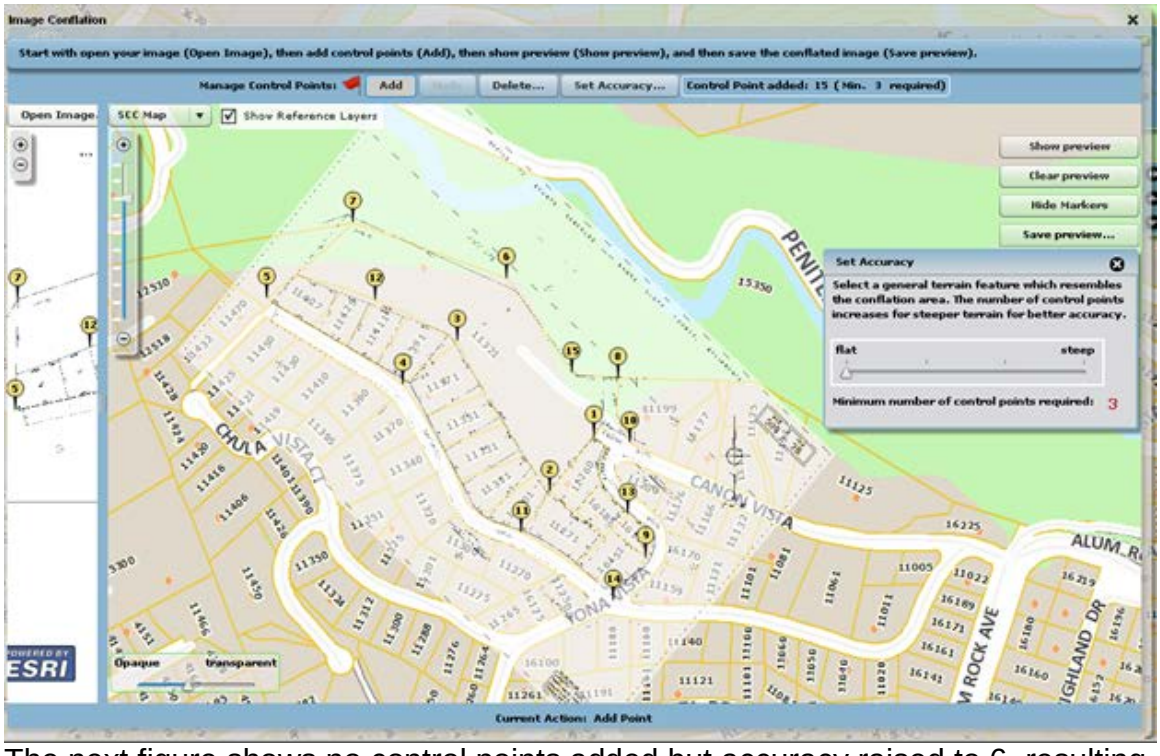
The next figure shows the same location with the Property layer turned on.

Figure 33



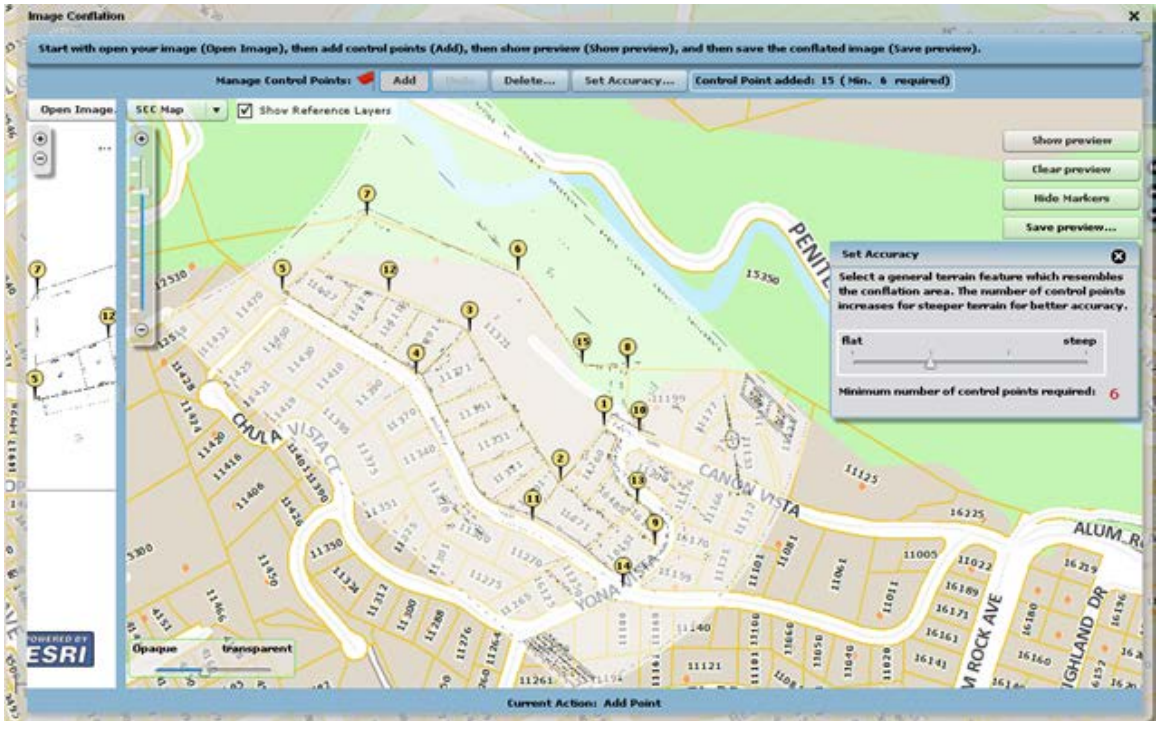
The next figure shows an image of an entire Assessor's map-book-page added, the accuracy requirement set to minimum number, for a flat area still, 14 control points added, transparency set to 50%, and **Show Preview** clicked.

Figure 34



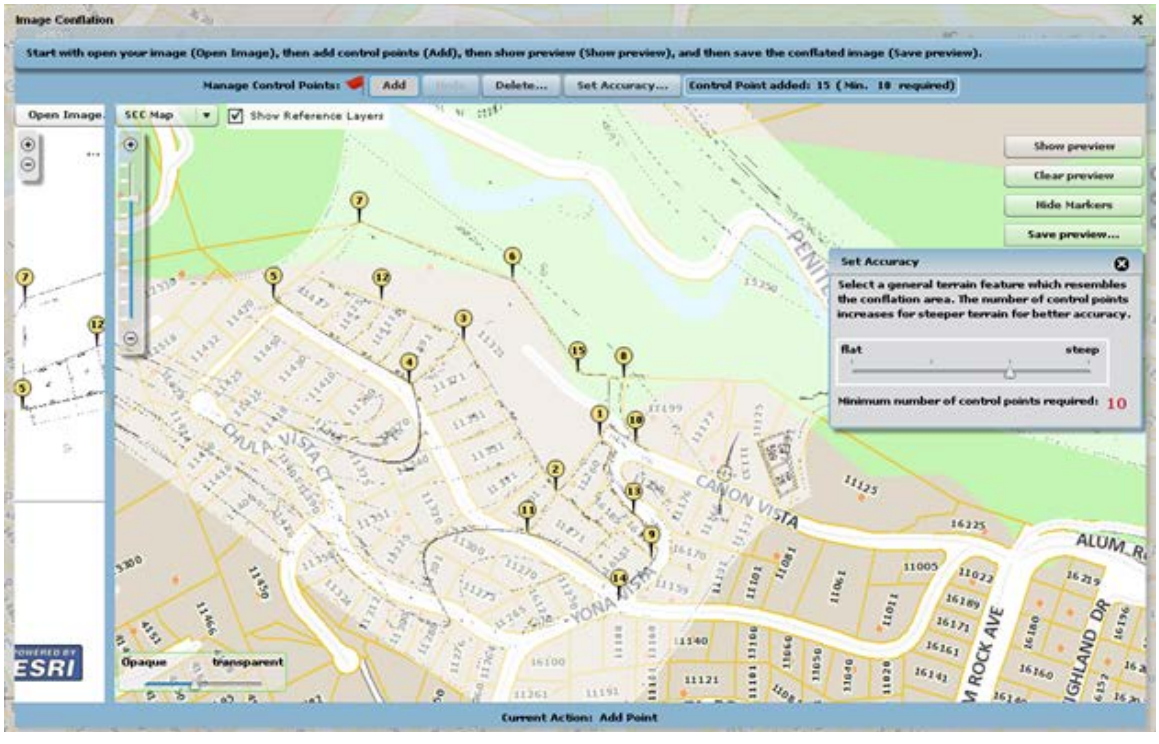
The next figure shows no control points added but accuracy raised to 6, resulting in a better fit to the north but worse to the SE.

Figure 35



The next figure shows no control points added but accuracy raised to 10, producing a better fit to the SE but worse to the south and west.

Figure 36

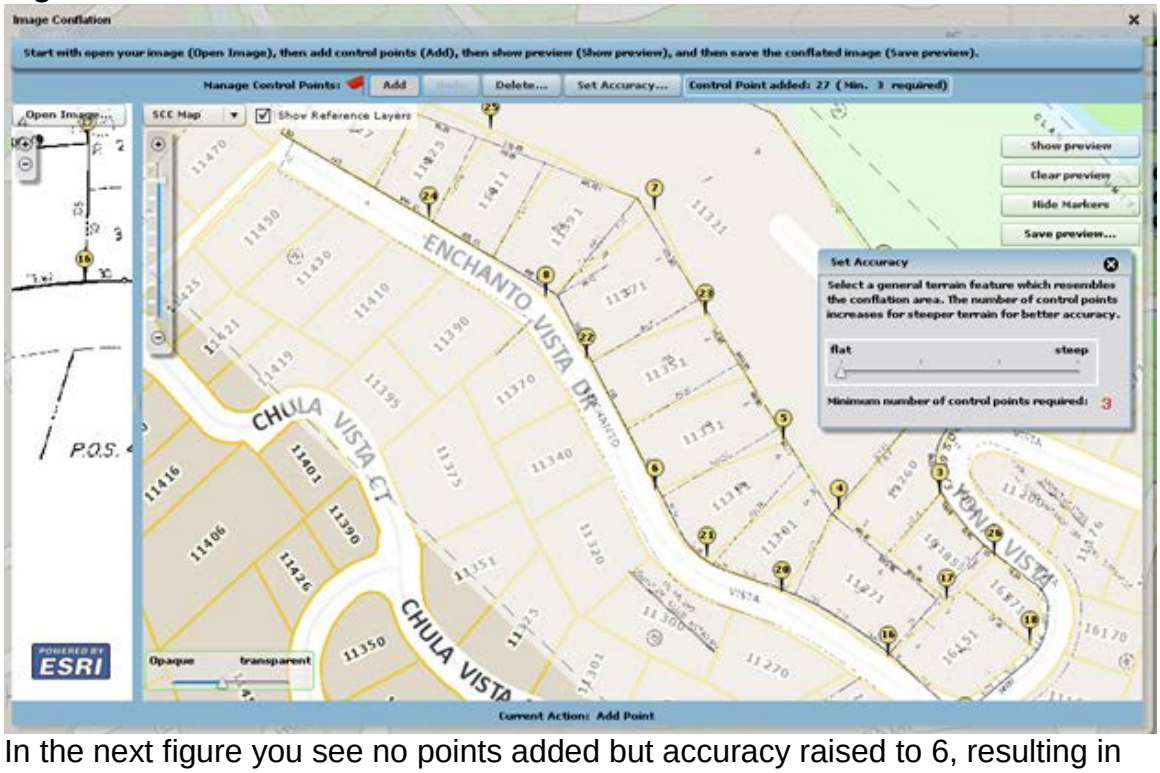


The next figure shows no control points added and accuracy raised to 15 to match the number of points added previously. There is still distortion to the south.

Figure 37

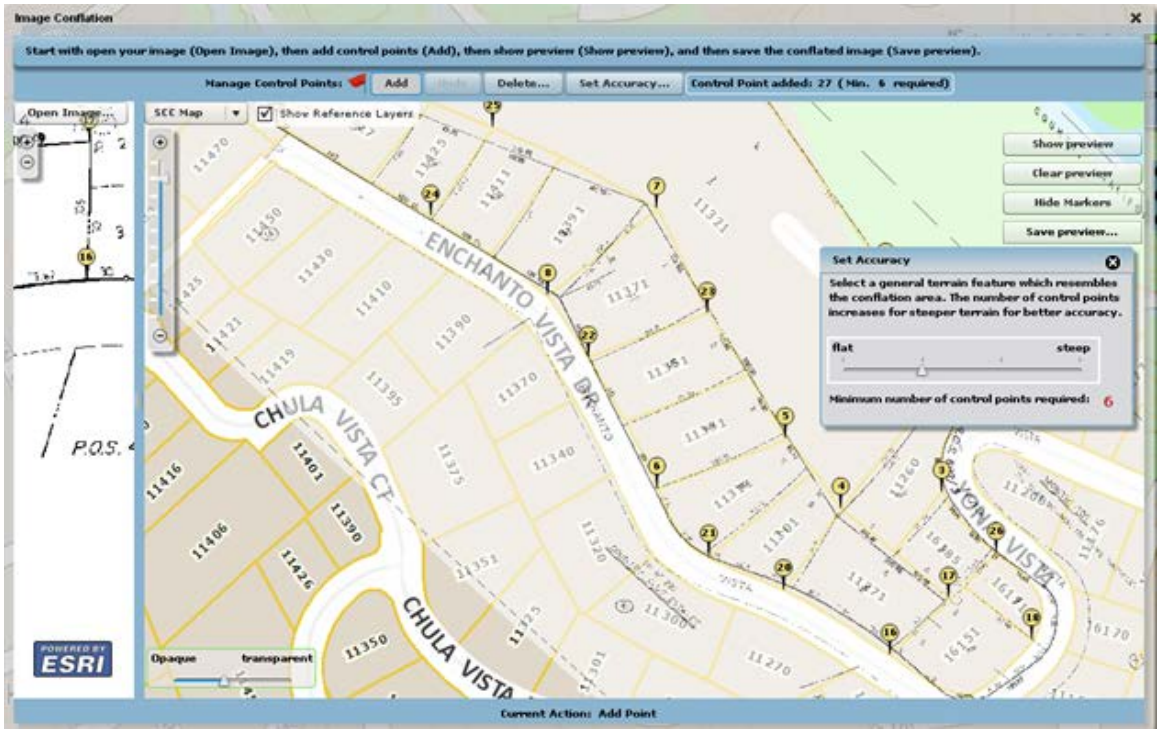
In the next figure you see accuracy set back to 3 but points increased to 25, and the map zoomed in to a scale 1: 2257 to see the resulting better fit.

Figure 38



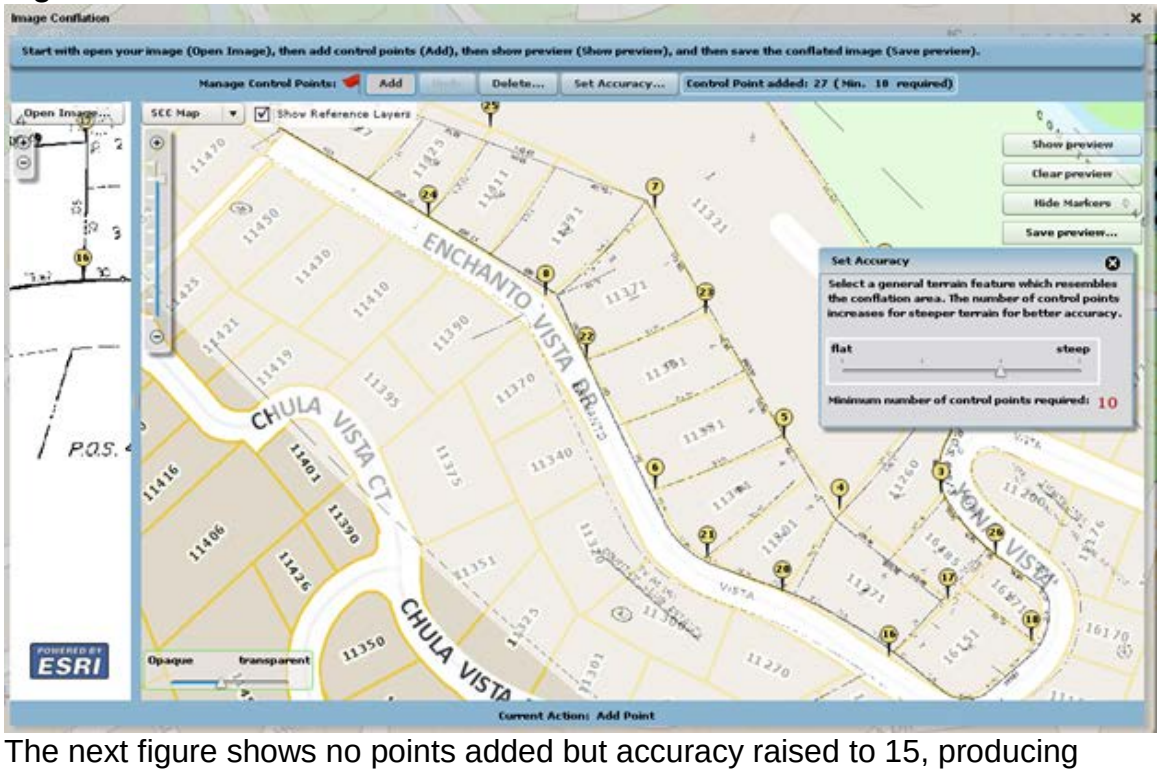
In the next figure you see no points added but accuracy raised to 6, resulting in an improved fit to the steepest slope but a worse fit to the SE.

Figure 39



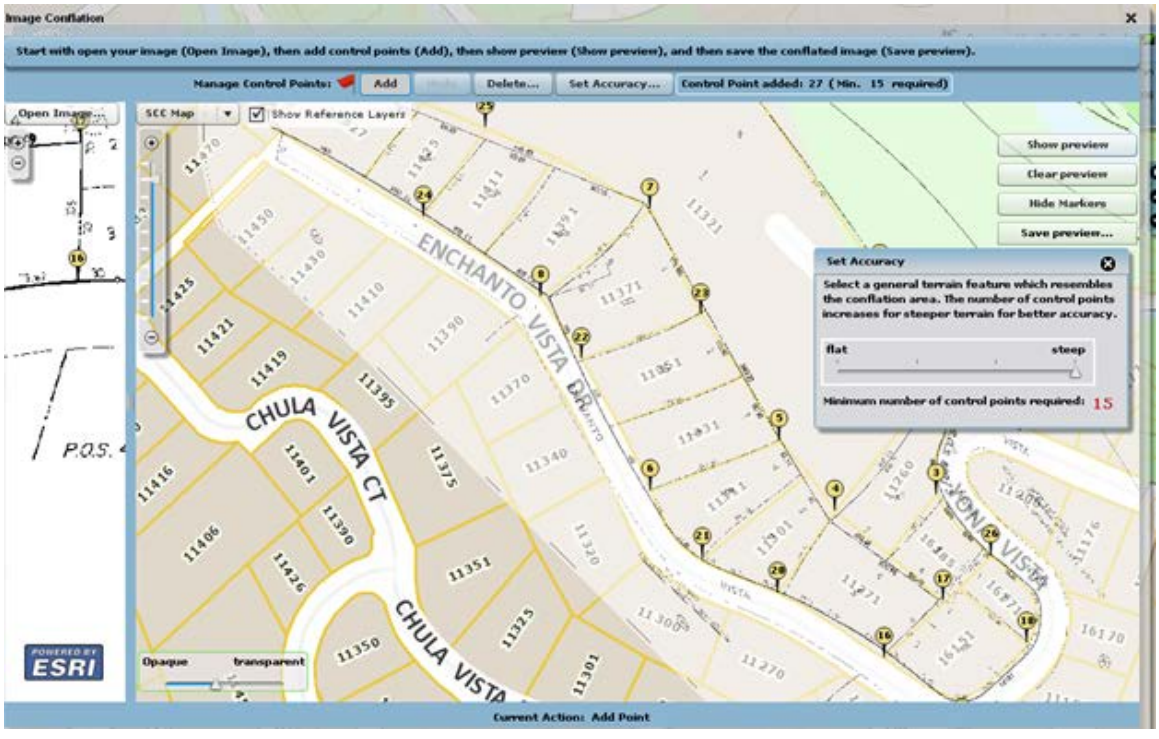
In the next figure you see no points added but accuracy raised to 10, producing a better fit in the SE.

Figure 40



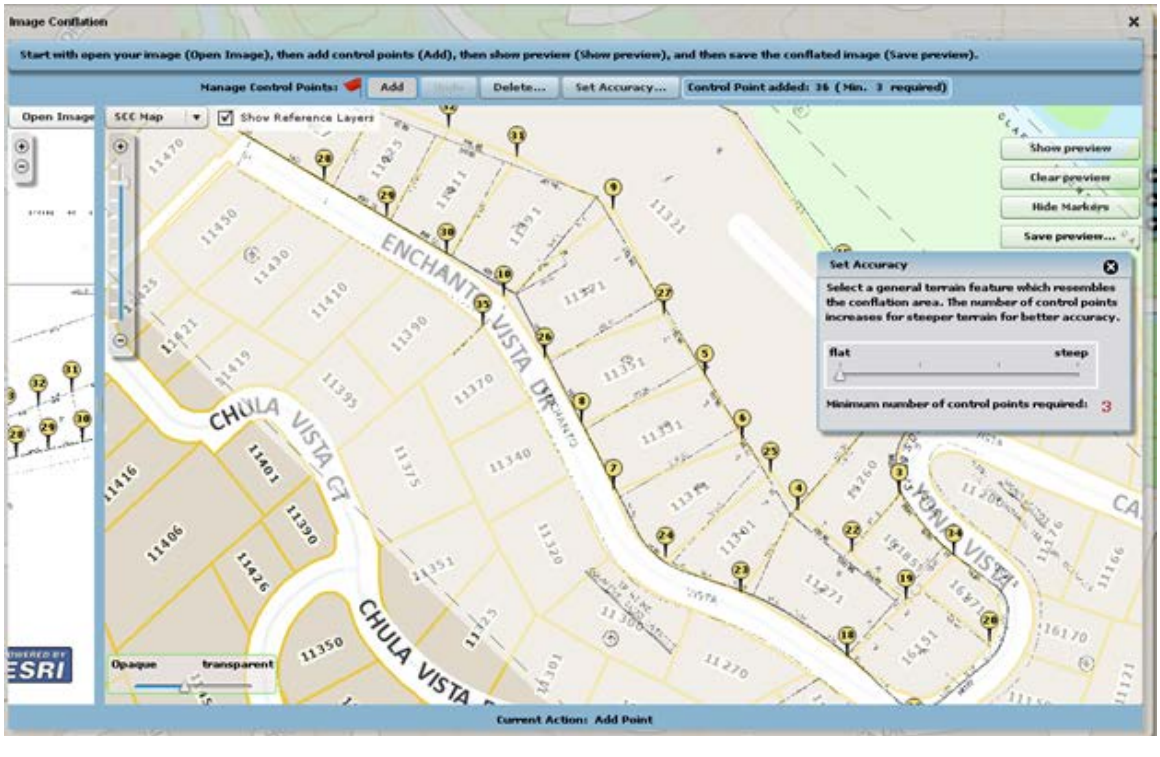
The next figure shows no points added but accuracy raised to 15, producing small adjustments which result in a better fit.

Figure 41



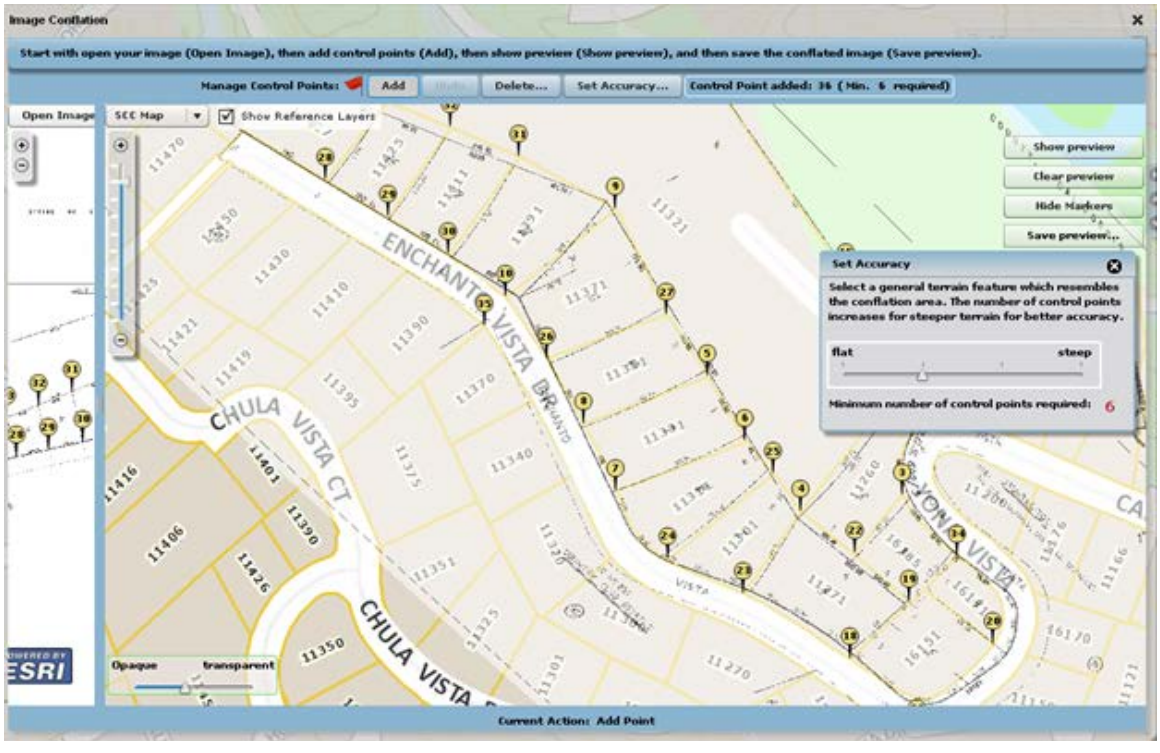
The next figure shows points added to a total of 35, and the accuracy set back to 3, resulting in the best fit so far.

Figure 42



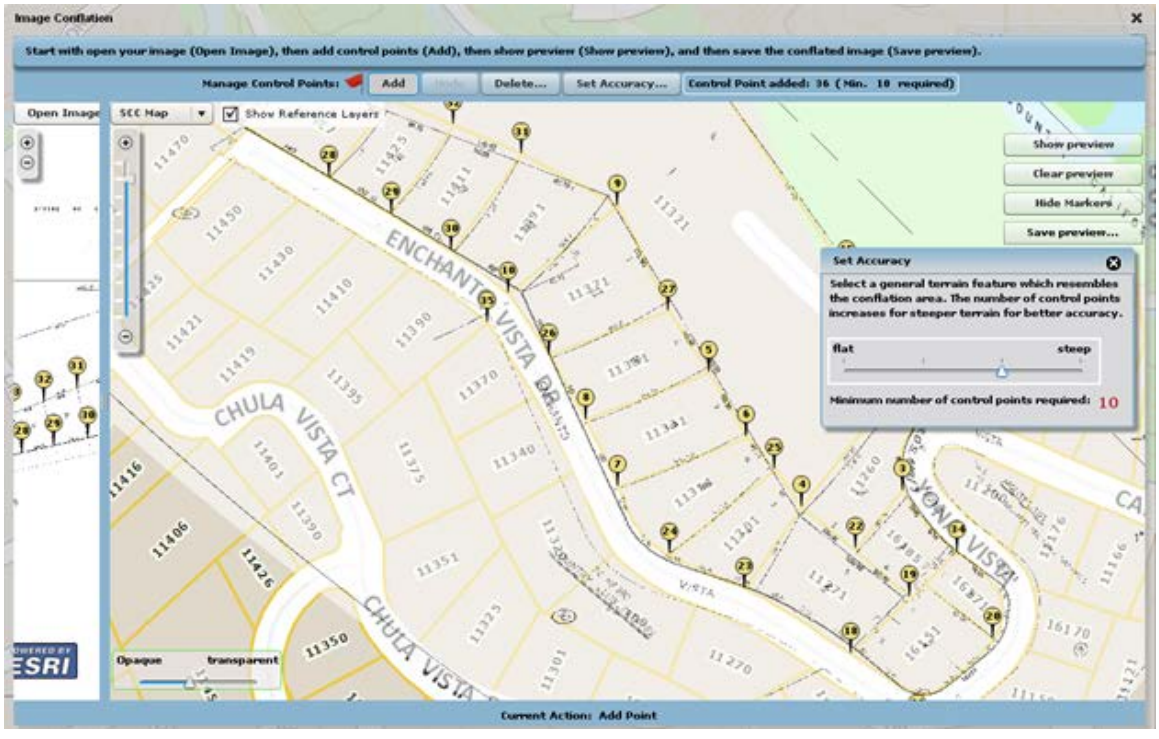
The next figure shows no points added but accuracy raised to 6, resulting in small adjustments but making the SE area worse.

Figure 43



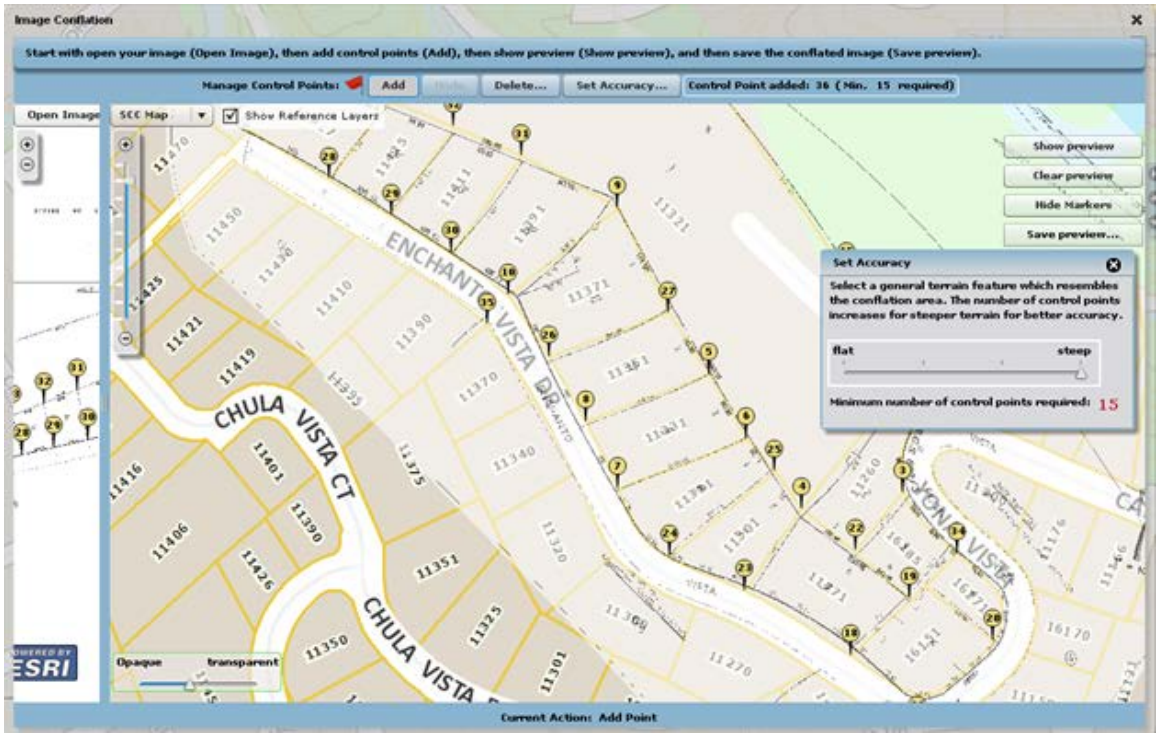
The next figure shows a better fit from keeping the points constant but raising the accuracy to 10.

Figure 44



The final figure in this exercise shows the points kept constant but the accuracy raised further to 15, resulting in small adjustments and producing the closest fit we can probably get without greatly increasing the number of points.

Figure 45



Other basic tools

We have discussed the **Draw** tool which was accessible from the **Tools** widget. Let's review the rest of the tools accessible in this widget.

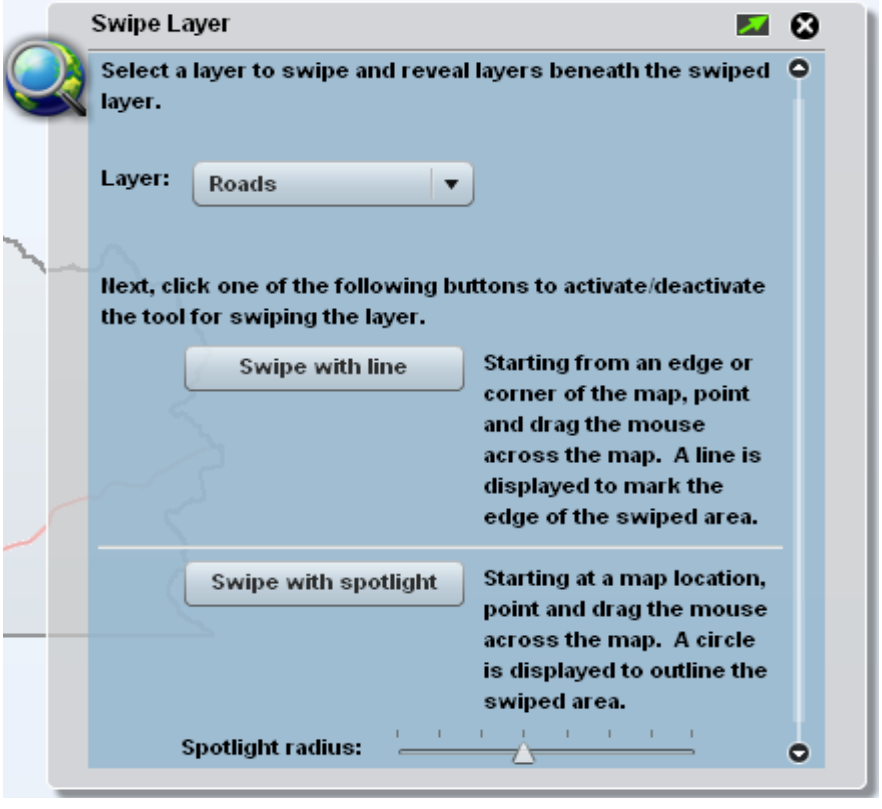
Swipe Layer

If a user wishes to compare the features in two adjacent layers, such as property changes over two years, the user can use one of two **Swipe** tools in the **Swipe Layer** widget. The user can select the **Swipe Tool** and drag the mouse pointer over a selected layer, or drag the **Spotlight Tool** to a location on the selected layer. Whichever method is used, the layer underneath is revealed for visual comparison. You can first change the list of layers that is available to swipe or the layers or base map that will be revealed behind them by selecting a different base map or turning on one or more layers from the **Layer Visibility** list in the **Map Layers** widget. The **Swipe Layer** list will be dynamically updated.

You will next:

a. Click on the **Swipe Layer** icon in the **Tools** widget menu.
b. RESULT: The **Swipe Layer** widget is launched. See **Figure 46** for a view of it.

Figure 46



c. Before you do anything in this widget launch the **Maps** widget, select the **Map Layers** tool, and turn on the layer in the **Layer Visibility** list that you want to swipe.
d. Now follow the instructions in the **Swipe Layer** widget. Select a layer from the Swipe Layer drop-down box. Select the **Swipe Tool** button.
e. Point the mouse pointer at a map location, click and hold down the left-mouse button, and drag the mouse pointer in any direction to start the swiping.
f. RESULT: A red flag symbol is displayed beside the Swipe Tool button and the Property Boundary layer is revealed underneath the layer you selected, showing you what property, for example, is intersected by this layer.
g. Select the **Spotlight Tool**.
h. Adjust the radius of the Spotlight by sliding the bar at the base of the widget.
i. Point the mouse pointer at a map location**,** click and hold down the left-mouse button, and drag the mouse pointer in any direction to position the spotlight.
j. RESULT: The area of the layer underneath spotlighted by the tool is revealed. *Note, the spotlighted or swiped area is only active while the mouse button is held down.*

What's Here - get detailed information about a location

A tool exists to get all the information that is available in the topmost or all the visible layers of information at a particular location. Launch the **What's Here** tool from the **Tools** widget menu and zoom into the map where you can see detail such as property boundaries. See **Figure 47** for a view of this widget when it first

opens. First make the Property Data layer and other layers that you want to get information about visible in the **Layer Visibility** layer list. Then select “Visible Layers only” from the drop-down box in the widget for the layers whose attributes you want to display. Search for a specific property using one of the other tools you have previously learned. Then click the point graphic to activate the locate tool and click on that location on the map. **Figure 48** shows a view of the information it provided for the property at 689 Lariat, San Jose. Use the scroll bar to get all the information available from all the visible layers for this location. Click the broom graphic to clear your results and deactivate the tool. *Note,do not rely on the SHAPE_area or SHAPE_length fields if displayed for property dimensions. These are provided by other tools which we have discussed. Performance tips: Do not use this tool when you are zoomed out to a small-scale view of the County, and make only a minimum number of layers visible otherwise you will be waiting a long time for information to be returned.*

Figure 47

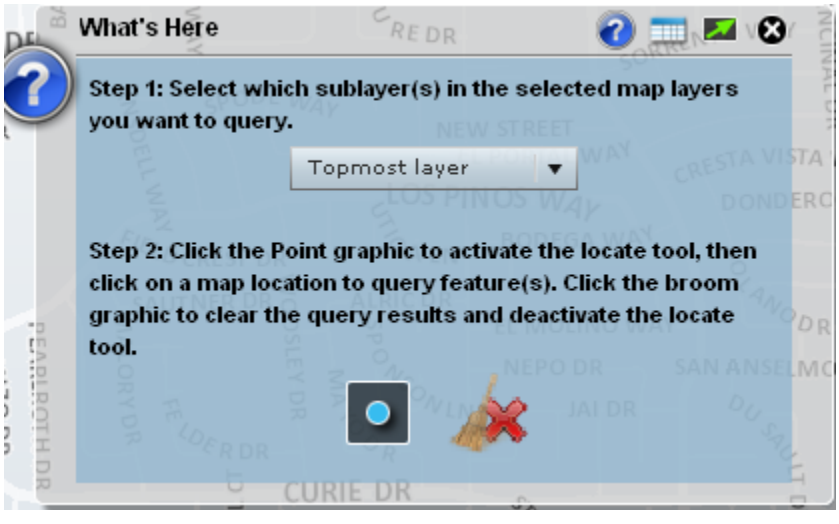


Figure 48

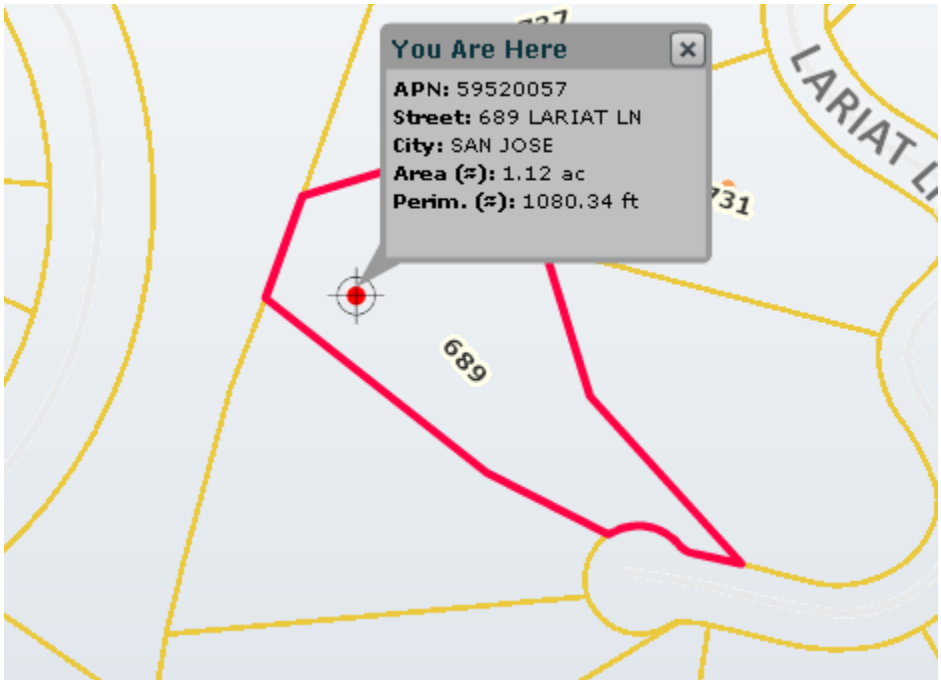
Next, turn off all the visible layers except one of the Aerial layers and use the **What's Here** tool to get the date, resolution, horizontal accuracy, description, and source of the imagery displayed at any particular point on the map.

The **What's Here** tool can also be used as part of the Create Property Report process. Use it first to identify features on the main map, then turn on the layers containing those features in the **Map Layers** tool so that they will be visible in the map when you click **Create Property Report**.

*Note, be sure to de-activate the **Identify Map Feature** Tool before using the **What's Here** tool because they both use the same locator function and so you will get duplicate information.*

Figure 49 shows the brief information displayed for a property in the "You are Here" info box by the **Identify Map Feature** tool

Figure 49



Help

The final series of functions to be discussed are those located in the **Help** widget menu. These links and commands provide the user with access to the tutorial you are currently viewing for learning how to use the application and means of getting further help from the ISD-GIS Department or providing feedback to the Department about any problems experienced running the application. Below is the full list of these functions.

FAQ

Click this link to bring up a version of the User Training Manual with a list of Frequently Asked Questions about this application. When you click on any of these questions you are taken to the section of the Manual which answers that question.

Tutorial

Click **Tutorial** in the **Help** menu and the first page will be displayed of this document, the User Training Manual, which can be downloaded in PDF format.

Contact Us

Click **Contact Us** in the **Help** menu and the County's email system open in a separate window with the "To" field filled in with GIS@ISD.SCCgov.org.

SCCGOV Home

Clicking on this icon takes you to the Santa Clara County public portal.

GIS@SCCGOV
Clicking on this icon takes you directly to the ISD-GIS Department's page on

the County employee portal's website, from where you can contact the Department.

About
Clicking on this icon displays the current version of the application and the system requirements for it, such as supported browsers and browser versions.

Welcome page
Clicking on this icon brings up the Welcome page again, displayed on top of the current view of the map, so that you can click on one of the tabs and get more information about the application and its data.