Facilities Services – Geographic Information System

Campus Mapping Application

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**What is GIS?**

GIS stands for Geographic Information System and at its core it is a database. A GIS database not only stores geometry data (i.e. spatial information such as latitude and longitude) for features within the database, it also stores what's called attribute data, or specific information about those features. Different features within a GIS database are represented as either points, lines or polygons. In our case, a point may be a tree and its attributes would include genus, species and diameter; a line may be an accessible ramp and its attributes could include the length and adjacent building; and a polygon may be a building and its attributes could be the facility ID, date built, and square footage.

In a GIS database, data is stored, organized and displayed on a series of layers laid on top of one another (see image at right). The bottom-most layer is referred to as the “basemap” and can take the form of aerial photographs, road maps or drawings of our campuses. Other layers in our GIS database include elevation contours, landscape composition, facilities, and utilities. Layering information in this way enables the user to select, display, and analyze map data effectively.

**Quick Tip**

There are lots of resources online to learn about GIS and how it works. To read more start by visiting [wiki.gis.com](http://wiki.gis.com). You will find these “Quick Tips” throughout this guide.

**Our Application**

- **SEARCH** for WSU owned building statewide – great for figuring out where your class is!
- **CREATE** custom maps with onscreen drawing tools
- **IDENTIFY** approximately 8,000 inventoried trees on the Pullman campus
- **MEASURE** areas, distances, radii, and geographic coordinates
- **EXPLORE** historic images of the Pullman campus

WSU’s Campus Mapping application (app) was developed as a way for users outside of Facilities Services to interact with our GIS data. In an effort to stay with the current trend of touch screen devices, we have designed the app to be completely touch friendly. Easily accessible information on this version of the app includes WSU buildings on our campuses across the state, parking lots, ADA accessibility attributes, art installations and more. The app also presents historical photographs of the Pullman campus so you can explore how it has evolved over the years.

In addition to the GIS layers, this application enables users to search for features within the database, take measurements, such as areas and distances, as well as make custom drawings right on the map. There is a lot to explore and we will be adding data and functionality frequently, so be sure to check back often.

**Quick Tip**

This application works equally as well on a desktop computer (Mac or Windows) as it does on a Windows tablet device. Regardless of the device, the [Microsoft Silverlight](http://silverlight.net) plugin is required to use the application. There is currently no support for Silverlight on iOS, Android or Windows Phone at this time.
Getting Started

Getting started is easy, open your preferred browser and navigate to http://cougGIS.wsu.edu.

On the next page, click or (if using a touch-screen device) tap on the “LAUNCH APP” link located on the right side of your screen (see image below). After the application has finished loading, you are presented with a disclaimer (shown below) regarding the general accuracy of the data being presented in the application. Simply click or tap on your campus of choice to get started. Note that you can switch campuses easily once you’ve started the app.

Quick Tip

Bookmark https://cougGIS.wsu.edu as a favorite so you can easily get back to our application. This page will always have the latest GIS information and application link. Please DO NOT bookmark a direct link to the application.
Application Layout
As mentioned before, our applications are designed with Windows tablet devices in mind. You will find that all of the menus and controls are “finger friendly.” Below is a basic overview of the application’s layout, menus, and features. Each menu is explained in detail in the following sections.

Quick Tip
If you find that the menu panels or buttons are too small or are overlapping each other, change the zoom level of your browser. In Internet Explorer you can adjust this by going to the browser’s “Settings” and selecting “Zoom”. Adjust the percentage until you get to a level that works best for you.

Basic Navigation
If you are familiar with navigating web maps such as Bing Maps then you will find that this application is no different. If you are using a laptop or workstation with a mouse you can click and drag to pan around the map. The wheel on your mouse will allow you to zoom in and out of the map. If you wish to zoom into a particular area you can hold the ‘Shift’ key on your keyboard and click and drag a rectangular zoom area (see image below). You can zoom out using this method as well by holding down ‘Shift’ and ‘Ctrl.’ If you are using a touch screen device you will find that basic touch gestures such as tap, and pinch to zoom, are supported.

Quick Tip
If you are more comfortable with an onscreen navigation control there is one available in the settings menu. See the Settings menu section of this document (Page 14) for a full description of this control.
**Basemaps Menu**

In GIS mapping, information is organized and displayed on a series of layers laid on top of one another. A “basemap” is the bottom-most layer of your map. The Basemaps menu allows you to select which type of map you want all of your other layers to be displayed on top of. The default basemap is a Bing Aerial (“Bing”) with street labels. You also have the option of selecting a more basic Bing Street map (“Roads”) or the Campus Basemap (“Campus”). Note that the “Campus” basemap is strictly limited to the Pullman campus and does not extend to other areas of Pullman.

In addition to your basemap, you can also select one of several historical, aerial photos of the Pullman campus (“Aerial Imagery”) to be layered over your basemap. In general, the aerial imagery is a much higher quality image than the Bing Aerial and allows you to zoom in much closer without losing resolution.

**Quick Tip**

Clicking the ‘Reset Map’ button turns off all layers that may have been turned on, deletes all drawing marks/labels and resets the basemap back to the default map.

You will find that if you are using the Bing Aerial (default basemap) there is a maximum level to which you can zoom in. At this point the image resolution becomes quite pixelated. If you require a tighter zoom or better quality resolution, select one of the aerial images (available for Pullman Campus only).

Note that when you are using the “Campus” basemap and have an aerial image turned on, everywhere beyond the image borders will be blank. Simply select another basemap to view beyond the image boundaries. Also note that there is a limit to which you can zoom out with the “Campus” basemap. If you reach that limit and the screen becomes blank, simply zoom in or click another basemap to re-orient yourself, zoom in tighter on the campus, and select the “Campus” basemap once again.
Another feature you can use to explore the campus virtually is “StreetView.” StreetView in our application is linked directly to Google Street View and enables you to view the campus from eye level along primary roads. Start by clicking the ‘StreetView’ button on the Basemaps menu panel; all the available streets will become highlighted in blue on the map. Move your cursor (i.e. Butch) over the map and click or tap on a point of interest along a street. When hovering over a street, the color will change to a lighter shade of blue. A new tab will open in your browser with Google Street View placed exactly where you selected.

Click and drag to pan the image 360°. Place your cursor along the road and click on the arrows to move along the street in either direction. You can also zoom in and out using the wheel on your mouse, the navigation control at the bottom right corner of the screen, or with touchpad zoom methods. Note that certain, unfrequented streets are inaccessible on Street View.

To return to the map, simply close or switch tabs in your browser.
Layers Menu

The Layers menu allows you to toggle on and off specific layers that you would like to view. Simply tap on the layer that you wish to have turned on, tap again to turn it off. You can have as many layers turned on at a time as you want. Some of our layers allow you to hover over features to view information about those features. For example, if you hover over or tap on an art installation you will see an image and basic information about that work of art. If you wish to search a layer to see more detailed information about its features, use the ‘Search’ button located at the bottom of the menu panel. See the next section of this document for details how to perform searches.

Quick Tip

Please note that the search button will not appear until at least one searchable layer has been turned on.
Searching GIS Data

GIS data is much more than just lines on a map. GIS allows us to store attribute information about the items on your map. For example, a tree may have attributes such as genus and species. This type of information is easily searchable using our applications.

Start by clicking on or tapping the ‘Search’ button at the bottom of the Layers menu panel (at least one layer must be turned on for the ‘Search’ button to appear). If you have more than one layer turned on, you will be prompted to select the layer you wish to query. Note that not all layers are searchable.

Once you have selected your layer, there are generally two different ways to find what you are looking for. The first is searching “By Name.” If you know the name or ID number of a feature, you can enter it in the box and your results will be displayed on the map. The other option is “By Selection.” This option allows you to select features on the map by drawing a polygon around them on the map. This also allows you to select multiple items at once. The series of images below shows the Historic Photos layer being queried.
Search Results

Once you have performed your search, the results will not only be highlighted on the map, but the attribute information for your results will also be displayed in a fully interactive table at the bottom of your screen (see image below). You can hover over or click any row in the table to highlight the corresponding result on the map. You can select multiple results by holding down the ‘Shift’ key on your keyboard while selecting the rows you want to highlight. Hovering over a result on the map will highlight its corresponding row in the table as well. Use the scrollbars to view all the rows and columns of attribute information.

💡 Quick Tip

Some attributes, such as photos, can be enlarged for viewing. Click or tap on the thumbnail to view the full size image in another tab in your browser.
Campus Menu
The Campus menu not only gives you a quick and easy way to get to all of WSU’s campuses throughout the state, but it also makes GIS layers for that campus appear in the layers menu. Simply tap on the campus that you want to view and the map will take you there.
**Measure Menu**

The measuring tools are a great way to get an approximation of an area or distance of a feature on the map. They are by no means a replacement for a survey, but for a quick and dirty measurement, they are a very handy tool.

**Area measurements:** To perform an area measurement, click or tap on the ‘Area’ button in the Measuring Tools menu panel. Click on the map to add your starting point. Continue adding points to form the area that you want to measure. Double click to make the last point and perform the area calculation. Your results will be displayed in the Measuring Tools panel (see image above).

**Line measurements:** To perform a distance measurement, click or tap on the ‘Line’ button in the Measuring Tools menu panel. Then click on the map to add your starting point. Continue adding points to form the line that you are trying to measure. Double click to make the last point and perform the distance calculation. Your results will be displayed in the Measuring Tools panel.

**Radius measurements:** To perform a radius measurement, select the ‘Radius’ button in the Measuring Tools menu panel. Then click on the map to add your starting point. Drag your mouse outward from your starting point. The distance from your starting point is displayed near your cursor in real-time. Clicking again stops the measurement and clears the map.

**Latitude/Longitude:** To identify the latitude and longitude coordinates of a point on the map, select the ‘Lat/Long’ button in the Measuring Tools menu panel. Click on your point of interest; a red dot with a blinking halo will appear and the coordinates will be displayed in the results section of the Measuring Tools menu panel. To identify a new point’s coordinates, clear your results, select ‘Lat/Long’ in the menu panel again and click on your new point of interest.
Draw Menu

In the Draw menu you will find drawing tools to make basic markups on your screen. Not only can these be used to highlight features on a map, but they are a great tool to use during planning meetings or general discussions. To begin click or tap on ‘Draw’ to open up the Draw Menu panel. Simply click or tap on the tool that you want to draw with, tap it again to stop drawing.

Please note that there is currently no utility to save your drawings.

Color Selection: The default drawing color is red, but if you want to differentiate certain lines or shapes, there are seven colors to choose from. Simply select the color of your liking, choose a tool and start drawing! You will notice that no matter what color you choose, while drawing it will be a thin black line. The color will then be applied when you finish drawing your object.

Freehand: Freehand drawing allows you to draw any shape that you want. Simply click and drag!

Polyline: The polyline tool allows you make nice straight lines on your drawing. Click on the map to make the starting point and keep adding points until you have your desired shape. On your last point, double-click to stop drawing the line.

Polygon: Start your polygon by clicking on the map, then continue to click to add points to form your polygon. On your last point, double click to finish the polygon.

Triangle: Click and drag to draw a triangle. Release when you have reached the desired size and shape.

Arrow: Click and drag to draw an arrow. Release when you have reached the desired size and shape.

Ellipse: This works a little differently than most drawing applications. Instead of starting from the upper left “comer” of the ellipse and dragging to make an ellipse, you start at the center. So click on the map where you want the center of your ellipse to be and drag out. Release when you have reached the desired size and shape.

Points: Every time you click on the map you add a point.

Type: Click on the map where you would like a label placed. Then click and highlight where it says “Type Here.” Type whatever you want your label to say.

No Fill: By default, shapes that you draw will have a “fill” color. By selecting “No Fill” and then a drawing tool, your shapes will only have an outline.

Clear All: This works just like it sounds. It clears all marks made on the map, including labels.

Delete Key: By pressing the ‘Delete’ key on your keyboard you will delete the last drawn object.

Close Menu
Editing your drawing

Once you have drawn a shape or added a label to the map you can make edits to it. After you have drawn a shape, you can move it, change its shape/size, add/delete vertices, and rotate it. Labels only have the ability to be moved around the map and have the text changed. To start editing a shape, simply click on the object to edit it. Click outside of the shape to commit your changes.

While editing you have the ability to 'Undo' and 'Redo' your edits. After you have clicked off of the shape to commit your edits the ‘Undo/Redo’ buttons will go away until you start a new edit. You can remove objects by pressing the ‘Delete’ or ‘Backspace’ key on your keyboard. This will delete the last object drawn. If you continue to press ‘Delete’ you will remove all objects one by one in the order in which they were drawn. Below is an example of an edit on a polygon.

**Quick Tip**
For best results we recommend using a mouse and keyboard to perform your edits. Using your fingers works, however it can be frustrating at times to grab the correct vertex or adjustment point.

**Quick Tip**
To move a label, click on the black border of the label as shown below. This selects the label and allows you to move it. Simply click again where you want it to be placed.
Settings Menu

The Setting menu gives the user some additional display options for navigating and viewing within the app. Click or tap on ‘Settings’ to open the Settings menu panel and click the item that you wish to have displayed in the application. Below you will find a description of each setting option found in the Settings menu.

Settings Options

Scale Bar: Turning this on will display a white, dynamic scale bar in the lower center of your screen.

Navigation: Turn this on if you want to have a dedicated control for moving around the map. It also has the added ability to rotate the map if required.

Overview Map: This shows a small map of the surrounding area to help give you an idea of where you are in relation to the greater area. The red box represents the area that is currently being viewed on the main map.
**Legend:** This legend is dynamically populated depending on what layers are currently turned on. Items in a layer that are scale dependent will also be added or removed depending on if they are currently viewable on screen.

**Help:** The Help panel shows you hints on how to use every menu and tool in the application. It can be closed or reopened at any time by clicking on the Help button in the Settings menu or on any of the question mark buttons, which are located in the top-right corners of the menu panels and pop-up windows throughout the application.
Application Information

View the application information panel to see when the last application and data updates were done. There is information for who to contact in case there is an issue with the application itself. You will also find a link to this guide as it will be updated as more features and refinements are made to the application. To access this panel, click on the ‘i’ icon in the application title banner or click on the ‘Info’ button in the Settings menu panel.