Web Map Application User Manual

TsunamiReady®
NATIONAL WEATHER SERVICE
PUERTO RICO

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National Tsunami Hazard Mitigation Program

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START

In accessing the website: http://prddst.uprm.edu/apps/prtmp/ you'll find the main page of *Map Tools of the Puerto Rico Tsunami Program*. Here you'll observe a map of Puerto Rico with its political divisions and tsunami evacuation zones. On the Header (located in the upper part of the page) you'll find the menu options and the search bar (see Figure 1). The menu options are: Legend, Layer list, Draw, Measurements, Swipe, Print, and Map Gallery. Below the Header on the left, you'll find the tools "zoom in", "zoom out" and "default extent". In the bottom left is the map scale and the coordinates of the location the cursor points at.

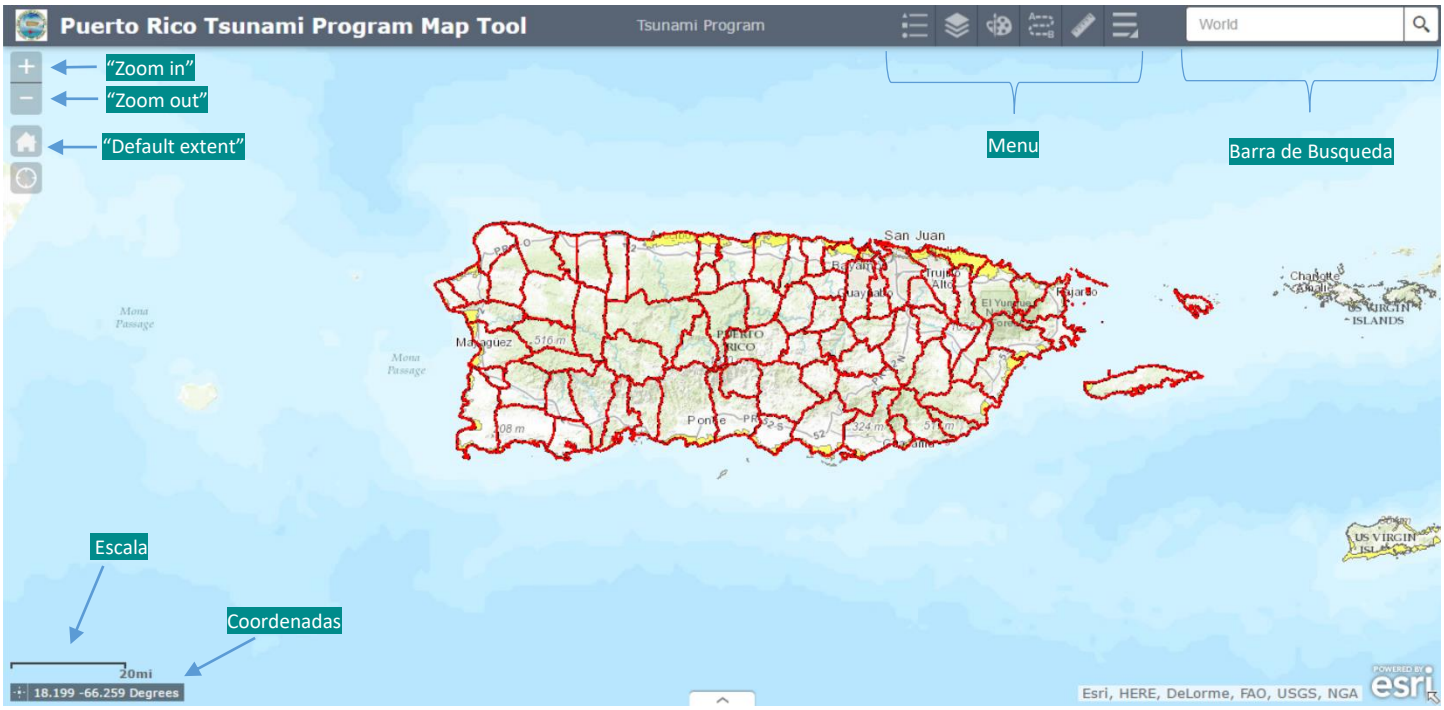

Figura 1. Main Page

MENU OPTIONS

LEGEND

The legend on the map is accessed by clicking the menu icon shown in Figure 2. This will deploy a box with a description of the various elements of the map. This box will auto-update as you navigate through the map and change its components. To facilitate the search and navigation, the legend can be minimized by clicking on the arrows located in the legend box on the upper right (see Figure 3).

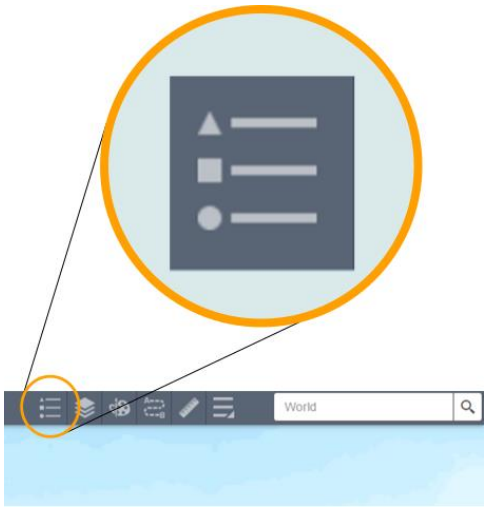

Figure 2. Access Icon| Legend

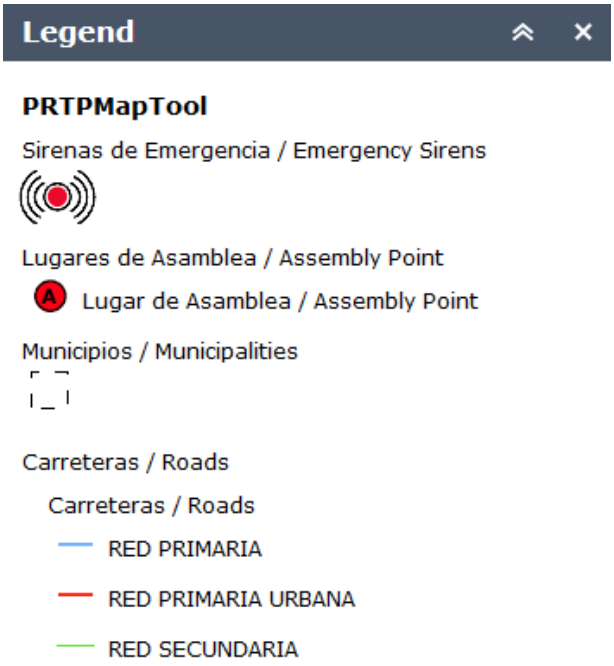

Figure 3. Legend box

MENU OPTIONS

LAYER LIST

The layer list is accessed by clicking on the icon demonstrated on Figure 4. The layers displayed present different elements of geographical information. From roads, water bodies (such as rivers), as far as the tsunami evacuation zones. The information is divided in various services, that can be activated/deactivated by clicking on box next to the name of the layer listed. A checkmark will appear on the box when the selected group is activated, on the contrary the box will appear empty. Figure 5 is an example of the PRTPMapTool and USV12 service activated, and the MOMRAS layer deactivated. The layers that compose these services are accessed by clicking on the triangle next to the check box mentioned before. Figure 6 shows the layers that compose the services PRTPMapTools and USV12.

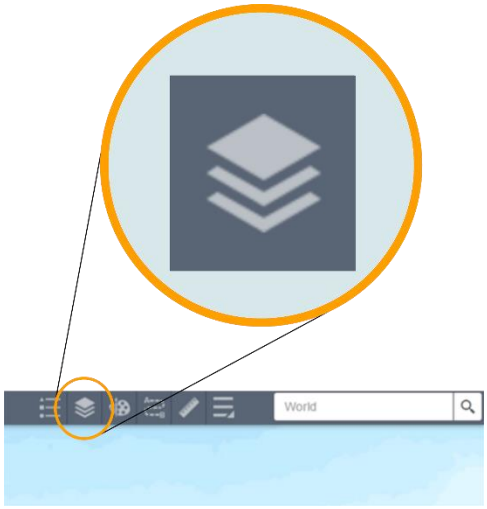

Figure 4. Access Icon| Layer List

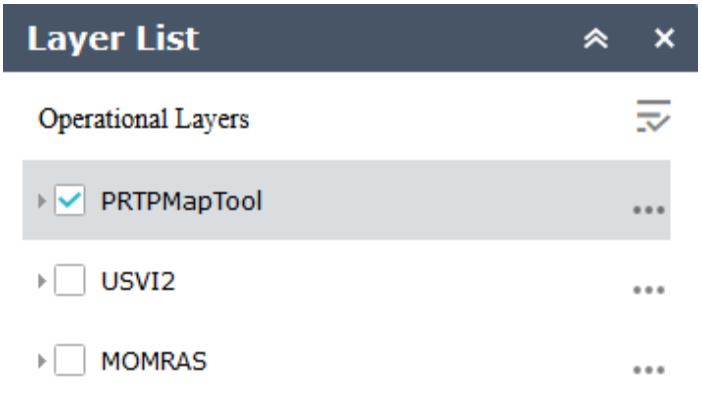

Figura 5. Grupo de Capas

Nota:

- The layer "MOMRAS" is an image with the values of inundation from tsunamis according to the 2012 inundation model. When activating the information layer and click over the image on the map, you'll see the values of the image in meters. MOM means maximum of the maximum and its a term used on inundations modeling.

- The layer USVI2 indicates the tsunami evacuation zones of the American Virginian Isles.

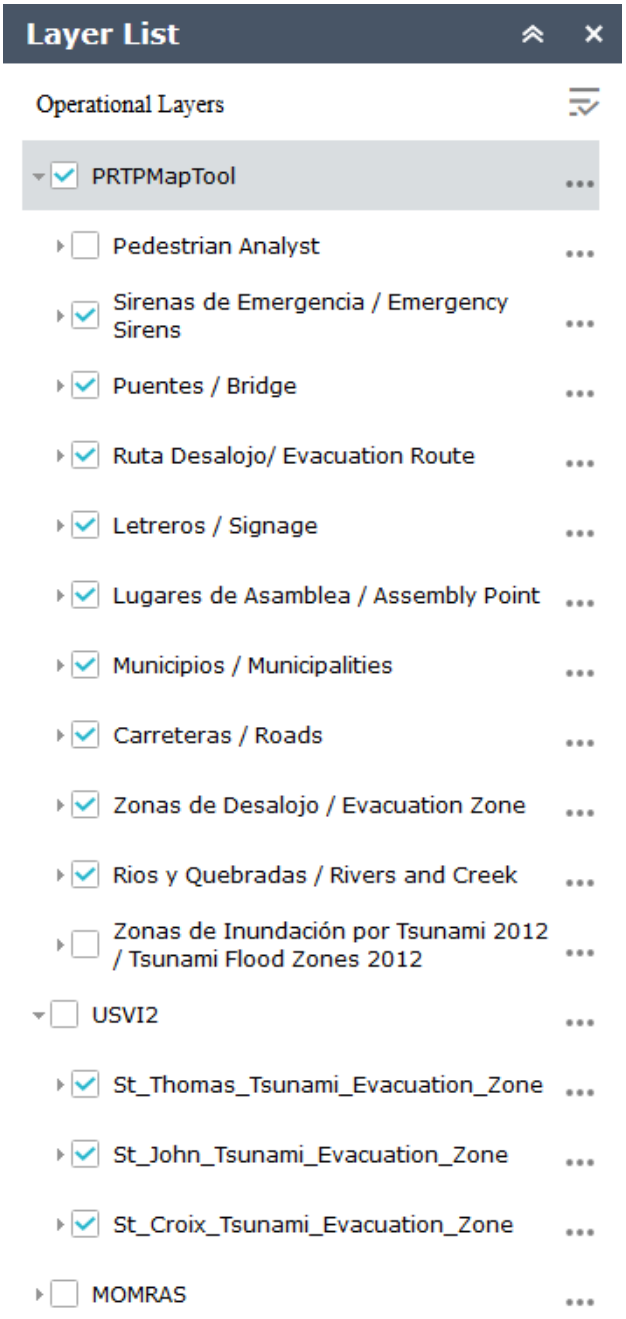

Figure 6. Layer Groups| Components

MENU OPTIONS

DRAW

Figure 7 shows the icon to access the drawing tool. This tool is used for editing the map with the options to add location points, lines, polygons, texts, etc. (see Figure 8). Once the desired drawing is selected from the bar a window will display a series of options to choose from. The Web map application provides a platform to manage different layers capable of producing material for designing, creating presentations and orientations regarding the user's interests.

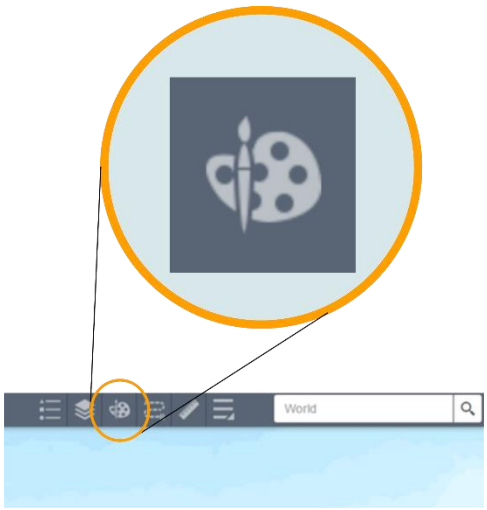

Figure 7. Access Icon| Draw

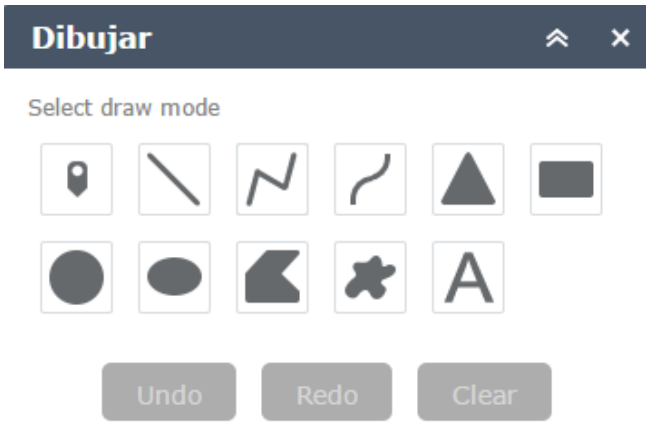

Figure 8. Drawing Options

MENU OPTIONS

MEASURE

The measurement tool is accessed through the icon shown on Figure 9. This tool allows linear, area, and coordinate measurements. Linear measurements can be made in miles, feet, meter, kilometers, yards, and nautical miles. Area measurements can be made in square miles, acres, square kilometers, hectares, square yards, square feet, and square meters. Similarly, coordinates can be measured in degrees (decimal) or degrees-minutes-seconds (° - ‘ - “). To change the unit, click on the name of the unit shown on the measurement window and it will display the other units available (Figure 10).

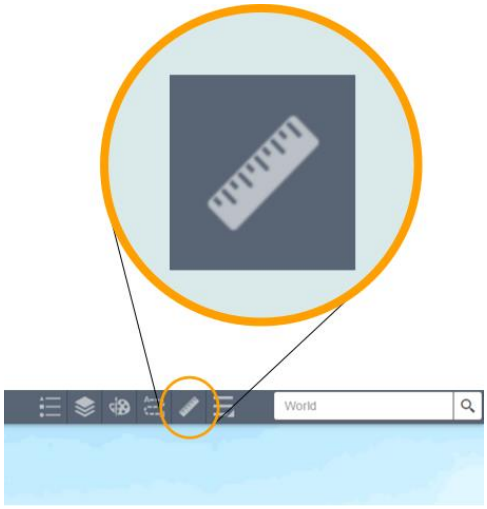

Figure 9. Access Icon| Mesurement

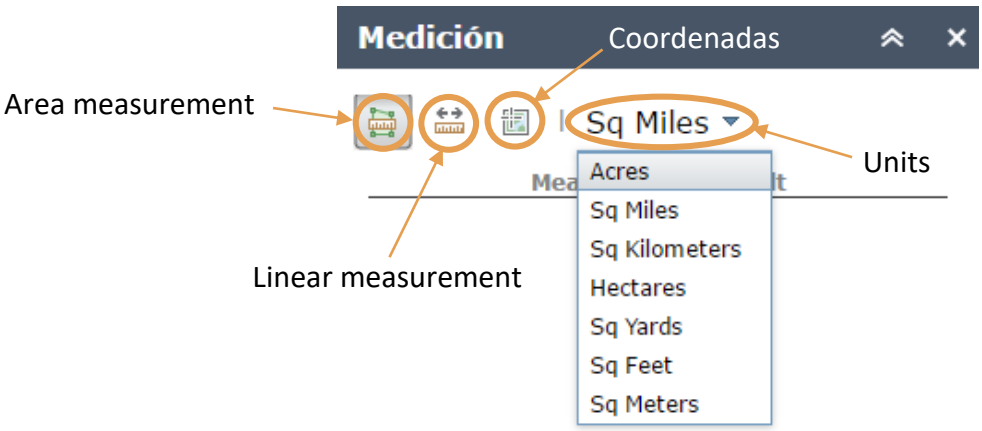

Figure 10. Measurement Window

ESTIMATING THE TIME AND DISTANCE FOR EVACUATION:

The measurement tool can be used to calculate the distance in miles along an evacuation route and the approximate time of arrival with the following equation: [(Distance in miles / 2.5mph) * (60 minutes) = evacuation time in minutes].

PEDESTRIAN EVACUATION TIME MAP (PEDESTRIAN):

For some municipalities, an additional service can be found providing evacuation time maps with time estimations along a specific route. For more information, consult section “Pedestrian Evacuation Time” on this manual.

MENU OPTIONS

PRINT

To print, select the “more” icon, a window will open with the options to print, swipe, and base map gallery (see Figure 11). The app is responsive and adapts to the size of the screen so the icon may appear next to the more icon. The printing tools offers digital formats such as pdf, eps, gif, jpg, png32, png8, svg o svgz. Clicking on the print icon will reveal the available formats and layouts. This window also offers advanced options to preserve the map scale or the layout desired. In addition, there is the option to force scale, adjust size (in pixels) and the print quality (see Figure 12). To download the image, select the print button and the option will appear below the buttons Advanced and Print (see Figure 13).

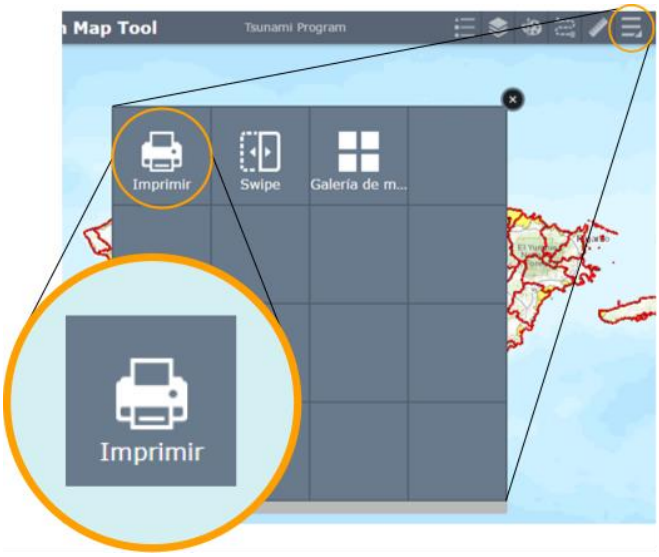

Figure 11. Access Icon| Print

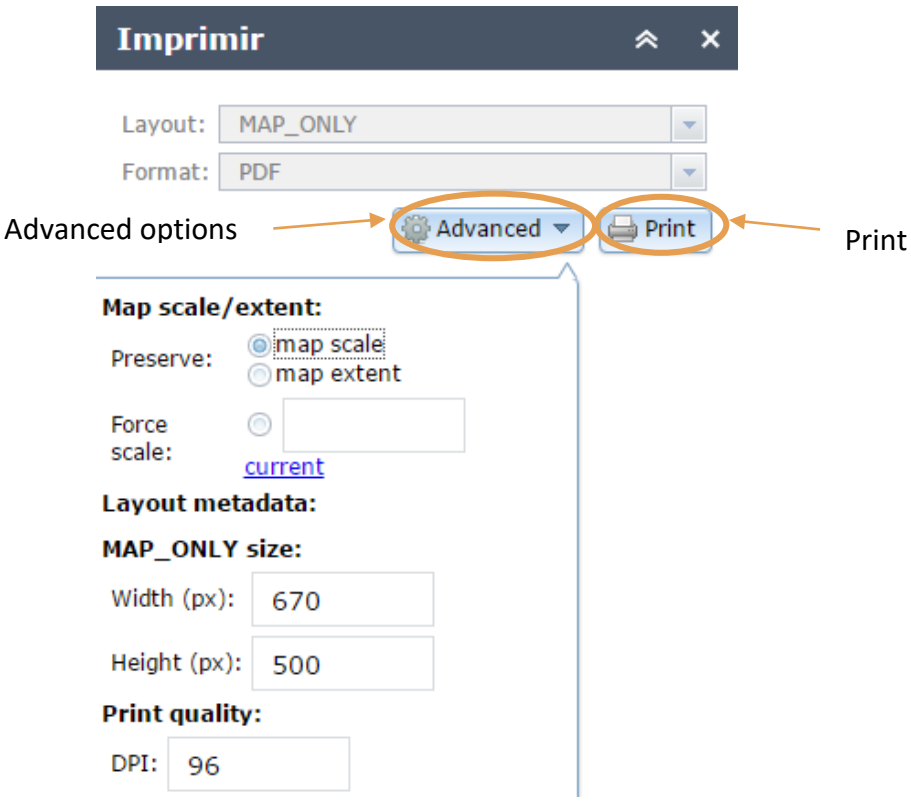

Figure 12. Print Window

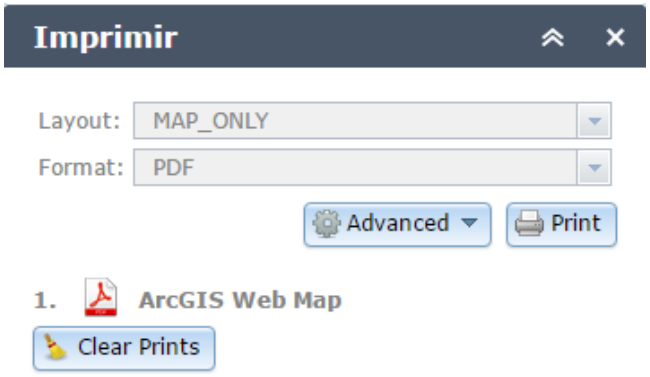

Figure 13. Map Download

MENU OPTIONS

SWIPE

The swipe tool is found in the “more” icon (see Figure 14). This tool allows to view the map in a split screen where one half will have the activated services of your choice and the other half will have them deactivated. This facilitates the process of geographical location and as a method for comparing.

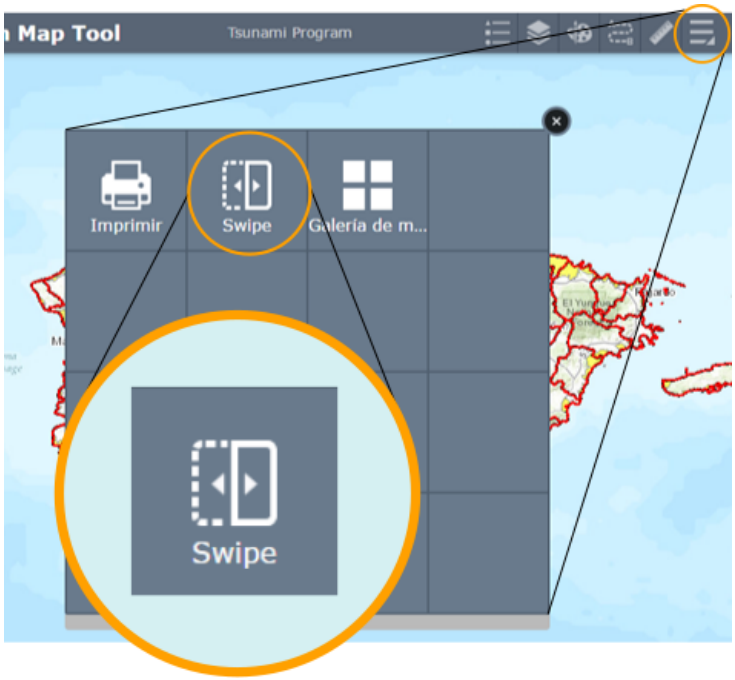

Figure 14. Access Icon | *Swipe*

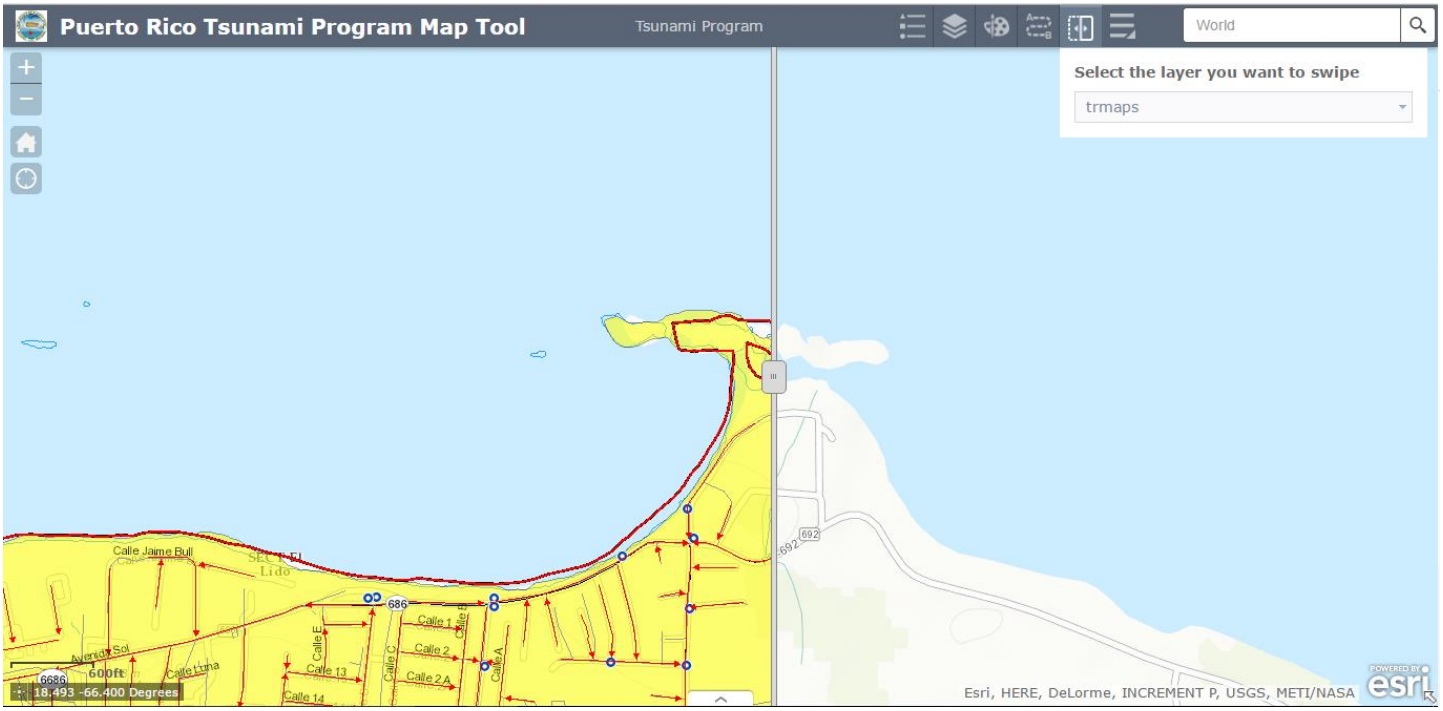

Figure 15. Example of *swipe* tool

MENU OPTIONS

MAP GALLERY

The map gallery base tool is also accessed in the more icon (see Figure 16). This tool allows the user to pick between 10 different map bases. Among these are roads, images, tagged images, and more (see Figure 17).

Figura 16. Ícono de Acceso | Galería de Mapas

Figure 17. Map Gallery Base

PEDESTRIAN EVACUATION TIME

PEDESTRIAN ANALYSIS

For some municipalities, an additional service is available allowing the user to estimate evacuation time along a specific route. This service comes from an analysis made using a model called “Pedestrian Evacuation Analyst” developed by the USGS to be executed within a Geographic Information System (GIS). The analysis involves three possible speeds a pedestrian will walk in an evacuation route. These speeds are: slow walking (2.46mph), average walking (2.7mph), and speed walking (3.4mph). These velocities where taken from previous literary studies and pre-incorporated models. In the case of the information being unavailable, it is recommended to use the time and distance evacuation equation. We recommend applying the 2.5 mph velocity since it is fairly similar to the average speed on the model and similar to the velocity of an elder person and young child.

To accomplish this, first calculate the distance in miles to an evacuation route and then calculate the time with the following equation: [(Distance in miles / 2.5mph) * (60 minutes) = Minutes till evacuation

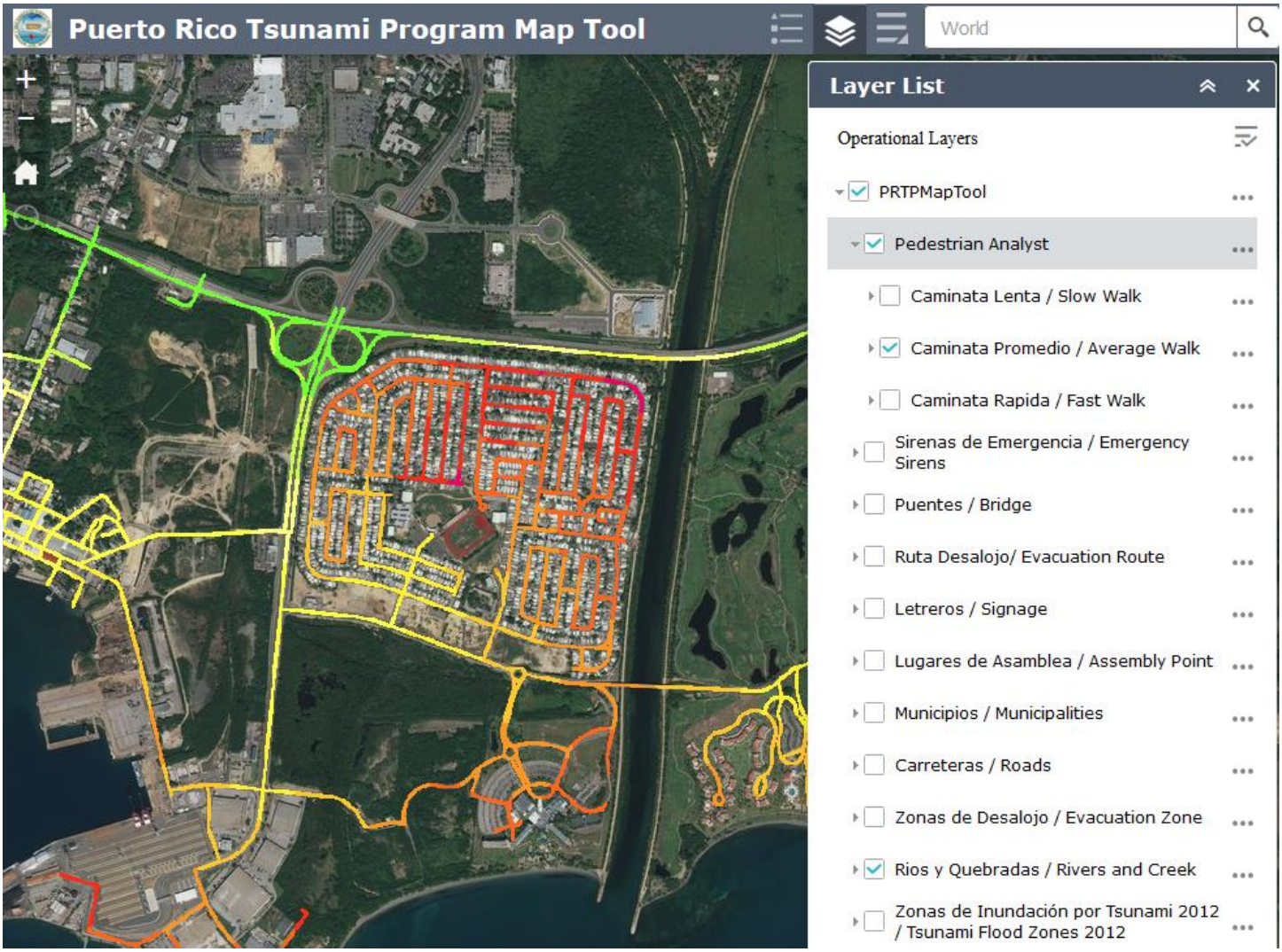

Figure 188. Pedestrian Analysis