



Measuring areas for your HIP project

- **Pacing**
- **Measuring tapes and wheels**
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Pacing

Pacing is a quick and easy way to estimate distances on your property. Follow these steps to determine the distance covered by your pace.

1 MEASURE COURSE

To get started, measure a 100-foot course, on level ground, with a tape measure. Mark the beginning and end of this course with something easily visible.

2 PACE COURSE

One pace equals two steps. Walk the length of the course three or four times and record the number of paces it takes you. Make sure the results are similar each time and that the steps you are taking are consistent with your natural stride.

3 DETERMINE YOUR PACE LENGTH

Use the table below to match the paces per 100 feet determined in Step 2 to the distance you cover with each pace (pace length). To measure distances in feet on your property, simply count your paces and multiply this number by your pace length.

Paces per 100 feet	Pace length (feet)	Paces per 100 feet	Pace length (feet)	Paces per 100 feet	Pace length (feet)	Paces per 100 feet	Pace length (feet)
15.0	6.7	17.5	5.7	20.0	5.0	22.5	4.4
15.5	6.5	18.0	5.6	20.5	4.9	23.0	4.4
16.0	6.3	18.5	5.4	21.0	4.8	23.5	4.3
16.5	6.1	19.0	5.3	21.5	4.7	24.0	4.2
17.0	5.9	19.5	5.1	22.0	4.6	24.5	4.1

Measuring Tapes and Wheels

Measuring tapes and measuring wheels are two other tools for measuring distances. While measuring tapes are handy for measuring smaller distances, measuring wheels are an easy way to measure longer distances on your property. Measuring wheels can be rented for a small daily fee; call ahead to confirm availability.

1 MEASURE

Place measuring tape or wheel at correct starting point. For measuring wheels, walk with a steady pace to ensure accurate measurement. When you reach your endpoint, pick up the wheel to avoid overmeasurement.

2 RECORD

Record the measurement in feet. For rectangular area measurements, measure the distance on two adjacent sides of the rectangle and multiply these numbers together to determine the area. Triangular areas can be calculated using this formula:
Area = $(1/2) \times \text{Base} \times \text{Height}$

Real Property Search

The Whatcom County Assessor and Treasurer Offices' Real Property Search is a helpful tool to determine the dimensions and area of the buildings on your parcel. You can use the information provided on Real Property Search to label areas on your existing conditions map (only required for City of Bellingham residents).

1 ACCESS

- Go to www.whatcomcounty.us
- Under the County Services menu, choose Online Services and then select "Real Property Search".
- Read the disclaimer and click "I agree".

2 SEARCH

- Under search type, select owner name or property address for easiest look up. Type in part of your name or address and hit enter. Find your property from the list generated and select "view details."

3 RECORD

- Open the "Improvement/Building" menu. The area of different buildings on your parcel will be listed.
- Open the "Sketch" menu to see the dimensions (not available for all properties).

City IQ (free online mapping program)

HIP-eligible properties, both in the City of Bellingham and Whatcom County areas, can be viewed and analyzed using a free online mapping service called City IQ. Please take note that property lines, and some utilities, found on City IQ maps are only applicable for properties within Bellingham City Limits.

1

FIND CITY IQ

To get started with City IQ, visit the City of Bellingham’s web portal here:

<http://www.cob.org/cityiq>

On your first visit, you may consider clicking on one of the options under “Getting Started” to learn more about how to use the website. Or, you can skip this step and simply start the process by clicking on “Launch CityIQ Online Map Viewer.”

2

FIND PROPERTY

Once you have launched the online map viewer, you will see a broad map of the City of Bellingham. Now enter the address you’re mapping in the “Search...” box in the upper right-hand corner.



The search results will bring up clickable address points within the table along the left edge of the page, or could automatically change your view to focus on that address, depending on your browser’s settings.

At first, you’ll be looking at a street-map type of image, along with some basic information such as street names, building addresses, and property lines.

Note: the property line locations on CityIQ are estimated and may differ by several feet from their actual location.

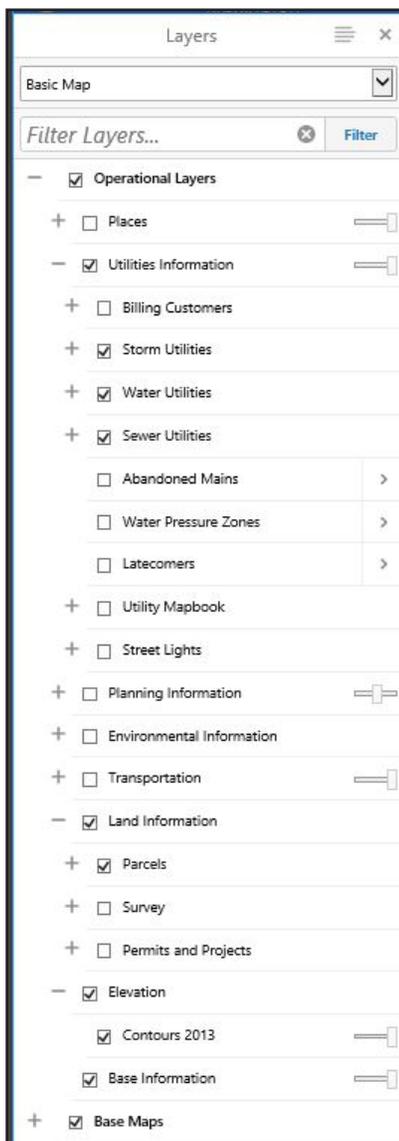
3

CREATE BASE MAP

At the DIY Native Landscaping workshop, you received three copies of a basemap for your property. To create your own HIP basemap at home, you'll want to bring up the most recent aerial photo by clicking on the icon titled "Layers" in the lower left-hand corner of the map, selecting the "Basemaps" icon, and then selecting the most recent image (2016 Photo, as of this writing).



Use the "+" and "-" icons in the upper left to zoom in and out until the entire site is visible. Click and hold to drag the map around until it's centered on the property.



Now it is time to add any known utilities to the map, along with the additional details needed for project design approval.

This can be accomplished by checking a series of appropriate boxes in the "Layers" table along the left edge of the map. You may turn layers on and off by clicking the check-box and toggle detailed information by using the plus and minus signs.

Your table should match the image to the left as closely as possible (layers accurate as of 2/20/19).

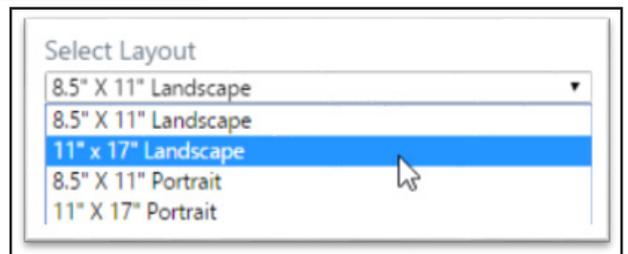
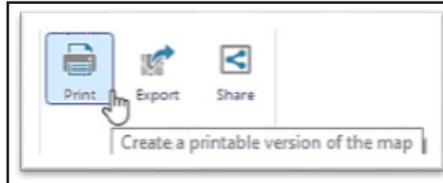
4

PRINT MAP



At the DIY Native Landscaping workshop, you received three copies of a basemap for your property. If you are interested in printing maps created at home following step 3 of these instructions, click the tool bar (wrench and screwdriver icon) in the upper right-hand corner of the map to open up the drop down menu.

Click on the print icon and choose the paper size appropriate for your printer in Landscape or Portrait layout from the “Select Layout” dropdown menu. Print base map.

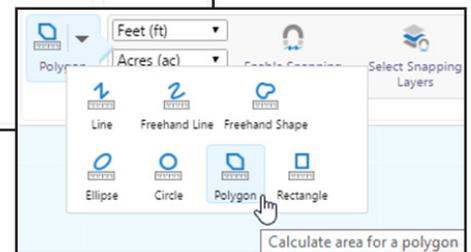
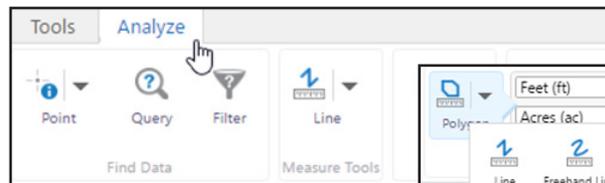


5

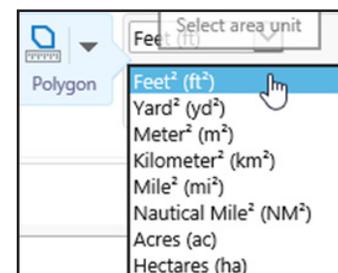
ANALYZE MAP

Using basemaps provided at the DIY Native Landscaping workshop, the next step is to use City IQ to measure areas for the “existing conditions” and “proposed improvements” maps.

To measure the area of parts of your site, go to the toolbar in the upper right corner of the screen (wrench and screwdriver) near the search box and select the icon. At the top of the page, select the “Analyze” tab, followed by the “measure polygon” tool below it.



For best results, make sure you convert the default “acres” units to square feet before measuring.



Once you've selected the measure tool, all you need to do is click on the map to start measuring areas of roof, lawn, pavement, or other surfaces on the property.

To get this measurement, click on the corners of the area you want to measure, and double click when the area perimeter is complete. A screen will appear giving you the measurement. **Record your results (in square feet) on the basemaps received at the DIY Native Landscaping workshop.**



The “measure line” tool, from the same drop down menu, will allow you to get the lengths of property boundaries, roof lines, and other linear dimensions you might need to define for the project.

Click to start a line, click once to add nodes or bends to your line, and double-click when you've reached the end to display the distance.

Use these City IQ analysis tools to measure areas for the “existing conditions” and “proposed improvements” maps that are required for your HIP application. Here are some of the area measurements (in square feet) you will need to label on these two maps:

Existing Conditions Map (*City of Bellingham applications only*)

- roof
- paving
- gravel
- decks
- any other impermeable surface areas

Proposed Improvements Map

- native landscaping
- dry creek bed features
- other proposed improvements related to HIP

Right-of-way Boundaries

The property maps provided to you at the DIY Native Landscaping workshops are generated using City IQ and ArcGIS. Please note the property line locations are approximate and may differ by several feet from their actual location.

You may be surprised by the location or size of the right-of-way area next to your property. For DIY projects, the level of accuracy provided by City IQ and ArcGIS is adequate. If you have more precise property line locations from a survey, you can provide a copy of the survey and use that property line information for your HIP project.

If you are curious about right-of-way and property lines, you can double-check the information provided on your basemap using the following procedure:

1

MEASURE ON CITY IQ

Launch City IQ and use the Line Measuring Tool to measure the width of the road right-of-way. In general, rights-of-way are 40, 60, or 80 feet wide.

2

MEASURE ON GROUND

Calculate half the road right-of-way width determined in Step 1. This number should equal the distance from the center of the road to your property line (assuming the road was built in the center of the right-of-way).