

## Calculating Percent Impervious Surface

The Vermont Shoreland Protection Act (Chapter 49A of Title 10, §1441 et seq.) establishes of a maximum of 20 percent impervious surface area for a landowner's portion of their lot, located within the Protected Shoreland Area. This worksheet provides a landowner a method for calculating the percent of impervious area within the Protected Shoreland Area, which is a measurement required on the Shoreland Permit Application.

### Why Impervious Surface Is Important

Impervious surfaces are manmade hard areas, such as roofs, drive-ways, or decks, which don't allow precipitation to infiltrate the ground, but instead cause rain or snowmelt to runoff. The higher volume of runoff leads to higher velocity of flow, causing more erosion and unfiltered stormwater entering the lake.

### Calculating Impervious Surface

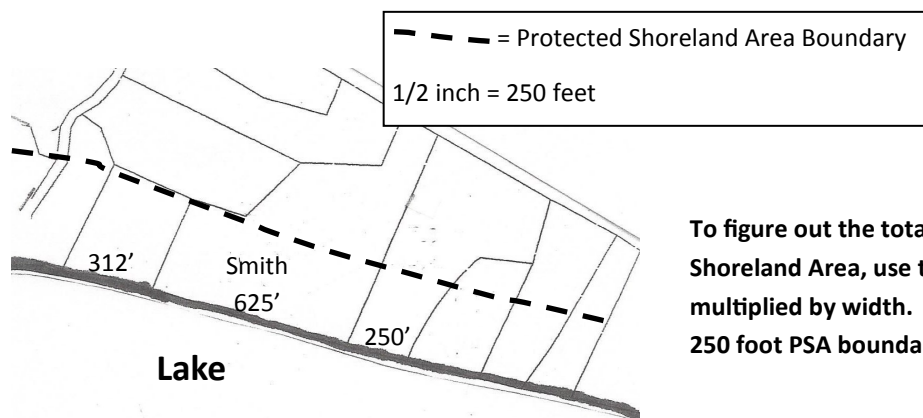
Impervious surface areas include all the hard top manmade surfaces within the Protected Shoreland Area (PSA). After determining the area of each of these surfaces, add them together and divide their total by the area of the PSA.

#### Step 1.

The first step is to know how much of your parcel is within the PSA. To calculate the area of your land in the PSA, use a copy of your parcel map to draw in the boundary of the PSA. If you don't have a parcel map, ask your town for your property map with a known scale on it. You may also visit the [Vermont Agency of Natural Resources Atlas](http://Vermont Agency of Natural Resources Atlas) where you may view your property and measure the total area of your parcel that lies within the PSA. Otherwise, follow the steps below:

#### Step 2.

Using your parcel map, read the scale and draw in the boundary of the PSA, which is 250 feet from the lake's mean water level, measured horizontally. If your land slopes greater than 20 percent, add in the additional number of feet using the worksheet "Determining the Lakeside Zone and the Protected Shoreland Area."



To figure out the total area of the Smith's Protected Shoreland Area, use the rectangular area formula: Length multiplied by width. 625 feet lake frontage multiplied by the 250 foot PSA boundary, or  $625' \times 250' = 156,250$  square feet.

#### Related Field Worksheets:

- *Determining the Lakeside Zone and Protected Shoreland Area*
- *Estimating Mean Water Level*
- *Determining the Slope of Your Shoreland*

[dec.vermont.gov/watershed/lakes-ponds](http://dec.vermont.gov/watershed/lakes-ponds)

#### Materials:

- Parcel map (or site plan map)
- Calculator
- Paper and pencil
- Measuring tape

#### Areas to Measure:

- Structures (house, shed, decks, patios, and large retaining walls)
- Paved and unpaved driveways, parking areas, and tennis courts
- Other compacted, non-vegetated areas

**Step 3.**

Field Work: Head outside with your tape measure and measure all the impervious surface areas within the PSA. For unusual shapes, use the Calculating Area of Geometric Shaped Parcels.

- Town or state roads are not included as impervious surface areas in your calculations.

**Step 4.**

Math Work: Add the total of all the impervious surface areas and divide it by the total of the PSA Area and multiply it by 100 for the percentage of impervious surface.

$$\text{\% Impervious Surface Area} = (\text{Total of Impervious Surface Areas} \div \text{Area of PSA}) \times 100$$