

## **Conservation Map Goals**

A set of targeted land use management and planning goals, specific to Door County were identified by local and regional advisors. Each goal has been characterized using best available data, scientific review, and advanced analysis. The maps, reports, and interactive tools on this website will enable you to identify and explore locations of highest concern for each goal.

1. Protect Habitat for Native Plants and Animals
2. Restore Landscape Connectivity
- 3. Protect Surface Water Quality**
4. Protect Ground Water Quality

## **How the Goal Map “Protect Surface Water Quality” was Created**

Each goal map is a composite of a number data layers known as “metrics” or “criteria”. The criteria data layers were created in consultation with the Door County Greenprint Technical Advisory Team comprised of resource experts and water scientists from Door County and across the region. For detailed information on data and methodology used to create the criteria layers, refer to last three pages of this document.

The composite map for each goal was created by combining the criteria data layers using a “weighted overlay” process. The Technical Advisory Team was responsible for determining a relative weight for each criterion layer, based on their knowledge of the subject areas and the datasets. The rationale that was used for assigning a higher or lower weight to a specific criterion included:

- Importance of that criterion for meeting the goal
- Quality or currency of the data used in the model
- Comprehensiveness of the data or modeling process

The following table summarizes the criteria layers considered for the goal and the relative weights used in the overlay process to create the composite goal map.

<b>Goal</b>	<b>Criteria</b>	<b>Weight</b>
<b>Protect Surface Water Quality</b>		
	Close proximity to drainage channels	23%
	Steep slopes	20%
	Depth to bedrock	14%
	Depth to water table	14%
	Soil infiltration rates	14%
	Sub-watersheds with high percentage of impervious cover	9 %
	Unfractured bedrock and absence of Karst features	6 %
	<b>TOTAL</b>	<b>100%</b>

*Rationale:*

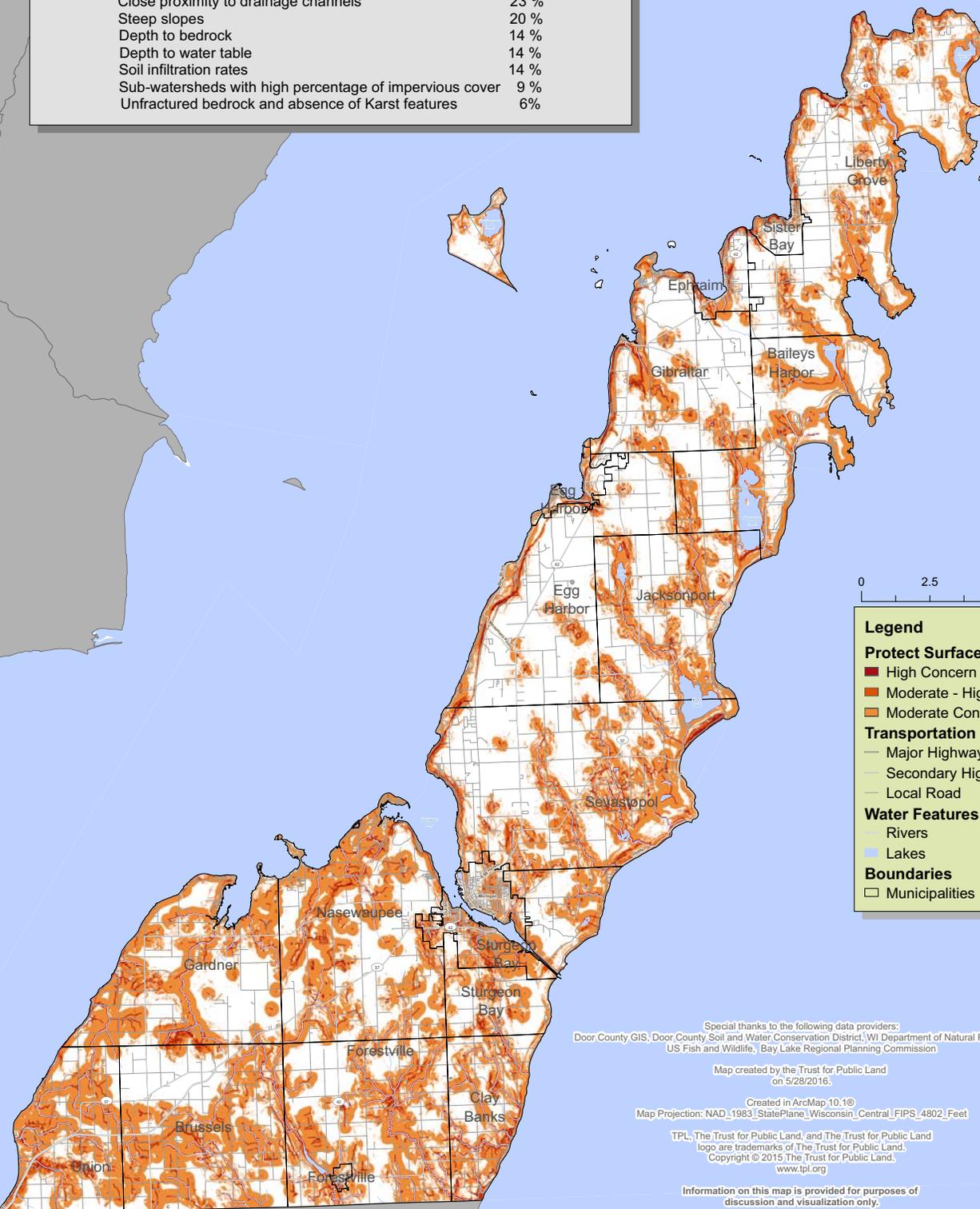
- *The criteria that will have the greatest impact on surface water quality are steep slopes and the proximity to drainage channels; projects within these areas have the greatest potential to impact surface water independent of other criteria.*
- *The greatest time of concern for surface water quality is during periods of increased runoff; with this concept in mind, the soil characteristics associated with the depth to bedrock, depth to water table, and soil infiltration criteria are not going to carry as much weight during frozen and saturated times, which provide the greatest opportunity for seasonal runoff.*
- *The impact of the percentage of impervious cover in a sub-watershed is dependent on the size of the watershed; while it is important for certain water quality parameters, it should not carry as much weight as activity adjacent to the feature.*
- *Unfractured bedrock and the absence of karst features present problems because the data sets are not complete and may not always be an accurate depiction of the true conditions.*

# Door County Greenprint Goal: Protect Surface Water Quality

This map displays the results of the Protect Surface Water Quality, a conservation goal within the Door County Greenprint. The degree of priority for each area is represented with a color scale with dark red representing areas of highest concern and orange representing areas of moderate concern.

These priorities are the result of a weighted analysis on the following criteria:

Close proximity to drainage channels	23 %
Steep slopes	20 %
Depth to bedrock	14 %
Depth to water table	14 %
Soil infiltration rates	14 %
Sub-watersheds with high percentage of impervious cover	9 %
Unfractured bedrock and absence of Karst features	6 %



**Legend**

**Protect Surface Water Quality - Priority Areas**

- High Concern
- Moderate - High Concern
- Moderate Concern

**Transportation**

- Major Highway
- Secondary Highway
- Local Road

**Water Features**

- Rivers
- Lakes

**Boundaries**

- Municipalities

Special thanks to the following data providers:  
Door County GIS, Door County Soil and Water Conservation District, WI Department of Natural Resources, US Fish and Wildlife, Bay Lake Regional Planning Commission

Map created by the Trust for Public Land on 5/28/2016.

Created in ArcMap 10.1©  
Map Projection: NAD\_1983\_StatePlane\_Wisconsin\_Central\_FIPS\_4802\_Feet

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# Door County Greenprint Model

Model Criteria  
March 11, 2015

Goal	Criteria	Methodology	Data	Data Sources	Data Confidence (High, Med, Low)
Protect Surface Water Quality					
	Depth to bedrock	<p>This model assigns priority to areas in close proximity to surface water that exhibit shallow soils. Data was grouped using the following data ranges for depth to bedrock:</p> <ul style="list-style-type: none"> <li>0-20 inches</li> <li>20-60 inches</li> <li>greater than 60 inches</li> </ul> <p>Areas were scored using a scale of 0-5, with 5 representing highest concern for protecting surface water. Priorities were assigned using a combination of distance to surface water, formations, and depth to bedrock:</p> <ul style="list-style-type: none"> <li>0-1/4 mi from surface water:               <ul style="list-style-type: none"> <li>5: 0-20", beaches, pits, and rock outcrops</li> <li>4: 20-60"</li> <li>3: 60"+</li> </ul> </li> <li>1/4 - 1/2 mi from surface water               <ul style="list-style-type: none"> <li>4: 0-20", beaches, pits, and rock outcrops</li> <li>3: 20-60"</li> <li>2: 60"+</li> </ul> </li> </ul> <p>Surface water includes shoreline, but does not include wetlands.</p> <p>Model updated March 2011 due to new hydro data</p>	<p>Bedrock, derived from NRCS Soils data 1979</p> <p>Hydrology</p>	<p>Door County Soil and Water Conservation Dept</p> <p>Door County GIS</p>	High
	Depth to water table	<p>This model assigns priority to areas in close proximity to surface water that exhibit shallow depth to water table. Data was grouped using the following data ranges for depth to water table:</p> <ul style="list-style-type: none"> <li>0-30 inches</li> <li>30-72 inches</li> <li>greater than 72 inches</li> </ul> <p>Areas were scored using a scale of 0-5, with 5 representing highest concern for protecting surface water. Priorities were assigned using a combination of distance to surface water and depth to water table:</p> <ul style="list-style-type: none"> <li>0-1/4 mi from surface water:               <ul style="list-style-type: none"> <li>5: 0-30" to water table</li> <li>4: 30-72"</li> <li>1: 72"+</li> </ul> </li> <li>1/4 - 1/2 mi from surface water               <ul style="list-style-type: none"> <li>4: 0-30" to water table</li> <li>3: 30-72"</li> <li>0: 72"+</li> </ul> </li> </ul> <p>Surface water includes shoreline, but does not include wetlands.</p> <p>Model updated March 2011 due to new hydro data</p>	<p>SSURGO Soils Data 1979 with soil survey depths in feet attached</p> <p>Streams and water bodies</p>	<p>Door County Soil and Water Conservation Dept and NRCS</p> <p>Door County GIS</p>	High



## Door County Greenprint Model

**Model Criteria**  
March 11, 2015

Goal	Criteria	Methodology	Data	Data Sources	Data Confidence (High, Med, Low)
	Soil infiltration rates	<p>This model assigns priority to areas in close proximity to surface water where soil infiltration rates are lowest (greatest chance for runoff to surface water). Data was grouped using the following data ranges for soil infiltration rates based on inches per hour:</p> <ul style="list-style-type: none"> <li>group 1: impermeable, very slow, moderate slow</li> <li>group 2: slow, moderate</li> <li>group 3: moderate rapid, rapid</li> </ul> <p>Areas were scored using a scale of 0-5, with 5 representing highest concern for protecting surface water. Priorities were assigned using a combination of distance to surface water and infiltration rate:</p> <p>0-1/4 mi from surface water:</p> <ul style="list-style-type: none"> <li>5: group 1 from above</li> <li>3: group 2</li> <li>1: group 3</li> </ul> <p>1/4 - 1/2 mi from surface water</p> <ul style="list-style-type: none"> <li>4: group 1 from above</li> <li>2: group 2</li> <li>0: group 3</li> </ul> <p>Surface water includes shoreline, but does not include wetlands.</p> <p>Model updated March 2011 due to new hydro data</p>	SSURGO 1979 Soils Data Streams and water bodies	Door County GIS Door County GIS	High
	Unfractured bedrock and absence of Karst features	<p>This model prioritizes areas with lowest density of karst features and fracture traces (greater chance for runoff to surface water). An analysis for karst features per 40 acres and and fracture traces per 40 acres was used to establish relative densities across the landscape.</p> <p>Areas were scored using a scale of 0-5, with 5 (highest concern) assigned to areas with lowest density of karst features and fracture traces. Closed depression areas were ranked 2 points lower than other areas, since these areas have a lower probability of releasing runoff to surface water.</p> <p>Note: Karst and fracture trace data is unavailable for southeast section of the county. These areas were scored a 2, to minimize the impact of the missing data when combining with other models.</p>	Karst features Closed Depression	Door County Soil and Water Conservation Dept Door County Soil and Water Conservation Dept	High



# Door County Greenprint Model

Model Criteria  
March 11, 2015

Goal	Criteria	Methodology	Data	Data Sources	Data Confidence (High, Med, Low)
	Steep slopes	<p>This model assigns priority to areas in close proximity to surface water with steep slopes (greater chance for runoff/erosion). Data was grouped using the following data ranges for percent slope.</p> <ul style="list-style-type: none"> <li>7.9% - 25% slope</li> <li>3.9% - 7.9% slope</li> <li>1.7% - 3.9% slope</li> <li>0% - 1.7% slope</li> </ul> <p>Areas were scored using a scale of 0-5, with 5 representing highest concern for protecting surface water. Priorities were assigned using a combination of distance to surface water and steepness:</p> <ul style="list-style-type: none"> <li>0-1/4 mi from surface water:               <ul style="list-style-type: none"> <li>5: 7.9% - 25% slope</li> <li>4: 3.9% - 7.9% slope</li> <li>3: 1.7% - 3.9% slope</li> <li>0: 0% - 1.7% slope</li> </ul> </li> <li>1/4 - 1/2 mi from surface water               <ul style="list-style-type: none"> <li>4: 7.9% - 25% slope</li> <li>3: 3.9% - 7.9% slope</li> <li>2: 1.7% - 3.9% slope</li> <li>0: 0% - 1.7% slope</li> </ul> </li> </ul> <p>Surface water includes shoreline, but does not include wetlands.</p> <p>Model updated March 2011 due to new hydro data</p>	<p>Slope derived from DEM</p> <p>Hydrology</p>	<p>DEM (Door County GIS)</p> <p>Door County GIS</p>	High
	Close proximity to drainage channels	<p>This model assigns priority to areas that are in closet proximity to surface water.</p> <p>Areas were scored using a scale of 0-5, with 5 representing highest concern for protecting surface water:</p> <ul style="list-style-type: none"> <li>5: areas within 75 feet of surface water</li> <li>0: all other areas</li> </ul> <p>Surface water includes shoreline, but does not include wetlands.</p> <p>Model updated March 2011 due to new hydro data</p>	Streams and Rivers	(Door County GIS)	High
	Sub-watersheds with high percentage of impervious cover	<p>This model assigns highest concern to subwatersheds with highest percentage of impervious cover. Subwatersheds with no impervious surface were considered a non-priority (0).</p> <p>Impervious cover was delineated using building footprints, parking lots and roads provided by Door County. Percent impervious cover per subwatershed was computed.</p> <p>Subwatersheds were scored using a scale of 0-5, with 5 representing highest concern for protecting surface water:</p> <ul style="list-style-type: none"> <li>30% and greater impervious cover = 5 (highest concern)</li> <li>20% - 30% impervious cover = 4</li> <li>10% - 20% impervious cover = 3</li> <li>0% - 10% impervious cover = 0 (not a priority)</li> </ul> <p>(Model updated March 2011 to incorporate new impervious surface data)</p>	<p>Impervious Areas</p> <p>Subwatersheds</p> <p>Impervious Surface (provided March 2011)</p>	<p>Door County Soil and Water Conservation Dept</p> <p>Door County Soil and Water Conservation Dept, University of Wisconsin</p> <p>Door County GIS</p>	High