

# SKI RESORT SITE SUITABILITY ANALYSIS

## IDENTIFYING OPTIMAL SKI RESORT LOCATIONS IN PETERBOROUGH, ON

### Introduction

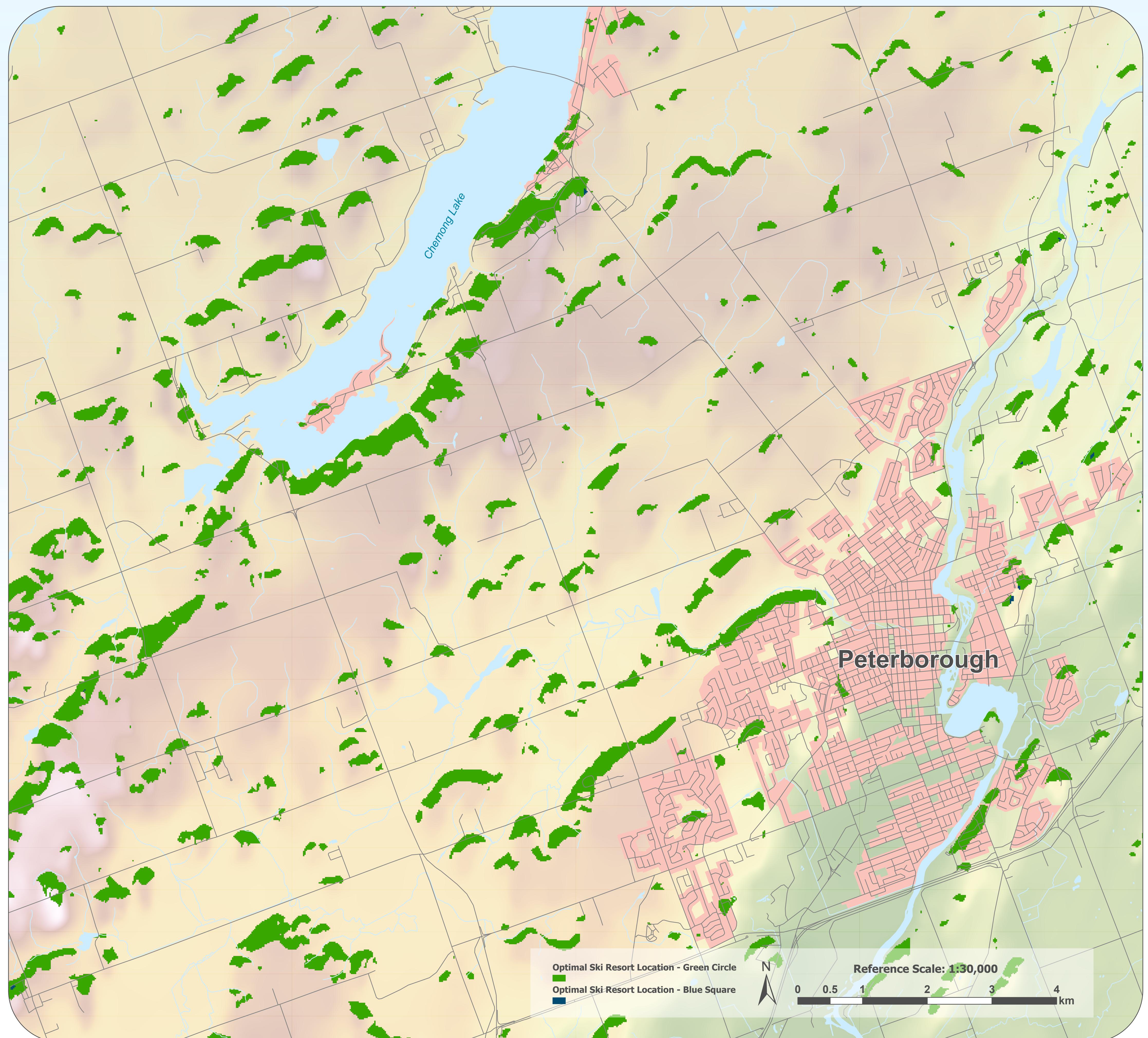
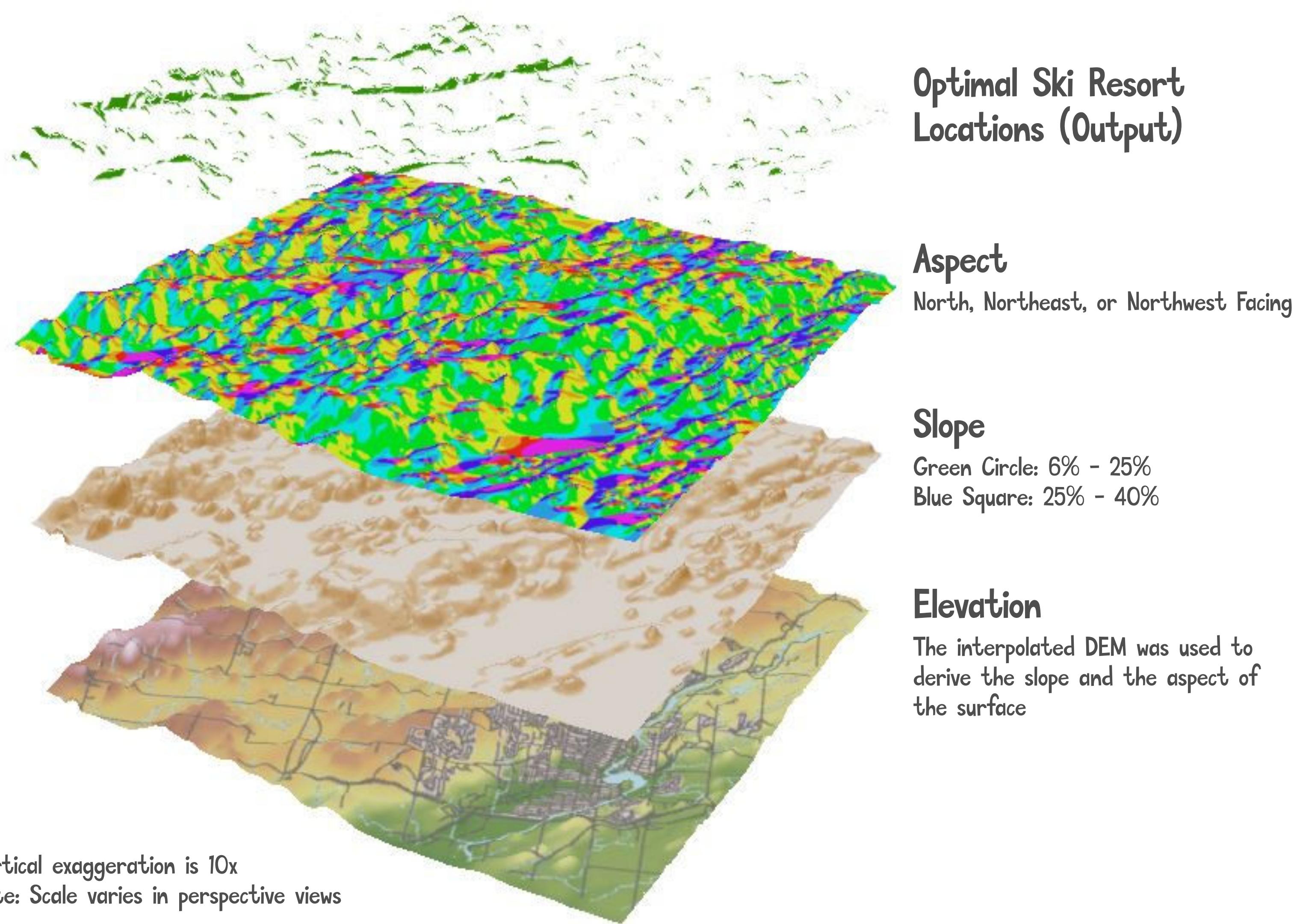
Although skiing is one of the most popular winter sport activities in Canada, there are only a limited number of ski resorts in the Peterborough area. The goal of the study is to explore the optimal ski resort locations in the Peterborough area, based on the following criteria:

- (1) The slope steepness should be between 6% to 25% for Green Circle (Beginner), or between 25% to 40% for Blue Square (Intermediate). The ski trail difficulty is based on the color-shape rating system used in North America.
- (2) The slope direction should be either North, Northeast, or Northwest, as these slopes receive less direct exposure to the sun in the winter.

### Methodology

Since the Topo to Raster interpolation has the best performance in estimating unknown values in the Peterborough area, it was performed to generate a 20m DEM. The interpolated DEM was then used to derive the slope and the aspect of the study area. Based on the defined criteria (see the Suitability Factors section below), the study area was classified into "suitable" and "not suitable" using the Raster Calculator tool and the Reclassify tool. Only the slopes that meet both requirements will be considered as optimal ski resort locations.

### Suitability Factors



### Results

The interpolated DEM has an elevation between 183.47m to 332.57m, with a mean of 249.30m and a standard deviation of 28.77. The optimal ski resort locations are indicated in green or blue color on the map. Based on the results, the area of the optimal ski resort locations for Green Circle is 17.4412 km<sup>2</sup>, whereas the optimal ski resort locations for Blue Square is 0.0248km<sup>2</sup> only. Since the Peterborough area does not have a significant mountainous terrain, people may have to look for other areas if they are interested in developing ski resorts for intermediate or advanced skiers.