This return rate yielded a large enough sample to allow us to be 95% confident that inferences of this sample were within plus or minus 3 percent of the population of second home owners in the county. The optimal sample size is a function of : (1) the amount of error that can be tolerated between the sample and actual proportion of second home owners in terms of various demographic characteristics, which we established at 3 percent; (2) the confidence one wants to have in the error estimate of .03 (which we have set 95 %); and (3) the standard deviation general demographic characteristics of the population of second home owners, which we assume to be 50/50 since we lacked information about the population variance among different demographic characteristics. As such, we assumed a 50/50 split among all demographic attributes of second home owners and calculated the standard deviation using the square root of (p)(p-1). The standard deviation of the population of second home owners was found to be .5.

Symbolically, the attributes outlined above, they can be expressed as follows:

$$n=\left(\frac{Z\times\sigma}{E}\right)^2$$

where n is the sample size, z is the z score associated with the desired confidence limit (which in this case is 1.96), sigma represents the standard deviation outlined above, and E is the amount error that can be tolerated which we have set at .03 to achieve an optimal sample size.

The information outlined in the points above are entered into the sample size equation shown above as follows:

$$1067=\left(\frac{1.96\times(.5)}{.03}\right)^2$$

The optimal sample size is 1067. The total sample yielded here exceeds the optimal size.