**Abstract**

This project investigates the use of Geographic Information System (GIS) technology that incorporates vertical roadway fluctuations to calculate accurate roadway lengths. Massachusetts currently uses twenty-year old odometer based measurements for these values and is interested in changing its methods especially considering the availability of new data and technologies. This project surveyed departments of transportation nationally and internationally to ascertain an understanding of practices used elsewhere. Upon conclusion of the surveys, it was found that the use of GIS technology for roadway length calculations is significantly increasing with nearly fifty percent of those surveyed now using it. However, it was also found that incorporating roadway elevation fluctuations into length calculations is only infrequently done, and only done in states with proactive GPS data collection programs. In the reports conclusion, it is suggested that Massachusetts begin using GIS technology to determine non-funded road lengths, and also continue evaluating the option of using it for their state roads as well.