Abstract

Geographic Information Systems (GIS) can greatly strengthen Safe Routes to School (SRTS) programs by helping stakeholders to visualize service areas and study the process of walking to school. Information from a GIS can help drive policies and change processes at a district level. The purpose of this study is to provide a framework for how GIS, particularly Esri's Network Analyst, may be used by a school district in SRTS programs. This study demonstrates how to analyze and visualize the process of students safely walking to school for two elementary schools in Chula Vista, California. This framework provides districts with procedures on how to acquire GIS data, preprocess data for Network Analyst, and analyze data by setting up a network with appropriate barriers and impedances. It shows district administrators a simple yet effective means of using a GIS to strengthen SRTS programs. This study resulted in maps of several routes within the Harborside Elementary and Wolf Canyon Elementary school zones. The maps and outputs helped to determine where the model worked well and where there were areas for improvement. Overall, Esri's Network Analyst extension was found to be an effective tool in modeling the safest routes to school; however, each school zone needed model customization. This research also emphasizes factors that school districts would need to consider in the use of GIS for SRTS programs. Such implementations of GIS may help school districts better understand the process of students walking to school and help district administrators to make better-informed decisions regarding SRTS programs.