

3.4.3 A Crash Mapping and Analysis Application

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Crash data analysis is an important component in the transportation safety plan in the Kansas City region administered by the Mid-America Regional Council (MARC), as accurate crash location information plays a major role in the crash spatial analysis. There are eight counties across Kansas and Missouri States and six years of crash data with approximately 360,000 crash records in the region need to be geolocated and analyzed. The crash locations are collected based on On-Road/At-Road, Direction (relative to the On-Road), and Distance (from the At-Road on the On-Road) in the region. When the crash data are collected, there are numerous discrepancies such as misspellings, alternative name usage, and typos. The majority of data do not have street or road type information. Given a limited amount of time, how to automatically geolocate these crash data and perform analyses is a big challenge.

PB developed a crash mapping application in Visual Basic .Net/ArcObjects as an ArcGIS 9.x extension to assist the MARC in geolocating crashes, maintaining data, and analyzing the information. Geolocator tools, combination of ESRI's composite address locator, spatial search functions, and road name data dictionaries, are used to automatically geolocate the crash data, with approximately 80% matching rate. Hot spot, link, and node analysis tools are used to show spatial patterns of crashes. In addition, customizable crash query and report tools with SQL queries are provided.