

Paper Title: GIS Platform to Analyze the Intersection Traffic Accident at Four-legged Signalized Intersections

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Abstract: Traffic Accidents in Japan have been increasing which results a huge amount of cost in terms of death, injury, lost productivity, and property damage. The problem is still serious and far from the satisfactory level because the total number of traffic accident is about 98 times and injuries are 121 times higher (in 1999) than fatal accidents although the fatal accidents are decreasing in recent years. About 58.4% accident of total and 45.2% fatality at intersection elevate the importance of intersection accident where most frequent accident type is right-turn accounting 25% to total followed by rear-end accident (24%). Right-angle accident suffers the worst records having 33% fatality and 45% of left-turn accident was involved with motorcycle accident. Using three-year accident histories, this paper classified intersection accidents into twelve classes and try to find out the reason and countermeasures for accident blackspots for major types of intersection accident comparing the Rate Quality Control Method and an existing risk evaluation model with the help of GIS tools. The study reveals some important factors related to various types of high risky locations and their interaction between geometric and traffic related elements and accident frequencies. The mechanism accident of each major types and their relation to various explanatory factors are also discussed briefly to find out the characteristics of accident blackspots. Exploration of possible reasons and countermeasure reveals that blackspots tended to have poor visibility and inadequate sight distance. Finally, application of GIS using existing accident risk models allows the management to handle the high-risk intersections successfully to lessen the accident frequency and continuously monitoring of this urban malaise.