

Evacuation Model for The United States Military Academy's Michie Stadium

Delanie Weliver

Department of Systems Engineering
United States Military Academy, West Point, NY

Corresponding author: delanie.weliver@westpoint.edu

Abstract: Over the past 10 years, there have been 51 mass casualty shootings in the United States, and large public gatherings seem to be the preferred targets. Large gatherings in one condensed area, such as sporting events, have high risk for mass casualty. Recent increased emphasis on force protection at the United States Military Academy aims to ensure top security for all personnel living on or visiting West Point. In this research, a discrete-event simulation model of Michie Stadium at West Point, New York was created to simulate how a full stadium would evacuate during a man-made disaster, such as a mass shooting or bombing. The average evacuation time was found to be 17 minutes. These findings have a direct impact on how emergency responders will react to man-made disasters. Measures to decrease evacuation time include adjusting key parameters such as walkway and tunnel width and increasing signage of gates.

Keywords: Mass Evacuation, Geographic Information System (GIS) Model, Discrete-Event Simulation