

AN ACCURACY ASSESSMENT ON BLAST AND PRIMARY FRAGMENTATION USING RAPID CITY PLANNER

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Abstract: Rapid City Planner (RCP) is a modeling and simulation (M&S) tool to predict the effects of an explosive event in urban or deployed environments. RCP is based on next-generation computational fluid dynamics (CFD) technologies, including a modern adaptive mesh refinement (AMR) strategy in conjunction with immersed boundary methods (IBM) to facilitate fast blast effects calculations. The tool provides a fast, accurate, and easy-to-use explosive threat prediction capability in a geographic-based interface for application in real-world environments. Knowledge of the accuracy of the tool is important for decision making for public safety or military applications. This paper summarizes advancements to the RCP tool and includes recent validation focused on blast and primary fragmentation and their effects on human vulnerability.