FUNDAMENTALS OF

FORENSIC MAPPING

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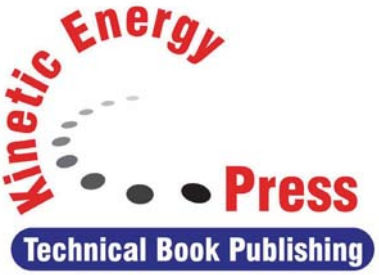

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Foreword

This book is essentially a continuation of a work that began nearly 20 years ago in an effort to enlighten those having responsibility in the Public Safety community to precisely document locations of witnessed physical evidence.

That effort, the campaign to convince military, federal, state and local government officials of the many advantages of incorporating the use of hi-tech electronic distance measuring equipment and advanced scene diagramming software, continues today, despite a few early hurdles and challenges that have since been successfully resolved over the course of time.

Basic crash and crime scene investigation, as taught by the many acclaimed institutions of higher learning, has not brought about **simple** changes due to the adoption of a so called ***"forensic mapping system"*** within an agency. Quite the opposite. With agencies incorporating 'Incident Management' techniques relying on forensic mapping techniques, highway crash scenes are often opened 75-80% sooner than they would be without forensic mapping systems contributing to efficient evidence documentation. This means a great savings to the economy as commercial vehicles and motorists are not unneccessarily delayed in traffic. And an unintended benefit of the better traffic flow is the reduction of carbon output.

What this book provides is a refreshing overview of just what *"forensic mapping"* is, and importantly, what *"forensic mapping"* **is not**. When addressing how crashes, in particular, are caused, elements of the H.T.S. (highway transportation system) require an analysis of the 'driver', 'vehicle' and 'highway', ergo our *"forensic mapping"* interest in specific highway conditions and effects. Likewise, in other criminal investigation, knowing how to articulate where within a given address, or another, certain relevant evidence was found is important.

Almost as necessary to human society as language has been the determination of distances and measurements. Some form of measuring or counting has been documented in village sites in Turkey dating from the ninth millennium, more than 10,000 years ago. Clearly, detailed recording of physical factors affecting everday life has been an ever-present concern in civilized society. Thus much appreciation goes to all current users of the ***Forensic Mapping System***. The use of a total station, data collector, possibly a prism, and to-scale scene diagramming software has great value in our modern world, while the associated technology must be understandable to the point of accurate proficiency. To that end, this skilled essay is offered.

Mick Capman

Introduction

This book was prepared for the crash investigator or crime scene investigator regardless of whether the investigator works in active law enforcement or some sort of private practice. It will be a guidebook for new and experienced users in the field of Forensic Mapping. The text will provide someone new to the field with the theory behind the concept as well as provide the basics. Someone who is already mapping will benefit from the authors' combined years of experience and gain valuable insight into the various techniques they have used. It is intended for this book to be a useful reference manual, but experience teaches that it is not possible to cover every topic or situation related to this field in any single-volume textbook. The book is not intended to be a substitute for formal training in Forensic Mapping.

For over nearly two decades, law enforcement agencies and private investigative firms have relied upon total station technology for the electronic documentation of crash and crime scenes. Research indicates that probably the Washington State Patrol (WSP) was the first police agency of record (1991) to incorporate the use of total stations in their various scene investigations. In early 1992, the Delaware State Police chose to use total station technology, and the Washington State Patrol provided basic, specialized training on the new equipment.

Since that time, the Federal Bureau of Investigation, the national response team for the A.T.F., National Transportation Safety Board (N.T.S.B.), nearly all of the State Police agencies, hundreds if not thousands of local police and/or Sheriff Departments, and many private investigative firms have selected to add total stations to their "tool box" of measuring devices. Some major U.S. city agencies using the Forensic Mapping System are: Atlanta, Chicago, Dallas, Detroit, FDNY, Houston, Los Angeles County, LAPD, Miami, NYPD, and San Antonio. There are also international agencies using the Forensic Mapping System in Australia, Canada, New Zealand, the United Kingdom, and Venezuela just to name a few.

Well over 1000 total station models from various manufacturers are currently being used by American law enforcement agencies, and numerous sworn officers and private investigators have been exposed to the various Forensic Mapping techniques for diagramming crash or crime scenes. Public and court acceptance of total station technology has been widespread.

Please note that this book has been co-authored by Kent E. Boots and Joel Salinas. In some places, personal plural pronouns are used to identify collaborative effort and thought. In other places, individual voices are expressed, usually identified by name. All expressed opinions and comments within this book reflect the team effort of the co-authors in this endeavor.