Preface

This book results from my work as a research assistant at the university of Duisburg-Essen. The research was partly supported by the WestLB—Stiftung Zukunft NRW.

Evacuation planning involves many tasks, like the determination of the evacuation area, safe zones, and appropriate shelters, as well as the coordination and training of the emergency staff or the planning of the routing and regulation of traffic on the evacuation routes. This research concentrates on the optimization of the routing for the case of an evacuation of urban areas with high density and complex street network structure. Especially, the properties of intersections are investigated and heuristic methods are developed to solve the resulting complex mixed-integer linear optimization programs.

Without the support of my supervisors, colleagues, friends, and my family, it would not have been possible to finish the research and the book in this way. I want to thank my doctoral supervisors Alf Kimms and Rüdiger Schultz for providing me their guidance and advice; special thanks to Alf Kimms who gave me the opportunity to work at the project "Evacuation Problems in Major Cities and Urban Areas". It was a great honor to work with my workmates Demet Çetiner, Michaela Graf, Klaus-Christian Maassen, and Julia Schaaff as well as the newer ones Christoph Reiners and Waldemar Grauberger. It was a great working atmosphere and thank you for going together through the adventures of university, like teaching, handling administrative jobs, or holding talks on conferences.

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