## **ACKNOWLEGEMENTS**

I wish to express my sincere appreciation to Dr. Theodore G. Cleveland, P.E., my advisor, for his guidance and suggestions throughout this research period. I also wish to extend my thanks to Dr. Keh-Han Wang, P.E. and Dr. Jerry Rogers, P.E. for their valuable comments, suggestions, and for serving as members of the program committee.

I am very much appreciative of the administration of TxDOT for sponsoring the Master's Program. I also would like to thank the Master's Program selection committee and my supervisors, Mr. Sam Talje, P.E., and Mr. Robert Fanning, P.E., for giving me the opportunity to participate in this program; Mr. Bill Brudnick, P.E., for being my TxDOT mentor; Ms. Janet Risovi, P.H.R., and Ms. Jennifer Williams, P.H.R., for their guidance during the program.

Most especially, I wish to thank Mr. George Herrmann, P.E., P.H. and Mr. Tom Beck, P.E., for their useful suggestions and comments with my research. My personal thanks are for friends and colleagues for their help in some way during this work.

Finally and most importantly, I am thankful and blessed for having my parents, my siblings, my husband, and my daughter for their love and encouragement throughout the study period.