

Teodor Gabriel Crainic • Michel Gendreau
Bernard Gendron
Editors

Network Design with Applications to Transportation and Logistics

 Springer

Contents

1	A Book About Network Design	1
	Teodor Gabriel Crainic, Michel Gendreau, and Bernard Gendron	
Part I Basic Design Problems		
2	Fixed-Charge Network Design Problems	15
	Teodor Gabriel Crainic, Michel Gendreau, and Bernard Gendron	
3	Exact Methods for Fixed-Charge Network Design	29
	Teodor Gabriel Crainic and Bernard Gendron	
4	Heuristics and Metaheuristics for Fixed-Charge Network Design	89
	Teodor Gabriel Crainic and Michel Gendreau	
Part II Advanced Problems and Models		
5	Multicommodity Multifacility Network Design	139
	Alper Atamtürk and Oktay Günlük	
6	Piecewise Linear Cost Network Design	165
	Antonio Frangioni and Bernard Gendron	
7	Topology-Constrained Network Design	185
	Bernard Fortz	
8	Network Design with Routing Requirements	207
	Anantaram Balakrishnan, Thomas L. Magnanti, Prakash Mirchandani, and Richard T. Wong	
9	Bilevel Network Design	253
	Martine Labbé and Patrice Marcotte	
10	Stochastic Network Design	281
	Mike Hewitt, Walter Rei, and Stein W. Wallace	

11 Robust Network Design 315
Arie M. C. A. Koster and Daniel R. Schmidt

Part III Applications in Transportation and Logistics

12 Service Network Design 345
Teodor Gabriel Crainic and Mike Hewitt

13 Freight Railroad Service Network Design 381
Mervat Chouman and Teodor Gabriel Crainic

14 Motor Carrier Service Network Design 425
Ilke Bakir, Alan Erera, and Martin Savelsbergh

15 Liner Shipping Network Design 467
Marielle Christiansen, Erik Hellsten, David Pisinger,
David Sacramento, and Charlotte Vilhelmsen

16 City Logistics 505
Teodor Gabriel Crainic, Guido Perboli, and Nicoletta Ricciardi

17 Public Transportation 535
Antonio Mauttone, Héctor Cancela, and María E. Urquhart

18 Hub Network Design 561
Ivan Contreras

19 Logistics Network Design 593
Jean-François Cordeau, Walid Klibi, and Stefan Nickel

20 Collaboration in Transport and Logistics Networks 619
Behzad Hezarkhani, Marco Slikker, and Tom Van Woensel

Index 655