DESCRIPTION

This pioneering text provides a holistic approach to decision making in transportation project development and programming, which can help transportation professionals to optimize their investment choices. The authors present a proven set of methodologies for evaluating transportation projects that ensures that all costs and impacts are taken into consideration.

The text's logical organization gets readers started with a solid foundation in basic principles and then progressively builds on that foundation. Topics covered include:

- Developing performance measures for evaluation, estimating travel demand, and costing transportation projects

- Performing an economic efficiency evaluation that accounts for such factors as travel time, safety, and vehicle operating costs

- Evaluating a project's impact on economic development and land use as well as its impact on society and culture

- Assessing a project's environmental impact, including air quality, noise, ecology, water resources, and aesthetics
Evaluating alternative projects on the basis of multiple performance criteria

Programming transportation investments so that resources can be optimally allocated to meet facility-specific and system-wide goals

Each chapter begins with basic definitions and concepts followed by a methodology for impact assessment. Relevant legislation is discussed and available software for performing evaluations is presented. At the end of each chapter, readers are provided resources for detailed investigation of particular topics. These include Internet sites and publications of international and domestic agencies and research institutions. The authors also provide a companion Web site that offers updates, data for analysis, and case histories of project evaluation and decision making.

Given that billions of dollars are spent each year on transportation systems in the United States alone, and that there is a need for thorough and rational evaluation and decision making for cost-effective system preservation and improvement, this text should be on the desks of all transportation planners, engineers, and educators. With exercises in every chapter, this text is an ideal coursebook for the subject of transportation systems analysis and evaluation.

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FEATURES

• Only modern, multi-modal guide to transportation decision-making

• Covers both highway and rail networks
• Includes numerous examples and end of chapter problems to facilitate classroom use

• Various impacts are broken into separate chapters to facilitate in depth review. Impacts covered include safety, economic development, mobility, pavement condition, improvements, air quality, noise, water resources and ecology, land use, energy, and aesthetic impacts.

• Details use of new management and evaluation technologies such as GIS and simulation models.

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