CONTENTS

Preface: The New Generation of Planning xiii
Introduction: Communities, Planning, and CommunityViz xvi
Computers and Planning xvi
A New Generation of Planning xvii
What CommunityViz Does xvii
CommunityViz Roots and Development xviii
CommunityViz and All Kinds of Planning xviii
The Orton Family Foundation's Heart & Soul Planning Philosophy xxi
Practical Benefits of New Generation Planning xxi
How to Use This Book xxii
Special Terms xxiv
CommunityViz: An Overview xxv
Scenario 360 xxv
Common Applications xxvii
Integration with ArcGIS xxvii
3-D Visualization within Scenario 360 xxvii
Scenario 3D xxvii
Scenario 3D Exporter and Viewer xxvii

I. FOUNDATIONS

Chapter 1: Getting Started
Define Your Study Area 4
Create an Area Profile 5
Identify Problems and Forces of Change 6
Identify Key People and Organizations 7
Describe Decisions That Need to Be Made and Questions to Answer 8
The CommunityViz Project Framework for Decision Making 8
The Difference Between Decisions and Information 10
Describe Goals 10

Chapter 2: Technical Needs and Data Resources for CommunityViz
Computing Resources and Technical Staff 11
Data Resources 12
Data Best Practices and Ethics 12
Experts, Specialized Models, and Crowds 13

Chapter 3: Planning Study Design Guidelines
About Scenario Planning 15
How Scenario Planning Principles Influence Project Design 18
Geodesign and Making Decisions without Scenarios 18
Project Practicalities 19
Time and Budget 19
Trade-Offs and Limitation of Feasible Planning Projects 20
Analysis Design 21
Iterative Design 23
Design for Transparency 23
Multimedia Design 24
Visualization Priorities 25
Technology Selection 26
Communication Design 26
Design for a Living Comprehensive Plan 26

Chapter 4: Custom Impact Models and Analysis 28
Why and When 28
Types of Impact Models and How to Create Them 28
Rate-Based Impact Models 29
Coefficient-Based Impact Models 30
Spatially Dependent Impact Models 31
External Models 31
How to Choose a Model 31
Creating a Custom Analysis 32
Technical Section: Dynamic Analysis in Scenario 360 32
Dynamic Attributes 32
Indicators 33
Assumptions 34
Scenarios 34
Setup Tools 35

Chapter 5: Three-Dimensional Scenes 36
Why and When 36
Choosing a 3-D Platform 36
How 3-D Works 37
Partly Transparent Textures 38
Shadows and Lighting 38
Active Materials 39
How a 3-D Scene Is Built 39
Creating a 3-D Scene 40
Get Data 41
Create a Base Model 42
Model Development Proposals or Scenarios 43
Create Presentation Aids 44
Special Considerations for Metro and Regional Models 44
Teaching Example 45

Chapter 6: Getting the Most from 3-D 50
The Art of Making Effective 3-D Scenes 50
Providing Good Information 50
Making the Computer-to-Real-World Connection 50
Enhancing Subjective Feel 51
Solutions to Common Challenges 52
Soft Features 52
Numerous Features 52
Large Areas 53
Uneven Terrain 54
Choosing Accessories 54
Conclusion 54

CASE STUDIES: Klamath River, California and Oregon; Manchester, Vermont 55
II. COMMUNITY VISIONING, VALUES, AND GROWTH PROJECTIONS

Chapter 7: Visioning

Why and When
Beginning the Visioning Project
Assessing the Current Situation
Scenario Building
Low-Tech Visioning
Scenarios Created by the Public
Scenarios Created Internally
Best Practices for Creating Scenarios
Selecting a Preferred Scenario
Implementation Plan
Teaching Example

CASE STUDY: Metropolitan Boston, Massachusetts

Chapter 8: Growth Projections

Land Use Designer
Build-Out Wizard
Build-Out Steps
Density Rules
Commercial Buildings
Keeping Perspective
TimeScope
Allocator
External Models
Combining Growth-Planning Decision Tools
Data Needs and Sources
Teaching Example

CASE STUDY: Middlebury, Vermont

Chapter 9: Value Mapping and Special Places

Value Mapping
Why and When
Articulating Core Values
Value Mapping Steps
Making a Value Tree
Value Elements
Value Drivers
Physical Form
CommunityViz Value Indexes
Using Value Mapping
Mapping Special Places

CASE STUDIES: Allegheny County, Pennsylvania;
Exeter, Rhode Island
Chapter 10: Local Comprehensive Plans

Why and When
Data Needs
Describing Current Conditions
Creating Scenarios
Modeling Impacts
Engaging the Public
Teaching Example

CASE STUDIES: Durango, Colorado; Mooresville, North Carolina

Chapter 11: Regional Land-Use and Transportation Plans

Why and When
Data Needs
CommunityViz Tools
Analysis Templates
Scale-Changing Formula Functions
Sketch Tools
Linking to External Models
Analysis Grids
Teaching Example

CASE STUDIES: Greater Nashville, Tennessee; Washington County, Utah

Chapter 12: Site Selection and Assessment

Why and When
Suitability Concepts
CommunityViz Tools for Suitability Analysis
   Suitability Wizard
   Nested Suitability
   Categories
   Alerts
   Assumptions and Charts
   Symbology Tools
Scoring Systems for Centers and Neighborhoods
Teaching Example

CASE STUDIES: Squamish, British Columbia, Canada; Calumet County, Wisconsin

Chapter 13: Resource Plans

Data Needs and Sources
Working with Raster Data
Valuing Resources
Conditions and Targets
   Assessing Implementation Strategies

Project Water Use from all Sources
CommunityViz Tools 152
Scientific Modeling 152
Evaluation of BMPs 153
Optimizer 153
LandFrag Wizard 154
Teaching Example 154

CASE STUDIES: Topsham, Maine;
Delmarva Peninsula, Delaware, Maryland, and Virginia 158

IV. REVIEWING REGULATIONS AND
DEVELOPMENT PROPOSALS 163

Chapter 14: Analyzing Zoning Regulations 166
Why and When 166
Data Needs 166
Zoning Development Capacity Analysis Using the Build-Out Wizard 166
Zoning Development Capacity Calculations Outside the Build-Out Wizard 170
Estimating Capacity Utilization 171
Teaching Example 171

Chapter 15: Cost-of-Services Analyses,
Capital Improvements, and Pro Formas 176
Data Needs and Sources 177
Setting up a Cost-of-Services Analysis 177
Using a Cost-of-Services Analysis 179
Analyzing Subdivision and Land-Development Regulations 179
Pro Forma Analyses 180
Teaching Example 180

Chapter 16: Design Review and Form-Based Codes 185
About 3-D Modeling for Design Reviews and Form-Based Codes 185
Using 3-D for Design Review 187
   Modeling Proposals for Design Review 187
   Displaying the Scene 187
Using 3-D for Drafting and Applying Form-Based Codes 188
Indicators for Design Review and Form-Based Codes 189
   Site-Specific Indicators 189
   Comparative Community Indicators 189
Teaching Example 190

CASE STUDY: Westminster, Colorado 194
V. COMMUNICATING AND INTERACTING

Chapter 17: Public Meetings, Presentations, and Charrettes
Why and When
Public Meetings
Charrettes
Presentation Techniques and Best Practices
  Designing the Analysis
  Understanding the Audience
  Designing the Display
  Speaking with CommunityViz
  Venue and Logistics
Presenting 3-D Scenes
Keypads and Online Polling
CommunityViz in Workgroups
Workgroup Learning Curves
  Introducing Interactive Capabilities to Workgroups
  Best Practices for Using CommunityViz with Workgroups
CASE STUDIES: Fort Lupton, Colorado;
  Northern Rocky Mountains, Idaho, Montana, Wyoming,
  and Alberta and British Columbia, Canada

Chapter 18: Reports, Displays, and Websites
Reporting and Display Features
Reporting and Display Best Practices
Images of 3-D Scenes
Project Website
  Web-Ready Reports
  Website Images and Data
  WebShots Wizard
  3-D Scenes on the Web
  Sharing a Complete Analysis on the Web
  More Web Options

Chapter 19: Beyond Planning Projects
Anticipating Planning Problems
Connecting Plans to Day-to-Day Processes
Supporting Other Departments
APPENDICES

Appendix 1: When and How to Get Help
Readiness Self-Assessment 228
CommunityViz Skills 228
Technical Environment 228
Organizational Readiness 228
Partners and Collaborators 228
Modeling Skills and Resources 228
Staffing for CommunityViz 229
Working with Consultants 229
CommunityViz Resources 230

Appendix 2: Data Management
Data Management Best Practices for Analysis 231
Data Management Best Practices for 3-D Visualization 232
Using Data from Multiple Sources 232

Appendix 3: Performance
Analysis Performance 234
3-D Performance 235

Appendix 4: Data Sources

Appendix 5: CommunityViz Features
Scenario 360 Features 243
Integration with ArcGIS 243
3-D Visualization 243
Dynamic Charts 243
Scenarios 243
Decision Tools 244
Interactive Analysis and Modeling 245
Communication and Engagement 247
Scenario 3D Features 248
Scenario 3D Exporter 249
Scenario 3D Viewer 250

Contacts 251
References 253
Glossary 254
Acknowledgments 263
Index 264