TCRP Report 95 Series – Chapter 17
Traveler Response to Transit Oriented Development

presented to

North Carolina Model Users Group Meeting

Greensboro, North Carolina

presented by

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October 24, 2007

Transportation leadership you can trust.

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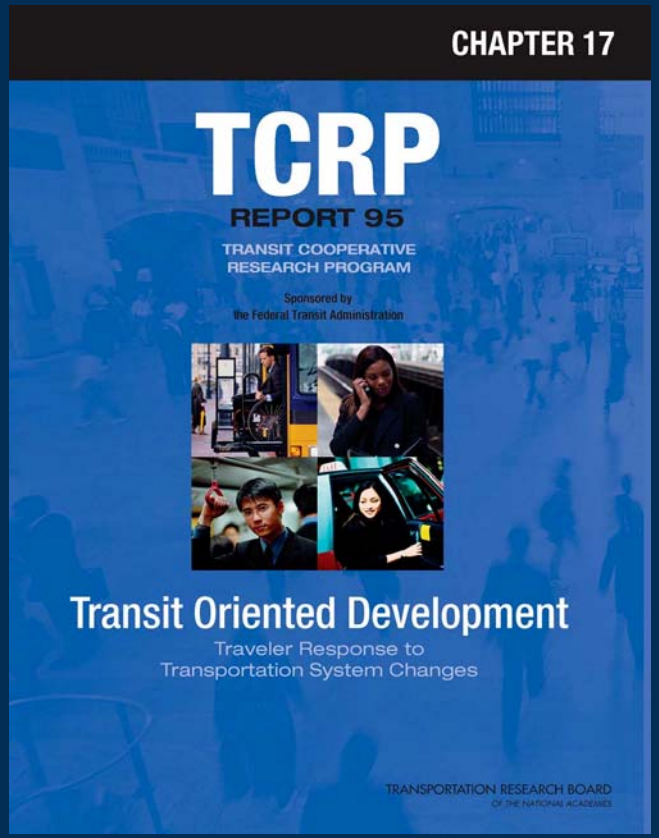
Presentation Outline

- *Introduction*
- Types of TOD
- Traveler Response Summary
- End Notes



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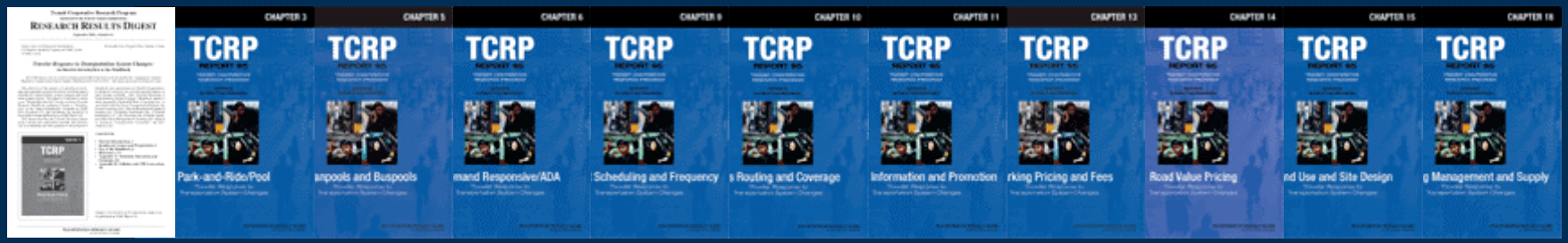
TCRP Report 95 Series – Chapter 17
Traveler Response to Transit Oriented Development

TCRP Report 95 series identified as one of the "most essential transportation publications" in a national survey of transportation professionals conducted by *The Urban Transportation Monitor*



Sources: As quoted in February 3, 2006 issue. Cover images from Transportation Research Board web site.

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Project Overview
What the Handbook IS

- Travel demand impact manual
- Sourcebook on results of transportation actions
- Survey of information on usage and feasibility

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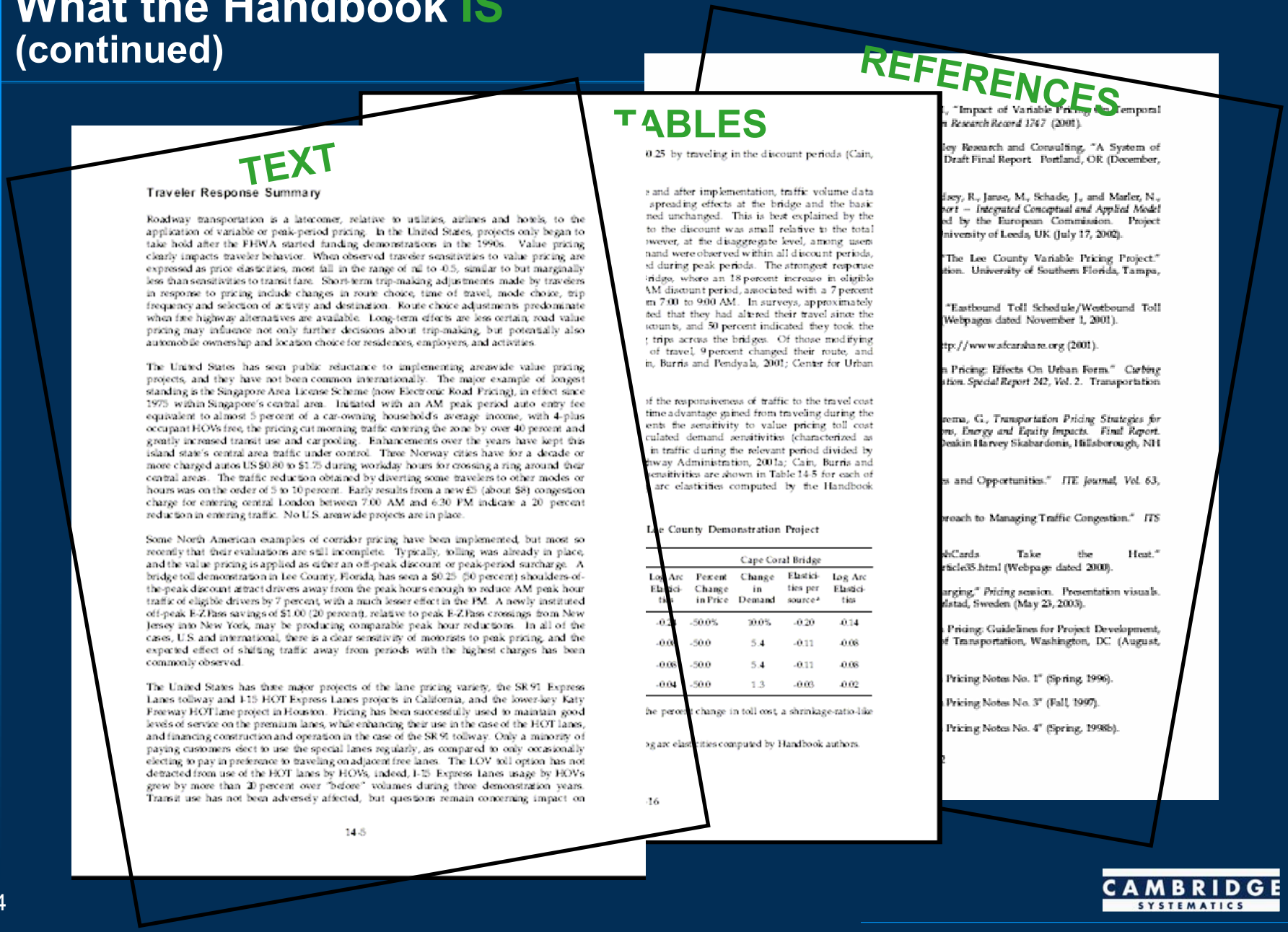
Project Overview
What the Handbook IS
(continued)



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Project Overview
What the Handbook Is NOT

- Best practices manual
- Implementation manual
- Design or operation manual

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Handbook Organization
Topic Area Chapter Format

- Overview and summary
  - Objectives of [the system change]
  - Types of programs
  - Analytical considerations
  - Traveler response summary
- Response to [the system change]
- Underlying traveler response factors
- Related information and impacts
- Additional resources
- Case studies
- References

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- *Types of TOD*
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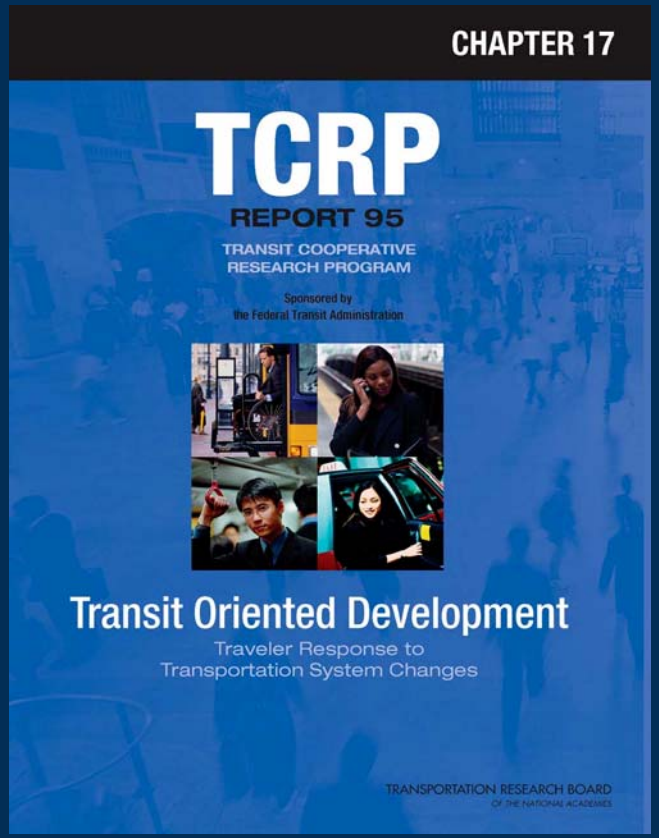
- End Notes



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Types of TOD
Definitional Dimensions

We selected three dimensions that significantly characterize TODs and along which traveler response varies

- **Regional context**
  - **City Center ←→ Suburban**
- **Land use mix**
  - **Less Diverse ←→ More Diverse**
- **Primary transit mode**
  - **Heavy Rail, Commuter Rail, Light Rail**
  - **Bus Rapid Transit, Traditional Bus**

Types of TOD
TOD Index

We developed a TOD Index

- A construct for potentially characterizing "TOD-ness" in models
- Divided attributes into "essential indicators" and "supporting indicators"
- Case study presented with very basic construct

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Types of TOD
TOD Index

- Among the key indicators
  - Centrally located transit with walking distances no more than 1/4 to 1/2 mile
  - Superior walkability with small blocks and pedestrian traffic management priority
  - Extended hours of highly-reliable transit service at 5 to 15 minute intervals
  - Land use mix to meet daily needs paired with good transit connectivity to other activities
  - Density sufficient to support cost-effective transit, retail services, and infrastructure
  - Managed parking with reduced supply relative to standard development

Presentation Outline

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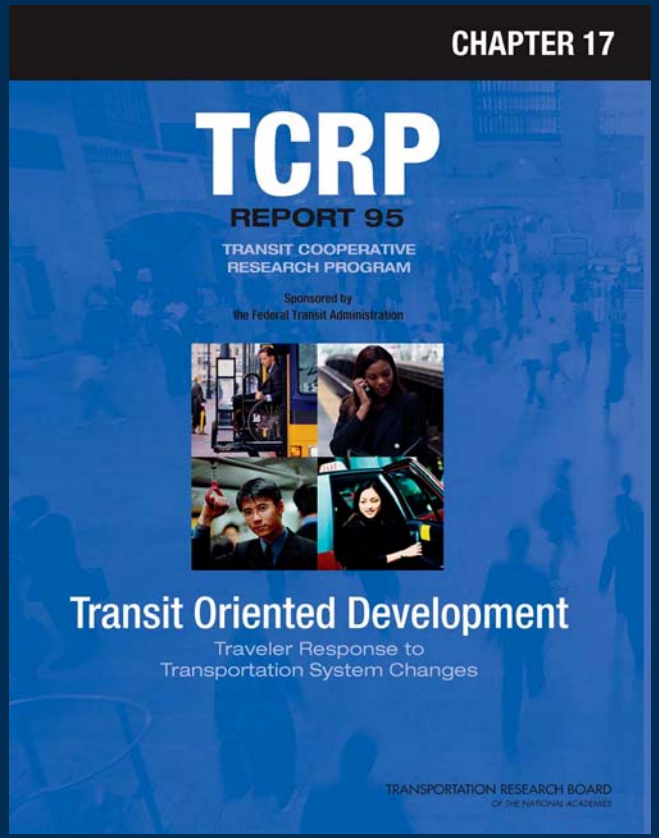

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Traveler Response Summary
Ridership Gains from TOD

- TOD concentrates trip ends around transit stations resulting in *more transit ridership* even if TOD transit mode shares were the same as those produced by conventional development
- TOD *transit shares are typically higher* – and automobile mode shares are lower – than for non-TOD due to the special transit-usage-supportive attributes of TOD
- *Few actual examples* of ridership gains that can be clearly attributed to TOD implementation because of the many sources of ridership and multiple confounding factors typically present
- We provide examples in the chapter from many areas and transit systems in the U.S.

Traveler Response Summary
Mode of Transit Access

- TOD positions large numbers of transit riders close enough to their transit stop that they can and will walk to it in preference to auto use for the access mode
- The greater the concentration of transit trip generation within station areas, the higher a station's overall walk access share will tend to be
- TOD residents were found to be generally associated with lower automobile ownership rates

Traveler Response Summary
Vehicle Trips and VMT

- The degree to which TOD can reduce vehicle trips and vehicle miles of travel (VMT) from a regional perspective is poorly established
- The seemingly ideal measure would be the change in travel choices made by individual TOD residents when they move and settle in, but very few studies were encountered that provide comprehensive observations
- VMT itself has not generally been an observable measure (usually model derived) creating further problems with drawing conclusions in this area

Traveler Response Summary
Influencing Factors

- Several interactive factors contribute to traveler response
  - Land use and site design
  - Automobile ownership
  - Relative transit and highway accessibility
  - Parking supply
  - Parking pricing
  - Transit support
  - Self-selection of residents
- More than just good transportation policy required to develop high-quality and effective TOD

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Traveler Response Summary
Self-Selection and TOD

- Attraction of "transit oriented residents" to TOD housing has been dubbed "self selection"
- Could higher transit mode shares normally observed in TODs simply result from self selection? If so, then TOD would not cause increased transit use from a regionwide perspective
- Modest proportions of TOD residents surveyed made their housing choice with good transit use opportunities as one of their top reasons
- For there to be no increase in regional transit use going forward, the transit usage of TOD individuals must — on average — not change overall with the level of TOD
- TOD resident self-selection could be a positive force in reducing regional auto travel and enhancing ridership

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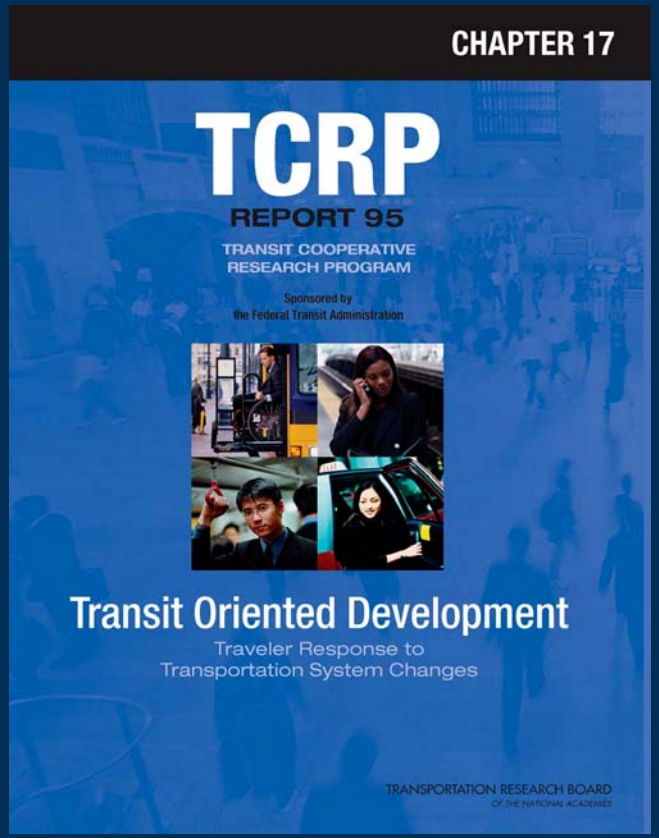

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End Notes

- **Chapter 17 Authorship**
  - Lead Authors – Jay Evans, Dick Pratt
  - Contributing Authors – Andrew Stryker, Rich Kuzmyak
- **Getting the Handbook**
  - TRB website – Type “TCRP Report 95” in search box
  - Free download of PDF versions
  - Purchase hardcopy from TRB Bookstore
  - Free hardcopy via APTA’s www.tcrponline.org
  - Chapter 17 was published August 1, 2007

Additional Information

Handbook Usage
Important Considerations

- Concept of elasticity
- Degree-of-confidence issues
- Impact assessment methods
- Demographic considerations

RRD #61 (Interim Chapter 1)

Transit Cooperative Research Program

Sponsored by the Federal Transit Administration

RESEARCH RESULTS DIGEST

September 2003—Number 61

Subject Areas: IA Planning and Administration, IVA Highway Operations, Capacity and Traffic Control, VI Public Transit

Responsible Senior Program Officer: Stephan A. Parker

Traveler Response to Transportation System Changes:

An Interim Introduction to the Handbook

This TCRP Digest is one of a series of products from TCRP Projects B-12, B-12A, and B-12B, "Updating the 'Traveler Response to Transportation System Changes' Handbook (DOT-FH-11-9379)." This digest was written by Richard H. Pratt.

The objective of this project is to develop an up-to-date and expanded sourcebook on how travel demand is affected by transportation system changes and built environment options. This digest is structured to serve as an "Interim Introduction" for the evolving Traveler Response Handbook, replacing Chapter 1, "Introduction" of the "Interim Handbook" (available as *TCRP Web Document 12*), and facilitating the transition to final multi-volume publication as *TCRP Report 95*.

This digest describes the Traveler Response Handbook, contains the publication schedule and information on availability, provides guidance to the prospective Handbook user, and includes two Handbook appendices. It should be saved for use with the printed chapters as they become available. The "Traveler Response to Transportation System Changes" Handbook update is being prepared by Richard H. Pratt, Consultant, Inc., in association with the Texas Transportation Institute; Jay Evans Consulting LLC; Parsons Brinckerhoff Quade & Douglas, Inc.; Cambridge Systematics, Inc.; J. Richard Kuzmyak, L.L.C.; SG Associates, Inc.; Gallop Corporation; McCollom Management Consulting, Inc.; Herbert S. Levinson, Transportation Consultant; and K.T. Analytics, Inc.

CONTENTS

Chapter 14 is the first of 19 stand-alone chapters to be published as TCRP Report 95.

TRANSPORTATION RESEARCH BOARD
OF THE NATIONAL ACADEMIES

CAMBRIDGE SYSTEMATICS

Handbook Organization
General Sections and Topic Area Chapters with Status

- Ch 1 – Introduction (with Appendices A, B)
- **Multimodal/intermodal facilities**
  - Ch 2 – HOV Facilities
  - Ch 3 – Park-and-Ride and Park-and-Pool
- **Transit facilities and services**
  - Ch 4 – Busways, BRT, and Express Bus
  - Ch 5 – Vanpools and Buspools
  - Ch 6 – Demand Responsive/ADA
  - Ch 7 – Light Rail Transit
  - Ch 8 – Commuter Rail
- **Public transit operations**
  - Ch 9 – Transit Scheduling and Frequency
  - Ch 10 – Bus Routing and Coverage
  - Ch 11 – Transit Information and Promotion

Color Key

Final Published

Interim Published

Not Yet Published

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Handbook Organization
General Sections and Topic Area Chapters with Status (continued)

- Transportation pricing
  - Ch 12 – Transit Pricing and Fares
  - Ch 13 – Parking Pricing and Fees
  - Ch 14 – Road Value Pricing
- Land use and non-motorized travel
  - Ch 15 – Land Use and Site Design
  - Ch 16 – Pedestrian and Bicycle Facilities
  - Ch 17 – Transit Oriented Development
- Transportation demand management
  - Ch 18 – Parking Management and Supply
  - Ch 19 – Employer and Institutional TDM Strategies

Color Key

Final Published

Not Yet Published

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