

CHAPTER 16, Pedestrian and Bicycle Facilities; TCRP REPORT 95, Traveler Response to Transportation System Changes; is now in the TRB publication process. Release is estimated for the second half of 2012 (check www.trb.org/TRBNet/ProjectDisplay.asp?ProjectID=1034 for status). Chapter 16 may be the most comprehensive effort to date to consolidate what is known about pedestrian and bicycle facility, policy, and promotion impacts on choice of walking and cycling as a transportation mode and means of health-supporting exercise. (An outline follows.) While not “light reading” in any sense of the word, with 540 pages and sources from Aarts to Zwerts, it should provide a strong basis for informed advice and follow-on information dissemination by both the transportation and public health professional communities. (Photographs to illustrate chapter topics including use of the facility types covered are solicited – please email recommended photos or links to Dick Pratt at rhpratt@his.com with permission for TRB use.)

OVERVIEW AND SUMMARY

Objectives of Pedestrian and Bicycle

Improvements

Types of Pedestrian and Bicycle

Improvements/Programs

Analytical Considerations

National and Regional NMT Data

Facility Counts and Research Surveys

Trip Purpose Versus Motivation

NMT Modeling and Research Procedures

Traveler Response Summary

RESPONSE BY TYPE OF NMT STRATEGY

Sidewalks and Along-Street Walking

Pedestrian Volumes Overview

Individual Sidewalk Provision Examples

Sidewalk Indirectness Effects

Sidewalk Coverage and Traffic Conditions

Residential and Mixed-Use Traffic Calming

Sidewalks and Traffic Calming for Business

Districts

Sidewalk Use by Bicyclists

Street Crossings

Crosswalks and Traffic Controls

Pedestrian and Bicycle Grade Separations

Pedestrian Zones, Malls, and Skywalks

Pedestrian Zones and Malls

Pedestrian Skywalks

Bicycle Lanes and Routes

Popularity, Preferences, and Route Choice

Bicycle Lane Implementation

Bicycle Lane System Coverage

Bicycle Lane Variations, Bicycle Boulevards, and Other Signed Bicycle Routes

Shared Use, Off-Road Paths and Trails

Preferences, Route Choice, and

Walk/Bikesheds

Shared Use Path Implementation

Shared Use Path System Coverage

Pedestrian/Bicycle Systems and Interconnections

Overall Systems and System Expansions

River Bridges and Other Linkages

Pedestrian/Bicycle System Linkages with Transit

Non-Motorized Access to Transit

Transit Oriented Development

Bicycles on Transit Vehicles

Point-of-Destination Facilities

Bicycle Parking and Changing Facilities

Other Destination Amenities

Bikesharing

Pedestrian/Bicycle Friendly Neighborhoods

Density

Diversity

Design

Other “D’s”

Overall Neighborhood Environment

The Built Environment and Child Walking and Bicycling

Walk Elasticities for Land Use and Site

Design Parameters

Non-Motorized Transportation Policies and Programs

New World Program Examples

European Programs and Comparisons

Schoolchild-Focused Programs

Pedestrian/Bicycle Promotion and Information

Transportation Mode Shift Promotions

Individualized Marketing

Physical Activity Promotions and

Interventions

UNDERLYING TRAVELER RESPONSE FACTORS

Behavioral Paradigms

Derived Versus Direct-Benefit Demand

A Combined Mode Choice Decision Paradigm

Differential Sensitivities Among Different Choice Categories
The Travel Choice Making of and for Children

Environmental Factors
Natural Environment
System Environment
Surroundings Environment

Trip Factors
Walk Trip Distance, Time, and Route Characteristics
Bicycle Trip Distance, Time, and Route Characteristics
Travel Cost
Trip Purpose
Schoolchild Trip Factors

User Factors
Multidimensional User Characteristics
Gender
Age
Income
Automobile Ownership
Education
Ethnicity

Other Factors and Factor Combinations
Security and Safety
University Affiliation
Factor Combinations Involving Trip Purpose
Attitudes and Modal Biases

Choice of Neighborhood / Self-Selection
Self-Selection Investigations
Neighborhood Preference Matches and Mismatches
Working with Self-Selection

RELATED INFORMATION AND IMPACTS
Extent of Walking and Bicycling
Extent of Walking
Extent of Bicycling

Characteristics of Walking and Cycling
Overall
Trip Distance and Duration
Trip Purposes
User Characteristics

Facility Usage and User Characteristics
Frequency of Facility Usage by Facility Type
Sidewalks and Streets in Suburbs and City Neighborhoods
Sidewalks and Other Provisions in Major Central Business Districts
On-Street Bicycle Facilities
Off-Road Shared Use Paths

Travel Behavior Shifts
Prior or Alternative Modes of New Facility Users
Mode Shares "Before and After"

Time to Establish Facility Use
Motorized Transportation and NMT Experience Compared
Melbourne St. Kilda Road Bike Lanes
Seattle Burke-Gilman/Sammamish River Trails

Safety Information and Comparisons
Pedestrian and Bicyclist Safety Highlights
Foreign Versus U.S. Safety Comparisons
Facility Type Safety Comparisons
Other Traffic Safety Issues and Findings

Public Health Issues and Relationships
Baseline Walking and Bicycling Activity
Health Benefits for Adults of Enhanced NMT Systems and Policies
Health Benefits for Children of Enhanced NMT Systems and Policies
Tradeoffs Between Health Benefits and Crash/Pollution Disbenefits
Adult and Child Public Health Relationships Summary

Traffic, Energy, and Environmental Relationships
Driving Avoidance Estimates
Facility and Project Impacts
Program Impact Model Findings

Economic and Equity Impacts
Societal Economic Impacts
Land Value and Commerce Impacts
Equity Issues

ADDITIONAL RESOURCES
CASE STUDIES
Special Mini-Studies in Montgomery County, Maryland
Pedestrian Activity Effects of Neighborhood Site Design – Seattle
50 Years of Downtown NMT Facility Provisions – Minneapolis
Bicycle Lanes in the Downtown Area – Toronto
Anderson Road Bicycle Lanes – Davis, California
Six Urban, Suburban, and Semi-Rural Trails – Indiana Trails Study
Variations on Individualized Marketing in the North West United States

REFERENCES