Traffic Control Systems Handbook

This book provides comprehensive information needed to assist with all aspects of designing, delivering, or evaluating transportation systems for use by older adults, and presents the necessary background on aging and human factors issues as well as practical guidelines needed to accommodate older adult transport users. Features: Presents clear design guidance aimed at improving usability among older adults, a too often neglected but fast-growing segment of the transportation system population. Includes comprehensive coverage of transportation systems, including the notably important issue of older drivers, but also additional transportation forms including public transportation via bus and subway, air transport, rail, bicycle, and even pedestrians. Offers numerous examples throughout of best practices based on both the scientific literature and the content expertise of the authors. Discusses practical implications of incorporating the recommended design principles for both older adults and other transport system users. Provides useful background about normal age-related changes in sensory, cognitive, and physical abilities that impact older adults and how they interact with transportation systems.

Geometric Design of Roads Handbook

Borough News

Speeding is the number one road safety problem in a large number of OECD/ECMT countries. It is responsible for around one third of the current, unacceptably high levels of road fatalities. Speeding has an impact not only on accidents but also on the

Driver Expectancy in Highway Design and Traffic Operations

This Special Issue consists of seven papers that discuss how to enhance mobility management and its associated performance in the mobile-oriented future Internet (MOFI) environment. The first two papers deal with the architectural design and experimentation of mobility management schemes, in which new schemes are proposed and real-world testbed experiments are performed. The subsequent three papers focus on the use of software-defined networks (SDN) for effective service provisioning in the MOFI environment, together with real-world practices and testbed experiments. The remaining two papers discuss the network engineering issues in newly emerging mobile networks,
such as flying ad-hoc networks (FANET) and connected vehicular networks.

NCHRP Synthesis 432

This guide provides a single, comprehensive document with methods for evaluating the safety and operations of signalized intersections and tools to remedy deficiencies. The treatments in this guide range from low-cost measures such as improvements to signal timing and signage, to high-cost measures such as intersection reconstruction or grade separation. Topics covered include fundamental principles of user needs, geometric design, and traffic design and operation; safety and operational analysis techniques; and a wide variety of treatments to address existing or projected problems, including individual movements and approaches, pedestrian and bicycle treatments, and corridor techniques. It also covers alternative intersection forms that improve intersection performance through the use of indirect left turns and other treatments. Each treatment includes a discussion of safety, operational performance, multimodal issues, and physical and economic factors that the practitioner should consider. Although the guide focuses primarily on high-volume signalized intersections, many treatments are applicable for lower volume intersections as well. The information contained in this guide is based on the latest research available on treatments and best practices in use by jurisdictions across the United States. Additional resources and references are highlighted for the student, practitioner, researcher, or decisionmaker who wishes to learn more about a particular subject.

Roadway Lighting Design Guide

Signalized Intersections

This handbook, which was developed in recognition of the need for the compilation and dissemination of information on advanced traffic control systems, presents the basic principles for the planning, design, and implementation of such systems for urban streets and freeways. The presentation concept and organization of this handbook is developed from the viewpoint of systems engineering. Traffic control studies are described, and traffic control and surveillance concepts are reviewed. Hardware components are outlined, and computer concepts, and communication concepts are stated. Local and central controllers are described, as well as display, television and driver information systems. Available systems technology and candidate system definition, evaluation and implementation are also covered. The management of traffic control systems is discussed.

NCHRP Report 659

Highway capacity manual 2010

Highway Engineering: Planning, Design, and Operations, Second Edition, presents a clear and rigorous exposition of highway engineering concepts, including project development and the relationship between planning, operations, safety and highway types. The book includes important topics such as corridor selection and traverses, horizontal and vertical alignment, design controls, basic roadway design, cross section elements, intersection and interchange design, and the integration of new vehicle technologies and trends. It also presents end of chapter exercises to further aid understanding and learning. This edition has been fully updated with the current design policies and reference manuals essential for highway, transportation, and civil engineers who are required to work to these standards. Provides an updated resource on current design standards from the Highway Capacity Manual and the Green Book. Covers fundamental traffic flow relationships and traffic impact analysis, collision analysis, road safety audits and advisory speeds. Presents the latest applications and engineering considerations for highway planning, design and construction.
Superstreet Benefits and Capacity

The definitive transportation engineering resource—fully revised and updated. The two-volume Handbook of Transportation Engineering, Second Edition offers practical, comprehensive coverage of the entire transportation engineering field. Featuring 18 new chapters and contributions from nearly 70 leading experts, this authoritative work discusses all types of transportation systems—freight, passenger, air, rail, road, marine, and pipeline—and provides problem-solving engineering, planning, and design tools and techniques with examples of successful applications. Volume II focuses on applications in automobile and non-automobile transportation, and on safety and environmental issues. VOLUME II COVERS: Traffic engineering analysis Traffic origin-destination estimation Traffic congestion Highway capacity Traffic control systems: freeway management and communications Traffic signals Highway sign visibility Transportation lighting Geometric design of streets and highways Intersection and interchange design Pavement engineering: flexible and rigid pavements Pavement testing and evaluation Bridge engineering Tunnel engineering Pedestrians Bicycle transportation Spectrum of automated guideway transit (AGT) and its applications Railway vehicle engineering Railway track design Improvement of railroad yard operations Modern aircraft design techniques Airport design Air traffic control systems design Ship design Pipeline engineering Traffic safety Transportation hazards Hazardous materials transportation Incident management Network security and survivability Optimization of emergency evacuation plans Transportation noise issues Air quality issues in transportation Transportation and climate change

Median Intersection Design

"Since the publication of the first edition of the Access Management Manual, the context for transportation planning and roadway design in the United States has been transformed. Transportation agencies and local governments are under growing pressure to integrate land use and transportation policy and achieve a more sustainable, energy-efficient transportation system. This second edition of the manual responds to these developments by addressing access management comprehensively, as a critical part of network and land use planning. The content is interdisciplinary, with guidance pertinent to various levels of government as well as to pedestrians, bicyclists, and motorized vehicles, including trucks and buses, and is strongly grounded in decades of research, engineering science, and professional experience. Greater emphasis is placed on appropriate location of access, and guidance is refined to provide appropriate consideration of context and community issues. Substantial updates aid state and local agencies in managing access to corridor development effectively. Specific guidance on network and circulation planning and modal considerations is included, as well as guidance on effective site access and circulation design. A chapter on corridor management reinforces these concepts with a framework for application of access management in different contexts, along with appropriate strategies for each context. There are also new chapters on network planning, regional access management policies and programs, interchange area access management, auxiliary lane warrants and design, and right-of-way and access control. The manual concludes with an extensive menu of access management techniques and information on their application"--Provided by publisher.

Impacts of Access Management Techniques

NACTO’s Urban Bikeway Design Guide quickly emerged as the preeminent resource for designing safe, protected bikeways in cities across the United States. It has been completely re-designed with an even more accessible layout. The Guide offers updated graphic profiles for all of its bicycle facilities, a subsection on bicycle boulevard planning and design, and a survey of materials used for green color in bikeways. The Guide continues to build upon the fast-changing state of the practice at the local level. It responds to and accelerates innovative
Where To Download Median U Turn Intersection Informational Guide Safety

street design and practice around the nation.

Safety of U-turns at Unsignalized Median Openings

Expectancy relates to a driver's readiness to respond to situations, events, and information in predictable and successful ways. This report describes the concept of driver expectancy in the context of the driving task, and provides examples of expectancy and expectancy violations. It includes a procedure for identifying general and specific expectancy violations to enable engineers to develop remedial treatments to deal with expectancy problems.

Highway Engineering

“TRB’s National Cooperative Highway Research Program (NCHRP) Report 780: Design Guidance For Intersection Auxiliary Lanes expands on guidance provided in A Policy on Geometric Design of Highways and Streets (the Green Book), published by the American Association of State Highway and Transportation Officials (AASHTO). This report highlights information regarding bypass lanes, channelized right-turn lanes, deceleration and taper length, design and capacity of multiple left-turn lanes, and alternative intersection designs.”--Publisher description.


Design Guidance for Intersection Auxiliary Lanes

Speed Management

A Policy on Geometric Design of Highways and Streets

Research & Technology Transporter

NCHRP Report 524

Explore the Art and Science of Geometric Design The Geometric Design of Roads Handbook covers the design of the visible elements of the road—its horizontal and vertical alignments, the cross-section, intersections, and interchanges. Good practice allows the smooth and safe flow of traffic as well as easy maintenance. Geometric design is covered in depth. The book also addresses the underpinning disciplines of statistics, traffic flow theory, economic and utility analysis, systems analysis, hydraulics and drainage, capacity analysis, coordinate calculation, environmental issues, and public transport. Background Material for the Practicing Designer A key principle is recognizing what the driver wishes to do rather than what the vehicle can do. The book takes a human factors approach to design, drawing on the concept of the “self-explaining road.” It also emphasizes the need for consistency of design and shows how this can be quantified, and sets out the issues of the design domain context, the extended design domain concept, and the design exception. The book is not simply an engineering manual, but properly explores context-sensitive design. Discover and Develop Real-World Solutions Changes in geometric design over the last
The past few years have been dramatic and far-reaching and this is the first book to draw these together into a practical guide which presents a proper and overriding philosophy of design for road and highway designers, and students. This text: Covers the basics of geometric design Presents additional references for further reading A practical guide for graduate students taking geometric design, traffic operations/capacity analysis, and public transport, the Geometric Design of Roads Handbook introduces a novel approach that addresses the human aspect in the design process and incorporates relevant concepts that can help readers create and implement safe and efficient designs.

Traffic Engineering Handbook

Get a complete look into modern traffic engineering solutions Traffic Engineering Handbook, Seventh Edition is a newly revised text that builds upon the reputation as the go-to source of essential traffic engineering solutions that this book has maintained for the past 70 years. The updated content reflects changes in key industry standards, and shines a spotlight on the needs of all users, the design of context-sensitive roadways, and the development of more sustainable transportation solutions. Additionally, this resource features a new organizational structure that promotes a more functionally-driven, multimodal approach to planning, designing, and implementing transportation solutions. A branch of civil engineering, traffic engineering concerns the safe and efficient movement of people and goods along roadways. Traffic flow, road geometry, sidewalks, crosswalks, cycle facilities, shared lane markings, traffic signs, traffic lights, and more—all of these elements must be considered when designing public and private sector transportation solutions. Explore the fundamental concepts of traffic engineering as they relate to operation, design, and management. Access updated content that reflects changes in key industry-leading resources, such as the Highway Capacity Manual (HCM), Manual on Uniform Traffic Control Devices (MUTCD), AASHTO Policy on Geometric Design, Highway Safety Manual (HSM), and Americans with Disabilities Act. Understand the current state of the traffic engineering field. Leverage revised information that homes in on the key topics most relevant to traffic engineering in today's world, such as context-sensitive roadways and sustainable transportation solutions. Traffic Engineering Handbook, Seventh Edition is an essential text for public and private sector transportation practitioners, transportation decision makers, public officials, and even upper-level undergraduate and graduate students who are studying transportation engineering.

A Policy on Design Standards–Interstate System


Research & Technology Transporter

TRB's National Cooperative Highway Research Program (NCHRP) Report 672: Roundabouts: An Informational Guide - Second Edition explores the planning, design, construction, maintenance, and operation of roundabouts. The report also addresses issues that may be useful in helping to explain the trade-offs associated with roundabouts. This report updates the U.S. Federal Highway Administration's Roundabouts: An Informational Guide, based on experience gained in the United States since that guide was published in 2000.

Roundabouts

Alternative Intersections/Interchanges
This research evaluated operational, safety, and perceived effects of superstreets, called restricted crossing U-turn intersections by FHWA, and developed a useful level of service (LOS) estimation program which could be used on North Carolina's urban and rural arterial roadway system. The operational analysis involved calibrating and validating VISSIM models of three existing signalized superstreets in North Carolina: two isolated intersections, and one five-intersection superstreet corridor. Results from the three models were compared to results from models of equivalent conventional intersections at various volume levels using travel time as the main measure of effectiveness.

NCHRP Report 562

Median U-turn Intersection Informational Guide

Median U-Turn Informational Guide

A Guide for Achieving Flexibility in Highway Design

NC 109 Improvements Study from Old Greensboro Road (SR 1798) to I-40/US 311, Davidson and Forsyth Counties

Designing Transportation Systems for Older Adults

This report serves as a comprehensive guide to traffic signal timing and documents the tasks completed in association with its development. The focus of this document is on traffic signal control principles, practices, and procedures. It describes the relationship between traffic signal timing and transportation policy and addresses maintenance and operations of traffic signals. It represents a synthesis of traffic signal timing concepts and their application and focuses on the use of detection, related timing parameters, and resulting effects to users at the intersection. It discusses advanced topics briefly to raise awareness related to their use and application. The purpose of the Signal Timing Manual is to provide direction and guidance to managers, supervisors, and practitioners based on sound practice to proactively and comprehensively improve signal timing. The outcome of properly training staff and proactively operating and maintaining traffic signals is signal timing that reduces congestion and fuel consumption ultimately improving our quality of life and the air we breathe. This manual provides an easy-to-use concise, practical and modular guide on signal timing. The elements of signal timing from policy and funding considerations to timing plan development, assessment, and maintenance are covered in the manual. The manual is the culmination of research into practices across North America and serves as a reference for a range of practitioners, from those involved in the day to day management, operation and maintenance of traffic signals to those that plan, design, operate and maintain these systems.

Guide for the Planning, Design, and Operation of Pedestrian Facilities

The HCM 2010 significantly enhances how engineers and planners assess the traffic and environmental effects of highway projects by: Providing an integrated multimodal approach to the analysis and evaluation of urban streets from the points of view of automobile drivers, transit passengers, bicyclists, and pedestrians; Addressing the proper application of microsimulation analysis and the evaluation of the results; Examining active traffic management in relation to demand and capacity; and Exploring specific tools and generalized service
volume tables to assist planners in quickly sizing future facilities. The four-volume format provides information at several levels of detail, to help users more easily apply and understand the concepts, methodologies, and potential applications.

Roadside Design Guide

A Policy on Geometric Design of Highways and Streets, 2011

This document provides information and guidance on Median U-Turn (MUT) intersections, resulting in designs suitable for a variety of typical conditions commonly found in the United States. To the extent possible, the guide provides information on the wide array of potential users as it relates to the intersection form. This guide provides general information, planning techniques, evaluation procedures for assessing safety and operational performance, design guidelines, and principles to be considered for selecting and designing MUT intersections.

Access Management Manual

Transportation professionals today are challenged to meet the mobility needs of an increasing population with limited resources. At many highway junctions, congestion continues to worsen. Drivers, pedestrians, and bicyclists experience longer delays and greater exposure to risk. Current traffic and safety problems are more complex and complicated. Conventional intersection/interchange designs are sometimes found to be insufficient to mitigate transportation problems. Consequently, many engineers are investigating and implementing innovative treatments in an attempt to think outside the box. This report covers four intersection designs and two interchange designs that may offer additional benefits compared to conventional at grade intersections and grade separated diamond interchanges. The six alternative treatments covered in this report are displaced left turn (DLT) intersections, restricted crossing U turn (RCUT) intersections, median U turn (MUT) intersections, quadrant roadway (QR) intersections, double crossover diamond (DCD) interchanges, and DLT interchanges. The information presented in this report provides knowledge of each of the six alternative treatments including salient geometric design features, operational and safety issues, access management issues, costs, and construction sequencing and applicability.

Geometric design practices for European roads

Mobile Oriented Future Internet (MOFI)

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