



GUIDE FOR GEOMETRIC DESIGN OF TRANSIT FACILITIES ON HIGHWAYS AND STREETS

July 2014

AMERICAN ASSOCIATION OF
STATE HIGHWAY AND
TRANSPORTATION OFFICIALS

AASHTO
THE VOICE OF TRANSPORTATION



GUIDE FOR GEOMETRIC DESIGN OF TRANSIT FACILITIES ON HIGHWAYS AND STREETS

July 2014

AMERICAN ASSOCIATION OF
STATE HIGHWAY AND
TRANSPORTATION OFFICIALS
AASHTO
THE VOICE OF TRANSPORTATION

This is a preview. [Click here to purchase the full publication.](#)



444 North Capitol Street, NW, Suite 249

Washington, DC 20001

202-624-5800 phone/202-624-5806 fax

www.transportation.org

© 2014 by the American Association of State Highway and Transportation Officials. All rights reserved.
Duplication is a violation of applicable law.

Publication Code: TVF-1

ISBN: 978-1-56051-522-7

This is a preview. [Click here to purchase the full publication.](#)

ACKNOWLEDGMENTS

AASHTO would like to thank the following panel members for their contribution to this publication. (Employer information is as of the time of their participation on the panel.)

- TCRP D-09
 - John D. Wilkins, New Jersey Transit
 - Manjiri G. Akalkotkar, CEPT University
 - Philip J. Clark, New York State DOT
 - Dennis G. Dal Santo, Illinois DOT
 - Amy W. Datz, Florida DOT
 - Katharine M. Hunter-Zaworski, Oregon State University
 - Peter C. Martin, Wilbur Smith Associates
 - Hak-Chul Shin, Jackson State University
 - Robert C. Schlicht, Federal Highway Administration
 - Terrell Williams, Federal Transit Administration
 - James T. McDonnell, AASHTO
 - Stephen Maher, Transportation Research Board
 - David H. Clawson, AASHTO
 - Gwen Chisholm-Smith, Transportation Research Board
- Practitioner Review Panel for the TCRP Project
 - Lloyd Smith, Metropolitan Transit Authority of Harris County, Houston, Texas
 - John LaPlante, TYLin International
 - Sam Schwartz, Sam Schwartz Company
 - Ellen Bevington, Metro Transit, King County, Washington
 - Lee Goodman, Consultant
 - Tom Callow, City of Phoenix
 - Gerard Sofian, New York City DOT
 - Joe Palladi, Georgia DOT
 - Koorosh Olyai, Dallas Area Rapid Transit
 - Michael Ronkin, Oregon DOT
 - Bill James, HNTB
- Maurice Palumbo, Golden Gate Bridge, Highway and Transportation District
- Rich Feder, Port Authority of Allegheny County
- Doug Lowe, Caltrans
- Bill Menzies, Winnipeg
- Kornel Musci, City of Ottawa
- NCHRP 20-7, Task 135
 - Howard P. Benn, Montgomery County (MD) Transit
 - Carla L. Cefaratti, Ohio DOT
 - Philip J. Clark, Bergmann Associates
 - Edward R. Coven, Florida DOT
 - Elizabeth Hilton, Texas DOT
 - Robert C. Schlicht, Federal Highway Administration
 - Sam Carnaggio, Metropolitan Washington Airports Authority
 - Harvey Berlin, NCHRP
 - James T. McDonnell, AASHTO
- NCHRP 20-7, Task 296
 - Neil Boudreau, Massachusetts DOT
 - Rick Bruce, Ohio DOT
 - Maurice Palumbo, Golden Gate Bridge, Highway and Transportation District
 - Brooke Struve, Federal Highway Administration
 - Barton A. Thrasher, Virginia DOT
 - Stephen W. Warren, Connecticut Transit
 - Keith Platte, AASHTO

With special thanks to Richard Coakley, P.E., PTOE, Principal Transportation Engineer at CH2M Hill for his assistance in completing production of this publication.

**AMERICAN ASSOCIATION OF STATE HIGHWAY AND
TRANSPORTATION OFFICIALS
Executive Committee
2013–2014**

Officers:

President: Mike Hancock, Kentucky

Vice President: John Cox, Wyoming

Secretary-Treasurer: Carlos Braceras, Utah

Executive Director: Bud Wright, Washington, D.C.

Regional Representatives:

REGION I:

Chris Clement, New Hampshire

Shailen Bhatt, Delaware

REGION II:

Sherri LeBas, Louisiana

John Schroer, Tennessee

REGION III:

Paul Trombino, Iowa

Ann L. Schneider, Illinois

REGION IV:

John Halikowski, Arizona

Malcolm Dougherty, California

IMMEDIATE PAST PRESIDENT:

Michael P. Lewis, Rhode Island

SUBCOMMITTEE ON DESIGN
Barry Schoch, Pennsylvania, Chair
Richard Land, California, Vice Chair
FHWA, Secretary
Greta Smith, AASHTO, Staff Liaison

Members

Alabama	William F. Adams Rex Bush William C. Kelly
Alaska	Mark Jerome Neidhold Robert A. Campbell
Arizona	Dallas L. Hammit
Arkansas	Mike D. Fugett
California	Terry L. Abbott Kevin E. Hanley
Colorado	Richard Zamora
Connecticut	Timothy Wilson William Britnell James H. Norman
Delaware	Mark C. Tudor Brian Thad McIlvaine
District of Columbia	Muhammed Khalid
Florida	Frank Timothy Sullivan
Georgia	Brent Story C. Andy Casey Russell R. McMurry
Hawaii	Julius B. Fronda
Idaho	Loren Thomas Monica L. Crider
Illinois	Scott E. Stitt
Indiana	John E. Wright Jeff Clanton
Iowa	Michael J. Kennerly Deanna L. Maifield
Iowa	Christopher C. Poole
Kansas	Rodney D. Lacy James O. Brewer
Kentucky	Robert K. Caudill Jeff D. Jasper Bradley S. Eldridge
Louisiana	Nick Kalivoda III Chad Winchester

Members

Maine	Bradford P. Foley Heath E. Cowan
Maryland	Kirk G. McClelland Eric E. Marabello
Massachusetts	Stanley W. Wood
Michigan	Bradley C. Wieferich
Minnesota	Michael T. Ginnaty Jon M. Chiglo
Mississippi	John M. Reese Amy Mood Richard Pittman
Missouri	Eric Schroeter Kathy Harvey
Montana	Lesly Tribelhorn Paul Ferry
Nebraska	Ted Watson James J. Knott
Nevada	Paul M. Frost
New Hampshire	William J. Oldenburg
New Jersey	Richard G. Jaffe
New Mexico	Gabriela C. Apodaca
New York State	Daniel D'Angelo Richard W. Lee
North Carolina	Debbie M. Barbour Art McMillan Jay A. Bennett
North Dakota	Roger Weigel
Ohio	Dirk Gross James D. Young
Oklahoma	Timothy A. Tegeler
Oregon	David Joe Polly Steven R. Lindland
Pennsylvania	Barry Schoch
Puerto Rico	José E. Santana-Pimente Luis Santos
Rhode Island	Robert A Smith

Members

South Carolina	Mark Lester Mitchell D. Metts George R. Bedenbaugh, Jr.
South Dakota	Mike Behm Mark A. Leiferman
Tennessee	Jeff C. Jones Carolyn A. Stonecipher Ali R. Hangul
Texas	Mark Marek
Utah	Lisa J. Wilson Fred Doehring
Utah	George C. Lukes
Vermont	Kevin S. Marshia

Members

Virginia	Mohammad Mirshahi Barton A. Thrasher Robert H. Cary
Washington State	Pasco Bakotich Terry L. Berends Nancy Boyd
West Virginia	Gregory L. Bailey Jason C. Foster
Wisconsin	Jerry H. Zogg
Wyoming	Andrea Allen Sandra A. Pecenka Tony Laird

Associate Members

Alberta Transportation
Korea Expressway Corporation
New Jersey Turnpike Authority
Ontario Ministry of Transportation
Port Authority of New York and New Jersey
Saskatchewan Ministry of Highways and Infrastructure

Moh Lali
Chan-Su C. Reem
J. Lawrence Williams
Joe Bucik
Scott D. Murrell
Sukhy Kent

2003 TASK FORCE ON PUBLIC TRANSPORTATION FACILITIES DESIGN

- Michelle Martin, Maryland SHA
- Luisa Paiewonsky, Massachusetts Highway Department
- Robert Schlicht, FHWA
- Stephen Bates, Virginia DOT
- Joseph P. Palladi, Georgia DOT
- Michael Christensen, Minnesota DOT
- Antonette C. Clark, Caltrans
- Carlos A. Lopez, Texas DOT
- Dave McCormick, Washington State DOT
- Myron Swisher, Colorado DOT
- Dennis Christiansen, Texas Transportation Institute
- Chuck Fuhs, Parsons Brinckerhoff
- Jon Obenberger, FHWA

CONTENTS

CHAPTER 1 INTRODUCTION

1.1 PURPOSE AND SCOPE	1-2
1.2 AUDIENCE	1-2
1.3 ORGANIZATION OF GUIDELINES	1-2
1.4 USING THE GUIDE	1-3
1.5 REFERENCES	1-3

CHAPTER 2 PLANNING AND DECISION-MAKING

2.1 REGIONAL AND CORRIDOR PLANNING PROCESSES	2-2
2.2 INTEGRATING TRANSIT PROJECTS INTO ROADWAY PLANNING PROCESSES	2-12
2.3 SUMMARY	2-14
2.4 REFERENCES	2-15

CHAPTER 3 DESIGN PARAMETERS AND CONTROLS

3.1 TRANSIT VEHICLE CHARACTERISTICS AND CONTROLS	3-1
3.2 ROADWAY DESIGN CONTROLS AND CRITERIA	3-17
3.3 TRANSIT QUALITY OF SERVICE AND CAPACITY CONSIDERATIONS	3-23
3.4 TRANSIT OPERATIONS AND INFRASTRUCTURE	3-31
3.5 REFERENCES	3-33

CHAPTER 4 BUS FACILITIES ON LIMITED ACCESS HIGHWAYS

4.1 GENERAL PLANNING AND DESIGN CONSIDERATIONS	4-2
4.2 TREATMENTS	4-5
4.3 OPERATIONAL REQUIREMENTS	4-40
4.4 PROTECTING FUTURE NEEDS	4-49
4.5 REFERENCES	4-51

CHAPTER 5 GUIDELINES FOR BUS FACILITIES ON STREETS AND ROADWAYS

5.1 GENERAL PLANNING AND DESIGN CONSIDERATIONS	5-2
5.2 BUS STOP LOCATIONS AND DESIGN	5-9