



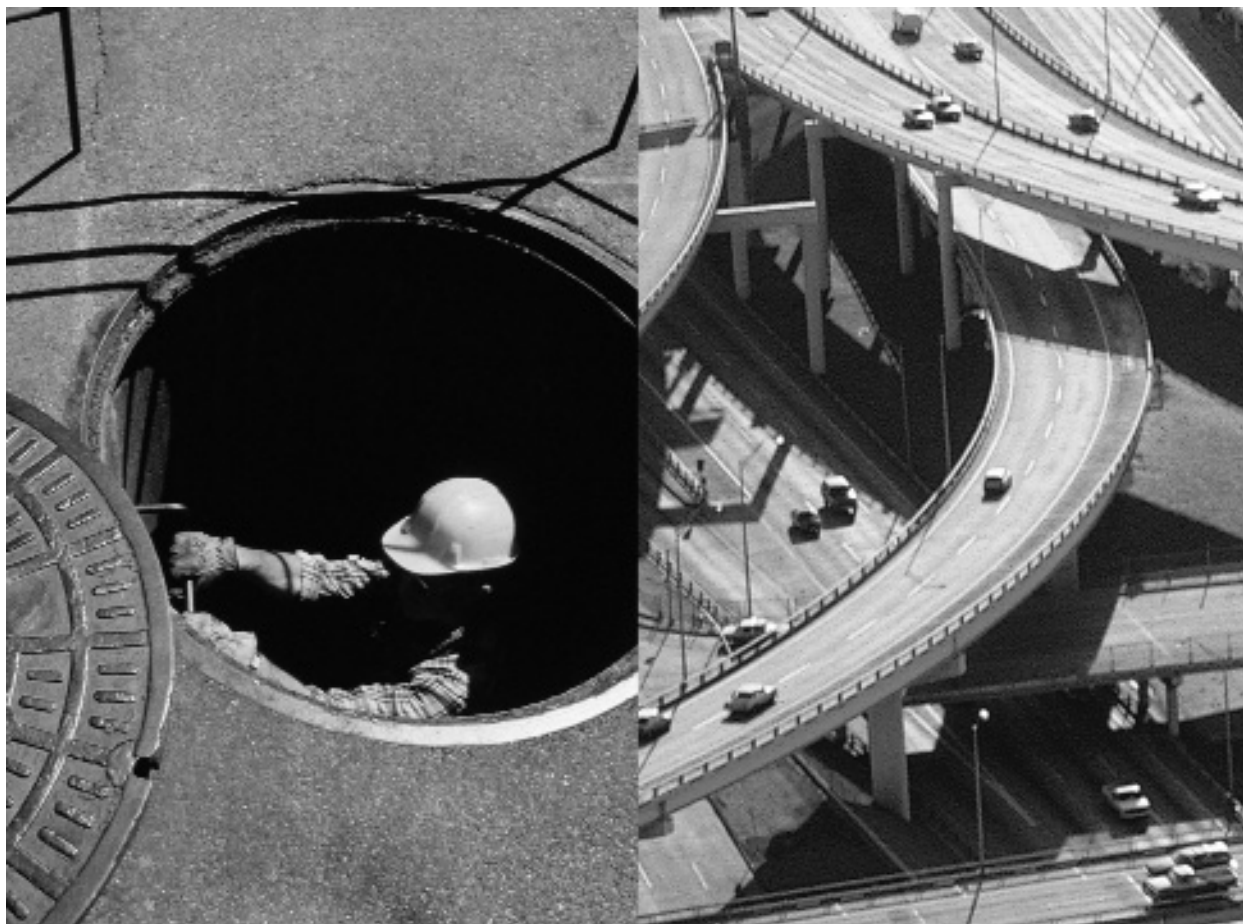
A Guide for

Accommodating Utilities Within Highway Right-of-Way

October 2005



American Association
of State Highway and
Transportation Officials



A Guide for

Accommodating Utilities Within Highway Right-of-Way

October 2005



American Association
of State Highway and
Transportation Officials

Prepared by the
AASHTO Technical Committee
on Geometric Design



Documents

Document Sharing Hub

© 2005 by the American Association of State Highway and Transportation Officials.
All rights reserved. Duplication is a violation of applicable law.

© 2005 by the American Association of State Highway and Transportation Officials.
All rights reserved. Duplication is a violation of applicable law.

ISBN: 1-56051-306-3

Publ Code: GAU-4

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS

EXECUTIVE COMMITTEE 2005–2006

VOTING MEMBERS

Officers:

President: Harold E. Linnenkohl, Georgia

Vice President: David Sprynczynatyk, North Dakota

Secretary-Treasurer: Larry M. King, Pennsylvania

Regional Representatives:

REGION I: Dan Tangherlini, District of Columbia, One-Year Term
Jim Capaldi, Rhode Island, Two-Year Term

REGION II: Harold Linnenkohl, Georgia, One-Year Term
Joe McInnes, Alabama, Two-Year Term

REGION III: Frank Busalacchi, Wisconsin, One-Year Term
Carol Molnau, Minnesota, Two-Year Term

REGION IV: David Sprynczynatyk, North Dakota, One-Year Term
Victor Mendez, Arizona, Two-Year Term

NONVOTING MEMBERS

Immediate Past President: Jack Lettiere, New Jersey

AASHTO Executive Director: John Horsley, Washington, DC

TECHNICAL COMMITTEE ON GEOMETRIC DESIGN 2004

Members

Robert L. Walters
Arkansas, Chair

William A. Prosser
Federal Highway Administration, Secretary

Jim McDonnell
AASHTO Liaison

Reza Amini
Oklahoma

Don T. Arkle
Alabama

Paul Bercich
Wyoming

Kenneth T. Briggs
Maryland

James O. Brewer
Kansas

Philip J. Clark
New York

David Hutchison
National League of Cities

Jeff C. Jones
Tennessee

Wayne Kinder
Nevada

John LaPlante
*American Public
Works Association*

Donald A. Lyford
New Hampshire

Reza Maleki
*Port Authority of
New York and
New Jersey*

Mark A. Marek
Texas

John Pickering
Mississippi

James Rosenow
Minnesota

Norman H. Roush
West Virginia

Joe Ruffer
*National Association
of County Engineers*

Larry Sutherland
Ohio

Karla Sutliff
California

Max Valerio
New Mexico

Ted Watson
Nebraska



HIGHWAY SUBCOMMITTEE ON DESIGN 2004

Chair

Allen D. Biehler
Pennsylvania

Vice Chair

Robert L. Walters
Arkansas

Secretary

Dwight A. Horne
FHWA

Liaison

Jim McDonnell
AASHTO

State Members

Alabama

Don T. Arkle, P.E.
Steven E. Walker, P.E.

Alaska

Gary Hogins, P.E.

Arizona

Mary Viparina

Arkansas

Charles D. Clements, P.E.
Phillip L. McConnell, P.E.

California

Mark Leja, P.E.

Colorado

Mithilesh "Mitch" Kumar
Gary W. Meacham

Connecticut

Arthur W. Gruhn
Michael W. Lonergan
James H. Norman

Delaware

Michael F. Balbierer
James M. Satterfield
Michael H. Simmons

District of Columbia

Zahra Dorriz
Allen Miller
Kathleen Penney

Florida

Brian A. Blanchard, P.E.
Robert Greer
Jim Mills, P.E.

Georgia

Babs Abubakari, P.E.
James "Ben" Buchan, P.E.
Brent Story, P.E.

Hawaii

Gary C.P. Choy
Julius Fronda

Idaho

Steven C. Hutchinson
Loren D. Thomas

Illinois

Michael Hine

Indiana

Jeff Clanton, P.E.
Gary Mroczka, P.E.

Iowa

Michael J. Kennerly
David L. Little
Deanna Maifield

Kansas

Richard G. Adams, P.E.
LaMonte C. Armstrong, P.E.
James O. Brewer, P.E.

Kentucky

David Jones
Kenneth Sperry, P.E.

Louisiana

N. Kent Israel
Nicholas Kalivoda, III
Lloyd E. Porta, Jr.

Maine

Jerome A. Casey, P.E.

Maryland

Robert D. Douglass
Kirk G. McClelland

Massachusetts

John Blundo, P.E.
Stanley Wood, Jr.

Michigan

Mark A. Van Port Fleet, P.E.

Minnesota

Mukhtar Thakur, P.E.

Mississippi

David Foster
John B. Pickering, P.E.
C. Keith Purvis, P.E.

Missouri

David B. Nichols



Montana

Paul R. Ferry
Lesly Tribelhorn

Nebraska

Dawn Allyn
James J. Knott
Don Turek

Nevada

Frank Csiga, Jr., P.E.
Ruedy Edgington
Rand Pollard, P.E.
Paul K. Sinnott, P.E.

New Hampshire

Craig A. Green

New Jersey

Kiran B. Patel
Brian Strizki

New Mexico

Roy Maestas, P.E.
Dennis Peralta, P.E.
Max E. Valerio, P.E.

New York

Philip J. Clark, P.E.
Daniel D'Angelo, P.E.
Richard W. Lee, P.E.

North Carolina

Deborah M. Barbour
Jay A. Bennett, P.E.
Art McMillan

North Dakota

Mark Gaydos

Ohio

Dirk Gross
Timothy McDonald
Cash Misel

Oklahoma

Christine M. Senkowski, P.E.
Bruce E. Taylor

Oregon

Thomas Lauer

Pennsylvania

Brian D. Hare, P.E.
Dean A. Schreiber, P.E.

Puerto Rico

Ariel Pérez
José E. Santana-Pimentel

Rhode Island

J. Michael Bennett, P.E.

South Carolina

Rocque L. Kneese, P.E.
Robert I. Pratt, P.E.
John V. Walsh, P.E.

South Dakota

Joe J. Feller
Joel Gengler

Tennessee

Mark Holloran
Jeff C. Jones

Texas

Mark A. Marek

Utah

Stan Burns, P.E.

Vermont

Kevin Marshia, P.E.

Virginia

Mohammad Mirshahi, P.E.
Barton A. Thrasher, P.E.

Washington

Richard Albin, P.E.
Harold Peterfeso, P.E.
Ken L. Smith, P.E., CVS

West Virginia

Randolph T. Epperly, Jr.
Jason C. Foster

Wisconsin

Beth Cannestra

Wyoming

Paul P. Bercich
Tony Laird

U.S. DOT Member

Rick Marinelli, P.E.
FAA

**Associate Member—
Bridge, Port and Toll**

J. Lawrence Williams
N.J. Turnpike Authority
Barry L. Troup, P.E.
Penn. Turnpike Commission
Scott D. Murrell
Port Authority of NY and NJ

**Associate Member—
Cities and Counties**

Fred Abadi
City of Minneapolis

Associate Member—Federal

Ellen G. LaFayette
USDA Forest Service

Associate Member—International

Allan Kwan
Alberta
Richard Voyer
British Columbia
Joe Bucik
Ontario
Sukhy Kent
Saskatchewan

TABLE OF CONTENTS

1.0 Introduction	1
1.1 Applicability	2
1.2 Scope	2
1.3 Definitions of Terms	2
2.0 General Considerations	2
2.1 Safety	2
2.2 Design	3
2.3 Location	3
2.4 Preservation and Restoration	3
2.5 Visual Quality	4
3.0 Underground Facilities	5
3.1 General	5
3.1.1 Location	5
3.1.2 Highway Structure Attachments	5
3.1.3 Cover	6
3.1.4 Separation	6
3.1.5 Protection	6
3.1.6 Appurtenances	7
3.1.7 Encasements	7
3.1.8 Mechanical Protection	8
3.2 Installation	9
3.2.1 Untrenched Construction	10
3.2.2 Trenched Construction	11
3.2.3 Utility Tunnels And Bridges	12
3.3 Pipelines	12
3.4 Power and Communication Lines	13
3.5 Irrigation and Drainage Pipes	13
4.0 Overhead Facilities	14
4.1 Location and Safety	14
4.2 Design	14
4.3 Vertical Clearances	15
5.0 Ditches and Canals	15
Glossary	16
References	20



1.0 INTRODUCTION

Transportation, communications, and utility networks are growing in complexity. Such networks include highways, railways, and waterways at the surface; subways, pipelines, and cables below the surface; communication lines and transmission lines above the surface; and wireless communication systems. The possibility of two or more networks occupying a common right-of-way or intersecting increases as the networks grow. As a result, problems arise due to the construction, maintenance, and operations of one network affecting the others.

Each transportation agency has the responsibility to maintain highway right-of-way under its jurisdiction and to preserve the operational safety, integrity, and function of the highway facility. Since the manner in which utilities cross or otherwise occupy highway right-of-way can materially affect the safe operation, maintenance, and appearance of the highway, it is necessary that such use and occupancy be authorized and reasonably regulated. Transportation agencies have various degrees of authority to regulate the use of utilities within highway rights-of-way generally through their authority to designate and to control the use made of right-of-way acquired for public highway purposes. Their authority depends upon Federal laws and regulations; and state laws or regulations that differ between states. Also, a state may have local, city, or county government laws and regulations differing from those applicable statewide. Aside from the necessary differences imposed by state and local laws, regulations, franchises, governmental/industry codes, climate, and geography, reasonable uniformity in the engineering requirements should be employed by transportation agencies to regulate the use of highway right-of-way by utilities.

Utilities have various degrees of authority to install their lines and facilities on the right-of-way of public roads and streets. Like transportation agencies, their authorities depend upon state laws and regulations, which differ between states. Utilities also depend upon franchises, local laws, and ordinances, which may differ in the several political subdivisions within a state.

It is in the public interest for utility facilities to be accommodated on highway right-of-way when such use and occupancy do not adversely affect highway safety, construction, maintenance, or operations. In this respect, guidelines outlining safe and rational practices for accommodating utilities within highway right-of-way are of valuable assistance to the transportation agencies. The guidelines herein are provided in the interest of developing and preserving safe highway operations and roadsides.

These guidelines make no reference to the legal right of utilities to use or occupy highway right-of-way or to the financial responsibility involved in the adjustment or installation of utilities on such right-of-way. State law governs these matters. These guidelines should be interpreted and applied to the extent consistent with state laws, which give utilities the right to use or occupy highway right-of-way.

It is the intent of these guidelines to assist the various transportation agencies in establishing and administering reasonably uniform utility accommodation policies. Minimizing possible interference and impairment to the highway and its structures, minimizing adverse visual impacts, and minimizing maintenance are covered in these guidelines. Wherever appropriate, existing utility accommodation policies should be updated in light of these guidelines.