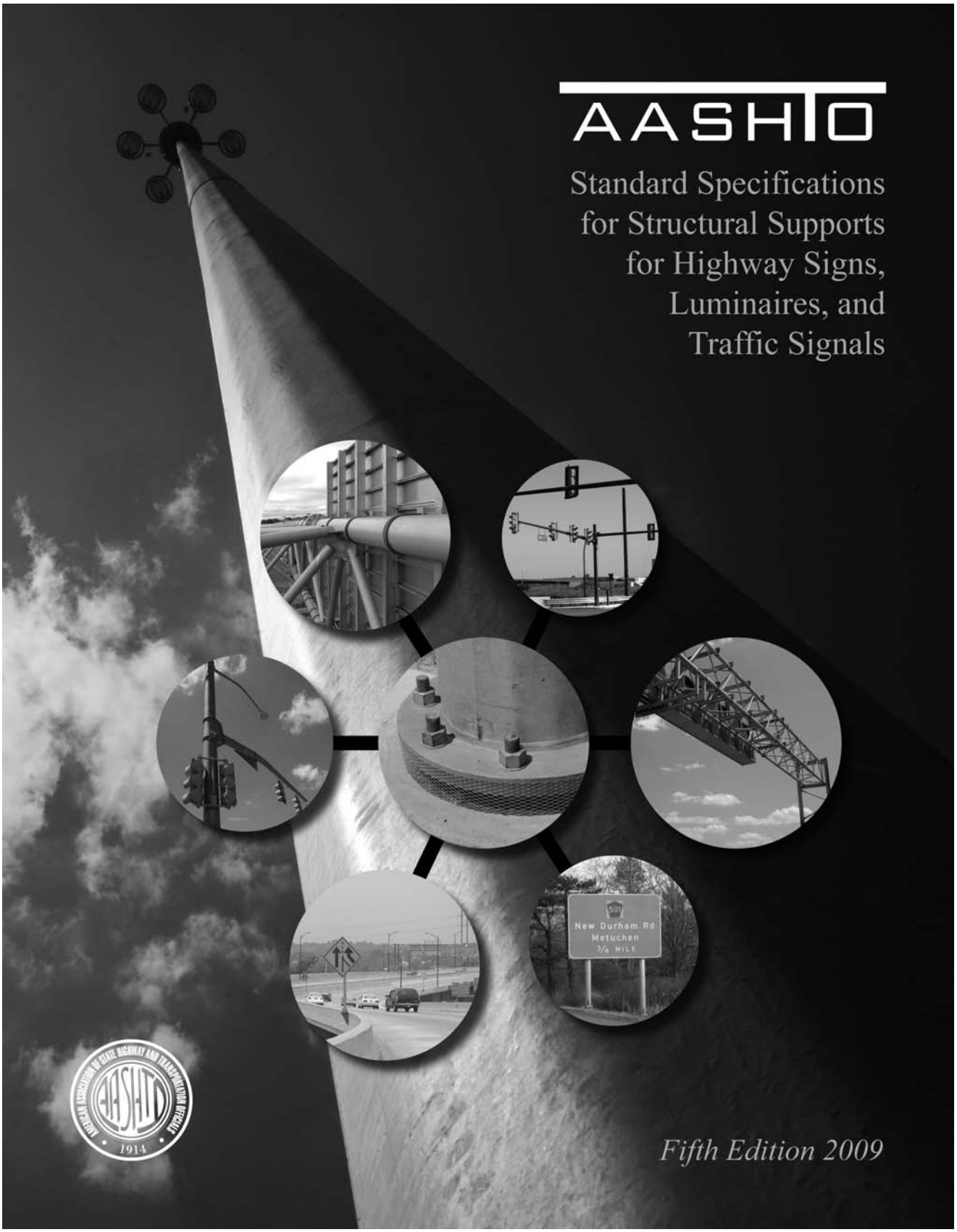

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ISBN: 978-1-56051-399-5 Publication Code: LTS-5

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FOREWORD

The fifth edition of the *Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals* incorporates recent work performed under the National Cooperative Highway Research Program (NCHRP) and state-sponsored research activities. NCHRP 20-07 Task 209 reviewed past research and recommended updates to the Specifications. Changes are primarily a result of NCHRP Report 469: *Fatigue-Resistant Design of Cantilevered Signal, Sign, and Light Supports*, and NCHRP Report 494: *Structural Supports for Highway Signs, Luminaires and Traffic Signals.*

Section 3, "Loads," includes a metric conversion of the wind map presented in ASCE/SEI 7-05. The basic wind speed map is updated based on a new analysis of hurricane wind speeds and more detailed maps are included for hurricane-prone regions. Drag coefficients for multisided shapes are included which utilize a linear transition from a round to a multisided cross section.

Design guidelines for bending about the diagonal axis for rectangular steel sections are included in Section 5, "Steel Design." The width-to-thickness ratios and the non-compact limit for stems of tees are also specified. Guidance is provided on the selection of base plate thickness because thicker base plates can dramatically increase fatigue life of the pole to base plate connection. Section 5 also includes updates to the anchor bolt material specifications used in traffic signal support structures; the design loads of double-nut and single-nut anchor bolt connections; allowable stresses in anchor bolts; specifications to proportion anchor bolt holes in the base plate; and guidance on anchor bolt tightening.

The scope of Section 11, "Fatigue Design," is expanded to include non-cantilevered support structures and the associated fatigue importance factors. Vortex shedding response has been observed in tapered lighting poles often exciting second or third mode vibrations. Tapered poles are now required to be investigated for vortex shedding. Drag coefficients to be used in the calculation of vortex shedding, natural wind gusts, and truck induced wind gusts have been clarified, and additional guidance is provided as commentary for the selection of the fatigue importance category. Finally, the influence of unequal leg fillet welds on the fatigue performance has been included.

The Specifications are based on the allowable stress design methodology and are intended to address the usual structural supports. Requirements more stringent than those in the Specifications may be appropriate for atypical structural supports. The commentary is intended to provide background on some of the considerations contained in the Specifications; however it does not provide a complete historical background nor detailed discussions of the associated research studies. The Specifications and accompanying commentary do not replace sound engineering knowledge and judgment.

AASHTO Highways Subcommittee on Bridges and Structures

PREFACE

The fifth edition of *Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals* supersedes the fourth edition and its 2002, 2003, and 2006 interims. It includes changes approved by the Highways Subcommittee on Bridges and Structures in 2007 and 2008.

An abbreviated table of contents follows this preface. Detailed tables of contents precede each Section and each Appendix.

For the first time, *Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals* includes a CD-ROM with many helpful search features that will be familiar to users of the *AASHTO LRFD Bridge Design Specifications* CD-ROM. Examples include:

- Bookmarks to all articles;
- Links within the text to cited articles, figures, tables, and equations;
- Links for current titles in reference lists to AASHTO's Bookstore; and
- The Acrobat search function.

AASHTO Publications Staff

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