

ESTTA Tracking number: **ESTTA684528**

Filing date: **07/20/2015**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE TRADEMARK TRIAL AND APPEAL BOARD

Proceeding	92058315
Party	Plaintiff State of Michigan
Correspondence Address	TONI L HARRIS TRANSPORTATION DIVISION VAN WAGONER BLDG, 425 W OTTAWA 4TH FLOOR LANSING, MI 48913 UNITED STATES harrisT19@michigan.gov, lubitzs@michigan.gov
Submission	Other Motions/Papers
Filer's Name	Toni L. Harris
Filer's e-mail	harrist19@michigan.gov, lubitzs@michigan.gov
Signature	/s/ Toni L. Harris
Date	07/20/2015
Attachments	P - MDOTs Protective Order 7-20-15.pdf(125306 bytes ) Exhibit 1 to Petitioner's Motion for Protective Order.pdf(189053 bytes ) Exhibit 2 to Petitioner's Motion for Protective Order.pdf(271189 bytes ) Exhibit 3 to Petitioner's Motion for Protective Order.pdf(481097 bytes ) Exhibit 4 to Petitioner's Motion for Protective Order.pdf(143520 bytes ) Exhibit 5 to Petitioner's Motion for Protective Order.pdf(511385 bytes ) Exhibit 6 to Petitioner's Motion for Protective Order.pdf(351605 bytes ) Exhibit 7 to Petitioner's Motion for Protective Order.pdf(2815092 bytes )

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE TRADEMARK TRIAL AND APPEAL BOARD

State of Michigan	)	
	)	
Petitioner,	)	Reg. Nos.: 3992159
	)	3348635
	)	
v.	)	
	)	
M22, LLC	)	Proceeding: 92058315
	)	
Respondent.	)	
	)	
	)	

---

**PETITIONER’S COMBINED  
MOTION FOR PROTECTIVE ORDER  
AND BRIEF IN SUPPORT**

Petitioner, State of Michigan, by and through its attorneys, Bill Schuette, Attorney General, and Toni L. Harris, Assistant Attorney General, moves for a protective order under TBMP § 526, Trademark Rule of Practice, 37 C.F.R. § 120(f), and Fed. R. Civ. P. 26(c), relating to Respondent’s Notice of Discovery Deposition of the State of Michigan.

In support of its Motion, the State of Michigan (the State) states as follows:

**INTRODUCTION**

On June 23, 2015, Respondent served on the State a Notice of Discovery Deposition under TBMP § 404, Rule 2.120, and Fed. R. Civ. P. 30(b)(6) (Notice). Several of the categories in the Notice are vague, ambiguous, overbroad, unduly burdensome, not reasonably particular, and seek information that is irrelevant.

Furthermore, in the Notice, Respondent scheduled the State's deposition to occur in Traverse City, Michigan, where Respondent does business. Respondent has unjustifiably refused to relocate the deposition to Lansing, claiming that it has the prerogative to unilaterally determine the location. However, the general rule is that the State be deposed where the State's principal place of business is located, which is in the City of Lansing, Michigan's capital. Moreover, the designees likely to testify on behalf of the State live near and work in Lansing, which is a 4-hour drive from Traverse City. If Respondent does not want to travel to Lansing to depose the State, the deposition should be taken by remote means to avoid undue burden on the State and its designees.

Respondent also set the deposition date unilaterally, and has refused to reschedule it while the State's objections to the Notice are resolved. In addition, the State requested an extension of the deadline to respond to Respondent's discovery requests due to the number and breadth of the requests which were served prior to the long July 4<sup>th</sup> holiday weekend and pre-planned summer vacation schedules of employees that may have information relating to the responses. Again, Respondent refused.

Simply put, Respondent has adopted a "my way or the highway" approach to discovery, without any regard for the applicable rules or common courtesy. As a consequence, the State is left with no other alternative but to seek intervention by the Board and a protective order to prevent the undue burden, oppression, harassment and annoyance that will result from Respondent's discovery tactics.

## FACTS

1. On December 3, 2013, the State of Michigan (the State) petitioned to cancel Respondent's trademarks registrations, U.S. Registration No. 3992159 and U.S. Registration No. 3348635 (collectively referred to as Marks).

2. On June 30, 2014, the State filed a Second Amended Petition to Cancel, asserting claims for (i) not in lawful use in commerce, (ii) abandonment, (iii) false suggestion of a connection, (iv) misrepresentation of source, (v) fraud; (vi) likelihood of confusion, (vii) geographical descriptiveness, (viii) insignia, and (ix) priority.

3. Pursuant to the Board's most recent scheduling order, the deadline to serve initial disclosures was June 28, 2015, and discovery closes on November 25, 2015.

4. On June 23, 2015, Respondent served Initial Disclosures, discovery requests, and a Notice of Deposition (Notice) under Fed. R. Civ. P. 30(b)(6). (Exhibit 1, Notice of Deposition; Exhibit 2, Requests to Admit; Exhibit 3, Interrogatories and Requests to Produce.)

5. On July 7, 2015, pursuant to Trademark Rule 2.120(f) and Fed. R. Civ. P. 26(c)(1), the State made a good faith effort to resolve this discovery dispute before seeking Board intervention. (Exhibit 4.) The State sent a letter to Respondent objecting to the Notice, to certain categories listed therein, and to the date and location of the deposition as set forth in the Notice. (Exhibit 4, July 7, 2015 Letter.) The State also requested the courtesy of additional time to respond to discovery requests because of the number and breadth of the requests, which were served

prior to the long July 4<sup>th</sup> holiday weekend and pre-planned summer vacation schedules of employees that may have information relating to the responses.

(Exhibit 4.)

6. On July 8, 2015, Respondent refused to amend the Notice or change the location or the date of the deposition. (Exhibit 5.) Respondent further refused to agree to the State's request for an extension of the deadline to respond to discovery requests. (Exhibit 5.)

## ARGUMENT

### **I. A protective order is warranted to protect the State from a fishing expedition by Respondent with a Notice that is overbroad, unduly burdensome, oppressive and intended to harass and annoy the State.**

When a party seeks to take discovery from an entity via a deposition pursuant to Fed. R. Civ. P. 30(b)(6), "the subject matter of the deposition is to be described with reasonable particularity in the notice." *Red Wing Co. v. J.M. Smucker Co.*, 59 U.S.P.Q. 1861, \*3 (T.T.A.B. 2001). Furthermore, "[t]he burden is on the party seeking information to establish why it is relevant." *Red Wing, supra* at \*3 (granting a protective order in favor of the applicant and sustaining the applicant's objections on several topics in the opposer's deposition notice under Fed. R. Civ. P. 30(b)(6) on grounds that the topics were, *inter alia*, vague, overly broad, clearly not reasonably particular, and irrelevant.)

Here, Respondent's Notice includes 19 categories, five of which refer to allegations by the State. (Exhibit 1, ¶¶ 1, 8, 16-18.) Of these five topics, four refer

to matters “as alleged” in the Amended Petition and are duplicative of paragraph 1 which broadly relates to “[a]ll allegations in the State of Michigan’s Amended Petition to Cancel.” *Id.* Notably, the most recent pleading is the State’s Second Amended Petition, rather than the Amended Petition to Cancel referenced in the Notice.

As explained more fully below, the State objects to the remaining 14 categories in the Notice because, *inter alia*, they seek information that is irrelevant to any issue in this case, and many seek information dating back 80 or 100 years. These topics are also objectionable for many of the same reasons this Board sustained the applicant’s objections in *Red Wing*, to wit, they are vague, ambiguous, overbroad, unduly burdensome, and not reasonably particular. Moreover, Respondent noticed the location of the deposition in violation of the applicable rules, set the date unilaterally, and has unreasonably refused to change both. Accordingly, a protective order should be entered to protect the State from being unduly burdened by Respondent’s oppressive discovery tactics clearly intended to harass and annoy the State.

**A. The subject matter of several categories in the Notice is not described with particularity and seek irrelevant information dating back nearly 100 years.**

In *Red Wing, supra*, the opposer’s notice included a topic described as “[t]he process used by . . . Smucker to fill and/or manufacture peanut butter and jelly combination products, including without limitation Smucker’s GOOBER products.”

*Red Wing, supra* at \*2 (emphasis in original). The applicant argued that it could not testify on the numerous products offered by Smucker over the last 100 years, and that the opposer had no reason to know how the other products were manufactured. *Id.* This Board sustained the objection.

Here, Respondent's Notice lists the "development, creation, and use of the M-22 sign," as well as matters subsumed within this overly broad topic, including the "development, creation, and use of the M-22 sign as a trademark"; "use of the M-22 sign as an insignia for the State"; and "use of the M-22 sign as a geographical indicator for the northwestern Michigan region." (Exhibit 1, ¶¶ 2-4 and 6.) The State objects to each category as vague and ambiguous, overbroad, unduly burdensome, not described with particularity and seeking irrelevant information. (Exhibit 4.)

Paragraph No. 2 in Respondent's Notice – the "development, creation, and use of the M-22 sign" – is similar to the objectionable category described above in *Red Wing*, and is also vague, ambiguous, and not reasonably particular. It also seeks information that is irrelevant to this Proceeding. That paragraph No. 2 is overbroad is evidenced by the fact that it includes the subject matter covered in Paragraph Nos. 3, 4 and 6, i.e. use of the sign as a trademark, insignia and geographical indicator, and even more, leaving the State to guess about which matters, in particular, are covered by this topic.

Moreover, paragraphs 2 through 4 and 6 are overly broad, unduly burdensome, and unlimited as to time and scope, given the State's use of the M-22

sign – a white diamond on a black background with the “M” located above the highway number – since 1919. (Petition, ¶ 2.) Without more particularity, each of paragraph Nos. 2, 3, 4 and 6 require the State’s designee to become educated on information dating back nearly 100 years. Certainly, all activities by the State over the last 100 years relating to the development, creation and use of the M-22 sign are not relevant to this proceeding and have no bearing on whether Respondent’s Marks should be canceled because they are not in lawful use in commerce, are geographical descriptive, or include insignia of the State. Indeed, the State’s use of the M-22 sign as a trademark is irrelevant because the State is not seeking to register the mark, which would be a violation of federal law according to MUTCD.

In response to the State’s objections, Respondent quoted allegations in the Second Amended Petition, “among others.” (Exhibit 5.) However, Respondent failed to reasonably particularize these categories such that the State can (i) designate one or more witnesses who can testify as to *particular* information, or (ii) determine the particular matters about which a witness must be prepared to testify on the State’s behalf. Without question, 100 years of broad Michigan history is irrelevant to whether the Marks should be canceled.

Likewise, Respondent cannot establish the relevance of the wide range of information encompassed by these overbroad and unduly burdensome topics by referring to allegations in the Petition, “among others.” (Exhibit 5.) In fact, Respondent’s broad reference to portions of the Petition to explain and justify each topic establishes that each category should be limited to the allegations in the

Petition, thereby rendering them duplicative of paragraph No. 1, which refers to all allegations in the Petition.

Respondent should not be permitted to use these overbroad categories to conduct a fishing expedition or to harass the State, which is clearly M22's intent as evidenced by its Requests to Admit, which ask the State to admit, *inter alia*, that:

Request to Admit 8: Attorney General Bill Schuette was previously an attorney at the law firm of Warner, Norcross, and Judd.

Request to Admit 9: Admit that Attorney General Bill Schuette appointed James Scott, an attorney at Warner, Norcross, and Judd, as a special attorney general to file this cancellation proceeding.

(Exhibit 2, Request Nos. 8 and 9.) Much like these requests for admissions, paragraph Nos. 2, 3, 4 and 6 in the Notice seek information irrelevant to the claims and defenses at issue in this proceeding and, therefore, a protective order should be entered to protect the State from objectionable categories in Respondent's Notice that is clearly intended to harass, annoy, and over burden the State.

**B. Categories in the Notice pertaining to the federal MUTCD, and the Michigan MUTCD are overbroad and unduly burdensome because they cover hundreds of subjects that have evolved over nearly 80 years.**

For the same reasons that paragraph Nos. 2 through 4 and 6 are objectionable, paragraph Nos. 5 and 9 in Respondent's Notice – “[t]he State of Michigan's adoption of and adherence to the Manual on Uniform Traffic Control Devices” and “[t]he State of Michigan's receipt of highway funds as a result of its ‘substantial conformance’ with the Manual of Uniform Traffic Control Devices” – are

also objectionable. (Exhibit 1, ¶¶ 5 and 9; Exhibit 4.) The Manual on Uniform Traffic Control Devices (MUTCD), and the Michigan MUTCD which includes the MUTCD as supplemented by provisions adopted in Michigan, have evolved over the past 80 years. (Exhibit 6, MUTCD Introduction, Table I, p. I-2.) The Table of Contents from the current version of the MUTCD, the 2009 edition, comprises nearly 30 single-spaced pages and lists hundreds of subjects addressed within the Manual, from the purpose and principles of traffic control devices to the conversion of miles per hour to kilometers per hour. (Exhibit 7, MUTCD Table of Contents.) Without question, the vast majority of the MUTCD and the Michigan MUTCD are irrelevant to this proceeding, and Respondent cannot show otherwise.

As they stand, paragraph Nos. 5 and 9 require the State to designate and prepare one or more witnesses who can testify broadly to any information pertaining to the State's "adoption" of any portion of any version of the MUTCD dating back 80 years, the State's "adherence" to any provision in any edition of the MUTCD over the past 80 years, and the State's receipt of highway funds for conforming with every provision of the MUTCD over this same period of time. Preparing one or more designees for a deposition on such broad subject matter spanning eight decades would be impossible, and a waste of time and resources, because nearly all of the information encompassed by these categories is irrelevant to this case. Thus, the topics are irrefutably overbroad, unduly burdensome, and not reasonably particular.

For similar reasons, the State also objects to paragraph No. 19 – “[t]he State of Michigan’s adoption and enforcement of the Michigan [MUTCD] against third parties.” First, the category is described is vague and ambiguous in its reference to the “[t]he State of Michigan’s adoption . . . of the Michigan [MUTCD] against third parties.” Further, like paragraph Nos. 5 and 9, it is overbroad, unduly burdensome, unlimited as to time period and scope, and seeks irrelevant information. As required under federal regulations, the State is required to adopt the MUTCD as part of a state MUTCD which may include supplements that do not conflict with the federal MUTCD. Paragraph 19 encompasses the adoption of any and every version of the Michigan MUTCD, which includes the federal MUTCD, as well as the enforcement of each and every provision of the Michigan MUTCD. As with paragraph Nos. 5 and 9, a deposition topic that spans 80 years and hundreds of categories is undeniably overbroad and unduly burdensome, and certainly not described with reasonable particularity. As with the federal MUTCD, the vast majority of the matters covered in the Michigan MUTCD are irrelevant to this case.

Paragraph Nos. 10 and 11 as set forth in the Notice – “[t]he State of Michigan’s denial of highway funds for failure to comply with federal law” and “[a]ll correspondence received by the State of Michigan concerning its failure to comply with or adhere to the [MUTCD] or regulations of the Federal Highway Administration or Department of Transportation of the United States of America” – are even broader yet, as they go far beyond the MUTCD and extend to all federal laws and regulations. Thus, each topic is objectionable on the same grounds as

explained above. (Exhibit 1, ¶¶ 10 and 11; Exhibit 4.) Whether and to what extent the State has ever been denied highway funds under any and all federal laws or regulations, and any correspondence relating to such matters, have no bearing on this proceeding. Furthermore, “all correspondence” during the history of the enactment of any federal law or regulation, including the MUTCD, cannot be identified for witness designation and preparation. Thus, there can be no justification for the overbroad, irrelevant subject matter covered by paragraph Nos. 10 and 11. See *Red Wing, supra* at \*2.

Without question, every subject covered by any version of the federal MUTCD or the Michigan MUTCD, and the State’s receipt of highway funds for acting in conformance with the MUTCD, and any denial of such funds, lack any relevance to the claims and defenses in this case, as does the State’s enforcement of every subject in any version of the MUTCD, whether state or federal. Respondent’s attempt to force the State to designate and prepare a witness to testify on the broad subject matter covered by paragraph Nos. 5, 9 through 11, and 19 far exceeds unduly burdensome. Indeed, it would be unreasonable and impossible under any reasonable time constraints. Accordingly, a protective order is warranted to protect the State from oppressive, overbroad and irrelevant discovery and impermissible harassment by Respondent.

**C. Respondent’s business, as recognized by the State, has no bearing on whether the registrations of the marks at issue should be cancelled.**

Paragraph Nos. 12 through 14, as set forth in the Notice, pertain to Respondent's payment of taxes to the State and the "use" and "recognition" of Respondent's business name, M22, LLC, in publications relating to Michigan businesses. (Exhibit 1, ¶¶ 12 through 14.) These categories are vague, ambiguous overbroad and unduly burdensome in their reference to "use of M22, LLC in the Pure Michigan 'Official State Travel Guide'" and "recognition of M22, LLC." In addition, the topics are irrelevant, as they pertain to information having no connection to whether the registered marks at issue should be canceled or whether the State has been damaged as a result of the registrations and Respondent's efforts to enforce the marks against others. Consequently, as in *Red Wing*, the entry of a protective order is warranted. See *Red Wing, supra* \*2-\*3 (this Board sustained the applicant's objection because the opposer failed to establish the relevancy of topics described in the Notice as (i) "*Smucker's knowledge Red Wing's . . . products, how and when Smucker gained such knowledge, and any actions taken or decisions made by Smucker . . . as a result thereof*"; and "[a]ll communications between Smucker and anyone else, . . . concerning Red Wing's use of a . . . configuration for its . . . product." (Emphasis in original.)

**II. The date and location of the 30(b)(6) deposition, as set forth in the Notice, do not comport with the letter and spirit of the discovery rules.**

The general rule for depositions noticed under Fed. R. Civ. P. 30(b)(6) is that corporate defendants are deposed at the location of their principal place of business.

*See M&C Corp. v. Erwin Behr GMBH & Co.*, 165 F.R.D. 65, 67 (E.D. Mich. 1996); *Sugarhill Records Ltd. v. Motown Record Corp.*, 105 F.R.D. 166, 171 (S.D.N.Y. 1985). Here, Respondent set Traverse City, Michigan, as the location for the deposition of the State. (Exhibit 1.) However, the State's principal place of business is in Lansing, Michigan, the State's capital. Moreover, the individuals likely to be designated to testify on behalf of the State reside in or near, and are employed at the State's offices located in, Lansing, which is nearly 200 miles and approximately a 4-hour drive from Traverse City.

Despite the State's request to conduct the deposition of its witnesses in Lansing, Respondent flatly refused, citing Rule 2.120(a) and "mere notice alone" as the only requirement for scheduling the deposition of a party. (Exhibit 5, p. 1.) In addition, Respondent relied on Rule 2.123 as support for its refusal of the State's request. However, the Rule applies to trial testimony rather than discovery depositions as noticed by Respondent. (Exhibit 5, p. 1.)

Respondent also cited *Consolidated Foods Corp. v. Ferro Corp.*, 189 U.S.P.Q. 582 (T.T.A.B. 1976) as support for its uncompromising stance. However, *Consolidated Foods* is inapposite. The case involved the opposer's motion to enlarge its testimony period after serving the applicant, also a party, with a notice to be deposed as an adverse witness, and to produce documents, during the opposer's period for taking testimony-in-chief. The Board denied the motion and held that there was no basis for imposing sanctions on the applicant for failing to appear for the deposition. The Board distinguished between Rule 2.120(a), which provides for

summoning a party-deponent via a notice to appear for a discovery deposition, and Rule 2.123, which requires a subpoena to force a party-deponent to appear as an adverse party during the period for taking testimony-in-chief. According to the Board:

[W]hereas Rule 2.120(a) of the Trademark Rules of Practice provides that mere notice alone is sufficient to secure the attendance of a party for the taking of his discovery deposition, . . . where, as here, a party is called to be deposed as an adverse witness during the time for the taking of the testimony-in-chief of the other party. . . . it is incumbent on the deposing party . . . to cause a subpoena to be issued . . . .

*Id.* at \*1.

Thus, while a notice, rather than a subpoena, is sufficient under Rule 2.120(a) to summon a party for a discovery deposition, the general rule is that corporate depositions should be taken at the corporation's principal place of business. Respondent will surely want to follow this general rule when the State notices the depositions of Respondent and its employees, who will otherwise be required to travel to Lansing for depositions. Moreover, because the State may have more than one designee testifying on the subject matter of the deposition notice, forcing each designee to travel four hours to wait several hours until the subject matter on which he or she is designated to testify is raised, if at all, would be unnecessarily burdensome on the designees and costly to the State.

Clearly, Respondent is taking a "no holds barred" approach to discovery that is unreasonable and unjustifiable. Respondent should not be permitted to discard the rules and schedule depositions where and when it deems appropriate, without

consideration of the witnesses and counsel. If Respondent does not want to incur the cost of traveling to Lansing, the State's deposition may be taken remotely, via telephone or other remote means, pursuant to TBMP § 404.06 and Fed. R. Civ. P. 30(b)(4). See *Sunrider Corp. v. Raats*, 83 U.S.P.Q.2d 1648, 1654 (T.T.A.B. 2007). Remote depositions should be liberally granted because federal practice favors use of technological benefits. *Hewlett-Packard Co. v. Healthcare Personnel, Inc.*, 21 U.S.P.Q.2d 1552, 1553 (T.T.A.B. 1991).

Moreover, in scheduling the deposition date, Respondent unilaterally set it without conferring with the State. While that may not be unusual in initially setting the deposition, Respondent now refuses to change the date given the dispute on the Notice and the State's inability to designate and prepare witnesses until its objections are resolved. TBMP 404.01 provides that:

As a matter of convenience and courtesy and to avoid scheduling conflicts, the parties should attempt to schedule depositions by agreement rather than have the deposing party unilaterally set a deposition date. [Note 2.] However, it is not unusual for the deposing party to notice a deposition and subsequently discuss alternative dates with the party to be deposed.

Respondent failed to meet its duty to provide any courtesy here. See *Sunrider Corp. v. Raats*, 83 U.S.P.Q.2d at 1654 (parties have a duty to cooperate in resolving conflicts in the scheduling and taking of depositions). Once the Notice is finalized, the State should be provided sufficient time to designate and prepare witnesses, and the scheduled date should be mutually convenient as to date, time and location.

**RELIEF REQUESTED**

Based on the foregoing, the State respectfully requests that this Board grant its Motion and enter a protective order requiring Respondent to serve a revised, non-objectionable Notice and that the deposition of the State be held in Lansing, Michigan, or taken by video conference or other electronic means mutually acceptable to the parties, on a reasonable date mutually agreed to by the parties.

Respectfully submitted,

By: /s/Toni L. Harris

Date: July 20, 2015

BILL SCHUETTE, Attorney General  
Toni L. Harris, Assistant Attorney General  
Transportation Division  
Van Wagoner Building  
425 W. Ottawa, 4<sup>th</sup> Floor  
Lansing, MI 48913  
Tel: 517-373-1470  
Fax: 517-335-6586

**PROOF OF SERVICE**

I, Susan Lubitz, legal secretary to Assistant Attorney General Toni L. Harris, certify that on July 20, 2015, I served a true and correct copy of Petitioner's Combined Motion for Protective Order and Brief in Support on Respondent's counsel of record by e-mail and mail with first-class postage fully prepaid thereon and causing same to be deposited in the United States mail service.

/s/ Susan Lubitz  
Susan Lubitz

Proceeding: 92058315

EXHIBIT 1 to Petitioner's  
Motion for Protective Order

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE TRADEMARK TRIAL AND APPEAL BOARD

State of Michigan

Petitioner,

v.

M22, LLC,

Registrant.

Proceeding No: 92058315

---

**NOTICE OF DISCOVERY DEPOSITION OF THE STATE OF MICHIGAN**

PLEASE TAKE NOTICE that on July 28, 2015, commencing at 10:00am, and from day to day afterwards until completed, at the Park Place Hotel, 300 East State Street, Traverse City, Michigan, 49684, or another mutually agreed-upon location, Registrant will take the discovery deposition of Petitioner State of Michigan. This discovery deposition will be before a notary public authorized to administer oaths, will be taken in accordance with the Federal Rules of Civil Procedure, and may be used for all purposes.

Pursuant to TBMP § 404, Trademark Rule of Practice § 2.120, and Fed. R. Civ. P. 30(b)(6), you must designate one or more officers, directors, or managing agents to testify on your behalf. The matters on which the witness(es) will be examined are as follows:

- (1) All allegations in the State of Michigan's Amended Petition to Cancel;
- (2) The State of Michigan's development, creation, and use of the M-22 sign;

- (3) The State of Michigan's development, creation, and use of the M-22 sign as a trademark;
- (4) The State of Michigan's use of the M-22 sign as an insignia for the State;
- (5) The State of Michigan's adoption of and adherence to the Manual on Uniform Traffic Control Devices;
- (6) The State of Michigan's use of the M-22 sign as a geographical indicator for the northwestern Michigan region;
- (7) The State of Michigan's receipt of revenue from the use of the M-22 sign on goods or services;
- (8) The State of Michigan's damages, as alleged in its Amended Petition to Cancel;
- (9) The State of Michigan's receipt of highway funds as a result of its "substantial conformance" with the Manual on Uniform Traffic Control Devices;
- (10) The State of Michigan's denial of highway funds for failure to comply with federal law;
- (11) All correspondence received by the State of Michigan concerning its failure to comply with or adhere to the Manual on Uniform Traffic Control Devices or regulations of the Federal Highway Administration or Department of Transportation of the United States of America;
- (12) The taxes paid by M22, LLC to the State of Michigan;
- (13) The State of Michigan's recognition of M22, LLC as one Michigan's "50 Companies to Watch;"

- (14) The State of Michigan's recognition of M22, LLC, and its use of M22, LLC as a representative of reasons to do business in Michigan, in its Pure Michigan advertising campaign;
- (15) The State of Michigan's use of M22, LLC in the Pure Michigan "Official State Travel Guide;"
- (16) The State of Michigan's use of the M-22 sign in connection with the representation and description of "the culture of Northern Michigan" as alleged by the State of Michigan in its Amended Petition to Cancel;
- (17) The goodwill associated with the State of Michigan's use of the M-22 sign as alleged by the State of Michigan in its Amended Petition to Cancel;
- (18) The State of Michigan's allegation, as alleged in its Amended Petition to Cancel, that consumers are confused into believing that M22, LLC's goods originate from the State of Michigan;
- (19) The State of Michigan's adoption and enforcement of the Michigan Manual on Uniform Traffic Control Devices against third parties;

Respectfully Submitted,



John Di Giacomo  
Revision Legal, PLLC  
Attorney for Registrant  
148 E. Front St.  
3<sup>rd</sup> Floor  
Traverse City, Michigan 49684  
231.714.0100  
231.714.0200 (f)  
[john@revisionlegal.com](mailto:john@revisionlegal.com)

Date: June 23, 2015

CERTIFICATE OF SERVICE

I, John Di Giacomo, an attorney, hereby certify that I served a true and correct copy of this Notice of Discovery Deposition of the State of Michigan on counsel of record on February 9, 2015 via electronic mail.

Date: June 23, 2015



John Di Giacomo  
Revision Legal, PLLC  
Attorney for Registrant  
148 E. Front St.  
3<sup>rd</sup> Floor  
Traverse City, Michigan 49684  
231.714.0100  
231.714.0200 (f)  
[john@revisionlegal.com](mailto:john@revisionlegal.com)

Proceeding: 92058315

EXHIBIT 2 to Petitioner's  
Motion for Protective Order

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE TRADEMARK TRIAL AND APPEAL BOARD

State of Michigan

Petitioner,

v.

M22, LLC,

Registrant.

Proceeding No: 92058315

---

**REGISTRANT'S FIRST REQUESTS FOR ADMISSION**

M22, LLC, by and through its attorneys Revision Legal, PLLC, and pursuant to Rule 36 of the Federal Rules of Civil Procedure and Rule 2.120 of the Trademark Rules of Practice, requests that Opposer State of Michigan answer the following requests for admission under oath, subject the following, and serve responses upon Registrant within 30 days of service:

**DEFINITIONS AND INSTRUCTIONS**

**INSTRUCTIONS**

These Requests for Admissions ("Request(s)") will be admitted unless, within thirty (30) days after service, a sworn written answer or objection responding to each Request is served upon Registrant's counsel. Answers will specifically deny the Request or set forth in detail why the Request cannot be truthfully admitted or denied. Where a party cannot, in good faith, fully answer a Request, it will answer or deny the parts of the Request that can be answered or denied and set forth in detail why the remainder of the Request cannot be admitted or denied. Lack of information or

knowledge is an insufficient reason for a failure to admit or deny a Request unless a party has made a reasonable inquiry into the Request and, based on that inquiry, cannot admit or deny the request with information known or readily available to the party. If you answer a Request on the basis that you lack sufficient information to respond, describe any and all efforts you made to inform yourself of the facts and circumstances necessary to answer or respond.

These Requests are continuing in nature and your answers to these Requests must be supplemented within thirty (30) days or before trial, whichever is earlier, if you directly or indirectly obtain further information after you have submitted a response to these Requests.

#### **DEFINITIONS**

The words "State of Michigan", "You", and "Your" as used herein refer to the State of Michigan, its agents, officers, directors, departments, subsidiaries, employees and all other persons acting on its behalf.

The words "M22 Apparel Mark" as used herein refer to United States Patent and Trademark Office Registration No. 3348635.

The words "M22 Retail Mark" as used herein refer to United States Patent and Trademark Office Registration No. 3992159.

The words "M22 Marks" as used herein refer to the M22 Apparel Mark and M22 Retail Mark collectively.

The words "M22 Sign" as used herein refer to the State of Michigan's traffic control device indicating the M-22 trunkline highway.

#### **REQUESTS FOR ADMISSION**

**Request to Admit 1:** Admit that the State of Michigan has never used the M22 Sign in association with the sale or offering for sale of goods or services.

**Answer:**

**Request to Admit 2:** Admit that the State of Michigan has never displayed the M22 Sign on clothing sold by the State of Michigan.

**Answer:**

**Request to Admit 3:** Admit that the State of Michigan has never displayed the M22 Sign on a retail store.

**Answer:**

**Request to Admit 4:** Admit that the M22 Retail Mark is not identical to the M22 Sign.

**Answer:**

**Request to Admit 5:** Admit that the M22 Apparel Mark is not identical to the M22 Sign.

**Answer:**

**Request to Admit 6:** Admit that the State of Michigan has never used the M22 Mark except as a traffic control device.

**Answer:**

**Request to Admit 7:** Admit that the State of Michigan has never enforced the intellectual property statements contained within the Manual of Uniform Traffic Control Devices against any third party other than Registrant.

**Answer:**

**Request to Admit 8:** Admit that Attorney General Bill Schuette was previously an attorney at the law firm of Warner, Norcross, and Judd.

**Answer:**

**Request to Admit 9:** Admit that Attorney General Bill Schuette appointed James Scott, an attorney at Warner, Norcross, and Judd, as a special attorney general to file this cancellation proceeding.

**Answer:**

**Request to Admit 10:** Admit that You have no evidence supporting your allegation that "Registrant stopped use of the mark in the M22 Online Registration in association with the goods identified in the M22 Online Registration with no intent to resume such use" as alleged in Paragraph 30 of Your Second Amended Petition to Cancel.

**Answer:**

**Request to Admit 11:** Admit that You have no evidence supporting your allegation that "The fame or reputation of Petitioner is such that, when the M-22 Sign is used with Registrant's goods or services, a connection with Petitioner is presumed" as alleged in Paragraph 43 of Your Second Amended Petition to Cancel.

**Answer:**

**Request to Admit 12:** Admit that You have no evidence supporting your allegation that "consumers purchase goods decorated with the M-22 Sign, because the M-22 Sign points to Petitioner as the source" as alleged in Paragraph 55 of Your Second Amended Petition to Cancel.

**Answer:**

**Request to Admit 13:** Admit that the State of Michigan has never used the M22 Sign as its flag or coat of arms.

**Answer:**

**Request to Admit 14:** Admit that the State of Michigan has never used the M22 Sign as the seal of a department.

**Answer:**

**Request to Admit 15:** Admit that You have no evidence supporting your allegation that "Registrant knew, or at least had no reasonable basis for believing otherwise, that its use of the M-22 Sign would create a likelihood of confusion as to the source of the associated goods and services" as alleged in Paragraph 62 of Your Second Amended Petition to Cancel.

**Answer:**

**Request to Admit 16:** Admit that You have no evidence supporting your allegation that "Registrant was not using the mark M 22 M22ONLINE.COM on all the goods identified in the application Serial No. 78963038 when it filed the application, and upon information and belief, is not currently using the mark on all the goods identified in the application" as alleged in Paragraph 66 of Your Second Amended Petition to Cancel.

**Answer:**

**Request to Admit 17:** Admit that the State of Michigan has never used the M22 Sign to indicate the origin or source of its goods or services.

**Answer:**

**Request to Admit 18:** Admit that the State of Michigan does not provide color tours.

**Answer:**

**Request to Admit 19:** Admit that the State of Michigan does not provide real estate services under the M22 Sign.

**Answer:**

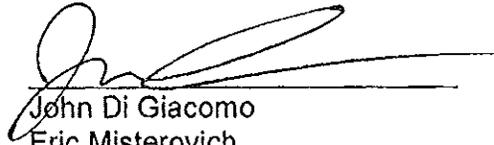
Dated: June 23, 2015



John Di Giacomo  
Eric Misterovich  
Revision Legal, PLLC  
148 E. Front St. 3rd Floor  
Traverse City, MI 49684  
(231) 714-0100  
eric@revisionlegal.com  
john@revisionlegal.com

CERTIFICATE OF SERVICE

I, John Di Giacomo, an attorney, hereby certify that I served a true and correct copy of Registrant's First Requests to Admit on counsel of record via electronic mail on June 23, 2015.



John Di Giacomo  
Eric Misterovich  
148 E. Front St.  
3<sup>rd</sup> Floor  
Traverse City, MI 49684  
Phone: (231) 714-0100  
Fax: (231) 714-0200  
Email: [john@revisionlegal.com](mailto:john@revisionlegal.com),  
[eric@revisionlegal.com](mailto:eric@revisionlegal.com)  
Attorneys for Registrant

Proceeding: 92058315

EXHIBIT 3 to Petitioner's  
Motion for Protective Order

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE TRADEMARK TRIAL AND APPEAL BOARD

State of Michigan

Petitioner,

Proceeding No: 92058315

v.

M22, LLC,

Registrant.

---

**REGISTRANT'S FIRST SET OF INTERROGATORIES AND  
REQUESTS FOR PRODUCTION OF DOCUMENTS**

M22, LLC, by and through its attorneys Revision Legal, PLLC, and pursuant to Rules 33 and 34 of the Federal Rules of Civil Procedure and Rule 2.120 of the Trademark Rules of Practice, requests that Petitioner State of Michigan answer the following interrogatories under oath, subject to the following, and produce documents and serve responses upon Registrant:

**DEFINITIONS AND INSTRUCTIONS**

**A. Instructions**

Please complete the answers in the space provided, attach all responsive documents and, if needed, add additional pages. Within the time provided by the Federal Rules of Civil Procedures (the "Rules"), either return the signed and verified original to this office, or transmit copies thereof to the following email address: [john@revisionlegal.com](mailto:john@revisionlegal.com).

This discovery is intended to be continuing in nature, and any information which may be discovered subsequent to the service of your responses is to be brought to the attention of the party propounding the discovery through supplemental responses within thirty (30) days following discovery or prior to the date set for trial of this matter, whichever period of time is shorter.

The responses to each discovery request shall include such information and knowledge as is within your custody, possession, or control, including, but not limited to, knowledge, documents, and tangible things in your custody, possession or control, or that of your consultants, accountants, attorneys and other agents. If this discovery cannot be answered in full, answer to the extent possible, specify reasons for your inability to answer the remainder, and state whatever information or knowledge you have concerning the unanswered portion. In answering this discovery, furnish such information as is available to you regardless of whether this information is obtained directly by you, through your agents or other representatives, or by your attorneys.

If you object to answering any request, in whole or in part, state your objection and all of the factual and legal reasons supporting your objection with particularity in lieu of your answer or response. If you object to the discovery on the ground of privilege or immunity, also state with particularity the legal and factual basis of the privilege claimed. If you object to answering only part of the request, specify the part to which you object and answer the remainder.

The Rules require that you respond to this discovery under oath, within thirty (30) days of service. Failure to respond to this discovery within the time required by the Rules will be deemed a waiver of any objections that you might have asserted. In addition, failure to comply with the requirements of the Rules in responding to this discovery may subject you to sanctions pursuant to Rule 37, including the exclusion from trial of documentary, testimonial, or other evidence available to you; judgment by default against you; and an award requiring you to pay expenses, including attorneys' fees.

## B. Definitions

The words "State of Michigan", "You", and "Your" as used herein refer to the State of Michigan, its agents, officers, directors, departments, subsidiaries, employees and all other persons acting on its behalf.

The words "M22 Apparel Mark" as used herein refer to United States Patent and Trademark Office Registration No. 3348635.

The words "M22 Retail Mark" as used herein refer to United States Patent and Trademark Office Registration No. 3992159.

The words "M22 Marks" as used herein refer to the M22 Apparel Mark and M22 Retail Mark collectively.

The words "M22 Sign" as used herein refer to the State of Michigan's traffic control device indicating the M-22 trunkline highway.

"Communications" includes, but is not limited to, any and all oral or written phone conversations, emails, chat logs, phone messages, correspondence, meetings, conferences, instant messages, text messages, memoranda, Document or any record of communication which stored on paper or digitally.

"Document" means as it is defined in Rules 26 and 34 and includes the original or a copy of the original and any non-identical copy, regardless of original location, of any recorded, written, printed, types or other graphic material of any kind, variety, type or character including, by way of example but not limited to, the following: books; records; contracts; agreements; invoices; orders; bills; certificates; bills of sale; bills of lading; correspondence; trip reports; spreadsheets; databases; certificates of title; financing statements; instruments; expense accounts; canceled checks; bank statements; bank books; receipts; disbursements journals; tax returns; financial statements; check stubs; promissory notes; resumes; address books; appointment books; telephone logs; worksheets; pictures; income statements; profit and loss statements; balance statements; deposit slips; credit card receipts; records or notations of telephone or personal conversations; conferences; intra office communications; postcards; letters; telexes; partnership agreements; articles of incorporation; mailing lists; catalog price lists; sound, tape and video records; memoranda; minutes, manuals, diaries; calendar or deskpads; scrapbooks; notebooks; correspondence; bulletins; circulars; policies; forms; pamphlets; notices; statements; journals; letters; telegrams; reports; interoffice communications; Photostats; microfilm; microfiche; maps; deposition transcripts; email messages; drawings; blueprints; photographs; negatives; and any other data, information, or statistics contained within any data storage device/modules, tapes, discs or any other memory device (including on any computer or cell phone) or any other information retrievable on storage systems, including computer-generated reports and printouts.

"Identify" in relation to person means provide the full name, job title, all known personal email address(es), all known business email address(es), all known aliases and all known home addresses, past and present, for each person identified.

"Identify" in relation to all other subjects/objects means provide any and all identification information, title, description, dates of use, persons who use the subject/object, the creators, the owners, and all known personal email address(es), all known business email address(es), all known aliases and all known home addresses, past and present, for each person related to the subject/object.

"Relate to," "relating to," or "related to," means constituting, referring, discussing, analyzing, comprising, embodying, recording, evidencing, concerning, or containing any information which pertains to the subject matter addressed in the request.

When asked for the date of an event, if the exact date or dates are unknown, then please give an estimate of the date (identifying it as an estimate) or a range of dates, as accurately as you can. Do not fail to answer on the basis that exact dates are unknown. Similarly, when asked for any other information, do not fail to answer on the

basis that the answer is not known fully or with exact precision. Rather, answer with the best information an estimates available to your, and identify your estimates as estimates.

When asked to provide to "state each fact" or the "facts upon which you rely" relating to any allegation, statement, or, legal theory, furnish a full and complete statement of the factual basis of any such allegation, statement, or, legal theory, the reason or rationale that such facts relate or pertain to the allegation, statement, or, legal theory, and how such facts relate or pertain to the allegation, statement, or, legal theory.

In responding to these requests, furnish all information and documents in your possession, custody, or control and that is known by you or subject to your reasonable inquiry. This includes, but is not limited to, information and documents in the possession of your attorneys, accountant, agents, or other persons directly or indirectly employed by you or connected with you or your attorneys.

The documents requested herein shall be produced by email to [john@revisionlegal.com](mailto:john@revisionlegal.com) or at the offices of Revision Legal, 148 E. Front St., 3rd Floor, Traverse City, MI 49684, during normal business hours.

Produce all documents in full and unexpurgated form, organized, and labeled to correspond with the categories in the discovery.

**CLAIM OF PRIVILEGE OR OTHER PROTECTION:** with respect to any document or information you withhold claiming that is privileged or subject to protection as trial preparation materials, or for any other reason, state the privilege or other grounds for non-production and describe the nature and subject matter of the documents, communications, or things not produced or disclosed (including the type of document or communication, the date it was made, the author or maker, and all recipients) in a manner that will enable other parties to assess the applicability of the claimed privilege or protection. If a portion of any otherwise discoverable document contains information subject to a claim of privilege or protection, delete or redact those portions of the documents subject to the claim of privilege or protection, affix an indication of the location and size of a portion deleted or redacted, and produce the document along with the information described in this paragraph.

### **INTERROGATORIES**

**Interrogatory No. 1:** State the factual basis for Your claim that the M22 Marks are identical to the M22 Sign.

**Answer:**

**Interrogatory No. 2:** State the factual basis for Your claim that the State of Michigan will suffer harm from Registrant's registration of the M22 Marks.

**Answer:**

**Interrogatory No. 3:** Identify all goods sold by the State of Michigan bearing the M22 Sign.

**Answer:**

**Interrogatory No. 4:** Identify all uses of the M22 Sign in association with the State of Michigan's provision, offering for sale, or sale of services.

**Answer:**

**Interrogatory No. 5:** Identify all individuals interviewed or otherwise identified by the State of Michigan who have been confused into believing that the goods or services of Registrant originate from the State of Michigan.

**Answer:**

**Interrogatory No. 6:** State the factual basis for Your claim that Registrant was not using the M22 Apparel Mark in association with all of the goods listed in its application for the M22 Apparel Mark at the time the application was filed.

**Answer:**

**Interrogatory No. 7:** Identify the manner in which the State of Michigan has used the M22 Sign as an insignia of the State of Michigan.

**Answer:**

**Interrogatory No. 8:** State the factual basis for Your allegation that "consumers purchase goods decorated with the M-22 Sign, because the M-22 Sign points to

Petitioner as the source," which is contained in Paragraph 55 of Your Second Amended Petition to Cancel.

**Answer:**

**Interrogatory No. 9:** Identify the manner in which the State of Michigan has obtained goodwill in the M22 Sign.

**Answer:**

**Interrogatory No. 10:** State the facts underlying the State of Michigan's search for a Special Assistant Attorney General for this matter, including all law firms considered and all individuals interviewed for the position.

**Answer:**

#### **REQUEST FOR PRODUCTION OF DOCUMENTS**

**Request for Production No. 1:** Produce all Documents and other Communications referred to or related to Your responses to Registrant's First Interrogatories.

**Answer:**

**Request for Production No. 2:** Produce all Documents and Communications concerning Your use of the M22 Sign.

**Answer:**

**Request for Production No. 3:** Produce all Documents and Communications concerning Your adoption of the Uniform Manual of Traffic Control Devices.

**Answer:**

**Request for Production No. 4:** Produce all Documents and Communications that You have received concerning the M22 Marks.

**Answer:**

**Request for Production No. 5:** Produce all Documents and Communications that You have received or created concerning this Trademark Trial and Appeal Board proceeding.

**Answer:**

**Request for Production No. 6:** Produce all Documents and Communications supporting Your allegations in Your Second Amended Petition to Cancel.

**Answer:**

**Request for Production No. 7:** Produce all Documents and Communications supporting Your allegation that Registrant has abandoned the M22 Marks.

**Answer:**

**Request for Production No. 8:** Produce all Documents and Communications supporting Your allegation that consumers associate Registrant's goods with You.

**Answer:**

**Request for Production No. 9:** Produce all Documents and Communications supporting Your allegation that You have been harmed by Registrant's registration of the M22 Marks.

**Answer:**

**Request for Production No. 10:** Produce all Documents and Communications supporting Your allegation that consumers believe that Registrant's goods or services originate from You.

**Answer:**

**Request for Production No. 11:** Produce all Documents and Communications supporting Your allegation that Registrant has misrepresented the source of its goods or services.

**Answer:**

**Request for Production No. 12:** Produce all Documents and Communications supporting Your allegation that You have used the M22 Sign as an insignia.

**Answer:**

**Request for Production No. 13:** Produce all Documents and Communications supporting Your allegation that the M22 Marks were obtained fraudulently.

**Answer:**

**Request for Production No. 14:** Produce all Documents and Communications concerning Your allegation that consumers have been confused into believing that Registrant's goods or services originate from You.

**Answer:**

**Request for Production No. 15:** Produce all Documents and Communications concerning Your allegation that the M22 Sign represents a region.

**Answer:**

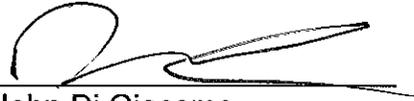
Dated this 23 day of June, 2015.

  
John Di Giacomo  
Eric Misterovich  
Revision Legal, PLLC  
148 E. Front St. 3rd Floor  
Traverse City, MI 49684  
(231) 714-0100  
eric@revisionlegal.com

john@revisionlegal.com

**CERTIFICATE OF SERVICE**

I hereby certify that on June 23, 2015, a true and correct copy of the above Registrant's First Set of Interrogatories and Requests for Production of Documents was served on Petitioner's counsel of record by electronic mail.



John Di Giacomo  
Eric Misterovich  
Revision Legal, PLLC  
148 E. Front St. 3rd Floor  
Traverse City, MI 49684  
(231) 714-0100  
eric@revisionlegal.com  
john@revisionlegal.com

Proceeding: 92058315

EXHIBIT 4 to Petitioner's  
Motion for Protective Order

STATE OF MICHIGAN  
DEPARTMENT OF ATTORNEY GENERAL



425 W. OTTAWA  
LANSING, MICHIGAN 48913

BILL SCHUETTE  
ATTORNEY GENERAL

July 7, 2015

Mr. John Di Giacomo  
Revision/Legal  
148 E. Front St., 3<sup>rd</sup> Floor  
Traverse City, MI 49684

Re: M22 Trademark Cancellation No. 92058315

Dear Mr. Di Giacomo:

I have reviewed your client's Initial Disclosures, 30(b)(6) deposition notice and discovery requests. The State of Michigan objects to the Notice of Deposition generally because, with 19 topics, it is overly broad on its face. The State also objects to Traverse City as the location for the depositions. We will make the State's designee(s) available for deposition at the Office of the Attorney General in Lansing, Michigan.

With regard to the topics listed in the Notice, the State of Michigan objects as follows:

- a. Topic No. 2 on grounds that it is vague and ambiguous, overbroad, unduly burdensome, unlimited as to time period and scope, not described with particularity, and relates to information that is irrelevant;
- b. Topic No. 3 on grounds that it is overbroad, unduly burdensome, unlimited as to time period and scope, and relates to information that is irrelevant;
- c. Topic No. 4 on grounds that it is vague and ambiguous, overbroad, unduly burdensome, and unlimited as to time period and scope;

- d. Topic No. 5 on grounds that it is overbroad, unduly burdensome, and unlimited as to time period and scope, and relates to information that is irrelevant;
- e. Topic No. 6 on grounds that it is overbroad, unduly burdensome, and unlimited as to time period, and relates to information that is irrelevant;
- f. Topic No. 7 on grounds that it is overbroad, unduly burdensome, and unlimited as to time period, and relates to information that is irrelevant;
- g. Topic No. 9 on grounds that it is vague and ambiguous, overbroad, unduly burdensome, unlimited as to time period and scope, not described with particularity, and relates to information that is irrelevant;
- h. Topic No. 10 on grounds that it is vague and ambiguous, overbroad, unduly burdensome, unlimited as to time period and scope, not described with particularity, and relates to information that is irrelevant;
- i. Topic No. 11 on grounds that it is vague and ambiguous, overbroad, unduly burdensome, unlimited as to time period and scope, not described with particularity, and relates to information that is irrelevant;
- j. Topic No. 12 on grounds that it is vague and ambiguous, overbroad, unduly burdensome, unlimited as to time period and scope, and relates to information that is irrelevant;
- k. Topic No. 13 on grounds that it is vague and ambiguous, overbroad, unduly burdensome, and relates to information that is irrelevant;
- l. Topic No. 14 on grounds that it is vague and ambiguous, overbroad, unduly burdensome, and relates to information that is irrelevant;

Mr. Di Giacomo  
Page 3  
July 7, 2015

- m. Topic No. 15 on grounds that it is vague and ambiguous, overbroad, unduly burdensome, and relates to information that is irrelevant; and
- n. Topic No. 19 on grounds that it is vague and ambiguous, overbroad, unduly burdensome, unlimited as to time period and scope, and relates to information that is irrelevant.

Upon service of a non-objectionable notice, we can discuss a deposition date once the State has adequate time to review the notice and determine the designee(s) for each topic. Accordingly, the July 28<sup>th</sup> date of deposition as set forth in the current Notice will not work.

Regarding Respondent's discovery requests, due to the number and breadth of requests and vacation schedules, additional time is needed to obtain information and prepare responses. Please confirm that you will agree to a 30-day extension of the deadline to respond to all discovery requests. Thank you in advance for the courtesy.

Absent your concurrence to the relief requested above by close of business on Thursday, July 9<sup>th</sup>, the State will file motions as appropriate.

Should you have any questions, please do not hesitate to contact me.

Sincerely,

*Toni L. Harris*

Toni L. Harris  
Assistant Attorney General  
Transportation Division  
HarrisT19@michigan.gov  
(517) 373-1470

TLH/sjl  
c: James Scott

Proceeding: 92058315

EXHIBIT 5 to Petitioner's  
Motion for Protective Order



Toni L. Harris  
Assistant Attorney General  
Transportation Division  
425 W. Ottawa  
Lansing, Michigan 48913  
[HarrisT19@michigan.gov](mailto:HarrisT19@michigan.gov)

Date: July 8, 2015

Subject: Letter dated July 7, 2015 concerning TTAB Cancellation Proceeding No. 92058315

Dear Ms. Harris:

We are in receipt of your letter dated July 7, 2015 wherein you object to M22, LLC's Notice of Deposition issued under Fed. R. Civ. P. 30(b)(6). Though you have provided no citations to the law justifying your objections, this letter is intended to respond to your objections with the applicable law.

First, you have objected to M22, LLC's Notice of Deposition on the basis that July 28, 2015 "will not work." You have provided no legal justification for your objection other than the boilerplate statement that the categories of information contained within M22, LLC's 30(b)(6) deposition notice are "vague and ambiguous, overbroad, unduly burdensome, unlimited as to time period and scope, not described with particularity, and relate[s] to information that is irrelevant." Rule 2.120(a) of the Trademark Rules of Practice "provides that mere notice alone is sufficient to secure the attendance of a party for the taking of his discovery deposition." See *Consol. Foods Corp.*, 189 U.S.P.Q. (BNA) ¶ 582 (P.T.O. Mar. 5, 1976). Rule 2.123(c) states that "[d]epositions may be noticed for any reasonable time and place in the United States."



REVISION / LEGAL

Since M22, LLC's Notice of Deposition was served upon the State of Michigan on June 23, 2015, over thirty days prior to the date and time of the deposition, M22, LLC's Notice of Deposition is both reasonable and was properly noticed.

Second, you have asserted various objections to M22, LLC's 30(b)(6) Notice of Deposition on the basis that the categories of information requested are either vague, ambiguous, overbroad, unduly burdensome, unlimited as to time period and scope, not described with particularity, and relate to information that is irrelevant. Though you have provided no details justifying these objections, which are, at best, boilerplate, M22, LLC responds to your objections in turn:

**Topic 2:** M22, LLC has requested that the State of Michigan provide testimony on its "development, creation, and use of the M-22 sign." You have objected on the basis that this request is "vague and ambiguous, overbroad, unduly burdensome, unlimited as to time period and scope, not described with particularity, and relates to information that is irrelevant."

The State of Michigan's Second Amended Petition to Cancel specifically states that the State of Michigan created the sign (§ 2), that the State of Michigan used the sign "to represent and describe the culture of Northern Michigan (§ 5)," that the State of Michigan's use of the sign has caused it to become a "symbol of that region of Petitioner (§ 7)," that, though the federal manual suggests a default sign for route markers, "Michigan chose to maintain its historic design... (§ 20)," that the "M-22 Sign points uniquely and unmistakably to the State of Michigan (§ 40)," that "Registrant has copied all aspects of Petitioner's M-22 Sign... (§ 54)," that the "M-22 Sign is an insignia of the State of Michigan (§ 59)," that the State of Michigan has "used the M-22 Sign continuously in interstate commerce for nearly a century... (§ 70)," and that "[t]hrough Petitioner's use of the M-22 Sign, Petitioner has built up extensive and valuable

goodwill in the M-22 Sign ¶ (73),” among others. Your objection, that M22, LLC’s request is vague, ambiguous, overbroad, unduly burdensome, unlimited in time period and scope, not described with particularity, and relates to information that is irrelevant, is entirely unsupported.

**Topic 3:** M22, LLC has requested that the State of Michigan provide testimony on its “development, creation, and use of the M-22 sign as a trademark.” You have objected on the basis that this request is “overbroad, unduly burdensome, unlimited as to time period and scope, and relates to information that is irrelevant.”

The State of Michigan’s Second Amended Petition to Cancel specifically states that the State of Michigan created the sign (¶ 2), that the State of Michigan used the sign “to represent and describe the culture of Northern Michigan (¶ 5),” that the State of Michigan’s use of the sign has caused it to become a “symbol of that region of Petitioner (¶ 7),” that, though the federal manual suggests a default sign for route markers, “Michigan chose to maintain its historic design... (¶ 20),” that the “M-22 Sign points uniquely and unmistakably to the State of Michigan (¶ 40),” that “Registrant has copied all aspects of Petitioner’s M-22 Sign... (¶ 54),” that the “M-22 Sign is an insignia of the State of Michigan (¶ 59),” that the State of Michigan has “used the M-22 Sign continuously in interstate commerce for nearly a century... (¶ 70),” and that “[t]hrough Petitioner’s use of the M-22 Sign, Petitioner has built up extensive and valuable goodwill in the M-22 Sign ¶ (73),” among others. Your objection, that M22, LLC’s request is overbroad, unduly burdensome, unlimited as to time period and scope, and relates to information that is irrelevant, is unsupported as well.

**Topic 4:** M22, LLC has requested that the State of Michigan provide testimony on its "use of the M-22 sign as an insignia for the State." You have objected on the basis that this request is "vague and ambiguous, overbroad, unduly burdensome, and unlimited as to time period and scope."

The State of Michigan's Second Amended Petition to Cancel specifically states that the "M-22 Sign is an insignia of the State of Michigan (§ 59)." Since the State of Michigan pleads that it has used the M-22 sign as an insignia of the State of Michigan, the State of Michigan's objection to this request is absurd.

**Topic 5:** M22, LLC has requested that the State of Michigan provide testimony on the "State of Michigan's adoption of and adherence to the Manual on Uniform Traffic Control Devices." You have objected on the basis that this request is "overbroad, unduly burdensome, and unlimited as to time period and scope, and relates to information that is irrelevant."

The State of Michigan's Second Amended Petition to Cancel specifically states that "[t]o remain eligible for federal highway and highway safety program funds, a state must adopt the federal MUTCD as a state regulation, adopt a state MUTCD that is approved by the Secretary of Transportation as being in 'substantial conformance' with the federal MUTCD, or adopt the federal MUTCD in conjunction with a state supplement (§ 18)," that the Michigan Vehicle Code requires MDOT to "adopt and maintain a uniform system of traffic control devices (§ 19)," that the State of Michigan, in compliance with the Michigan Vehicle Code, "has adopted versions of the Michigan MUTCD that are consistent with the federal manual... (§ 20)," and that the "MUTCD under the Highway Safety Act of 1966 reserves the M-22 Sign for the specific

purpose of functioning as a traffic control device (§ 23)." Consequently, your objection is meritless.

**Topic 6:** M22, LLC has requested that the State of Michigan provide testimony on the State's "use of the M-22 sign as a geographical indicator for the northwest Michigan region." You have objected on the basis that this request is "overbroad, unduly burdensome, and unlimited as to time period, and relates to information that is irrelevant."

The State of Michigan's Second Amended Petition to Cancel specifically states that the State of Michigan's use of the sign has caused it to become a "symbol of that region of Petitioner (§ 7)," that, though the federal manual suggests a default sign for route markers, "Michigan chose to maintain its historic design... (§ 20)," that the "M-22 Sign points uniquely and unmistakably to the State of Michigan (§ 40)," and that "Registrant has copied all aspects of Petitioner's M-22 Sign... (§ 54)." Thus, your objection is groundless.

**Topic 7:** M22, LLC has requested that the State of Michigan provide testimony on the State's "receipt of revenue from the use of the M-22 sign on goods or services." You have objected on the basis that this request is "overbroad, unduly burdensome, and unlimited as to time period, and relates to information that is irrelevant."

The State of Michigan's Second Amended Petition to Cancel specifically states that the State of Michigan has used the M-22 sign as a mark in association with "providing traffic management services, providing road and traffic information, and facilitating the safe and efficient travel of travelers within its borders (§ 70)." Since the State of Michigan has alleged that it has used the M-22 sign as a mark and that consumers have "come to recognize the sign as signifying Petitioner, its services, and

specific geographic areas (§ 72)...," this information is clearly relevant and discoverable.

**Topic 9:** M22, LLC has requested that the State of Michigan provide testimony on the State's "receipt of highway funds as a result of its 'substantial conformance' with the Manual on Uniform Traffic Control Devices." You have objected on the basis that this request is "vague and ambiguous, overbroad, unduly burdensome, unlimited as to time period and scope, not described with particularity, and relates to information that is irrelevant."

The State of Michigan's Second Amended Petition to Cancel specifically states that "[t]o remain eligible for federal highway and highway safety program funds, a state must adopt the federal MUTCD as a state regulation, adopt a state MUTCD that is approved by the Secretary of Transportation as being in 'substantial conformance' with the federal MUTCD, or adopt the federal MUTCD in conjunction with a state supplement (§ 18)." Consequently, the your objection is groundless.

**Topic 10:** M22, LLC has requested that the State of Michigan provide testimony on the State's "denial of highway funds for failure to comply with federal law." You have objected on the basis that this request is "vague and ambiguous, overbroad, unduly burdensome, unlimited as to time period and scope, not described with particularity, and relates to information that is irrelevant."

Again, the State of Michigan's Second Amended Petition to Cancel states that "[t]o remain eligible for federal highway and highway safety program funds, a state must adopt the federal MUTCD as a state regulation, adopt a state MUTCD that is approved by the Secretary of Transportation as being in 'substantial conformance' with the federal MUTCD, or adopt the

federal MUTCD in conjunction with a state supplement (§ 18).” Thus, this information is clearly relevant to determine whether the State of Michigan has consistently complied with federal law in the manner asserted in this case, whether the State of Michigan can decline to accept federal funding that is expressly made conditional upon compliance with federal law, and the State of Michigan’s purported damages.

**Topic 11:** M22, LLC has requested that the State of Michigan provide testimony on all correspondence received by the State of Michigan concerning its failure to comply with or adhere to the Manual on Uniform Traffic Control Devices or regulations of the Federal Highway Administration or Department of Transportation of the United States of America. You have objected on the basis that this request is “vague and ambiguous, overbroad, unduly burdensome, unlimited as to time period and scope, not described with particularity, and relates to information that is irrelevant.”

The State of Michigan contends that M22’s cannot maintain registration of the M22 marks because said registration is prohibited by the Manual on Uniform Traffic Control Devices. Thus, correspondence concerning the State of Michigan’s failure to comply with the MUTCD, or other, similar purported federal mandates, are directly relevant to whether the State of Michigan’s assertions that it will be harmed by M22’s registrations are true or are, rather, manufactured for the purposes of continuing this TTAB action.

**Topic 12:** M22, LLC has requested that the State of Michigan provide testimony on the “taxes paid by M22, LLC to the State of Michigan.” You have objected on the basis that this request is “vague and ambiguous, overbroad, unduly burdensome, unlimited as to time period and scope, and relates to information that is irrelevant.”

The State of Michigan contends that it has been harmed by M22's use of the M22 marks. Thus, the taxes paid by M22 from its business activities are directly relevant to the question of whether the State of Michigan has been harmed, and to what extent. Therefore, your objection is without merit.

**Topic 13:** M22, LLC has requested that the State of Michigan provide testimony on its recognition of M22, LLC as one of Michigan's 50 Companies to Watch. You have objected on the basis that this request is "vague and ambiguous, overbroad, unduly burdensome, and relates to information that is irrelevant."

The State of Michigan contends that it is harmed by M22, LLC's use of the M22 marks, but it has, at the same time, recognized M22, LLC as one of Michigan's 50 Companies to Watch. Thus, your objection is without merit because this information is directly relevant to whether the State of Michigan's assertions that it will be harmed by M22's registrations are true or are, rather, manufactured for the purposes of continuing this TTAB action.

**Topic 14:** M22, LLC has requested that the State of Michigan provide testimony on its use of M22 in its Pure Michigan campaign. You have objected on the basis that it is "vague and ambiguous, overbroad, unduly burdensome, and relates to information that is irrelevant."

The State of Michigan contends that it has been harmed by M22's use of the M22 marks, but it has, at the same time, recognized M22 in its Pure Michigan campaign. Thus, your objection is without merit because this information is directly relevant to whether the State of Michigan's

assertions that it will be harmed by M22's registrations are true or are, rather, manufactured for the purposes of continuing this TTAB action.

**Topic 15:** M22, LLC has requested that the State of Michigan provide testimony on the State of Michigan's use of M22, LLC in the Pure Michigan "Official State Travel Guide." You have objected on the basis that it is "vague and ambiguous, overbroad, unduly burdensome, and relates to information that is irrelevant."

The State of Michigan contends that it has been harmed by M22's use of the M22 marks, but it has, at the same time, recognized M22 in its Pure Michigan campaign. Thus, your objection is without merit because this information is directly relevant to whether the State of Michigan's assertions that it will be harmed by M22's registrations are true or are, rather, manufactured for the purposes of continuing this TTAB action.

**Topic 19:** M22, LLC has requested that the State of Michigan provide testimony on its "adoption and enforcement of the Michigan Manual on Uniform Traffic Control Devices against third parties." You have objected on the basis that it is "vague and ambiguous, overbroad, unduly burdensome, unlimited as to time period and scope, and relates to information that is irrelevant."

The State of Michigan contends that it must enforce the Michigan Manual on Uniform Traffic Control Devices against M22, LLC or lose federal highway funding. Consequently, this information is clearly relevant to determining whether the State of Michigan has consistently enforced the MUTCD against third parties, or whether it has only enforced the MUTCD against M22.

Third, you objected on the basis that M22's Notice of Deposition sets Traverse City, Michigan as the place for the deposition. M22's Notice of Deposition was noticed for a reasonable place in the United States and within a judicial district in which the State of Michigan can be found. The State of Michigan clearly resides within Traverse City, Michigan, and has no reasonable basis for objecting to a deposition within Traverse City, Michigan. Therefore, your objection is without merit.

Finally, M22 is not agreeable to your request to extend the time to respond to its discovery requests. As you know, this matter has been in front of the TTAB since December 2013, and the interlocutory attorney has instructed the parties to proceed with discovery. In light of this, and because M22's Notice of Deposition is entirely reasonable, M22 will be proceeding with the deposition of the State of Michigan in Traverse City, Michigan on July 28 as scheduled. See *In re Christina Sukljan*, Opposition No. 91205046, 2015 WL 496140, at 3 (Jan. 20, 2015) (holding that 9 days was sufficient time for notice of a deposition); see also *Sunrider Corp. v. Raats*, 83 USPQ 2d 1648, 1653 (TTAB 2007) (finding six days reasonable notice for deposition). Should the State of Michigan fail to attend, M22 will proceed with filing a motion to compel and request that the interlocutory attorney sanction the State of Michigan for its failure to attend by dismissing this cancellation proceeding with prejudice. See *Christina Sukljan* at 4.

Do not hesitate to contact me should you have any questions.

Sincerely,

John Di Giacomo

Proceeding: 92058315

EXHIBIT 6 to Petitioner's  
Motion for Protective Order

## MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES INTRODUCTION

### Standard:

- 01 Traffic control devices shall be defined as all signs, signals, markings, and other devices used to regulate, warn, or guide traffic, placed on, over, or adjacent to a street, highway, pedestrian facility, bikeway, or private road open to public travel (see definition in Section 1A.13) by authority of a public agency or official having jurisdiction, or, in the case of a private road, by authority of the private owner or private official having jurisdiction.
- 02 The Manual on Uniform Traffic Control Devices (MUTCD) is incorporated by reference in 23 Code of Federal Regulations (CFR), Part 655, Subpart F and shall be recognized as the national standard for all traffic control devices installed on any street, highway, bikeway, or private road open to public travel (see definition in Section 1A.13) in accordance with 23 U.S.C. 109(d) and 402(a). The policies and procedures of the Federal Highway Administration (FHWA) to obtain basic uniformity of traffic control devices shall be as described in 23 CFR 655, Subpart F.
- 03 In accordance with 23 CFR 655.603(a), for the purposes of applicability of the MUTCD:
- A. Toll roads under the jurisdiction of public agencies or authorities or public-private partnerships shall be considered to be public highways;
  - B. Private roads open to public travel shall be as defined in Section 1A.13; and
  - C. Parking areas, including the driving aisles within those parking areas, that are either publicly or privately owned shall not be considered to be "open to public travel" for purposes of MUTCD applicability.
- 04 Any traffic control device design or application provision contained in this Manual shall be considered to be in the public domain. Traffic control devices contained in this Manual shall not be protected by a patent, trademark, or copyright, except for the Interstate Shield and any items owned by FHWA.

### Support:

- 05 Pictographs, as defined in Section 1A.13, are embedded in traffic control devices but the pictographs themselves are not considered traffic control devices for the purposes of Paragraph 4.
- 06 The need for uniform standards was recognized long ago. The American Association of State Highway Officials (AASHO), now known as the American Association of State Highway and Transportation Officials (AASHTO), published a manual for rural highways in 1927, and the National Conference on Street and Highway Safety (NCSHS) published a manual for urban streets in 1930. In the early years, the necessity for unification of the standards applicable to the different classes of road and street systems was obvious. To meet this need, a joint committee of AASHO and NCSHS developed and published the original edition of this Manual on Uniform Traffic Control Devices (MUTCD) in 1935. That committee, now called the National Committee on Uniform Traffic Control Devices (NCUTCD), though changed from time to time in name, organization, and personnel, has been in continuous existence and has contributed to periodic revisions of this Manual. The FHWA has administered the MUTCD since the 1971 edition. The FHWA and its predecessor organizations have participated in the development and publishing of the previous editions. There were nine previous editions of the MUTCD, and several of those editions were revised one or more times. Table I-1 traces the evolution of the MUTCD, including the two manuals developed by AASHO and NCSHS.

### Standard:

- 07 The U.S. Secretary of Transportation, under authority granted by the Highway Safety Act of 1966, decreed that traffic control devices on all streets and highways open to public travel in accordance with 23 U.S.C. 109(d) and 402(a) in each State shall be in substantial conformance with the Standards issued or endorsed by the FHWA.

### Support:

- 08 The "Uniform Vehicle Code (UVC)" is one of the publications referenced in the MUTCD. The UVC contains a model set of motor vehicle codes and traffic laws for use throughout the United States.

### Guidance:

- 09 *The States should adopt Section 15-116 of the UVC, which states that, "No person shall install or maintain in any area of private property used by the public any sign, signal, marking, or other device intended to regulate, warn, or guide traffic unless it conforms with the State manual and specifications adopted under Section 15-104."*

Table I-1. Evolution of the MUTCD

Year	Name	Month / Year Revised
1927	Manual and Specifications for the Manufacture, Display, and Erection of U.S. Standard Road Markers and Signs (for rural roads)	4/29, 12/31
1930	Manual on Street Traffic Signs, Signals, and Markings (for urban streets)	No revisions
1935	Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD)	2/39
1942	Manual on Uniform Traffic Control Devices for Streets and Highways — War Emergency Edition	No revisions
1948	Manual on Uniform Traffic Control Devices for Streets and Highways	9/54
1961	Manual on Uniform Traffic Control Devices for Streets and Highways	No revisions
1971	Manual on Uniform Traffic Control Devices for Streets and Highways	11/71, 4/72, 3/73, 10/73, 6/74, 6/75, 9/76, 12/77
1978	Manual on Uniform Traffic Control Devices for Streets and Highways	12/79, 12/83, 9/84, 3/86
1988	Manual on Uniform Traffic Control Devices for Streets and Highways	1/90, 3/92, 9/93, 11/94, 12/96, 6/98, 1/00
2000	Manual on Uniform Traffic Control Devices for Streets and Highways — Millennium Edition	7/02
2003	Manual on Uniform Traffic Control Devices for Streets and Highways	11/04, 12/07
2009	Manual on Uniform Traffic Control Devices for Streets and Highways	

**Support:**

- 10 The Standard, Guidance, Option, and Support material described in this edition of the MUTCD provide the transportation professional with the information needed to make appropriate decisions regarding the use of traffic control devices on streets, highways, bikeways, and private roads open to public travel (see definition in Section 1A.13).
- 11 Throughout this Manual the headings Standard, Guidance, Option, and Support are used to classify the nature of the text that follows. Figures and tables, including the notes contained therein, supplement the text and might constitute a Standard, Guidance, Option, or Support. The user needs to refer to the appropriate text to classify the nature of the figure, table, or note contained therein.

**Standard:**

- 12 **When used in this Manual, the text headings of Standard, Guidance, Option, and Support shall be as defined in Paragraph 1 of Section 1A.13.**

**Support:**

- 13 Throughout this Manual all dimensions and distances are provided in English units. Appendix A2 contains tables for converting each of the English unit numerical values that are used in this Manual to the equivalent Metric (International System of Units) values.

**Guidance:**

- 14 *If Metric units are to be used in laying out distances or determining sizes of devices, such units should be specified on plan drawings and made known to those responsible for designing, installing, or maintaining traffic control devices.*
- 15 *Except when a specific numeral is required or recommended by the text of a Section of this Manual, numerals displayed on the images of devices in the figures that specify quantities such as times, distances, speed limits, and weights should be regarded as examples only. When installing any of these devices, the numerals should be appropriately altered to fit the specific situation.*

**Support:**

- 16 The following information will be useful when reference is being made to a specific portion of text in this Manual.
- 17 There are nine Parts in this Manual and each Part is comprised of one or more Chapters. Each Chapter is comprised of one or more Sections. Parts are given a numerical identification, such as Part 2 – Signs. Chapters are identified by the Part number and a letter, such as Chapter 2B – Regulatory Signs, Barricades, and Gates. Sections are identified by the Chapter number and letter followed by a decimal point and a number, such as Section 2B.03 – Size of Regulatory Signs.

18 Each Section is comprised of one or more paragraphs. The paragraphs are indented and are identified by a number. Paragraphs are counted from the beginning of each Section without regard to the intervening text headings (Standard, Guidance, Option, or Support). Some paragraphs have lettered or numbered items. As an example of how to cite this Manual, the phrase "Not less than 40 feet beyond the stop line" that appears in Section 4D.14 of this Manual would be referenced in writing as "Section 4D.14, P1, A.1," and would be verbally referenced as "Item A.1 of Paragraph 1 of Section 4D.14."

**Standard:**

19 In accordance with 23 CFR 655.603(b)(3), States or other Federal agencies that have their own MUTCDs or Supplements shall revise these MUTCDs or Supplements to be in substantial conformance with changes to the National MUTCD within 2 years of the effective date of the Final Rule for the changes. Substantial conformance of such State or other Federal agency MUTCDs or Supplements shall be as defined in 23 CFR 655.603(b)(1).

20 After the effective date of a new edition of the MUTCD or a revision thereto, or after the adoption thereof by the State, whichever occurs later, new or reconstructed devices installed shall be in compliance with the new edition or revision.

21 In cases involving Federal-aid projects for new highway or bikeway construction or reconstruction, the traffic control devices installed (temporary or permanent) shall be in conformance with the most recent edition of the National MUTCD before that highway is opened or re-opened to the public for unrestricted travel [23 CFR 655.603(d)(2) and (d)(3)].

22 Unless a particular device is no longer serviceable, non-compliant devices on existing highways and bikeways shall be brought into compliance with the current edition of the National MUTCD as part of the systematic upgrading of substandard traffic control devices (and installation of new required traffic control devices) required pursuant to the Highway Safety Program, 23 U.S.C. §402(a). The FHWA has the authority to establish other target compliance dates for implementation of particular changes to the MUTCD [23 CFR 655.603(d)(1)]. These target compliance dates established by the FHWA shall be as shown in Table I-2.

23 Except as provided in Paragraph 24, when a non-compliant traffic control device is being replaced or refurbished because it is damaged, missing, or no longer serviceable for any reason, it shall be replaced with a compliant device.

**Option:**

24 A damaged, missing, or otherwise non-serviceable device that is non-compliant may be replaced in kind if engineering judgment indicates that:

- A. One compliant device in the midst of a series of adjacent non-compliant devices would be confusing to road users; and/or
- B. The schedule for replacement of the whole series of non-compliant devices will result in achieving timely compliance with the MUTCD.

**Table I-2. Target Compliance Dates Established by the FHWA**

2009 MUTCD Section Number(s)	2009 MUTCD Section Title	Specific Provision	Compliance Date
2A.08	Maintaining Minimum Retroreflectivity	Implementation and continued use of an assessment or management method that is designed to maintain regulatory and warning sign retroreflectivity at or above the established minimum levels (see Paragraph 2)	2 years from the effective date of this revision of the 2009 MUTCD*
2A.19	Lateral Offset	Crashworthiness of sign supports on roads with posted speed limit of 50 mph or higher (see Paragraph 2)	January 17, 2013 (date established in the 2000 MUTCD)
2B.40	ONE WAY Signs (R6-1, R6-2)	New requirements in the 2009 MUTCD for the number and locations of ONE WAY signs (see Paragraphs 4, 9, and 10)	December 31, 2019
2C.06 through 2C.14	Horizontal Alignment Warning Signs	Revised requirements in the 2009 MUTCD regarding the use of various horizontal alignment signs (see Table 2C-5)	December 31, 2019
2E.31, 2E.33, and 2E.36	Plaques for Left-Hand Exits	New requirement in the 2009 MUTCD to use E1-5aP and E1-5bP plaques for left-hand exits	December 31, 2014
4D.26	Yellow Change and Red Clearance Intervals	New requirement in the 2009 MUTCD that durations of yellow change and red clearance intervals shall be determined using engineering practices (see Paragraphs 3 and 6)	5 years from the effective date of this revision of the 2009 MUTCD, or when timing adjustments are made to the individual intersection and/or corridor, whichever occurs first
4E.06	Pedestrian Intervals and Signal Phases	New requirement in the 2009 MUTCD that the pedestrian change interval shall not extend into the red clearance interval and shall be followed by a buffer interval of at least 3 seconds (see Paragraph 4)	5 years from the effective date of this revision of the 2009 MUTCD, or when timing adjustments are made to the individual intersection and/or corridor, whichever occurs first
6D.03**	Worker Safety Considerations	New requirement in the 2009 MUTCD that all workers within the right-of-way shall wear high-visibility apparel (see Paragraphs 4, 6, and 7)	December 31, 2011
6E.02**	High-Visibility Safety Apparel	New requirement in the 2009 MUTCD that all flaggers within the right-of-way shall wear high-visibility apparel	December 31, 2011
7D.04**	Uniform of Adult Crossing Guards	New requirement in the 2009 MUTCD for high-visibility apparel for adult crossing guards	December 31, 2011
8B.03, 8B.04	Grade Crossing (Crossbuck) Signs and Supports	Retroreflective strip on Crossbuck sign and support (see Paragraph 7 in Section 8B.03 and Paragraphs 15 and 18 in Section 8B.04)	December 31, 2019
8B.04	Crossbuck Assemblies with YIELD or STOP Signs at Passive Grade Crossings	New requirement in the 2009 MUTCD for the use of STOP or YIELD signs with Crossbuck signs at passive grade crossings	December 31, 2019

Rev. 2

\* Types of signs other than regulatory or warning are to be added to an agency's management or assessment method as resources allow.

\*\* MUTCD requirement is a result of a legislative mandate.

Note: All compliance dates that were previously published in Table I-2 of the 2009 MUTCD and that do not appear in this revised table have been eliminated.

Proceeding: 92058315

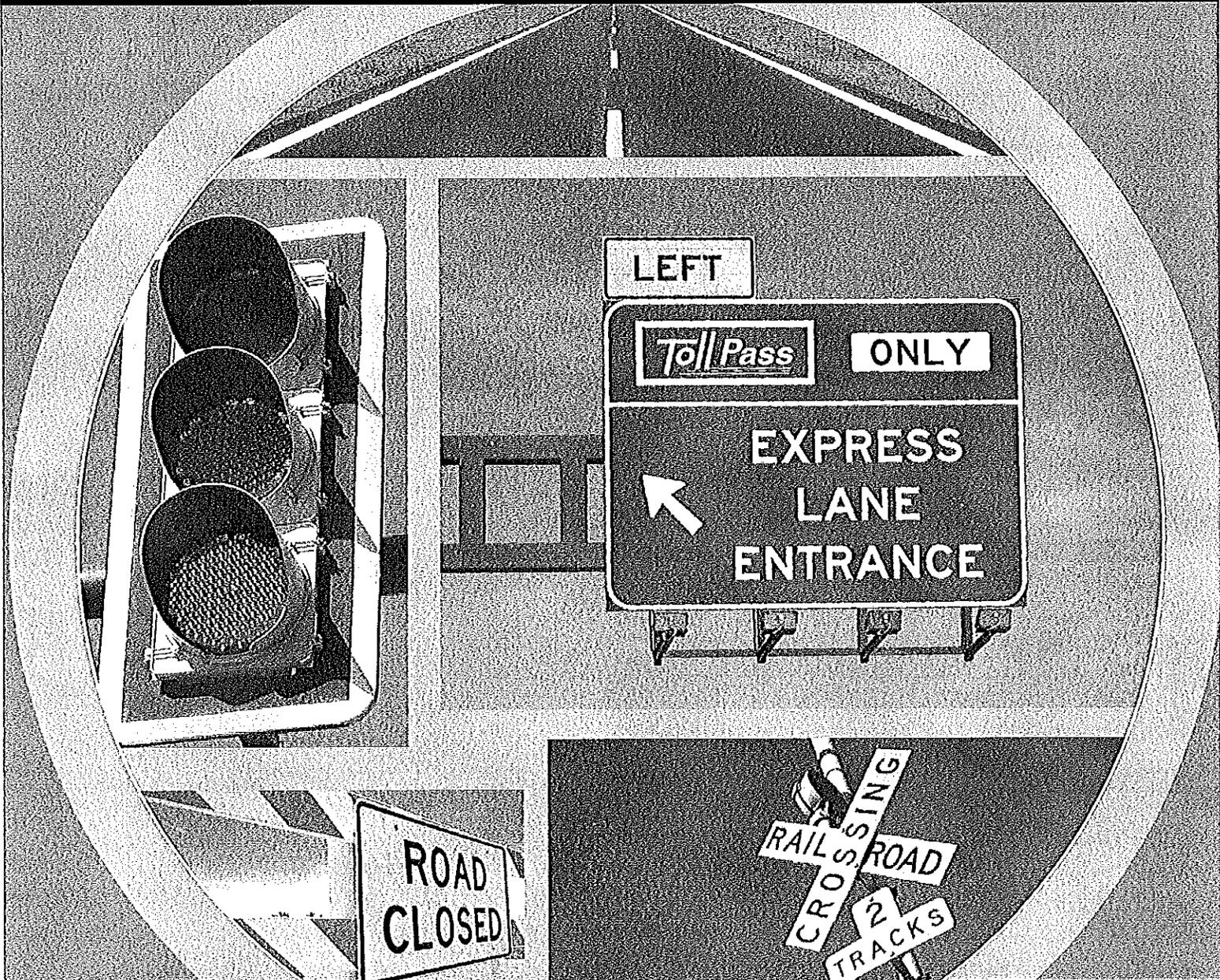
EXHIBIT 7 to Petitioner's  
Motion for Protective Order

# Manual on Uniform Traffic Control Devices

for Streets and Highways

## 2009 Edition

Including Revision 1 dated May 2012  
and Revision 2 dated May 2012



U.S. Department of Transportation  
Federal Highway Administration

# MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES

## TABLE OF CONTENTS

		<u>Page</u>
<b>INTRODUCTION</b> .....		I-1
<b>PART 1. GENERAL</b>		
<b><u>CHAPTER 1A. GENERAL</u></b>		
Section 1A.01	Purpose of Traffic Control Devices.....	1
Section 1A.02	Principles of Traffic Control Devices.....	1
Section 1A.03	Design of Traffic Control Devices.....	1
Section 1A.04	Placement and Operation of Traffic Control Devices.....	2
Section 1A.05	Maintenance of Traffic Control Devices.....	2
Section 1A.06	Uniformity of Traffic Control Devices.....	2
Section 1A.07	Responsibility for Traffic Control Devices.....	2
Section 1A.08	Authority for Placement of Traffic Control Devices.....	3
Section 1A.09	Engineering Study and Engineering Judgment.....	4
Section 1A.10	Interpretations, Experimentations, Changes, and Interim Approvals.....	4
Section 1A.11	Relation to Other Publications.....	7
Section 1A.12	Color Code.....	10
Section 1A.13	Definitions of Headings, Words, and Phrases in this Manual.....	10
Section 1A.14	Meanings of Acronyms and Abbreviations in this Manual.....	23
Section 1A.15	Abbreviations Used on Traffic Control Devices.....	24
<b>PART 2. SIGNS</b>		
<b><u>CHAPTER 2A. GENERAL</u></b>		
Section 2A.01	Function and Purpose of Signs.....	27
Section 2A.02	Definitions.....	27
Section 2A.03	Standardization of Application.....	27
Section 2A.04	Excessive Use of Signs.....	27
Section 2A.05	Classification of Signs.....	28
Section 2A.06	Design of Signs.....	28
Section 2A.07	Retroreflectivity and Illumination.....	29
Section 2A.08	Maintaining Minimum Retroreflectivity.....	30
Section 2A.09	Shapes.....	32
Section 2A.10	Sign Colors.....	32
Section 2A.11	Dimensions.....	32
Section 2A.12	Symbols.....	34
Section 2A.13	Word Messages.....	35
Section 2A.14	Sign Borders.....	36
Section 2A.15	Enhanced Conspicuity for Standard Signs.....	36
Section 2A.16	Standardization of Location.....	37
Section 2A.17	Overhead Sign Installations.....	41
Section 2A.18	Mounting Height.....	42
Section 2A.19	Lateral Offset.....	43
Section 2A.20	Orientation.....	43
Section 2A.21	Posts and Mountings.....	44
Section 2A.22	Maintenance.....	44
Section 2A.23	Median Opening Treatments for Divided Highways with Wide Medians.....	44

**CHAPTER 2B. REGULATORY SIGNS, BARRICADES, AND GATES**

Section 2B.01	Application of Regulatory Signs .....	45
Section 2B.02	Design of Regulatory Signs.....	45
Section 2B.03	Size of Regulatory Signs .....	45
Section 2B.04	Right-of-Way at Intersections .....	49
Section 2B.05	STOP Sign (R1-1) and ALL WAY Plaque (R1-3P) .....	51
Section 2B.06	STOP Sign Applications.....	52
Section 2B.07	Multi-Way Stop Applications .....	52
Section 2B.08	YIELD Sign (R1-2) .....	53
Section 2B.09	YIELD Sign Applications .....	53
Section 2B.10	STOP Sign or YIELD Sign Placement.....	53
Section 2B.11	Yield Here To Pedestrians Signs and Stop Here For Pedestrians Signs (R1-5 Series) .....	54
Section 2B.12	In-Street and Overhead Pedestrian Crossing Signs (R1-6, R1-6a, R1-9, and R1-9a).....	55
Section 2B.13	Speed Limit Sign (R2-1) .....	56
Section 2B.14	Truck Speed Limit Plaque (R2-2P).....	58
Section 2B.15	Night Speed Limit Plaque (R2-3P).....	58
Section 2B.16	Minimum Speed Limit Plaque (R2-4P).....	59
Section 2B.17	Higher Fines Signs and Plaque (R2-6P, R2-10, and R2-11) .....	59
Section 2B.18	Movement Prohibition Signs (R3-1 through R3-4, R3-18, and R3-27) .....	60
Section 2B.19	Intersection Lane Control Signs (R3-5 through R3-8).....	61
Section 2B.20	Mandatory Movement Lane Control Signs (R3-5, R3-5a, R3-7, and R3-20) .....	62
Section 2B.21	Optional Movement Lane Control Sign (R3-6).....	63
Section 2B.22	Advance Intersection Lane Control Signs (R3-8 Series).....	64
Section 2B.23	RIGHT (LEFT) LANE MUST EXIT Sign (R3-33) .....	64
Section 2B.24	Two-Way Left Turn Only Signs (R3-9a, R3-9b) .....	64
Section 2B.25	BEGIN and END Plaques (R3-9cP, R3-9dP).....	64
Section 2B.26	Reversible Lane Control Signs (R3-9e through R3-9i) .....	65
Section 2B.27	Jughandle Signs (R3-23, R3-24, R3-25, and R3-26 Series).....	67
Section 2B.28	DO NOT PASS Sign (R4-1) .....	72
Section 2B.29	PASS WITH CARE Sign (R4-2) .....	73
Section 2B.30	KEEP RIGHT EXCEPT TO PASS Sign (R4-16) and SLOWER TRAFFIC KEEP RIGHT Sign (R4-3).....	73
Section 2B.31	TRUCKS USE RIGHT LANE Sign (R4-5).....	73
Section 2B.32	Keep Right and Keep Left Signs (R4-7, R4-8) .....	73
Section 2B.33	STAY IN LANE Sign (R4-9) .....	74
Section 2B.34	RUNAWAY VEHICLES ONLY Sign (R4-10).....	74
Section 2B.35	Slow Vehicle Turn-Out Signs (R4-12, R4-13, and R4-14) .....	74
Section 2B.36	DO NOT DRIVE ON SHOULDER Sign (R4-17) and DO NOT PASS ON SHOULDER Sign (R4-18) .....	75
Section 2B.37	DO NOT ENTER Sign (R5-1) .....	75
Section 2B.38	WRONG WAY Sign (R5-1a).....	76
Section 2B.39	Selective Exclusion Signs .....	76
Section 2B.40	ONE WAY Signs (R6-1, R6-2) .....	77
Section 2B.41	Wrong-Way Traffic Control at Interchange Ramps .....	79
Section 2B.42	Divided Highway Crossing Signs (R6-3, R6-3a) .....	82
Section 2B.43	Roundabout Directional Arrow Signs (R6-4, R6-4a, and R6-4b) .....	84
Section 2B.44	Roundabout Circulation Plaque (R6-5P) .....	84
Section 2B.45	Examples of Roundabout Signing .....	84
Section 2B.46	Parking, Standing, and Stopping Signs (R7 and R8 Series) .....	88
Section 2B.47	Design of Parking, Standing, and Stopping Signs .....	89
Section 2B.48	Placement of Parking, Stopping, and Standing Signs.....	92
Section 2B.49	Emergency Restriction Signs (R8-4, R8-7, R8-8).....	92
Section 2B.50	WALK ON LEFT FACING TRAFFIC and No Hitchhiking Signs (R9-1, R9-4, R9-4a).....	92

Section 2B.51	Pedestrian Crossing Signs (R9-2, R9-3).....	92
Section 2B.52	Traffic Signal Pedestrian and Bicycle Actuation Signs (R10-1 through R10-4, and R10-24 through R10-26) .....	94
Section 2B.53	Traffic Signal Signs (R10-5 through R10-30).....	95
Section 2B.54	No Turn on Red Signs (R10-11 Series, R10-17a, and R10-30).....	95
Section 2B.55	Photo Enforced Signs and Plaques (R10-18, R10-19P, R10-19aP).....	97
Section 2B.56	Ramp Metering Signs (R10-28 and R10-29) .....	97
Section 2B.57	KEEP OFF MEDIAN Sign (R11-1) .....	97
Section 2B.58	ROAD CLOSED Sign (R11-2) and LOCAL TRAFFIC ONLY Signs (R11-3 Series, R11-4)....	98
Section 2B.59	Weight Limit Signs (R12-1 through R12-5) .....	98
Section 2B.60	Weigh Station Signs (R13 Series).....	99
Section 2B.61	TRUCK ROUTE Sign (R14-1).....	99
Section 2B.62	Hazardous Material Signs (R14-2, R14-3).....	99
Section 2B.63	National Network Signs (R14-4, R14-5).....	100
Section 2B.64	Headlight Use Signs (R16-5 through R16-11) .....	100
Section 2B.65	FENDER BENDER Sign (R16-4) .....	101
Section 2B.66	Seat Belt Symbol .....	101
Section 2B.67	Barricades .....	101
Section 2B.68	Gates .....	101

## **CHAPTER 2C. WARNING SIGNS AND OBJECT MARKERS**

Section 2C.01	Function of Warning Signs.....	103
Section 2C.02	Application of Warning Signs .....	103
Section 2C.03	Design of Warning Signs .....	103
Section 2C.04	Size of Warning Signs .....	103
Section 2C.05	Placement of Warning Signs .....	108
Section 2C.06	Horizontal Alignment Warning Signs.....	109
Section 2C.07	Horizontal Alignment Signs (W1-1 through W1-5, W1-11, W1-15) .....	110
Section 2C.08	Advisory Speed Plaque (W13-1P).....	112
Section 2C.09	Chevron Alignment Sign (W1-8) .....	112
Section 2C.10	Combination Horizontal Alignment/Advisory Speed Signs (W1-1a, W1-2a).....	113
Section 2C.11	Combination Horizontal Alignment/Intersection Signs (W1-10 Series) .....	113
Section 2C.12	One-Direction Large Arrow Sign (W1-6).....	113
Section 2C.13	Truck Rollover Warning Sign (W1-13).....	114
Section 2C.14	Advisory Exit and Ramp Speed Signs (W13-2 and W13-3).....	114
Section 2C.15	Combination Horizontal Alignment/Advisory Exit and Ramp Speed Signs (W13-6 and W13-7).....	115
Section 2C.16	Hill Signs (W7-1, W7-1a) .....	115
Section 2C.17	Truck Escape Ramp Signs (W7-4 Series) .....	115
Section 2C.18	HILL BLOCKS VIEW Sign (W7-6) .....	117
Section 2C.19	ROAD NARROWS Sign (W5-1).....	117
Section 2C.20	NARROW BRIDGE Sign (W5-2).....	118
Section 2C.21	ONE LANE BRIDGE Sign (W5-3) .....	118
Section 2C.22	Divided Highway Sign (W6-1) .....	119
Section 2C.23	Divided Highway Ends Sign (W6-2).....	119
Section 2C.24	Freeway or Expressway Ends Signs (W19 Series).....	119
Section 2C.25	Double Arrow Sign (W12-1) .....	119
Section 2C.26	DEAD END/NO OUTLET Signs (W14-1, W14-1a, W14-2, W14-2a) .....	119
Section 2C.27	Low Clearance Signs (W12-2 and W12-2a) .....	120
Section 2C.28	BUMP and DIP Signs (W8-1, W8-2) .....	120
Section 2C.29	SPEED HUMP Sign (W17-1) .....	120
Section 2C.30	PAVEMENT ENDS Sign (W8-3) .....	122
Section 2C.31	Shoulder Signs (W8-4, W8-9, W8-17, W8-23, and W8-25).....	122
Section 2C.32	Surface Condition Signs (W8-5, W8-7, W8-8, W8-11, W8-13, and W8-14) .....	122

Section 2C.33	Warning Signs and Plaques for Motorcyclists (W8-15, W8-15P, and W8-16).....	123
Section 2C.34	NO CENTER LINE Sign (W8-12) .....	123
Section 2C.35	Weather Condition Signs (W8-18, W8-19, W8-21, and W8-22).....	123
Section 2C.36	Advance Traffic Control Signs (W3-1, W3-2, W3-3, W3-4) .....	123
Section 2C.37	Advance Ramp Control Signal Signs (W3-7 and W3-8).....	124
Section 2C.38	Reduced Speed Limit Ahead Signs (W3-5, W3-5a).....	124
Section 2C.39	DRAW BRIDGE Sign (W3-6).....	125
Section 2C.40	Merge Signs (W4-1, W4-5).....	125
Section 2C.41	Added Lane Signs (W4-3, W4-6).....	126
Section 2C.42	Lane Ends Signs (W4-2, W9-1, W9-2) .....	126
Section 2C.43	RIGHT (LEFT) LANE EXIT ONLY AHEAD Sign (W9-7) .....	126
Section 2C.44	Two-Way Traffic Sign (W6-3) .....	127
Section 2C.45	NO PASSING ZONE Sign (W14-3).....	127
Section 2C.46	Intersection Warning Signs (W2-1 through W2-8) .....	127
Section 2C.47	Two-Direction Large Arrow Sign (W1-7) .....	128
Section 2C.48	Traffic Signal Signs (W25-1, W25-2) .....	128
Section 2C.49	Vehicular Traffic Warning Signs (W8-6, W11-1, W11-5, W11-5a, W11-8, W11-10, W11-11, W11-12P, W11-14, W11-15, and W11-15a).....	128
Section 2C.50	Non-Vehicular Warning Signs (W11-2, W11-3, W11-4, W11-6, W11-7, W11-9, and W11-16 through W11-22).....	130
Section 2C.51	Playground Sign (W15-1) .....	131
Section 2C.52	NEW TRAFFIC PATTERN AHEAD Sign (W23-2) .....	131
Section 2C.53	Use of Supplemental Warning Plaques .....	131
Section 2C.54	Design of Supplemental Warning Plaques .....	132
Section 2C.55	Distance Plaques (W16-2 Series, W16-3 Series, W16-4P, W7-3aP) .....	132
Section 2C.56	Supplemental Arrow Plaques (W16-5P, W16-6P) .....	132
Section 2C.57	Hill-Related Plaques (W7-2 Series, W7-3 Series) .....	133
Section 2C.58	Advance Street Name Plaque (W16-8P, W16-8aP) .....	133
Section 2C.59	CROSS TRAFFIC DOES NOT STOP Plaque (W4-4P) .....	133
Section 2C.60	SHARE THE ROAD Plaque (W16-1P) .....	133
Section 2C.61	Photo Enforced Plaque (W16-10P).....	134
Section 2C.62	NEW Plaque (W16-15P) .....	134
Section 2C.63	Object Marker Design and Placement Height .....	134
Section 2C.64	Object Markers for Obstructions Within the Roadway .....	135
Section 2C.65	Object Markers for Obstructions Adjacent to the Roadway .....	135
Section 2C.66	Object Markers for Ends of Roadways.....	136

## **CHAPTER 2D. GUIDE SIGNS—CONVENTIONAL ROADS**

Section 2D.01	Scope of Conventional Road Guide Sign Standards .....	137
Section 2D.02	Application .....	137
Section 2D.03	Color, Retroreflection, and Illumination.....	137
Section 2D.04	Size of Signs.....	137
Section 2D.05	Lettering Style.....	138
Section 2D.06	Size of Lettering.....	138
Section 2D.07	Amount of Legend .....	140
Section 2D.08	Arrows.....	140
Section 2D.09	Numbered Highway Systems .....	142
Section 2D.10	Route Signs and Auxiliary Signs .....	142
Section 2D.11	Design of Route Signs .....	143
Section 2D.12	Design of Route Sign Auxiliaries.....	144
Section 2D.13	Junction Auxiliary Sign (M2-1) .....	144
Section 2D.14	Combination Junction Sign (M2-2) .....	145
Section 2D.15	Cardinal Direction Auxiliary Signs (M3-1 through M3-4) .....	145
Section 2D.16	Auxiliary Signs for Alternative Routes (M4 Series) .....	145

Section 2D.17	ALTERNATE Auxiliary Signs (M4-1, M4-1a).....	145
Section 2D.18	BY-PASS Auxiliary Sign (M4-2) .....	146
Section 2D.19	BUSINESS Auxiliary Sign (M4-3) .....	146
Section 2D.20	TRUCK Auxiliary Sign (M4-4) .....	146
Section 2D.21	TO Auxiliary Sign (M4-5) .....	146
Section 2D.22	END Auxiliary Sign (M4-6).....	146
Section 2D.23	BEGIN Auxiliary Sign (M4-14).....	146
Section 2D.24	TEMPORARY Auxiliary Signs (M4-7, M4-7a).....	147
Section 2D.25	Temporary Detour and Auxiliary Signs .....	147
Section 2D.26	Advance Turn Arrow Auxiliary Signs (M5-1, M5-2, and M5-3) .....	147
Section 2D.27	Lane Designation Auxiliary Signs (M5-4, M5-5, and M5-6) .....	148
Section 2D.28	Directional Arrow Auxiliary Signs (M6 Series) .....	148
Section 2D.29	Route Sign Assemblies.....	148
Section 2D.30	Junction Assembly .....	153
Section 2D.31	Advance Route Turn Assembly .....	153
Section 2D.32	Directional Assembly.....	153
Section 2D.33	Combination Lane-Use/Destination Overhead Guide Sign (D15-1).....	154
Section 2D.34	Confirming or Reassurance Assemblies .....	155
Section 2D.35	Trailblazer Assembly .....	155
Section 2D.36	Destination and Distance Signs.....	156
Section 2D.37	Destination Signs (D1 Series).....	156
Section 2D.38	Destination Signs at Circular Intersections .....	157
Section 2D.39	Destination Signs at Jughandles .....	158
Section 2D.40	Location of Destination Signs .....	158
Section 2D.41	Distance Signs (D2 Series).....	161
Section 2D.42	Location of Distance Signs .....	161
Section 2D.43	Street Name Signs (D3-1 or D3-1a).....	161
Section 2D.44	Advance Street Name Signs (D3-2) .....	163
Section 2D.45	Signing on Conventional Roads on Approaches to Interchanges .....	164
Section 2D.46	Freeway Entrance Signs (D13-3 and D13-3a).....	170
Section 2D.47	Parking Area Guide Sign (D4-1).....	171
Section 2D.48	PARK - RIDE Sign (D4-2) .....	171
Section 2D.49	Weigh Station Signing (D8 Series).....	172
Section 2D.50	Community Wayfinding Signs .....	172
Section 2D.51	Truck, Passing, or Climbing Lane Signs (D17-1 and D17-2) .....	178
Section 2D.52	Slow Vehicle Turn-Out Sign (D17-7).....	178
Section 2D.53	Signing of Named Highways.....	179
Section 2D.54	Crossover Signs (D13-1 and D13-2) .....	179
Section 2D.55	National Scenic Byways Signs (D6-4, D6-4a).....	179

## **CHAPTER 2E. GUIDE SIGNS—FREEWAYS AND EXPRESSWAYS**

Section 2E.01	Scope of Freeway and Expressway Guide Sign Standards.....	181
Section 2E.02	Freeway and Expressway Signing Principles .....	181
Section 2E.03	Guide Sign Classification .....	181
Section 2E.04	General .....	182
Section 2E.05	Color of Guide Signs .....	182
Section 2E.06	Retroreflection or Illumination.....	182
Section 2E.07	Characteristics of Urban Signing .....	182
Section 2E.08	Characteristics of Rural Signing .....	183
Section 2E.09	Signing of Named Highways.....	183
Section 2E.10	Amount of Legend on Guide Signs .....	183
Section 2E.11	Number of Signs at an Overhead Installation and Sign Spreading .....	183
Section 2E.12	Pull-Through Signs (E6-2, E6-2a).....	184
Section 2E.13	Designation of Destinations .....	184

Section 2E.14	Size and Style of Letters and Signs .....	185
Section 2E.15	Interline and Edge Spacing .....	185
Section 2E.16	Sign Borders .....	192
Section 2E.17	Abbreviations .....	192
Section 2E.18	Symbols .....	192
Section 2E.19	Arrows for Interchange Guide Signs .....	192
Section 2E.20	Signing for Option Lanes at Splits and Multi-Lane Exits .....	193
Section 2E.21	Design of Overhead Arrow-per-Lane Guide Signs for Option Lanes .....	193
Section 2E.22	Design of Freeway and Expressway Diagrammatic Guide Signs for Option Lanes .....	198
Section 2E.23	Signing for Intermediate and Minor Interchange Multi-Lane Exits with an Option Lane.....	203
Section 2E.24	Signing for Interchange Lane Drops .....	203
Section 2E.25	Overhead Sign Installations .....	206
Section 2E.26	Lateral Offset .....	210
Section 2E.27	Route Signs and Trailblazer Assemblies .....	210
Section 2E.28	Eisenhower Interstate System Signs (M1-10, M1-10a) .....	211
Section 2E.29	Signs for Intersections at Grade .....	211
Section 2E.30	Interchange Guide Signs .....	211
Section 2E.31	Interchange Exit Numbering .....	212
Section 2E.32	Interchange Classification .....	216
Section 2E.33	Advance Guide Signs .....	216
Section 2E.34	Next Exit Plaques .....	218
Section 2E.35	Other Supplemental Guide Signs .....	218
Section 2E.36	Exit Direction Signs .....	220
Section 2E.37	Exit Gore Signs (E5-1 Series) .....	222
Section 2E.38	Post-Interchange Signs .....	222
Section 2E.39	Post-Interchange Distance Signs .....	223
Section 2E.40	Interchange Sequence Signs .....	223
Section 2E.41	Community Interchanges Identification Signs .....	225
Section 2E.42	NEXT XX EXITS Sign .....	225
Section 2E.43	Signing by Type of Interchange .....	226
Section 2E.44	Freeway-to-Freeway Interchange .....	226
Section 2E.45	Cloverleaf Interchange .....	226
Section 2E.46	Cloverleaf Interchange with Collector-Distributor Roadways .....	230
Section 2E.47	Partial Cloverleaf Interchange.....	230
Section 2E.48	Diamond Interchange .....	230
Section 2E.49	Diamond Interchange in Urban Area .....	234
Section 2E.50	Closely-Spaced Interchanges.....	234
Section 2E.51	Minor Interchange.....	234
Section 2E.52	Signing on Conventional Road Approaches and Connecting Roadways.....	235
Section 2E.53	Wrong-Way Traffic Control at Interchange Ramps .....	235
Section 2E.54	Weigh Station Signing.....	236

## **CHAPTER 2F. TOLL ROAD SIGNS**

Section 2F.01	Scope .....	237
Section 2F.02	Sizes of Toll Road Signs.....	237
Section 2F.03	Use of Purple Backgrounds and Underlay Panels with ETC Account Pictographs .....	238
Section 2F.04	Size of ETC Pictographs .....	238
Section 2F.05	Regulatory Signs for Toll Plazas .....	238
Section 2F.06	Pay Toll Advance Warning Sign (W9-6) .....	240
Section 2F.07	Pay Toll Advance Warning Plaque (W9-6P).....	241
Section 2F.08	Stop Ahead Pay Toll Warning Sign (W9-6a) .....	242
Section 2F.09	Stop Ahead Pay Toll Warning Plaque (W9-6aP) .....	242
Section 2F.10	LAST EXIT BEFORE TOLL Warning Plaque (W16-16P) .....	242
Section 2F.11	TOLL Auxiliary Sign (M4-15) .....	242

Section 2F.12	Electronic Toll Collection (ETC) Account-Only Auxiliary Signs (M4-16 and M4-20).....	243
Section 2F.13	Toll Facility and Toll Plaza Guide Signs – General .....	243
Section 2F.14	Advance Signs for Conventional Toll Plazas .....	248
Section 2F.15	Advance Signs for Toll Plazas on Diverging Alignments from Open-Road ETC Account-Only Lanes .....	249
Section 2F.16	Toll Plaza Canopy Signs.....	252
Section 2F.17	Guide Signs for Entrances to ETC Account-Only Facilities .....	252
Section 2F.18	ETC Program Information Signs .....	252

## **CHAPTER 2G. PREFERENTIAL AND MANAGED LANE SIGNS**

Section 2G.01	Scope .....	253
Section 2G.02	Sizes of Preferential and Managed Lane Signs .....	253
Section 2G.03	Regulatory Signs for Preferential Lanes – General .....	253
Section 2G.04	Preferential Lane Vehicle Occupancy Definition Regulatory Signs (R3-10 Series and R3-13 Series) .....	258
Section 2G.05	Preferential Lane Periods of Operation Regulatory Signs (R3-11 Series and R3-14 Series) ...	259
Section 2G.06	Preferential Lane Advance Regulatory Signs (R3-12, R3-12e, R3-12f, R3-15, R3-15a, and R3-15d) .....	263
Section 2G.07	Preferential Lane Ends Regulatory Signs (R3-12a, R3-12b, R3-12c, R3-12d, R3-12g, R3-12h, R3-15b, R3-15c, and R3-15e) .....	263
Section 2G.08	Warning Signs on Median Barriers for Preferential Lanes .....	263
Section 2G.09	High-Occupancy Vehicle (HOV) Plaque (W16-11P) .....	264
Section 2G.10	Preferential Lane Guide Signs – General .....	265
Section 2G.11	Guide Signs for Initial Entry Points to Preferential Lanes .....	267
Section 2G.12	Guide Signs for Intermediate Entry Points to Preferential Lanes .....	268
Section 2G.13	Guide Signs for Egress from Preferential Lanes to General-Purpose Lanes .....	270
Section 2G.14	Guide Signs for Direct Entrances to Preferential Lanes from Another Highway .....	273
Section 2G.15	Guide Signs for Direct Exits from Preferential Lanes to Another Highway .....	273
Section 2G.16	Signs for Priced Managed Lanes – General .....	276
Section 2G.17	Regulatory Signs for Priced Managed Lanes .....	279
Section 2G.18	Guide Signs for Priced Managed Lanes .....	279

## **CHAPTER 2H. GENERAL INFORMATION SIGNS**

Section 2H.01	Sizes of General Information Signs .....	292
Section 2H.02	General Information Signs (I Series).....	292
Section 2H.03	Traffic Signal Speed Sign (I1-1) .....	294
Section 2H.04	Miscellaneous Information Signs.....	294
Section 2H.05	Reference Location Signs (D10-1 through D10-3) and Intermediate Reference Location Signs (D10-1a through D10-3a) .....	294
Section 2H.06	Enhanced Reference Location Signs (D10-4, D10-5).....	296
Section 2H.07	Auto Tour Route Signs .....	297
Section 2H.08	Acknowledgment Signs .....	297

## **CHAPTER 2I. GENERAL SERVICE SIGNS**

Section 2I.01	Sizes of General Service Signs.....	299
Section 2I.02	General Service Signs for Conventional Roads.....	300
Section 2I.03	General Service Signs for Freeways and Expressways .....	303
Section 2I.04	Interstate Oasis Signing.....	306
Section 2I.05	Rest Area and Other Roadside Area Signs.....	307
Section 2I.06	Brake Check Area Signs (D5-13 and D5-14) .....	308
Section 2I.07	Chain-Up Area Signs (D5-15 and D5-16) .....	308
Section 2I.08	Tourist Information and Welcome Center Signs .....	308
Section 2I.09	Radio Information Signing.....	310
Section 2I.10	TRAVEL INFO CALL 511 Signs (D12-5 and D12-5a).....	311
Section 2I.11	Carpool and Ridesharing Signing .....	311

**CHAPTER 2J. SPECIFIC SERVICE SIGNS**

Section 2J.01	Eligibility .....	312
Section 2J.02	Application .....	313
Section 2J.03	Logos and Logo Sign Panels .....	313
Section 2J.04	Number and Size of Signs and Logo Sign Panels .....	317
Section 2J.05	Size of Lettering.....	317
Section 2J.06	Signs at Interchanges.....	317
Section 2J.07	Single-Exit Interchanges .....	317
Section 2J.08	Double-Exit Interchanges .....	318
Section 2J.09	Specific Service Trailblazer Signs.....	318
Section 2J.10	Signs at Intersections.....	319
Section 2J.11	Signing Policy .....	319

**CHAPTER 2K. TOURIST-ORIENTED DIRECTIONAL SIGNS**

Section 2K.01	Purpose and Application .....	320
Section 2K.02	Design .....	320
Section 2K.03	Style and Size of Lettering .....	323
Section 2K.04	Arrangement and Size of Signs .....	323
Section 2K.05	Advance Signs .....	323
Section 2K.06	Sign Locations.....	324
Section 2K.07	State Policy.....	324

**CHAPTER 2L. CHANGEABLE MESSAGE SIGNS**

Section 2L.01	Description of Changeable Message Signs.....	325
Section 2L.02	Applications of Changeable Message Signs .....	325
Section 2L.03	Legibility and Visibility of Changeable Message Signs .....	326
Section 2L.04	Design Characteristics of Changeable Message Signs .....	326
Section 2L.05	Message Length and Units of Information.....	328
Section 2L.06	Installation of Permanent Changeable Message Signs .....	329

**CHAPTER 2M. RECREATIONAL AND CULTURAL INTEREST AREA SIGNS**

Section 2M.01	Scope.....	330
Section 2M.02	Application of Recreational and Cultural Interest Area Signs .....	330
Section 2M.03	Regulatory and Warning Signs .....	330
Section 2M.04	General Design Requirements for Recreational and Cultural Interest Area Symbol Guide Signs .....	330
Section 2M.05	Symbol Sign Sizes .....	332
Section 2M.06	Use of Educational Plaques .....	332
Section 2M.07	Use of Prohibitive Circle and Diagonal Slash for Non-Road Applications .....	332
Section 2M.08	Placement of Recreational and Cultural Interest Area Symbol Signs .....	332
Section 2M.09	Destination Guide Signs.....	333
Section 2M.10	Memorial or Dedication Signing.....	339

**CHAPTER 2N. EMERGENCY MANAGEMENT SIGNING**

Section 2N.01	Emergency Management .....	342
Section 2N.02	Design of Emergency Management Signs.....	342
Section 2N.03	Evacuation Route Signs (EM-1 and EM-1a).....	342
Section 2N.04	AREA CLOSED Sign (EM-2) .....	344
Section 2N.05	TRAFFIC CONTROL POINT Sign (EM-3) .....	344
Section 2N.06	MAINTAIN TOP SAFE SPEED Sign (EM-4) .....	344
Section 2N.07	ROAD (AREA) USE PERMIT REQUIRED FOR THRU TRAFFIC Sign (EM-5) .....	345
Section 2N.08	Emergency Aid Center Signs (EM-6 Series).....	345
Section 2N.09	Shelter Directional Signs (EM-7 Series) .....	346

## **PART 3. MARKINGS**

### **CHAPTER 3A. GENERAL**

Section 3A.01	Functions and Limitations.....	347
Section 3A.02	Standardization of Application .....	347
Section 3A.03	Maintaining Minimum Pavement Marking Retroreflectivity .....	347
Section 3A.04	Materials .....	347
Section 3A.05	Colors .....	348
Section 3A.06	Functions, Widths, and Patterns of Longitudinal Pavement Markings .....	348

### **CHAPTER 3B. PAVEMENT AND CURB MARKINGS**

Section 3B.01	Yellow Center Line Pavement Markings and Warrants .....	349
Section 3B.02	No-Passing Zone Pavement Markings and Warrants .....	352
Section 3B.03	Other Yellow Longitudinal Pavement Markings .....	354
Section 3B.04	White Lane Line Pavement Markings and Warrants .....	356
Section 3B.05	Other White Longitudinal Pavement Markings .....	370
Section 3B.06	Edge Line Pavement Markings .....	371
Section 3B.07	Warrants for Use of Edge Lines .....	371
Section 3B.08	Extensions Through Intersections or Interchanges .....	371
Section 3B.09	Lane-Reduction Transition Markings .....	374
Section 3B.10	Approach Markings for Obstructions.....	376
Section 3B.11	Raised Pavement Markers – General .....	376
Section 3B.12	Raised Pavement Markers as Vehicle Positioning Guides with Other Longitudinal Markings .....	379
Section 3B.13	Raised Pavement Markers Supplementing Other Markings.....	379
Section 3B.14	Raised Pavement Markers Substituting for Pavement Markings.....	380
Section 3B.15	Transverse Markings .....	381
Section 3B.16	Stop and Yield Lines .....	381
Section 3B.17	Do Not Block Intersection Markings .....	382
Section 3B.18	Crosswalk Markings .....	383
Section 3B.19	Parking Space Markings .....	385
Section 3B.20	Pavement Word, Symbol, and Arrow Markings.....	387
Section 3B.21	Speed Measurement Markings.....	393
Section 3B.22	Speed Reduction Markings .....	393
Section 3B.23	Curb Markings .....	394
Section 3B.24	Chevron and Diagonal Crosshatch Markings.....	395
Section 3B.25	Speed Hump Markings .....	395
Section 3B.26	Advance Speed Hump Markings .....	395

### **CHAPTER 3C. ROUNDABOUT MARKINGS**

Section 3C.01	General .....	399
Section 3C.02	White Lane Line Pavement Markings for Roundabouts .....	413
Section 3C.03	Edge Line Pavement Markings for Roundabout Circulatory Roadways .....	413
Section 3C.04	Yield Lines for Roundabouts.....	413
Section 3C.05	Crosswalk Markings at Roundabouts.....	413
Section 3C.06	Word, Symbol, and Arrow Pavement Markings for Roundabouts .....	413
Section 3C.07	Markings for Other Circular Intersections .....	414

### **CHAPTER 3D. MARKINGS FOR PREFERENTIAL LANES**

Section 3D.01	Preferential Lane Word and Symbol Markings.....	415
Section 3D.02	Preferential Lane Longitudinal Markings for Motor Vehicles .....	416

### **CHAPTER 3E. MARKINGS FOR TOLL PLAZAS**

Section 3E.01	Markings for Toll Plazas .....	423
---------------	--------------------------------	-----

**CHAPTER 3F DELINEATORS**

Section 3F.01	Delineators .....	424
Section 3F.02	Delineator Design .....	424
Section 3F.03	Delineator Application .....	424
Section 3F.04	Delineator Placement and Spacing.....	426

**CHAPTER 3G COLORED PAVEMENTS**

Section 3G.01	General .....	428
---------------	---------------	-----

**CHAPTER 3H CHANNELIZING DEVICES USED FOR EMPHASIS OF PAVEMENT MARKING PATTERNS**

Section 3H.01	Channelizing Devices .....	429
---------------	----------------------------	-----

**CHAPTER 3I ISLANDS**

Section 3I.01	General .....	430
Section 3I.02	Approach-End Treatment .....	430
Section 3I.03	Island Marking Application .....	430
Section 3I.04	Island Marking Colors .....	430
Section 3I.05	Island Delineation .....	431
Section 3I.06	Pedestrian Islands and Medians .....	431

**CHAPTER 3J RUMBLE STRIP MARKINGS**

Section 3J.01	Longitudinal Rumble Strip Markings .....	432
Section 3J.02	Transverse Rumble Strip Markings.....	432

**PART 4 HIGHWAY TRAFFIC SIGNALS****CHAPTER 4A GENERAL**

Section 4A.01	Types .....	433
Section 4A.02	Definitions Relating to Highway Traffic Signals.....	433

**CHAPTER 4B TRAFFIC CONTROL SIGNALS—GENERAL**

Section 4B.01	General .....	434
Section 4B.02	Basis of Installation or Removal of Traffic Control Signals.....	434
Section 4B.03	Advantages and Disadvantages of Traffic Control Signals .....	434
Section 4B.04	Alternatives to Traffic Control Signals.....	435
Section 4B.05	Adequate Roadway Capacity.....	435

**CHAPTER 4C TRAFFIC CONTROL SIGNAL NEEDS STUDIES**

Section 4C.01	Studies and Factors for Justifying Traffic Control Signals.....	436
Section 4C.02	Warrant 1, Eight-Hour Vehicular Volume .....	437
Section 4C.03	Warrant 2, Four-Hour Vehicular Volume .....	439
Section 4C.04	Warrant 3, Peak Hour.....	439
Section 4C.05	Warrant 4, Pedestrian Volume.....	442
Section 4C.06	Warrant 5, School Crossing.....	442
Section 4C.07	Warrant 6, Coordinated Signal System .....	445
Section 4C.08	Warrant 7, Crash Experience.....	445
Section 4C.09	Warrant 8, Roadway Network .....	446
Section 4C.10	Warrant 9, Intersection Near a Grade Crossing.....	446

**CHAPTER 4D TRAFFIC CONTROL SIGNAL FEATURES**

Section 4D.01	General .....	449
Section 4D.02	Responsibility for Operation and Maintenance.....	449
Section 4D.03	Provisions for Pedestrians .....	450
Section 4D.04	Meaning of Vehicular Signal Indications .....	450

Section 4D.05	Application of Steady Signal Indications .....	453
Section 4D.06	Signal Indications – Design, Illumination, Color, and Shape .....	456
Section 4D.07	Size of Vehicular Signal Indications .....	456
Section 4D.08	Positions of Signal Indications Within a Signal Face – General .....	457
Section 4D.09	Positions of Signal Indications Within a Vertical Signal Face .....	457
Section 4D.10	Positions of Signal Indications Within a Horizontal Signal Face .....	459
Section 4D.11	Number of Signal Faces on an Approach .....	459
Section 4D.12	Visibility, Aiming, and Shielding of Signal Faces .....	461
Section 4D.13	Lateral Positioning of Signal Faces .....	463
Section 4D.14	Longitudinal Positioning of Signal Faces .....	464
Section 4D.15	Mounting Height of Signal Faces .....	465
Section 4D.16	Lateral Offset (Clearance) of Signal Faces .....	465
Section 4D.17	Signal Indications for Left-Turn Movements – General .....	465
Section 4D.18	Signal Indications for Permissive Only Mode Left-Turn Movements .....	467
Section 4D.19	Signal Indications for Protected Only Mode Left-Turn Movements .....	469
Section 4D.20	Signal Indications for Protected/Permissive Mode Left-Turn Movements .....	471
Section 4D.21	Signal Indications for Right-Turn Movements – General .....	474
Section 4D.22	Signal Indications for Permissive Only Mode Right-Turn Movements .....	475
Section 4D.23	Signal Indications for Protected Only Mode Right-Turn Movements .....	478
Section 4D.24	Signal Indications for Protected/Permissive Mode Right-Turn Movements .....	480
Section 4D.25	Signal Indications for Approaches With Shared Left-Turn/Right-Turn Lanes and No Through Movement .....	484
Section 4D.26	Yellow Change and Red Clearance Intervals .....	485
Section 4D.27	Preemption and Priority Control of Traffic Control Signals .....	489
Section 4D.28	Flashing Operation of Traffic Control Signals – General .....	491
Section 4D.29	Flashing Operation – Transition Into Flashing Mode .....	491
Section 4D.30	Flashing Operation – Signal Indications During Flashing Mode .....	491
Section 4D.31	Flashing Operation – Transition Out of Flashing Mode .....	492
Section 4D.32	Temporary and Portable Traffic Control Signals .....	492
Section 4D.33	Lateral Offset of Signal Supports and Cabinets .....	493
Section 4D.34	Use of Signs at Signalized Locations .....	493
Section 4D.35	Use of Pavement Markings at Signalized Locations .....	494
<b><u>CHAPTER 4E PEDESTRIAN CONTROL FEATURES</u></b>		
Section 4E.01	Pedestrian Signal Heads .....	495
Section 4E.02	Meaning of Pedestrian Signal Head Indications .....	495
Section 4E.03	Application of Pedestrian Signal Heads .....	495
Section 4E.04	Size, Design, and Illumination of Pedestrian Signal Head Indications .....	496
Section 4E.05	Location and Height of Pedestrian Signal Heads .....	497
Section 4E.06	Pedestrian Intervals and Signal Phases .....	497
Section 4E.07	Countdown Pedestrian Signals .....	499
Section 4E.08	Pedestrian Detectors .....	500
Section 4E.09	Accessible Pedestrian Signals and Detectors – General .....	504
Section 4E.10	Accessible Pedestrian Signals and Detectors – Location .....	505
Section 4E.11	Accessible Pedestrian Signals and Detectors – Walk Indications .....	505
Section 4E.12	Accessible Pedestrian Signals and Detectors – Tactile Arrows and Locator Tones .....	507
Section 4E.13	Accessible Pedestrian Signals and Detectors – Extended Pushbutton Press Features .....	507
<b><u>CHAPTER 4F PEDESTRIAN HYBRID BEACONS</u></b>		
Section 4F.01	Application of Pedestrian Hybrid Beacons .....	509
Section 4F.02	Design of Pedestrian Hybrid Beacons .....	509
Section 4F.03	Operation of Pedestrian Hybrid Beacons .....	511

## **CHAPTER 4G TRAFFIC CONTROL SIGNALS AND HYBRID BEACONS FOR EMERGENCY-VEHICLE ACCESS**

Section 4G.01	Application of Emergency-Vehicle Traffic Control Signals and Hybrid Beacons .....	513
Section 4G.02	Design of Emergency-Vehicle Traffic Control Signals .....	513
Section 4G.03	Operation of Emergency-Vehicle Traffic Control Signals .....	513
Section 4G.04	Emergency-Vehicle Hybrid Beacons .....	514

## **CHAPTER 4H TRAFFIC CONTROL SIGNALS FOR ONE-LANE, TWO-WAY FACILITIES**

Section 4H.01	Application of Traffic Control Signals for One-Lane, Two-Way Facilities .....	516
Section 4H.02	Design of Traffic Control Signals for One-Lane, Two-Way Facilities .....	516
Section 4H.03	Operation of Traffic Control Signals for One-Lane, Two-Way Facilities .....	516

## **CHAPTER 4I TRAFFIC CONTROL SIGNALS FOR FREEWAY ENTRANCE RAMPS**

Section 4I.01	Application of Freeway Entrance Ramp Control Signals .....	517
Section 4I.02	Design of Freeway Entrance Ramp Control Signals .....	517
Section 4I.03	Operation of Freeway Entrance Ramp Control Signals .....	518

## **CHAPTER 4J TRAFFIC CONTROL FOR MOVABLE BRIDGES**

Section 4J.01	Application of Traffic Control for Movable Bridges .....	519
Section 4J.02	Design and Location of Movable Bridge Signals and Gates .....	519
Section 4J.03	Operation of Movable Bridge Signals and Gates .....	521

## **CHAPTER 4K HIGHWAY TRAFFIC SIGNALS AT TOLL PLAZAS**

Section 4K.01	Traffic Signals at Toll Plazas .....	522
Section 4K.02	Lane-Use Control Signals at or Near Toll Plazas .....	522
Section 4K.03	Warning Beacons at Toll Plazas .....	522

## **CHAPTER 4L FLASHING BEACONS**

Section 4L.01	General Design and Operation of Flashing Beacons .....	523
Section 4L.02	Intersection Control Beacon .....	523
Section 4L.03	Warning Beacon .....	523
Section 4L.04	Speed Limit Sign Beacon .....	524
Section 4L.05	Stop Beacon .....	524

## **CHAPTER 4M LANE-USE CONTROL SIGNALS**

Section 4M.01	Application of Lane-Use Control Signals .....	525
Section 4M.02	Meaning of Lane-Use Control Signal Indications .....	525
Section 4M.03	Design of Lane-Use Control Signals .....	526
Section 4M.04	Operation of Lane-Use Control Signals .....	527

## **CHAPTER 4N IN-ROADWAY LIGHTS**

Section 4N.01	Application of In-Roadway Lights .....	528
Section 4N.02	In-Roadway Warning Lights at Crosswalks .....	528

# **PART 5 TRAFFIC CONTROL DEVICES FOR LOW-VOLUME ROADS**

## **CHAPTER 5A GENERAL**

Section 5A.01	Function .....	531
Section 5A.02	Application .....	531
Section 5A.03	Design .....	531
Section 5A.04	Placement .....	533

## **CHAPTER 5B REGULATORY SIGNS**

Section 5B.01	Introduction .....	534
Section 5B.02	STOP and YIELD Signs (R1-1 and R1-2) .....	534

Section 5B.03	Speed Limit Signs (R2 Series) .....	534
Section 5B.04	Traffic Movement and Prohibition Signs (R3, R4, R5, R6, R9, R10, R11, R12, R13, and R14 Series) .....	535
Section 5B.05	Parking Signs (R8 Series) .....	535
Section 5B.06	Other Regulatory Signs .....	535
<b><u>CHAPTER 5C WARNING SIGNS</u></b>		
Section 5C.01	Introduction .....	536
Section 5C.02	Horizontal Alignment Signs (W1-1 through W1-8) .....	536
Section 5C.03	Intersection Warning Signs (W2-1 through W2-6) .....	537
Section 5C.04	Stop Ahead and Yield Ahead Signs (W3-1, W3-2) .....	537
Section 5C.05	NARROW BRIDGE Sign (W5-2) .....	537
Section 5C.06	ONE LANE BRIDGE Sign (W5-3) .....	537
Section 5C.07	Hill Sign (W7-1) .....	537
Section 5C.08	PAVEMENT ENDS Sign (W8-3) .....	537
Section 5C.09	Vehicular Traffic Warning and Non-Vehicular Warning Signs (W11 Series and W8-6) .....	537
Section 5C.10	Advisory Speed Plaque (W13-1P) .....	539
Section 5C.11	DEAD END or NO OUTLET Signs (W14-1, W14-1a, W14-2, W14-2a) .....	539
Section 5C.12	NO TRAFFIC SIGNS Sign (W18-1) .....	539
Section 5C.13	Other Warning Signs .....	539
Section 5C.14	Object Markers and Barricades .....	539
<b><u>CHAPTER 5D GUIDE SIGNS</u></b>		
Section 5D.01	Introduction .....	540
<b><u>CHAPTER 5E MARKINGS</u></b>		
Section 5E.01	Introduction .....	541
Section 5E.02	Center Line Markings .....	541
Section 5E.03	Edge Line Markings .....	541
Section 5E.04	Delineators .....	541
Section 5E.05	Other Markings .....	541
<b><u>CHAPTER 5F TRAFFIC CONTROL FOR HIGHWAY-RAIL GRADE CROSSINGS</u></b>		
Section 5F.01	Introduction .....	542
Section 5F.02	Grade Crossing (Crossbuck) Sign and Number of Tracks Plaque (R15-1, R15-2P) .....	542
Section 5F.03	Grade Crossing Advance Warning Signs (W10 Series) .....	542
Section 5F.04	STOP and YIELD Signs (R1-1, R1-2) .....	543
Section 5F.05	Pavement Markings .....	543
Section 5F.06	Other Traffic Control Devices .....	543
<b><u>CHAPTER 5G TEMPORARY TRAFFIC CONTROL ZONES</u></b>		
Section 5G.01	Introduction .....	544
Section 5G.02	Applications .....	544
Section 5G.03	Channelization Devices .....	544
Section 5G.04	Markings .....	545
Section 5G.05	Other Traffic Control Devices .....	545
<b><u>CHAPTER 5H TRAFFIC CONTROL FOR SCHOOL AREAS</u></b>		
Section 5H.01	Introduction .....	546

**PART 6 TEMPORARY TRAFFIC CONTROL****CHAPTER 6A GENERAL**

Section 6A.01	General .....	547
---------------	---------------	-----

**CHAPTER 6B FUNDAMENTAL PRINCIPLES**

Section 6B.01	Fundamental Principles of Temporary Traffic Control .....	549
---------------	---	-----

**CHAPTER 6C TEMPORARY TRAFFIC CONTROL ELEMENTS**

Section 6C.01	Temporary Traffic Control Plans .....	551
Section 6C.02	Temporary Traffic Control Zones .....	552
Section 6C.03	Components of Temporary Traffic Control Zones .....	552
Section 6C.04	Advance Warning Area .....	552
Section 6C.05	Transition Area .....	554
Section 6C.06	Activity Area .....	554
Section 6C.07	Termination Area .....	555
Section 6C.08	Tapers .....	555
Section 6C.09	Detours and Diversions .....	558
Section 6C.10	One-Lane, Two-Way Traffic Control .....	558
Section 6C.11	Flagger Method of One-Lane, Two-Way Traffic Control .....	558
Section 6C.12	Flag Transfer Method of One-Lane, Two-Way Traffic Control .....	558
Section 6C.13	Pilot Car Method of One-Lane, Two-Way Traffic Control .....	560
Section 6C.14	Temporary Traffic Control Signal Method of One-Lane, Two-Way Traffic Control .....	560
Section 6C.15	Stop or Yield Control Method of One-Lane, Two-Way Traffic Control .....	560

**CHAPTER 6D PEDESTRIAN AND WORKER SAFETY**

Section 6D.01	Pedestrian Considerations .....	561
Section 6D.02	Accessibility Considerations .....	563
Section 6D.03	Worker Safety Considerations .....	564

**CHAPTER 6E FLAGGER CONTROL**

Section 6E.01	Qualifications for Flaggers .....	566
Section 6E.02	High-Visibility Safety Apparel .....	566
Section 6E.03	Hand-Signaling Devices .....	566
Section 6E.04	Automated Flagger Assistance Devices .....	567
Section 6E.05	STOP/SLOW Automated Flagger Assistance Devices .....	569
Section 6E.06	Red/Yellow Lens Automated Flagger Assistance Devices .....	571
Section 6E.07	Flagger Procedures .....	573
Section 6E.08	Flagger Stations .....	575

**CHAPTER 6F TEMPORARY TRAFFIC CONTROL ZONE DEVICES**

Section 6F.01	Types of Devices .....	576
Section 6F.02	General Characteristics of Signs .....	576
Section 6F.03	Sign Placement .....	577
Section 6F.04	Sign Maintenance .....	583
Section 6F.05	Regulatory Sign Authority .....	583
Section 6F.06	Regulatory Sign Design .....	583
Section 6F.07	Regulatory Sign Applications .....	583
Section 6F.08	ROAD (STREET) CLOSED Sign (R11-2) .....	583
Section 6F.09	Local Traffic Only Signs (R11-3a, R11-4) .....	585
Section 6F.10	Weight Limit Signs (R12-1, R12-2, R12-5) .....	585
Section 6F.11	STAY IN LANE Sign (R4-9) .....	586
Section 6F.12	Work Zone and Higher Fines Signs and Plaques .....	586
Section 6F.13	PEDESTRIAN CROSSWALK Sign (R9-8) .....	586
Section 6F.14	SIDEWALK CLOSED Signs (R9-9, R9-10, R9-11, R9-11a) .....	586

Section 6F.15	Special Regulatory Signs .....	587
Section 6F.16	Warning Sign Function, Design, and Application .....	587
Section 6F.17	Position of Advance Warning Signs .....	587
Section 6F.18	ROAD (STREET) WORK Sign (W20-1).....	591
Section 6F.19	DETOUR Sign (W20-2) .....	591
Section 6F.20	ROAD (STREET) CLOSED Sign (W20-3) .....	591
Section 6F.21	ONE LANE ROAD Sign (W20-4) .....	591
Section 6F.22	Lane(s) Closed Signs (W20-5, W20-5a) .....	591
Section 6F.23	CENTER LANE CLOSED AHEAD Sign (W9-3).....	592
Section 6F.24	Lane Ends Sign (W4-2) .....	592
Section 6F.25	ON RAMP Plaque (W13-4P) .....	592
Section 6F.26	RAMP NARROWS Sign (W5-4) .....	592
Section 6F.27	SLOW TRAFFIC AHEAD Sign (W23-1) .....	592
Section 6F.28	EXIT OPEN and EXIT CLOSED Signs (E5-2, E5-2a) .....	592
Section 6F.29	EXIT ONLY Sign (E5-3) .....	593
Section 6F.30	NEW TRAFFIC PATTERN AHEAD Sign (W23-2) .....	593
Section 6F.31	Flagger Signs (W20-7, W20-7a) .....	593
Section 6F.32	Two-Way Traffic Sign (W6-3) .....	593
Section 6F.33	Workers Signs (W21-1, W21-1a) .....	593
Section 6F.34	FRESH OIL (TAR) Sign (W21-2) .....	593
Section 6F.35	ROAD MACHINERY AHEAD Sign (W21-3) .....	593
Section 6F.36	Motorized Traffic Signs (W8-6, W11-10).....	594
Section 6F.37	Shoulder Work Signs (W21-5, W21-5a, W21-5b) .....	594
Section 6F.38	SURVEY CREW Sign (W21-6) .....	594
Section 6F.39	UTILITY WORK Sign (W21-7) .....	594
Section 6F.40	Signs for Blasting Areas.....	594
Section 6F.41	BLASTING ZONE AHEAD Sign (W22-1).....	595
Section 6F.42	TURN OFF 2-WAY RADIO AND CELL PHONE Sign (W22-2) .....	595
Section 6F.43	END BLASTING ZONE Sign (W22-3) .....	595
Section 6F.44	Shoulder Signs and Plaque (W8-4, W8-9, W8-17, and W8-17P) .....	595
Section 6F.45	UNEVEN LANES Sign (W8-11) .....	595
Section 6F.46	STEEL PLATE AHEAD Sign (W8-24) .....	595
Section 6F.47	NO CENTER LINE Sign (W8-12) .....	595
Section 6F.48	Reverse Curve Signs (W1-4 Series) .....	596
Section 6F.49	Double Reverse Curve Signs (W24-1 Series) .....	596
Section 6F.50	Other Warning Signs.....	596
Section 6F.51	Special Warning Signs .....	596
Section 6F.52	Advisory Speed Plaque (W13-1P) .....	596
Section 6F.53	Supplementary Distance Plaque (W7-3aP) .....	597
Section 6F.54	Motorcycle Plaque (W8-15P) .....	597
Section 6F.55	Guide Signs .....	597
Section 6F.56	ROAD WORK NEXT XX MILES Sign (G20-1) .....	597
Section 6F.57	END ROAD WORK Sign (G20-2).....	598
Section 6F.58	PILOT CAR FOLLOW ME Sign (G20-4).....	598
Section 6F.59	Detour Signs (M4-8, M4-8a, M4-8b, M4-9, M4-9a, M4-9b, M4-9c, and M4-10) .....	598
Section 6F.60	Portable Changeable Message Signs .....	598
Section 6F.61	Arrow Boards.....	601
Section 6F.62	High-Level Warning Devices (Flag Trees) .....	603
Section 6F.63	Channelizing Devices .....	604
Section 6F.64	Cones.....	606
Section 6F.65	Tubular Markers .....	606
Section 6F.66	Vertical Panels.....	607
Section 6F.67	Drums .....	607

Section 6F.68	Type 1, 2, or 3 Barricades .....	607
Section 6F.69	Direction Indicator Barricades .....	609
Section 6F.70	Temporary Traffic Barriers as Channelizing Devices .....	609
Section 6F.71	Longitudinal Channelizing Devices .....	609
Section 6F.72	Temporary Lane Separators .....	610
Section 6F.73	Other Channelizing Devices .....	610
Section 6F.74	Detectable Edging for Pedestrians .....	610
Section 6F.75	Temporary Raised Islands .....	611
Section 6F.76	Opposing Traffic Lane Divider and Sign (W6-4).....	611
Section 6F.77	Pavement Markings .....	612
Section 6F.78	Temporary Markings .....	612
Section 6F.79	Temporary Raised Pavement Markers .....	613
Section 6F.80	Delineators .....	613
Section 6F.81	Lighting Devices .....	614
Section 6F.82	Floodlights .....	614
Section 6F.83	Warning Lights .....	614
Section 6F.84	Temporary Traffic Control Signals.....	615
Section 6F.85	Temporary Traffic Barriers .....	616
Section 6F.86	Crash Cushions .....	617
Section 6F.87	Rumble Strips.....	618
Section 6F.88	Screens .....	618

#### **CHAPTER 6G TYPE OF TEMPORARY TRAFFIC CONTROL ZONE ACTIVITIES**

Section 6G.01	Typical Applications.....	619
Section 6G.02	Work Duration.....	619
Section 6G.03	Location of Work .....	621
Section 6G.04	Modifications To Fulfill Special Needs .....	621
Section 6G.05	Work Affecting Pedestrian and Bicycle Facilities.....	622
Section 6G.06	Work Outside of the Shoulder .....	622
Section 6G.07	Work on the Shoulder with No Encroachment.....	623
Section 6G.08	Work on the Shoulder with Minor Encroachment.....	624
Section 6G.09	Work Within the Median .....	624
Section 6G.10	Work Within the Traveled Way of a Two-Lane Highway .....	624
Section 6G.11	Work Within the Traveled Way of an Urban Street.....	625
Section 6G.12	Work Within the Traveled Way of a Multi-Lane, Non-Access Controlled Highway .....	625
Section 6G.13	Work Within the Traveled Way at an Intersection .....	626
Section 6G.14	Work Within the Traveled Way of a Freeway or Expressway .....	627
Section 6G.15	Two-Lane, Two-Way Traffic on One Roadway of a Normally Divided Highway .....	628
Section 6G.16	Crossovers .....	628
Section 6G.17	Interchanges .....	628
Section 6G.18	Work in the Vicinity of a Grade Crossing.....	629
Section 6G.19	Temporary Traffic Control During Nighttime Hours.....	629

#### **CHAPTER 6H TYPICAL APPLICATIONS**

Section 6H.01	Typical Applications.....	631
---------------	---------------------------	-----

#### **CHAPTER 6I CONTROL OF TRAFFIC THROUGH TRAFFIC INCIDENT MANAGEMENT AREAS**

Section 6I.01	General .....	726
Section 6I.02	Major Traffic Incidents .....	727
Section 6I.03	Intermediate Traffic Incidents .....	728
Section 6I.04	Minor Traffic Incidents .....	728
Section 6I.05	Use of Emergency-Vehicle Lighting.....	729

## **PART 7 TRAFFIC CONTROL FOR SCHOOL AREAS**

### **CHAPTER 7A GENERAL**

Section 7A.01	Need for Standards .....	731
Section 7A.02	School Routes and Established School Crossings .....	731
Section 7A.03	School Crossing Control Criteria .....	731
Section 7A.04	Scope .....	732

### **CHAPTER 7B SIGNS**

Section 7B.01	Size of School Signs .....	733
Section 7B.02	Illumination and Reflectorization .....	734
Section 7B.03	Position of Signs .....	734
Section 7B.04	Height of Signs .....	734
Section 7B.05	Installation of Signs .....	734
Section 7B.06	Lettering .....	734
Section 7B.07	Sign Color for School Warning Signs .....	734
Section 7B.08	School Sign (S1-1) and Plaques .....	734
Section 7B.09	School Zone Sign (S1-1) and Plaques (S4-3P, S4-7P) and END SCHOOL ZONE Sign (S5-2) .....	736
Section 7B.10	Higher Fines Zone Signs (R2-10, R2-11) and Plaques .....	736
Section 7B.11	School Advance Crossing Assembly .....	736
Section 7B.12	School Crossing Assembly .....	741
Section 7B.13	School Bus Stop Ahead Sign (S3-1) .....	742
Section 7B.14	SCHOOL BUS TURN AHEAD Sign (S3-2) .....	742
Section 7B.15	School Speed Limit Assembly (S4-1P, S4-2P, S4-3P, S4-4P, S4-6P, S5-1) and END SCHOOL SPEED LIMIT Sign (S5-3) .....	742
Section 7B.16	Reduced School Speed Limit Ahead Sign (S4-5, S4-5a) .....	743
Section 7B.17	Parking and Stopping Signs (R7 and R8 Series) .....	743

### **CHAPTER 7C MARKINGS**

Section 7C.01	Functions and Limitations .....	744
Section 7C.02	Crosswalk Markings .....	744
Section 7C.03	Pavement Word, Symbol, and Arrow Markings .....	744

### **CHAPTER 7D CROSSING SUPERVISION**

Section 7D.01	Types of Crossing Supervision .....	745
Section 7D.02	Adult Crossing Guards .....	745
Section 7D.03	Qualifications of Adult Crossing Guards .....	745
Section 7D.04	Uniform of Adult Crossing Guards .....	745
Section 7D.05	Operating Procedures for Adult Crossing Guards .....	745

## **PART 8 TRAFFIC CONTROL FOR RAILROAD AND LIGHT RAIL TRANSIT GRADE CROSSINGS**

### **CHAPTER 8A GENERAL**

Section 8A.01	Introduction .....	747
Section 8A.02	Use of Standard Devices, Systems, and Practices at Highway-Rail Grade Crossings .....	747
Section 8A.03	Use of Standard Devices, Systems, and Practices at Highway-LRT Grade Crossings .....	748
Section 8A.04	Uniform Provisions .....	749
Section 8A.05	Grade Crossing Elimination .....	749
Section 8A.06	Illumination at Grade Crossings .....	750
Section 8A.07	Quiet Zone Treatments at Highway-Rail Grade Crossings .....	750
Section 8A.08	Temporary Traffic Control Zones .....	750

**CHAPTER 8B SIGNS AND MARKINGS**

Section 8B.01	Purpose .....	751
Section 8B.02	Sizes of Grade Crossing Signs .....	751
Section 8B.03	Grade Crossing (Crossbuck) Sign (R15-1) and Number of Tracks Plaque (R15-2P) at Active and Passive Grade Crossings .....	751
Section 8B.04	Crossbuck Assemblies with YIELD or STOP Signs at Passive Grade Crossings .....	754
Section 8B.05	Use of STOP (R1-1) or YIELD (R1-2) Signs without Crossbuck Signs at Highway-LRT Grade Crossings .....	758
Section 8B.06	Grade Crossing Advance Warning Signs (W10 Series) .....	758
Section 8B.07	EXEMPT Grade Crossing Plaques (R15-3P, W10-1aP) .....	759
Section 8B.08	Turn Restrictions During Preemption .....	760
Section 8B.09	DO NOT STOP ON TRACKS Sign (R8-8) .....	760
Section 8B.10	TRACKS OUT OF SERVICE Sign (R8-9) .....	760
Section 8B.11	STOP HERE WHEN FLASHING Signs (R8-10, R8-10a) .....	761
Section 8B.12	STOP HERE ON RED Signs (R10-6, R10-6a) .....	761
Section 8B.13	Light Rail Transit Only Lane Signs (R15-4 Series) .....	761
Section 8B.14	Do Not Pass Light Rail Transit Signs (R15-5, R15-5a) .....	761
Section 8B.15	No Motor Vehicles On Tracks Signs (R15-6, R15-6a) .....	762
Section 8B.16	Divided Highway with Light Rail Transit Crossing Signs (R15-7 Series) .....	762
Section 8B.17	LOOK Sign (R15-8) .....	762
Section 8B.18	Emergency Notification Sign (I-13) .....	762
Section 8B.19	Light Rail Transit Approaching-Activated Blank-Out Warning Sign (W10-7) .....	763
Section 8B.20	TRAINS MAY EXCEED 80 MPH Sign (W10-8) .....	763
Section 8B.21	NO TRAIN HORN Sign or Plaque (W10-9, W10-9P) .....	763
Section 8B.22	NO GATES OR LIGHTS Plaque (W10-13P) .....	763
Section 8B.23	Low Ground Clearance Grade Crossing Sign (W10-5) .....	763
Section 8B.24	Storage Space Signs (W10-11, W10-11a, W10-11b) .....	764
Section 8B.25	Skewed Crossing Sign (W10-12) .....	764
Section 8B.26	Light Rail Transit Station Sign (I-12) .....	764
Section 8B.27	Pavement Markings .....	764
Section 8B.28	Stop and Yield Lines .....	766
Section 8B.29	Dynamic Envelope Markings .....	767

**CHAPTER 8C FLASHING-LIGHT SIGNALS, GATES, AND TRAFFIC CONTROL SIGNALS**

Section 8C.01	Introduction .....	769
Section 8C.02	Flashing-Light Signals .....	769
Section 8C.03	Flashing-Light Signals at Highway-LRT Grade Crossings .....	772
Section 8C.04	Automatic Gates .....	772
Section 8C.05	Use of Automatic Gates at LRT Grade Crossings .....	773
Section 8C.06	Four-Quadrant Gate Systems .....	773
Section 8C.07	Wayside Horn Systems .....	775
Section 8C.08	Rail Traffic Detection .....	775
Section 8C.09	Traffic Control Signals at or Near Highway-Rail Grade Crossings .....	776
Section 8C.10	Traffic Control Signals at or Near Highway-LRT Grade Crossings .....	777
Section 8C.11	Use of Traffic Control Signals for Control of LRT Vehicles at Grade Crossings .....	778
Section 8C.12	Grade Crossings Within or In Close Proximity to Circular Intersections .....	780
Section 8C.13	Pedestrian and Bicycle Signals and Crossings at LRT Grade Crossings .....	780

**CHAPTER 8D PATHWAY GRADE CROSSINGS**

Section 8D.01	Purpose .....	786
Section 8D.02	Use of Standard Devices, Systems, and Practices .....	786
Section 8D.03	Pathway Grade Crossing Signs and Markings .....	786
Section 8D.04	Stop Lines, Edge Lines, and Detectable Warnings .....	786
Section 8D.05	Passive Devices for Pathway Grade Crossings .....	787
Section 8D.06	Active Traffic Control Systems for Pathway Grade Crossings .....	788

## **PART 9 TRAFFIC CONTROL FOR BICYCLE FACILITIES**

### **CHAPTER 9A GENERAL**

Section 9A.01	Requirements for Bicyclist Traffic Control Devices.....	789
Section 9A.02	Scope.....	789
Section 9A.03	Definitions Relating to Bicycles.....	789
Section 9A.04	Maintenance.....	789
Section 9A.05	Relation to Other Documents.....	789
Section 9A.06	Placement Authority.....	789
Section 9A.07	Meaning of Standard, Guidance, Option, and Support.....	789
Section 9A.08	Colors.....	789

### **CHAPTER 9B SIGNS**

Section 9B.01	Application and Placement of Signs.....	790
Section 9B.02	Design of Bicycle Signs.....	790
Section 9B.03	STOP and YIELD Signs (R1-1, R1-2).....	792
Section 9B.04	Bike Lane Signs and Plaques (R3-17, R3-17aP, R3-17bP).....	794
Section 9B.05	BEGIN RIGHT TURN LANE YIELD TO BIKES Sign (R4-4).....	794
Section 9B.06	Bicycles May Use Full Lane Sign (R4-11).....	794
Section 9B.07	Bicycle WRONG WAY Sign and RIDE WITH TRAFFIC Plaque (R5-1b, R9-3cP).....	794
Section 9B.08	NO MOTOR VEHICLES Sign (R5-3).....	795
Section 9B.09	Selective Exclusion Signs.....	795
Section 9B.10	No Parking Bike Lane Signs (R7-9, R7-9a).....	795
Section 9B.11	Bicycle Regulatory Signs (R9-5, R9-6, R10-4, R10-24, R10-25, and R10-26).....	795
Section 9B.12	Shared-Use Path Restriction Sign (R9-7).....	795
Section 9B.13	Bicycle Signal Actuation Sign (R10-22).....	796
Section 9B.14	Other Regulatory Signs.....	796
Section 9B.15	Turn or Curve Warning Signs (W1 Series).....	796
Section 9B.16	Intersection Warning Signs (W2 Series).....	796
Section 9B.17	Bicycle Surface Condition Warning Sign (W8-10).....	796
Section 9B.18	Bicycle Warning and Combined Bicycle/Pedestrian Signs (W11-1 and W11-15).....	796
Section 9B.19	Other Bicycle Warning Signs.....	798
Section 9B.20	Bicycle Guide Signs (D1-1b, D1-1c, D1-2b, D1-2c, D1-3b, D1-3c, D11-1, D11-1c).....	798
Section 9B.21	Bicycle Route Signs (M1-8, M1-8a, M1-9).....	800
Section 9B.22	Bicycle Route Sign Auxiliary Plaques.....	802
Section 9B.23	Bicycle Parking Area Sign (D4-3).....	804
Section 9B.24	Reference Location Signs (D10-1 through D10-3) and Intermediate Reference Location Signs (D10-1a through D10-3a).....	804
Section 9B.25	Mode-Specific Guide Signs for Shared-Use Paths (D11-1a, D11-2, D11-3, D11-4).....	805
Section 9B.26	Object Markers.....	805

### **CHAPTER 9C MARKINGS**

Section 9C.01	Functions of Markings.....	806
Section 9C.02	General Principles.....	806
Section 9C.03	Marking Patterns and Colors on Shared-Use Paths.....	806
Section 9C.04	Markings For Bicycle Lanes.....	806
Section 9C.05	Bicycle Detector Symbol.....	810
Section 9C.06	Pavement Markings for Obstructions.....	810
Section 9C.07	Shared Lane Marking.....	810

### **CHAPTER 9D SIGNALS**

Section 9D.01	Application.....	816
Section 9D.02	Signal Operations for Bicycles.....	816

<b>APPENDIX A1. CONGRESSIONAL LEGISLATION</b> .....	A1-1
<b>APPENDIX A2. METRIC CONVERSIONS</b> .....	A2-1

## FIGURES

	<u>Page</u>
Figure 1A-1	Process for Requesting and Conducting Experimentations for New Traffic Control Devices ... 5
Figure 1A-2	Process for Incorporating New Traffic Control Devices into the MUTCD ..... 8
Figure 2A-1	Examples of Enhanced Conspicuity for Signs ..... 37
Figure 2A-2	Examples of Heights and Lateral Locations of Sign Installations ..... 38
Figure 2A-3	Examples of Locations for Some Typical Signs at Intersections..... 39
Figure 2A-4	Relative Locations of Regulatory, Warning, and Guide Signs on an Intersection Approach ... 40
Figure 2B-1	STOP and YIELD Signs and Plaques ..... 51
Figure 2B-2	Unsignalized Pedestrian Crosswalk Signs ..... 55
Figure 2B-3	Speed Limit and Photo Enforcement Signs and Plaques..... 57
Figure 2B-4	Movement Prohibition and Lane Control Signs and Plaques ..... 60
Figure 2B-5	Intersection Lane Control Sign Arrow Options for Roundabouts ..... 62
Figure 2B-6	Center and Reversible Lane Control Signs and Plaques..... 65
Figure 2B-7	Location of Reversible Two-Way Left-Turn Signs..... 66
Figure 2B-8	Jughandle Regulatory Signs ..... 68
Figure 2B-9	Examples of Applications of Jughandle Regulatory and Guide Signing..... 69
Figure 2B-10	Passing, Keep Right, and Slow Traffic Signs ..... 72
Figure 2B-11	Selective Exclusion Signs ..... 75
Figure 2B-12	Locations of Wrong-Way Signing for Divided Highways with Median Widths of 30 Feet or Wider ..... 76
Figure 2B-13	ONE WAY and Divided Highway Crossing Signs ..... 78
Figure 2B-14	Locations of ONE WAY Signs ..... 79
Figure 2B-15	ONE WAY Signing for Divided Highways with Median Widths of 30 Feet or Wider ..... 80
Figure 2B-16	ONE WAY Signing for Divided Highways with Median Widths Narrower Than 30 Feet ..... 81
Figure 2B-17	ONE WAY Signing for Divided Highways with Median Widths Narrower Than 30 Feet and Separated Left-Turn Lanes ..... 82
Figure 2B-18	Example of Application of Regulatory Signing and Pavement Markings at an Exit Ramp Termination to Deter Wrong-Way Entry ..... 83
Figure 2B-19	Example of Application of Regulatory Signing and Pavement Markings at an Entrance Ramp Terminal Where the Design Does Not Clearly Indicate the Direction of Flow ..... 83
Figure 2B-20	Roundabout Signs and Plaques ..... 84
Figure 2B-21	Example of Regulatory and Warning Signs for a Mini-Roundabout ..... 85
Figure 2B-22	Example of Regulatory and Warning Signs for a One-Lane Roundabout ..... 86
Figure 2B-23	Example of Regulatory and Warning Signs for a Two-Lane Roundabout with Consecutive Double Lefts ..... 87
Figure 2B-24	Parking and Standing Signs and Plaques (R7 Series) ..... 88
Figure 2B-25	Parking and Stopping Signs and Plaques (R8 Series) ..... 90
Figure 2B-26	Pedestrian Signs and Plaques ..... 93
Figure 2B-27	Traffic Signal Signs and Plaques ..... 96
Figure 2B-28	Ramp Metering Signs..... 97
Figure 2B-29	Road Closed and Weight Limit Signs ..... 98
Figure 2B-30	Truck Signs ..... 99
Figure 2B-31	Headlight Use Signs ..... 100
Figure 2B-32	Other Regulatory Signs and Symbols ..... 101
Figure 2C-1	Horizontal Alignment Signs and Plaques ..... 109
Figure 2C-2	Example of Warning Signs for a Turn..... 111
Figure 2C-3	Example of Advisory Speed Signing for an Exit Ramp..... 116
Figure 2C-4	Vertical Grade Signs and Plaques ..... 117
Figure 2C-5	Miscellaneous Warning Signs ..... 118

Figure 2C-6	Roadway and Weather Condition and Advance Traffic Control Signs and Plaques.....	121
Figure 2C-7	Reduced Speed Limit Ahead Signs.....	124
Figure 2C-8	Merging and Passing Signs and Plaques .....	125
Figure 2C-9	Intersection Warning Signs and Plaques .....	127
Figure 2C-10	Vehicular Traffic Warning Signs and Plaques.....	129
Figure 2C-11	Non-Vehicular Warning Signs.....	130
Figure 2C-12	Supplemental Warning Plaques.....	132
Figure 2C-13	Object Markers.....	135
Figure 2D-1	Examples of Color-Coded Destination Guide Signs .....	138
Figure 2D-2	Arrows for Use on Guide Signs.....	141
Figure 2D-3	Route Signs .....	143
Figure 2D-4	Route Sign Auxiliaries .....	145
Figure 2D-5	Advance Turn and Directional Arrow Auxiliary Signs .....	147
Figure 2D-6	Illustration of Directional Assemblies and Other Route Signs (for One Direction of Travel Only).....	149
Figure 2D-7	Destination and Distance Signs.....	155
Figure 2D-8	Destination Signs for Roundabouts .....	158
Figure 2D-9	Examples of Guide Signs for Roundabouts .....	159
Figure 2D-10	Street Name and Parking Signs.....	162
Figure 2D-11	Example of Interchange Crossroad Signing for a One-Lane Approach .....	165
Figure 2D-12	Example of Minor Interchange Crossroad Signing .....	166
Figure 2D-13	Examples of Multi-Lane Crossroad Signing for a Diamond Interchange .....	167
Figure 2D-14	Examples of Multi-Lane Crossroad Signing for a Partial Cloverleaf Interchange .....	168
Figure 2D-15	Examples of Multi-Lane Crossroad Signing for a Cloverleaf Interchange.....	169
Figure 2D-16	Example of Crossroad Signing for an Entrance Ramp with a Nearby Frontage Road.....	170
Figure 2D-17	Example of Weigh Station Signing .....	173
Figure 2D-18	Examples of Community Wayfinding Guide Signs.....	174
Figure 2D-19	Example of a Community Wayfinding Guide Sign System Showing Direction from a Freeway or Expressway .....	175
Figure 2D-20	Example of a Color-Coded Community Wayfinding Guide Sign System.....	176
Figure 2D-21	Crossover, Truck Lane, and Slow Vehicle Signs .....	178
Figure 2D-22	Examples of Use of the National Scenic Byways Sign .....	180
Figure 2E-1	Example of Guide Sign Spreading .....	184
Figure 2E-2	Pull-Through Signs .....	184
Figure 2E-3	Overhead Arrow-per-Lane Guide Sign for a Multi-Lane Exit with an Option Lane .....	194
Figure 2E-4	Overhead Arrow-per-Lane Guide Signs for a Two-Lane Exit to the Right with an Option Lane .....	195
Figure 2E-5	Overhead Arrow-per-Lane Guide Signs for a Two-Lane Exit to the Right with an Option Lane (Through Lanes Curve to the Left) .....	196
Figure 2E-6	Overhead Arrow-per-Lane Guide Signs for a Split with an Option Lane .....	197
Figure 2E-7	Diagrammatic Guide Sign for a Multi-Lane Exit with an Option Lane.....	199
Figure 2E-8	Diagrammatic Guide Signs for a Two-Lane Exit to the Right with an Option Lane .....	200
Figure 2E-9	Diagrammatic Guide Signs for a Two-Lane Exit to the Right with an Option Lane (Through Lanes Curve to the Left) .....	201
Figure 2E-10	Diagrammatic Guide Signs for a Split with an Option Lane .....	202
Figure 2E-11	Example of Signing for a Two-Lane Intermediate or Minor Interchange Exit with an Option Lane and a Dropped Lane .....	204
Figure 2E-12	Example of Signing for a Two-Lane Intermediate or Minor Interchange Exit with Option and Auxiliary Lanes.....	205
Figure 2E-13	EXIT ONLY and LEFT Sign Panels.....	206
Figure 2E-14	Guide Signs for a Split with Dedicated Lanes.....	207
Figure 2E-15	Guide Signs for a Single-Lane Exit to the Left with a Dropped Lane .....	208
Figure 2E-16	Guide Signs for a Single-Lane Exit to the Right with a Dropped Lane .....	209
Figure 2E-17	Interstate, Off-Interstate, and U.S. Route Signs.....	210

Figure 2E-18	Eisenhower Interstate System Signs .....	211
Figure 2E-19	Example of Interchange Numbering for Mainline and Circumferential Routes .....	213
Figure 2E-20	Example of Interchange Numbering for Mainline, Loop, and Spur Routes .....	214
Figure 2E-21	Example of Interchange Numbering for Overlapping Routes .....	215
Figure 2E-22	Examples of Interchange Advance Guide Signs, Exit Number Plaques, and LEFT Plaque.....	217
Figure 2E-23	Next Exit Plaques .....	218
Figure 2E-24	Supplemental Guide Sign for a Multi-Exit Interchange .....	219
Figure 2E-25	Supplemental Guide Sign for a Park – Ride Facility.....	219
Figure 2E-26	Examples of Interchange Exit Direction Signs .....	220
Figure 2E-27	Interchange Exit Direction Sign with an Advisory Speed Panel.....	221
Figure 2E-28	Exit Gore Signs .....	222
Figure 2E-29	Post-Interchange Distance Sign.....	223
Figure 2E-30	Example of Using an Interchange Sequence Sign for Closely-Spaced Interchanges .....	224
Figure 2E-31	Interchange Sequence Sign .....	225
Figure 2E-32	Community Interchanges Identification Sign .....	225
Figure 2E-33	NEXT EXITS Sign .....	225
Figure 2E-34	Examples of Guide Signs for a Freeway-to-Freeway Interchange.....	227
Figure 2E-35	Examples of Guide Signs for a Full Cloverleaf Interchange .....	229
Figure 2E-36	Examples of Guide Signs for a Full Cloverleaf Interchange with Collector-Distributor Roadways .....	231
Figure 2E-37	Examples of Guide Signs for a Partial Cloverleaf Interchange .....	232
Figure 2E-38	Examples of Guide Signs for a Diamond Interchange .....	233
Figure 2E-39	Examples of Guide Signs for a Diamond Interchange in an Urban Area.....	235
Figure 2E-40	Examples of Guide Signs for a Minor Interchange .....	236
Figure 2F-1	Examples of ETC Account Pictographs and Use of Purple Backgrounds and Underlay Panels .....	239
Figure 2F-2	Toll Plaza Regulatory Signs and Plaques .....	240
Figure 2F-3	Toll Plaza Warning Signs and Plaques .....	241
Figure 2F-4	ETC Account-Only Auxiliary Signs for Use in Route Sign Assemblies .....	243
Figure 2F-5	Examples of Guide Signs for Entrances to Toll Highways or Ramps .....	245
Figure 2F-6	Examples of Guide Signs for the Entrance to a Toll Highway on which Tolls are Collected Electronically Only .....	246
Figure 2F-7	Examples of Guide Signs for Alternative Toll and Non-Toll Ramp Connections to a Non-Toll Highway .....	247
Figure 2F-8	Examples of Conventional Toll Plaza Advance Signs .....	248
Figure 2F-9	Examples of Toll Plaza Canopy Signs.....	248
Figure 2F-10	Examples of Mainline Toll Plaza Approach and Canopy Signing .....	250
Figure 2F-11	Examples of Guide Signs for a Mainline Toll Plaza on a Diverging Alignment from Open-Road ETC Lanes .....	251
Figure 2G-1	Preferential Lane Regulatory Signs and Plaques .....	255
Figure 2G-2	Example of Signing for an Added Continuous-Access Contiguous or Buffer-Separated HOV Lane .....	261
Figure 2G-3	Example of Signing for a General-Purpose Lane that Becomes a Continuous-Access Contiguous or Buffer-Separated HOV Lane .....	262
Figure 2G-4	Examples of Warning Signs and Plaques Applicable Only to Preferential Lanes.....	264
Figure 2G-5	Example of an Overhead Advance Guide Sign for a Preferential Lane Entrance .....	267
Figure 2G-6	Examples of Overhead or Post-Mounted Preferential Lane Entrance Direction Signs .....	267
Figure 2G-7	Entrance Gore Signs for Barrier-Separated Preferential Lanes.....	268
Figure 2G-8	Example of Signing for an Entrance to Access-Restricted HOV Lanes .....	269
Figure 2G-9	Example of Signing for an Intermediate Entry to a Barrier- or Buffer-Separated HOV Lane .....	271
Figure 2G-10	Example of Signing for the Intermediate Entry to, Egress from, and End of Access- Restricted HOV Lanes .....	272

Figure 2G-11 Examples of Barrier-Mounted Guide Signs for an Intermediate Egress from Preferential Lanes ..... 273

Figure 2G-12 Examples of Guide Signs for an Intermediate Egress from a Barrier- or Buffer-Separated HOV Lane ..... 274

Figure 2G-13 Example of Signing for a Direct Entrance Ramp to an HOV Lane from a Park-and-Ride Facility and a Local Street ..... 275

Figure 2G-14 Exit Gore Sign for a Direct Exit from a Preferential Lane..... 276

Figure 2G-15 Examples of Guide Signs for Direct HOV Lane Entrance and Exit Ramps ..... 277

Figure 2G-16 Examples of Guide Signs for a Direct Access Ramp between HOV Lanes on Separate Freeways..... 278

Figure 2G-17 Regulatory Signs for Managed Lanes ..... 280

Figure 2G-18 Examples of Guide Signs for Entrances to Priced Managed Lanes ..... 281

Figure 2G-19 Example of an Exit Destinations Sign for a Managed Lane ..... 282

Figure 2G-20 Example of a Comparative Travel Time Information Sign for Preferential or Managed Lanes ..... 282

Figure 2G-21 Example of Signing for the Entrance to an Access-Restricted Priced Managed Lane ..... 283

Figure 2G-22 Example of Signing for the Entrance to an Access-Restricted Priced Managed Lane Where a General-Purpose Lane Becomes the Managed Lane..... 284

Figure 2G-23 Example of Signing for an Intermediate Entry to a Barrier- or Buffer-Separated Priced Managed Lane..... 285

Figure 2G-24 Example of Signing for the Intermediate Entry to, Egress from, and End of Access-Restricted Priced Managed Lanes..... 286

Figure 2G-25 Examples of Guide Signs for an Intermediate Egress from a Barrier- or Buffer-Separated HOV Lane ..... 287

Figure 2G-26 Examples of Guide Signs for Direct Managed Lane Entrance and Exit Ramps ..... 288

Figure 2G-27 Examples of Guide Signs for a Direct Access Ramp between Managed Lanes on Separate Freeways..... 289

Figure 2G-28 Examples of Guide Signs for a Direct Entrance Ramp to a Priced Managed Lane and Trailblazing to a Nearby Entrance to the General-Purpose Lanes..... 290

Figure 2G-29 Examples of Guide Signs for Separate Entrance Ramps to General-Purpose and Priced Managed Lanes from the Same Crossroad ..... 291

Figure 2H-1 General Information and Miscellaneous Information Signs ..... 293

Figure 2H-2 Reference Location Signs..... 295

Figure 2H-3 Intermediate Reference Location Signs ..... 295

Figure 2H-4 Enhanced Reference Location Signs ..... 296

Figure 2H-5 Examples of Acknowledgment Sign Designs ..... 298

Figure 2I-1 General Service Signs and Plaques ..... 301

Figure 2I-2 Example of Next Services Plaque ..... 302

Figure 2I-3 Examples of General Service Signs with and without Exit Numbering..... 304

Figure 2I-4 Examples of Interstate Oasis Signs and Plaques ..... 306

Figure 2I-5 Rest Area and Other Roadside Area Signs..... 307

Figure 2I-6 Brake Check Area and Chain-Up Area Signs ..... 308

Figure 2I-7 Examples of Tourist Information and Welcome Center Signs ..... 309

Figure 2I-8 Radio, Telephone, and Carpool Information Signs ..... 310

Figure 2J-1 Examples of Specific Service Signs ..... 314

Figure 2J-2 Examples of Specific Service Sign Locations ..... 315

Figure 2J-3 Examples of Supplemental Messages on Logo Sign Panels ..... 316

Figure 2J-4 Examples of RV Access Supplemental Messages on Logo Sign Panels ..... 316

Figure 2J-5 Examples of Specific Service Trailblazer Signs ..... 319

Figure 2K-1 Examples of Tourist-Oriented Directional Signs ..... 321

Figure 2K-2 Examples of Intersection Approach Signs and Advance Signs for Tourist-Oriented Directional Signs ..... 322

Figure 2M-1 Examples of Use of Arrows, Educational Plaques, and Prohibitory Slashes..... 333

Figure 2M-2	Examples of Recreational and Cultural Interest Area Guide Signs .....	334
Figure 2M-3	Arrangement, Height, and Lateral Position of Signs Located Within Recreational and Cultural Interest Areas .....	335
Figure 2M-4	Examples of Symbol and Destination Guide Signing Layout .....	336
Figure 2M-5	Recreational and Cultural Interest Area Symbol Signs for General Applications .....	337
Figure 2M-6	Recreational and Cultural Interest Area Symbol Signs for Accommodations .....	338
Figure 2M-7	Recreational and Cultural Interest Area Symbol Signs for Services.....	338
Figure 2M-8	Recreational and Cultural Interest Area Symbol Signs for Land Recreation.....	339
Figure 2M-9	Recreational and Cultural Interest Area Symbol Signs for Water Recreation .....	340
Figure 2M-10	Recreational and Cultural Interest Area Symbol Signs for Winter Recreation .....	341
Figure 2N-1	Emergency Management Signs .....	343
Figure 3B-1	Examples of Two-Lane, Two-Way Marking Applications .....	350
Figure 3B-2	Examples of Four-or-More Lane, Two-Way Marking Applications .....	351
Figure 3B-3	Examples of Three-Lane, Two-Way Marking Applications .....	352
Figure 3B-4	Method of Locating and Determining the Limits of No-Passing Zones at Curves .....	353
Figure 3B-5	Example of Application of Three-Lane, Two-Way Marking for Changing Direction of the Center Lane .....	355
Figure 3B-6	Example of Reversible Lane Marking Application .....	356
Figure 3B-7	Example of Two-Way Left-Turn Lane Marking Applications .....	357
Figure 3B-8	Examples of Dotted Line and Channelizing Line Applications for Exit Ramp Markings.....	358
Figure 3B-9	Examples of Dotted Line and Channelizing Line Applications for Entrance Ramp Markings .....	360
Figure 3B-10	Examples of Applications of Freeway and Expressway Lane-Drop Markings .....	363
Figure 3B-11	Examples of Applications of Conventional Road Lane-Drop Markings .....	368
Figure 3B-12	Example of Solid Double White Lines Used to Prohibit Lane Changing .....	370
Figure 3B-13	Examples of Line Extensions through Intersections .....	372
Figure 3B-14	Examples of Applications of Lane-Reduction Transition Markings .....	375
Figure 3B-15	Examples of Applications of Markings for Obstructions in the Roadway .....	377
Figure 3B-16	Recommended Yield Line Layouts .....	382
Figure 3B-17	Examples of Yield Lines at Unsignalized Midblock Crosswalks.....	383
Figure 3B-18	Do Not Block Intersection Markings .....	384
Figure 3B-19	Examples of Crosswalk Markings.....	384
Figure 3B-20	Example of Crosswalk Markings for an Exclusive Pedestrian Phase that Permits Diagonal Crossing .....	385
Figure 3B-21	Examples of Parking Space Markings .....	386
Figure 3B-22	International Symbol of Accessibility Parking Space Marking .....	387
Figure 3B-23	Example of Elongated Letters for Word Pavement Markings .....	387
Figure 3B-24	Examples of Standard Arrows for Pavement Markings .....	388
Figure 3B-25	Examples of Elongated Route Shields for Pavement Markings .....	390
Figure 3B-26	Yield Ahead Triangle Symbols .....	391
Figure 3B-27	Examples of Lane-Use Control Word and Arrow Pavement Markings .....	392
Figure 3B-28	Example of the Application of Speed Reduction Markings .....	394
Figure 3B-29	Pavement Markings for Speed Humps without Crosswalks.....	396
Figure 3B-30	Pavement Markings for Speed Tables or Speed Humps with Crosswalks .....	397
Figure 3B-31	Advance Warning Markings for Speed Humps .....	398
Figure 3C-1	Example of Markings for Approach and Circulatory Roadways at a Roundabout .....	399
Figure 3C-2	Lane-Use Arrow Pavement Marking Options for Roundabout Approaches .....	400
Figure 3C-3	Example of Markings for a One-Lane Roundabout .....	400
Figure 3C-4	Example of Markings for a Two-Lane Roundabout with One- and Two-Lane Approaches...	401
Figure 3C-5	Example of Markings for a Two-Lane Roundabout with One-Lane Exits.....	403
Figure 3C-6	Example of Markings for a Two-Lane Roundabout with Two-Lane Exits.....	404
Figure 3C-7	Example of Markings for a Two-Lane Roundabout with a Double Left Turn .....	405
Figure 3C-8	Example of Markings for a Two-Lane Roundabout with a Double Right Turn .....	406
Figure 3C-9	Example of Markings for a Two-Lane Roundabout with Consecutive Double Lefts.....	407

Figure 3C-10	Example of Markings for a Three-Lane Roundabout with Two- and Three-Lane Approaches.....	408
Figure 3C-11	Example of Markings for a Three-Lane Roundabout with Three-Lane Approaches .....	409
Figure 3C-12	Example of Markings for a Three-Lane Roundabout with Two-Lane Exits .....	410
Figure 3C-13	Example of Markings for Two Linked Roundabouts .....	411
Figure 3C-14	Example of Markings for a Diamond Interchange with Two Circular-Shaped Roundabout Ramp Terminals .....	412
Figure 3D-1	Markings for Barrier-Separated Preferential Lanes .....	418
Figure 3D-2	Markings for Buffer-Separated Preferential Lanes .....	418
Figure 3D-3	Markings for Contiguous Preferential Lanes .....	420
Figure 3D-4	Markings for Counter-Flow Preferential Lanes on Divided Highways .....	422
Figure 3F-1	Examples of Delineator Placement .....	425
Figure 3J-1	Examples of Longitudinal Rumble Strip Markings .....	432
Figure 4C-1	Warrant 2, Four-Hour Vehicular Volume .....	440
Figure 4C-2	Warrant 2, Four-Hour Vehicular Volume (70% Factor) .....	440
Figure 4C-3	Warrant 3, Peak Hour.....	441
Figure 4C-4	Warrant 3, Peak Hour (70% Factor) .....	441
Figure 4C-5	Warrant 4, Pedestrian Four-Hour Volume.....	443
Figure 4C-6	Warrant 4, Pedestrian Four-Hour Volume (70% Factor) .....	443
Figure 4C-7	Warrant 4, Pedestrian Peak Hour.....	444
Figure 4C-8	Warrant 4, Pedestrian Peak Hour (70% Factor) .....	444
Figure 4C-9	Warrant 9, Intersection Near a Grade Crossing (One Approach Lane at the Track Crossing) .....	447
Figure 4C-10	Warrant 9, Intersection Near a Grade Crossing (Two or More Approach Lanes at the Track Crossing) .....	447
Figure 4D-1	Example of U-Turn Signal Face .....	456
Figure 4D-2	Typical Arrangements of Signal Sections in Signal Faces That Do Not Control Turning Movements .....	458
Figure 4D-3	Recommended Vehicular Signal Faces for Approaches with Posted, Statutory, or 85 <sup>th</sup> -Percentile Speed of 45 mph or Higher .....	460
Figure 4D-4	Lateral and Longitudinal Location of Primary Signal Faces .....	463
Figure 4D-5	Maximum Mounting Height of Signal Faces Located Between 40 Feet and 53 Feet from Stop Line .....	465
Figure 4D-6	Typical Position and Arrangements of Shared Signal Faces for Permissive Only Mode Left Turns.....	467
Figure 4D-7	Typical Position and Arrangements of Separate Signal Faces with Flashing Yellow Arrow for Permissive Only Mode Left Turns .....	468
Figure 4D-8	Typical Position and Arrangements of Separate Signal Faces with Flashing Red Arrow for Permissive Only Mode and Protected/Permissive Mode Left Turns.....	469
Figure 4D-9	Typical Positions and Arrangements of Shared Signal Faces for Protected Only Mode Left Turns .....	470
Figure 4D-10	Typical Position and Arrangements of Separate Signal Faces for Protected Only Mode Left Turns .....	471
Figure 4D-11	Typical Position and Arrangements of Shared Signal Faces for Protected/Permissive Mode Left Turns .....	472
Figure 4D-12	Typical Position and Arrangements of Separate Signal Faces with Flashing Yellow Arrow for Protected/Permissive Mode and Protected Only Mode Left Turns .....	473
Figure 4D-13	Typical Positions and Arrangements of Shared Signal Faces for Permissive Only Mode Right Turns .....	476
Figure 4D-14	Typical Position and Arrangements of Separate Signal Faces with Flashing Yellow Arrow for Permissive Only Mode Right Turns .....	477
Figure 4D-15	Typical Position and Arrangements of Separate Signal Faces with Flashing Red Arrow for Permissive Only Mode and Protected/Permissive Mode Right Turns .....	478

Figure 4D-16	Typical Positions and Arrangements of Shared Signal Faces for Protected Only Mode Right Turns .....	479
Figure 4D-17	Typical Position and Arrangements of Separate Signal Faces for Protected Only Mode Right Turns.....	480
Figure 4D-18	Typical Positions and Arrangements of Shared Signal Faces for Protected/Permissive Mode Right Turns .....	481
Figure 4D-19	Typical Position and Arrangements of Separate Signal Faces with Flashing Yellow Arrow for Protected/Permissive Mode and Protected Only Mode Right Turns .....	482
Figure 4D-20	Signal Indications for Approaches with a Shared Left-Turn/Right-Turn Lane and No Through Movement.....	486
Figure 4E-1	Typical Pedestrian Signal Indications .....	496
Figure 4E-2	Pedestrian Intervals.....	498
Figure 4E-3	Pushbutton Location Area.....	501
Figure 4E-4	Typical Pushbutton Locations .....	502
Figure 4F-1	Guidelines for the Installation of Pedestrian Hybrid Beacons on Low-Speed Roadways .....	510
Figure 4F-2	Guidelines for the Installation of Pedestrian Hybrid Beacons on High-Speed Roadways .....	510
Figure 4F-3	Sequence for a Pedestrian Hybrid Beacon .....	511
Figure 4G-1	Sequence for an Emergency-Vehicle Hybrid Beacon .....	515
Figure 4M-1	Left-Turn Lane-Use Control Signals .....	526
Figure 5B-1	Regulatory Signs on Low-Volume Roads .....	534
Figure 5B-2	Parking Signs and Plaques on Low-Volume Roads.....	535
Figure 5C-1	Horizontal Alignment and Intersection Warning Signs and Plaques and Object Markers on Low-Volume Roads .....	536
Figure 5C-2	Other Warning Signs and Plaques on Low-Volume Roads .....	538
Figure 5F-1	Highway-Rail Grade Crossing Signs and Plaques for Low-Volume Roads.....	542
Figure 5G-1	Temporary Traffic Control Signs and Plaques on Low-Volume Roads .....	545
Figure 6C-1	Component Parts of a Temporary Traffic Control Zone .....	553
Figure 6C-2	Types of Tapers and Buffer Spaces .....	556
Figure 6C-3	Example of a One-Lane, Two-Way Traffic Taper.....	559
Figure 6E-1	Example of the Use of a STOP/SLOW Automated Flagger Assistance Device (AFAD).....	570
Figure 6E-2	Example of the Use of a Red/Yellow Lens Automated Flagger Assistance Device (AFAD)..	572
Figure 6E-3	Use of Hand-Signaling Devices by Flaggers.....	574
Figure 6F-1	Height and Lateral Location of Signs—Typical Installations.....	581
Figure 6F-2	Methods of Mounting Signs Other Than on Posts .....	582
Figure 6F-3	Regulatory Signs and Plaques in Temporary Traffic Control Zones.....	584
Figure 6F-4	Warning Signs and Plaques in Temporary Traffic Control Zones.....	588
Figure 6F-5	Exit Open and Closed and Detour Signs.....	592
Figure 6F-6	Advance Warning Arrow Board Display Specifications .....	602
Figure 6F-7	Channelizing Devices .....	605
Figure 6H-1	Work Beyond the Shoulder (TA-1) .....	635
Figure 6H-2	Blasting Zone (TA-2) .....	637
Figure 6H-3	Work on the Shoulders (TA-3) .....	639
Figure 6H-4	Short-Duration or Mobile Operation on a Shoulder (TA-4).....	641
Figure 6H-5	Shoulder Closure on a Freeway (TA-5).....	643
Figure 6H-6	Shoulder Work with Minor Encroachment (TA-6) .....	645
Figure 6H-7	Road Closure with a Diversion (TA-7).....	647
Figure 6H-8	Road Closure with an Off-Site Detour (TA-8) .....	649
Figure 6H-9	Overlapping Routes with a Detour (TA-9) .....	651
Figure 6H-10	Lane Closure on a Two-Lane Road Using Flaggers (TA-10) .....	653
Figure 6H-11	Lane Closure on a Two-Lane Road with Low Traffic Volumes (TA-11).....	655
Figure 6H-12	Lane Closure on a Two-Lane Road Using Traffic Control Signals (TA-12).....	657
Figure 6H-13	Temporary Road Closure (TA-13).....	659
Figure 6H-14	Haul Road Crossing (TA-14) .....	661
Figure 6H-15	Work in the Center of a Road with Low Traffic Volumes (TA-15) .....	663

Figure 6H-16	Surveying Along the Center Line of a Road with Low Traffic Volumes (TA-16).....	665
Figure 6H-17	Mobile Operations on a Two-Lane Road (TA-17).....	667
Figure 6H-18	Lane Closure on a Minor Street (TA-18).....	669
Figure 6H-19	Detour for One Travel Direction (TA-19).....	671
Figure 6H-20	Detour for a Closed Street (TA-20).....	673
Figure 6H-21	Lane Closure on the Near Side of an Intersection (TA-21).....	675
Figure 6H-22	Right-Hand Lane Closure on the Far Side of an Intersection (TA-22).....	677
Figure 6H-23	Left-Hand Lane Closure on the Far Side of an Intersection (TA-23).....	679
Figure 6H-24	Half Road Closure on the Far Side of an Intersection (TA-24).....	681
Figure 6H-25	Multiple Lane Closures at an Intersection (TA-25).....	683
Figure 6H-26	Closure in the Center of an Intersection (TA-26).....	685
Figure 6H-27	Closure at the Side of an Intersection (TA-27).....	687
Figure 6H-28	Sidewalk Detour or Diversion (TA-28).....	689
Figure 6H-29	Crosswalk Closures and Pedestrian Detours (TA-29).....	691
Figure 6H-30	Interior Lane Closure on a Multi-Lane Street (TA-30).....	693
Figure 6H-31	Lane Closures on a Street with Uneven Directional Volumes (TA-31).....	695
Figure 6H-32	Half Road Closure on a Multi-Lane, High-Speed Highway (TA-32).....	697
Figure 6H-33	Stationary Lane Closure on a Divided Highway (TA-33).....	699
Figure 6H-34	Lane Closure with a Temporary Traffic Barrier (TA-34).....	701
Figure 6H-35	Mobile Operation on a Multi-Lane Road (TA-35).....	703
Figure 6H-36	Lane Shift on a Freeway (TA-36).....	705
Figure 6H-37	Double Lane Closure on a Freeway (TA-37).....	707
Figure 6H-38	Interior Lane Closure on a Freeway (TA-38).....	709
Figure 6H-39	Median Crossover on a Freeway (TA-39).....	711
Figure 6H-40	Median Crossover for an Entrance Ramp (TA-40).....	713
Figure 6H-41	Median Crossover for an Exit Ramp (TA-41).....	715
Figure 6H-42	Work in the Vicinity of an Exit Ramp (TA-42).....	717
Figure 6H-43	Partial Exit Ramp Closure (TA-43).....	719
Figure 6H-44	Work in the Vicinity of an Entrance Ramp (TA-44).....	721
Figure 6H-45	Temporary Reversible Lane Using Movable Barriers (TA-45).....	723
Figure 6H-46	Work in the Vicinity of a Grade Crossing (TA-46).....	725
Figure 6I-1	Examples of Traffic Incident Management Area Signs.....	727
Figure 7A-1	Example of School Route Plan Map.....	732
Figure 7B-1	School Area Signs.....	735
Figure 7B-2	Example of Signing for a Higher Fines School Zone without a School Crossing.....	737
Figure 7B-3	Example of Signing for a Higher Fines School Zone with a School Speed Limit.....	738
Figure 7B-4	Example of Signing for a School Crossing Outside of a School Zone.....	739
Figure 7B-5	Example of Signing for a School Zone with a School Speed Limit and a School Crossing ..	740
Figure 7B-6	In-Street Signs in School Areas.....	741
Figure 7C-1	Two-Lane Pavement Marking of "SCHOOL".....	744
Figure 8B-1	Regulatory Signs and Plaques for Grade Crossings.....	753
Figure 8B-2	Crossbuck Assembly with a YIELD or STOP Sign on the Crossbuck Sign Support.....	754
Figure 8B-3	Crossbuck Assembly with a YIELD or STOP Sign on a Separate Sign Support.....	755
Figure 8B-4	Warning Signs and Plaques for Grade Crossings.....	759
Figure 8B-5	Example of an Emergency Notification Sign.....	762
Figure 8B-6	Example of Placement of Warning Signs and Pavement Markings at Grade Crossings.....	765
Figure 8B-7	Grade Crossing Pavement Markings.....	766
Figure 8B-8	Example of Dynamic Envelope Pavement Markings at Grade Crossings.....	767
Figure 8B-9	Examples of Light Rail Transit Vehicle Dynamic Envelope Markings for Mixed-Use Alignments.....	768
Figure 8C-1	Composite Drawing of Active Traffic Control Devices for Grade Crossings Showing Clearances.....	770
Figure 8C-2	Example of Location Plan for Flashing-Light Signals and Four-Quadrant Gates.....	774
Figure 8C-3	Light Rail Transit Signals.....	779

Figure 8C-4	Example of Flashing-Light Signal Assembly for Pedestrian Crossings .....	781
Figure 8C-5	Example of a Shared Pedestrian/Roadway Gate .....	782
Figure 8C-6	Example of a Separate Pedestrian Gate .....	782
Figure 8C-7	Examples of Placement of Pedestrian Gates .....	783
Figure 8C-8	Example of Swing Gates .....	784
Figure 8C-9	Example of Pedestrian Barriers at an Offset Grade Crossing .....	784
Figure 8C-10	Examples of Pedestrian Barrier Installation at an Offset Non-Intersection Grade Crossing...	785
Figure 8D-1	Example of Signage and Markings for a Pathway Grade Crossing .....	787
Figure 9B-1	Sign Placement on Shared-Use Paths .....	790
Figure 9B-2	Regulatory Signs and Plaques for Bicycle Facilities .....	793
Figure 9B-3	Warning Signs and Plaques and Object Markers for Bicycle Facilities .....	797
Figure 9B-4	Guide Signs and Plaques for Bicycle Facilities .....	799
Figure 9B-5	Example of Signage for the Beginning and End of a Designated Bicycle Route on a Shared-Use Path .....	801
Figure 9B-6	Example of Bicycle Guide Signage .....	802
Figure 9B-7	Examples of Signage and Markings for a Shared-Use Path Crossing .....	803
Figure 9B-8	Example of Mode-Specific Guide Signage on a Shared-Use Path .....	805
Figure 9C-1	Example of Intersection Pavement Markings—Designated Bicycle Lane with Left-Turn Area, Heavy Turn Volumes, Parking, One-Way Traffic, or Divided Highway .....	807
Figure 9C-2	Examples of Center Line Markings for Shared-Use Paths .....	808
Figure 9C-3	Word, Symbol, and Arrow Pavement Markings for Bicycle Lanes .....	809
Figure 9C-4	Example of Bicycle Lane Treatment at a Right Turn Only Lane .....	811
Figure 9C-5	Example of Bicycle Lane Treatment at Parking Lane into a Right Turn Only Lane .....	812
Figure 9C-6	Example of Pavement Markings for Bicycle Lanes on a Two-Way Street.....	813
Figure 9C-7	Bicycle Detector Pavement Marking .....	814
Figure 9C-8	Examples of Obstruction Pavement Markings .....	815
Figure 9C-9	Shared Lane Marking .....	815

## TABLES

	<b>Page</b>
Table I-1	Evolution of the MUTCD.....I-2
Table I-2	Target Compliance Dates Established by the FHWA .....I-4
Table 1A-1	Acceptable Abbreviations .....24
Table 1A-2	Abbreviations that Shall be Used Only on Portable Changeable Message Signs.....25
Table 1A-3	Unacceptable Abbreviations.....26
Table 2A-1	Illumination of Sign Elements.....29
Table 2A-2	Retroreflection of Sign Elements.....29
Table 2A-3	Minimum Maintained Retroreflectivity Levels.....31
Table 2A-4	Use of Sign Shapes.....32
Table 2A-5	Common Uses of Sign Colors .....33
Table 2B-1	Regulatory Sign and Plaque Sizes.....46
Table 2B-2	Meanings of Symbols and Legends on Reversible Lane Control Signs .....65
Table 2C-1	Categories of Warning Signs and Plaques.....104
Table 2C-2	Warning Sign and Plaque Sizes.....105
Table 2C-3	Minimum Size of Supplemental Warning Plaques .....107
Table 2C-4	Guidelines for Advance Placement of Warning Signs .....108
Table 2C-5	Horizontal Alignment Sign Selection .....110
Table 2C-6	Approximate Spacing of Chevron Alignment Signs on Horizontal Curves.....113
Table 2D-1	Conventional Road Guide Sign Sizes.....139
Table 2D-2	Recommended Minimum Letter Heights on Street Name Signs .....163
Table 2E-1	Freeway or Expressway Guide Sign and Plaque Sizes .....186

Table 2E-2	Minimum Letter and Numeral Sizes for Expressway Guide Signs According to Interchange Classification .....	188
Table 2E-3	Minimum Letter and Numeral Sizes for Expressway Guide Signs According to Sign Type, ..	189
Table 2E-4	Minimum Letter and Numeral Sizes for Freeway Guide Signs According to Interchange Classification .....	190
Table 2E-5	Minimum Letter and Numeral Sizes for Freeway Guide Signs According to Sign Type .....	191
Table 2F-1	Toll Facility Sign and Plaque Minimum Sizes .....	237
Table 2G-1	Managed and Preferential Lanes Sign and Plaque Minimum Sizes.....	254
Table 2H-1	General Information Sign Sizes .....	292
Table 2I-1	General Service Sign and Plaque Sizes.....	299
Table 2J-1	Minimum Letter and Numeral Sizes for Specific Service Signs According to Sign Type.....	316
Table 2L-1	Example of Units of Information .....	328
Table 2M-1	Category Chart for Recreational and Cultural Interest Area Symbols.....	331
Table 2N-1	Emergency Management Sign Sizes .....	343
Table 3B-1	Minimum Passing Sight Distances for No-Passing Zone Markings .....	352
Table 3D-1	Standard Edge Line and Lane Line Markings for Preferential Lanes.....	417
Table 3F-1	Approximate Spacing for Delineators on Horizontal Curves .....	427
Table 4C-1	Warrant 1, Eight-Hour Vehicular Volume .....	438
Table 4C-2	Warrant 9, Adjustment Factor for Daily Frequency of Rail Traffic.....	448
Table 4C-3	Warrant 9, Adjustment Factor for Percentage of High-Occupancy Buses.....	448
Table 4C-4	Warrant 9, Adjustment Factor for Percentage of Tractor-Trailer Trucks .....	448
Table 4D-1	Recommended Minimum Number of Primary Signal Faces for Through Traffic on Approaches with Posted, Statutory, or 85 <sup>th</sup> -Percentile Speed of 45 mph or Higher .....	461
Table 4D-2	Minimum Sight Distance for Signal Visibility.....	461
Table 5A-1	Sign and Plaque Sizes on Low-Volume Roads .....	532
Table 6C-1	Recommended Advance Warning Sign Minimum Spacing.....	554
Table 6C-2	Stopping Sight Distance as a Function of Speed.....	555
Table 6C-3	Taper Length Criteria for Temporary Traffic Control Zones .....	557
Table 6C-4	Formulas for Determining Taper Length .....	557
Table 6E-1	Stopping Sight Distance as a Function of Speed.....	575
Table 6F-1	Temporary Traffic Control Zone Sign and Plaque Sizes .....	578
Table 6H-1	Index to Typical Applications .....	632
Table 6H-2	Meaning of Symbols on Typical Application Diagrams .....	633
Table 6H-3	Meaning of Letter Codes on Typical Application Diagrams .....	633
Table 6H-4	Formulas for Determining Taper Length .....	633
Table 7B-1	School Area Sign and Plaque Sizes.....	733
Table 8B-1	Grade Crossing Sign and Plaque Minimum Sizes .....	752
Table 9B-1	Bicycle Facility Sign and Plaque Minimum Sizes .....	791
Table A2-1	Conversion of Inches to Millimeters .....	A2-1
Table A2-2	Conversion of Feet to Meters .....	A2-1
Table A2-3	Conversion of Miles to Kilometers .....	A2-1
Table A2-4	Conversion of Miles per Hour to Kilometers/Hour .....	A2-1