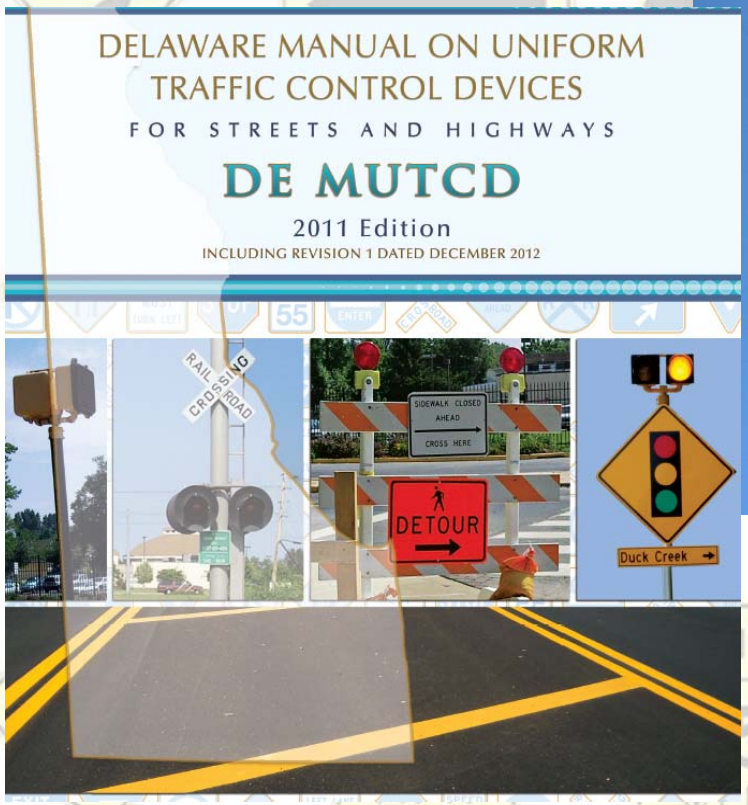
ASSET MANAGEMENT
Traffic Section - Signs









Denny Hehman
Traffic Field Operations Manager

ASSET MANAGEMENT
Traffic Signs

So many functions, sizes, colors, shapes, etc.

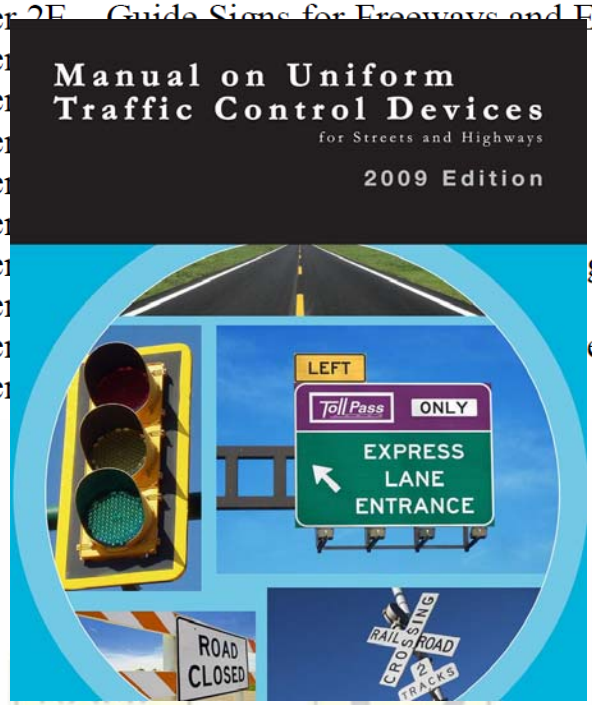
Strict Federal Regulation

DOES NOT INCLUDE:

- Development Signs
- Ornamental Signs
- Wooden Gateway Signs
- Temporary Traffic Control
- Blue Logo Signing
- Food, Lodging, Gas

MUTCD signs by function:

Chapter 2B—Regulatory Signs, Barricades, and Gates
Chapter 2C—Warning Signs and Object Markers
Chapter 2D—Guide Signs for Conventional Roads
Chapter 2E—Guide Signs for Freeways and Expressways
Chapter
Chapter Signs
Chapter
Chapter
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Chapter est Area Signs
Chapter



ASSET MANAGEMENT
Traffic Signs

Five types of signs:

Bridge (52)



- **Inspected every five years**
- **Good Inventory**
- **Most < 10 years old**
- **No overhead lighting**

ASSET MANAGEMENT
Traffic Signs

TEAM DelDOT
Transparent Efficient Accountable Measured

Five types of signs:

Bridge (52)

Cantilever (149)



- **Inspected every five years**
- **Good Inventory**
- **Most < 10 years old**
- **No overhead lighting**

DelDOT

ASSET MANAGEMENT
Traffic Signs

TEAM DelDOT
Transparent Efficient Accountable Measured

Five types of signs:

Bridge (52)

Cantilever (149)

Overhead (208)



- **Inspected every five years**
- **Good Inventory**
- **Most < 10 years old**
- **No overhead lighting**

DelDOT

ASSET MANAGEMENT

Traffic Signs

<u>Five types of signs:</u>

Bridge (52)

Cantilever (149)

Overhead (208)

I-Beam (533)



- **Inspected every year**
- **Good Inventory**
- **Most < 10 years old**

ASSET MANAGEMENT

Traffic Signs

<u>Five types of signs:</u>

Bridge (52)

Cantilever (149)

Overhead (208)

I-Beam (533)

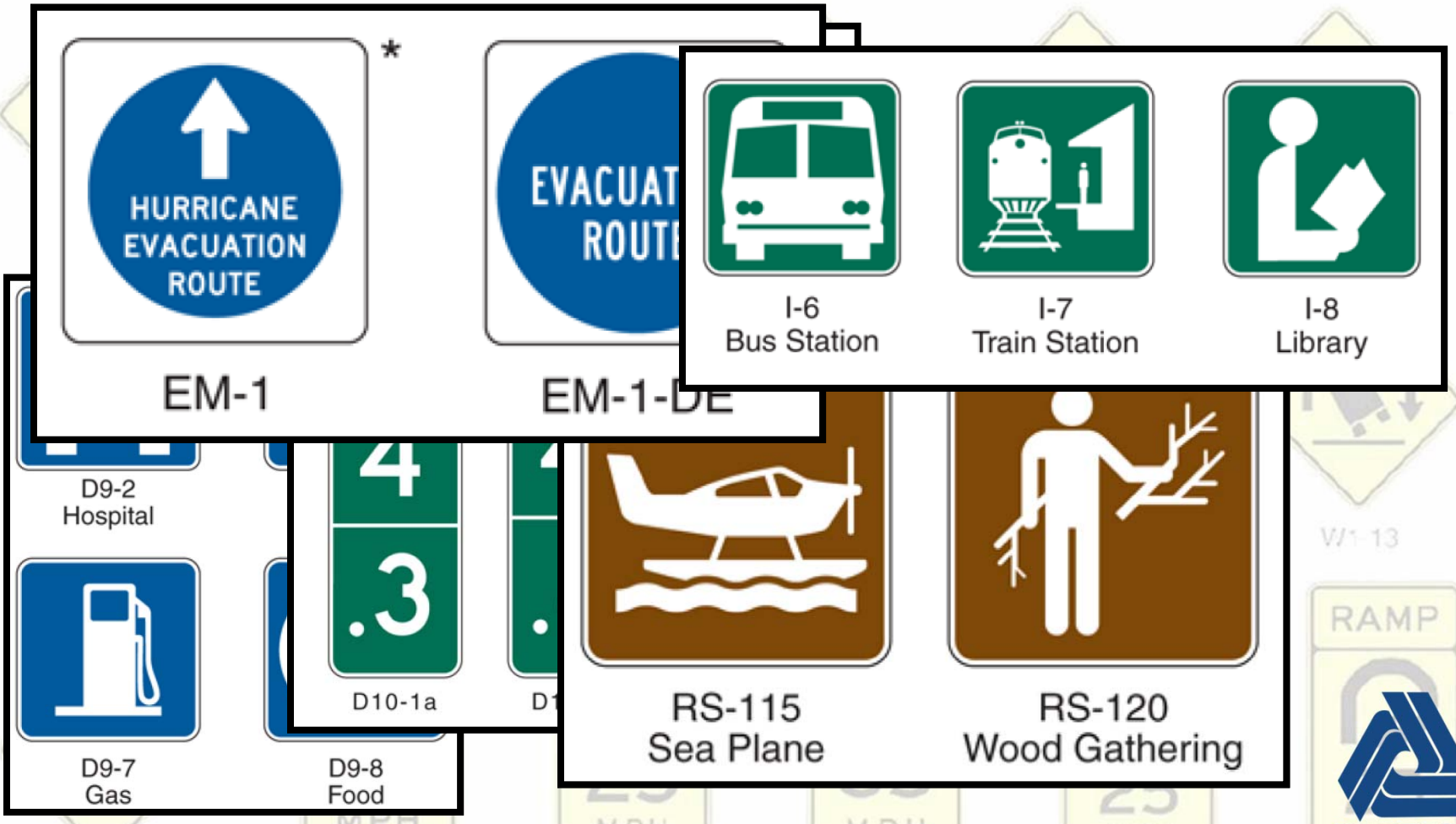
Post Mounted (300,000+)



ASSET MANAGEMENT

Traffic Signs

Post Mounted Signs



ASSET MANAGEMENT

Traffic Signs

Post Mounted Signs

MUTCD Type	Inventory Size
Regulatory Signs	100,000
General Service Signs	2000
Specific Service (Logo) Signs	500
Tourist-Oriented Directional Signs	500
Changeable Message Signs	11
Recreational and Cultural Interest	500
Emergency Management Signs	200
TOTAL	**300,000 +**



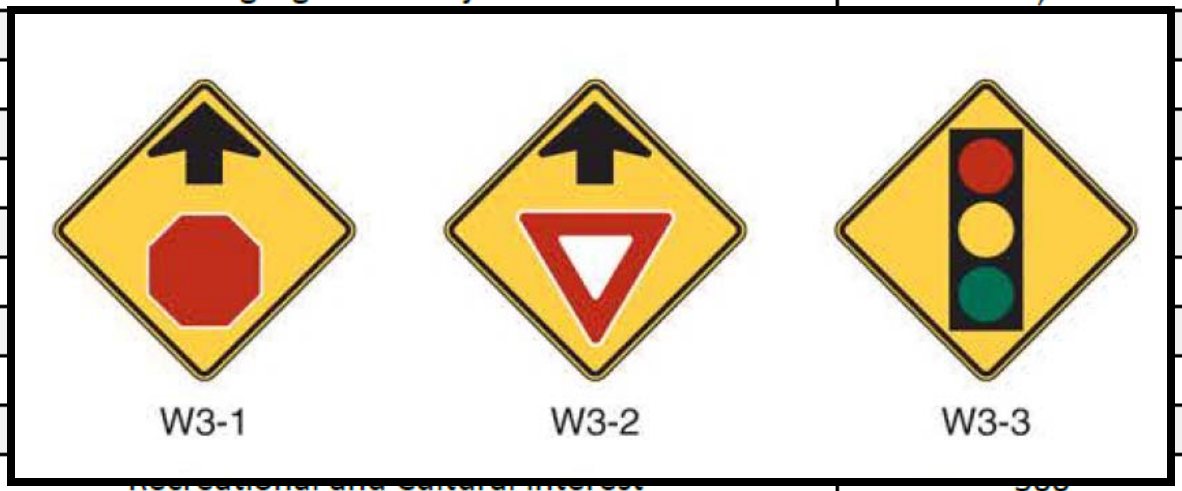
R3-1 R3-2 R3-3 R3-4 R3-5 R3-5a

ASSET MANAGEMENT

Traffic Signs

Post Mounted Signs

MUTCD Type	Inventory Size
Regulatory Signs	100,000
Warning Signs and Object Markers	100,000
Emergency Management Signs	200
TOTAL	**300,000 +**



ASSET MANAGEMENT

Traffic Signs



What makes a good sign?

Correct size, height, color, and…

RETROREFLECTIVITY!

TEST PROGRAM!

Standard:

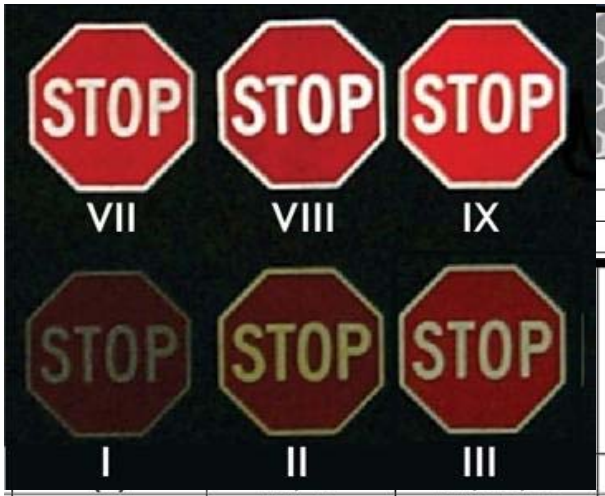
02 **Public agencies or officials having jurisdiction shall use an assessment or management method that is designed to maintain sign retroreflectivity at or above the minimum levels in Table 2A-3.**

STATE OF GOOD REPAIR =

MEETS RETROREFLECTIVITY REQUIREMENTS

ASSET MANAGEMENT
Traffic Signs

Sign sheeting



III	III	III	III	III			
III	III	III	III	III			
A	A	A	A	A			
(5)	(5) / X	(5)	VIII	VII, VIII, X			
I	III, IV	III, IV	IV	IV / VIII	VIII	VIII	VIII
(6)	B	B	B	B	B	B	(9)
IX	IX		(5)	(5)	(5)		
IX	IX		IX	XI	XI		
B	B	B	D	D			

DelDOT uses high quality sign sheeting

Using type III or better since the early 90s on regulatory and warning signs

Using type IX or better since early 2000s on I-beam and overhead signs

Explains why DelDOT's overhead signs look so good without the need for lighting

ASSET MANAGEMENT
Traffic Signs

Sign sheeting

Table 2A-3. Minimum Maintained Retroreflectivity Levels[1]

Sign Color	Sheeting Type (ASTM D4956-04)				Additional Criteria
	Beaded Sheeting			Prismatic Sheeting	
	I	II	III	III, IV, VI, VII, VIII, IX, X	
White on Green	W*; G ≥ 7	W*; G ≥ 15	W*; G ≥ 25	W ≥ 250; G ≥ 25	Overhead
	W*; G ≥ 7	W ≥ 120; G ≥ 15			Post-mounted
Black on Yellow or Black on Orange	Y*; O*	Y ≥ 50; O ≥ 50			[2]
	Y*; O*	Y ≥ 75; O ≥ 75			[3]
White on Red	W ≥ 35; R ≥ 7				[4]
Black on White	W ≥ 50				–



ASSET MANAGEMENT

Traffic Signs

Visual Nighttime Inspection



ASSET MANAGEMENT

Traffic Signs

Visual Nighttime Inspection



Removed or Replaced:

2010:

1400 of 3500 (40%)

2011:

1500 of 2500 (60%)

2012:

1000 of 4000 (25%)

ASSET MANAGEMENT

Traffic Signs

Testing Instruments







ASSET MANAGEMENT
Traffic Signs



Other Methods:

- Complaints
- Design life (stickers)
- Blanket replacement
- Use “control” signs
- Clutter reduction
- Crashes/knockdowns
- Systematic Programs

ASSET MANAGEMENT

Traffic Signs

Next Steps:

- Retroreflectivity Report
- Sign Clutter Projects
- Education and Training
- Systematic Upgrades
  - Left Exits
  - Horizontal Curve Warning Signs

THANK YOU!