

Design Practices

PAVEMENT MARKING AND SIGNING

Presented by
Travis Cork

PAVEMENT MARKING

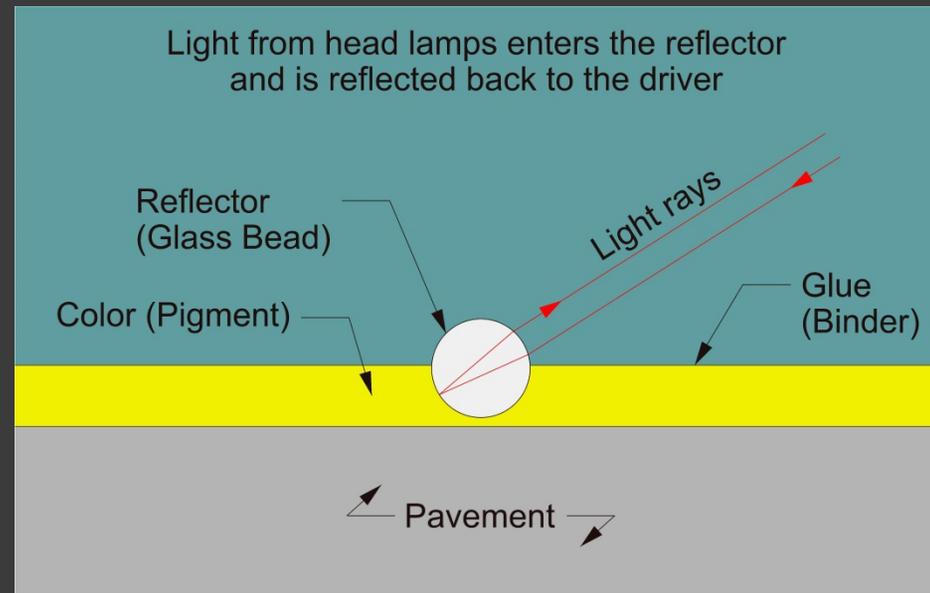


Materials

Pavement Marking

Pavement Marking Components

- Glue (Binder)
- Reflectors (Glass or Ceramic Beads)
- Color (Pigment)



Pavement Marking Types

- Paint
- Epoxy
- Preformed Patterned
- Other



Paint Pavement Markings

- Water Based
- Low Cost
- Versatile
- Non-Grooved
- Low Durability
- Temperature 45° or Higher



Epoxy

- Two Part
- Moderate Cost
- Versatile
- Grooved or Non-Grooved
- Better Durability
- Temperature 50° or Higher



Courtesy of Roadmark Corp



Courtesy of Epoplex

Preformed Patterned

- Polymer Tape
- Higher Cost
- Typically Grooved
- High Durability
- Temperature of 40° or Higher
- Contrast Tape



Courtesy of 3M



Other

- Thermoplastic
- Methyl Methacrylate (MMA)
- Polyurea

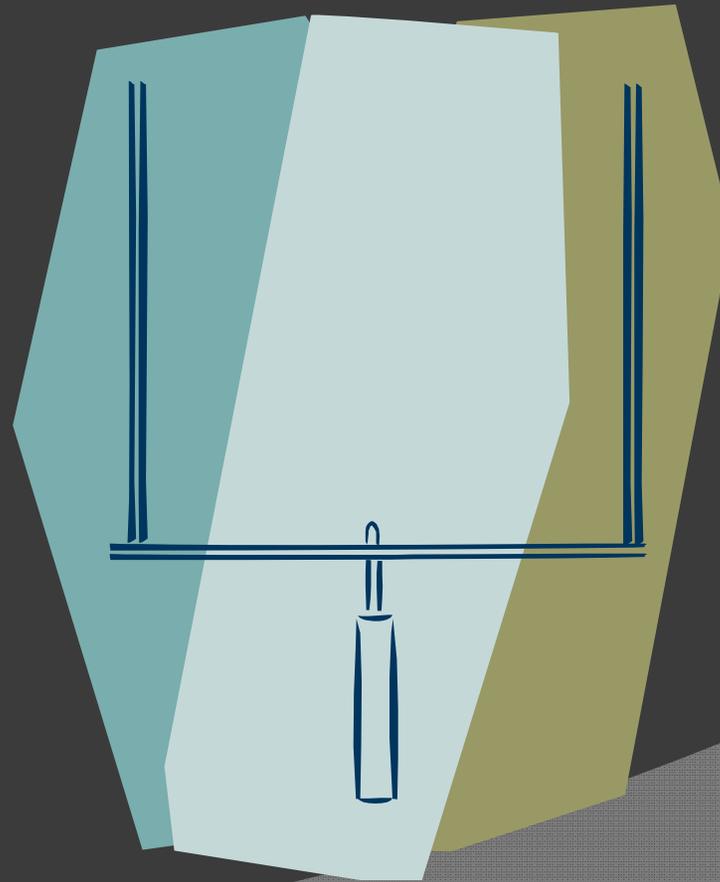


Material Selection

Pavement Marking

Goals

- Compatibility
- Cost Effectiveness
- Consistency



Criteria

- Location
- Type of Roadway
- Volume
- Shoulder Width
- Service Life



Service Life

- Based on Traffic Volume
- Paint
- Epoxy
- Grooved Epoxy
- Tape
- Grooved Tape

Materials	ADT		
	<1,500	1,500 - 4000	>4000
Paint	1 yr.	1 yr.	<1 yr.
Epoxy	> 5 yr.	4-5 yr.	3-4 yr.
Grooved Epoxy	> 5 yr.	> 5 yr.	> 5 yr.
Tape	> 5 yr.	> 5 yr.	> 5 yr.
Grooved Tape	> 8 yr.	> 8 yr.	> 8 yr.

Rural Two Lane Highways

Anticipated Surface Life ¹ (years)		ADT					
		< 1,500		1,500 - 4,000		> 4,000	
		Edgeline	Centerline	Edgeline	Centerline	Edgeline	Centerline
0 - 2		Paint	Paint	Paint	Paint	Paint	Paint
2 - 4		Paint	Paint	Paint	Epoxy	Epoxy	Epoxy
4 - 6	Asphalt	Paint	Paint	Epoxy	Epoxy	Epoxy	Epoxy
	Concrete	Paint	Paint	Epoxy	Epoxy	Epoxy	Epoxy
6+	Asphalt	Paint	Paint	Epoxy	Epoxy	Grooved Epoxy (A)	Epoxy
	Concrete	Paint	Paint	Epoxy	Epoxy	Grooved Epoxy (A)	Epoxy

(A) If grooved epoxy and rumble strips coincide, grooved epoxy should not be used and epoxy should be applied. Shoulder widths of less than 4', edgeline should have epoxy.

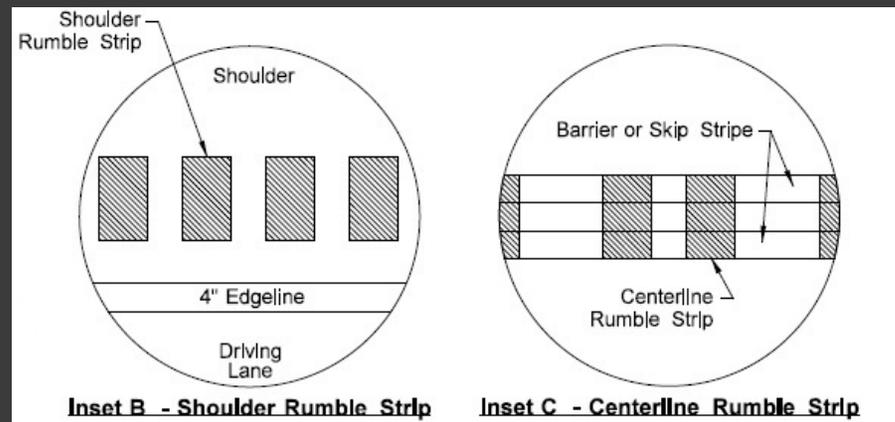
¹ Anticipated life of the surface is based on the design life of the new pavement or the anticipated time before the next surface treatment.

Rural Two Lane Highways

Know Your Shoulder Width

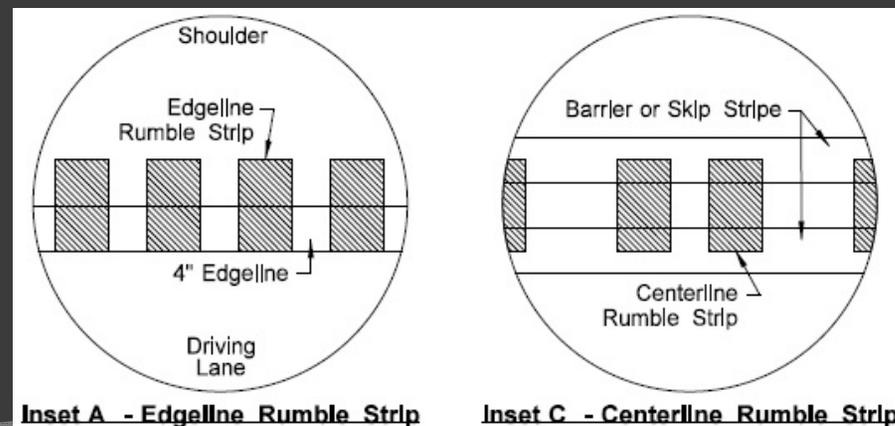
Shoulder 4' or Greater

- Standard Drawing D-760-3
- Epoxy Grooved for 6+ years and ADT >4000



Shoulder Less Than 4'

- Standard Drawing D-760-4
- Epoxy Non-Grooved for 6+ years



Rural Multilane Highways

		< 1,500		1,500 - 4,000		> 4,000	
		Edgeline	Centerline	Edgeline	Centerline	Edgeline	Centerline
0 - 2		Paint	Paint	Paint	Paint	Paint	Paint
2 - 4		Paint	Paint	Paint	Epoxy	Epoxy	Epoxy
4 - 6	Asphalt	Epoxy	Epoxy	Epoxy	Grooved Epoxy (A)	Epoxy	Grooved Epoxy (A)
	Concrete	Epoxy	Epoxy	Epoxy	Grooved Epoxy (A)	Epoxy	Grooved Epoxy (A)
6+	Asphalt	Epoxy	Epoxy	Epoxy	Grooved Epoxy (A)	Grooved Epoxy (A)	Grooved Epoxy (A)
	Concrete	Epoxy	Epoxy	Epoxy	Grooved Epoxy (A)	Grooved Epoxy (A)	Grooved Epoxy (A)

(A) If grooved epoxy and rumble strips coincide, grooved epoxy should not be used and epoxy should be applied. Shoulder widths of less than 4', edgeline should have epoxy.

¹ Anticipated life of the surface is based on the design life of the new pavement or the anticipated time before the next surface treatment.

Urban Two Lane Highways

Anticipated Surface Life ¹ (years)		ADT					
		< 1,500		1,500 - 4,000		> 4,000	
		Edgeline	Centerline	Edgeline	Centerline	Edgeline	Centerline
0 - 2		Paint	Paint	Paint	Paint	Paint	Paint
2 - 4		Paint	Paint	Paint	Epoxy	Epoxy	Epoxy
4 - 6	Asphalt	Paint	Paint	Epoxy	Grooved Epoxy	Grooved Epoxy	Grooved Epoxy
	Concrete	Paint	Paint	Epoxy	Grooved Epoxy	Grooved Epoxy	Grooved Epoxy
6+	Asphalt	Paint	Paint	Epoxy	Grooved Tape	Grooved Tape	Grooved Tape
	Concrete	Paint	Paint	Epoxy	Grooved Tape	Grooved Tape	Grooved Tape

¹ Anticipated life of the surface is based on the design life of the new pavement or the anticipated time before the next surface treatment.

Urban Multilane Highways

Anticipated Surface Life ¹ (years)		ADT					
		< 1,500		1,500 - 4,000		> 4,000	
		Edgeline	Centerline	Edgeline	Centerline	Edgeline	Centerline
0 - 2		Paint	Paint	Paint	Paint	Paint	Paint
2 - 4		Paint	Paint	Paint	Epoxy	Epoxy	Epoxy
4 - 6	Asphalt	Epoxy	Epoxy	Epoxy	Grooved Epoxy	Grooved Epoxy	Grooved Epoxy
	Concrete	Epoxy	Epoxy	Epoxy	Grooved Epoxy	Grooved Epoxy	Grooved Epoxy
6+	Asphalt	Epoxy	Epoxy	Epoxy	Grooved Tape	Grooved Tape	Grooved Tape
	Concrete	Epoxy	Epoxy	Epoxy	Grooved Tape	Grooved Tape	Grooved Tape

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SIGNING



Materials

Signing

Sign Sheeting Types

Retroreflectivity:

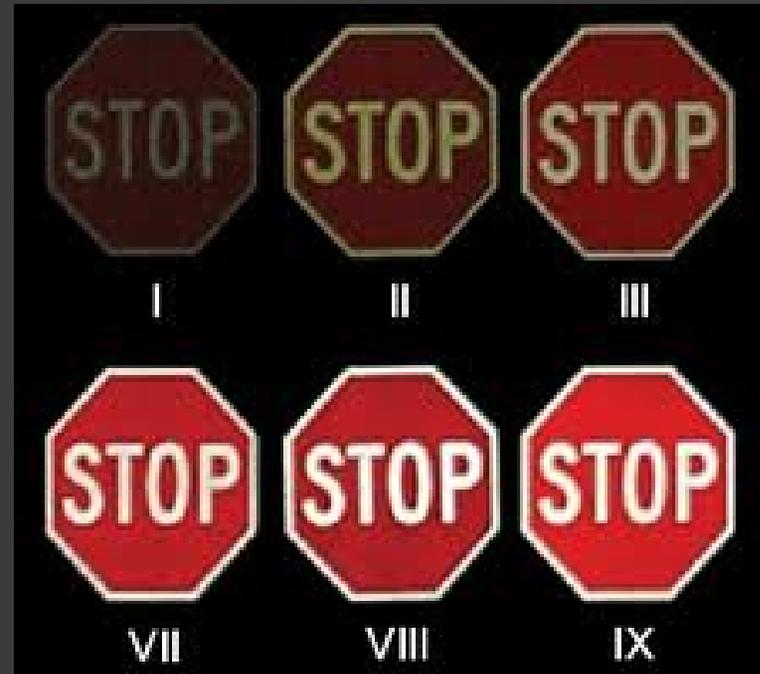
The ability of a surface to reflect light from a source back to the source

2008 Specifications

- Engineer Grade – Type II
- High Intensity – Type IIIA
- Diamond Grade

2014 Specifications

- Type IV – ASTM Type IV
- Type XI – ASTM Type XI



Sign Sheeting Comparison

Benefits

- Brighter
- Last Longer

Disadvantages

- Brighter
- More Expensive



EM Series Font



Clearview Font

Design Practices

Signing

Distance & Destination Signs

Single Line Place Names

Old Format



New Format



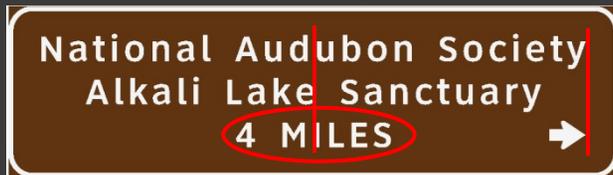
Distance & Destination Signs

Multiple Line Place Names

Old Format



New Format



Distance & Destination Signs

Mixed Line Place Names

Old Format

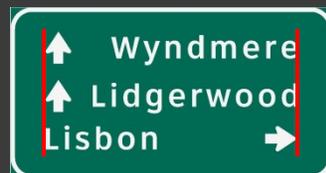


New Format



Destination Signs

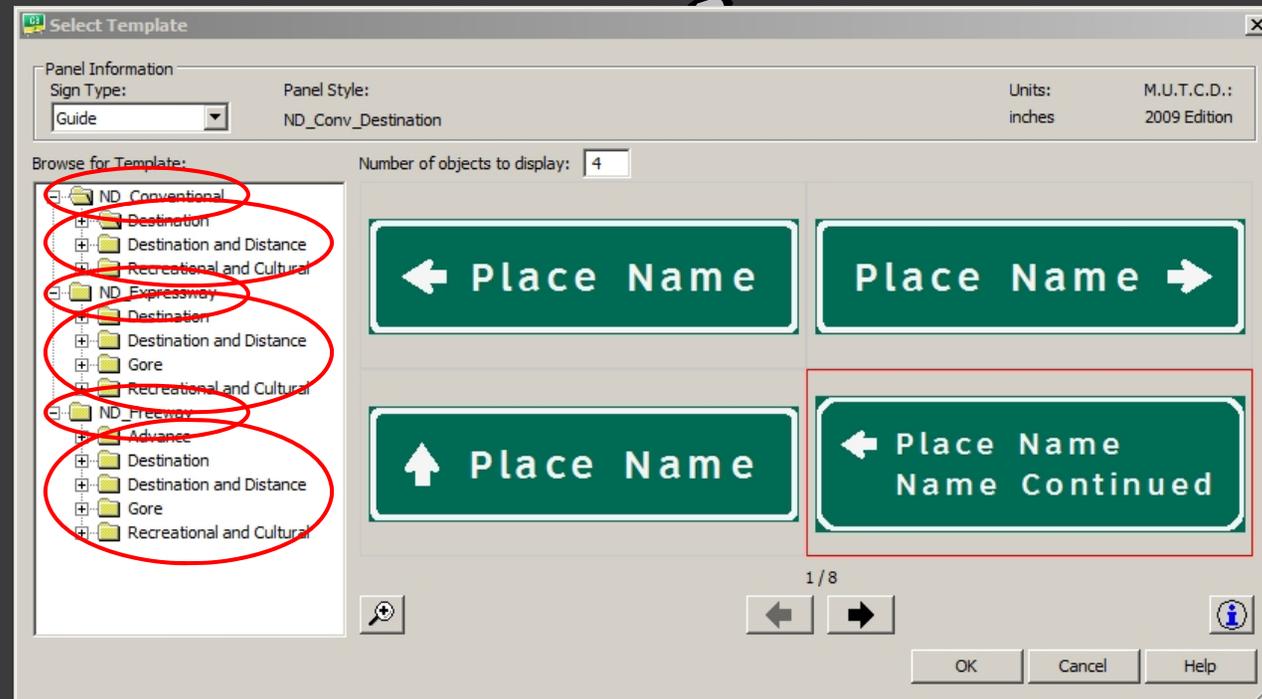
Old Format



New Format



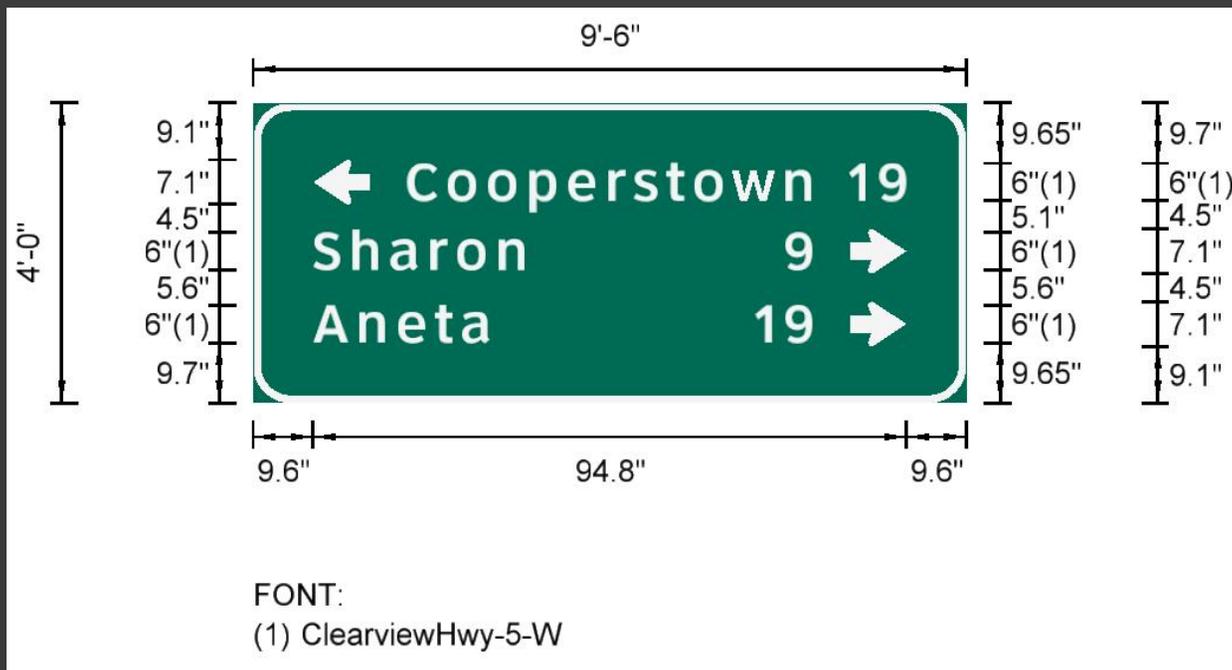
GuidSIGN Templates



GuidSIGN Templates



GuidSIGN Templates



Signing FAQs

- Expressway VS. Conventional

Expressway Definition:

For the purpose of signing, expressways are separated roadways of opposing traffic with partial control of access. The separation can be a physical barrier, a raised concrete island, a painted island, or a grassy median. Access to expressways is controlled by at-grade intersections or interchanges.

Signing for expressways with speeds 45 mph or greater shall follow the guidelines for expressways signing. For speeds less than 45 mph, the signing shall follow the standards for conventional roadways

- State Furnished Signs – Installed by State Forces
- Complimentary Speed Limit Signs
- Wildlife Management Areas (WMAs)

How to contact me

Travis Cork – NDDOT

tcork@nd.gov

(701) 328-1818

