

# Evaluating State DOT Practices and Priorities in Pavement Marking Implementation and Maintenance: Insights from Multi-State Interviews and Comparative Analysis

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## Introduction

- Crashes can occur due to improperly placed, faded, inadequate, or poorly designed pavement markings
- Temporary markings and those obscured by snow or ice reduce visibility, increasing crash risks
- Well-maintained, high-visibility markings help reduce crash frequency and severity
- Clear markings improve roadway visibility and driver awareness, enhancing safety

## Objectives

- Analysis factors like cost, durability, and safety in pavement marking choices
- Compares state priorities on retro reflectivity, durability, and cost
- Suggests strategies to optimize pavement markings based on local needs
- Sharing best practices to improve pavement marking systems

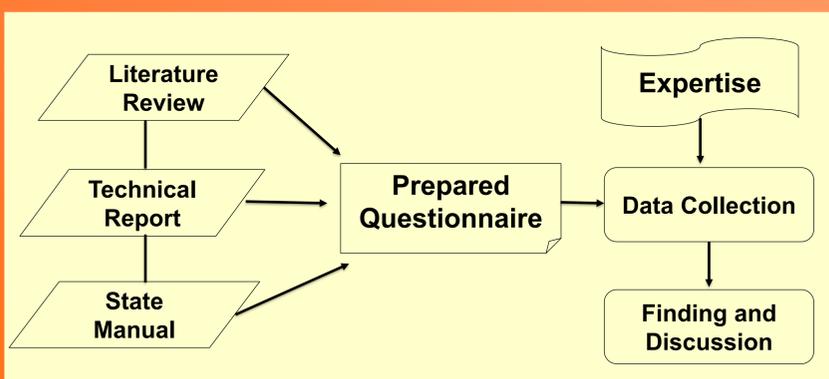
## Data Collection

- 23 states invited, 9 states participated: AZ, AR, IL, IA, KS, MN, MO, NH, WI
- Conducted **structured interviews** with DOT officials (37 questions)

## Factors Influencing Interview Questions

Extensive Literature Review	Comprehensive Insights	Targeted Expertise
Reviewing Studies	Material Selection	DOT personnel involved in pavement marking programs
	Application Techniques	
Technical Reports	Maintenance	
	Quality Control	
Pavement Marking Practices	Environmental factors	
	The Impact of External Factors Like COVID-19	

## Methodology



## Findings

- From the analysis of Data following results have been found.

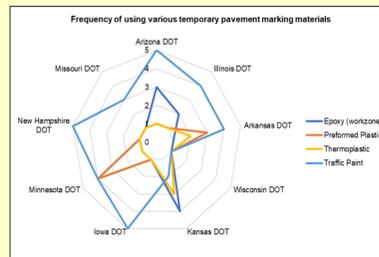


Figure 1: Frequency of using Epoxy, thermoplastic, traffic paints, and preformed plastic

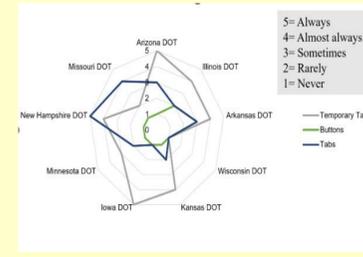


Figure 2: Frequency of using temporary tapes, buttons, and tabs for long duration work zones

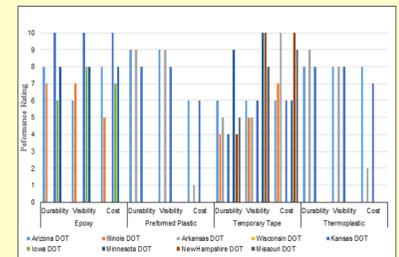


Figure 5: Rated performance of temporary pavement marking material

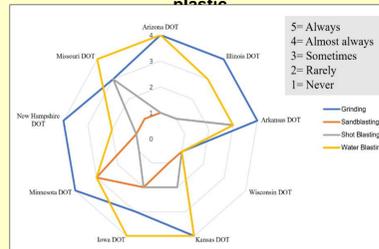


Figure 3: Frequency of using various temporary pavement marking removal methods (grinding, sandblasting, shot blasting, water blasting)

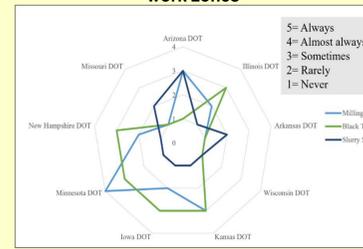


Figure 4: Frequency of using various temporary pavement marking removal methods (Milling, Black Tape, Slurry Seal)

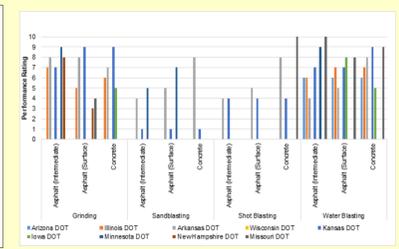


Figure 6: Rated performance of temporary pavement marking removal methods

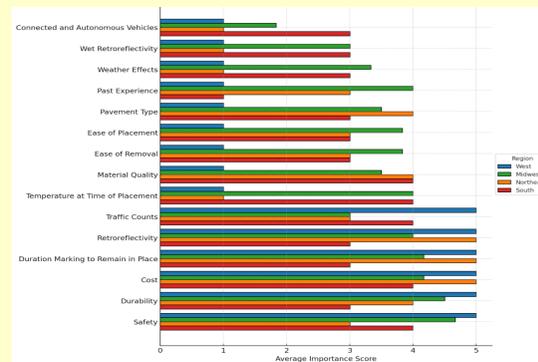


Figure 7: Region-based comparison for influencing factors for marking material selection

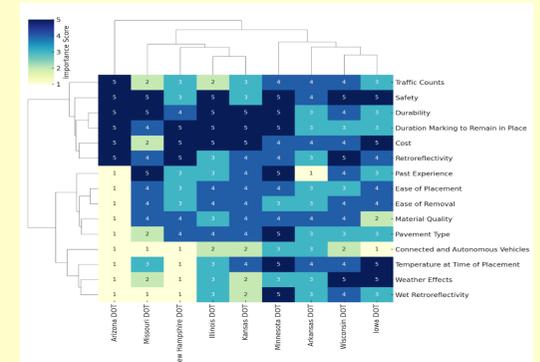


Figure 8: Clustered heatmap for different factors considered for pavement marking material selection by states

Table 1: Frequency of Factors Considered for the Selection of the Type of Pavement Markings

Factor	Arizona DOT	Illinois DOT	Arkansas DOT	Wisconsin DOT	Kansas DOT	Iowa DOT	Minnesota DOT	New Hampshire DOT	Missouri DOT
Cost	5	5	4	4	5	5	4	5	2
Durability	5	5	3	4	5	3	5	4	5
Duration Marking to Remain in Place	5	5	3	3	5	3	5	5	4
Ease of Placement	1	4	3	3	4	4	4	3	4
Ease of Removal	1	4	3	4	4	4	3	3	4
Material Quality	1	3	4	4	4	2	4	4	4
Past Experience	1	3	1	4	4	3	5	3	5
Pavement Type	1	4	3	3	4	3	5	4	2
Retroreflectivity	5	3	3	5	4	4	4	5	4
Safety	5	5	4	5	3	5	5	3	5
Temperature at Time of Placement	1	3	4	4	4	5	5	1	3
Traffic Counts	5	2	4	4	3	3	4	3	2
Weather Effects	1	3	3	5	2	5	3	1	2
Wet Retroreflectivity	1	3	3	4	2	3	5	1	1
Connected and Autonomous Vehicles	1	2	3	2	2	1	3	1	1

## Conclusion

- Pavement marking practices vary widely across states
- Durability, cost, safety, and retro reflectivity are top priorities everywhere
- Need for consistent, performance-based specifications
- Findings can guide policy updates, DOT practices, and safer roadway designs

## Acknowledgement

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