



## OVERHEAD SIGN & HIGH MAST LIGHTING STRUCTURES

### STATE OF GOOD REPAIR

SOGR for overhead sign & high mast lighting structures is defined using the minimum assigned Condition Rating. The Condition Rating assignment mirrors the NBIS Condition Rating System and defines SOGR as follows:

Overhead Sign/High Mast Lighting Program

Good Condition: NBI Rating  $\geq 6$   
 Poor Condition: NBI Rating  $\leq 4$

### TARGETS AND MEASURES

DelDOT has not identified specific performance goals for its overhead sign & high mast lighting program in the past. Moving forward, DelDOT plans to mirror the bridge performance goals until a more comprehensive sign structure modeling database is developed and implemented.

DelDOT Performance Goals  
 # of Structures in Good Condition > 75%  
 # of Structures in Poor Condition < 3%

**Description:** Overhead sign structures consist of any structure supporting signage or toll sensors that span partially or fully over a public roadway. High mast lighting structures include all highway / rest stop lighting and CCTV camera structures with a height greater than 60'. Inspection of overhead sign and high mast lighting structures is not mandated or regulated by the FHWA. DelDOT has a routine inspection program for ensuring that these structures are structurally safe.

**Annual Budget:** DelDOT spent \$581k in 2022 on sign structure replacement. The expected average annual budget for the next 10 years is \$2.2 million/year. This is based on current planned sign structure replacement projects and includes a combination of State and Federal funding.

**Asset Valuation:** The average replacement cost is used to derive the Asset Valuation.

- High Mast Lighting Cost:**
- \$150,000/structure
  - 193 Structures
  - Total Valuation = \$28.95M
- Sign: Bridge Mounted Cost:**
- \$60,000/structure
  - 38 Structures
  - Total Valuation = \$2.28M
- Sign: Cantilevered Cost:**
- \$175,000/structure
  - 163 Structures
  - Total Valuation = \$28.53M
- Sign: Overhead Cost:**
- \$300,000/structure
  - 218 Structures
  - Total Valuation = \$65.4M

**Total Asset Valuation: \$125.2M**

## INVENTORY & CONDITION

2022 DelDOT Overhead Sign & High Mast Lighting Structure Condition Rating Summary

Condition Rating	All Structures		Sign: Overhead		Sign: Cantilevered		Sign: Bridge Mounted		High Mast Lighting	
	# of Structures	% of Structures	# of Structures	% of Structures	# of Structures	% of Structures	# of Structures	% of Structures	# of Structures	% of Structures
Poor ( $\leq 4$ )	23	3.3%	11	5.0%	8	4.9%	0	0.0%	1	0.5%
Fair = 5	119	19.8%	67	30.7%	33	20.2%	1	2.6%	20	10.4%
Good ( $\geq 6$ )	470	77.0%	140	64.2%	122	74.8%	37	97.4%	172	89.1%
Total =	612	1	218	100%	163	100%	38	100%	193	100%

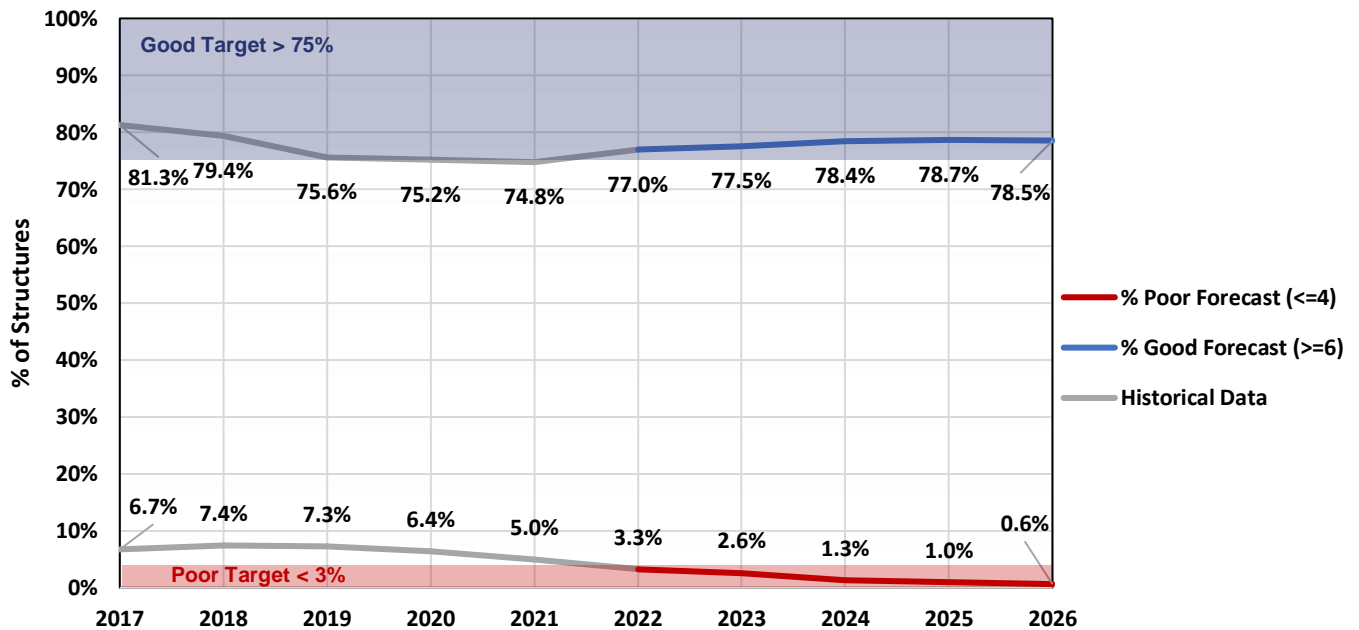
## SIGN STRUCTURE PROGRAM PROGRESS

- 2001: SIGN INSPECTION PROGRAM INITIATED
- 2006: SIGN PRIORITIZATION PROCESS ESTABLISHED
- 2007: SIGN STRUCTURE MAINTENANCE PROGRAM STARTED
- 2008: CRITICAL SIGN STRUCTURE REPLACEMENT PROGRAM STARTED
- 2015: DELDOT SIGN STRUCTURE DESIGN GUIDANCE ESTABLISHED
- 2020: SIGN STRUCTURE PERFORMANCE MEASURES ESTABLISHED
- 2021: STATE OF GOOD REPAIR DOCUMENT DEVELOPED



# HISTORICAL PERFORMANCE TRENDS & FORECASTED PERFORMANCE PROJECTIONS

## Overhead Sign & High Mast Lighting Structure Condition Ratings



\*Note: The 3-Year Condition Forecast is based on current programmed overhead sign & high mast lighting replacement projects.

## POTENTIAL RISKS

**Fatigue Prone Details:** Overhead sign & high mast lighting structures are built from steel and often contain welded connections that are problematic. As a result, these structures are more likely to develop cracks that could potentially propagate and, if not inspected frequently, could result in a failure of the structure. The controlling force acting on these structures is wind load, which is a dynamic type of load.

**4-Bolt Cantilever Structures:** Many older cantilevered sign structures consist of a 4-anchor bolt pattern that secures the structure to the concrete foundation. Due to the lack of redundancy with only having four bolts, these structures are more prone to bolt failure and DeIDOT has been working to replace with newer structures that contain a minimum of 6 anchor bolts. These structures have the anchor bolts Ultrasonically tested every year to help minimize the risk. There are currently 19 structures left with 9 of them currently planned for replacement.

**Traffic Impact:** Overheight trucks that strike overhead sign structures are a concern for the structural integrity of the sign structure, as well as, safety for motorists driving under the structure. In addition, since the base and foundation for overhead sign structures are typically adjacent to the roadway shoulders or located just behind the guardrail limits, these structures are prone to impact damage from vehicular accidents along the roadway.