



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 ≥ 6
- Poor Condition: NBI Rating ≤ 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 < 5%

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:

The expected average annual budget for the next 10 years is \$3.0 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
- 206 Structures
- Total Valuation = \$31M

Sign: Bridge Mounted Cost:

- \$60,000/structure
- 51 Structures
- Total Valuation = \$3.1M

Sign: Cantilevered Cost:

- \$175,000/structure
- 156 Structures
- Total Valuation = \$27.3M

Sign: Overhead Cost:

- \$300,000/structure
- 212 Structures
- Total Valuation = \$63.6M

Total Asset Valuation: \$125M

INVENTORY & CONDITION

2020 DelDOT Overhead Sign & High Mast Lighting Structure Condition Rating Summary

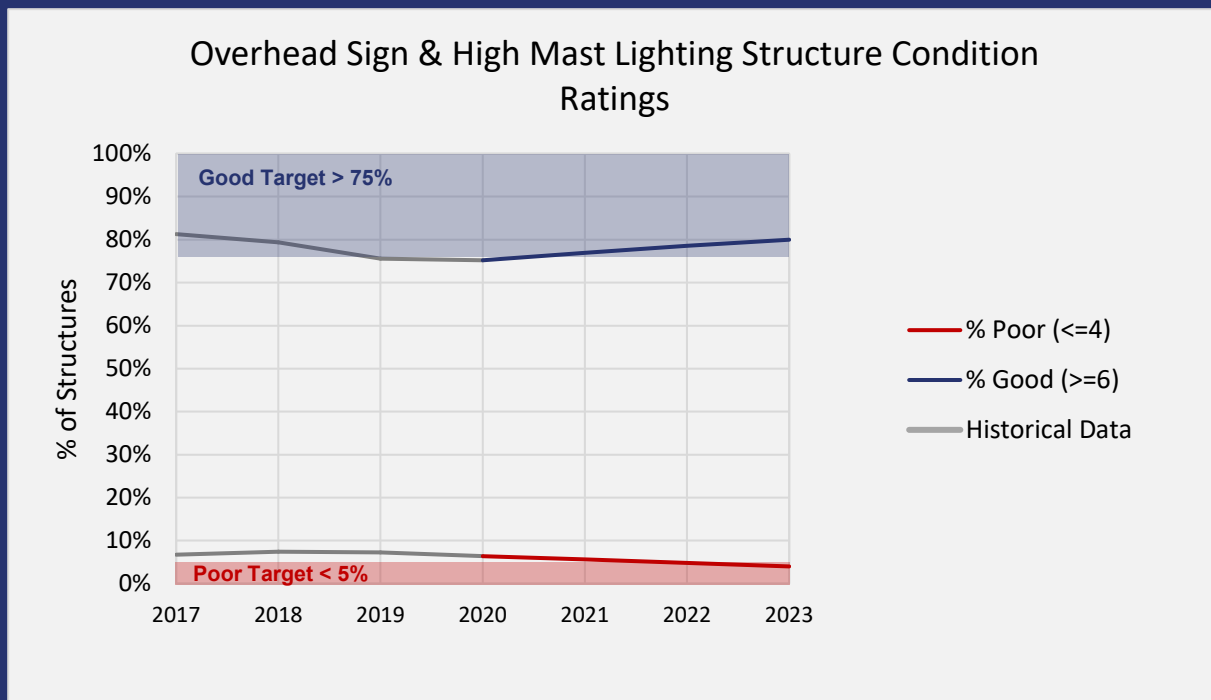
Condition Rating	All Structures		Sign: Overhead		Sign: Cantilevered		Sign: Bridge Mounted		High Mast Lighting	
	# of Structures	% of Structures	# of Structures	% of Structures	# of Structures	% of Structures	# of Structures	% of Structures	# of Structures	% of Structures
Poor (≤ 4)	40	6.4%	17	8.0%	17	10.9%	0	0.0%	6	2.9%
Fair = 5	115	18.4%	51	24.1%	35	22.4%	1	2.0%	28	13.6%
Good (≥ 6)	470	75.2%	144	67.9%	104	66.7%	50	98.0%	172	83.5%
Total =	625	100.0%	212	100.0%	156	100.0%	51	100.0%	206	100.0%

AGE DISTRIBUTION

We do not currently have this data although we plan to add this to our sign structure database in the future. DelDOT's overhead sign structure & high mast lighting structure inventory ages in range from 1 to ~60 years. The earliest structures were constructed along the I-95 corridor that runs through the northern part of the state. A significant number of the older/original structures have been removed or replaced as a result of condition related issues or due to roadway widening and/or reconfiguration projects over the years.



HISTORICAL PERFORMANCE TRENDS & FORECASTED PERFORMANCE PROJECTIONS



*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 DelDOT 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.

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.