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### 1.1 INTRODUCTION

In the State of Wisconsin the inventory summaries and demographics of structural highway assets can be found in the Wisconsin Department of Transportation (WisDOT) Bureau of Structures (BOS) Annual Bridge Report.

<http://dotnet/hwystructures/development/index.htm>

The current standard design life of a bridge is 75 years, while many older structures were designed with shorter life spans. An increasing number of Wisconsin's structures have approached or surpassed their design lives. As these structures continue to age, inspection and maintenance become increasingly important. The structure inspector fills the vital role of assessing the condition of these structures and recommending maintenance actions.

All of the structures discussed in this manual have the potential to cause damage and fatalities if they fail. The collapse of the Silver Bridge over the Ohio River between Point Pleasant, West Virginia and Kanauga, Ohio on December 15, 1967, killed forty-six people and injured nine. The investigation following the Silver Bridge collapse showed the lack of regular bridge condition and safety inspections. There was no national standard for bridge inspection or inspection frequency. As a result, Congress created the National Bridge Inspection Standards (NBIS) in 1971 under the 1968 Federal Aid Highway Act. This Act requires that all bridges on public roads be inspected at regular intervals, not to exceed 24 months. The NBIS are federal guidelines pertaining to bridge inspection frequency, inspector qualifications, report formats, and inspection and rating procedures. These standards were created in an effort to make bridge inspections thorough and consistent nationwide. The NBIS are minimum standards, and states may elaborate on these guidelines to clarify them or to make them more stringent. The NBIS led to the advent of the National Bridge Inspection Program (NBIP). Prior to 1971, many states did not have formal bridge inspection programs. Therefore, the NBIP mandated that all states maintain an up-to-date inventory of all bridges over 20 feet in span and inspect them at regular intervals using the NBIS criteria.

Since 1971, bridge inspection and structure inspection in general has improved. Each state currently has a bridge inspection program that conforms to the federal standard. In addition, agencies are now required to adopt Element Level inspection to aid in more accurately identifying and determining structural deficiencies which will result in more effectively appropriating funds. As a result, the number of catastrophic bridge failures in recent years has been reduced due to increased structure inspection frequency, inspection thoroughness, and routine structure maintenance.

Currently, structures such as high mast light towers, traffic sign/signal support structures, shorter span bridges and box culverts, retaining walls, and noise barriers are not under the umbrella of the NBIP or the NBIS. It is becoming increasingly evident, in the shadow of several failures, that these structures also require routine inspection and maintenance. Many states, including Wisconsin, have established inspection programs for many of these ancillary structures.