

Mahoning County Engineering

Bridge Inspection – Underwater Inspection Procedure

Revision 2, January 2020 (Established August 2012, Revision 1, January 2018)

Mahoning County adopted an Underwater Bridge Inspection Procedure in 2012, which is hereby replaced by this Underwater Inspection Procedure dated January 2020. The County has four (4) structures that require an underwater inspection every sixty (60) months unless circumstances dictate the need for more frequent inspections. If a critical bridge deficiency is discovered (See Critical Bridge Inspection Procedure 2018) during an underwater inspection, the underwater inspector should initiate the Critical Bridge Procedure and immediately notify Pat Ginnetti, County Engineer and/or Bob Durbin, Deputy Engineer.

The following bridges require an underwater bridge inspection:

- SFN 5030307 on Mahoning Avenue west bound over the Meander Reservoir
- SFN 5030277 on Mahoning Avenue east bound over the Meander Reservoir
- SFN 5050103 on Mahoning Avenue over Lake Milton
- SFN 5058554 on Jacobs Road over McKelvey Lake

The following procedure is hereby adopted for all four (4) structures, unless otherwise stated:

Mahoning County does not have any team members that are certified to perform underwater bridge inspection; therefore, a consultant will be used to perform this work. The State of Ohio Request for Qualifications procedure will be used to select a consultant and negotiate a fee.

Prior to the actual inspection the consultant shall:

- Review existing plans to:
 - Identify and locate all underwater structures and elements
 - Review hydrology data that pertains to scour susceptibility
 - Review profile of structure to determine depth of dive inspection
 - Notify the following agency concerning intent to dive
 - SFN 5030307: Mahoning Valley Sanitary District, 330-652-3616
 - SFN 5030277: Mahoning Valley Sanitary District, 330-652-3616
 - SFN 5050103: Ohio Dept. of Natural Resources, 330-654-4989
 - SFN 5058554: Aqua Ohio, 330-755-2163

- **Visit site for:**
 - Confirmation of Plan information
 - Accessibility/Launch area identification
 - Identification/Verification of any potential risk factors including the following:
 - SFN 5030307: No known high risk factors
 - SFN 5030277: No known high risk factors
 - SFN 5050103: Recreational area with boat traffic
 - SFN 5058554: Previous bridge pier (11) were only removed to a depth of ten (10') feet below the normal water elevation. Depth to bottom of pier column is approximately fifty (50') feet.

- **Obtain all right of way and access permits/permission**
 - Notify County Bridge Engineer of dive dates
 - Obtain land owner permission for use of access points for boat launch

The Physical Inspection Procedure includes:

- The use of a three (3) person (minimum) dive team shall be required for inspection of Mahoning County bridges. At least one (1) member shall be certified as a Team Leader and one (1) member must be certified as Team Member.
 - All divers must have taken at least one of the following classes and shall include documentation verifying this requirement.
 - NHI 130055 Safety Inspection of In-Service Bridges
 - NHI 130091 Underwater Bridge Inspection
 - ODOT Bridge Inspection Level I & II
- Sounding of all substructure units to the mudline with depth sounder and/or hammer (when appropriate)
- Identification of channel conditions for material and structural composition
- Identification of substructure obstructions that may increase scour susceptibility
- Inspection of all areas around substructure units, beneath the channel, with probing rod
- Photograph general areas of substructure to document overall condition and at all identified problem areas to document specific problems
- Document and detail area sizes (spalls/section loss/etc.) and lengths (cracks) for accurate assessment of the structural elements.

The Inspection Report must include at a minimum:

- Documentation of all that is discovered during the physical inspection
- References to date, weather, water conditions, etc.
- Comparisons to previous underwater reports
- Cross section information on the channel bottom
- Conclusions and recommendations for repairs

The Ohio Department of Transportation's Manual of Bridge Inspection Appendix F: Underwater Inspection Procedure Checklist is attached and hereby incorporated into this procedure.