GUIDELINES FOR BRIDGE INSPECTION FREQUENCIES

Bridge Field Services, Structures Management Section

The NBIS sets the maximum frequencies for Routine, Fracture Critical, and Underwater inspections. Typically maximum frequencies are used for bridges in fair to good condition. Evaluation of the conditions encountered during the inspection for each bridge will require engineering judgment to verify the appropriate frequency for future inspections. These guidelines are to be used as reference for bridge inspectors to maintain consistency statewide. It is recognized that the conditions encountered are unique for each bridge.

Reduced frequencies are set to verify and ensure stability of the deficient element and to make sure there are no significant changes in the primary elements between inspections.

ELEMENT OR BRIDGE TYPE	FREQUENCY [1] (Months.) ≤ 6	≤ 12	<24	COMMENTS [2][3]
POSTED BRIDGES				
Design Deficient			X	Evaluate design capacity and fatigue conditions to set frequency.
Structural Deterioration		X		Change in condition may warrant re-analysis. Load Analysis should be completed when there is significant deterioration to a primary load carrying member.
BRIDGE DECKS				
Deck Soffit Rated 4			X	Notify Maintenance (MDOT Owned) or Bridge Owner (Local Agency Owned) to monitor deck soffit
Deck Soffit Rated 3		X		If necessary, sound and scale deck soffit.
Decks w/ False Decking				If deck is completely false decked with timber, a portion must be removed to complete overall condition assessment of the structural members. Consider replacing false decking with metal mesh panels.
STEEL SUPERSTRUCTURE				
Section loss evident (amount unknown)				Schedule "Detailed" inspection
Extensive Loss of Section		X		Schedule "Other, Special" inspection to monitor until analysis or repairs have been completed. Extensive LOS on primary load carrying members includes beam ends with LOS>25% and locations of high stress that would result in a reduced capacity with less than 25% section loss.
Fatigue Cracks in Primary Structural Member	X			Schedule "Other, Special" inspection to monitor cracks until repairs are completed.
Temporary Supports Under Beams		X		Schedule "Other, Special" Inspection to monitor adequacy of supports and bearing location on beam until repairs are completed.
High Load Hit (HLH) Damage (Flange or web torn, Girder out of plane >6")	X			Schedule "Other, Special" inspection at an increased frequency to monitor damaged location until analysis and/or repairs are completed. Complete RFA form to document immediate actions such as shoulder, lane, or bridge closures.
CONCRETE SUPERSTRUCTURE				
Main rebar or prestressing strands exposed with loss of section.			X	Complete Structural Analysis. Set frequency based on analysis.
HLH with main rebar damage or broken prestressing strands	X			Schedule "Other, Special" inspection to monitor until analysis or repairs have been completed.
Spall on Beam End with loss of bearing		X		Schedule "Other, Special" inspection to monitor beam and bearing until repairs are completed.
Longitudinal Cracks in Beam		X		Schedule "Other, Special" inspection to monitor until analysis or repairs have been completed.
Diagonal Shear Cracks in Beams		X		Schedule "Other, Special" inspection to monitor until analysis or repairs have been completed.
SUBSTRUCTURE (Concrete, Steel, Timber)				
Structural Deterioration (Rated 4)			X	
Structural Deterioration (Rated 3)		X		Complete structural analysis. Adjust frequency based on analysis.

ELEMENT OR BRIDGE TYPE	FREQUENCY (Months.) ≤ 6	≤ 12	<24	COMMENTS (2) (3)
SCOUR CRITICAL STRUCTURES(4)				
Structure with minor to no observed scour				Monitoring per Scour Action Plan. Complete scour inspection after flood event.
Observed Scour noted with exposed footing		X		Schedule "Other, Special" inspection to monitor substructure until repairs are completed. Complete scour inspection after flood event.
Observed Scour within or below limits of footing, undermining.	X			Schedule "Other, Special" inspection to monitor substructure until repairs are completed. Complete scour inspection after flood event. When immediate repairs are required notify MDOT Bridge Inspection Program Manager per critical finding procedures.

ELEMENT OR BRIDGE TYPE	FREQUENCY (Months) 24	48	72	COMMENTS
STREAM BED CROSS SECTIONS				
Scour Critical Bridges with active erosion or observed scour.	X			Minimum every two years or after flood event where the scour POA was activated. (Item 113=U, 0-3)
Scour Critical Bridges with no active erosion or observed scour.		X		Minimum every four years or after flood event where the scour POA was activated. (Item 113=U, 0-3)
Structures with no active erosion and or minor observed scour.		X		Note: Structures requiring underwater inspections will complete cross sections during the underwater inspection at a minimum of 60 months.
Structures over water with no substructures in the water and no channel erosion			X	Frequency of Stream Bed Cross Sections can be increased when stability of channel can be verified such as lined channel bottoms. There must be a minimum of (1) cross section in the file.

(1) Load rating calculations should be reviewed and reflect the current conditions of the structure. Most of the conditions listed in this frequency guideline warrant a review of the load rating calculations.
(2) Requests for load analysis and immediate repairs are typically made with the use of a "Request for Action" form.
(3) Whenever a structural analysis is indicated, an "**Other, Special Inspection**" may be used at the suggested frequency pending the result of the load analysis.
(4) For MDOT owned structures with undermining contact MDOT Hydraulics to complete an emergency countermeasure design.