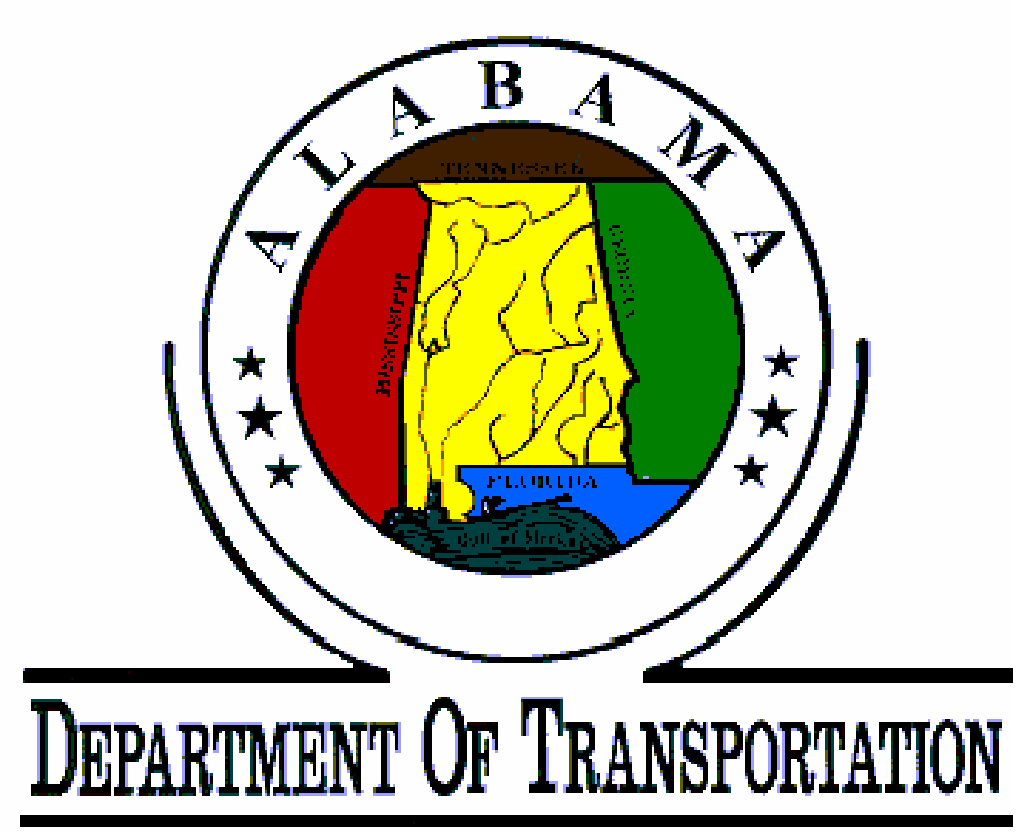
Alabama Department of Transportation
Maintenance Bureau



Bridge Element Inspection

Revised 08/2014

El. No.	Element Name/Description	Units	Element Category	NBE/BME ADE/DF
12	**Reinforced Concrete Deck**	AREA - ft2	Deck	NBE
	Description - This element defines all reinforced concrete bridge decks regardless of the wearing surface or protection systems used. **Quantity Calculation** - The quantity for this element includes the area of the deck from edge to edge including any median areas and accounting for any flares or ramps present.			
13	**Prestressed Concrete Deck**	AREA – ft2	Deck	NBE
	Description – This element defines all prestressed concrete bridge decks regardless of the wearing surface or protection systems used. **Quantity Calculation** – The quantity for this element includes the area of the deck from edge to edge including any median areas and accounting for any flares or ramps present.			
15	**Prestressed Concrete Top Flange**	AREA - ft2	Deck	NBE
	Description -- This element defines all prestressed bridge girder top flanges where traffic rides directly on the structural element regardless of the wearing surface or protection systems used. These bridge types include bulb-tees, box girders and girders that require traffic to ride on the top flange. **Quantity Calculation** - The quantity for this element includes the area of the top flange from edge to edge including any median areas and accounting for any flares or ramps present. This quantity is for the top flange riding surface only. Girder web and bottom flange to be evaluated by the appropriate girder element.			
16	**Reinforced Concrete Top Flange**	AREA – ft2	Deck	NBE
	Description – This element defines all reinforced concrete bridge girder top flanges where traffic rides directly on the structural element regardless of the wearing surface or protection systems used. These bridge types include tee-beams, box girders, and girders that require traffic to ride on the top flange. **Quantity Calculation** – The quantity for this element includes the area of the top flange from edge to edge including any median areas and accounting for any flares or ramps present. This quantity is for the top flange riding surface only. Girder web and bottom flange to be evaluated by the appropriate girder element.			
28	**Steel Deck with Open Grid**	AREA - ft2	Deck	NBE
	Description -- This element defines all open grid steel bridge decks with no fill. **Quantity Calculation** - The quantity for this element includes the area of the deck from edge to edge including any median areas and accounting for any flares or ramps present.			
29	**Steel Deck with Concrete Filled Grid**	AREA - ft2	Deck	NBE
	Description - This element defines steel bridge decks with concrete fill either in all of the openings or within the wheel tracks. **Quantity Calculation** - The quantity for this element includes the area of the deck from edge to edge including any median areas and accounting for any flares or ramps present.			
30	**Steel Deck Corrugated / Orthotropic / Etc.**	AREA - ft2	Deck	NBE
	Description - This element defines those bridge decks constructed of corrugated metal filled with portland cement, asphaltic concrete, or other riding surfaces. Orthotropic steel decks are also included. **Quantity Calculation** - The quantity for this element includes the area of the deck from edge to edge including any median areas and accounting for any flares or ramps present.			
31	**Timber Deck**	AREA - ft2	Deck	NBE
	Description - This element defines all timber bridge decks regardless of the wearing surface or protection systems used. **Quantity Calculation** - The quantity for this element includes the area of the deck from edge to edge including any median areas and accounting for any flares or ramps present.			

El. No.	Element Name/Description	Units	Element Category	NBE/BME ADE/DF
38	**Reinforced Concrete Slab**	AREA - ft2	Slab	NBE
	Description – This element defines all reinforced concrete bridge slabs regardless of the wearing surface or protection systems used. **Quantity Calculation** – The quantity for this element includes the area of the slab from edge to edge including any median areas and accounting for any flares or ramps present.			
54	**Timber Slab**	AREA - ft2	Slab	NBE
	Description – This element defines all timber bridge slabs regardless of the wearing surface or protection systems used. **Quantity Calculation** – The quantity for this element includes the area of the slab from edge to edge including any median areas and accounting for any flares or ramps present.			
60	**Other Deck**	AREA - ft2	Deck	NBE
	Description – This element defines all bridge decks constructed of other materials regardless of the wearing surface or protection systems used. **Quantity Calculation** – The quantity for this element includes the area of the deck from edge to edge including any median areas and accounting for any flares or ramps present.			
65	**Other Slab**	AREA - ft2	Slab	NBE
	Description – This element defines all slabs constructed of other materials regardless of the wearing surface or protection systems used. **Quantity Calculation** – The quantity for this element includes the area of the slab from edge to edge including any median areas and accounting for any flares or ramps present.			
102	**Steel Closed Web / Box Girder**	LENGTH– ft	Superstructure	NBE
	Description – This element defines all steel box girders or closed web girders, and is for all box girders regardless of protective system. **Quantity Calculation** – The quantity can be determined by counting the visible web faces, divided by two, and then multiplying by the appropriate length of the box section. Elements such as adjacent box girders are considered individual girders.			
104	**Prestressed Concrete Closed Web / Box Girder**	LENGTH– ft	Superstructure	NBE
	Description – This element defines all pretensioned or post-tensioned concrete closed web girders or box girders, and is for all box girders regardless of protective system. **Quantity Calculation** – The quantity can be determined by counting the visible web faces, divided by two, and then multiplying by the appropriate length of the box section. Elements such as adjacent box girders are considered individual girders.			
105	**Reinforced Concrete Closed Web / Box Girder**	LENGTH– ft	Superstructure	NBE
	Description – This element defines all reinforced concrete box girders or closed web girders, and is for all box girders regardless of protective system. **Quantity Calculation** – The quantity can be determined by counting the visible web faces, divided by two, and then multiplying by the appropriate length of the box section. Elements such as adjacent box girders are considered individual girders.			
106	**Other Closed Web / Box Girder**	LENGTH– ft	Superstructure	NBE
	Description – This element defines all other material box girders or closed web girders, and is for all other material box girders regardless of protective system. **Quantity Calculation** – The quantity can be determined by counting the visible web faces, divided by two, and then multiplying by the appropriate length of the box section. Elements such as adjacent box girders are considered individual girders.			
107	**Steel Open Girder / Beam**	LENGTH– ft	Superstructure	NBE
	Description – This element defines all steel open girders, and is for all girders regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of all lengths of each girder.			

El. No.	Element Name/Description	Units	Element Category	NBE/BME ADE/DF
109	**Prestressed Concrete Open Girder / Beam**	LENGTH– ft	Superstructure	NBE
	Description – This element defines pretensioned or post-tensioned concrete open web girders, and is for all girders regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of all the lengths of each girder.			
110	**Reinforced Concrete Open Girder / Beam**	LENGTH– ft	Superstructure	NBE
	Description – This element defines mild steel reinforced concrete open web girders, and is for all girders regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of all of the lengths of each girder.			
111	**Timber Open Girder / Beam**	LENGTH– ft	Superstructure	NBE
	Description – This element defines all timber open girders, and is for all girders regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of all the lengths of each girder / beam.			
112	**Other Open Girder / Beam**	LENGTH– ft	Superstructure	NBE
	Description – This element defines all other material girders, and is for all girders regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of all the lengths of each girder.			
113	**Steel Stringer**	LENGTH– ft	Superstructure	NBE
	Description – This element defines steel members that support the deck in a stringer floor beam system, and is for all stringers regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of all of the lengths of each stringer.			
115	**Prestressed Concrete Stringer**	LENGTH– ft	Superstructure	NBE
	Description – This element defines pretensioned or post-tensioned concrete members that support the deck in a stringer floor beam system, and is for all stringers regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of all of the lengths of each stringer.			
116	**Reinforced Concrete Stringer**	LENGTH– ft	Superstructure	NBE
	Description – This element defines mild steel reinforced concrete members that support the deck in a stringer floor beam system, and is for all stringers regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of all of the lengths of each stringer.			
117	**Timber Stringer**	LENGTH– ft	Superstructure	NBE
	Description – This element defines timber members that support the deck in a stringer floor beam system, and is for all stringers regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of all of the lengths of each stringer.			
118	**Other Stringer**	LENGTH– ft	Superstructure	NBE
	Description – This element defines all other material stringers, and is for all stringers regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of all the lengths of each stringer.			
120	**Steel Truss**	LENGTH– ft	Superstructure	NBE
	Description – This element defines all steel truss elements, including all tension and compression members for through and deck trusses. It is for all trusses regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of all of the lengths of each truss panel measured longitudinally along the travel way.			

El. No.	Element Name/Description	Units	Element Category	NBE/BME ADE/DF
135	**Timber Truss**	LENGTH– ft	Superstructure	NBE
	Description – This element defines all timber truss elements, including all tension and compression members for through and deck trusses. It is for all trusses regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of all of the lengths of each truss panel measured longitudinally along the travel way.			
136	**Other Truss**	LENGTH– ft	Superstructure	NBE
	Description – This element defines all other material truss elements, including all tension and compression members, and through and deck trusses. It is for all other material trusses regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of all of the lengths of each truss panel measured longitudinally along the travel way.			
141	**Steel Arch**	LENGTH– ft	Superstructure	NBE
	Description – This element defines steel arches regardless of type, and is for all arches regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of all of the lengths of each arch panel measured longitudinally along the travel way.			
142	**Other Arch**	LENGTH– ft	Superstructure	NBE
	Description –This element defines other material arches regardless of type, and is for all other material arches regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of all of the lengths of each arch panel measured longitudinally along the travel way.			
143	**Prestressed Concrete Arch**	LENGTH– ft	Superstructure	NBE
	Description – This element defines only pretensioned or post-tensioned concrete arches, and is for all arches regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of the length of each arch panel measured longitudinally along the travel way.			
144	**Reinforced Concrete Arch**	LENGTH– ft	Superstructure	NBE
	Description – This element defines only mild steel reinforced concrete arches, and is for all arches regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of all of the lengths of each arch panel measured longitudinally along the travel way.			
145	**Masonry Arch**	LENGTH– ft	Superstructure	NBE
	Description – This element defines masonry or stacked stone arches, and is for all arches regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of all of the lengths of each arch section measured longitudinally along the travel way.			
146	**Timber Arch**	LENGTH– ft	Superstructure	NBE
	Description – This element defines only timber arches, and is for all arches regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of all of the lengths of each arch panel measured longitudinally along the travel way.			

El. No.	Element Name/Description	Units	Element Category	NBE/BME ADE/DF
147	**Steel Main Cables**	LENGTH– ft	Superstructure	NBE
	Description – This element defines all steel main suspension or cable stay cables not embedded in concrete. It is for all cable groups regardless of protective systems. **Quantity Calculation** – The quantity for this element is the sum of all of the lengths of each main cable measured longitudinally along the travel way. **Element Commentary** – This element is intended for use on main cables in suspension bridges or main cable stays in cable stayed bridges. Suspender cables or other smaller cables shall be captured using the secondary cable element.			
148	**Secondary Steel Cables**	EACH	Superstructure	NBE
	Description – This element defines all steel suspender cables not embedded in concrete. It is for all individual or cable groups regardless of protective systems. **Quantity Calculation** – The quantity for this element is the sum of the individual cable or cable groups carrying the load from the superstructure to the main cable / arch elements. **Element Commentary** – This element is intended for use on suspender cables, other smaller cables or groups of cables in one location acting as a system to carry loads from the superstructure to the main cable / arch. Suspension bridge main cables or cable stays shall be captured using the steel main cable element.			
149	**Other Secondary Cable**	EACH	Superstructure	NBE
	Description – This element defines all other material cables not embedded in concrete. It is for all individual other material cables or cable groups regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of the individual cable or cable groups carrying the load from the superstructure to the main cable / arch elements.			
152	**Steel Floor Beam**	LENGTH– ft	Superstructure	NBE
	Description – This element defines steel floor beams that typically support stringers, and is for all floor beams regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of all of the lengths of each floor beam.			
154	**Prestressed Concrete Floor Beam**	LENGTH– ft	Superstructure	NBE
	Description – This element defines prestressed concrete floor beams that typically support stringers, and is for all floor beams regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of all of the lengths of each floor beam.			
155	**Reinforced Concrete Floor Beam**	LENGTH– ft	Superstructure	NBE
	Description – This element defines mild steel reinforced concrete floor beams that typically support stringers, and is for all floor beams regardless of protective systems. **Quantity Calculation** – The quantity for this element is the sum of all of the lengths of each floor beam.			
156	**Timber Floor Beam**	LENGTH– ft	Superstructure	NBE
	Description – This element defines timber floor beams that typically support stringers, and is for all floor beams regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of all of the lengths of each floor beam.			

El. No.	Element Name/Description	Units	Element Category	NBE/BME ADE/DF
157	**Other Floor Beam**	LENGTH– ft	Superstructure	NBE
	Description – This element defines other material floor beams that typically support stringers, and is for all floor beams regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of all of the lengths of each floor beam.			
161	**Steel Pin and Pin & Hanger Assembly or Both**	EACH	Superstructure	NBE
	Description - This element defines steel pins and pin and hanger assemblies and is for all assemblies regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of the number of pins, pin and hanger assemblies, or both.			
162	**Steel Gusset Plate**	EACH	Superstructure	NBE
	Description – This member defines only those steel gusset plate(s) connections that are on the main truss / arch panel(s). These connections can be constructed with one or more plates that may be bolted, riveted, or welded. This element is for all gusset plates regardless of protective systems. **Quantity Calculation** – The quantity for this element is the sum of the number of primary load path gusset plate assemblies. For multiple plate gusset connections at a single panel point, the quantity shall be one gusset plate regardless of the number of individual plates at the single connection point.			
202	**Steel Column**	EACH	Substructure	NBE
	Description – This element is for all steel columns regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of the number of columns.			
203	**Other Column**	EACH	Substructure	NBE
	Description – This element is for all other material columns regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of the number of columns.			
204	**Prestressed Concrete Column**	EACH	Substructure	NBE
	Description – This element is for all prestressed concrete columns regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of the number of columns.			
205	**Reinforced Concrete Column**	EACH	Substructure	NBE
	Description - This element is for all reinforced concrete columns regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of the number of columns.			
206	**Timber Column**	EACH	Substructure	NBE
	Description – This element is for all timber columns regardless of protective system. **Quantity Calculation** – The quantity of this element is the number of columns.			
207	**Steel Tower**	LENGTH– ft	Substructure	NBE
	Description – This element defines steel built up or framed tower supports, and is for all towers regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of the heights of built up or framed tower supports. **Element Commentary** – This element is intended to be used for truss framed tower supports or built up steel towers. This element is intended to capture large supports and towers associated with suspension bridges, cable stayed bridges, moveable bridges, or similar structural configurations.			

El. No.	Element Name/Description	Units	Element Category	NBE/BME ADE/DF
208	**Timber Trestle**	LENGTH– ft	Substructure	NBE
	Description – This element defines framed timber supports, and is for all timber / trestle towers regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of the heights of built up or framed tower supports. **Element Commentary** – This element is intended to be used for truss framed trestle or towers. This element is intended to capture large supports and towers associated with large deck truss bridges.			
210	**Reinforced Concrete Pier Wall**	LENGTH– ft	Substructure	NBE
	Description – This element defines reinforced concrete pier walls, and is for all pier walls regardless of protective systems. **Quantity Calculation** – The quantity for this element is the sum of the lengths of the pier walls measured along the skew angle.			
211	**Other Pier Wall**	LENGTH– ft	Substructure	NBE
	Description – This element defines those pier walls constructed of other materials. This is for all pier walls regardless of protective systems. **Quantity Calculation** – The quantity for this element is the sum of the lengths of the pier walls measured along the skew angle.			
212	**Timber Pier Wall**	LENGTH– ft	Substructure	NBE
	Description – This element defines those timer pier walls that include pile, timber sheet material, and filler. this is for all pier walls regardless of protective systems. **Quantity Calculation** – The quantity for this element is the sum of the length of the pier walls measured along the skew angle.			
213	**Masonry Pier Wall**	LENGTH– ft	Substructure	NBE
	Description – This element defines those pier walls constructed of block or stone. The block or stone may be placed with or without mortar. This is for all pier walls regardless of protective systems. **Quantity Calculation** – The quantity for this element is the sum of the wall lengths measured along the skew angle.			
215	**Reinforced Concrete Abutment**	LENGTH– ft	Substructure	NBE
	Description – This element defines reinforced concrete abutments. This includes the material retaining the embankment and monolithic wingwalls and abutment extensions. This is for all reinforced concrete abutments regardless of protective systems. **Quantity Calculation** – The quantity for this element is the sum of the width of the abutment with monolithic wingwalls and abutment extensions measured along the skew angle.			
216	**Timber Abutment**	LENGTH– ft	Substructure	NBE
	Description – This element defines timber abutments. This includes the sheet material retaining the embankment, integral wingwalls, and abutment extensions. This is for all abutments regardless of protective systems. **Quantity Calculation** – The quantity for this element is the sum of the width of the abutment with integral wingwalls and abutment extensions measured along the skew angle.			
217	**Masonry Abutment**	LENGTH– ft	Substructure	NBE
	Description – This element defines those abutments constructed of block or stone, including integral wingwalls and abutment extensions. The block or stone may be placed with or without mortar. This is for all abutments regardless of protective systems. **Quantity Calculation** – The quantity for this element is the sum of the width of the abutment with integral wingwalls and abutment extensions measured along the skew angle.			

El. No.	Element Name/Description	Units	Element Category	NBE/BME ADE/DF
218	**Other Abutments**	LENGTH– ft	Substructure	NBE
	Description – This element defines other material abutment systems. This includes the sheet material retaining the embankment, and integral wingwalls and abutment extensions. This is for all abutments regardless of protective systems. **Quantity Calculation** – The quantity for this element is the sum of the width of the abutment with integral wingwalls and abutment extensions measured along the skew angle.			
219	**Steel Abutment**	LENGTH– ft	Substructure	NBE
	Description – This element defines steel abutments. This includes the sheet material retaining the embankment, and monolithic wingwalls and abutment extensions. This is for all abutments regardless of protective systems. **Quantity Calculation** – The quantity for this element is the sum of the width of the abutment with monolithic wingwalls and abutment extensions measured along the skew angle.			
220	**Reinforced Concrete Pile Cap / Footing**	LENGTH– ft	Substructure	NBE
	Description – This element defines reinforced concrete pile caps / footings that are visible for inspection. Pile caps / footings exposed from erosion or scour or visible during an underwater inspection are included in this element. The exposure may be intentional or caused by erosion or scour. **Quantity Calculation** – The quantity of this element is the sum of the length of footings or pile caps along the skew angle.			
225	**Steel Pile**	EACH	Substructure	NBE
	Description – This element defines steel piles that are visible for inspection. Piles exposed from erosion or scour and piles visible during an underwater inspection are included in this element. This element is for all steel piles regardless of protective systems. **Quantity Calculation** – The quantity for this element is the sum of the number of piles visible for inspection.			
226	**Prestressed Concrete Pile**	EACH	Substructure	NBE
	Description – This element defines prestressed concrete piles that are visible for inspection. Piles exposed from erosion or scour and piles visible during an underwater inspection are included in this element. This element is for all prestressed concrete piles regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of the number of piles visible for inspection.			
227	**Reinforced Concrete Pile**	EACH	Substructure	NBE
	Description – This element defines reinforced concrete piles that are visible for inspection. Piles exposed from erosion or scour and piles visible during an underwater inspection are included in this element. This element is for all reinforced concrete piles regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of the number of piles visible for inspection.			
228	**Timber Pile**	EACH	Substructure	NBE
	Description – This element defines timber piles that are visible for inspection. Piles exposed from erosion or scour and piles visible during an underwater inspection are included in this element. This element is for all timber piles regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of the number of piles visible for inspection.			

El. No.	Element Name/Description	Units	Element Category	NBE/BME ADE/DF
229	**Other Pile**	EACH	Substructure	NBE
	Description – This element defines other material piles that are visible for inspection. Piles exposed from erosion or scour and piles visible during an underwater inspection are included in this element. This element is for all other material piles regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of the number of piles visible for inspection.			
231	**Steel Pier Cap**	LENGTH– ft	Substructure	NBE
	Description – This element defines those steel pier caps that support girders and transfer load into piles or columns, and is for all steel pier caps regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of the cap lengths measured along the skew angle.			
233	**Prestressed Concrete Pier Cap**	LENGTH– ft	Substructure	NBE
	Description – This element defines those prestressed concrete pier caps that support girders and transfer load into piles or columns and is for all caps regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of the cap lengths measured along the skew angle.			
234	**Reinforced Concrete Pier Cap**	LENGTH– ft	Substructure	NBE
	Description – This element defines those reinforced concrete pier caps that support girders and transfer load into piles, or columns and is for all pier caps regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of the cap length measured along the skew angle.			
235	**Timber Pier Cap**	LENGTH– ft	Substructure	NBE
	Description – This element defines those timber pier caps that support girders that transfer load into piles, or columns and is for all timber pier caps regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of the pier cap lengths measured along the skew angle.			
236	**Other Pier Cap**	LENGTH– ft	Substructure	NBE
	Description – This element defines other material pier caps that support girders that transfer load into piles or columns, and is for all other material pier caps regardless of protective system. **Quantity Calculation** – The quantity for this element is the sum of the pier cap lengths measured along the skew angle.			
240	**Steel Culvert**	LENGTH– ft	Culvert	NBE
	Description – This element defines steel culverts, including arched, round, or elliptical pipes. **Quantity Calculation** – The quantity for this element is the flow line length of the barrel times the number of barrels.			
241	**Reinforced Concrete Culvert**	LENGTH– ft	Culvert	NBE
	Description – This element defines reinforced concrete culverts, including box, arched, round, or elliptical shapes. **Quantity Calculation** - The quantity for this element is the flow line length of the barrel times the number of the barrels.			
242	**Timber Culvert**	LENGTH– ft	Culvert	NBE
	Description – This element defines all timber culverts. **Quantity Calculation** – The quantity of this element is the flow line length of the barrel times the number of barrels.			
243	**Other Culvert**	LENGTH– ft	Culvert	NBE
	Description – This element defines other material type culverts, including arches, round, or elliptical pipes. These culverts are not included in steel, concrete, or timber material types. **Quantity Calculation** – The quantity of this element is the flow line length of the barrel times the number of barrels.			

El. No.	Element Name/Description	Units	Element Category	NBE/BME ADE/DF
244	**Masonry Culvert**	LENGTH– ft	Culvert	NBE
	Description – This element defines masonry block or stone culverts. **Quantity Calculation** – The quantity for this element is the flow line length of the barrel times the number of barrels.			
245	**Prestressed Concrete Culvert**	LENGTH– ft	Culvert	NBE
	Description – This element defines all prestressed concrete culverts. **Quantity Calculation** – The quantity for this element is the flow line length of the barrel times the number of barrels.			
300	**Strip Seal Expansion Joint**	LENGTH– ft	Joints	BME
	Description – This element defines those expansion joint devices which utilize a neoprene type waterproof gland with some type of metal extrusion or other system to anchor the gland. **Quantity Calculation** – The quantity for this element is determined by summing all the lengths of the joint measured along the skew angle.			
301	**Pourable Joint Seal**	LENGTH– ft	Joints	BME
	Description – This element defines those joints filled with a pourable seal with or without a backer. **Quantity Calculation** – The quantity for this element is determined by summing all the lengths of the joint measured along the skew angle.			
302	**Compression Joint Seal**	LENGTH– ft	Joints	BME
	Description – This element defines only those joints filled with a preformed compression type seal. This joint may or may not have an anchor system to confine the seal. **Quantity Calculation** – The quantity for this element is determined by summing all the lengths of the joint measured along the skew angle.			
303	**Assembly Joint With Seal**	LENGTH– ft	Joints	BME
	Description – This element defines only those joints filled with an assembly mechanism that has a seal. **Quantity Calculation** – The quantity for this element is determined by summing all the lengths of the joint measured along the skew angle.			
304	**Open Expansion Joint**	LENGTH– ft	Joints	BME
	Description – This element defines only those joints that are open and not sealed. **Quantity Calculation** – The quantity for this element is determined by summing all the lengths of the joint measured along the skew angle.			
305	**Assembly Joint Without Seal**	LENGTH– ft	Joints	BME
	Description – This element defines only those assembly joints that are open and not sealed. This includes finger and sliding plate joints. **Quantity Calculation** – The quantity for this element is determined by summing all the lengths of the joint measured along the skew angle.			
306	**Other Joint**	LENGTH– ft	Joints	BME
	Description – This element defines only those other joints that are not defined by any other joint element. **Quantity Calculation** – The quantity for this element is determined by summing all the lengths of the joint measured along the skew angle.			
310	**Elastomeric Bearing**	EACH	Bearings	NBE
	Description – This element defines only those bridge bearings that are constructed primarily of elastomers, with or without fabric or metal reinforcement. **Quantity Calculation** – The quantity is the sum of each bearing of this type.			

El. No.	Element Name/Description	Units	Element Category	NBE/BME ADE/DF
311	**Movable Bearing**	EACH	Bearings	NBE
	Description – This element defines only those bridge bearings which provide for both rotation and longitudinal movement by means of roller, rocker, or sliding mechanisms. **Quantity Calculation** – The quantity is the sum of each bearing of this type.			
312	**Enclosed / Concealed Bearing**	EACH	Bearings	NBE
	Description – This element defines only those bridge bearings that are enclosed so that they are not open for detailed inspection. **Quantity Calculation** – The quantity is the sum of each bearing of this type. **Element Commentary** – This element should be used for box girder hinges. In cases where the bearing material is not visible, the inspector shall assess the condition based on alignment, grade across the joint, persistence of debris, or other indirect indicators of the condition.			
313	**Fixed Bearing**	EACH	Bearings	NBE
	Description – This element defines only those bridge bearings that provide for rotation only (no longitudinal movement). **Quantity Calculation** – The quantity is the sum of each bearing of this type.			
314	**Pot Bearing**	EACH	Bearings	NBE
	Description – This element defines those high load bearings with confined elastomer. The bearing may be fixed against horizontal movement, guided to allow sliding in one direction, or floating to allow sliding in any direction. **Quantity Calculation** – The quantity is the sum of each bearing of this type.			
315	**Disc Bearing**	EACH	Bearings	NBE
	Description – This element defines those high load bearings with a hard plastic disk. This bearing may be fixed against horizontal movement, guided to allow movement in one direction, or floating to allow sliding in any direction. **Quantity Calculation** – The quantity is the sum of each bearing of this type.			
316	**Other Bearing**	EACH	Bearings	NBE
	Description – This element defines all other material bridge bearings regardless of translation or rotation constraints. **Quantity Calculation** – The quantity is the sum of each bearing of this type.			
320	**Prestressed Concrete Approach Slab**	AREA - ft2	Approach Slabs	BME
	Description – This element defines those structural sections, between the abutment and the approach pavement, that are constructed of prestressed (post-tensioned) reinforced concrete. **Quantity Calculation** – The quantity for this element should include the area of the approach slab(s) from edge to edge including any median areas and accounting for any flares or ramps present.			
321	**Reinforced Concrete Approach Slab**	AREA - ft2	Approach Slabs	BME
	Description – This element defines those structural sections, between the abutment and the approach pavement, that are constructed of mild steel reinforced concrete. **Quantity Calculation** – The quantity for this element should include the area of the approach slab(s) from edge to edge including any median areas and accounting for any flares or ramps present.			
330	**Metal Bridge Railing**	LENGTH– ft	Bridge Rails	NBE
	Description – This element defines all types and shapes of metal bridge railing. Steel, aluminum, metal beam, rolled shapes, etc. will all be considered part of this element. Included in this element are the posts of metal, timber or concrete, blocking, and curb. **Quantity Calculation** – The quantity for this element is the number of rows of bridge rail times the length of the bridge. The element quantity includes only the rail on the bridge.			

El. No.	Element Name/Description	Units	Element Category	NBE/BME ADE/DF
331	**Reinforced Concrete Bridge Railing**	LENGTH– ft	Bridge Rails	NBE
	Description – This element defines all types and shapes of reinforced concrete bridge railing. All elements of the railing must be concrete. **Quantity Calculation** – The quantity for this element is the number or rows of bridge rail times the length of the bridge. The element quantity includes only the rail on the bridge.			
332	**Timber Bridge Railing**	LENGTH– ft	Bridge Rails	NBE
	Description – This element defines all types and shapes of timber bridge railing. Included in this element are the posts of timber, metal or concrete, blocking, and curb. **Quantity Calculation** – The quantity for this element is the number of rows of bridge rail times the length of the bridge. The quantity for this element includes only the rail on the bridge.			
333	**Other Bridge Railing**	LENGTH– ft	Bridge Rails	NBE
	Description – This element defines all types and shapes of bridge railing except those defined as metal, concrete, timber, or masonry. **Quantity Calculation**-The quantity for this element is the number of rows of bridge rail times the length of the bridge. The element quantity includes only the rail on the bridge.			
334	**Masonry Bridge Railing**	LENGTH– ft	Bridge Rails	NBE
	Description – This element defines all types and shapes of masonry block or stone bridge railing. All elements of the railing must be masonry block or stone. **Quantity Calculation** – The quantity for this element is the number of rows of bridge rail times the length of the bridge. The element quantity includes only the rail on the bridge.			
510	**Wearing Surfaces**	AREA - ft2	Wearing Surface	BME
	Description – This element is for all decks / slabs that have overlays made with flexible (asphaltic concrete), semi rigid (epoxy and polyester material), rigid (portland cement) materials and timber running planks. **Quantity Calculation**- The quantity for this element should include the area of the deck / slab that is protected by this wearing surface.			
515	**Steel Protective Coating**	AREA - ft2	Protective System	BME
	Description – This element is for steel elements that have a protective coating such as paint, galvanization, weathering steel patina or other top coat steel corrosion inhibitor. **Quantity Calculation** – The quantity for this element should include the entire protected surface of the steel element.			
520	**Concrete Reinforcing Steel Protective System**	AREA - ft2	Protective System	BME
	Description – This element defines all types of protective systems used to protect reinforcing steel in concrete elements from corrosion. **Quantity Calculation** – The quantity for this element should include the entire surface area of the protected element. **Element Commentary** – This protection system element is intended to capture situations where the concrete element may be expected to deteriorate at a rate that is slower than unprotected situations. Protection systems may include rebar coatings, cathodic protection, or other similar protection methods. Wearing surfaces are addressed under the appropriate wearing surface element and not this element.			
521	**Concrete Protective Coating**	AREA - ft2	Protective System	BME
	Description – This element is for concrete elements that have a protective coating applied to them. These coatings include silane / siloxane water proofers, crack sealers such as High Molecular Weight Methacrylate (HMWM), or any top coat barrier that protects concrete from deterioration and reinforcing steel from corrosion. **Quantity Calculation** – The quantity for this element should include the entire protected surface of the concrete element.			

Bridge Defects

In this manual, the element represents the aggregate condition of the defined element inclusive of all defects. Element defects are to be used when the element's condition reaches state 2 or lower and essentially act to break down the overall element condition into one or more specific observed problems. The defects defined within this manual shall always assume the units of the element that they are associated with. In some cases, multiple defects may operate in the same defined space. In this case, the inspector shall report the defect in the most severe conditions state. If two defects in the same condition state operate in the same defined space, the inspector shall determine the predominate defect for reporting. For example, if a reinforced concrete bridge deck is cracked throughout and also has a spall in a portion of the deck, the spalling would likely be determined to be the predominate defect.

Defect	Definition	Materials
Corrosion 1000	This defect is used to report corrosion of metal and other material elements.	Steel and Other
Cracking 1010	This defect is used to report fatigue cracking in metal and other material elements.	Steel and Other
Connection 1020	This defect is used to report connection distress in metal and other material elements.	Steel, Timber and Other
Delamination / Spall / Patched Area 1080	This defect is used to report spalls, delamination and patched areas in concrete, masonry and other material elements.	PSC, RC, Masonry, and Other
Exposed Rebar 1090	This defect is used to report exposed conventional reinforcing steel in reinforced and prestressed concrete elements.	PSC and RC
Exposed Prestressing 1100	This defect is used to report exposed prestressing steel in concrete elements.	PSC
Cracking (PSC) 1110	This defect is used to report cracking in prestressed concrete element.	PSC
Efflorescence / Rust Staining 1120	This defect is used to report efflorescence / rust staining in concrete and masonry elements.	PSC, RC, Masonry, and Other
Cracking (RC and Other) 1130	This defect is used to report cracking in reinforced concrete and other material elements.	RC and Other
Decay / Section Loss 1140	This defect is used to report decay (section loss) in timber elements.	Timber
Check / Shake 1150	This defect is used to report checks and shakes in timber elements.	Timber
Crack (Timber) 1160	This defect is used to report cracking in timber elements.	Timber
Split / Delamination (Timber) 1170	This defect is used to report splits / delamination in timber elements.	Timber
Abrasion / Wear (Timber) 1180	This defect is used to report abrasion in timber elements.	Timber
Abrasion / Wear (PSC/RC) 1190	This defect is used to report abrasion / wear in PSC and RC elements.	PSC and RC
Deterioration (Other) 1220	This defect is used to report general deterioration in elements constructed of other materials such as fiber reinforced plastics or similar.	Other

Defect	Definition	Materials
Mortar Breakdown (Masonry) 1610	This defect is used to report breakdown of masonry mortar between brick, block, or stone.	Masonry
Split / Spall (Masonry) 1620	This defect is used to report splits or spalls in brick, block, or stone.	Masonry
Patched Area (Masonry) 1630	This defect is used to report masonry patched areas.	Masonry
Masonry Displacement 1640	This defect is used to report displaced brick, block, or stone.	Masonry
Distortion 1900	This defect is used to report distortion from the original line or grade of the element. It is used to capture all distortion regardless of cause.	Steel, PSC, RC, Masonry, Timber, and Other
Movement 2210	This defect is used to report movement of bridge bearing elements.	Other
Alignment 2220	This defect is used to report alignment of bridge bearing elements.	Other
Bulging, Splitting or Tearing 2230	This defect is used to report bulging, splitting or tearing of elastomeric bearing elements.	Other
Loss of Bearing Area 2240	This defect is used to report the loss of bearing area for bridge bearing elements.	Other
Leakage 2310	This defect is used to report leakage through or around sealed bridge joints.	Other
Seal Adhesion 2320	This defect is used to report loss of adhesion in sealed bridge joints.	Other
Seal Damage 2330	This defect is used to report damage to the rubber in bridge joint seals.	Other
Seal Cracking 2340	This defect is used to report cracking in the rubber in bridge joint seals.	Other
Debris Impaction 2350	This defect is used to report the accumulation of debris in bridge joint seals that may or may not affect the performance of the joints.	Other
Adjacent Deck or Header 2360	This defect is used to report concrete deck damage in the area anchoring the bridge joint.	Other
Metal Deterioration or Damage 2370	This defect is used to report metal damage or deterioration in the bridge joint.	Other
Delamination / Spall / Patched Area / Pothole (Wearing Surfaces) 3210	This defect is used to report spalls, delaminations, patched areas and potholes in wearing surface elements.	Wearing Surfaces
Crack (Wearing Surface) 3220	This defect is used to report cracking in wearing surface elements.	Wearing Surfaces
Effectiveness (Wearing Surface) 3230	This defect is used to report the loss of effectiveness in the protection provided to the deck by the wearing surface elements.	Wearing Surfaces
Chalking (Steel Protective Coatings) 3410	This defect is used to report chalking in metal protective coatings.	Steel Protective Coatings

Defect	Definition	Materials
Peeling / Bubbling / Cracking (Steel Protective Coatings) 3420	This defect is used to report peeling, bubbling or cracking in metal protective coatings.	Steel Protective Coatings
Oxide Film Degradation Color / Texture Adherence (Steel Protective Coatings) 3430	This defect is used to report oxide film degradation of texture in metal protective coatings.	Steel Protective Coatings
Effectiveness (Steel Protective Coatings) 3440	This defect is used to report the loss of effectiveness of metal protective coatings.	Steel Protective Coatings
Wear (Concrete Protective Coatings) 3510	This defect is used to report the wearing of concrete protective coatings.	Concrete Protective Coatings
Chalking (Concrete Protective Coatings) 3520	This defect is used to report chalking of concrete protective coatings.	Concrete Protective Coatings
Peeling / Bubbling / Cracking (Concrete Protective Coatings) 3530	This defect is used to report peeling / bubbling / cracking of concrete protective coatings.	Concrete Protective Coatings
Effectiveness (Concrete Protective Coatings) 3540	This defect is used to report the effectiveness of concrete protective coatings.	Concrete Protective Coatings
Effectiveness – Protective System (e.g. cathodic) 3600	This defect is used to report the effectiveness of internal concrete protective systems (epoxy rebar, cathodic protection, etc.)	Concrete Reinforcing Steel Protective System
Settlement 4000	This defect is used to report settlement in substructure elements.	Steel, PSC, RC, Masonry, Timber, and Other
Scour 6000	This defect is used to report scour in substructure elements.	Steel, PSC, RC, Masonry, Timber and Other
Damage 7000	This defect is used to capture impact damage that has occurred.	All

Environmental Factors (Service Conditions)

Elements exposed to different environmental factors and service conditions deteriorate differently. These factors may include:

- Operational activities from traffic volumes and truck movements
- Exposure to water, road salt, and other corrosive materials
- Condition of protective and water proofing systems
- Temperature extremes, either from nature or human activity

When inventorying and assessing the condition of the elements, an inspector should consider the environment in which the element is operating. The environment designation of an element can change over time; as it would, for example, if operating policies were changed to reduce the use of road salt. However, by definition, the environment designation for any element cannot change as the result of maintenance work or deterioration.

Environment	Description
1-- Benign	Neither environmental factors nor operating practices are likely to significantly change the condition of the element over time, or their effects have been mitigated by the presence of highly effective protective systems.
2-- Low	Environmental factors, operating practices, or both either do not adversely influence the condition of the element or their effects are substantially lessened by the application of effective protective systems.
3-- Moderate	Any change in the condition of the element is likely to be quite normal as measured against the environmental factors, operating practices, or both that are considered typical by the agency.
4-- Severe	Environmental factors, operating practices, or both, contribute to the rapid decline in the condition of the element. Protective systems are not in place or are ineffective.

Examples of factors that could increase the severity of the environment rating for various types of elements may include any of the following. The inspector would record the predominant environment factor affecting an element.

Element	Example Environmental Factors
Timber Elements	High Moisture Content
	Pest Infestation
	Ice flow impacts
Steel Elements	Distance from salt air
	Water wet/dry cycles
	Exposure to corrosive soils and liquids
Concrete Elements	Freeze thaw cycles
	Tire Chain wear
	Deck salting
Petroleum Based	High Temperatures
Joints and Bearings	Extreme Temperature Ranges
Operating Practices	High Traffic and or Truck volume

Reinforced Concrete

Element Number	Element Name
12	Reinforced Concrete Deck
16	Reinforced Concrete Top Flange
38	Reinforced Concrete Slab
105	Reinforced Concrete Closed Web / Box Girder
110	Reinforced Concrete Open Girder / Beam
116	Reinforced Concrete Stringer
144	Reinforced Concrete Arch
155	Reinforced Concrete Floor Beam
205	Reinforced Concrete Column
210	Reinforced Concrete Pier Wall
215	Reinforced Concrete Abutment
220	Reinforced Concrete Pile Cap / Footing
227	Reinforced Concrete Pile
234	Reinforced Concrete Pier Cap
241	Reinforced Concrete Culvert
331	Reinforced Concrete Bridge Railing
321	Reinforced Concrete Approach Slab

Reinforced Concrete - Condition State Definitions				
Defect	**CS 1 - Good**	**CS 2 - Fair**	**CS 3 - Poor**	**CS 4 - Severe**
Delamination / Spall / Patched Area 1080	None.	Delaminated. Spall 1 in. or less deep or 6 in. or less in diameter. Patched area that is sound.	Spall greater than 1 in. deep or greater than 6 in. diameter. Patched area that is unsound or showing distress. Does not warrant structural review.	The condition warrants a structural review to determine the effect on strength or serviceability of the element or bridge; OR a structural review has been completed and the defects impact strength or serviceability of the element or bridge.
Exposed Rebar 1090	None.	Present without measurable section loss.	Present with measurable section loss, but does not warrant structural review.	
Efflorescence / Rust Staining 1120	None.	Surface white without build-up or leaching without rust staining.	Heavy build-up with rust staining.	
Cracking 1130	Width less than 0.012 in. or width 0.012–0.05 in. that have been sealed.	Width 0.012–0.05 in. or moderate pattern (map) cracking.	Width greater than 0.05 in. or heavy pattern (map) cracking.	
Abrasion / Wear 1190	No abrasion or wearing.	Abrasion or wearing has exposed coarse aggregate but the aggregate remains secure in the concrete.	Coarse aggregate is loose or has popped out of the concrete matrix due to abrasion or wear.	
Distortion 1900	None.	Distortion not requiring mitigation or mitigated distortion.	Distortion that requires mitigation that has not been addressed but does not warrant structural review.	
Settlement 4000	None.	Exists within tolerable limits or arrested with no observed structural distress.	Exceeds tolerable limits but does not warrant structural review.	
Scour 6000	None.	Exists within tolerable limits or has been arrested with effective countermeasures.	Exceeds tolerable limits, but is less than the critical limits determined by scour evaluation and does not warrant structural review.	
Damage 7000	Not applicable.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 2 under the appropriate material defect entry.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 3 under the appropriate material defect entry.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 4 under the appropriate material defect entry.

Prestressed Concrete Elements

Element Number	Element Name
13	Prestressed Concrete Deck
15	Prestressed Concrete Top Flange
104	Prestressed Concrete Closed Web/Box Girder
109	Prestressed Concrete Open Girder / Beam
115	Prestressed Concrete Stringer
143	Prestressed Concrete Arch
154	Prestressed Concrete Floor Beam
204	Prestressed Concrete Column
226	Prestressed Concrete Pile
233	Prestressed Concrete Pier Cap
245	Prestressed Concrete Culvert
320	Prestressed Concrete Approach Slab

Prestressed Concrete - Condition State Definitions				
Defect	**CS 1 - Good**	**CS 2 - Fair**	**CS 3 - Poor**	**CS 4 - Severe**
Delamination / Spall / Patched Area 1080	None	Delaminated. Spall 1 in. or less deep or 6 in. or less in diameter. Patched area that is sound.	Spall greater than 1 in. deep or greater than 6 in. diameter. Patched area that is unsound or showing distress. Does not warrant structural review.	The condition warrants a structural review to determine the effect on strength or serviceability of the element or bridge; OR a structural review has been completed and the defects impact strength or serviceability of the element or bridge.
Exposed Rebar 1090	None	Present without measurable section loss.	Present with measurable section loss, but does not warrant structural review.	
Exposed Prestressing 1100	None	Present without section loss	Present with section loss, but does not warrant structural review.	
Cracking 1110	Width less than 0.004 in. or width 0.004–0.009 in. that have been sealed.	Width 0.004–0.009 in. or moderate pattern (map) cracking.	Width greater than 0.009 in. or heavy pattern (map) cracking.	
Efflorescence / Rust Staining 1120	None	Surface white without build-up or leaching without rust staining.	Heavy build-up with rust staining.	
Abrasion / Wear 1190	No abrasion or wearing	Abrasion or wearing has exposed coarse aggregate but the aggregate remains secure in the concrete.	Coarse aggregate is loose or has popped out of the concrete matrix due to abrasion or wear.	
Distortion 1900	None	Distortion not requiring mitigation or mitigated distortion.	Distortion that requires mitigation that has not been addressed but does not warrant structural review.	
Settlement 4000	None	Exists within tolerable limits or arrested with no observed structural distress.	Exceeds tolerable limits but does not warrant structural review.	
Scour 6000	None	Exists within tolerable limits or has been arrested with effective countermeasures.	Exceeds tolerable limits, but is less than the critical limits determined by scour evaluation and does not warrant structural review.	
Damage 7000	Not applicable	The element has impact damage. The specific damage caused by the impact has been captured in condition state 2 under the appropriate material defect entry.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 3 under the appropriate material defect entry.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 4 under the appropriate material defect entry.

Steel

Element Number	Element Name
28	Steel Deck with Open Grid
29	Steel Deck with Concrete Filled Grid
30	Steel Deck Corrugated / Orthotropic / etc.
102	Steel Closed Web / Box Girder
107	Steel Open Girder / Beam
113	Steel Stringer
120	Steel Truss
141	Steel Arch
147	Steel Main Cable
148	Secondary Steel Cables
152	Steel Floor Beam
161	Steel Pin and Pin & Hanger Assembly or Both
162	Steel Gussett Plate
202	Steel Column
207	Steel Tower
219	Steel Abutment
225	Steel Pile
231	Steel Pile Cap
240	Steel Culvert
330	Metal Bridge Railing

Steel - Condition State Definitions				
Defect	**CS 1 - Good**	**CS 2 - Fair**	**CS 3 - Poor**	**CS 4 - Severe**
Corrosion 1000	None.	Freckled Rust. Corrosion of the steel has initiated.	Section loss is evident or pack rust is present but does not warrant structural review.	The condition warrants a structural review to determine the effect on strength or serviceability of the element or bridge; OR a structural review has been completed and the defects impact strength or serviceability of the element or bridge.
Cracking 1010	None.	Crack that has self arrested or has been arrested with effective arrest holes, doubling plates, or similar.	Identified crack exists that is not arrested but does not warrant structural review	
Connection 1020	Connection is in place and functioning as intended.	Loose fasteners or pack rust without distortion is present but the connection is in place and functioning as intended.	Missing bolts, rivets, broken welds, fasteners or pack rust with distortion but does not warrant a structural review.	
Distortion 1900	None.	Distortion not requiring mitigation or mitigated distortion.	Distortion that requires mitigation that has not been addressed but does not warrant structural review.	
Settlement 4000	None.	Exists within tolerable limits or arrested with no observed structural distress.	Exceeds tolerable limits but does not warrant structural review.	
Scour 6000	None.	Exists within tolerable limits or has been arrested with effective countermeasures.	Exceeds tolerable limits, but is less than the critical limits determined by scour evaluation and does not warrant structural review.	
Damage 7000	Not applicable.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 2 under the appropriate material defect entry.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 3 under the appropriate material defect entry.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 4 under the appropriate material defect entry.

Timber

Element Number	Element Name
31	Timber Deck
54	Timber Slabs
111	Timber Open Girder
117	Timber Stringer
135	Timber Truss
146	Timber Arch
156	Timber Floor Beam
206	Timber Column
208	Timber Trestle
212	Timber Pier Wall
216	Timber Abutment
228	Timber Pile
235	Timber Pier Cap
242	Timber Culvert
332	Timber Bridge Railing

Timber - Condition State Definitions

Defect	CS 1 - Good	CS 2 - Fair	CS 3 - Poor	CS 4 - Severe
Connection 1020	Connection is in place and functioning as intended.	Loose fasteners or pack rust without distortion is present but the connection is in place and functioning as intended.	Missing bolts, rivets, broken welds, fasteners or pack rust with distortion but does not warrant a structural review.	The condition warrants a structural review to determine the effect on strength or serviceability of the element or bridge; OR a structural review has been completed and the defects impact strength or serviceability of the element or bridge.
Decay / Section Loss 1140	None.	Affects less than 10% of the member section.	Affects 10% or more of the member but does not warrant structural review.	
Check / Shake 1150	Surface penetration less than 5% of the member thickness regardless of location.	Penetrates 5% - 50% of the thickness of the member and not in a tension zone.	Penetrates more than 50% of the thickness of the member or more than 5% of the member thickness in a tension zone. Does not warrant structural review.	
Crack 1160	None.	Crack that has been arrested through effective measures.	Identified crack exists that is not arrested, but does not require structural review.	
Split / Delamination 1170	None.	Length less than the member depth or arrested with effective actions taken to mitigate.	Length equal to or greater than the member depth, but does not require structural review.	
Abrasion / Wear 1180	None or no measurable section loss.	Section loss less than 10% of the member thickness	Section loss 10% or more of the member thickness but does not warrant structural review.	
Distortion 1900	None.	Distortion not requiring mitigation or mitigated distortion.	Distortion that requires mitigation that has not been addressed but does not warrant structural review.	
Settlement 4000	None.	Exists within tolerable limits or arrested with no observed structural distress.	Exceeds tolerable limits but does not warrant structural review.	
Scour 6000	None.	Exists within tolerable limits or has been arrested with effective countermeasures.	Exceeds tolerable limits, but is less than the critical limits determined by scour evaluation and does not warrant structural review.	
Damage 7000	Not applicable.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 2 under the appropriate material defect entry.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 3 under the appropriate material defect entry.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 4 under the appropriate material defect entry.

Masonry

Element Number	Element Name
145	Masonry Arch
213	Masonry Pier Wall
217	Masonry Abutment
244	Masonry Culvert
334	Masonry Bridge Railing

Masonry - Condition State Definitions				
Defect	**CS 1 – Good**	**CS 2 – Fair**	**CS 3 – Poor**	**CS 4 – Severe**
Delamination / Spall / Patched Area 1080	None.	Delaminated. Spall 1 in. or less deep or 6 in. or less in diameter. Patched area that is sound.	Spall greater than 1 in. deep or greater than 6 in. diameter. Patched area that is unsound or showing distress. Does not warrant structural review.	The condition warrants a structural review to determine the effect on strength or serviceability of the element or bridge; OR a structural review has been completed and the defects impact strength or serviceability of the element or bridge.
Efflorescence / Rust Staining 1120	None.	Surface white without build-up or leaching without rust staining.	Heavy build-up with rust staining.	
Mortar Breakdown 1610	None.	Cracking or voids in less than 10% of joints.	Cracking or voids in 10% or more of the of joints.	
Split / Spall 1620	None.	Block or stone has split or spalled with no shifting.	Block or stone has split or spalled with shifting but does not warrant a structural review.	
Patched Area 1630	None.	Sound patch.	Unsound patch.	
Masonry Displacement 1640	None.	Block or stone has shifted slightly out of alignment.	Block or stone has shifted significantly out of alignment or is missing but does not warrant structural review.	
Distortion 1900	None.	Distortion not requiring mitigation or mitigated distortion.	Distortion that requires mitigation that has not been addressed but does not warrant structural review.	
Settlement 4000	None.	Exists within tolerable limits or arrested with no observed structural distress.	Exceeds tolerable limits but does not warrant structural review.	
Scour 6000	None	Exists within tolerable limits or has been arrested with effective countermeasures.	Exceeds tolerable limits, but is less than the critical limits determined by scour evaluation and does not warrant structural review.	
Damage 7000	Not applicable	The element has impact damage. The specific damage caused by the impact has been captured in condition state 2 under the appropriate material defect entry.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 3 under the appropriate material defect entry.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 4 under the appropriate material defect entry.

Other

Element Number	Element Name
60	Other Decks
65	Other Slabs
106	Other Closed Web / Box Girder
112	Other Open Girder / Beam
118	Other Stringer
136	Other Truss
142	Other Arch
149	Other Secondary Cables
157	Other Floor Beam
203	Other Column
211	Other Pier Wall
218	Other Abutments
229	Other Pile
236	Other Pier Cap
243	Other Culvert
333	Other Bridge Railing

Other Materials - Condition State Definitions				
Defect	**CS 1 - Good**	**CS 2 - Fair**	**CS 3 - Poor**	**CS 4 - Severe**
Corrosion 1000	None.	Freckled Rust. Corrosion of the steel has initiated.	Section loss is evident or pack rust is present but does not warrant structural review.	The condition warrants a structural review to determine the effect on strength or serviceability of the element or bridge; OR a structural review has been completed and the defects impact strength or serviceability of the element or bridge.
Cracking 1010	None.	Crack that has self arrested or has been arrested with effective arrest holes, doubling plates, or similar.	Identified crack exists that is not arrested but does not warrant structural review.	
Connection 1020	Connection is in place and functioning as intended.	Loose fasteners or pack rust without distortion is present but the connection is in place and functioning as intended.	Missing bolts, rivets, broken welds, fasteners or pack rust with distortion but does not warrant a structural review.	
Delamination / Spall / Patched Area 1080	None.	Delaminated. Spall 1 in. or less deep or 6 in. or less in diameter. Patched area that is sound.	Spall greater than 1 in. deep or greater than 6 in. diameter. Patched area that is unsound or showing distress. Does not warrant structural review.	
Efflorescence / Rust Staining 1120	None	Surface white without build-up or leaching without rust staining.	Heavy build-up with rust staining.	
Cracking 1130	Width less than 0.012 in. or spacing greater than 3.0 ft.	Width 0.012–0.05 in. or spacing of 1.0–3.0 ft.	Width greater than 0.05 in. or spacing of less than 1 ft.	
Deterioration 1220	None.	Initiated breakdown or deterioration.	Significant deterioration or breakdown, but does not warrant structural review.	
Distortion 1900	None.	Distortion not requiring mitigation or mitigated distortion.	Distortion that requires mitigation that has not been addressed but does not warrant structural review.	
Settlement 4000	None.	Exists within tolerable limits or arrested with no observed structural distress.	Exceeds tolerable limits but does not warrant structural review.	
Scour 6000	None.	Exists within tolerable limits or has been arrested with effective countermeasures.	Exceeds tolerable limits, but is less than the critical limits determined by scour evaluation and does not warrant structural review.	
Damage 7000	Not applicable.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 2 under the appropriate material defect entry.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 3 under the appropriate material defect entry.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 4 under the appropriate material defect entry.

Joints

Element Number	Element Name
300	Strip Seal Expansion Joint
301	Pourable Joint Seal
302	Compression Joint Seal
303	Assembly Joint with Seal
304	Open Expansion Joint
305	Assembly Joint without Seal
306	Other Joint

Joints - Condition State Definitions				
Defect	**CS 1 - Good**	**CS 2 - Fair**	**CS 3 - Poor**	**CS 4 - Severe**
Leakage 2310	None.	Minimal. Minor dripping through the joint.	Moderate. More than a drip and less than free flow of water.	Free flow of water through the joint.
Seal Adhesion 2320	Fully Adhered.	Adhered for more than 50% of the joint height.	Adhered 50% or less of joint height but still some adhesion.	Complete loss of adhesion.
Seal Cracking 2340	None.	Surface crack.	Crack that partially penetrates the seal.	Crack that fully penetrates the seal.
Seal Damage 2330	None.	Seal abrasion without punctures.	Punctured or ripped or partially pulled out.	Punctured completely through, pulled out, or missing.
Debris Impaction 2350	No debris to a shallow cover of loose debris may be evident but does not affect the performance of the joint.	Partially filled with hard-packed material, but still allowing free movement.	Completely filled and impacts joint movement.	Completely filled and prevents joint movement.
Adjacent Deck or Header 2360	Sound. No spall, delamination or unsound patch.	Edge delamination or spall 1 in. or less deep or 6 in. or less in diameter. No exposed rebar. Patched Area that is sound.	Spall greater than 1 in. deep or greater than 6 in. diameter. Exposed rebar. Delamination or unsound patched Area that makes the joint loose.	Spall, delamination, unsound patched Area or loose joint anchor that prevents the joint from functioning as intended.
Metal Deterioration or Damage 2370	None.	Freckled rust, metal has no cracks, or impact damage. Connection may be loose but functioning as intended.	Section loss, missing or broken fasteners, cracking of the metal or impact damage but joint still functioning.	Metal cracking, section loss, damage or connection failure that prevents the joint from functioning as intended.
Damage 7000	Not applicable.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 2 under the appropriate material defect entry.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 3 under the appropriate material defect entry.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 4 under the appropriate material defect entry.

Bearings

Element Number	Element Name
310	Elastomeric Bearing
311	Moveable Bearing
312	Enclosed / Concealed Bearing
313	Fixed Bearing
314	Pot Bearing
315	Disc Bearing
316	Other Bearing

Bearings - Condition State Definitions				
Defect	**CS 1 - Good**	**CS 2 - Fair**	**CS 3 - Poor**	**CS 4 - Severe**
Corrosion 1000	None.	Freckled Rust. Corrosion of the steel has initiated.	Section loss is evident or pack rust is present but does not warrant structural review.	The condition warrants a structural review to determine the effect on strength or serviceability of the element or bridge; OR a structural review has been completed and the defects impact strength or serviceability of the element or bridge.
Connection 1020	Connection is in place and functioning as intended.	Loose fasteners or pack rust without distortion is present but the connection is in place and functioning as intended.	Missing bolts, rivets, broken welds, fasteners or pack rust with distortion but does not warrant a structural review.	
Movement 2210	Free to move.	Minor restriction.	Restricted but not warranting structural review.	
Alignment 2220	Lateral and vertical alignment is as expected for the temperature conditions.	Tolerable lateral or vertical alignment that is inconsistent with the temperature conditions.	Approaching the limits of lateral or vertical alignment for the bearing but does not warrant a structural review.	
Bulging, Splitting or Tearing 2230	None.	Bulging less than 15% of the thickness.	Bulging 15% or more of the thickness. Splitting or tearing. Bearing's surfaces are not parallel. Does not warrant structural review.	
Loss of Bearing Area 2240	None.	Less than 10%.	10% or more but does not warrant structural review.	
Damage 7000	Not applicable.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 2 under the appropriate material defect entry.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 3 under the appropriate material defect entry.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 4 under the appropriate material defect entry.

Wearing Surface

Element Number	Element Name
510	Wearing Surface

Wearing Surface - Condition State Definitions				
Defect	**CS 1 – Good**	**CS 2 - Fair**	**CS 3 - Poor**	**CS 4 - Severe**
Delamination / Spall / Patched Area / Pothole 3210	None.	Delaminated. Spall less than 1 in. deep or less than 6 in. diameter. Patched area that is sound. Partial depth pothole.	Spall 1 in. deep or greater or 6 in. diameter or greater. Patched area that is unsound or showing distress. Full depth pothole.	The wearing surface is no longer effective.
Crack 3220	Width less than 0.012 in. or spacing greater than 3.0 ft.	Width 0.012–0.05 in. or spacing of 1.0–3.0 ft.	Width of more than 0.05 in. or spacing of less than 1.0 ft.	
Effectiveness 3230	Fully effective. No evidence of leakage or further deterioration of the protected element.	Substantially effective. Deterioration of the protected element has slowed.	Limited effectiveness. Deterioration of the protected element has progressed.	
Damage 7000	Not applicable.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 2 under the appropriate material defect entry.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 3 under the appropriate material defect entry.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 4 under the appropriate material defect entry.

Steel Protective Coating

Element Number	Element Name
515	Steel Protective Coating

Steel Protective Coating - Condition State Definitions				
Defect	**CS 1 - Good**	**CS 2 - Fair**	**CS 3 - Poor**	**CS 4 - Severe**
Chalking 3410	None.	Surface Dulling.	Loss of Pigment.	Not Applicable.
Peeling / Bubbling / Cracking 3420	None.	Finish coats only.	Finish and primer coats.	Exposure of bare metal.
Oxide Film Degradation Color / Texture Adherence (weathering steel patina) 3430	Yellow-orange or light brown for early development. Chocolate-brown to purple-brown for fully developed. Tightly adhered, capable of withstanding hammering or vigorous wire brushing.	Granular texture.	Small flakes, less than 1/2 in. diameter.	Dark black color. Large flakes, 1/2 in. diameter or greater or laminar sheets or nodules.
Effectiveness 3440	Fully effective.	Substantially effective.	Limited effectiveness.	Failed, no protection of the underlying metal
Damage 7000	Not applicable.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 2 under the appropriate material defect entry.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 3 under the appropriate material defect entry.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 4 under the appropriate material defect entry.

Concrete Reinforcing Steel Protective Systems

Element Number	Element Name
520	Concrete Reinforcing Steel Protective System

Concrete Reinforcing Steel Protective Systems				
Defect	**CS 1 - Good**	**CS 2 - Fair**	**CS 3 - Poor**	**CS 4 - Severe**
Effectiveness 3600	Fully effective.	Substantially effective.	Limited effectiveness.	The protective system has failed or is no longer effective.
Damage 7000	Not applicable.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 2 under the appropriate material defect entry.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 3 under the appropriate material defect entry.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 4 under the appropriate material defect entry.

Concrete Protective Coating

Element Number	Element Name
521	Concrete Protective Coating

Concrete Protective Coating - Condition State Definitions				
Defect	**CS 1 - Good**	**CS 2 - Fair**	**CS 3 - Poor**	**CS 4 - Severe**
Wear 3510	None.	Underlying concrete not exposed, coating showing wear from UV exposure, friction course missing.	Underlying concrete is not exposed, thickness of the coating is reduced.	Underlying concrete exposed, treated cracks are exposed.
Chalking 3520	None.	Surface Dulling.	Loss of Pigment.	Not Applicable.
Peeling / Bubbling / Cracking 3530	None.	Finish coats only.	Finish and primer coats.	Exposure of bare concrete.
Effectiveness 3540	Fully effective.	Substantially effective.	Limited effectiveness.	The protective system has failed or is no longer effective.
Damage 7000	Not applicable.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 2 under the appropriate material defect entry.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 3 under the appropriate material defect entry.	The element has impact damage. The specific damage caused by the impact has been captured in condition state 4 under the appropriate material defect entry.

Alabama Department of Transportation – Maintenance Bureau

2014 Bridge Element Inspection