Belmont County 2019 INVENTORY, APPRAISAL & INSPECTION SNAPSHOT

		NBIS COUNT
NBIS Bridges > 20'		**161**
Bridges 10'-20'		**115**
		276
Possible NBIS length errors	7	

Item 221	**Inspection Responsibility**	**CODE**	**COUNT**	**%**
	County	3	161	100.0%
Item 21	**Maintenance responsibility**			
	County	3	161	100.0%
	City or other local	4	0	0.0%
	Railroad	6	0	0.0%
	Private	7	0	0.0%
	Combination	8	0	0.0%
	ODNR	A	0	0.0%
	Park District	C	0	0.0%
	Township	F	0	0.0%
			161	100.0%
Item 42A	***Type service on bridge**			
	Other	0	0	0.0%
	Highway	1	159	98.8%
	Railroad	2	0	0.0%
	Ped/Bikeway	3	2	1.2%
	Hwy/RR	4	0	0.0%
	Hwy/Ped	5	0	0.0%
	RR Abnd. rails rem'vd	A	0	0.0%
			161	100.0%
Item 42B	**Type service under bridge**			
	Hwy w/ or w/o Ped	1	0	0.0%
	Railroad	2	0	0.0%
	Ped/Bkwy	3	0	0.0%
	Hwy w/ RR	4	0	0.0%
	Waterway	5	161	100.0%
	Hwy/Waterway	6	0	0.0%
	RR/Waterway	7	0	0.0%
	Hwy/Wtrway/RR	8	0	0.0%
	Relief (RR w/o tracks)	9	0	0.0%
			161	100.0%

ITEMS	Structure Type (Items 43A, 43B, 43C)	CODE	COUNT	%
	concrete slab simple	111	7	4.3%
	concrete slab continuous	112	4	2.5%
	concrete beam simple	121	4	2.5%
	concrete arch deck	153	6	3.7%
	concrete girder thru	164	1	0.6%
	concrete frame simple	171	7	4.3%
	concrete culvert filled	195	2	1.2%
	prestressed conc. box beam simple	231	77	47.8%
	prestressed conc. box beam continuous	232	3	1.9%
	steel beam simple	321	31	19.3%
	steel beam continuous	322	3	1.9%
	steel arch deck	353	1	0.6%
	steel girder thru	364	2	1.2%
	steel culvert filled	395	3	1.9%
	timber truss thru	444	1	0.6%
	stone arch deck	553	1	0.6%
	steel truss (pony)	34A	8	5.0%
			161	100.0%

PBB not really continuous

Item 92A	*Fracture Critical	CODE	COUNT	%
	fracture critical member	Y	10	6.2%
	fracture critical member	N	134	83.2%
			144	89.4%
	No. of steel trusses and girders	10 34x, 36x	10	

*See BEL Missing Data Document

Item 113	Scour			
	Bridge not over waterway	N	0	0.0%
	unknown foundation	U	0	0.0%
	over tidal waters	T	0	0.0%
	foundations on dry land	9	0	0.0%
	stable above footing	8	153	95.0%
	countermeasures installed	7	0	0.0%
	no scour evaluation made	6	0	0.0%
	stable within footer limits	5	8	5.0%
	stable action needed	4	0	0.0%
	scour critical - unstable	3	0	0.0%
	scour critical - scour present	2	0	0.0%
	scour critical - failure imminent	1	0	0.0%
	scour critical - bridge failed	0	0	0.0%
			161	100.0%

Scour Photos done?

Item 92B	*Underwater	CODE	COUNT	%
	requires dive inspection	N	144	89.4%
	requires dive inspection	Y	0	0.0%
	dive inspection dates		0	0.0%
			144	89.4%

*See BEL Missing Data Document

Item 709	*Plan Information	CODE	COUNT	%
	no plans	0	14	8.7%
	plans available	1	109	67.7%
	field information	2	36	22.4%
	not applicable	N	0	0.0%
			159	98.8%

*See BEL Missing Data Document

Item 63	*Documented Engineering Judgment			COUNT	%
	Field Eval & Doc EJ*			11	6.8%
	Rating Code in Error	D and F	0 171 or 195	0	

BR_100 for these bridges?

ITEMS	*Rating Factor (Items 64, 66)	COUNT	%
	Inventory RF >= Operating RF	0	0.0%
	Op RF < 0.61 not Posted	0	0.0%
	Op RF in tons for Eng Judgment	0	0.0%

Item 580	Deep Culverts (depth of fill)		COUNT	%
	Culvert	fill>6.5'	0	0.0%

Items	195 Culvert vs 171 Frame (Items 43A, 43B, 43C)	COUNT	%
	# that do NOT meet the 2' Rule	0	0.0%

Item 63	*Method of Analysis	CODE	COUNT	%
	Field Eval & Doc. Eng Judgment	0	11	6.8%
	Load testing	4	0	0.0%
	No Rating done	5	1	0.6%
	Load Factor (LF)	6	89	55.3%
	WS or AS	7	0	0.0%
	Load & Resistance Factor	8	60	37.3%
	Assigned Rating (LFR) HS20	D	0	0.0%
	Assigned Rating (LRFR) HL93	F	0	0.0%
	Not applicable (Ped, RR, Bldg)	X	0	0.0%
			161	

REMINDER:

Load Factor required for bridges built after 1993 (with certain exceptions)

LRFR required for bridges built after 2010

Inspection Condition Data - BR 86 NBIS Bridges Only

Item 41 *Operating Status	CODE	COUNT	%
Open, No restriction	A	139	86.3%
Open, posting recommended	B	0	0.0%
Open, Half width construction	C	0	0.0%
Open because of temporary fix	D	0	0.0%
Open using temporary structure	E	0	0.0%
New struture not yet open	G	0	0.0%
closed for load capacity reason*	K	1	0.6%
Posted for load capacity*	P	20	12.4%
Posted for other than load	R	0	0.0%
Closed for other than load	X	1	0.6%
		161	100.0%

Posting within 90 days?
Able to post within 30 days?

Performance		General Appraisal		CODE		COUNT	%
		9	Excellent	9		7	4.3%
GOOD	46.6%	8	Very good	8		28	17.4%
		7	Good	7		40	24.8%
FAIR	49.1%	6	Satisfactory	6		46	28.6%
		5	Fair	5		33	20.5%
		4	Poor	4		7	4.3%
POOR	4.3%	3	Serious	3		0	0.0%
		2	Critical	2	K	0	0.0%
		1	Imminent Failure	1	K	0	0.0%
		0	Closed	0	K	0	0.0%
	100.0%					161	100.0%

FHWA Performance Measures

Performance		% Deck Area			Lowest of GA or Deck	COUNT	Deck s.f
			3.6%	9	Excellent	8	7,729
GOOD		**56.0%**	20.0%	8	Very good	38	42,780
			32.4%	7	Good	54	69,352
FAIR		**29.8%**	21.6%	6	Satisfactory	27	46,288
			8.2%	5	Fair	17	17,487
			3.5%	4	Poor	4	7,577
POOR		**14.2%**	0.0%	3	Serious	0	0
			0.0%	2	Critical	0	0
			0.0%	1	Imminent Failure	0	0
			10.7%	0	Closed	13	22,863
		100.0%	100.0%			161	214,076

Items	AGE of BRIDGES	(Items 27, 106)	YEAR (built or rehab)	COUNT	
			-1900	1	0.6%
			1901-1910	0	0.0%
			1911-1920	1	0.6%
			1921-1930	6	3.7%
			1931-1940	9	5.6%
			1941-1950	11	6.8%
			1951-1960	3	1.9%
			1961-1970	4	2.5%
			1971-1980	7	4.3%
			1981-1990	5	3.1%
			1991-2000	33	20.5%
			2001-2010	34	21.1%
			2011-2020	47	29.2%
				161	100.0%

Load Rating Errors		COUNT
	GVW	1
	Equal RFs	3
	RFs not actual	55

Load Ratings Due		COUNT
	due by 2019	0
	due by 2020	18
	On HOLD	7

(C)	Compliant
(SC)	Substantially Compliant
(CC)	Conditionally Compliant (Adhering to approved pan of corrective action)
(NC)	Not Compliant

***METRIC 6 Insp. Frequency Routine**

Bridge Inspections Overdue		ACTUAL COUNT	% COMPLIANT	COMPLIANCE
NBIS -	24 months	0	100.0%	(C)
ORC -	Calendar Year	0	100.0%	(C)
BIM -	18 months	0	100.0%	(C)

METRIC 8 - Insp. Frequency Underwater

Dive Inspections Overdue	ACTUAL COUNT	% COMPLIANT	COMPLIANCE
60 months	0	N/A	(C)

METRIC 10 - Insp. Frequency FC Member

FC Inspections Overdue	ACTUAL COUNT	% COMPLIANT	COMPLIANCE
24 months	0	100.0%	(C)

METRIC 13 - Load Rating

Type of Metric check	Need for compliance	# Not Rated	% of NBIS Rated	COMPLIANCE
Deck, Super, Sub, Culvert Summary <=4	100%	0	100.0%	(C)
Operating Status = D or E	100%	0	100.0%	(C)
FC=Y	100%	0	100.0%	(C)
Operating Status = P or R	100%	0	100.0%	(C)
Bridges with no restrictions	100%	0	100.0%	(C)

METRIC 14 - Post or Restrict

Bridge posting/closing Follow-through	COUNT	% COMPLIANT	COMPLIANCE
Bridges below 10% legal but not closed	0	100.0%	(C)
Operating Rating Factor = 0 but not closed	0	100.0%	(C)
Bridges < 100% legal but not posted (OpStatus =A or R	0	100.0%	(C)
Bridges to be posted but aren't (Op Status code B)	0	100.0%	(C)

METRIC 22 - Inventory (partial review)

Structure Length	ACTUAL COUNT	COMPLIANCE
Number of bridges with length or span difference	0	depends on sample size
***Culvert Span**		
unusually long steel culvert spans	0	depends on sample size
***Location**		
Item 9 Location	2	depends on sample size
missing coordinates	0	depends on sample size

PRELIMINARY FHWA 23 Metric Matrix

23 metrics used by FHWA to measure NBIS compliance

Compliance Codes for the following Metrics:

(C) Compliant
(SC) Substantially Compliant
(CC) Conditionally Compliant (Adhering to approved PCA)
(NC) Not Compliant

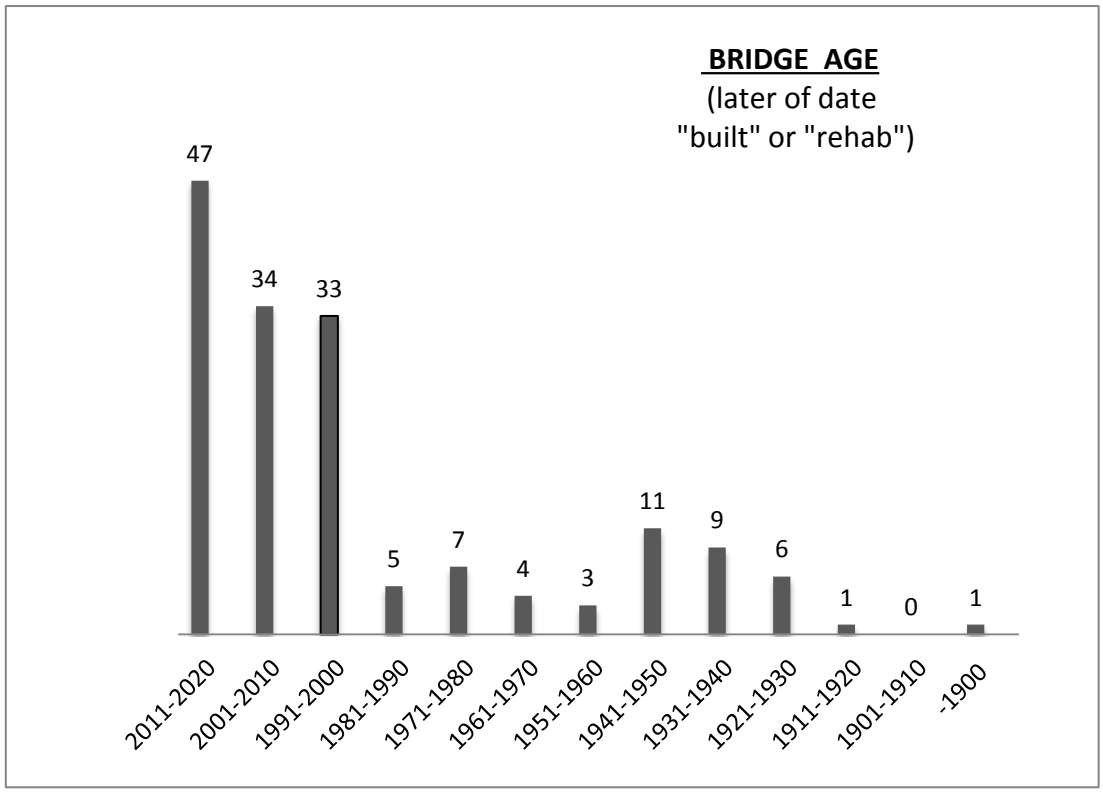
Metric	Description	(C)	(SC)	(CC)	(NC)
1	State Bridge Inspection Organization				
2	Program Manager Qualification				
3	Team Leader Qualification				
4	Load Rating Engineer Qualification				
5	UW Bridge Inspection Diver Qualification				
6	Routine Inspection Frequency - Low Risk				
7	Routine Inspection Frequency - High Risk				
8	UW Inspection Frequency - Low Risk				
9	UW Inspection Frequency - High Risk				
10	FC Inspection Frequency				
11	Frequency Criteria				
12	Inspection Quality **				
13	Load Rating				
14	Posted or Restricted Bridges				
15	Bridge Files				
16	FC Bridges				
17	UW inspection procedures				
18	Scour Critical Bridges				
19	Complex Bridges				
20	QC/QA				
21	Critical Findings				
22	Inventory **				
23	Updating of Data				

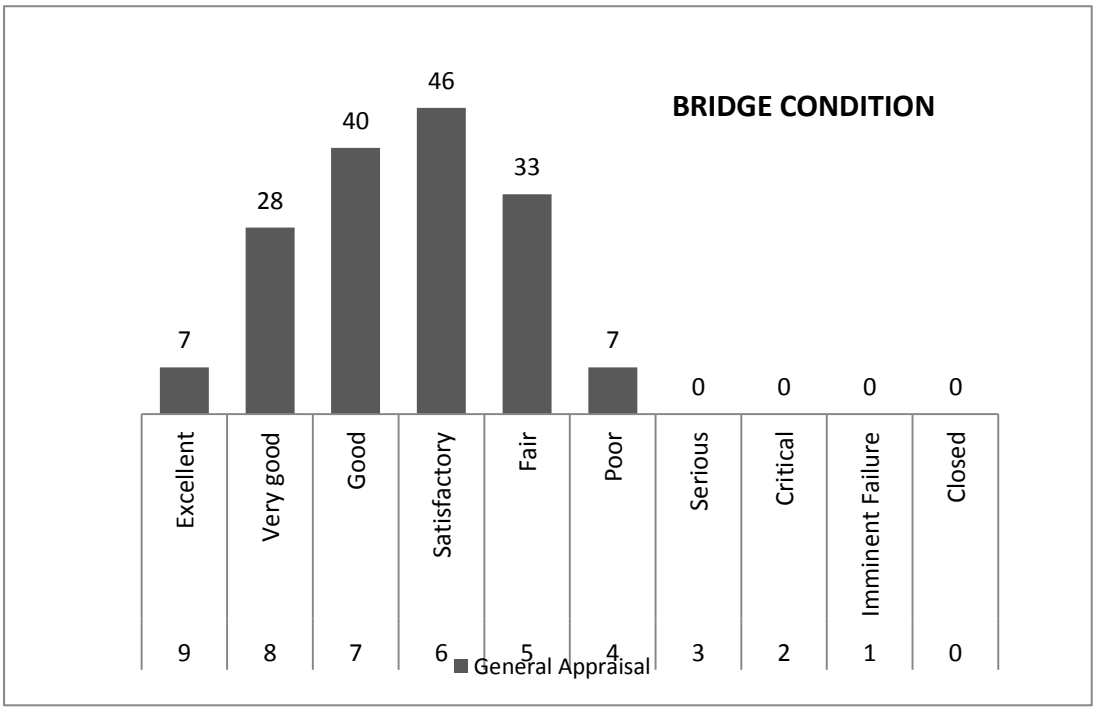
** based on results of Field Review

Metric	Action Needed
16	Create detailed FC Inspection Procedure for each FC bridge

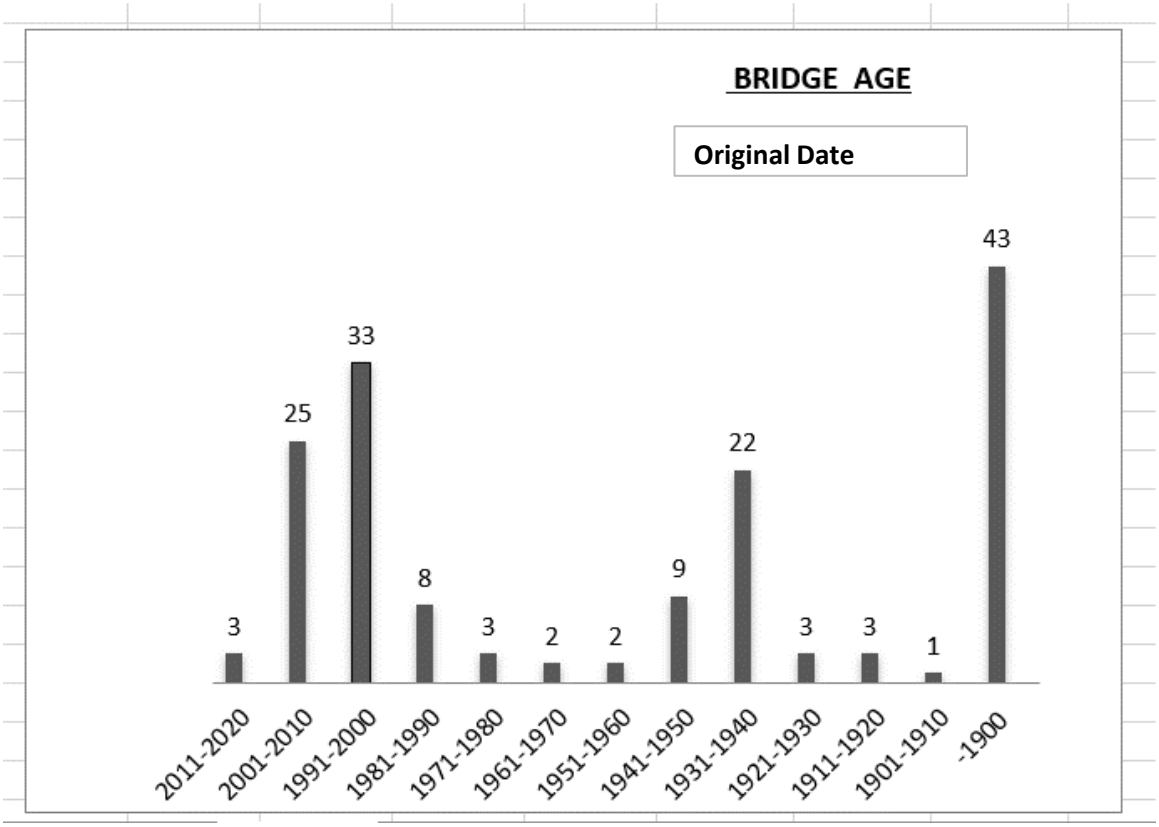
AGE VS. CONDITION

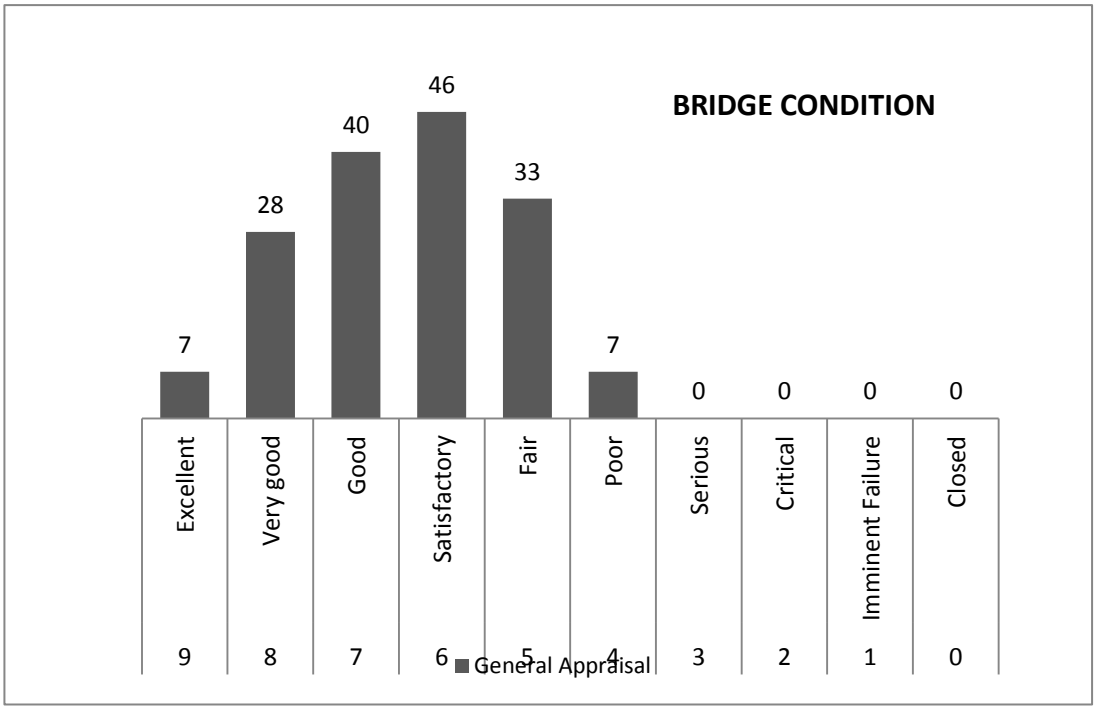
Overall Shape of AGE and CONDITION graphs typically mirror each other





AGE VS. CONDITION





GENERAL APPRAISAL COMPARISON