Highland County 2019 INVENTORY, APPRAISAL & INSPECTION SNAPSHOT

Inventory Data - NBIS Bridges Only

	NBIS COUNT
NBIS Bridges > 20'	164
Bridges 10'-20'	116
	280

*Possible NBIS length errors	3

Item 221	Inspection Responsibility	CODE	COUNT	%
	County	3	164	100.0%
Item 21	**Maintenance responsibility**			
	County	3	164	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%
			164	100.0%
Item 42A	**Type service on bridge**			
	Other	0	0	0.0%
	Highway	1	164	100.0%
	Railroad	2	0	0.0%
	Ped/Bikeway	3	0	0.0%
	Hwy/RR	4	0	0.0%
	Hwy/Ped	5	0	0.0%
			164	100.0%
Item 42B	***Type service under bridge**			
	Hwy w/ or w/o Ped	1	0	0.0%
	Railroad	2	3	1.8%
	Ped/Bkwy	3	0	0.0%
	Hwy w/ RR	4	0	0.0%
	Waterway	5	161	98.2%
	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%
			164	100.0%

ITEMS	*Structure Type (Items 43A, 43B, 43C)	CODE	COUNT	%
	concrete slab other	110	1	0.6%
	concrete slab simple	111	2	1.2%
	concrete slab continuous	112	5	3.0%
	concrete beam continuous	122	1	0.6%
	concrete box beam simple	131	3	1.8%
	concrete frame simple	171	4	2.4%
	concrete culvert filled	195	6	3.7%
	prestressed conc. slab other	210	1	0.6%
	prestressed conc. beam simple	221	2	1.2%
	prestressed conc. box beam simple	231	61	37.2%
	prestressed conc. box beam continuous	232	10	6.1%
	steel beam simple	321	57	34.8%
	steel beam continuous	322	7	4.3%
	steel truss deck	343	3	1.8%
	steel culvert filled	395	1	0.6%
			164	100.0%

Item 92A	*Fracture Critical	CODE	COUNT	%
	fracture critical member	Y	3	1.8%
	fracture critical member	N	159	97.0%
			162	98.8%
	No. of steel trusses and girders	3 34x, 36x	3	
			2 Blank	

Item 113	Scour			
	Bridge not over waterway	N	3	1.8%
	unknown foundation	U	0	0.0%
	over tidal waters	T	0	0.0%
	foundations on dry land	9	16	9.8%
	stable above footing	8	134	81.7%
	countermeasures installed	7	0	0.0%
	no scour evaluation made	6	0	0.0%
	stable within footer limits	5	11	6.7%
	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%
			164	100.0%

Item 92B	*Underwater	CODE	COUNT	%
	requires dive inspection	N	162	98.8%
	requires dive inspection	Y	0	0.0%
	dive inspection dates		0	0.0%
			162	98.8%
			2 Blank	

Item 709	Plan Information	CODE	COUNT	%
	no plans	0	1	0.6%
	plans available	1	163	99.4%
	field information	2	0	0.0%
	not applicable	N	0	0.0%
			164	100.0%

Item 63	*Documented Engineering Judgment			COUNT	%
	Field Eval & Doc EJ			1	0.6%
	Rating Code in Error	D and F	0 171 or 195	0	

BR_100 for these bridges?

Item 580	*Deep Culverts	(depth of fill)	COUNT	%
	Culvert	fill>6.5'	2	1.2%

Items	*195 Culvert vs 171 Frame	(Items 43A, 43B, 43C)	COUNT	%
	# that do NOT meet the 2' Rule		1	0.6%

Item 63	*Method of Analysis	CODE	COUNT	%
	Field Eval & Doc. Eng Judgment	0	1	0.6%
	Load testing	4	0	0.0%
	No Rating done	5	0	0.0%
	Load Factor (LF)	6	147	89.6%
	WS or AS	7	0	0.0%
	Load & Resistance Factor	8	16	9.8%
	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%
			164	100.0%

REMINDER:

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

LRFR required for bridges built after 2010

Inspection Condition Data - NBIS Bridges Only

Item 41	*Operating Status		CODE	COUNT	%
		Open, No restriction	A	156	95.1%
		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	0	0.0%
		Posted for load capacity	P	8	4.9%
		Posted for other than load	R	0	0.0%
		Closed for other than load	X	0	0.0%
				164	100.0%

	General Appraisal		CODE		COUNT	%
		Excellent	9		8	4.9%
GOOD	61.0%	Very good	8		78	47.6%
		Good	7		14	8.5%
FAIR	37.2%	Satisfactory	6		59	36.0%
		Fair	5		2	1.2%
POOR	1.8%	Poor	4		3	1.8%
		Serious	3		0	0.0%
		Critical	2	K	0	0.0%
		Imminent Failure	1	K	0	0.0%
		Closed	0	K	0	0.0%
					164	100.0%

FHWA Performance Measures

Performance	% Deck Area			Lowest of GA or Deck	COUNT	Deck s.f
		4.7%	9	Excellent	8	11,681
GOOD	64.4%	48.5%	8	Very good	70	121,281
		11.2%	7	Good	20	28,048
FAIR	33.6%	32.6%	6	Satisfactory	61	81,544
		1.0%	5	Fair	2	2,540
POOR	1.9%	1.9%	4	Poor	3	4,828
		0.0%	3	Serious	0	0
		0.0%	2	Critical	0	0
		0.0%	1	Imminent Failure	0	0
		0.0%	0	Closed	0	0
	100.0%	100.0%			164	249,922

Items	AGE of BRIDGES	(Items 27, 106)	YEAR (built or rehab)	COUNT	
			-1900	0	0.0%
			1901-1910	0	0.0%
			1911-1920	0	0.0%
			1921-1930	0	0.0%
			1931-1940	0	0.0%
			1941-1950	1	0.6%
			1951-1960	2	1.2%
			1961-1970	8	4.9%
			1971-1980	26	15.9%
			1981-1990	39	23.8%
			1991-2000	41	25.0%
			2001-2010	31	18.9%
			2011-2020	16	9.8%
				164	100.0%

Load Rating Errors	COUNT

Load Ratings Due	COUNT
SHV due end 2020 DONE	12
SHV Load Ratings Due end 2020	25
EV Load Ratings DONE	1
EV Load Ratings Due end 2022 ON HOLD	16
EV Load Ratings needed because of date	0

(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	4	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
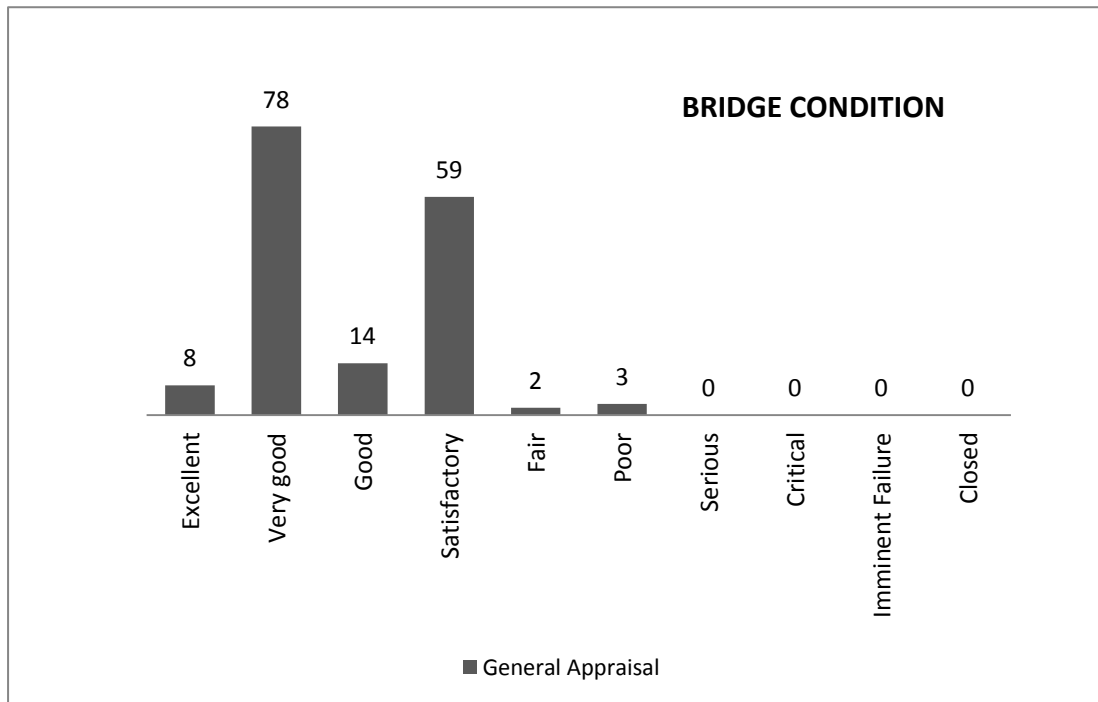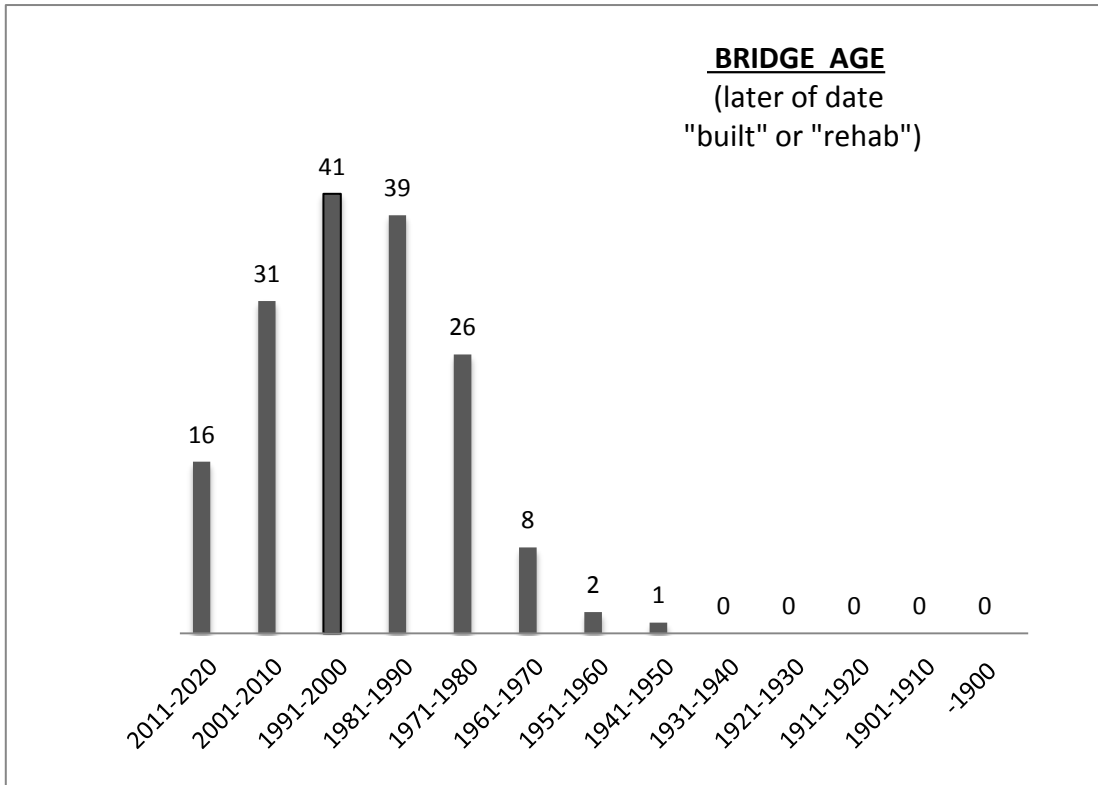**(CC)** Conditionally Compliant (Adhering to approved PCA)
(NC) Not Compliant

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
12	need detailed comments when GA<=5,
16	add FCMs and FPDs to FC files. Do gusset plate load ratings on all trusses w/ GPs

AGE VS. CONDITION
Overall Shape of AGE and CONDITION graphs typically mirror each other

BRIDGE AGE
(later of date
"built" or "rehab")

BRIDGE CONDITION

■ General Appraisal

GENERAL APPRAISAL COMPARISON

NBIS Bridges

- HIG NBIS bridges
- 88 Counties Mar 2015
- ODOT Mar 2015

X-axis: General Appraisal
Y-axis: % of Bridges

All Bridges 10' & Larger

- HIG All bridges
- 88 Counties Mar 2015
- ODOT Mar 2015

X-axis: General Appraisal
Y-axis: % of Bridges