



Memorandum

Subject: **ACTION:** National Bridge Inspection
Standards – Scour Evaluation and Plans of
Action for Scour Critical Bridges
(Reply Due: February 29, 2008)
/s/ Original Signed by

Date: January 4, 2008

From: King W. Gee
Associate Administrator for Infrastructure

In Reply Refer To: HIBT-20

To: John R. Baxter
Associate Administrator for
Federal Lands Highway Program

The purpose of this memorandum is to request your assistance towards ensuring that Federal Agencies (referenced herein as bridge owners) complete the scour evaluation of their bridges over waterways (riverine and tidal). Also, we request your assistance towards ensuring that bridge owners develop and implement a Plan of Action (POA) for each bridge identified as scour critical to meet the requirement set forth in the National Bridge Inspection Standards (NBIS) regulation, [23 CFR 650.313\(e\)\(3\)](#).

Status of Bridge Scour Evaluations and POAs for Scour Critical Bridges:

Bridge owners have been working for several years towards the evaluation of their bridges over waterways to determine foundation vulnerability against stream instability and scour. We must, however, make sure that bridge owners complete the evaluation of all bridges over waterways for their vulnerability to stream instability and scour. As of August 2007, bridge owners reported on their National Bridge Inventory (NBI) data submission a total of 3,252 bridges over waterways that still remain to be evaluated as for their scour vulnerability. These are bridges that have been coded 6, T, or Null for Item 113 of the NBI. The FHWA established a target date of January 1997 for completing all scour evaluations by memorandum dated July 15, 1991; however, as the NBI data shows, we still have work to do to complete this important component of the NBIS. Table 1 presents the number of bridges over waterways on the National Highway System (NHS) and the non-NHS that still need a scour evaluation. Another 238 bridges over waterways identified by bridge owners as having unknown foundations remain to be evaluated for their scour vulnerability as of August 2007. We will address the subject of unknown foundations, including a process developed by the FHWA's Office of Bridge Technology to identify bridge foundations characteristics under a separate memorandum.



Item 113 Code	NHS	Non-NHS	Total
6	92	3,096	3,188*
T	0	64	64
Total	92	3,160	3,252

* Includes 555 bridges not coded for Item 113.

With regards to POAs for scour critical bridges, the NBIS regulation, [23 CFR 650.313\(e\)\(3\)](#), enacted January 13, 2005, requires that bridge owners prepare a POA to monitor both known and potential deficiencies and to address critical findings for bridges identified to be scour critical. The FHWA's Office of Bridge Technology issued a memorandum dated March 29, 2005, which advised FHWA's field offices of the January 13, 2006, target date for implementing the requirements of the NBIS regulation. In a follow-up memorandum dated March 23, 2006, the Office of Bridge Technology requested the FHWA's field offices to report by May 5, 2006, on their corresponding bridge owners' implementation plan, which should have included a schedule for developing a POA. To date, we have not received a response from Federal bridge owners.

Table 2 shows that bridge owners reported 128 bridges over waterways as scour critical based on the observed scour condition at one or more of the bridge foundations (code 0, 1, or 2 for Item 113). Also, Table 2 shows that bridge owners reported 173 bridges over waterways as scour critical based on the assessed or calculated scour depths that, if developed, would make one or more of the bridge foundations unstable (code 3 for Item 113). A State-by-State breakdown for NBI Item 113 by NHS and non-NHS is presented in Attachment A.

Scour Condition	Item 113 Code	NHS	Non-NHS	Total
	Observed	0	0	4
	1-2	0	124	124
Total Observed		0	128	128
Total Assessed or Calculated	3	1	172	173
Total Scour Critical Bridges		1	300	301

The FHWA's role and responsibility is to ensure that bridge owners complete the scour evaluations of all their remaining bridges over waterways, and that they develop, implement and maintain a POA for each of their bridges over waterways identified as scour critical to comply with the NBIS regulation.

Actions Requested:

After consulting with the FHWA Office of Chief Counsel and conducting a thorough review of the NBI database, there are several bridges that appear to not be in compliance with the NBIS regulation regarding scour. Since bridge owners are responsible for overall NBIS compliance, we solicit your assistance to obtain the following information:

1. Verify with each Federal bridge owner manager official that they still have bridges that are vulnerable to scour.

If bridge owners confirm that they still have bridges that are vulnerable to scour (code 6, T, or Null), we request that you notify them that their jurisdiction is not in compliance with [23 CFR 650.313\(e\)](#). Noncompliance could lead to suspension of Federal-aid highway funds. Bridge owners that confirm having bridges that are vulnerable to scour must provide the following schedule to avoid possible suspension of Federal-aid highway funds:

- Schedule for completing the evaluation of all remaining scour vulnerable bridges within their jurisdiction. We recommend a target date of November 2008 for completing the scour evaluation of these bridges.

2. Verify with each Federal bridge owner manager official the number of scour critical bridges (code 0, 1, 2, or 3 for Item 113) reported in the NBI database.

If bridge owners confirm that they have scour critical bridges, we will appreciate it if your corresponding staff can make sure that bridge owners have developed and implemented POAs for each of their scour critical bridges. If bridge owners have not developed and implemented a POA for each of their scour critical bridges, we request that you notify them that their jurisdiction is not in compliance with [23 CFR 650.313\(e\)\(3\)](#). As we have already stated, noncompliance could lead to the suspension of Federal-aid highway funds. These bridge owners must provide the following schedules to avoid possible suspension of Federal-aid funds:

- Schedule for completing the development of all POAs for bridges identified as scour critical. We recommend a target date of November 2008.
- Schedule for completing the implementation of all POAs for bridges identified as scour critical. We recommend a target date of April 2009.

In addition, we request that bridge owners submit a status report to the FHWA Office of Bridge Technology every April and November on their progress made towards developing and implementing POAs. The status report should also include the following information:

- Percent of scour critical bridges with POAs developed, and

- Percent of scour critical bridges with POAs implemented.

Bridge owners must continue to submit their status report until all bridges identified as scour critical in their corresponding jurisdiction have POAs developed and implemented.

We ask for your assistance in obtaining the information requested on these action items from all bridge owners through your corresponding bridge owner manager official. When a bridge owner code is missing or coded unknown, we ask that you work with the corresponding bridge owner manager official to assign a proper owner code to the bridge record.

Please report the information requested herein regarding any actions taken by your office to verify that bridges owners have reviewed their NBI data as for the number of bridges needing a scour evaluation (code 6, T, or Null for Item 113), and for the number of scour critical bridges within their jurisdiction (code 0, 1, 2, or 3 for Item 113). Also, please provide the schedules for completing scour evaluations, and for developing and implementing POAs for scour critical bridges. We request that you submit this information to the FHWA Office of Bridge Technology by February 29, 2008.

We are providing additional guidance to assist you in compiling the information requested herein in the document titled “Guidance for Reporting Schedule for Completing Bridge Scour Evaluations and Plans of Action for Scour Critical Bridges” (see Attachment B).

Also, we request that you report progress on these actions using a Web-based template, which can be accessed online at: <http://staffnet.fhwa.dot.gov/bridge/attachmentc/>. Once all fields are completed on this Web-based template, a summary table similar to that presented in Attachment C will be automatically generated on the Web.

We need your immediate assistance to ensure compliance with this important component of the NBIS. If you have any questions please do not hesitate to contact Mr. Jorge E. Pagán-Ortiz, Principal Bridge Engineer – Hydraulics at (202) 366-4604, (jorge.pagan@dot.gov).

3 Attachments

Attachment A -- Item 113 Code for Federal NHS Bridges

	0	1	2	3	4	5	6	7	8	9	N	U	T	Null
AL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AK	0	0	0	0	0	0	21	0	1	3	0	0	0	0
AZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CA	0	0	0	0	0	1	23	18	1	2	0	0	0	0
CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DE	0	0	0	0	0	2	0	0	4	0	0	0	0	0
DC	0	0	0	0	0	0	0	0	4	0	0	0	0	0
FL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GA	0	0	0	0	0	0	0	0	2	1	2	0	0	0
HI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ID	0	0	0	0	0	0	1	0	2	0	1	0	0	0
IL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IN	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KY	0	0	0	0	0	0	0	0	2	1	0	0	0	0
LA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ME	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD	0	0	0	0	0	1	0	0	10	0	25	0	0	0
MA	0	0	0	0	0	0	0	0	2	0	0	0	0	0
MI	0	0	0	0	0	0	0	0	0	0	0	0	0	1
MN	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MT	0	0	0	0	0	0	0	0	1	0	0	0	0	1
NE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NV	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NH	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NC	0	0	0	0	0	0	0	0	0	0	4	0	0	0
ND	0	0	0	0	0	1	0	0	1	0	0	0	0	0
OH	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OK	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TN	0	0	0	0	0	0	0	0	1	4	0	0	0	0
TX	0	0	0	0	0	0	0	0	5	0	1	0	0	0
UT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VT	0	0	0	0	0	0	11	0	2	0	0	0	0	0
VA	0	0	0	0	2	0	2	0	5	0	3	0	0	0
WA	0	0	0	1	0	0	0	1	1	0	0	0	0	0
WV	0	0	0	0	0	0	0	0	1	0	0	0	0	0
WI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WY	0	0	0	0	2	22	0	2	2	0	0	0	0	32
PR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	0	0	0	1	4	27	58	21	47	11	36	0	0	34

Attachment A -- Item 113 Codes for Federal Non-NHS Bridges

	0	1	2	3	4	5	6	7	8	9	N	U	T	Null
AL	0	0	0	1	7	4	35	7	26	1	27	0	0	2
AK	0	0	0	1	1	9	108	3	14	49	0	2	1	13
AZ	1	0	5	4	0	1	375	1	18	2	4	0	0	1
AR	0	0	1	0	2	3	77	1	19	10	2	2	0	40
CA	0	1	2	21	5	9	164	44	114	32	9	4	7	30
CO	0	0	1	2	3	16	46	4	67	7	1	13	0	73
CT	0	0	0	0	0	3	0	0	4	0	0	0	0	0
DE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DC	0	0	0	0	1	0	3	2	7	0	5	5	5	0
FL	0	0	0	0	0	1	23	0	9	0	1	30	2	41
GA	1	0	0	5	2	8	55	4	105	3	3	6	6	0
HI	0	0	0	0	0	0	4	0	18	0	0	0	1	0
ID	0	0	23	3	39	53	139	13	207	3	1	0	0	15
IL	0	0	0	1	1	2	26	2	8	1	2	1	0	0
IN	0	0	0	0	1	0	45	0	12	2	2	0	0	0
IA	0	0	0	0	0	0	10	0	26	0	0	5	0	0
KS	0	0	6	0	1	5	48	1	55	3	4	7	0	0
KY	0	0	1	1	1	0	6	4	43	9	6	0	0	4
LA	0	0	0	0	1	0	198	0	37	1	1	0	0	0
ME	0	0	1	0	0	0	3	0	9	1	13	0	2	0
MD	0	0	0	0	0	0	15	1	26	2	9	7	2	0
MA	0	0	0	0	0	7	0	1	12	0	0	0	0	0
MI	0	0	0	0	1	1	39	6	11	0	1	1	0	26
MN	0	0	0	1	0	5	42	2	35	0	0	0	0	2
MS	0	0	0	0	12	2	81	8	128	0	145	69	1	7
MO	0	0	0	0	2	1	5	10	49	4	0	1	0	3
MT	0	1	54	16	39	42	119	10	194	11	3	1	0	154
NE	0	0	0	0	0	0	12	0	7	1	2	1	0	0
NV	0	0	0	2	3	0	19	0	10	1	1	0	0	1
NH	0	0	0	1	1	2	23	3	20	0	0	0	2	0
NJ	0	0	0	0	2	4	1	4	8	0	0	4	0	0
NM	2	0	0	1	0	0	165	1	10	11	3	1	0	9
NY	0	1	2	2	4	4	1	8	21	0	5	4	0	0
NC	0	1	1	2	6	2	63	4	125	0	39	12	10	4
ND	0	0	0	0	0	5	12	1	30	0	1	1	0	1
OH	0	0	0	0	1	0	1	0	11	15	0	0	0	0
OK	0	0	0	3	0	0	20	3	52	0	1	1	0	9
OR	0	0	6	47	31	101	110	74	204	30	6	1	0	13
PA	0	0	0	1	2	2	29	9	32	0	1	6	0	0
RI	0	0	0	0	0	0	1	0	0	0	0	0	2	0
SC	0	0	0	0	0	0	20	4	9	3	0	0	2	0
SD	0	0	4	0	1	2	78	2	13	2	1	0	0	1
TN	0	0	4	0	20	3	32	17	192	4	57	4	0	5
TX	0	0	1	1	0	23	12	0	58	3	53	23	0	0
UT	0	0	1	1	3	36	26	9	38	7	0	1	0	15
VT	0	0	0	0	0	1	4	1	3	0	0	0	0	1
VA	0	0	0	0	2	0	85	8	69	4	96	13	19	2
WA	0	0	7	46	8	66	65	224	170	43	15	6	2	9
WV	0	0	0	0	2	0	21	4	22	5	1	0	0	0
WI	0	0	0	0	0	2	61	1	18	0	5	3	0	18
WY	0	0	0	9	3	10	48	12	69	9	3	3	0	22
PR	0	0	0	0	0	0	0	0	5	0	0	0	0	0
TOTALS	4	4	120	172	208	435	2,575	513	2,449	279	529	238	64	521

Attachment B

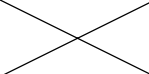
Guidance for Reporting Schedule for Completing Bridge Scour Evaluations and Plans of Action for Scour (POAs) Critical Bridges

- Schedule for completing the evaluation of all remaining scour vulnerable bridges (code 6, T, or Null for Item 113 of the NBI) within their jurisdiction.
 1. This must be a firm target date for completing the scour evaluations.
 - a) A target date of November 28, 2008 is recommended (e.g., The evaluation of all remaining scour vulnerable bridges identified by bridge owners will be completed by November 28, 2008).
 - b) Please make sure that bridges with a missing code (null code) on Attachment A are assigned a proper code for Item 113 after a scour evaluation is completed.
 2. Your office must review the proposed target date by each bridge owner and notify the FHWA Office of Bridge Technology of any action taken such as concurring or nonconcurring with the target date.
 - a) Bridge owners must consult with your office in the event that a previously concurred target date must be changed. Your office must review any information provided in support of the change and notify the FHWA Office of Bridge Technology of any further action(s) taken.
 3. Please continue to report on the progress made by bridge owners towards completing scour evaluations to the FHWA Office of Bridge Technology after your February 29, 2008, report. Bridge owners with less than 90 percent of their scour evaluations completed must report biannually in Calendar Year 2008 (April 30 and November 28), and owners with more than 90 percent of their scour evaluations completed must report by the November 28, 2008, target date.
- Schedule for completing the development of all POAs for bridges identified as scour critical.
 1. This must be a firm target date for completing the development of all POAs.
 - a) A target date of November 28, 2008, is recommended (e.g., A POA for each bridge identified as scour critical will be developed by November 28, 2008).
 2. Your office must review the proposed target date by each bridge owner and notify the FHWA Office of Bridge Technology of any action taken such as concurring or nonconcurring with the target date.
 - a) Bridge owners must consult with your office in the event that a previously concurred target date must be changed. Your office must review any information provided in support of the change and notify the FHWA Office of Bridge Technology of any further action(s) taken.
 3. The development of a POA means that bridge owners have held meetings involving the appropriate personnel from internal units within their corresponding agency (design, construction, inspection and maintenance, districts and others as

- applicable) and with external entities (local authorities such as a commissioner, police department, fire department and others as needed) to identify and document:
- a) General information about the bridge, responsibility for POA, scour vulnerability, recommended countermeasure(s) or alternatives, NBI coding information, countermeasure selection(s) including priority ranking and cost, bridge closure plan, detour route and any other supportive information.
4. Guidance for developing POAs for scour critical bridges is presented in the FHWA's POA training seminar, which was distributed on a CD-ROM to our field offices by memorandum dated May 22, 2007, (see copy of this memorandum at <http://www.fhwa.dot.gov/engineering/hydraulics/bridgehyd/20070522.cfm>). Copies of this CD-ROM can be obtained from NHI at the following Web site: http://www.nhi.fhwa.dot.gov/training/NHIStoreSearchResults.aspx?get=&COURSE_NO=135085&KEYWORD=&TITLE=. In addition, the POA training seminar is available online at no cost at <http://fhwa.acrobat.com/n135085seminar>.
- Schedule for completing the implementation of all POAs for bridges identified as scour critical.
 1. This must be a firm target date for completing the implementation of all POAs.
 - a) A target date of April 29, 2009, is recommended (e.g., A POA developed for each bridge identified as scour critical will be implemented by April 29, 2009).
 2. Your office must review the proposed target date by each bridge owner and notify the FHWA Office of Bridge Technology of any action taken such as concurring or nonconcurring with the date.
 - a) Bridge owners must consult with your office in the event that a previously concurred target date must be changed. Your office must review any information provided in support of the change and notify the FHWA Office of Bridge Technology of any further action(s) taken.
 3. The implementation of a POA means that bridge owners have completed disseminating POAs to the appropriate personnel within their internal offices/units and external entities and have met with these offices/units and with external entities to communicate:
 - a) General information and instructions contained in each POA (e.g., individuals responsible for the POA implementation, detour routes, when to close/open a bridge, countermeasure selection, and design and installation schedules).
 1. Bridge owners should make sure that responsible parties identified in the POA understand their roles and responsibilities and that they are provided with periodic training on the implementation of selected components of a POA such as bridge closure/opening procedures.
 - b) Frequency to conduct periodic reviews and updates of the information presented in a POA.
 - Percent of scour critical bridges with POAs developed by each bridge owner.
 1. Please report the percent of scour critical bridges that have been developed for Item 113 code 0-2, and for Item 113 code 3.
 2. Please continue to report progress after your February 29, 2008, report on a biannual basis (April and November) to the FHWA Office of Bridge Technology until POAs have been developed for each scour critical bridges.

3. We encourage bridge owners to prioritize the development of POAs for bridges coded 1 or 2 for Item 113 that are critical to the transportation system of a locality or region.
- Percent of scour critical bridges with POAs implemented by each bridge owner.
 1. Please report the percent of scour critical bridges that have been implemented for Item 113 code 0-2, and for Item 113 code 3.
 2. Please continue to report progress after your February 29, 2008, report on a biannual basis (April and November) until POAs have been implemented for each scour critical bridge.
 3. We encourage bridge owners to prioritize the implementation of POAs for bridges coded 1 or 2 for Item 113 that are critical for the transportation system of a locality or region.

Attachment C: Action Items for Scour Evaluations of Bridges over Waterways and POAs for Scour Critical Bridges

Federal Agency	System	Schedule for Completing all Bridge Scour Evaluations	Schedule for Completing the Development of All POAs	Schedule for Completing the Implementation of All POAs	Percent of Scour Critical Bridges with POAs Developed		Percent of Scour Critical Bridges with POAs Implemented	
					Codes 0-2	Code 3	Codes 0-2	Code 3
Bureau Of Indian Affairs	NHS							
	Non-NHS							
Bureau of Fish and Wildlife	NHS							
	Non-NHS							
U.S. Forest Service	NHS							
	Non-NHS							
National Park Service	NHS							
	Non-NHS							
Tennessee Valley Authority	NHS							
	Non-NHS							
Bureau of Reclamation	NHS							
	Non-NHS							
USACOE (Civil)	NHS							
	Non-NHS							
USACOE (Army)	NHS							
	Non-NHS							
Indian Tribal Government	NHS							
	Non-NHS							
Air Force	NHS							
	Non-NHS							
Navy/Marines	NHS							
	Non-NHS							
Metropolitan Washington Airport Services	NHS							
	Non-NHS							
Other Federal Agencies	NHS							
	Non-NHS							
	Name and Title of Individual Updating Action Items:			Telephone Number:			Report Date:	

