AMENDMENT OF SOLICITATION / MODIFICATION OF CONTRACT

[redacted]

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2. Amendment/Modification Number	3. Effective Date	4. Requisition/Purchase Request No.	5. Solicitation Caption
004	See Box 16C		***FY-15 CITYWIDE CONSULTANT BRIDGE INSPECTIONS***

6. Issued by: Code
District Department of Transportation
Office of Contracting and Procurement
55 M Street, SE, 7th Floor
Washington, DC 20003

7. Administered by (If other than line 6)

8. Name and Address of Contractor (No. street, city, county, state and zip code)

ALL PROSPECTIVE OFFERORS

Code Facility

X	9A. Amendment of Solicitation No. **DCKA-2015-Q-0023**
	9B. Dated (See Item 11)
	10A. Modification of Contractor/Order No.
	10B. Dated (See Item 13)

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in item 14. The hour and date specified for receipt of Offers ☒ is extended ☐ is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning _____1_____ copies of the amendment: (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) BY separate letter or fax which includes a reference to the solicitation and amendment number. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such may be made by letter or fax, provided each letter or telegram makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. Accounting and Appropriation Data (If Required):

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTORS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14

	A. This change order is issued pursuant to (Specify Authority): The changes set forth in Item 14 are made in the contract/order no. in item 10A.
	B. The above numbered contract/order is modified to reflect the administrative changes (such as changes in paying office, appropriation data etc.) set forth in item 14, pursuant to the authority of 27 DCMR, Chapter 36, Section 3601.2.
	C. This supplemental agreement is entered into pursuant to authority of:
	D. Other (Specify type of modification and authority)

E. IMPORTANT: Contractor ☐ is not ☒ is required to sign this document and return __1__ copies to the issuing office.

14. Description of Amendment/Modification (Organized by UCF Section headings, including solicitation/contract subject matter where feasible.)

Solicitation ***DCKA-2015-Q-0023*** is hereby amended as follows:

A. The proposal submission closing date has been extended to ***Monday, March 16, 2015***. The time and location of proposal submission remains unchanged.

15A. Name and Title of Signer (Type or print)		16A. Name of Contracting Officer Courtney Lattimore Contracting Officer	
15B. Name of Contractor (Signature)	15C. Date Signed	16B. District of Columbia (Signature of Contracting Officer)	16C. Date Signed 2/23/15

2. Amendment/Modification Number	3. Effective Date	4. Requisition/Purchase Request No.	5. Solicitation Caption
004	See Box 16C		***FY-15 CITYWIDE CONSULTANT BRIDGE INSPECTIONS***

B. All requests for information, including questions raised at pre-proposal conference regarding the subject solicitation must be received by 4:00pm on Thursday, February 26, 2015 at the following email address: cwbridge.inspect@dc.gov. Any RFIs received after that date will not be considered. The Department anticipates responding to all requests by Tuesday, March 3, 2015 via a subsequent amendment.

C. The planholders list/sign in sheet from the pre-proposal meeting, conducted on Monday, February 23, 2015 is hereby incorporated into the solicitation. See attached.

D. The form "Participation by Disadvantaged Business Enterprises and Non Disadvantaged Business Enterprise Firms is incorporated into the solicitation. See attached.

E. Register for DTAP site at: http://dashboard.ddot.dc.gov/ddotdashboard/#Home All solicitation documents are located on DDOT's DTAP site.

F. See attached incorporated documents:

Solicitation for Statement of Qualifications
Attachment J.1.3 - Scope of Work
Bridge Inspection Manual

SOLICITATION NO.: DCKA-2015-Q-0023

CAPTION: *FY-15 CITYWIDE CONSULTANT BRIDGE INSPECTIONS*

PRE-PROPOSAL CONFERENCE
Monday, February 23, 2015
10:00 AM
DDOT HEADQUARTERS
55 M STREET, SE, ROOM 748
WASHINGTON, DC 20003

SIGN IN SHEET

NAME	COMPANY NAME	TELEPHONE NUMBER/FAX NUMBER	EMAIL ADDRESS
JOE DiCARLO	WALLACE MONTGOMERY	410 4949093	JDiCARLO@WALLACEMONTGOMERY.COM
Sharon Bland	JMT, Inc.	202 420-1204	sbland@jmt.com
Joe Miller	JMT	410-316-2207	jmiller@jmt.com
Douglas Hutchison	JMT	443-903-8360	dhutchison@jmt.com
Ahmad FAQIRI	Pennoni	(302) 438-1242	afaqiri@pennoni.com
JACOB DOUGLASS	COLLINS	(703) 691-4841	JDOUGLASS@COLLINSENGR.com
Diyar Bozkurt	HNTB	571-969-8746	dbozkurt@hntb.com
ENDREA FRAZIER	LEGION DESIGN	(202) 540-5276	efrazier@legiondesign.com
JON WHITNEY	HNTB	703-969-8264	JWHITNEY@HNTB.com
VINCENT KUMORDZIE	CKR & ASSOC.	703-906-5708	VKUMORDZIE@CKRINC.com
Amir A. ARAB	PARSONS	(202) 631-1305	Amir.Arab@Parsons.com
Elliott Mandel	AECOM	(703) 340-3097	elliott.mandel@aecom.com
Chiyoke Ezekwe	Construction Quality Engineers	601-415-4036	EzekweCB@CQE-DC.com (OBE)
TEWOLDE IYOB	ALA	703 893 3104	TIYOB@ALAENGR.COM
DON GRABER	ALA	"	DGRABER@ALAENGR.COM
AFIS IDOWU	The Temple Group, Inc	202-528-3632	AIDOWU@thetemplegroup.com

SOLICITATION NO.: DCKA-2015-Q-0023

CAPTION: *FY-15 CITYWIDE CONSULTANT BRIDGE INSPECTIONS*

PRE-PROPOSAL CONFERENCE
Monday, February 23, 2015
10:00 AM
DDOT HEADQUARTERS
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WASHINGTON, DC 20003

SIGN IN SHEET

NAME	COMPANY NAME	TELEPHONE NUMBER/FAX NUMBER	EMAIL ADDRESS
JUAN C. ROCHA	Michael Baker Intl.	571-488-8233	jrocha@mbakerintl.com
JORDAN PITT	PARRISH & PARTNERS	(571) 385-2574	JPitt@parrishandpartners.com
Geoff Kolberg	STV Incorporated	410 281 2897	geoffrey.kolberg@stvinc.com
BRIAN McMAHON	PARSONS BRINCKERHOFF	202 412 0352	mcmahonb@pbworld.com
Inmar Badwan	T.Y. Lin International	703-245-5268	inmar.badwan@tylin.com
JIM GUINTHER	WHITMAN REQUARDT & ASSOC.	443-224-1583	jguinther@wrallp.com
C.K. DHANANJAYAN	THE TEMPLE GROUP, INC	202-822-6600	ckdhananjayan@thetemplegroup.com
David McDonald	Volkert	703 336-9453	david.mcdonald@volkert.com
Lisa Minor-Smith	DDOT	202 671 2262	lisa.smith@dc.gov/cwbridgeinspect@dc.gov

SOLICITATION NO.: DCKA-2015-Q-0023

CAPTION: *FY-15 CITYWIDE CONSULTANT BRIDGE INSPECTIONS*

PRE-PROPOSAL CONFERENCE
Monday, February 23, 2015
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DDOT HEADQUARTERS
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WASHINGTON, DC 20003

SIGN IN SHEET

NAME	COMPANY NAME	TELEPHONE NUMBER/FAX NUMBER	EMAIL ADDRESS
John BOGUE	PRIME AE	(443) 442-4341	jbogue@primeeng.com
S. Jayakumaran	SJH Eng. (DBE)	(232) 329-0500	sjay@sjheng.com
Michael Britt	Modjeski and Masters	(717) 790-9565	mfbritte modjeski.com
Lou Reynolds	Volkert, Inc.	(703) 642-8100	lou.reynolds@volkert.com
BRIAN HEPTING	RKK	(410) 462-9227	bhepting@rkk.com
MICHELE NANNA	DELON HAMPTON + ASSOC (CBE)	202.898.1999	MNANNA@DELONHAMPTON.com
Shahir Badr	Alpha Corporation	443-509-0357	shahir.badr@alphacorporation.com
RYAN NOLAN	HARDESTY & HANOVER	443 853 1848	rnolan@hardesty-hanover.com
GERALD ANEKWE	TEMPLE GROUP INC	202-872-6600	gamekwe@thetemplegroup.com
Russell Erekson	TEMPLE Group	202 822 6600	rerekson@thetemplegroup.com
ANTHONY Sheldon	Parsons Brinckerhoff	804 370 5635	SheldonAM@PSWorld.com
GAZAN BOZAI	HAKS	703-277-9525	GBOZAI@HAKS.NET

PARTICIPATION BY DISADVANTAGED BUSINESS ENTERPRISE AND NON-DISADVANTAGED BUSINESS ENTERPRISE FIRMS

Policy: The District Department of Transportation (DDOT) has established a Disadvantaged Business Enterprise (DBE) program in accordance with regulations of the U.S. Department of Transportation (DOT), 49 CFR Part 26. The District Department of Transportation (DDOT) has received Federal financial assistance from the Department of Transportation, and as a condition of receiving this assistance, the District Department of Transportation (DDOT) has signed an assurance that it will comply with 49 CFR Part 26.

It is the policy of the District Department of Transportation (DDOT) to ensure that DBEs are defined in part 26, have an equal opportunity to receive and participate in DOT-assisted contracts. It is also our policy:

- To ensure nondiscrimination in the award and administration of DOT - assisted contracts;
- To create a level playing field on which DBEs can compete fairly for DOT-assisted contracts;
- To ensure that the DBE Program is narrowly tailored in accordance with applicable law;
- To ensure that only firms that fully meet 49 CFR Part 26 eligibility standards are permitted to participate as DBEs;
- To help remove barriers to the participation of DBEs in DOT assisted contracts;
- To assist the development of firms that can compete successfully in the market place outside the DBE Program.

Lisa Gregory, Esq., Chief Office of Civil Rights has been delegated as the DBE Liaison Officer. In that capacity, the Chief Office of Civil Rights is responsible for implementing all aspects of the DBE program. Implementation of the DBE program is accorded the same priority as compliance with all other legal obligations incurred by the District Department of Transportation (DDOT) in its financial assistance agreements with the U.S. Department of Transportation.

The District Department of Transportation (DDOT) has disseminated this policy statement to the DDOT's Executive Team and all of the components of our organization. We have distributed this statement to DBE and non-DBE business communities that perform work for us on DOT-assisted contracts on The District Department of Transportation (DDOT) website and on the agency bidders' document.

Sincerely,

Leif A. Dormsjo
Acting Director, District Department of Transportation

Definitions -The following definitions apply to this contract:

A. **"Disadvantaged business"** means a small business concern, (a) which is at least fifty-one percent (51%) owned by one or more socially and economically disadvantaged individuals or in the case of any publicly owned business, at least fifty-one percent (51%) of the stock of which is owned by one or more socially and economically disadvantaged individuals; and (b) whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it.

B. **"Small business concern means"**, with respect to firms seeking to participate as DBEs in DOT-assisted contracts, a small business concern as defined pursuant to section 3 of the Small Business Act and Small Business Administration regulations implementing it (13 CFR part 121) that also does not exceed the cap on average annual gross receipts specified in § 26.65(b).

C. Socially and economically disadvantaged individual means any individual who is a citizen (or lawfully admitted permanent resident) of the United States and who is—

- Any individual who a recipient finds to be a socially and economically disadvantaged individual on a case-by-case basis.

- Any individual in the following groups, members of which are rebuttably presumed to be socially and economically disadvantaged:

- "Black Americans," which includes persons having origins in any of the Black racial groups of Africa;

- "Hispanic Americans," which includes persons of Mexican, Puerto Rican, Cuban, Dominican, Central or South American, or other Spanish or Portuguese culture or origin, regardless of race;

- "Native Americans," which includes persons who are American Indians, Eskimos, Aleuts, or Native Hawaiians;

- "Asian-Pacific Americans," which includes persons whose origins are from Japan, China, Taiwan, Korea, Burma (Myanmar), Vietnam, Laos, Cambodia (Kampuchea), Thailand, Malaysia, Indonesia, the Philippines, Brunei, Samoa, Guam, the U.S. Trust Territories of the Pacific Islands (Republic of Palau), the Commonwealth of the Northern Marianas Islands, Macao, Fiji, Tonga, Kiribati, Juvalu, Nauru, Federated States of Micronesia, or Hong Kong;

- "Subcontinent Asian Americans," which includes persons whose origins are from India, Pakistan, Bangladesh, Bhutan, the Maldives Islands, Nepal or Sri Lanka;
- Women;

- Any additional groups whose members are designated as socially and economically disadvantaged by the SBA, at such time as the SBA designation becomes effective.

The Contracting Officer shall make a rebuttable prerogative that individuals in the above groups are socially and economically disadvantaged. This prerogative shall be based on criteria set forth in 49 CFR Part 26. The Contracting Officer also may determine, on a case-by-case basis, that individuals who are not members of one of the above groups are socially and economically disadvantaged.

PROPMPT PAYMENT/DBE CONTRACT COMPLIANCE SYSTEM

Prompt Payment: The prime contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than ***no later than 7 days*** from the receipt of each payment the prime contract receives from The District Department of Transportation (DDOT) .The prime contractor agrees further to return retainage payments to each subcontractor within ***no later than 7 days*** after the subcontractors work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of the DDOT. This clause applies to both "DBE and non-DBE subcontracts." ***Failure to do so shall be grounds for appropriate action against the party involved (e.g.: findings of non-responsibility for future contracts and/or suspension and debarment).***

DBE Contract Compliance System: This contract is subject to contract compliance tracking, and the prime contractor and any subcontractors are required to provide any noted and/or requested contract compliance-related data electronically in the Contract Compliance System. The prime contractor and all subcontractors are responsible for responding by any noted response date or due date to any instructions or request for information, and to check the Contract Compliance System on a regular basis to manage contact information and contract records. The prime contractor is responsible for ensuring all subcontractors have completed all requested items and that their contact information is accurate and up-to-date. District DOT's Office of Civil Rights may require additional information related to the contract to be provided electronically through the system at any time before, during, or after contract award.

Information related to contractor access of the system will be provided to a designated point of contact with each contractor upon award of the contract. The Contract Compliance System is web-based and can be accessed at the following Internet address: https://ddot.dbesystem.com

The Prime must upload and report the following items:

- Prime must report all payments to DBE firms and all subcontractors to the Contract Compliance System by the 15th of the month for the previous month activity under this project. All payment must be reported on the Contract Compliance System monthly even if no activity for a month.
- Upload all signed agreements between the Prime and DBE firms well as the non-DBE subcontracts on the Contract Compliance System.
- Copies of all cancelled check payments to DBE firms should be forwarded to the Office of Civil Rights Mohammed.Kabir@dc.gov by the 15th of the month for the previous month activity. A form MUST be completed monthly even if no activity for a month. ***Failure to do so shall be grounds for appropriate action against the party involved (e.g.: findings of non-responsibility for future contracts and/or suspension and debarment).***

This online system allows vendors to actively support our efforts to achieve diversity participation, maintain accurate contact information, and report subcontractor payment details. As a Prime Vendor, you are required to log in to review and update certain specific information regarding payments to your subcontractors, and all contact information (name, address, phone, fax, email) for your firm and the subcontractors. You can also identify who in your firm should be our main contact for each of your contracts. To begin, follow the steps below:

1. Visit https://ddot.dbesystem.com. Follow the on-screen directions to **look up your account** and then access the secure system. Contact Customer Support via any of the system links if you have any questions while attempting to access your account.

2. **Review and update all contact and contract information** as necessary for your firm and subcontractors.

3. **Ask your subcontractors to log in** to review and confirm amount reported for each time period.

Your firm **MUST** log into the system to review and update the required information **within 10 business days.** Please be advised that as the Prime Vendor, you are responsible for ensuring that all required information is entered, that it is accurate, and that your subcontractors verify payments received. Failure to cooperate with the Office of Civil Rights may result in breach of contract.

Each month from contract award until close out you are also required to log-in and report payment information. Payment information is reported by completing the pending **Contract Audits** which can be accessed from your Dashboard by clicking on "Contract Audits". For each monthly audit, click on "Incomplete" in the Status column and report the amounts paid to each subcontractor during the month. You will also report the amount paid to you as the prime for the time period.

Repeat these steps for any additional incomplete audits on this or additional contracts that are assigned to you in the system.

You may also register for upcoming training sessions to learn more about system functionality, as well as classes that focus specifically on reporting payment to subcontractors. To register, click on "Training Classes" under Help & Tools from any screen in the system and click RSVP next to the "Contract Compliance Reporting – Vendor Training." You can also access the training classes without logging in here https://cookcounty.diversitycompliance.com/events.asp Additional information is available by clicking on the "Information for Vendors" link on the right-hand side of the home page under System Links.

There is no cost to Contractors for this service. You may add as many users to you your account as necessary to report and view contract compliance data (please do not share accounts between people). If you require technical assistance during the process, please use the online support form or email DDOT@dbesystem.com.

To obtain additional information on DBE Compliance, please contact the Office of Civil Rights

Mohammed Kabir, PHR/Sr. EO Local and Federal Compliance Officer
Office of Civil Rights
District Department of Transportation
55 M Street, SE, 3rd floor
Washington, DC 20003
(202) 299-2190
Mohammed.Kabir@dc.gov

CONTRACT ASSURANCE /DBE CONTRACT GOALS:

CONTRACT ASSURANCE

The Contractor, Sub-recipient, Sub-consultant or Subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out all the applicable requirements of 49 C.F.R. Part 26 in the award and administration of USDOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy, as DDOT deems appropriate.

Furthermore, Title VI of the Civil Rights Act of 1964 assures that no person or group of persons may, on the grounds of race, color, national origin, sex, age, handicap or disability, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any and all programs or activities administered by DDOT. For further information regarding Title VI, please contact the Office of Civil Rights, 55 M Street S.E. 3rd Floor. Washington, DC 20003. Our telephone number is: (202) 671-2620

The above information is applicable to every Contractor including every tier of sub-consultants, subcontractors, supplier or service providers on this project. It is the responsibility of the prime Contractor, and all sub-consultants, subcontractors, suppliers and service providers to ensure equal opportunity for all firms to participate on this project.

DBE CONTRACT GOLAS:

The bidder shall subcontract _____of the dollar value of the total amount of this DOT-assisted contract to qualified DBE subcontractors. A complete DBE plan containing a list of DBE firms to be utilized on this project or documentation demonstrating good faith efforts to meet the goal on this project must be submitted within five (5) working days subsequent to bid opening to:

DDOT
Office of Contracting and Procurement
55 M Street S.E. 7th Floor
Washington, DC 20003

Because a DBE contract goal has been established for this contract, only bidders who demonstrate good faith efforts to meet this goal will be considered responsive by doing either of the following:

(A) Providing a DBE Plan that includes documentation that it has obtained enough DBE participation to meet the goal; or
(B) Providing documentation that it has made adequate good faith efforts to meet the goal, even though it did not succeed.
(A) DBE Plan shall include, but is not limited to the following:

- The names and addresses of DBE firms that will participate in the contract;
- A description of the work that each DBE will perform;
- The dollar amount of the participation of each DBE firm participating;
- Written documentation of the bidder/offeror's commitment to use a DBE subcontractor whose participation it submits to meet a contract goal;
- Written confirmation from the DBE that it is participating in the contract as provided in the prime contractor's commitment; and
- If the contract goal is not met, evidence of good faith efforts, as described below shall be submitted.

(B) Documentation of Adequate Good Faith Efforts Bidders who are unable to document that it has obtained enough DBE participation to meet the goal, must provide documentation showing that it made adequate good faith efforts to meet the goal, even though it did not succeed.
Demonstrating good faith efforts means that the bidder must show that it took all necessary and reasonable steps to achieve a DBE goal or other requirement of this part which, by their scope, intensity, and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not fully successful.

The following is a list of types of actions which will be considered as part of the bidder's good faith efforts to obtain DBE participation. It is not intended to be a mandatory checklist, nor is it intended to be exclusive or exhaustive. Other factors or types of efforts may be relevant in appropriate cases.

- Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBEs who have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the DBEs to respond to the solicitation. The bidder must determine with certainty if the DBEs are interested by taking appropriate steps to follow up initial solicitations.

- Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own force.

- Providing interested DBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

- (a) Negotiating in good faith with interested DBEs. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBEs to perform the work.

(b) A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Prime contractors are not, however, required to accept higher quotes from DBEs if the price difference is excessive or unreasonable.

5. Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The contractor's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the contractor's efforts to meet the project goal.

6. Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or contractor.

7. Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.

8. Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and Federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBEs.

DDOT/WMATA DBE Directory:

Our DBE Directory is a great resource for our Prime Contractors to identify partners that are DBE Certificated with District Department of Transportation and Washington Metropolitan Area Transit Authority. Our DBE Directory is updated daily.

http://ddotfiles.com/db/DBE/dbe.php

If a proposed partner from the Prime Contractors is not in the DDOT DBE Directory. Please contact our office.

Leutisha Stills, Equal Opportunity/DBE Program Specialist
DDOT Office of Civil Rights
55 M Street, S.E., 3rd Floor
Washington, D.C. 20003
(202) 671-0479
Leutisha.Stills@dc.gov

Catherine Svoboda, DBE & Compliance Specialist
WMATA - DBE
600 Fifth Street, NW, 3C
Washington, DC 20001
202-962-1854
csvoboda@wmata.com
http://www.wmata.com/business/disadvantaged_business_enterprise/dbe_search.cfm

The above-referenced contract has DBE Utilization goals which you are required to meet as a material term of your contract. A Contractor's failure to carry out its commitment regarding DBE participation in the course of the Contract's performance may constitute a material breach of the Contract; and failure to meet commitments may result in withholding of payments under the Contract, contractual penalties, disqualification and any other remedy provided. It is the Contractor's responsibility to report on its DBE participation.

SOLICITATION FOR STATEMENTS OF QUALIFICATIONS

2015 CITYWIDE CONSULTANT BRIDGE INSPECTIONS
CONTRACT NO. DCKA-2015-0023
[TWO BASE YEARS PLUS TWO OPTION YEARS]

The District Department of Transportation (DDOT) is soliciting Standard Forms 330 from experienced Architect – Engineer firms. The forms will be used in selecting an A-E firm to perform National Bridge Inventory (NBI) and element level inspections of the District's bridges.

Consultant selection will be in accordance with the provisions of 27 DCMR Chapter 2620 through 2633. The firms will be evaluated in accordance with the evaluation criteria listed below. Work consists of performing detailed condition inspections and evaluations of District bridges in accordance with the DDOT Bridge Inspection Manual of Procedures and the National Bridge Inspection Standards suitable for entry into the DDOT Bridge Management (BrM, formerly Pontis) database. Included is conducting condition and element level inspections, reporting critical findings, inventory verification and updating, report preparation, providing all materials and equipment for access to structures, traffic control and other miscellaneous work necessary to complete the required tasks. The Consultant will also be required to perform requested load ratings, calculations, design temporary supports and retrofit details, conduct materials testing and instrumentation and make recommendations for repairs. The prospective consultant is expected to participate in a timely, seamless transition of bridge inspection services from the current bridge inspection consultant to their responsibility. The thoroughness, accuracy and quality of contract deliverables shall be equal to, or superior to current contract deliverables.

The evaluation criteria for selection will be:

1. The firm's specialized experience and technical expertise in bridge inspection contracts or contracts of similar nature.
2. The professional qualifications of the staff necessary for satisfactory completion of the required services.
3. Past performance on contracts of similar nature with the District, other governmental entities and private industry.
4. The firm's capacity to complete work within time limitations.
5. Familiarity of the firm's staff with applicable Federal and D.C. regulations, standards and procedures.

A panel of DDOT staff will conduct evaluations and make award recommendations to the Contracting Officer. Subsequent interviews with shortlisted firms will follow. Final selection will be made by the Contracting Officer in accordance with Title 27 DCMR, Chapter 26.

A twelve (**12%**) Disadvantaged Business Enterprise (DBE) subcontracting goal for firms certified as DBE's in accordance with 49 CFR Part 26 has been set on this federally assisted contract. This contract is subject to all applicable Federal regulations including Title VI of the Civil Rights Act of 1964.

Firms desiring consideration shall submit five (5) copies of their Standard Form 330, Architect-Engineer Qualifications. All vendors desiring consideration for Architect-Engineer contracts must include all information relating to the firm's qualifications in the standard form. Inclusion by reference to other materials is not acceptable. Submissions should include the prime firm's DUNS number, Federal Tax I.D. number and email address.

A copy of the detailed Scope of Work is accessible via the OCP website at www.ocp.dc.gov and the DDOT website at www.ddot.dc.gov. The DDOT Bridge Inspection Manual of Procedures is available upon request.

The Standard Form 330 from all offerors must be received by 2:00 P.M. on Monday, March 9, 2015 at the following address: Office of Contracting and Procurement Bid Room, 55 M Street, S.E., Fourth Floor, Washington, D.C. 20003.

For technical and procurement questions, please email the questions to cwbridge.inspect@dc.gov. Replies to questions will be provided by amendment.

The project manager for this project, Mr. Donald Cooney, can be reached by phone at (202) 671-4681. The Contracting Officer for this procurement is Courtney Lattimore. She may be contacted at (202) 671-2270.

ATTACHMENT J.1.3 - SCOPE OF SERVICES
FY 2015 CITYWIDE CONSULTANT BRIDGE INSPECTION

A. GENERAL REQUIREMENTS

Work under this contract consists of performing detailed condition inspections and evaluations of all highway and pedestrian bridges, and tunnels and underpasses, under the ownership of the District of Columbia in accordance with the DDOT Bridge Inspection Manual of Procedures and the National Bridge Inspection Standards (NBIS). Safety inspections of railroad owned bridges crossing District streets shall also be performed. Selected inspections of culverts and overhead sign structures shall be performed as needed via contract modifications.

Included is scheduling of inspections within the prescribed time interval, conducting inspections in accordance with the schedule, preparation of inspection reports, verification and/or updating of inventory data, providing means of access to all portions of the structure, traffic control and other miscellaneous tasks necessary to complete the required inspections. Also included is notification of DDOT of any conditions that may require prompt attention, performing requested load rating calculations, making recommendations for repairs and/or rehabilitation required to maintain and preserve the safe and efficient operation of the bridges, design of temporary supports to correct deficiencies and monitoring of temporary supports at required intervals.

All regular bridge inspections shall include a review of the existing available information to be aware of the structural performance and history of the bridge. This review shall include the most recent inspection reports, load rating analyses (if available), as-built plans and any history of structural alterations, repairs, rehabilitation or maintenance.

DDOT will furnish the Consultant with existing bridge drawings, prior inspection reports, current inventory data and load ratings on each bridge. If electronic files are not available, the documents will be picked up by the Consultant, copied and returned to the DDOT office by the Consultant, as needed. At the beginning of the contract, the District will provide current copies of the bridge inspection reports for all bridges in electronic format and blank report forms for use in preparing future reports. These documents will form the basis for future reports. Modifications to the report format may be made with the permission of DDOT. Obtain copies of relevant FHWA and AASHTO bridge inspection guidelines by contacting the respective organization. Field verify the existing bridge plans to assure that they accurately reflect the actual field conditions.

Please be advised that it is DDOT policy to not reimburse consultant's expenses regarding lodging, per deim, airfare and travel to the work site without the express approval of the Chief Engineer. Mileage in the commission of duties after arrival at the work site is reimbursable.

B. LIST OF STRUCTURES TO BE INSPECTED

It is the Consultant's responsibility to schedule inspections, monitor the progress of work and take necessary actions to keep inspections on schedule. A list of highway, pedestrian and railroad-owned bridges is provided in Appendix A of this document. A current schedule of

recent inspection dates will be provided. The District will also furnish a copy of the SI&A (Structure Inventory and Appraisal) Report for each bridge prior to the inspection. A marked-up copy of the SI&A Report shall be provided with the inspection report. Inspections shall be conducted in the general order of priority beginning with the least current inspection date.

C. GENERAL SERVICES PROVIDED BY THE CONSULTANT

1. TYPES OF INSPECTIONS

a) Routine Inspection

This is the regularly scheduled inspection that each bridge receives within the prescribed interval throughout its life. In most cases an inspection has been completed within the last two years and the inspection report and documentation is available. However, if the bridge is either new, reconstructed or has just been added to the District's inventory, more extensive office and field work will be required to obtain the SI&A information from the plans to produce a report. In the case of new bridges that have not been entered into the AASHTO Bridge Management (BrM, formerly Pontis) database, provide the NBI data elements as well as the National Bridge and Bridge Management Elements, including related defects for each condition state. Maintain and update, as needed, an Excel spreadsheet, provided by DDOT, for all scheduled bridge inspections showing previous, current and future inspections for the life of the contract.

b) Supplemental (or Partial) Inspection

This is an unscheduled inspection requested by the District. It may include in-depth work beyond the scope of a routine inspection such as structural monitoring, non-destructive testing, laboratory analysis and instrumentation focusing either on the entire structure or specific components as defined in the request.

c) Special Inspection

A special inspection is a unique inspection effort targeted at special situations or conditions and may be performed to obtain greater detail than would have normally occurred during a routine inspection. A special inspection may also be performed to monitor the condition of a specific bridge detail or element on a regular basis.

2. ROUTINE, SUPPLEMENTAL OR SPECIAL INSPECTIONS

In a routine inspection, thoroughly inspect all bridge elements including the foundations above grade that support the substructure elements. Clean members and remove rust as needed to assess their condition. Observe all overhead and ground mounted signs, light standards, utility poles and overhead wires in the vicinity of the structure; provide photographs and an assessment of damage. If a supplemental or special inspection is being performed, inspect only the specified areas/members; however, report any other observed deficiencies on or adjacent to the bridge that may pose a threat to public safety.

Clearly record all inspection field notes on the DCBMS forms, as described in the District's Bridge Inspection Manual of Procedures, prepare sketches and obtain photographic documentation. Identify precisely any problem areas and all areas of section loss if they might impact the members strength. Report NBI condition ratings (Items 58 through 62), and the percentage of the total quantity of each element in each BrM condition state.

On all bridges, provide a quantified assessment of the condition of the roadway approaches, the railing and approach guiderail, overhead sign structures, signs, lighting standards and electrical service, utilities and any miscellaneous items on the structure.

Equipment and Traffic Control – When the standard traffic control drawings in Section 616 of the DDOT Standard Drawings apply, they may be used, subject to DDOT approval. When roadway configurations are such that no standard drawing applies or when multiple lane closures are needed, prepare traffic control plans (TCP's) that will be needed for inspections sufficient to meet the requirements of the FHWA Manual on Uniform Traffic Control Devices (MUTCD) and submit them for review and approval. Obtain approvals prior to beginning inspections. Arrange for snoopers, rigging, inspection cranes, platform lift trucks, ladders, boats, etc. The use of a bucket boat, safety boat or skiff is strongly encouraged when working over water to minimize interference with highway traffic or when the risk of falling is high. Ensure the safety of the inspectors and the public at all times. Provide any needed traffic control, including arrow boards, drums, cones, unless otherwise indicated.

At least two weeks prior to any scheduled inspection, prepare a list of proposed inspections that will require lane closures for submittal to the Project Manager. The information shall include bridge number, location, the specific travel lanes affected and hours of operation. If a standard drawing is being used, note the identification number and include a copy of the standard drawing. The schedule will be compared to other planned events during that period for conflicts. If a conflict exists, certain inspections may have to be rescheduled. For inspections of bridges over major waterways, notify and coordinate with the U.S. Coast Guard and the D.C. Harbor Master. For bridge inspections that impact National Park Service (NPS) land, contact the appropriate NPS person. Provide notes on all persons contacted and their telephone numbers.

Bridges Over Railroad Property – Where bridges pass over railroads, contact and coordinate with the railroad company representatives, as required, and make all arrangements to gain access to their property for inspection of portions of District bridges that cannot be reached from District property. Obtain required certifications for entry, pay all fees for railroad protective services and comply with all railroad directives while on their property. It may be necessary to work at night for short time intervals to inspect bridges where the tracks cannot be closed during the day or that are affected by railroad electrification. Record in the inspection report the company(s) contacted, key contact personnel, their telephone numbers, required permits and related expenses. All project-related expenses incurred by the Consultant to comply with the requirements of railroad

companies shall be reimbursed by the District.

Safety Inspections of Railroad-Owned Bridges - The substructure and the underneath portions of the superstructure of railroad-owned bridges over public streets and highways shall receive a safety inspection to identify any potential hazards to the pedestrian and highway traffic under the bridge. All potential hazards shall be immediately reported to DDOT.

Insurance Requirements - In addition to Workers Compensation Insurance and Liability Insurance, the Consultant will need additional insurance to satisfy the requirements of railroad companies when inspecting bridges over railroads. The additional cost of said insurance shall be reimbursed by the District.

Fracture Critical Members - Identify locations and provide descriptions of all observed fracture critical members (FCM). FCMs and their condition shall be identified specifically in the inspection reports. Discuss inspection frequency and procedures for inspection of each FCM member (Fracture critical members are tension members whose failure will probably result in a collapse of a portion or the entire bridge). Fracture critical members not listed in Appendix B shall be reported to the District for addition to the list.

Load Posting - Document the condition, location, load limit and number of load limit signs at all posted bridges. Report all missing signs to the Project Manager. Report inadequate notice to truckers of load posted bridges. Recommend load postings for bridges based upon current load ratings.

Clearances - Verify existing underclearances and lateral clearances for inclusion in the DCBMS database. Make corrections where needed. Recommend Low Clearance (W12-2) signs at appropriate locations.

Bridge Lists - Provide and maintain the following information in list format for the use of DDOT as well as a summary of all the lists at the end of the contract period:

- A list of bridges recommended for special inspections. This list shall include bridges having fracture critical members or critical elements whose condition could not be rated with confidence while exercising a reasonable standard of care for the routine inspection. This list shall also include bridges that require underwater, or scour inspections not on current lists. The Consultant shall verify NBI Item 113.

- A list of preventive maintenance repair items that should be performed in a timely manner. The items should be referenced to the ongoing preventive maintenance contract. These should be non-critical items that need not be reported to the immediate attention of the District. Preventive maintenance repair items shall be included by type, size and location in the "Recommendations" section of the individual bridge inspection reports.

- A list of all bridges that have a condition rating of 4 or less for any component. Any

bridge with a rating of 4 or less shall be brought to the District's attention immediately, verbally and in writing.

- A list of bridges that are not properly posted for load or height restrictions with the needed materials to update the sign installations. The list shall include the bridge number, the types and quantities of signs needed and the quantity of posts and sets of hardware needed and their locations.

- A list of bridges that are found to have overheight load damage or that have had repairs to damage from overheight loads. The extent of damage shall be documented on the Bridge Inspection Report. The DCBMS database shall be updated as necessary.

- A list of bridges with pin and hanger connections or girder tiedowns. Give the bridge number and a description and location of the connections. Photographs shall be placed in the file.

Photographs - Provide digital color photographs to supplement field inspection notes and drawings and to document conditions. The photographs shall be sufficiently clear, properly identified, dated and indexed. Include views of the overall bridge plus its side elevation, the approach roadway and its alignment, any defects and structural details. Include photographs in the electronic file that are not provided in the report.

Closed Structures - Inspect closed bridges to assure that the physical barriers are maintained and that public safety is not jeopardized. Assess the physical integrity of the structure and any potential hazards to the public on or beneath the structure.

3. UPDATING INVENTORY DATA

The DDOT Project Manager shall be responsible for updating data in the bridge inventory in the District's Bridge Management System (DCBMS). Plans or sketches shall also be reviewed to determine if any modifications to the structure have been made since the last inspection. When modifications have taken place, copies of the plans for the modification shall be placed in the bridge folder. If these plans are not available, the modifications shall be indicated in red on the existing plans or sketches in-lieu of plans, as appropriate. Any sketches and/or modifications to plans shall be signed and dated. The existing bridge inventory in the DCBMS shall be modified to reflect the identified changes. Modification of the bridge inventory shall follow the guidelines in the District's Bridge Inspection Manual of Procedures.

In addition to items 58 through 62, the following NBI items shall be updated for each bridge in the inventory:

ITEM	DESCRIPTION
36	Traffic Safety Features
67	Structural Evaluation

68	Deck Geometry
69	Underclearances
70	Bridge Posting
71	Waterway Adequacy
72	Approach Roadway Alignment

Updating NBI Item 36, Traffic Safety Features, requires field inspection of each traffic safety feature to identify all safety deficiencies and which traffic safety features no longer satisfy AASHTO Standards.

4. SCOUR INSPECTION AND EVALUATION

Inspect all underwater bridge components above the mudline in minor waterways (e.g., piers, abutments, footings, piles, etc.) visually or by feel (e.g., probing) for condition, scour, integrity, safe load capacity, etc. When specifically requested, bridges on major waterways will require specialized underwater inspection, on a five year cycle, as described in D.

Conduct an evaluation of the site to determine the risk from scour. Determine the hydrology and hydraulics of a site. Investigate the scour potential and determine structure stability. Propose countermeasures appropriate for conditions.

Plot cross section profiles as described in the District's Manual of Procedures. Profile data shall be input into the database of the DCBMS. Print hard copies of the current profiles. These hard copies shall be signed, dated, and included in the bridge folder. Past and present data shall be reviewed to assist in determining if any problems are developing.

Note evidence that an underwater inspection by a professional diver is warranted, with reasons in the recommendation section of the inspection report.

5. FRACTURE CRITICAL INSPECTIONS

Create and maintain a file of bridges that require fracture critical inspections. The file may be established using the DDOT list and expanded as inspections proceed. The file shall include the location and copy of the specific fracture critical detail and the frequency at which it is inspected. The file shall be provided to DDOT with updates whenever they occur.

Bridges that have been identified with fracture critical features are listed in Appendix B. If features on other bridges are noted, notify the District so that they may be added to the list. Perform an in-depth inspection of these features during the routine inspection, or at the recommended frequency, according to the guidelines in the District's Bridge Inspection Manual of Procedures. An acceptable level of inspection for steel members should detect loss of rivets or bolts, fatigue cracks, the extent of rust, section loss and bent or damaged members. If necessary, an appropriate nondestructive testing method

that will readily determine the extent of damage shall be incorporated in the inspection.

A detailed sketch, or photocopy, of each fracture critical member shall be included. Cracks, nicks or gouges, areas of corrosion, and suspicious areas shall be shown on the detailed sketch.

The DCBMS database shall be updated with the information from these inspections. Load ratings and appraisals shall account for reported conditions.

D. UNDERWATER BRIDGE INSPECTIONS [Due in 2016]

(1.) GENERAL - Perform underwater inspections at five (5) year intervals on the bridges listed in Appendix C. The inspections can be performed at the same time as the regular NBI inspection or separately. The approximate number of piers and abutment faces is listed. Also include substructures that will be underwater at the high flood level even though they may not be underwater at the time of inspection.

Investigate all structural elements between the high water line and the mudline, including concrete, steel and timber structures for any indications of corrosion, erosion, settlement, spalling, cracking, scouring, marine borer attack or other deterioration. Any conditions of current flow or change in the river bottom profile or any condition of the underwater portions of the structure not shown on the plans shall also be investigated and documented. Pilings may be cast-in-place concrete, precast concrete, steel or timber. Piers and abutments below the water line shall be examined for deterioration and/or movement. Dolphins, fenders and bulkheads shall be examined for deterioration, marine attack and damage by vessels. The river bottom around the piers and abutments shall be examined for scour holes and unintended exposure of pilings.

Included shall be a hands-on inspection of fendering systems at bridges which have a U.S. Coast Guard permit for navigational clearances. Thoroughly evaluate the adequacy of the systems for the type of vessels navigating that portion of the waterway. If it is found that the system is inadequate to protect the bridge piers from collisions with these vessels, provide recommendations for their improvement.

The actual inspection shall be performed by certified divers under the supervision of a Registered Professional Engineer, both of whom shall meet the qualifications specified in the Code of Federal Regulations - 23 Highways - Part 650 - Subpart C.

Be aware that highway and pedestrian traffic over, as well as marine traffic under and/or through the referenced structures must be maintained during the life of the contract. The Consultant shall provide video recordings of all underwater inspections.

The DCBMS database will be updated by the DDOT Bridge Engineer with the findings of the underwater inspection. Load ratings and appraisals shall account for reported conditions.

In addition, conduct a shoreline-to-shoreline survey of the riverbed along the bridge alignment and provide three (3) plotted profiles with elevations at 50-foot intervals, located along the centerline of the structure (midpoint between fascias) and one parallel profile at each bridge fascia. The survey shall include the pier footing outlines with elevations taken at each corner, the high/low tide elevations, the highest flood level and the location of any existing utility lines on or above the channel bed.

(2.) PUBLICATIONS - All inspections shall be performed in accordance with guidance from the following publications:

- AASHTO "Manual for Bridge Evaluation".
- AASHTO Manual for Bridge Element Inspection
- FHWA "Bridge Inspector's Training Manual".
- FHWA "Underwater Inspection of Bridges", Report No. FHWA-DP-80-1, 1989.
- FHWA "Advanced Bridge Inspection Methods: Applications and Guidelines", Report No. FHWA-TS-89-017.
- Department of Labor, Occupational Safety and Health Administration (OSHA), "Commercial Diving Operation", July 22, 1977, as effective October 20, 1977.
- District of Columbia Register, Special Edition, D.C. Rules and Regulations, Title 11-B, Minimum Wage and Industrial Safety Board, Chapter IX, "Diving Operations", April 1, 1971.

(3.) PERSONNEL QUALIFICATIONS - The actual inspections shall be conducted by a certified diver, who for safety purposes, shall be accompanied and/or assisted during all diving operations by a second approved diver. Both divers shall meet the qualifications specified in the Code of Federal Regulations - 23 Highways - Part 650 - Subpart C.

1. They shall possess and produce upon request valid credentials showing successful completion of a regular training course given by a nationally recognized diving authority.
2. They shall possess at least five (5) years of experience in underwater inspections and shall present to DDOT a resume and record of these inspections, to include underwater inspection of bridge piers and concrete structures.

The supervision and coordination of the underwater inspection shall be conducted by a Registered Professional Engineer (PE), registered in the United States and possessing a minimum of five (5) years experience in similar work. The PE shall be at the dive site for the duration of each dive and shall be responsible for all engineering aspects of the field work. The PE may be a member of the dive team.

Submit to the DDOT Project Manager detailed resumes and histories of inspection work performed by both the divers and the Registered Professional Engineer. Each resume shall include a statement of professional status, educational background and work experience demonstrating how the individuals meet the requirements for this work. The description of work experience shall show the length of service and clearly explain in detail the relevant duties and responsibilities of each assignment.

The review of the resumes and histories by DDOT will be the determining factor as to the acceptability of these individuals to perform the work. The use of substitute divers or Professional Engineers whose resumes and histories are not included in the submittal shall not be permitted without prior qualification and the express written permission of DDOT. No inspections shall take place unless the designated divers and Professional Engineer or the approved substitutes are present for work at the site location.

(4.) EQUIPMENT - Supply all equipment necessary to successfully complete the required inspections. This shall include, but not necessarily be limited, to the following: Air System; Standby Air System; Hat or Helmet; Radio; Spare Radio; Compressor; Mechanics Tools; Diving Ladders; Flags; Buoys; Air Horn; Life Jackets; Diving Light and Tools, the last including Hammers, Scrapers, Knives, Probes, Grinders, Mechanical Brushes, Water Pumps and Power Sources for these necessary fixtures and attachments. If the Contractor's operations require the use of a work barge, such shall be provided at no additional cost to the District.

Unless otherwise authorized, all diving inspection work shall be performed by divers who have continuous surface supplied air and continuous voice communication between the divers and the topside crew. Voice communications shall be so arranged that the Engineer will be able to listen to the conversation between the two parties. Communications shall also be arranged such that the Engineer will be able to enter into the conversation at any time to ask questions or request clarification. The loss of this communication shall be cause for termination of the inspection operation and no subsequent inspections shall be performed until this communication is restored.

Supply a 16 foot (min.) power boat with a minimum 40 horsepower engine for the use of the Engineer for the duration of this project; and this boat shall be in a clean and safe condition with gear neatly and properly stowed and have the necessary equipment for meeting the U.S. Coast Guard inspection requirements and shall meet with the approval of DDOT as to seaworthiness and intended use for this project.

(5.) INSPECTION PROCEDURES - Submit to DDOT two (2) copies of the schedule, procedures and equipment to be used at least five (5) days in advance of the proposed inspection date. The schedule shall accommodate any current construction activities on the bridges to be inspected. All underwater bridge inspection shall be performed under the observation of the Engineer or his authorized representative.

Project operations shall be coordinated and conducted such that no construction activities are being performed directly above the personnel engaged in the inspection work.

Supply all equipment, labor and materials required for the successful completion of the work

described herein.

(6.) GENERAL INSPECTION DATA TO BE COLLECTED - A description of the data to be collected includes, but is not limited to the following:

Voids - Any and all voids encountered in concrete and masonry units during the diving inspection shall be measured and the location documented. The void shall be described with width, length and depth measurements with documentation both in the diving notes and the drawings of the unit. Furthermore, the condition of the material adjacent to the void shall be noted to aid in the determination if a major problem exists and if the void could easily propagate.

Holes - Holes encountered during the diving inspection shall be measured for size and depth and the location documented. Also noted shall be a written description of the problem such as the loss of fill in a bulkhead system or settling of a row of masonry.

Impact Damage - In the course of the diving inspection, substructure units shall be examined for impact damage. If a fender system is in place, impact damage may be limited to the system; however, any damage found in the structural unit that is caused by impact shall be treated and documented separately.

Loss of Section - Loss of cross sectional area of any structural units shall be documented. Loss of section would be primarily be noted on timber, concrete and steel structures. Particular attention shall be paid to tidal areas.

Displacement - Displacement of structural members or fender members shall be documented. Details of the displacement shall be noted in the diving inspection notes.

Missing Elements - If elements of the structural unit are found to be missing, they shall be noted and described in detail in the diving inspection notes. If the missing element is adjacent to the structural unit, such as a fallen stone, the location shall be noted.

Previous Repairs - If signs of previous repairs to substructure units are noted, they shall be inspected. A description of the effectiveness of the repair, as well as its condition, shall be given, if possible.

Scour/Erosion - All units shall be inspected for scour and erosion. Inspection by the diver shall include an area within six feet of the substructure and shall include documentation of any irregular bottom contours near the unit as well as any undermining of the unit.

Loss of Fill - If the inspection of abutments and bulkheads reveals holes with loss of fill material behind the structure, the extent of loss shall be documented in the notes.

Marine Growth - As the inspection proceeds, a description of marine growth and the efforts required in cleaning shall be noted.

Debris - If the diver encounters excessive debris during the inspection, the type and extent shall

be documented.

(7.) INSPECTION OF CONCRETE AND MASONRY STRUCTURES - The diver shall inspect all surfaces of the concrete unit in contact with the water. In addition to the items described in (E), the following items shall be inspected:

Cracks - All cracks located during the diving inspection shall be measured for depth, width, length and location. The cracks shall be mapped on the drawing of the unit as well as described in the diver's notes. Any crack found propagating below the river bed shall be specifically noted.

Spalls - Spalling found in the concrete units shall be described and documented with size and location noted on the drawing and in the diver's notes.

Exposed Reinforcing Steel - Any exposed reinforcing steel found during the diving inspection shall be documented. Data shall include their length, condition and location and shall be noted on the drawing as well as the diver's notes.

Soft Concrete - If any soft, punky concrete is encountered during the inspection, the diver shall inspect the unit completely for all areas of unsound concrete. The location and extent of these areas shall be noted on the drawing and in the diver's notes.

Sulphate Attack - If the concrete in tidal zone areas is found to have been exposed to water with high sulphate content and has signs of loss and deterioration of cement, the condition shall be documented.

Honeycombing - If during the inspection, the diver finds signs of honeycombing: aggregate without sufficient cement content, the condition shall be noted in the diver's notes and the extent shown on the drawing.

Rust Spots - Rust spots appearing on the concrete surface shall be noted.

Grout Loss in Stone Masonry - In the inspection of masonry units, each joint that is below the high water line shall be inspected. If grout is found to be missing, the joint shall be probed and the depth of missing grout measured at least every five (5) feet along the horizontal joints and once in each vertical joint. This data shall be included in the diver's notes and shown on the drawing of the unit.

(8.) INSPECTION OF TIMBER SUBSTRUCTURES - The inspection of timber units shall include the following items:

Splitting - Any serious splitting of the timber substructure shall be documented. Only minor ice damage or splitting of the outermost surface need not be detailed, but splitting that is determined to be of structural significance shall be measured and detailed.

Marine Borers - If signs of marine borer activity are evident on the timber substructure, this condition shall be documented. If noted, incremental borings shall be taken to determine the

extent of activity and an estimate of cross sectional loss.

Rot - An estimate of the extent and location of rot in the timber substructure shall be made. This estimate will be based upon the result of probings made with a sharp, ice pick-type device. The amount of penetration into the timber structure shall determine the extent of rot present.

Fasteners - Fasteners visible to the inspector shall be examined and any deterioration or damage noted.

(9.) CRITICAL FINDINGS - Bridges exhibiting deficiencies (critical findings) which may pose immediate danger to public safety or which will require prompt maintenance shall be brought to the immediate attention of the Chief Engineer or the Chief, Asset Management Division. Deficiencies will generally be found in the following categories:

- Bridges with deficiencies in fracture critical members; or
- Bridges with scour and/or hydraulic problems; or
- Bridges with condition ratings of 3 or less for the superstructure or substructure or an appraisal rating of 3 or less for waterway adequacy; or
- Bridges with deficiencies which have already or will soon result in a substantial reduction in safe load capacity.

As part of the initial notification, provide a detailed written report of the deficiency supplemented with drawings, sketches and photographs as is necessary to illustrate the problem. In most cases, that portion of the inspection report dealing with the deficient feature will be adequate.

(10.) REPORTS - Upon completion of the inspection on each bridge, submit one printed copy of a written final report and one electronic copy to DDOT, including all necessary scaled drawings describing in detail any defects in the underwater concrete, exposed or deteriorated piles, scour and other deficiencies. Said drawings shall be dimensioned and use coordinates which can be referenced to the bridge piers in order that the deficiencies can be located at a future date. Also, included in this report will be the three (3) plotted profiles from the riverbed survey. During the inspection, special attention shall be directed to the previously mentioned inspection items to which reference shall also be made in the report.

(11.) STRUCTURES TO BE INSPECTED – When directed, underwater inspections shall be performed on the bridges listed in Appendix C. The approximate number of piers and abutment faces is listed. The Consultant shall also include substructures which will be underwater at the high flood level even though they may not be underwater at the time of inspection.

All structural elements between the high water line and the mudline, including concrete, steel and timber structures shall be investigated for any indications of corrosion, erosion, settlement, spalling, cracking, scouring, marine borer attack or other deterioration. Any conditions of

current flow or change in the river bottom profile or any condition of the underwater portions of the structure not shown on the plans shall also be investigated and documented. Pilings may be cast-in-place concrete, precast concrete, steel or timber. Piers and abutments below the water line shall be examined for deterioration and/or movement. Dolphins, fenders and bulkheads shall be examined for deterioration, marine attack and damage by vessels. The river bottom around the piers and abutments shall be examined for scour holes and unintended exposure of pilings.

The actual inspection shall be performed by certified divers under the supervision of a Registered Professional Engineer, both of whom shall meet the qualifications specified in the Code of Federal Regulations - 23 Highways - Part 650 - Subpart C.

Be aware that highway and pedestrian traffic over, as well as marine traffic under and/or through the referenced structures must be maintained during the life of the contract. Provide video recordings of all underwater inspections.

The DCBMS database will be updated with the findings of the underwater inspection. Load ratings and appraisals shall account for reported conditions.

In addition, conduct a shoreline to shoreline survey of the riverbed along the bridge alignment and provide three (3) plotted profiles with elevations at 50 foot intervals, located along the centerline of the structure (midpoint between fascias) and one parallel profile at each bridge fascia. The survey shall include the pier footing outlines with elevations taken at each corner, the high/low tide elevations, the highest flood level and the location of any existing utility lines on or above the channel bed.

E. STRUCTURAL ANALYSIS AND LOAD RATING

When requested by DDOT, perform or update the structural analysis and load ratings using the LRFR or load factor method, whichever applies. Compute Inventory and Operating ratings using the AASHTO LRFR configuration.

Use conventional methods of analysis unless more complex and refined methods are specified or warranted and specifically directed by the District. Identify the structural components or members that govern the ratings. Define any section losses and/or other deficiencies on these members. Include a table of stresses and a rating summary in the report.

All computations are to be in accordance with current AASHTO Specifications. Update existing computations accordingly. The rating calculations shall consider and reflect the structural condition of the bridge elements including section loss, steel cracks, loss of connections, damaged or misalignment of members. The Consultant shall include a narrative report describing how any of these deficiencies were incorporated into the load rating calculations.

Calculate the load ratings, use data available from inspection files and report, supplemental field information and testing data. When no data or drawings (or sketches) are available, calculate load rating entirely on field measurements.

Perform a structural analysis of the substructure only if its structural adequacy is in question or it is at risk due to scour as a result of the field inspection findings or its unusual component makeup.

Provide emergency retrofit schemes, as directed, to any critical conditions uncovered.

F. REPORTING CRITICAL DEFICIENCIES TO OWNER

Critical structural and safety-related deficiencies, including posting, repair and maintenance recommendations and alternatives contained in the current inspection report shall be discussed with the District's Project Manager.
Emphasis shall be placed on discussion of uncorrected critical and other deficiencies brought forward from the previous inspection report. These deficiencies must be highlighted in the current inspection report.

G. EMERGENCY REPORTING

Notify the District's Project Manager immediately whenever a potentially perilous or hazardous condition is observed. Provide written notification in the form of a Critical Finding Report within 24 hours. Examples of such situations could include:

- Distress in primary members to the point where there is doubt that the members can safely carry the loads for which they are designed and partial or complete failure of the bridge is a possibility.
- Scour at or under the pier of a stream bridge is such that significant movement is likely which could cause the bridge to collapse.
- Abutment movement or distress which is so excessive that there is a clear possibility that it may not be capable of supporting the superstructure and partial or complete failure is a possibility.
- Suspected cracks in pins or hangers of two girder/truss bridges.
- Deficiencies in fracture critical members.
- Missing weight restriction signs.
- Any situation where the structural integrity of the bridge is such that its safety is in question.

As part of the initial notification, provide a detailed written report of the deficiency supplemented with drawings, sketches and photographs as is necessary to illustrate the problem. In most cases, that portion of the inspection report dealing with the deficient feature will be

adequate. After field verification by the District's Project Manager, the Consultant may be required to perform tests as stated in Section 1.5 below and propose formal recommendations for immediate action and correction of the deficiency.

Non-Emergency Reporting of Deficiencies – When deficiencies are noted that do not rise to the level of a Critical Finding but should not wait for the report submittal, submit a report in letter format, supplemented with photographs, clearly describing the deficiencies with recommendations for action.

H. MATERIAL SAMPLING AND TESTING OR INSTRUMENTATION

Structural materials evaluation and bridge instrumentation are not a routine part of a bridge inspection. They are to be conducted only when required and justified to eliminate unacceptable engineering uncertainties or to more accurately assess the structure's load carrying capacity.

Obtain the District's Project Manager concurrence before initiating any materials sampling and testing and/or instrumentation program.

I. INSPECTION RELATED SPECIAL STUDIES

When requested, conduct special or unique studies related to bridge inspection or bridge inspection problems as directed. Examples of such studies may include but are not limited to: special or unique bridge load rating analysis and posting; investigation of bridge inspection problems in the field; or special studies related to bridge inspection procedures.

J. SUBMISSIONS

Submit a proposed work schedule showing planned inspection dates for the entire list of bridges within two weeks of Notice-to-Proceed. Update the list monthly as inspections proceed. Submit progress reports, reflecting the work performed during each invoice period, to the District's Project Manager.

Provide a written report clear and detailed to the extent that it can be fully interpreted by DDOT Inspection personnel. Included shall be a location map, the completed SI&A sheet, the inspection form, critical findings, stream cross sections for bridges over minor waterways, operating and inventory rating calculations, photographs, results of any tests or analyses, scale contract drawings as needed from existing plans and inspection notes. Each bridge inspection report shall be signed by the personnel performing the inspection and the supervising Registered Professional Engineer.

The reports, including evaluations, ratings and appraisals, shall also be sealed and signed by the Engineer.

Prior to beginning work, inform the District's Project Manager of the schedule of inspection of their bridge(s) and names of the inspectors.

Submit one printed copy and one electronic copy of each report for acceptance within **Sixty (60) Days** of the completion of each field inspection. All reports shall have color copies of the photographs. Each report shall be signed and sealed by a licensed Professional Engineer knowledgeable of report content. At various times throughout the year, submit electronic copies of all reports accumulated during the period in PDF format. All submissions must be finalized before the contract expiration date.

K. DEADLINES

Be prepared to start work immediately upon receiving notice-to-proceed. All work including the final report submissions shall be completed expeditiously. The inspection due date must maintain the 24 month inspection frequency or other frequency as specified during the scope of work meeting. Inspection reports shall be submitted within 60 calendar days of the date of inspection.

APPENDIX A

LIST OF BRIDGES TO BE INSPECTED

APPENDIX B

BRIDGES REQUIRING FRACTURE CRITICAL INSPECTION

BRIDGE NUMBER	LOCATION	FRACTURE CRITICAL DETAIL
1	Chain Bridge over Potomac River	Two Girder System Pin & Link Assembly
26-1	Klingle Road, N.W. over Rock Creek	Cross Girder System
26-3	Klingle Road Ramp over Rock Creek	Cross Girder System
32	Whitehurst Freeway	Cross Girder System
46	Michigan Avenue, N.E over Park Place	Cross Girder System
53	South Capitol Street over Anacostia River	Swing Span Suspended Spans Pin & Link Assemblies
53	South Capitol Street over Anacostia River – Middle Ramp	Cross Girder System
53	South Capitol Street over Anacostia River – Ramp A	Cross Girder System
53	South Capitol Street over Anacostia River – Ramp B	Cross Girder System
170-1	NB 14th Street, N.W. over Potomac River	Bascule Span (Immobilized)
503(EB)	EB Benning Road over Kenilworth Avenue and CSX Railroad	Cross Girder System Partial Length Cover Plates
503(WB)	WB Benning Road over Kenilworth Avenue and CSX Railroad	Partial Length Cover Plates
529	H Street, N.W. over Railroad	Cross Girder System Pin & Link Assembly
1007	Anacostia Freeway over Good Hope Road	Partial Length Cover Plates
1008	Anacostia Freeway over Howard Road	Partial Length Cover Plates
1009	Anacostia Freeway over Suitland Parkway	Partial Length Cover Plates
1011	SB South Capitol Street over Suitland Parkway	Partial Length Cover Plates
1012	Anacostia Freeway over Firth Sterling	Partial Length Cover Plates
1016	NB Anacostia Freeway over South Capitol Street	Partial Length Cover Plates
1017	SB Anacostia Freeway over South Capitol Street	Partial Length Cover Plates
1019(NB)	NB Anacostia Freeway over Shepherd Parkway	Partial Length Cover Plates
1019(SB)	SB Anacostia Freeway over Shepherd Parkway	Partial Length Cover Plates

BRIDGE NUMBER	LOCATION	FRACTURE CRITICAL DETAIL
1026	Anacostia Freeway over Oxon Run Bay	Suspended Span
1102(Ramp C)	Southwest Freeway over Railroad	Pin & Link Assembly
1104	Southwest Freeway over South Capitol Street	Pin & Link Assembly
1104(Ramp C)	Southwest Freeway over South Capitol Street	Pin & Link Assembly
1104(Ramp D)	Southwest Freeway over South Capitol Street	Pin & Link Assembly
1104(Ramp G)	Southwest Freeway over South Capitol Street	Hanger Rod System Cross Girder System
1109	Southeast Freeway over Virginia Ave & Railroad	Pin & Link Assembly Cross Girder System
1113	Southwest Freeway over Washington Channel & Maine Avenue	Cross Girder System Pin & Link Assembly
1113(Ramp E)	Ramp E over Southwest Freeway & Maine Avenue	Cross Girder System Pin & Link Assembly
1114	10th Street Mall (L'Enfant Promenade) over D Street, S.W.	Cross Girder System
1134	I-395 Inbound Ramp over I-395 Outbound Ramp	Partial Length Cover Plate
1134(A-1)	I-395 Inbound Ramp over I-395 Outbound Ramp	Partial Length Cover Plate
1138	D Street, N.W. over I-395	Partial Length Cover Plate
1139	E Street, N.W. over I-395	Partial Length Cover Plate
1139	E Street, N.W. over I-395	Partial Length Cover Plate
1140 (H Street)	H Street, N.W. over I-395	Partial Length Cover Plate
1140(Mass Ave)	Massachusetts Avenue, N.W. over I-395	Partial Length Cover Plate
1141	SB Entrance Ramp to I-395	Partial Length Cover Plate
1200	Theodore Roosevelt Bridge over Potomac River	Two Girder System Pin & Link Assembly Girder Tie-Downs
1200(L. River)	Theodore Roosevelt Bridge over Little River	Two Girder System Pin & Link Assembly
1200(Ramp C)	Ramp C over Little River	Two Girder System Pin & Link Assembly
1200(Ramp D)	Ramp D over Little River	Two Girder System Pin & Link Assembly
1200(Ramp E)	Ramp E over Little River	Two Girder System Pin & Link Assembly
1400	Southeast Freeway over 7th Street, S.E.	Partial Length Cover Plate
1401	Southeast Freeway over 8th Street, S.E.	Partial Length Cover Plate

APPENDIX C

BRIDGES IDENTIFIED FOR UNDERWATER INSPECTION

Underwater inspections shall be performed on the following bridges. The approximate number of piers and abutment faces is listed below. Also include substructures which will be underwater at the high flood level even though they may not be underwater at the time of inspection.

Bridge No.	Location	Piers	Abutment Faces
0001	Chain Bridge over Potomac River, S.W.	1	1
0007	Francis Scott Key Memorial Bridge over Potomac River, S.W.	4	2
0052	Benning Road Bridge over Anacostia River, N.E.	6	2
0053	South Capitol Street Bridge over Anacostia River, S.E. (Frederick Douglas Memorial Bridge)	8	
0054	Pennsylvania Avenue Bridge over Anacostia River, S.E. (John Philip Sousa Memorial Bridge)	7	
0076	New York Avenue Bridge over Anacostia River, N.E.	3	2
0077	Benning Road Bridge over Kingman Lake, N.E.		2
0169-1	Center Highway Bridge over Potomac River, S.W. (Rochambeau Memorial Bridge)	13	
0170-1	Northbound 14th Street Bridge over Potomac River, S.W. (Arland D. Williams Memorial Bridge)	14	
0171-2	14th Street Bridge over Tidal Basin Outlet, S.W.	2	2
0233	East Capitol Street Bridge over Anacostia River, N.E.	18	
1026	Anacostia Freeway Bridge over Oxon Run Bay, S.W.	2	
1113	Southwest Freeway Bridge over Washington Channel, S.W. (Francis Case Memorial Bridge)	20	
1133	Southbound 14th Street Bridge over Potomac River, S.W. (George Mason Memorial Bridge)	13	
1200	Theodore Roosevelt Memorial Bridge over Potomac River, N.W.(including Little River Crossing)	16	
1415	11th Street Bridge over Anacostia River		
1416	Eastbound I-695 over Anacostia River		
1417	Westbound I-695 over Anacostia River		

d.

DISTRICT DEPARTMENT OF TRANSPORTATION

BRIDGE INSPECTION MANUAL

OF

PROCEDURES

for

DISTRICT OF COLUMBIA

DEPARTMENT OF TRANSPORTATION

July 2014

BRIDGE INSPECTION MANUAL OF PROCEDURES

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BRIDGE INSPECTION MANUAL

OF

PROCEDURES

1.0 GENERAL

1.1 Introduction

This manual has been prepared to assist the District of Columbia Department of Transportation (DDOT) and its Consultants in the inventory, inspection, appraisal and load rating of bridges under the District's jurisdiction. The program detailed in this manual will help implement the National Bridge Inspection Standards as issued by the Federal Highway Administration.

The National Bridge Inspection Standards are set forth in the Code of Federal Regulations, 23 CFR 650C, a copy of which is provided in Appendix A. The Standards require bridges to be inventoried, inspected and appraised in accordance with the *Manual for Bridge Evaluation* published by the American Association of State Highway and Transportation Officials (AASHTO).

The AASHTO manual, together with this manual, establishes the DDOT procedures and policies for determining the physical condition and maintenance needs of the bridges in the District of Columbia.

1.2 Objectives

1. Ensure the prompt discovery of any deterioration or structural damage that could become hazardous to the traveling public or that could become more costly to repair if corrective measures are not undertaken.

2. Maintain an up-to-date inventory which indicates the condition of all bridges on public roadways.

3. Maintain service records from which to appraise the relative value of various types of construction and repair.

4. Determine the extent of minor deterioration requiring routine maintenance and repair work as the basis for planning bridge maintenance programs.

5. Determine the extent of major deterioration requiring rehabilitation or replacement as the basis for planning bridge replacement and rehabilitation programs.

6. Establish guidelines for load rating and posting of bridges.

1.3 Definitions

1. A bridge is defined as a structure including supports, erected over a depression or an obstruction, such as water, highway or railway, and having a track or passageway for carrying traffic or other moving loads and having an opening measured along the center of the roadway, track or passageway, of 20 feet or more between undercopings of abutments or backwalls, or spring lines of arches, or extreme ends of openings for multiple boxes; or having an inside diameter of 20 feet or greater in the case of pipes.

2. A culvert is defined as a small structure under the roadway, usually for drainage. The term culvert is usually limited to buried structures where the clear span or spans between supports is less than about 20 feet. However, a special class of culverts with clear spans up to about 40 feet has evolved from corrugated metal pipe culverts. If the span measured along the center of the roadway is more than 20 feet, then this type of culvert qualifies for bridge classification.

3. A tunnel is defined as a structure that carries a roadway through a topographical barrier. Although a tunnel is not a bridge, the structural portions shall be inspected until a separate program is established for tunnels.

4. Complex bridges are defined as structures with unusual characteristics or components such as suspension, cable-stayed and movable bridges.

1.4 Qualifications of Bridge Inspection Personnel

A Program Manager must, at a minimum:

1. Be a registered professional engineer, or have 10 years bridge inspection experience; and

2. Successfully complete a Federal Highway Administration (FHWA) approved comprehensive bridge inspection training course.

There are five ways to qualify as a Team Leader. A Team Leader must, at a minimum:

1. Have the qualifications specified for a Project Manager; or

2. Have five years bridge inspection experience and have successfully completed an FHWA approved comprehensive bridge inspection training course; or

3. Be certified as a Level III or IV Bridge Safety Inspector under the National Society of Professional Engineer's program for National Certification in Engineering Technologies (NICET) and have successfully completed an FHWA approved comprehensive bridge inspection training course; or

4. Have all of the following:

   - A bachelors degree in engineering from a college or university accredited by or determined as substantially equivalent by the Accreditation Board for Engineering and Technology;

- Successfully passed the National Council of Examiners for Engineering and Surveying Fundamentals of Engineering examination;
- Two years of bridge inspection experience; and
- Successfully completed an FHWA approved comprehensive bridge inspection training course or;

5. Have all of the following:

- An associate's degree in engineering or engineering technology from a college or university accredited by or determined as substantially equivalent by the Accreditation Board for Engineering and Technology;
- Four years of bridge inspection experience; and
- Successfully completed an FHWA approved comprehensive bridge inspection training course.

The individual charged with the overall responsibility for load rating bridges must be a registered professional engineer.

An underwater bridge inspection diver must complete an FHWA approved comprehensive bridge inspection training course or other FHWA approved underwater diver bridge inspection training course.

1.5 Frequency of Inspections

The portions of each bridge are to be inspected at regular intervals, not to exceed 24 months, in accordance with Section 4.3 of the AASHTO manual.

Certain types or groups of bridges will require inspection at less than 24 month intervals. The depth and frequency to which bridges are to be inspected will depend on such factors as age, traffic characteristics, state of maintenance and known deficiencies. The evaluation of these factors will be the responsibility of the individual in charge of the inspection program.

The maximum inspection interval may be increased for certain types or groups of bridges where past inspection reports and favorable experience and analysis justifies the increased interval of inspection. If the Consultant believes that a bridge can be inspected greater than the required 24 months, a detailed proposal shall be submitted to the DDOT Bridge Inspection Manager for approval. If DDOT agrees, a request shall be submitted to the FHWA for approval.

1.6 Bridge File

DDOT will maintain a bridge file for each structure under their jurisdiction. The bridge files (records) will be in accordance with Section 2 of the AASHTO manual and include, but not limited to, construction, rehabilitation, inventory, inspection and load rating data.

1.7 Routine Handling of Bridge Inspection Findings

For bridges maintained by DDOT, the Bridge Inspection Supervisor prepares reports summarizing bridge deterioration found in the District. The Bridge Inspector's maintenance recommendations form (described in Section 2) illustrates a typical format for such reports. Another typical format is a series of memoranda each covering the bridges in one Maintenance

Section. With the memo format, each bridge showing deterioration would be listed and followed by a brief description of the deterioration. Regardless of the format employed, photographs and sketches shall be included in the reports if it would otherwise be difficult to describe deterioration. The reports shall be forwarded to the Engineer responsible for bridge maintenance, who uses them as the basis for bridge maintenance, rehabilitation and replacement.

1.8 Letters of Concern

When a structural deficiency or condition is noted that does not require immediate attention, but may need to be addressed prior to submission of the inspection report, that could develop into something serious or may need to be monitored, a Letter of Concern (LOC) shall be prepared and forwarded to DDOT Supervisors so they are aware of the condition. If an LOC was previously submitted for the previous cycle report and the condition has not been addressed, a new LOC shall be provided noting the condition and any changes that may have developed. The conditions reported are typically given Priority E or 1 in the **Maintenance and Repair/Rehabilitation Recommendations** section of the report. Conditions coded as Priority 2 may require an LOC. The LOC shall be emailed to DDOT as soon as practical.

1.9 Emergency Handling of Bridge Inspection Findings

Upon discovery of critical conditions posing immediate danger to the traveling public, the Bridge Inspector shall immediately notify the DDOT Supervisors with recommendations for load posting, closing the bridge and/or repairs, who will then assess the situation. If warranted, DDOT will take emergency action to eliminate the danger. All verbal contact with DDOT regarding critical bridge conditions shall be followed as soon as practical with written notification of the bridge inspection findings. A Critical Finding Report Form, as shown in Appendix C, shall be completed for reporting emergency conditions. Such notification shall be sent by email.

The Consultant shall notify the District's Project Manager and Maintenance Engineer immediately whenever a potentially perilous or hazardous condition is observed. Written notification shall be provided within 24 hours. Examples of such situation could include:

- Distress in primary members to the point where there is doubt that the members can safely carry the loads for which they are subjected and partial or complete failure of the bridge is a possibility.
- Scour at or under the pier of a stream bridge is such that significant movement is likely which could cause the bridge to collapse.
- Abutment movement or distress which is so excessive that there is a clear possibility that it may not be capable of supporting the superstructure and partial or complete failure is a possibility.
- Suspected cracks in pin or hangers of two girder/truss bridges.
- Missing weight restriction signs.
- Any situation where the structural integrity of the bridge is such that its safety is in question.
- Any condition that is a significant hazard to public safety.

1.10 Load Rating and Load Posting

All bridges shall be load rated in accordance with the DDOT Guidelines for Bridge Load Rating Analysis and Reporting. Those of questionable load-carrying capacity should receive a structural analysis as discussed in Section 3. If a bridge has been analyzed previously, the calculations should be reviewed and revised if necessary to reflect current conditions. When analysis indicates that a bridge cannot safety carry the legal load, suitable posting loads should be calculated and if the bridge already has load restriction signs, these should be evaluated for adequacy. Load rating of bridges shall be assigned by DDOT as needed.

2.0 INSPECTION PROCEDURES

2.1 Introduction

2.1.1 General

Bridge inspection is the use of techniques to determine the condition of a bridge, with the user of these techniques being the Bridge Inspector. Good bridge inspection consists of five steps:

1. Planning of the inspection to ensure that attention is given to each bridge component in accordance with its importance,
2. Preparation according to the inspection plan,
3. Careful and systematic observations,
4. Complete and accurate recording of significant observations,
5. Assessment of observations to determine condition ratings.

2.1.2 References (use latest edition)

1. AASHTO. 2011. *Manual for Bridge Evaluation (MBE)*
2. AASHTO. 2012. *AASHTO LRFD Bridge Design Specifications, Sixth Edition*
3. AASHTO. 1998. *Movable Bridge Inspection, Evaluation and Maintenance Manual*
4. FHWA. 1986. *Inspection of Fracture-Critical Bridge Members*
5. FHWA. 2012. *Bridge Inspector's Reference Manual (BIRM)*
6. FHWA. 1986. *Culvert Inspection Manual*
7. U. S. Government. 2004. *National Bridge Inspection Standards, (NBIS) Code of Federal Regulations*
8. FHWA. 1995. *Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges*
9. FHWA. 1988. Technical Advisory T5140.21 – *Revisions to the NBIS*
10. FHWA. 1991. Technical Advisory T5140.23 – *Evaluating Scour at Bridges*
11. FHWA. 2001. HEC 18 – *Evaluating Scour at Bridges, Fourth Edition*
12. FHWA. 2001. HEC 20 – *Stream Stability at Highway Structures, Third Edition*
13. FHWA. 2009. HEC 23 – *Bridge Scour and Stream Instability Countermeasures: Experience, Selection, and Design Guidance, Third Edition*
14. AASHTO. 2013. *Manual for Bridge Element Inspection*
15. FHWA. 2005. *Inspection and Maintenance of Ancillary Highway Structures*

16. FHWA. 2009. *Manual on Uniform Traffic Control Devices*

2.1.3 Recording Field Information

Unless otherwise indicated, the Bridge Inspector shall record both National Bridge Inspection (NBI) ratings as described in the Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges and the AASHTO Guide Manual for Bridge Element Inspection. Scour and underwater evaluation, as well as, fracture-critical inspection reports shall be included when necessary. The forms or references to be used are described in the following sections.

2.2 Routine Condition Ratings

2.2.1 General

Routine field inspections for the District Department of Transportation will be made in-depth. The inspection report shall consist of the following parts. The report forms in the prescribed order are shown in Appendix D.

- Bridge Inventory Cover Sheet (2.2.2.1)
- Bridge Inspection Summary Report (2.2.2.2)
- Bridge Location Map (2.2.2.3)
- Bridge Plans (2.2.2.4)
- Bridge Inspection Summary Form – PONTIS and NBI Ratings (2.2.2.5)
- Bridge Inspection Report–PONTIS (2.2.2.6)
- Bridge Inspection Report–NBI Ratings (2.2.2.7)
- Bridge Appraisal Worksheet (2.2.2.8)
- Stream Bed Cross Section (2.2.2.9)
- Bridge Maintenance and Repair/Rehabilitation Recommendations (2.2.2.10)
- Load Rating Summary Form (2.2.2.11)
- Photograph Summary Sheet (2.2.2.12)
- Structure Inventory and Appraisal Sheet (SI&A) (2.2.2.13)

The inspection report furnished for the previous cycle inspection is retained in the bridge folder as an inspection history source data package. Copies of the previous inspection report will be provided to the inspector when performing the new field inspections.

Several forms have been developed in order to comply with the Federal guidelines and to furnish additional information on maintenance needs and posting requirements. Electronic files of all current bridge inspection forms have been furnished to the Inspector. The guidelines for using the forms and worksheets to complete the inspection report are as follows. The forms shall be modified and saved electronically for printing and later reference. Submission of a hard copy of field inspection reports and a .pdf copy is to be no later than 60 days after completion of field inspection to comply with the FHWA 90 day limit.

2.2.2 Routine Inspection Forms

2.2.2.1 Bridge Inventory Cover Sheet

This sheet has been developed to provide a general idea of the type of bridge to be inspected and its importance.

A. INSPECTION CYCLE. Enter 24 months (unless the bridge is placed on other cycle).

B. INSPECTION DATE. Enter month, day and year (e.g. 09/26/2011)

C. INSPECTION TYPE. Indicate the type of inspection (e.g., Routine, Supplemental, Interim, Special). A Routine inspection is the inspection carried during the regular bridge inspection cycle. Supplemental is an inspection type to perform follow-up information on conditions or data after a previous Routine inspection. This is generally caused by access problems (need of snooper) or temporary high water. Interim inspections are normally requested by maintenance forces, office staff or other agencies. Special inspections are performed to inspect specified structural elements in more detail. The request could originate from the following situations: impact damage, extreme deteriorated conditions, design problems, excessive deflections, fire damage, observations from private citizens, maintenance personnel or government authorities. Special inspections are one time inspections.

D. BRIDGE NO. Enter the DDOT bridge number.

E. HIGHWAY. Enter the name of the highway carried by the structure.

F. OVER. Enter the name of the feature crossed by the structure.

G. MILEPOST. Indicate to tenth of a mile the location of the structure to the nearest State System road.

H. ADT (% Truck). Enter the current average daily traffic and the corresponding truck percentage.

I. DESCRIPTION. Give a brief description of the structure. When space permits give number of spans, type floor, type beams and type substructure (e.g., three-span concrete deck bridge on prestressed I-beams, intermediate concrete piers, and concrete abutments).

J. CLEAR WIDTH BETWEEN CURBS. Enter from the bridge inventory the clear width between curbs in feet (Verify in the field if necessary).

K. APPROACH ROADWAY WIDTH EXCLUDING SHOULDER. Enter from the bridge inventory the width in feet of the approach roadway. Do not include shoulders.

L. TYPE OF DECK AND SURFACING. Enter the deck material and the type of wearing surface.

M. NUMBER OF SPANS. Enter the number of spans.

N. PRESENT POSTING. Enter posting recommendation from the inventory. If no posting was recommended enter NONE.

O. SUFFICIENCY RATING. Enter the sufficiently rating of the structure generated from the previous cycle inspection data and provided by DDOT on the preprinted SI&A form and enter the month and year of the previous inspection.

P. DATE BUILT. Enter the original construction date of the bridge.

Q. DATE OF MAJOR REHABILITATION. Enter the last date the structure was subject to a major rehabilitation.

PHOTOGRAPH. Attach a new 4" x 6" photograph taken at the time the inspection is made. If the bridge is posted the photo should show the posting sign. The date and bridge number should be imprinted in the photograph. Check the direction the photograph was taken.

2.2.2.2 Bridge Inspection Summary Report

This form provides general information regarding the inspection including the organization that performed the inspection, the name of the project manager, date of inspection and whether the structure is redundant/non-redundant or fracture-critical. The form also indicates if a pin and hanger ultrasonic inspection and/or underwater inspection was performed during the cycle, whether the bridge is weight posted, if a load rating is recommended and the date of the last load rating, if there are recommended maintenance repairs/rehabilitation items, there was a Letter of Concern prepared and if there are follow-up requirements. This form is signed and sealed by the project manager.

2.2.2.3 Bridge Location Map

Provide an 8-1/2" x 11" sheet with the detailed location of the bridge. In the case of multiple structures (ramps, overpasses) the location map should clearly indicate the structure to be inspected.

2.2.2.4 Bridge Plans

Typically existing plan and elevation sheets, a cross section sheet, framing plans and other details as appropriate shall be provided from the previous inspection report or added. If the bridge was rehabilitated or replaced, update the drawing sheets accordingly. Pans for medium to large bridges shall be 11" x 17" in size. Type the following information on a structure drawing sheet: the bridge span length(s), clear roadway widths, out-to-out superstructure widths, and the minimum vertical underclearance (as field measured). If existing plans or sketches for the bridge inspected are not available, include a sheet stating, **"Existing Plans are not Available"**, in their place in the report. Plans shall be considered unavailable if after one request of DDOT they are not located. The above structure data shall be included on this sheet.

2.2.2.5 Bridge Inspection Summary Form – BrM (formerly PONTIS) and NBI Ratings

This sheet is comprised of the element level inspection data and the NBI condition rating summaries for deck, superstructure, substructure, channel and culverts, if applicable. The 2013 AASHTO Manual for Bridge Element Inspection shall be used as the reference for the recording the element data. The NBI condition ratings are taken from the Bridge Inspection Report – NBI Ratings Form (see Section 2.2.2.7) and summary descriptions are provided. At the bottom of this form information on the special equipment used, the number of man-hours used (to the nearest hour) for the team inspection and report, inspection date and initials of the inspectors are given similar to that presented at the bottom of the NBI Ratings form.

2.2.2.6 Bridge Inspection Report – BrM (formerly PONTIS)

This form is used to describe the condition of the components rated on the Bridge Inspection Report – NBI Ratings sheet (see Section 2.2.2.7). All components with a rating of 6 or below must be clearly documented in this form. Each comment must be referenced to an element number from the AASHTO Manual for Bridge Element Inspection. Entries do not need to be in sequence as shown in the Bridge Inspection Report – NBI Ratings Sheet. Enough information must be provided to justify the rating given and to provide a clear understanding of the condition state for the evaluation by the appraiser. Documentation must be given to explain why the condition rating has changed for a particular element from the previous inspection. Numbering of spans and bents follows a North-South or East-West direction unless otherwise noted in the plans. In the General portion of the report, minimum vertical and horizontal underclearances shall be provided for the traveled roadways in both directions for divided highways and the minimum underclearances for two-way undivided traffic. If the minimum vertical underclearance

for the structure, above the traveled roadway or shoulder is 13'-6" or less, clearance posting shall be recommended with an assigned Priority Code of 1 unless there is a severe hazard and a Priority Code E is justified. Minimum vertical and horizontal underclearances shall be provided at any railway tracks. The location of the minimum vertical and horizontal underclearances shall be shown on elevation drawing or sketches of the structure. All organizations and/or persons contracted to gain access to the site or for safety purposes shall be identified and contact phone numbers provided in the General portion of the report (Railroads, NPS, Coast Guard, Harbor Patrol, etc.).

Should the bridge contain fracture-critical details as described in Section 2.4.3, the members shall be identified and receive a close hands-on inspection and their condition identified and described on this form. The fracture-critical report cover sheet, included in Appendix C, shall be completed, signed by the project manager and provided at the end of this form.

This form should include detailed information on the traffic safety features. The bridge rail type, the approach guide rail transitions, the approach guide rail and the approach guide rail ends must be identified as either non-existent, obsolete, non-standard or standard. In each case explain your choice.

Information is also needed on speed limit signs on the route. If there is a speed limit sign, indicate the limiting mph. If not, estimate the usual speed of traveling (mph). If there is a yellow speed warning sign approaching the bridge it should be noted and the posted speed limit recorded. The inspector needs to evaluate if the route speed limit or the usual speed limit should be lowered due to roadway alignment and estimate the reduction in mph. Indicate if the lowering of the traveling speed is due to horizontal alignment, vertical alignment or both.

Information on the overflooding frequency and expected traffic delays due to flood should be included. The flooding frequency can be divided in four periods: 0-3 years, 3-10 years, 11-100 years and >100 years. For each period indicate if the deck, the approaches or both get flooded. The delays due to flood should be classified in the following three categories: several hours, several days or several weeks.

A thorough condition documentation using sketches, tables and/or photographs is requested. The use of digital color photographs with the bridge number and inspection date imprinted is recommended. Color photos have proven to be most descriptive showing conditions on and around the structure and will also reduce the amount of field time that would otherwise be required for sketches and written documentation. All photographs and sketches must be referenced in the Bridge Inspection Report. Photographs should be preceded by a

photo-log sheet that will list the title of the photograph and indicate the location and direction the photograph was taken. All general and specific defect photographs should have a title giving a brief description of what each photo is showing (e.g., Spall at the East Face of the Cap on Bent 3).

Photographs shall be generally included in the following order:

- *General* – Elevation views of the bridge, approach photos (looking towards and away from the bridge) and photos looking upstream and downstream of the bridge.
- *Deck* – Deck joints, typical deck condition, typical parapet condition, typical guide rail or fence photos, typical deck drains, typical deck soffit and any photos depicting deterioration of the deck.
- *Superstructure* – Typical superstructure photos, typical bearings and any photos depicting deterioration of the superstructure
- *Substructure* – Typical substructure photos including wingwall elevations and any photos depicting deterioration of the substructure.
- *Miscellaneous* – Stream channel, slope protection, utility photos or posting signs.

Include photos of bank erosion conditions upstream, downstream and under the structure. Photos can vary in size to fit two photos on a sheet, but generally no less than 3-1/2" x 5".

2.2.2.7 Bridge Inspection Report – NBI Ratings

Listed below are guidelines and comments covering the items on this form.

A. **Bridge Number** – Enter the DDOT number assigned to the bridge being inspected (e.g., 0036, 1011 and 1303A).

B. **Name** – Indicate the name used to identify the bridge (e.g., K Street Bridge, South Capitol Street (NB), Potomac River Freeway [Ramps 1 and 4]).

C. **Over** – Indicate the name of the feature being crossed.

D. **SI&A Item 58, Deck** – Identify the type of material used for decking. The general condition rating (dark boxes) for this item should be a condition evaluation that reflects on all spans in the structure and not necessarily one span having

the worst condition rating. The condition rating of elements listed under deck such as (wearing surface, joints, curbs, railing, etc.) should not control the overall SI&A deck rating (e.g., a wearing surface at its worst condition may reduce the overall rating of a deck at the most to a 6, fair condition).

D.1 **Wearing Surface** – Rate only the existing condition of the wearing surface.

D.2 **Joints** – Show the number of each type used in the structure and apply a condition grade for each type that best reflects on the entire structure. If in doubt about the type of joint provide photos and additional description that will facilitate its identification in the office.

D.3 **Drainage System** – Rate the condition of the deck drainage system.

D.4 **Curbs, Sidewalks, Parapets, Median Barriers and Delineations** – Rate only their existing condition.

D.5 **Railings** – Identify the type of material used for the railing, the type of railing and rate only its existing condition (the fact that a railing does not meet current standards should not have a bearing on the condition rating). When the type of railing cannot be identified provide photos for further identification (it will be needed for the appraisal of the bridge safety features).

D.6 **Railing Protective Coating** – Rate the existing condition of the railing protective coating. If not existent rate N.

D.7 **Soffit** - Rate the condition of the deck soffit. This element will primarily control the overall deck rating, especially for reinforced concrete decks.

E. **SI&A Item 59, Superstructure** – Listed elements are used for evaluating the condition rating for SI&A Item 59. Secondary members and bearings should not control the overall SI&A rating of Item 59. Only in extreme situations will secondary members and bearings affect the overall SI&A rating.

E.1 **Main Members** – Select the material type and rate the existing conditions of the main superstructure element (e.g., girders, beams, spandrel bents, cables on cable support bridges). Different spans may have different main members and material types.

E.2 **Floor Systems** – Rate the existing condition of the members conforming the floor system. Under a separate item rate the condition of the corresponding connections.

E.3 **Secondary Members** – Rate the existing conditions of secondary members such as intermediate diaphragms or cross bracings.

E.4 **Machinery (Movable Spans)** – The rating shown should be the overall rating resulting from a special inspection and using a form for movable spans.

E.5 **Bearings** – Determine if the bearing was initially intended to be fixed or expansion and report the existing condition in the appropriate box. Indicate the type of bearing being inspected (e. g., sliding, rocker, roller). Bearings will not influence the superstructure condition rating except in extreme situations.

E.6 **Steel Protective Coating** – If there are steel members, rate the condition of the protective coating system. Otherwise rate as N.

E.7 **Pin and Hanger Assemblies** – If there are pin and hanger assemblies, rate the overall conditions of visible components including pins, bushings and hanger plates. Include alignment of components, effects of corrosion product and condition of paint protection. Include condition of auxiliary support systems, if present.

F. **SI&A Item 60, Substructure** – Listed elements are used for evaluating the condition rating for SI&A Item 60. All these items except for backwalls, wingwalls, collision protection system and steel protective coating can significantly affect the overall evaluation of SI&A Item 60. Scour conditions should be thoroughly investigated and detailed in the report (refer to FHWA Technical Advisory T5140.23 and HEC 18). Scour conditions affecting the overall condition of the substructure (SI&A Item 113 is 4 or less) will affect the overall condition rating for SI&A Item 60.

F.1 **Above Ground Substructure Elements** – Rate the existing conditions of all visible substructure elements above the ground level.

F.2 **Below Ground Substructure Elements (Footing, Piles, Piers)** – If possible rate the existing condition of below ground substructure footings, sills, piles, piers. Make a best judgment rating on unseen below ground

items and state either "not visible" or "unable to inspect". Request an underwater inspection for substructures that cannot be evaluated below waterline to the ground line.

G. **SI&A Item 61, Channel and Channel Protection –** Conditions to be rated under this SI&A Item are associated with the flow of water through the bridge. Drift along the channel and/or under the structure should be considered when making the evaluation. The definition and rating scales used for this SI&A Item are found on Page 40 of the Recording and Coding Guide.

G.1 **Channel Banks** – Rate the existing condition of the channel banks. Slope erosion caused by roadway drainage should not be rated under this group of elements but as slope protection, riprap, drainage under abutment or slop protection under approaches. If slope erosion is caused by channel flow then the condition should affect both elements, the abutment slope protection and the channel banks, and will have an impact on SI&A Item 61.

G.2 **Channel Bed** – The existing condition of the channel bed including any scour effects should be rated under this element.

G.3 **Waterway Opening** – Rate the existing condition of the waterway opening at the bridge site. Drift under the structure should be considered when making this evaluation.

G.4 **Riprap, Toe Walls, Aprons, Dikes Jetties** – The existing condition of these elements should also be evaluated. However they should not have a significant effect on the overall rating of SI&A Item 61.

H. **SI&A Item 62, Culverts** – The present form has been developed for structures other than culverts. Therefore, in this form the corresponding rating code for SI&A Item 62 must be N. If a culvert structure is being inspected then use the Culvert Inspection Form (to be developed).

I. **Approaches** – The existing condition should be rated according to the general SI&A conditions ratings. The rating code should include among others the effects of settlement, rippling, stability, roughness, broken surfacing. The elements listed under this Item will have a condition rating but there will not be an overall rating for the approaches.

I.1 **Embankments** – Rate the existing condition of the embankments and embankment retaining walls.

I.2 **Slope Protection** – This refers to the existing condition of the embankment or the cut slopes.

I.3 **Roadway** – Rate the existing condition of the pavement structures right before and after the bridge structure.

I.4 **Relief Joints** – Rate the existing condition of any joints provided to accommodate pavement deformations.

I.5 **Approach Slabs** – This element will furnish a condition rating only for structures with a design approach slab to the bridge.

I.6 **Drainage** – Rate the existing condition of the approach roadway drainage.

I.7 **Guiderail** – Identify the type of material used for the guiderail, the type of guiderail and rate only its existing condition (the fact that the guiderail does not meet current standards should not have a bearing on the condition rating). When the type of guiderail cannot be identified provide photos for further identification (include transition and ends). The information will be needed for the appraisal of safety features.

I.8 **Delineation** – Rate the existing condition of delineators used in the approach roadway.

I.9 **Sight Distance** – Rate the sight distance condition for the bridge.

J. **Miscellaneous** – Miscellaneous items rated are any bridge SIGNS (specify the type being rated, e.g., posting sign, warning sight), existing ILLUMINATION, WARNING DEVICES, UTILITY LINES on or under the bridge. In the case of utilities identify the type of utility when recognizable and give details by sketches or photographs on how it is attached to the structure.

K. **Special Equipment Used** – List any non-routine means of access to the bridge such as snoopers, bucket trucks, climbing gear, scaffolding, rigging, etc.

L. **No. Hours** – Enter the total Inspection Team man-hours and report preparation time (to the nearest one hour). Field time should include travel. If other help is needed such as

flagman and rigging personnel, enter their total man-hours and specify the type of help.

M **Special Requirements** – For bridges requiring access to areas such as railroad and private property needed to conduct inspections, provide the name of the facility, the contact person, telephone number and any other information needed to complete the inspection.

N. **Inspection Date** – Enter the date the field inspection was completed.

O. **Inspected By** – The report is considered a legal document and must be initialed and signed by the Team Leader. The Supervising Engineer (which could also be the Team Leader) needs to sign and seal the Bridge Inspection Report and Summary Report Form.

2.2.2.8 Bridge Appraisal Worksheet

This worksheet is provided to aid the appraiser in documenting the appraisal values required for the following SI&A items:

SI&A ITEM 67: "Structural Evaluation"
SI&A ITEM 68: "Deck Geometry"
SI&A ITEM 69: "Underclearances"
SI&A ITEM 70: "Bridge Posting"
SI&A ITEM 71: "Waterway Adequacy"
SI&A ITEM 72: "Approach Roadway Alignment"

Also, provided in the worksheet is space to discuss and rate the different components of the Traffic Safety Features (SI&A Item 36).

2.2.2.9 Soundings/Stream Bed Cross Section

Soundings shall be obtained for all bridges over waterways to develop a stream bed cross section at the upstream side of the bridge. Whenever there is a difference in bed elevation of two feet or more from the upstream side to the downstream side, a sketch of the stream bed cross section at the downstream side of the bridge should also be included. The stream bed cross section should reflect the entire bed elevation profile of the structure and include any significant changes in the bed profiles from previous inspections. Structures over large bodies of water or fast currents need special equipment to obtain the bed profiles. Make the request for the special equipment on the "Bridge Inspection Record" form.

2.2.2.10 Bridge Maintenance and Repair/Rehabilitation Recommendations

This form should be a new submittal for each inspection and included in each report even when no recommendations for maintenance and repairs are needed.

Enter the Bridge number (BRIDGE No.), the highway name (HIGHWAY), the inspector's name (INSPECTOR), and the date the form was completed (DATE). The form consists of four columns: The first column is to enter the name and element number for which recommendations are being made (see Bridge Inspection Record and Summary Form for element descriptions). If an element number is not available, enter the name of the component or item. The second column is to describe the recommended maintenance or repair action. The third column is to provide a photograph, if available, of the deficiency and the fourth column is to indicate a priority code (PC) for the recommended action.

Quantities shall be provided for all maintenance and repair/rehabilitation recommendations (i.e., LF, SF, CF, EA, etc.) so that DDOT can plan for the magnitude of the work.

2.2.2.11 Load Rating Summary Form

This form is used by DDOT to provide a summary of all the inventory and operating rating calculations and the recommended posting actions for their in-house bridge ratings. This form is signed and sealed by the Engineer making the posting recommendations. Enter the bridge number (BRIDGE No.) and the highway name (FACILITY CARRIED). In the table provided, the bridge member being rated and the corresponding inventory and operating HS loadings are entered. At the bottom of the table the controlling load ratings are summarized.

Below the table, the calculated posting corresponding to the critical load rating and the bridge member controlling the load posting are entered and the existing posting and the recommended posting are indicated. If these two are different, the reason for the posting change is entered.

Finally, as already indicated, the form is signed, dated and sealed by the Engineer responsible for the posting recommendations.

2.2.2.12 Photograph Summary Sheet

This photograph summary sheet or photo-log has been developed to aid in the identification and sorting of the photographs taken during the inspection. Inspectors need to enter the bridge number (BRIDGE No.) and the highway name (HIGHWAY). Provide the photo number (PHOTO No.) used in the report and a brief description of the picture (DESCRIPTION). Finally date the sheet (DATE).

2.2.2.13 Structure Inventory and Appraisal Sheet (SI&A)

A printout of the latest structure inventory and appraisal sheet must be included in the report package. The SI&A sheet will be provided by DDOT from the PONTIS database. Any bridge data changes must be clearly marked on this sheet. In most cases the changes will be due to new condition and appraisal ratings, and a new date of inspection.

2.3 Scour and Underwater Evaluations

2.3.1 General

The following criteria are intended to provide guidance in determining whether or not the underwater inspection of a given bridge is advisable, and if so, how often should an underwater inspection be performed and what underwater inspection techniques should be used. Nevertheless, no set of criteria can be all inclusive and eliminate the need to exercise engineering judgment. It is therefore, important that the Bridge Inspection Supervisor or Bridge Inspector not only use these criteria, but also study the available references to become thoroughly familiar with the uses and limitations of underwater inspection techniques.

There are three categories of underwater investigations that may be appropriate for a given bridge. The categories are channel profile measurements, scour investigations and underwater inspections. Specific criteria for each category are discussed in the following sections.

2.3.2 Scour Evaluation

The FHWA Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges requires all bridges over stream crossings to be rated for Item 113, Scour Critical Bridges. FHWA Technical Advisory T5140.23, HEC 18 – Evaluating Scour at Bridges and HEC 20 – Stream Stability at Highway Structures provide guidance on developing and implementing a scour evaluation program.

The process provides for a screening investigation that will allow first to group bridges over stream crossings as scour susceptible or non-scour susceptible and to assess the scour potential of scour susceptible bridges. The information collected should in most cases serve as the basis for the rating of Item 113 of the Structure Inventory and Appraisal/National Bridge Inventory. For those few cases where the information collected does not lead to a conclusive Item 113 rating a detailed scour analyses must be undertaken. A scour analysis shall be made by hydraulic/geotechnical/structural engineers.

2.3.2.1 General Recommendations for Rating Item 113

- If the bridge has failed and is closed due to scour than rate as 0.
- If the bridge is closed and failure due to scour is imminent then rate as 1.
- If footing base is exposed and a prompt action is required to protect the bridge from scour, then rate as 2.
- If scour holes have formed to depths near spread footing base and the underlying material is erodible soil or rock (RQD less than 50) then rate as 2.
- If there are exposed piles requiring protection then rate as 4.
- If the bridge is a culvert with a paved invert then rate as 8. Culverts and pipes, even with minor scour, will generally be

rated as 8. Scour requiring some corrective action but not critical should be rated as 4.

- If scour holes have formed to depths near spread footing base and the underlying material is fair to good quality rock then rate as 6 (scour countermeasures and monitoring may be necessary).
- If the foundation is unknown and the risk of damage due to scour is low then rate as 6; if the risk of damage is considered severe than rate as 3. If subsequent subsurface investigations and detailed scour analyses show the bridge to be scour critical (provide scour countermeasures). Otherwise, rate as 6 (scour countermeasures can be deferred).

2.3.3 Channel Profile Measurements

All bridges over waterways, except box culverts and other bridges with lined channels, should have a channel profile sheet which is updated as appropriate by re-measuring the channel profile. Design plans will usually show the channel profile as it existed at the time of construction.

If portions of the channel are submerged, then appropriate underwater inspection techniques should be used to take channel profile measurements. If water currents and channel depths are moderate, then the Bridge Inspector would ordinarily take measurements with a drop line just as if the channel were dry. However, if there are significant currents or extreme depths, then a sounding rod or electronic depth finder should be used. See Section 2.3.5 for further discussion of underwater inspection techniques.

There are two criteria for the frequency of channel profile measurements. First and foremost is channel activity, i.e., changes in the channel depth or width, or shifts in the channel's position within the floodplain. If there are no indications of significant activity, then there is no need to re-measure the channel profile. The second criterion in whether or not channel activity endangers one or more of the substructure elements. The second criterion depends on the magnitude of the channel activity, as well as, the type of substructure element affected.

For instance, even though a channel is shifting significantly, there might not be a potential to endanger concrete piling embedded 25 feet below the channel bed elevation. If this is true, then channel profile measurements would not be warranted more frequently than every 60 months as recommended in Table 2.3.1.

All bridges over waterways should have a sketch of the stream bed cross sections along the upstream and downstream fascia.

Table 2.3.1: Criteria for Channel Profile Measurement

CRITERIA	RECOMMENDED FREQUENCY
The channel is active and channel activity currently endangers one or more substructure elements.	Every 24 months, plus or minus six months.
The channel is active and continued channel activity may endanger one or more substructure elements even though none are currently endangered.	Every 48 months, plus or minus 12 months or during an underwater inspection.
The channel is active but the magnitude of channel activity has little potential to cause substructure problems or the channel is not active.	Every 60 months, plus or minus 24 months or during an underwater inspection.

For bridges not in the underwater program, the channel cross sections shall be determined by taking drop line readings along each fascia of the bridge. The stream bed cross sections should reflect the entire bed elevation profile of the structure and include any significant changes in the bed profiles from previous inspections. If readings were taken during a previous inspection, then new readings should be taken at the same locations from the same reference point on the bridge. If previous readings are not available, then readings should be taken starting adjacent to the beginning abutment and proceeding at spacing less or equal to 10 feet to the end abutment. An additional reading should be taken in front of each intermediate pier.

The readings shall be recorded on a sketch which clearly locates each sounding point, and identifies the reference used for the readings. Acceptable reference points are the top of the railing or parapet, and the top of the deck. If the top of railing or parapet is used as the reference point, the dimension from the top of the railing to the sidewalk or top of the deck should be recorded so that the reference is not lost in the case the railing is replaced. Refer to the Bridge Inspector's Reference Manual (BIRM), Section 13.2.6 for an example of channel profiles.

The drop line method does not work well for bridges over large bodies of water or fast currents (e.g., bridges over the Potomac River or over the Anacostia River). These bridges will need special equipment to obtain the bed profile. Since these bridges are inspected in detail throughout an underwater inspection program, no attempt should be made during routine NBI inspections to obtain the bed elevation profile. However, it should be noted in the "Bridge Inspection Record" form, the need for special equipment and any observed problems due to scour or erosion. There could be some bridges not over the Potomac River or Anacostia River where the drop line method will not work. In those cases, the consultant shall propose a method to obtain the stream bed profiles and submit the estimate cost to the DDOT Project Manager for approval.

If local scour greater than two feet deep (measure from the original stream bed profile) is observed adjacent to any portion of a substructure, or if the channel bottom cannot be seen adjacent to any portion of the substructure, then a channel profile shall be provided for the entire length of the substructure unit.

The readings should be taken immediately next to the footing or approximately one foot beyond the face of abutment or pier if the footings are not exposed. The readings should be taken at five foot spaces or less along each face of pier or abutment. Additional readings shall be taken at five foot intervals for 30 feet upstream and downstream along a projected centerline of any substructure where channel profile readings are required. Acceptable reference points are the top of footing, the bridge seat and the top of pier. In addition, when erosion or scour is observed, a sketch should be provided documenting the location and the three dimensions of the limits of bed material loss.

2.3.4 Scour Investigations

Scour investigations should be performed if there is a potential for substructure problems such as the undermining of a spread footing or the exposure of steel or timber piling. When investigating scour, if portions of the substructure are submerged, then appropriate underwater inspection techniques should be used. If plans are available, scour measurements can be correlated with the substructure configuration to determine whether a spread footing is being undermined or whether piling are being exposed by scour. Depending on stream depth and velocity, the Bridge Inspector would ordinarily work from a boat and take scour measurements with a drop line, sounding rod or electronic depth finder. When plans are not available, ordinary techniques may not indicate undermining or exposure of piling. In this case, the use of divers may be warranted, especially for major bridges when there is a high potential for scour. See Section 2.3.5 for further discussion of underwater inspection techniques.

There are two criteria for the frequency of scour investigation. First is the potential for scour, which is judged by the stream velocity at flood state and by the characteristics of the channel bed material. If there is no potential for significant scour, as for bridges over lakes or rocky channels, then there is no need to investigate scour.

The second criteria is the potential for substructure problems caused by scour. The three substructure problems that may be caused by scour are as follows:

1. Undermining. If the substructure does not extend below the depth of anticipated scour, then scour may undermine the substructure.

2. Piling deterioration. If steel or timber piling could be exposed by scour, then the piling may be subject to deterioration. In fresh water, piling deterioration is most likely to be critical if piling are exposed within a few feet of the water surface at low water. In salt or brackish water, piling deterioration may be critical if piling are exposed anywhere between the water surface and the mud line.

3. Instability. If scour removes channel or embankment material from one side of a pier or abutment, then lateral pressure from material on the other side may cause substructure instability.

When a scour investigation is warranted, the recommended frequency of scour investigation should be determined from Table 2.3.2. For instance, if the potential exists for scour to expose steel pilings that are presently encased in concrete to a depth one foot below the mud line in a salt water bay, then the recommended frequency of scour investigations would be every 60 months as determined from Table 2.3.2.

Table 2.3.2: Criteria for Scour Investigations

CRITERIA	RECOMMENDED FREQUENCY
Scour endangers one or more substructure elements.	Every 24 months, plus or minus six months.
Scour may endanger one or more substructure elements even though none are currently endangered.	Every 60 months, plus or minus 12 months
Significant scour is possible or present but has little potential to cause substructure problems.	Every 96 months, plus or minus 24 months.
The channel and stream characteristics make significant scour unlikely	Whenever significant scour becomes possible.

2.3.5 Underwater Inspections

Underwater inspection of bridge structural elements over major rivers shall be performed on regular intervals not-to-exceed 60 months. Inspections of below water foundations on minor waterways shall be inspected during the regular inspection.

Certain underwater structural elements may require inspection at less than 60 month intervals. The level and frequency to which these members are inspected should consider such factors as construction material, environment, age, scour characteristics, condition rating from past inspections and known deficiencies.

Certain underwater structural elements may be inspected at greater than 60 month intervals, but not exceeding 72 months. Written FHWA approval is required for greater than 60 month intervals. This may be appropriate when past inspection findings and analysis justifies the increased inspection interval.

Other factors that can prompt an underwater inspection at less than 60 month intervals are:

1. When above water inspection indicates that serious problems exist below water.

2. When submerged portions of the substructure are susceptible to deterioration that may not be evident through a visual inspection of areas near the waterline at low tide or periods of low water. In salt, brackish or

corrosive waters, underwater portions of the substructure are susceptible to hidden deterioration when there is a change in the type, configuration or protection of material in the area from the splash zone to the mud line. In fresh or noncorrosive waters, susceptibility is generally limited to bridges where material changes occur near the low water level.

3. When plans are not available and there is possibly a material change as described in the preceding paragraph.

If an examination of submerged portions of the substructure is warranted, then the use of a diver is generally recommended. See Section 2.3.6 for further discussion of underwater inspection techniques.

2.3.6 Underwater Inspection Procedures

2.3.6.1 Diving Inspection Intensity Levels

Originating in the offshore diving industry, and adopted by the United States Navy, the designation of standard levels of inspection has gained acceptance. Three diving inspection intensity levels have evolved as follows:

- Level I: Visual, tactile inspection
- Level II: Detailed inspection with partial cleaning
- Level III: Highly detailed inspection with nondestructive testing

Routine underwater inspections normally include a 100 percent Level I inspection and a 10 percent Level II inspection, but it may include a Level II and Level III inspection to determine the structural condition of any submerged portion of the substructure with certainty.

Level I inspection consists of a close visual inspection at arm's length with minimal cleaning to remove marine growth. Although the Level I inspection is referred to as a "swim-by" inspection, it must be detailed enough to detect obvious major damage or deterioration. A Level I inspection is normally conducted over the total 100% exterior surface of each underwater element, involving a visual and tactile inspection with limited probing of the substructure and adjacent streambed. The results of the Level I inspection provide a general overview of the substructure condition and verification of the as-built drawings. The Level I inspection can also indicate the need for Level II or Level III inspections and aid in determining the extent and selecting the location of more detailed inspections.

Level II inspection is a detailed inspection that requires that portions of the structure be cleaned of marine growth. It is intended to detect and identify damaged and deteriorated areas that may be hidden by surface growth. A Level II inspection is typically performed on at least 10% of all underwater elements. In some cases, cleaning is time consuming and should be restricted to critical areas of the

structure. The thoroughness of cleaning should be governed by what is necessary to determine the condition of the underlying material. Removal of all growth is generally not needed. Generally, the critical areas are near the low waterline, near the mud line, and midway between the low waterline and the mud line. On pile structures, horizontal bands, approximately 6 to 12 inches in height, should be cleaned at designated locations:

- Rectangular piles – the cleaning should include at least three sides
- Octagonal piles – at least six sides
- Round piles – at least three-fourths of the perimeter
- H-piles – at least the outside faces of the flanges and one side of the web

On large elements, such as pier and abutments, areas at least one square foot in size should be cleaned at three or more levels on each face of the element. Deficient areas should be measured, and the extent and severity of the damage documented.

A Level III inspection is a highly detailed inspection of a critical structure or structural element, or a member where extensive repair or possible replacement is contemplated. The purpose of this type of inspection is to detect hidden or interior damage and loss in cross-sectional area. This level of inspection includes extensive cleaning, detailed measurements and selected nondestructive and partially destructive testing techniques such as ultrasonic, sample coring or boring, physical material sampling and in-situ hardness testing. The use of testing techniques is generally limited to key structural areas, areas that are suspect, or areas that may be representative of the entire bridge element in question.

The appropriate level of inspection will depend on such factors as age, construction material, type of design, stream bed material, presence of corrosion pollution, depth and velocity of flood flows, maintenance history and numerous other factors. Refer to Section 13.3.2 in the BIRM for additional information on underwater inspection procedures.

2.3.6.2 Sounding Techniques

1. Sounding rod. A typical sounding rod is a 15 or 20 foot graduated pole that can be folded up or taken apart like a fishing pole. A sounding rod is suitable for channel profile measurements and scour investigations in shallow water.

2. Drop line. A typical drop line consists of a weight secured to the end of a 50 foot tape measure. A drop line is suitable for channel profile measurements and scour investigations in shallow or moderately deep water. However, high stream

velocities will cause the drop line to drift downstream making it difficult to take good measurements.

3. Electronic depth finder. The typical electronic depth finder is a portable, battery-operated, 10 lb. unit called a fish finder or fathometer. An electronic depth finder is suitable for channel profile measurements and scour investigations in deep water and faster moving streams.

2.3.6.3 Use of Divers

The use of divers is generally recommended for underwater inspections and may be advisable for scour investigations when plans are not available to correlate with soundings. In order to effectively use the time spent underwater, a diver must know what to look for and must be able to evaluate the significance of what is observed. For this reason, DDOT policy is that divers meet the qualifications of an Inspection Team Leader or be directly supervised at the site by a qualified P. E.

2.3.6.4 Underwater Photography and Video Equipment

Cameras come with a variety of lens and flash units. In some cases, visibility is limited and the camera must be placed close to the subject. Wide-angle lenses are, therefore, most often used. Suspended particles often dilute the light reaching the subject and can reflect light back into the lens. When visibility is very low, clear water boxes can be used. The boxes are constructed of clear plastic and can be filled with clean water. By placing the box against the subject area, the dirty water is displaced and the camera shot can be taken through the clear water.

Video equipment is available either as self-contained, submersible units or as submersible cameras having cable connection to the surface monitor and controls. The latter type allows a surface operator to direct shooting while the diver concentrates on aligning the camera only. The operator can view the monitor, control the lighting and focusing and communicate with the diver to obtain an optimum image. Since a sound track is linked to the communication equipment, a running commentary can also be obtained.

An extension of the video camera is a remotely operated vehicle (ROV), where the diver is eliminated and the camera is mounted on a surface controlled propulsion system. Its effectiveness diminishes substantially in stream velocities greater than 1.5 knots and is limited by cloudy water, inability to determine the exact orientation and position of the camera, and control sensitivity. Also important to note is that an ROV cannot typically perform cleaning operations prior to photos being taken.

2.3.6.5 Cofferdams

The use of a cofferdam permits a thorough substructure examination, but the expense involved make the use of a cofferdam unjustifiable except in hazardous situations or where qualified divers are not available. Numerous types of cofferdam systems are available making it possible to construct a cofferdam for practically any situation. However, if a cofferdam is to be used, the design must be checked by an Engineer. When considering the use of a cofferdam, recognize that the cost will increase tremendously as the water depth increases.

2.3.7 Bridges in the Underwater Inspection Program

The bridges listed in Appendix E have been identified by DDOT as requiring specialized underwater inspection (i.e., divers and sounding equipment). The inspection interval for these bridges is five years.

2.3.8 References for Scour and Underwater Inspection

The following references shall be utilized for scour and underwater inspections:

1. FHWA Bridge Inspector's Reference Manual (BIRM), Section 13
2. FHWA, Technical Advisory T5140.23
3. AASHTO Manual for Bridge Evaluation, Section 4.2.6

2.4 Fracture-Critical Inspections

2.4.1 General

The Bridge Inspection Consultant shall create and maintain a list of bridges that require fracture-critical inspections. The list may be established as inspections proceed. The list shall include a location and copy of the specific facture-critical details and the frequency at which they are inspected. The list shall be provided to DDOT periodically and whenever updates are made. A close visual inspection shall be made of all fracture-critical details during each routine inspection. At a minimum, the inspection report shall include the Fracture Critical Report Form, the location of each fracture critical detail on an enclosed plan sheet and recommendations for repair or retrofit, if needed.

A fracture-critical bridge member (FCM) is a steel bridge or span member in which a single fracture could cause the bridge or span to collapse. When bridge engineers talk about fracture and fracture-critical bridge members, they are talking about the failure of a steel member by cracking. Generally speaking, a fracture in an existing bridge or span will begin with a small crack which grows slowly over a period of years until it reaches its critical size. The critical size may be one-eighth of an inch or it may be several inches long depending on the type of steel, the stress in the steel and the temperature of the steel. Whatever the critical size, once a crack reaches that size, it grows instantaneously across the remainder of the cross sectional element. This instantaneous crack growth is what bridge engineers call a fracture.
A fracture is not always catastrophic, but in situations where only a few separate steel elements are available to carry the load, a single undetected crack in one

element could result in a catastrophic fracture that causes the bridge to collapse. The problem of where, when and how to look for that one insidious little crack is best approached in a systematic manner by means of a fracture control plan.

2.4.2 Fracture Control Plan for Existing Bridges

The purpose of a fracture control plan for existing bridges is to economically minimize the possibility of a catastrophic fracture by increasing the level of inspection in proportion to the potential for catastrophic fracture. The following factors increase the potential for catastrophic fracture:

1. Low redundancy of bending or tension members
2. Structural details that cause high stress concentrations
3. High design stresses
4. Low standards of fabrication and construction
5. High volumes of truck traffic
6. Heavy overloads
7. Low temperature
8. Deterioration or damage at critical details

When there is a high potential for catastrophic fracture, considerable resources and technical expertise should be brought to bear on the problem of detecting cracks before they reach critical size. A good fracture control plan will minimize the possibility of a catastrophic fracture by rationally allocating the resources and technical expertise available for bridge inspection.

The following steps are recommended for developing a fracture control plan for existing bridges:

1. Identify all fracture-critical bridge members
2. Identify the critical areas of these members
3. Identify the critical details within these areas.
4. Evaluate the critical details by considering design, fabrication and construction practices, as well as, detail geometry
5. Evaluate service conditions by considering truck traffic, overloads and existing deterioration or drainage
6. Allocate available resources and technical expertise according to the potential for catastrophic fracture as determined in Steps 4 and 5.

Steps 1, 2 and 3 are accomplished as explained below in Section 2.4.3 and in Section 10 of the Bridge Inspector's Reference Manual (BIRM). The AASHTO Manual for Bridge Evaluation, Sections 6 and 7 provide guidance for Steps 4 and 5.

2.4.3 Fracture-Critical Details

Fracture-critical details are the structural details that cause stress concentrations within the critical areas of fracture critical members. The critical areas of fracture-critical members are the high tension areas where only a few separate steel elements are available to carry the load.

The following examples describe how to identify the fracture-critical members and fracture critical areas of bridges.

Two-Girder Systems. Steel bridges or spans with only two main girders are fracture-critical Steel bridges or spans with only two main girders will have a fracture-critical area on each girder at the lower flange in the mid-span region of each span and at the upper flange in the region over each continuous support. The upper flanges near the end supports do not constitute fracture-critical areas.

Box Girder Bridges, Single Box Design. The single box design of a steel box girder is a fracture-critical bridge. The bottom plate is welded to two or sometimes three web plates each of which has a flange plate welded to its upper edge. The upper flange plates will be fracture-critical areas in the regions over each continuous support except where the plans show a substantial amount of additional reinforcing steel parallel to the flanges. In this case, the additional reinforcing steel provides a high degree of redundancy that guards against a sudden catastrophic fracture.

Steel Caps. Where supports cannot be located directly under the bridge, bridge designers may use a steel box beam cap to span between widely spaced columns. The superstructure is then supported in the mid-span region of the cap. In these cases, there is one fracture-critical area at the lower flange in the mid-span region.

Truss Bridges. When a truss bridge has only two main trusses it may contain fracture-critical members. The fracture-critical member would be single-element tension member such as an eyebar or I-beam tension member. Built-up, riveted tension members are not considered fracture-critical, neither are tension members consisting of multiple separate steel elements. Each fracture-critical tension member would count as one fracture-critical area.

Suspension Bridges. The main suspension cables and suspenders are not considered fracture-critical if they consist of multi-strand cables. However, on older suspension bridges, eyebars or threaded rods may be used for the main suspension cables. Each of these members is fracture-critical unless it consists of more than two eyebars or threaded rods.

Suspended Span Bridges, Two-Girder Bridges. The same criteria apply that were discussed for two-girder systems. In addition, pin and hanger assemblies which may support a two-girder, suspended span are considered fracture-critical. If auxiliary support systems (catcher beams) are in place at pin and hanger assemblies, these are considered fracture-critical details

Once the critical areas have been identified, the critical details are identified by referring to Table 6.6.1.2.3-1 of the 2010 AASHTO "LRFD Bridge Design Specifications" Fifth Edition. The AASHTO Specifications identify structural details and assign each detail to a category which indicates its relative severity. Category "A" details are the best details because they can withstand repeated loading better than the other details which become progressively worse for Categories B, C and so on. Categories E and E' are the worst details

2.4.4 Evaluation of Fracture-Critical Bridges

The following procedures provide specific guidance for determining when a detailed inspection of a fracture-critical bridge is needed. The Bridge Inspector should follow these procedures to evaluate all fracture-critical bridges in the District. When evaluating fracture-critical bridges, consider the following factors:

Stress Category of Critical Details. Each change in cross section within the critical areas should be identified and assigned a stress category in accordance with Table 6.6.1.2.3-1 of the AASHTO LRFD Specification referenced herein. Refer to the AASHTO Specification for special cases and further explanation of the stress categories. In general, the inspector should be concerned with Category E details or worse. However, the inspector may use discretion in including certain details in lower categories.

Stress Range. The representative stress range is found in accordance with the AASHTO LRFD Specification referenced herein. The location of the stress and the loading that produces it should be noted, and the stress calculations should be made part of the permanent record of the bridge.

Equivalent Daily Fatigue Loading. This is the number of times that the representative live load stress is produced in the critical area. In the absence of load monitoring, this number is merely an estimate of the number of fully loaded trucks that cross the bridge each day in the critical lane.

Estimated Fatigue Life Remaining. After determining the live load stress range and the most severe stress category for the critical details, the remaining fatigue life of the bridge can be determined using the AASHTO LRFD Specification referenced herein.

Inspection Frequency. All FCMs are to be inspected at intervals not-to-exceed 24 months. Certain FCMs may require inspection at less than 24 months depending on the age of the bridge, equivalent daily fatigue cycles, remaining estimated fatigue life, condition of the fracture-critical members and the stress category of the member.

2.4.5 Fracture-Critical Inspection Techniques

Inspection Techniques. A Fracture-Critical Inspection consists of an intense close visual inspection of FCMs or fatigue-sensitive details for fatigue cracks. The inspection could include special cleaning or the use of nondestructive testing methods. This type of inspection shall be conducted based on findings from a routine inspection or at predetermined intervals. A close visual inspection requires that the critical details be cleaned free of cracked paint, rust and debris. The ideal time for a close visual inspection is during a painting job immediately after the steel has been blast cleaned. The worst time is immediately after painting because the fresh paint will hide any cracks that might exist. Several years after painting, a close visual inspection without the removal of paint should reveal cracks that have grown since painting. Cracked

paint at critical details must be removed to determine if the steel is cracked beneath the paint.

The inspection is generally limited to the close visual inspection. If this inspection reveals cracks or suspected cracks, then additional nondestructive testing methods such as ultrasonic, dye penetrant, magnetic particle or other methods may be required depending on the circumstances. Ultrasonic inspection of pins in pin and hanger systems shall be performed to detect internal defects in these components.

2.4.6 Fracture-Critical Inspection Report

2.4.6.1 General Guidelines

The fracture-critical report should include at least the following:

- Fracture-Critical cover sheet (see Appendix C)
- Inspection Findings (narrative style)
- Summary and Conclusions
- Sketches and Photographs

2.4.6.2 Fracture-Critical Cover Sheet

The cover sheet shown Appendix C is divided into four parts:

1. General information
2. Equipment used
3. Inspection team/inspection date
4. Repairs needed

General Information: Under General Information, type the bridge number, bridge name, facility carried, feature crossed, ADT, percent truck in ADT and ADT date.

Equipment Used: Check all applicable equipment. If the special equipment used is not listed, fill in the blank spaces provided. More than one box can be checked.

Inspection Team/Inspection Date: Write in the names of the inspectors, the reviewer of the report and the date of the inspection.

Repairs Needed: Check all that applies. If no repairs are needed, check the "NONE" box; if there are deficiencies needing immediate attention to preserve the life of the bridge, check the "URGENT" box; if the repairs needed can be performed during a normal maintenance schedule, check the "PROGRAMMED" box. More than one box can be checked.

2.4.6.3 Inspection Findings

In this section include a detailed narrative which provides insight regarding the condition of the fracture-critical elements inspected. Sketches and photographs should be included and properly referenced in the text. Minor deficiencies or defects should be reported since they might evolve into critical deficiencies or defects. Fracture-critical elements with no notable problems should also be described in the report. This will help document that the member was inspected. Any defect found should be clearly identified. When possible, at least the type of defect, location and cause should be part of the narrative.

2.4.6.4 Summary and Recommendations

This is the final product of the Fracture-Critical Inspection Report. The summary should include a listing of deficiencies and the urgency of repairs. Recommendations should focus on reducing the risk of failure. The FCM report should be included with the routine inspection report.

2.4.6.5 Sketches and Photographs

The sketches and photographs can be included in an appendix or within the text. They serve to enhance and clarify the inspection report. Pictures can be taken not only of defects but also of members without defects to illustrate the current condition of the fracture-critical element. Always include in the photo a ruler or any other object that will provide an idea of the scale depicted. If close-up photos are taken, an overall picture shall also be included.

2.5 Inspection of Complex Bridges

Complex or special bridges are cable-supported structures such as suspension and cable-stayed bridges and movable bridges. The components of these structures, inspection procedures and overview of common defects are included in Section 16 of the Bridge Inspector's Reference Manual (BIRM). Although additional inspector training and experience beyond the qualifications as outlined in Section 1.4 of this document are not required for complex bridges, due to the specialized nature of these bridges or structures, the inspection supervisor or project manager should be very familiar with these type of bridges.

There are primarily three categories of movable bridges. There are swing bridges, bascule bridges and vertical lift bridges. Other than defects common to all types of bridges fatigue of structural members can be a problem with movable bridges due to reversal or fluctuation of stresses during opening and closing cycles. Members and connections subject to stress variations should be closely inspected for fatigue damage. Another important consideration for the inspection of movable bridges is safety. This includes inspector safety, public safety and navigation safety when operating the bridges.

2.6 Safety Inspections of Railroad-Owned Bridges

In addition to the NBIS inspection of bridges and tunnels in the District, DDOT is responsible for performing safety inspections of railroad-owned bridges crossing over all public highways in the District. The intent of these examinations is to perform a cursory inspection of the underside of the structures and supports, and the traffic safety features to determine if there are deficiencies at the structures that could affect the safe passage of vehicles or pedestrians below. These deficiencies could include deck underside concrete spalls or incipient concrete spalls, severe section loss in members, loose connection fasteners, extreme lean of bearings, traffic impact damage and lack of proper signs and/or hazard markers or the damage of such items. Detailed vertical underclearances are also obtained during each inspection in both directions of traffic at curblines, mid-span or at other high points in the roadway below to establish the minimum underclearance and the need for posting.

The safety inspections are performed at 24 month intervals. The inspection is performed from the ground, sidewalk or roadway below and could utilize a ladder. A report is prepared similar to the NBIS Inspection Report; however, it does not include all the forms of an NBIS Inspection Report. A sample Safety Inspection Report is included in Appendix D with the prescribed order of the respective forms or parts. The following sheets, sketches or forms are included in a Safety Inspection Report:

Bridge Inventory Cover Sheet

Bridge Inspection Summary

Bridge Location Map

Sketch of Vertical Underclearances – A plan view of all obtained underclearances

Bridge Inspection Report–BrM – This form contains an abbreviated narrative of the structure condition and observed deficiencies

Bridge Appraisal Worksheet – This form generally only contains the ADT, if known, on the roadway below the structure and the minimum vertical and horizontal under clearances

Bridge Maintenance and Repair/Rehabilitation Recommendations

Photograph Summary Sheet

3.0 STRUCTURAL ANAYSIS AND LOAD RATING

Perform or update the safe load carrying capacity of each bridge in accordance with the AASHTO manual. Evaluate load ratings at inventory and operating levels using the AASHTO HS configuration.

Use conventional methods of analysis unless more complex and refined methods are specified or warranted and specifically directed by the District.

Identify the structural components or members that govern the ratings. Define any section losses and/or deficiencies on these members. Include a table of stresses and a rating summary in the report.

All computations are to be in accordance with current AASHTO Specifications. Update existing computations accordingly. The rating calculations shall consider and reflect the structural condition of the bridge elements including section loss, steel cracks, loss of connections damaged or misalignment of members. The Consultant shall include a narrative report describing how any of these deficiencies were incorporated into the load rating calculations.

Calculate the load ratings, use data available from inspection files and reports, supplemental field information and testing data. When no data or drawings (or sketches) are available, calculate load ratings based on field measurements of components and material destructive testing, if needed. Post or restrict the bridge in accordance with the AASHTO manual or in accordance with the District law where the maximum unrestricted legal loads or State routine permits loads exceed the allowed under the operating rating or equivalent rating factor.

Perform a structural analysis of the substructure only if its structural adequacy is in question or it is at risk due to scour as a result of the field inspection findings or its unusual component makeup.

Provide emergency retrofit schemes, as directed, for any critical conditions uncovered. Final results should be summarized on a Load Rating form similar to that described in Section 2.2.2.11.

4.0 QUALITY CONTROL/QUALITY ASSURANCE

Assure systematic Quality Control (QC) and Quality Assurance (QA) procedures are used to maintain a high degree of accuracy and consistency in the inspection program. Include periodic field review of inspection teams, periodic review of bridge inspection refresher training for program managers and team leaders and independent review of inspection reports and computations. For additional information on this topic refer to Section 1.3 of the FHWA Bridge Inspector's Reference Manual (BIRM).

APPENDIX A

CODE OF FEDERAL REGULATIONS 23 – HIGHWAYS – PART 650

available resources, such as the procedures presented in the AASHTO "Model Drainage Manual," 1991.[2]

(c) Consistent with the requirements of section 6217(g) of the Coastal Zone Act Reauthorization Amendments of 1990 (Pub. L. 101–508, 104 Stat. 1388–299), highway construction projects funded under title 23, United States Code, and located in the coastal zone management areas of States with coastal zone management programs approved by the United States Department of Commerce, National Oceanic and Atmospheric Administration, should utilize "Guidance Specifying Management Measures for Sources of Nonpoint Source Pollution in Coastal Waters," 84–B–92–002, U.S. EPA, January 1993.[3] State highway agencies should refer to this Environmental Protection Agency guidance document for the design of projects within coastal zone management areas.

Subpart C—National Bridge Inspection Standards

SOURCE: 69 FR 74436, Dec. 14, 2004, unless otherwise noted.

§ 650.301 Purpose.

This subpart sets the national standards for the proper safety inspection and evaluation of all highway bridges in accordance with 23 U.S.C. 151.

§ 650.303 Applicability.

The National Bridge Inspection Standards (NBIS) in this subpart apply to all structures defined as highway bridges located on all public roads.

§ 650.305 Definitions.

Terms used in this subpart are defined as follows:

American Association of State Highway and Transportation Officials (AASHTO) Manual. "Manual for Condition Evaluation of Bridges," second edition, published by the American Association of State Highway and Transportation Officials (incorporated by reference, *see* § 650.317).

Bridge. A structure including supports erected over a depression or an obstruction, such as water, highway, or railway, and having a track or passageway for carrying traffic or other moving loads, and having an opening measured along the center of the roadway of more than 20 feet between undercopings of abutments or spring lines of arches, or extreme ends of openings for multiple boxes; it may also include multiple pipes, where the clear distance between openings is less than half of the smaller contiguous opening.

Bridge inspection experience. Active participation in bridge inspections in accordance with the NBIS, in either a field inspection, supervisory, or management role. A combination of bridge design, bridge maintenance, bridge construction and bridge inspection experience, with the predominant amount in bridge inspection, is acceptable.

Bridge inspection refresher training. The National Highway Institute "Bridge Inspection Refresher Training Course"[1] or other State, local, or federally developed instruction aimed to improve quality of inspections, introduce new techniques, and maintain the consistency of the inspection program.

Bridge Inspector's Reference Manual (BIRM). A comprehensive FHWA manual on programs, procedures and techniques for inspecting and evaluating a variety of in-service highway bridges. This manual may be purchased from the U.S. Government Printing Office, Washington, DC 20402 and from National Technical Information Service, Springfield, Virginia 22161, and is available at the following URL: *http://www.fhwa.dot.gov/bridge/bripub.htm.*

Complex bridge. Movable, suspension, cable stayed, and other bridges with unusual characteristics.

[2] This document is available for inspection from the FHWA headquarters and field offices as prescribed by 49 CFR part 7, appendix D. It may be purchased from the American Association of State Highway and Transportation Officials offices at Suite 225, 444 North Capitol Street, NW., Washington, DC 20001.

[3] This document is available for inspection and copying as prescribed by 49 CFR part 7, appendix D.

[1] The National Highway Institute training may be found at the following URL: *http://www.nhi.fhwa.dot.gov/*

Comprehensive bridge inspection training. Training that covers all aspects of bridge inspection and enables inspectors to relate conditions observed on a bridge to established criteria (see the Bridge Inspector's Reference Manual for the recommended material to be covered in a comprehensive training course).

Critical finding. A structural or safety related deficiency that requires immediate follow-up inspection or action.

Damage inspection. This is an unscheduled inspection to assess structural damage resulting from environmental factors or human actions.

Fracture critical member (FCM). A steel member in tension, or with a tension element, whose failure would probably cause a portion of or the entire bridge to collapse.

Fracture critical member inspection. A hands-on inspection of a fracture critical member or member components that may include visual and other nondestructive evaluation.

Hands-on. Inspection within arms length of the component. Inspection uses visual techniques that may be supplemented by nondestructive testing.

Highway. The term "highway" is defined in 23 U.S.C. 101(a)(11).

In-depth inspection. A close-up, inspection of one or more members above or below the water level to identify any deficiencies not readily detectable using routine inspection procedures; hands-on inspection may be necessary at some locations.

Initial inspection. The first inspection of a bridge as it becomes a part of the bridge file to provide all Structure Inventory and Appraisal (SI&A) data and other relevant data and to determine baseline structural conditions.

Legal load. The maximum legal load for each vehicle configuration permitted by law for the State in which the bridge is located.

Load rating. The determination of the live load carrying capacity of a bridge using bridge plans and supplemented by information gathered from a field inspection.

National Institute for Certification in Engineering Technologies (NICET). The NICET provides nationally applicable voluntary certification programs covering several broad engineering technology fields and a number of specialized subfields. For information on the NICET program certification contact: National Institute for Certification in Engineering Technologies, 1420 King Street, Alexandria, VA 22314–2794.

Operating rating. The maximum permissible live load to which the structure may be subjected for the load configuration used in the rating.

Professional engineer (PE). An individual, who has fulfilled education and experience requirements and passed rigorous exams that, under State licensure laws, permits them to offer engineering services directly to the public. Engineering licensure laws vary from State to State, but, in general, to become a PE an individual must be a graduate of an engineering program accredited by the Accreditation Board for Engineering and Technology, pass the Fundamentals of Engineering exam, gain four years of experience working under a PE, and pass the Principles of Practice of Engineering exam.

Program manager. The individual in charge of the program, that has been assigned or delegated the duties and responsibilities for bridge inspection, reporting, and inventory. The program manager provides overall leadership and is available to inspection team leaders to provide guidance.

Public road. The term "public road" is defined in 23 U.S.C. 101(a)(27).

Quality assurance (QA). The use of sampling and other measures to assure the adequacy of quality control procedures in order to verify or measure the quality level of the entire bridge inspection and load rating program.

Quality control (QC). Procedures that are intended to maintain the quality of a bridge inspection and load rating at or above a specified level.

Routine inspection. Regularly scheduled inspection consisting of observations and/or measurements needed to determine the physical and functional condition of the bridge, to identify any changes from initial or previously recorded conditions, and to ensure that the structure continues to satisfy present service requirements.

Routine permit load. A live load, which has a gross weight, axle weight or distance between axles not conforming

with State statutes for legally configured vehicles, authorized for unlimited trips over an extended period of time to move alongside other heavy vehicles on a regular basis.

Scour. Erosion of streambed or bank material due to flowing water; often considered as being localized around piers and abutments of bridges.

Scour critical bridge. A bridge with a foundation element that has been determined to be unstable for the observed or evaluated scour condition.

Special inspection. An inspection scheduled at the discretion of the bridge owner, used to monitor a particular known or suspected deficiency.

State transportation department. The term "State transportation department" is defined in 23 U.S.C. 101(a)(34).

Team leader. Individual in charge of an inspection team responsible for planning, preparing, and performing field inspection of the bridge.

Underwater diver bridge inspection training. Training that covers all aspects of underwater bridge inspection and enables inspectors to relate the conditions of underwater bridge elements to established criteria (see the Bridge Inspector's Reference Manual section on underwater inspection for the recommended material to be covered in an underwater diver bridge inspection training course).

Underwater inspection. Inspection of the underwater portion of a bridge substructure and the surrounding channel, which cannot be inspected visually at low water by wading or probing, generally requiring diving or other appropriate techniques.

§ 650.307 Bridge inspection organization.

(a) Each State transportation department must inspect, or cause to be inspected, all highway bridges located on public roads that are fully or partially located within the State's boundaries, except for bridges that are owned by Federal agencies.

(b) Federal agencies must inspect, or cause to be inspected, all highway bridges located on public roads that are fully or partially located within the respective agency responsibility or jurisdiction.

(c) Each State transportation department or Federal agency must include a bridge inspection organization that is responsible for the following:

(1) Statewide or Federal agencywide bridge inspection policies and procedures, quality assurance and quality control, and preparation and maintenance of a bridge inventory.

(2) Bridge inspections, reports, load ratings and other requirements of these standards.

(d) Functions identified in paragraphs (c)(1) and (2) of this section may be delegated, but such delegation does not relieve the State transportation department or Federal agency of any of its responsibilities under this subpart.

(e) The State transportation department or Federal agency bridge inspection organization must have a program manager with the qualifications defined in § 650.309(a), who has been delegated responsibility for paragraphs (c)(1) and (2) of this section.

§ 650.309 Qualifications of personnel.

(a) A program manager must, at a minimum:

(1) Be a registered professional engineer, or have ten years bridge inspection experience; and

(2) Successfully complete a Federal Highway Administration (FHWA) approved comprehensive bridge inspection training course.

(b) There are five ways to qualify as a team leader. A team leader must, at a minimum:

(1) Have the qualifications specified in paragraph (a) of this section; or

(2) Have five years bridge inspection experience and have successfully completed an FHWA approved comprehensive bridge inspection training course; or

(3) Be certified as a Level III or IV Bridge Safety Inspector under the National Society of Professional Engineer's program for National Certification in Engineering Technologies (NICET) and have successfully completed an FHWA approved comprehensive bridge inspection training course, or

(4) Have all of the following:

(i) A bachelor's degree in engineering from a college or university accredited by or determined as substantially

equivalent by the Accreditation Board for Engineering and Technology;

(ii) Successfully passed the National Council of Examiners for Engineering and Surveying Fundamentals of Engineering examination;

(iii) Two years of bridge inspection experience; and

(iv) Successfully completed an FHWA approved comprehensive bridge inspection training course, or

(5) Have all of the following:

(i) An associate's degree in engineering or engineering technology from a college or university accredited by or determined as substantially equivalent by the Accreditation Board for Engineering and Technology;

(ii) Four years of bridge inspection experience; and

(iii) Successfully completed an FHWA approved comprehensive bridge inspection training course.

(c) The individual charged with the overall responsibility for load rating bridges must be a registered professional engineer.

(d) An underwater bridge inspection diver must complete an FHWA approved comprehensive bridge inspection training course or other FHWA approved underwater diver bridge inspection training course.

§ 650.311 Inspection frequency.

(a) *Routine inspections.* (1) Inspect each bridge at regular intervals not to exceed twenty-four months.

(2) Certain bridges require inspection at less than twenty-four-month intervals. Establish criteria to determine the level and frequency to which these bridges are inspected considering such factors as age, traffic characteristics, and known deficiencies.

(3) Certain bridges may be inspected at greater than twenty-four month intervals, not to exceed forty-eight-months, with written FHWA approval. This may be appropriate when past inspection findings and analysis justifies the increased inspection interval.

(b) *Underwater inspections.* (1) Inspect underwater structural elements at regular intervals not to exceed sixty months.

(2) Certain underwater structural elements require inspection at less than sixty-month intervals. Establish criteria to determine the level and frequency to which these members are inspected considering such factors as construction material, environment, age, scour characteristics, condition rating from past inspections and known deficiencies.

(3) Certain underwater structural elements may be inspected at greater than sixty-month intervals, not to exceed seventy-two months, with written FHWA approval. This may be appropriate when past inspection findings and analysis justifies the increased inspection interval.

(c) *Fracture critical member (FCM) inspections.* (1) Inspect FCMs at intervals not to exceed twenty-four months.

(2) Certain FCMs require inspection at less than twenty-four-month intervals. Establish criteria to determine the level and frequency to which these members are inspected considering such factors as age, traffic characteristics, and known deficiencies.

(d) Damage, in-depth, and special inspections. Establish criteria to determine the level and frequency of these inspections.

§ 650.313 Inspection procedures.

(a) Inspect each bridge in accordance with the inspection procedures in the AASHTO Manual (incorporated by reference, *see* § 650.317).

(b) Provide at least one team leader, who meets the minimum qualifications stated in § 650.309, at the bridge at all times during each initial, routine, in-depth, fracture critical member and underwater inspection.

(c) Rate each bridge as to its safe load-carrying capacity in accordance with the AASHTO Manual (incorporated by reference, *see* § 650.317). Post or restrict the bridge in accordance with the AASHTO Manual or in accordance with State law, when the maximum unrestricted legal loads or State routine permit loads exceed that allowed under the operating rating or equivalent rating factor.

(d) Prepare bridge files as described in the AASHTO Manual (incorporated by reference, *see* § 650.317). Maintain reports on the results of bridge inspections together with notations of any action taken to address the findings of such inspections. Maintain relevant

maintenance and inspection data to allow assessment of current bridge condition. Record the findings and results of bridge inspections on standard State or Federal agency forms.

(e) Identify bridges with FCMs, bridges requiring underwater inspection, and bridges that are scour critical.

(1) Bridges with fracture critical members. In the inspection records, identify the location of FCMs and describe the FCM inspection frequency and procedures. Inspect FCMs according to these procedures.

(2) Bridges requiring underwater inspections. Identify the location of underwater elements and include a description of the underwater elements, the inspection frequency and the procedures in the inspection records for each bridge requiring underwater inspection. Inspect those elements requiring underwater inspections according to these procedures.

(3) Bridges that are scour critical. Prepare a plan of action to monitor known and potential deficiencies and to address critical findings. Monitor bridges that are scour critical in accordance with the plan.

(f) *Complex bridges.* Identify specialized inspection procedures, and additional inspector training and experience required to inspect complex bridges. Inspect complex bridges according to those procedures.

(g) *Quality control and quality assurance.* Assure systematic quality control (QC) and quality assurance (QA) procedures are used to maintain a high degree of accuracy and consistency in the inspection program. Include periodic field review of inspection teams, periodic bridge inspection refresher training for program managers and team leaders, and independent review of inspection reports and computations.

(h) *Follow-up on critical findings.* Establish a statewide or Federal agency wide procedure to assure that critical findings are addressed in a timely manner. Periodically notify the FHWA of the actions taken to resolve or monitor critical findings.

§ 650.315 Inventory.

(a) Each State or Federal agency must prepare and maintain an inventory of all bridges subject to the NBIS. Certain Structure Inventory and Appraisal (SI&A) data must be collected and retained by the State or Federal agency for collection by the FHWA as requested. A tabulation of this data is contained in the SI&A sheet distributed by the FHWA as part of the "Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges," (December 1995) together with subsequent interim changes or the most recent version. Report the data using FHWA established procedures as outlined in the "Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges."

(b) For routine, in-depth, fracture critical member, underwater, damage and special inspections enter the SI&A data into the State or Federal agency inventory within 90 days of the date of inspection for State or Federal agency bridges and within 180 days of the date of inspection for all other bridges.

(c) For existing bridge modifications that alter previously recorded data and for new bridges, enter the SI&A data into the State or Federal agency inventory within 90 days after the completion of the work for State or Federal agency bridges and within 180 days after the completion of the work for all other bridges.

(d) For changes in load restriction or closure status, enter the SI&A data into the State or Federal agency inventory within 90 days after the change in status of the structure for State or Federal agency bridges and within 180 days after the change in status of the structure for all other bridges.

§ 650.317 Reference manuals.

(a) The materials listed in this subpart are incorporated by reference in the corresponding sections noted. These incorporations by reference were approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. These materials are incorporated as they exist on the date of the approval, and notice of any change in these documents will be published in the FEDERAL REGISTER.

The materials are available for purchase at the address listed below, and are available for inspection at the National Archives and Records Administration (NARA). These materials may also be reviewed at the Department of Transportation Library, 400 Seventh Street, SW., Washington, DC, in Room 2200. For information on the availability of these materials at NARA call (202) 741–6030, or go to the following URL: *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html*. In the event there is a conflict between the standards in this subpart and any of these materials, the standards in this subpart will apply.

(b) The following materials are available for purchase from the American Association of State Highway and Transportation Officials, Suite 249, 444 N. Capitol Street, NW., Washington, DC 20001. The materials may also be ordered via the AASHTO bookstore located at the following URL: *http://www.aashto.org/aashto/home.nsf/FrontPage*.

(1) The Manual for Condition Evaluation of Bridges, 1994, second edition, as amended by the 1995, 1996, 1998, and 2000 interim revisions, AASHTO, incorporation by reference approved for §§ 650.305 and 650.313.

(2) 2001 Interim Revision to the Manual for Condition Evaluation of Bridges, AASHTO, incorporation by reference approved for §§ 650.305 and 650.313.

(3) 2003 Interim Revision to the Manual for Condition Evaluation of Bridges, AASHTO, incorporation by reference approved for §§ 650.305 and 650.313.

Subpart D—Highway Bridge Replacement and Rehabilitation Program

SOURCE: 44 FR 15665, Mar. 15, 1979, unless otherwise noted.

§ 650.401 Purpose.

The purpose of this regulation is to prescribe policies and outline procedures for administering the Highway Bridge Replacement and Rehabilitation Program in accordance with 23 U.S.C. 144.

§ 650.403 Definition of terms.

As used in this regulation:

(a) *Bridge.* A structure, including supports, erected over a depression or an obstruction, such as water, a highway, or a railway, having a track or passageway for carrying traffic or other moving loads, and having an opening measured along the center of the roadway of more than 20 feet between undercopings of abutments or spring lines of arches, or extreme ends of the openings for multiple boxes; it may include multiple pipes where the clear distance between openings is less than half of the smaller contiguous opening.

(b) *Sufficiency rating.* The numerical rating of a bridge based on its structural adequacy and safety, essentiality for public use, and its serviceability and functional obsolescence.

(c) *Rehabilitation.* The major work required to restore the structural integrity of a bridge as well as work necessary to correct major safety defects.

§ 650.405 Eligible projects.

(a) *General.* Deficient highway bridges on all public roads may be eligible for replacement or rehabilitation.

(b) *Types of projects which are eligible.* The following types of work are eligible for participation in the Highway Bridge Replacement and Rehabilitation Program (HBRRP), hereinafter known as the bridge program.

(1) *Replacement.* Total replacement of a structurally deficient or functionally obsolete bridge with a new facility constructed in the same general traffic corridor. A nominal amount of approach work, sufficient to connect the new facility to the existing roadway or to return the gradeline to an attainable touchdown point in accordance with good design practice is also eligible. The replacement structure must meet the current geometric, construction and structural standards required for the types and volume of projected traffic on the facility over its design life.

(2) *Rehabilitation.* The project requirements necessary to perform the major work required to restore the structural integrity of a bridge as well as work necessary to correct major safety defects are eligible except as noted under

APPENDIX B

LIST OF BRIDGES FOR ROUTINE AND SAFETY INSPECTIONS

D.C. DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
ASSET MANAGEMENT DIVISION

DISTRICT OF COLUMBIA BRIDGES, TUNNELS AND UNDERPASSES [INCLUDES RAILROAD BRIDGES]
[Railroad Bridges in Blue]

11/4/2014

BRIDGE NUMBER	DESCRIPTION	MAINTENANCE RESP.				OWNER				HIGHWAY SYSTEM CODE							TUNNEL	Structurally Deficient	Functionally Obsolete	WARD	NHS	Pedestrian Bridge	Inspection Frequency
		DC	NPS	RR	DC/RR	DC	NPS	RR	DC/RR	Interstate Bridges (11)	Freeways-Expressways (12)	Other Principal Arterials	Minor Arterials (16)	Collector (17)	Local Non-FA (19)								
1	Chain Bridge over Potomac River	1				1						1							1	3	1		24
2	Wisconsin Avenue, N.W. over C&O Canal	1				1							1							2			24
3	31st Street, N.W. over C&O Canal	1				1									1			1		2			18
4	Jefferson Street, N.W. over C&O Canal	1				1									1					2			24
5	30th Street, N.W. over C&O Canal	1				1									1					2			24
6	29th Street, N.W. over C&O Canal	1				1									1					2			24
7	Key Bridge over Potomac River	1				1						1							1	2	1		24
7(East Ramp)	Key Bridge East Ramp to W.H. Frwy	1				1					1									2	1		24
10	23rd Street, N.W. over Virginia Avenue	1				1							1				1			2	1		24
11	M Street, S.W. over South Capitol Street	1				1							1						1	6			24
17	27th Street, N.W. over Broad Branch	1				1									1			1		3			18
19	Kenilworth Avenue, N.E. over Burroughs Avenue	1				1						1								7	1		24
19-1(High)	Kenilworth Avenue, N.E. over Watts Branch	1				1					1									7	1		24
19-1(Low)	North Ramp to Burroughs Avenue	1				1					1									7			24
20	Park Road, N.W. over Rock Creek	1				1							1						1	4			24
21	14th Street, N.W. over Street Car Terminal	1				1						1								2	1		24
22	16th Street, N.W. over Piney Branch Parkway	1				1						1							1	4	1		24
23	North Capitol Street over Irving Street	1				1						1								5	1		24
25	Park Road, N.W. over Piney Branch Parkway	1				1							1							4			24
26-1	Klingle Road, N.W. over Rock Creek & Beach Drive	1				1							1						1	3			24
26-2	Porter Street, N.W. over Klingle Road	1				1							1						1	3			24
26-3	Klingle Road Ramp over Rock Creek	1				1									1					3			24
27	Connecticut Avenue over Klingle Valley	1				1						1								3	1		24
29	Connecticut Avenue, N.W. over Rock Creek	1				1						1							1	3	1		24
30	Calvert Street, N.W. over Rock Creek	1				1							1							1			24
32	Whitehurst Freeway over K Street, N.W.	1				1					1								1	2	1		24
32-1	Whitehurst Freeway Ramp over C&O Canal	1				1					1								1	2	1		24
32-2	EB Ramp From Whitehurst Freeway to I-66	1				1					1								1	2	1		24
32-3	WB Ramp from I-66 to Whitehurst Freeway	1				1					1								1	2	1		24
34	P Street, N.W. over Rock Creek	1				1							1						1	2			24
35	M Street, N.W. over Rock Creek	1				1						1							1	2	1		24
36(N&S Ramps)	Ramps to & from Potomac Parkway	1				1						1							1	2			24
36(Pot Pkwy)	K Street, N.W. over Potomac Parkway	1				1						1							1	2	1		24
36(Rock Crk.)	K Street, N.W. over Rock Creek	1				1						1							1	2	1		24
38	Kenilworth Avenue over East Capitol Street	1				1					1								1	7	1		24
40	Minnesota Avenue over East Capitol Street	1				1							1						1	7			24
40-1	35th St., N.E. over East Capitol Street	1				1									1					7			24
40-2	Pedestrian Bridge over East Capitol Street	1				1					0									7		1	24
41	Ramp "A" over "C" Street	1				1							1						1	7			24
41-1	Ramp "A-B" over Pedestrian Walk to RFK Stadium	1				1							1						1	7			24
41-2	Ramp "C-D" over Pedestrian Walk to RFK Stadium	1				1						1							1	6	1		24
42	Soldier's Home Road over North Capitol Street	1				1									1					5			24
44	Malcom X Avenue over South Capitol Street	1				1							1						1	8			24
45	Eastern Avenue over Kenilworth Avenue	1				1							1							7			24
46	Michigan Avenue over Park Place	1				1							1						1	1			24
47	Kenilworth Terrace over Watts Branch	1				1									1					7			24

D.C. DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
ASSET MANAGEMENT DIVISION

DISTRICT OF COLUMBIA BRIDGES, TUNNELS AND UNDERPASSES [INCLUDES RAILROAD BRIDGES]
[Railroad Bridges in Blue]

11/4/2014

BRIDGE NUMBER	DESCRIPTION	MAINTENANCE RESP.				OWNER				HIGHWAY SYSTEM CODE							TUNNEL	Structurally Deficient	Functionally Obsolete	WARD	NHS	Pedestrian Bridge	Inspection Frequency
		DC	NPS	RR	DC/RR	DC	NPS	RR	DC/RR	Interstate Bridges (11)	Freeways-Expressways (12)	Other Principal Arterials (14)	Minor Arterials (16)	Collector (17)	Local Non-FA (19)								
48	Burroughs Avenue Ramp over Watts Branch	1				1								1						7			24
49	T Street over North Capitol Street	1				1								1					1	5			24
50	New York Avenue over North Capitol Street	1				1						1							1	5	1		24
51	Rhode Island Avenue over North Capitol Street	1				1						1							1	5	1		24
52	Benning Road over Anacostia River	1				1						1								7	1		24
53	South Capitol Street over Anacostia River	1				1					1							1	1	6	1		12
53(Mid Ramp)	Middle Ramp - South Capitol Street Bridge	1				1					1								1	7	1		24
53(Ramp A)	Ramp A - South Capitol Street Bridge	1				1					1								1	7	1		24
53(Ramp B)	Ramp B - South Capitol Street Bridge	1				1					1								1	7			24
54	Pennsylvania Avenue over Anacostia River	1				1						1							1	6	1		24
58	Pedestrian Bridge over Suitland Pkwy @ Stanton Rd.	1				1														8		1	24
60	4th Street, S.E. over Oxon Run	1				1								1					1	8			24
61	Wheeler Road over Oxon Run	1				1							1						1	8			24
62	Atlantic Street over Oxon Run	1				1								1						8			24
63	South Capitol Street over Oxon Run	1				1							1						1	8			24
64	South Capitol Street over Winkle Doodle Branch	1				1							1							8			24
65	Southern Avenue over Oxon Run	1				1							1						1	8			24
66	Ped. Bridge over Kenilworth Ave near Lane St.	1				1														7		1	24
67	Ped. Bridge over Kenilworth Ave near Nash St.	1				1														7		1	24
68	Ped. Br. over Kenilworth Ave near Douglas St.	1				1														7		1	24
69	Ped. Bridge over Kenilworth Ave near Hayes St.	1				1														7		1	24
70	Southern Avenue over Suitland Parkway	1				1							1							8			24
74	Alabama Avenue over Suitland Parkway	1				1							1						1	8			24
75	M. L. King Avenue over Suitland Parkway	1				1							1						1	8			24
76	New York Avenue over Anacostia River	1				1					1									5	1		24
77	Benning Road, N.E. over Kingman Lake	1				1						1							1	7	1		24
78	Anacostia Avenue, N.E. over Anacostia River Outlet	1				1									1					6			24
82	Minnesota Avenue, N.E. over Watts Branch	1				1							1						1	8			24
84	SB Kenilworth Avenue over East Capitol Street	1				1					1								1	8	1		24
99	Thomas Circle over Massachusetts Avenue	1				1						1				1				2	1		24
100	Scott Circle over 16th Street, N.W.	1				1						1				1				2	1		24
101(Dupont)	Massachusetts Avenue over Connecticut Avenue	1				1							1			1				2	1		24
101(Q st.)	Q Street, N.W. over Connecticut Avenue	1				1								1					1	2			24
102(Under)	Washington Circle over K Street Expressway	1				1						1				1				2	1		24
102(22nd St.)	22nd Street, N.W. over K Street	1				1							1						1	2			24
102(24th St.)	24th Street, N.W. over K Street	1				1								1					1	2			24
104	Ramp to Benning Road over Kenilworth Avenue	1				1						1							1	7	1		24
104-1(South)	Ramp from Benning Road over Kenilworth Avenue	1				1						1						1	1	7	1		24
114	Massachusetts Avenue, N.W. over Rock Creek	1				1						1							1	2	1		24
117	Q Street, N.W. over Rock Creek	1				1							1						1	2			24
118	Pennsylvania Avenue, N.W. over Rock Creek	1				1						1							1	2	1		24
128	Hunt Place, N.E. over Watts Branch	1				1									1					7			18
129	44th Street, N.E. over Watts Branch	1				1								1				1		7			18
130	53rd Street, N.E. over Watts Branch (Ped.)	1				1														7		1	24
131	57th Street, N.E. over Watts Branch (Ped.)	1				1														7		1	24
132	58th Street, N.E. over Watts Branch	1				1								1						7			18

D.C. DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
ASSET MANAGEMENT DIVISION

DISTRICT OF COLUMBIA BRIDGES, TUNNELS AND UNDERPASSES [INCLUDES RAILROAD BRIDGES]
[Railroad Bridges in Blue]

11/4/2014

BRIDGE NUMBER	DESCRIPTION	MAINTENANCE RESP.				OWNER				HIGHWAY SYSTEM CODE						TUNNEL	Structurally Deficient	Functionally Obsolete	WARD	NHS	Pedestrian Bridge	Inspection Frequency
		DC	NPS	RR	DC/RR	DC	NPS	RR	DC/RR	Interstate Bridges (11)	Freeways-Expressways (12)	Other Principal Arterials	Minor Arterials (16)	Collector (17)	Local Non-FA (19)							
140	Pedestrian Bridge over Arizona Avenue, N.W.	1				1													3		1	24
144	34th Street, N.W. over C&O Canal (Ped.)	1				1													2		1	24
145	33rd Street, N.W. over C&O Canal (Ped.)	1				1													2		1	24
147	Potomac Street, N.W. over C&O Canal (Ped.)	1				1													2		1	24
169-1	14th Street over Potomac River	1				1				1								1	2	1		24
170-1	NB 14th Street over Potomac River	1				1				1								1	2	1		24
171-1	14th Street, S.W. over Maine Avenue	1				1						1							2	1		24
171-2	14th Street, S.W. over Outlet Channel	1				1						1							2	1		24
171-3	14th Street, S.W. over Ohio Drive	1				1						1						1	2	1		24
172(N. Tunn)	12th St. Expressway under Mall & Jefferson Drive	1				1					1					1			2	1		24
172(S. Tunn)	12th Street Expressway under Independence Avenue	1				1					1					1			2	1		24
172-1	Jefferson Drive, N.W. over 12th Street Tunnel	1				1									1			1	2			24
173(C St Br)	C Street, S.W. over 9th Street Expressway	1				1									1			1	2			24
173	9th Street Expressway under the Mall	1				1					1					1			2	1		24
177	D Street, S.W. over 9th Street Expressway	1				1								1				1	2			24
196	55th Street, N.E. over Watts Branch	1				1									1				7			24
199	48th Place, N.E. over Watts Branch (Pedestrian Bridge)	1				1													7		1	24
204	Division Avenue over Watts Branch	1				1								1			1		7			18
209	16th Street, N.W. over Military Road	1				1						1					1		4	1		24
212	Vehicular Tunnel under I Street, N.W. At City Center																					24
214	Vehicular Tunnel under 10th Street, N.W. at City Center																					24
222	Gault Place over Watts Branch	1				1									1		1		7			18
228	Parkside Bridge over Kenilworth Avenue																					24
229	Military Road over Rock Creek & Beach Drive	1				1					1								4	1		24
230	West Anacostia Riverwalk Trail Bridge over CSX (open)	1				1													7		1	24
231	East Anacostia Riverwalk Trail Bridge over CSX (open)	1				1													7		1	24
232	*Pedestrian Bridge over CSX at Rhode Island Metro [UC]*																					24
233	East Capitol Street over Anacostia River	1				1							1				1		7	1		24
238	Military Road over Joyce Road	1				1					1							1	4	1		24
242	New York Avenue over South Dakota Avenue	1				1						1						1	5	1		24
250	L Street, N.W. over Convention Center Meeting Rooms	1				1							1						2			24
251	M Street, N.W. over Convention Center Meeting Rooms	1				1								1					2			24
252	9th Street, N.W. over Convention Center Truck Access	1				1							1						2			24
503(EB)	EB Benning Road over Kenilworth Avenue	1				1						1						1	7	1		24
503(WB)	WB Benning Road over Kenilworth Avenue	1				1						1						1	7	1		24
504	Railroad over East Capitol Street			1		1													7			24
505	Anacostia Freeway over Railroad	1				1					1								7	1		24
506	Railroad over Kenilworth Avenue			1				1														24
510	Railroad over Ohio Drive, S.W. and Potomac River			1				1														24
512	Railroad over Ohio Drive, S.W.			1				1														24
514-A	Railroad over Maine Avenue, S.W.			1				1														24
514-B	Pedestrian Walkway (Old Railroad) over Maine Avenue, S.W.																					24
515	12th Street over Railroad	1				1								1				1	2			24
516	11th Street over Railroad	1				1					1								2	1		24
517	10th Street Mall (L'Enfant Plaza) over Railroad	1				1								1					2			24
518	Railroad over 9th Street, S.W.			1				1														24

D.C. DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
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DISTRICT OF COLUMBIA BRIDGES, TUNNELS AND UNDERPASSES [INCLUDES RAILROAD BRIDGES]
[Railroad Bridges in Blue]

11/4/2014

BRIDGE NUMBER	DESCRIPTION	MAINTENANCE RESP.				OWNER				HIGHWAY SYSTEM CODE							TUNNEL	Structurally Deficient	Functionally Obsolete	WARD	NHS	Pedestrian Bridge	Inspection Frequency
		DC	NPS	RR	DC/RR	DC	NPS	RR	DC/RR	Interstate Bridges (11)	Freeways-Expressways (12)	Other Principal Arterials	Minor Arterials (16)	Collector (17)	Local Non-FA (19)								
519	Railroad over 7th Street, S.W.			1				1															24
520	Conrail Railroad over 6th Street, S.W.			1				1															24
521-A	Conrail Railroad over 4th Street, S.W.			1				1															24
522-A	Conrail Railroad over 3rd Street, S.W.			1				1															24
523	Conrail Railroad over 2nd Street, S.W.			1				1															24
525	Railroad over South Capitol Street at Va. Ave.			1				1			0												24
527	Railroad over 1st Street and Delaware Avenue			1				1															24
528	Railroad over South Capitol Street at Canal St.			1				1			0												24
529	H Street over Railroad	1				1							1						1	6	1		24
530	Amtrak over K Street, N.E.			1				1															24
531	Amtrak over L Street, N.E.			1				1															24
532	Amtrak over M Street, N.E.			1				1															24
533	Amtrak Railroad over Florida Avenue			1				1			0												24
534	New York Avenue over Railroad	1				1						1								5	1		24
535	Railroad over New York Avenue, N.E.			1				1			0												24
536	Railroad over Rhode Island Avenue, N.E.			1				1			0												24
537	Railroad over Montana Avenue, N.E.		1					1						0									24
538	Railroad over Galloway Street, N.E.			1				1															24
539	Railroad over Riggs Road, N.E.			1				1						0									24
541	Railroad over Aspen Street, N.W.			1				1															24
542	Railroad over Cedar Street, N.E.			1				1							0								24
543	Queens Chapel Road, N.E. over Railroad	1				1								1						5			24
544	South Dakota Avenue over Railroad	1				1						1							1	5	1		24
546(A&B)	Railroad over Bladensburg Road, N.E.			1				1				0											24
548	Railroad over Montana Avenue, N.E.			1				1					0										24
550	9th Street, N.E. over Railroad	1				1							1							5			24
553	Railroad over Burroughs Avenue			1				1						0									24
554	Railroad over Burroughs Avenue, N.E.			1				1						0									24
555	Railroad over Canal Road, N.W.			1				1			0												24
556	New Hampshire Avenue, N.W. over Railroad	1				1						1								4	1		24
558	Railroad over Van Buren Street, N.W.			1				1															24
561	Railroad over Piney Branch Road			1				1				0											24
562	Railroad over Kansas Avenue, S.W.			1				1					0										24
563	New York Avenue over Railroad	1				1						1							1	5	1		24
568	Monroe Street, N.E. over Railroad	1				1							1						1	5			24
571	Taylor Street over Railroad	1				1							1							5			24
572	New Jersey Avenue over Railroad	1				1								1					1	6			24
576	Eastern Avenue, N.E. over Railroad	1				1							1						1	5			24
595	Railroad over Eastern Avenue			1				1				0											24
596	Michigan Avenue over Railroad	1				1							1						1	5			24
597	Franklin Street, N.E. over Railroad	1				1							1						1	5			24
1000	Anacostia Freeway over Pennsylvania Avenue	1				1					1								1	8	1		24
1001	Anacostia Freeway over Park Road Connection	1				1					1							1		8	1		24
1001(Ramp 6)	Ramp 6 over Park Road Connection	1				1					1							1		8	1		24
1002(Ramp 4)	Ramp 4 over Park Road Connection	1				1					1									8	1		24
1003	Ped. Bridge over Anacostia Freeway & Railroad	1				1														8		1	24

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DISTRICT OF COLUMBIA BRIDGES, TUNNELS AND UNDERPASSES [INCLUDES RAILROAD BRIDGES]
[Railroad Bridges in Blue]

11/4/2014

BRIDGE NUMBER	DESCRIPTION	MAINTENANCE RESP.				OWNER				HIGHWAY SYSTEM CODE						TUNNEL	Structurally Deficient	Functionally Obsolete	WARD	NHS	Pedestrian Bridge	Inspection Frequency
		DC	NPS	RR	DC/RR	DC	NPS	RR	DC/RR	Interstate Bridges (11)	Freeways-Expressways (12)	Other Principal Arterials (14)	Other Arterials (16)	Collector (17)	Local Non-FA (19)							
1007	Anacostia Freeway (I-295) over Good Hope Road, S.E.	1				1				1									8	1		24
1008	Anacostia Freeway over Howard Road, S.E.	1				1				1									8	1		24
1009	Anacostia Freeway over Suitland Parkway	1				1				1							1	1	8	1		24
1011	South Capitol Street over Suitland Parkway	1				1					1							1	8	1		24
1012	Anacostia Freeway over Firth Sterling	1				1				1								1	8	1		24
1014(NB)	NB Anacostia Freeway over Malcolm X Avenue	1				1				1									8	1		24
1014(SB)	SB Anacostia Freeway over Malcolm X Avenue	1				1				1									8	1		24
1015(Ramp 20)	Ramp 20 over South Capitol Street	1				1				1									8	1		24
1016(NB)	NB Anacostia Freeway over South Capitol Street	1				1				1								1	8	1		24
1017(SB)	SB Anacostia Freeway over South Capitol Street	1				1				1								1	8	1		24
1018(NB)	NB Anacostia Freeway over Chesapeake Street, S.E.	1				1				1								1	8	1		24
1018(SB)	SB Anacostia Freeway over Chesapeake Street, S.E.	1				1				1								1	8	1		24
1019(NB)	NB Anacostia Freeway over Naval Research Lab Road	1				1				1									8	1		24
1019(SB)	SB Anacostia Freeway over Naval Research Lab Road	1				1				1									8	1		24
1026	Anacostia Freeway over Oxon Run Bay	1				1				1									8	1		24
1100	Southwest Freeway over 4th Street, S.W.	1				1				1									2	1		24
1101	Southwest Freeway over 4th St. to 2nd St., S.W.	1				1				1						1			2	1		24
1102R(Ramp A)	PB&W Railroad and Ramp C over Ramp A			1				1											2			24
1102R(Ramp B)	PB&W Railroad over Ramp B			1				1											2			24
1102R(Ramp C)	Ramp C over PB&W Railroad and Ramp A	1				1				1								1	2	1		24
1102R(Ramp D)	PB&W Railroad over Ramp D			1				1											2			24
1103	Southwest Freeway, Half Street to 2nd Street, S.W.	1				1				1									2	1		24
1103(Ramp C)	Southwest Freeway, Half Street to 2nd Street, S.W.	1				1				1									2	1		24
1103(Ramp E)	Southwest Freeway, Half Street to 2nd Street, S.W.	1				1				1								1	2	1		24
1103(Ramp F)	Southwest Freeway, Half Street to 2nd Street, S.W.	1				1				1								1	2	1		24
1103(Ramp G)	Southwest Freeway, Half Street to 2nd Street, S.W.	1				1				1									2	1		24
1104	Southwest Freeway over South Capitol Street	1				1				1								1	2	1		24
1104(Ped U/P)	Southwest Exit Ramp to South Capitol Street	1				1				1									2	1		24
1104(Ramp C)	Southwest Freeway over South Capitol Street	1				1				1								1	2	1		24
1104(Ramp D)	Southwest Freeway over South Capitol Street	1				1				1									2	1		24
1104(Ramp G)	Southwest Freeway over South Capitol Street	1				1				1								1	2	1		24
1104(Ramp G-D)	Southwest Freeway over South Capitol Street	1				1				1									2	1		24
1106	7th Street, S.W. over Southwest Freeway	1				1							1					1	2			24
1107(Ramp C-1)	Ramp C-1, S.W. over Ramp A (I-395)	1				1					1							1	2	1		24
1107(Ramp M)	Ramp M, S.W. over Ramps A & C (I-395)	1				1					1							1	2	1		24
1107(9th St)	9th Street, S.W. over Southwest Freeway (I-395)	1				1								1					2			24
1108	10th Street Mall over Southwest Freeway (I-395)	1				1								1				1	2			24
1109	Southeast Freeway over PB&W RR & Virginia Avenue	1				1				1								1	6	1		24
1109-1	WB Southeast Freeway Ramp over Garfield Park	1				1				1									6	1		24
1110	Southeast Freeway over 3rd Street, S.E.	1				1				1									6	1		24
1110-1	WB Southeast Freeway ramp over 3rd Street, S.E.	1				1				1									6	1		24
1111	Southeast Freeway over 4th Street, S.E.	1				1				1									6	1		24
1112	Southeast Freeway over 6th Street, S.E.	1				1				1									6	1		24
1113	Southwest Freeway over Washington Channel	1				1				1								1	2	1		24
1113(Ramp E)	Ramp E over Southwest Freeway	1				1				1								1	2	1		24
1113(Tunnel)	Southwest Freeway over 12th Street, S.W.	1				1							1			1			2	1		24

D.C. DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
ASSET MANAGEMENT DIVISION

DISTRICT OF COLUMBIA BRIDGES, TUNNELS AND UNDERPASSES [INCLUDES RAILROAD BRIDGES]
[Railroad Bridges in Blue]

11/4/2014

BRIDGE NUMBER	DESCRIPTION	MAINTENANCE RESP.				OWNER				HIGHWAY SYSTEM CODE													
		DC	NPS	RR	DC/RR	DC	NPS	RR	DC/RR	Interstate Bridges (11)	Freeways-Expressways (12)	Other Principal Arterials	Minor Arterials (16)	Collector (17)	Local Non-FA (19)	TUNNEL	Structurally Deficient	Functionally Obsolete	WARD	NHS	Pedestrian Bridge	Inspection Frequency
1113(Ped)	Pedestrian Ramp From Ramp E	1				1													2		1	24
1114	10th Street Mall L'Enfant Plaza) over D Street, S.W.	1				1								1				1	2			24
1133	SB I-395 over Potomac River & Ohio Drive, S.W.	1				1				1								1	2	1		24
1134	14th Street NB over I-395, Lanes C & C1	1				1						1						1	2	1		24
1134(over A-1)	14th Street NB over I-395, Lane A-1	1				1						1							2	1		24
1135	14th Street, NB under PB&W Railroad			1				1											2			24
1138	D Street, N.W. over Center Leg (I-395)	1				1								1					6			24
1139	E Street, N.W. over Center Leg (I-395)	1				1							1					1	6			24
1140(H St.)	H Street, N.W. over Center Leg (I-395)	1				1							1						6	1		24
1140(Mass Ave)	Massachusettes Avenue over Center Leg (I-395)	1				1						1							6	1		24
1141(Ramp B)	Ramp B over Ramp D, Center Leg (I-395)	1				1				1								1	6	1		24
1142	Constitution Avenue over Center Leg (I-395)	1				1				1						1			2	1		24
1142(Ramp 1)	Ramp 1 over Ramp 3, Center Leg (I-395)	1				1				1								1	2	1		24
1143	Air Rights Tunnel (Center Leg - I-395)	1				1				1			1			1			2			24
1143-1	K Street, N.W. over Center Leg (I-395)	1				1							1					1	2			24
1200(L River)	Theodore Roosevelt Bridge (I-66) over Little River	1				1				1									2	1		24
1200(Main)	Theodore Roosevelt Bridge (I-66) over Potomac R.	1				1				1								1	2	1		24
1200(Ramp C)	US 50 Ramp overLittle River & GW Parkway to T.R. Bridge	1				1				1								1	2	1		24
1200(Ramp D)	T.R. Bridge Ramp over Little River & GW Parkway to US 50	1				1				1								1	2	1		24
1200(Ramp E)	T.R. Bridge Ramp over Little River & GW Parkway to GWMP	1				1				1									2	1		24
1201	Ramp from Const. Ave. to TR Bridge over Potomac Parkway	1				1				1								1	2	1		24
1202	Ramps from Const. Ave. to T.R. Bridge over Inbound Ramps	1				1				1									2	1		24
1203	Inbound Ramp over Potomac Parkway to E Street Expwy.	1				1				1								1	2	1		24
1204	IB Theodore Roosevelt Bridge Ramp over Potomac Pkwy.	1				1				1								1	2	1		24
1205	E Street Ramp to TR Bridge over Potomac Parkway	1				1				1								1	2	1		24
1206	Ramp from Potomac Pkwy over NB Potomac Pkwy to E Street	1				1				1								1	2	1		24
1208	23rd Street, N.W. over E Street Expressway	1				1					1								2	1		24
1209	Virginia Avenue over E Street Expressway	1				1					1		1			1		1	2			24
1301	Whitehurst Freeway Exit Ramp to I-66	1				1				1								1	2	1		24
1302	New Hampshire Avenue over E Street Expressway	1				1							1			1		1	2	1		24
1303	I-66 Ramp to Whitehurst Freeway	1				1				1									2	1		24
1304	K Street, N.W. over Potomac River Freeway	1				1						1						1	2	1		24
1400	Southeast Freeway (I-395) over 7th Street	1				1				1									6	1		24
1401	Southeast Freeway (I-395) over 9th Street	1				1				1									6	1		24
1409	Pennsylvania Avenue, S.E. over Ramp F Tunnel	1				1						1				1			6	1		24
1410	Pennsylvania Avenue, S.E. over S.E. Freeway Tunnel	1				1						1				1			6	1		24
1415 [S-1]	11th Street, S.E. over Anacostia River	1				1						1							6			24
1416 [S-2]	SB I-695 over Anacostia River	1				1				1									6	1		24
1417 [S-3]	NB I-695 over Anacostia River	1				1				1									6	1		24
1418 [S-4]	SB Anacostia Freeway [DC 295] over 11th Street & 695 Ramps	1				1					1								6	1		24
1419 [S-5]	SB Anacostia Freeway Exit Ramp over NB DC 295	1				1				1									6	1		24
1420 [S-6]	11th Street Bridge over I-295	1				1				1									6			24
1421 [S-7]	11th Street, S.E. over CSX Railroad	1				1						1							6			24
1424 [S-2, B-2]	EB I-695 Exit Ramp to NB DC 295	1				1				1									6	1		24
1425 [S-11]	NB I-295 Exit Ramp over Good Hope Road, S.E.	1				1				1									6	1		24
1427 [S-13]	SB I-695 over N Street, S.E.	1				1				1									6	1		24

D.C. DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
ASSET MANAGEMENT DIVISION

DISTRICT OF COLUMBIA BRIDGES, TUNNELS AND UNDERPASSES [INCLUDES RAILROAD BRIDGES]
[Railroad Bridges in Blue]

11/4/2014

BRIDGE NUMBER	DESCRIPTION	MAINTENANCE RESP.				OWNER				HIGHWAY SYSTEM CODE						TUNNEL	Structurally Deficient	Functionally Obsolete	WARD	NHS	Pedestrian Bridge	Inspection Frequency
		DC	NPS	RR	DC/RR	DC	NPS	RR	DC/RR	Interstate Bridges (11)	Freeways-Expressways (12)	Other Principal Arterials	Minor Arterials (16)	Collector (17)	Local Non-FA (19)							
1428 [S-14]	NB I-695 over N Street, S.E.	1				1				1									6	1		24
1429 [S-15]	NB I-695 Exit Ramp over N Street, S.E.	1				1				1									6	1		24
1430 [S-16]	NB I-695 over O Street, S.E.	1				1				1									6	1		24
1431 [S-17]	SB I-695 over O Street, S.E.	1				1				1									6	1		24
1432 [S-18]	WB I-695 over M & 11th Streets, S.E. and S.E. Freeway	1				1				1									6	1		24
1433 [S-20]	EB I-695 over M & 11th Streets, S.E.	1				1				1									6	1		24
1436 [S-24]	11th Street Ramp to WB I-695 over I-695 Exit Ramp to I Street	1				1				1									6	1		24
	TOTALS	240	0	38	0	241	0	37	0	72	31	44	44	19	15	16	12	108		146	17	

DISTRICT OF COLUMBIA BRIDGES AND TUNNELS	
Federal-Aid System	
[11] Principal Arterial -Interstate	72
[12] Principal Arterial -Other Freeways or Expressways	31
[14] Other Principal Arterial	44
[16] Minor Arterial	44
[17] Collector	19
Total Bridges, Tunnels & Underpasses on FA System	210
[19] Bridges on Non Federal-Aid(Local) Streets	15
D.C. owned Railroad Bridges	1
Tunnels and Underpasses	16
DC Pedestrian Bridges	17
Total District of Columbia Highway Bridges	209
National Park Service(Federal) Bridges	0
Railroad(Owned) Bridges	37
Total Number of Bridges in District of Columbia	246
District of Columbia Bridges on the NHS	146
District of Columbia NBI Bridges	224
(Does not include RR bridges not intersecting roadways)	

NATIONAL PARK SERVICE BRIDGES (39) 278
13, 28, 239, 602, 603, 604, 607, 610, 614, 615, 616, 617, 278
618, 620, 622, 625, 629, 630, 631, 632, 633, 634, 635,
636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646,
647, 648, 649, 650, 651

D.C. PEDESTRIAN BRIDGES (17)
40-2, 58, 66, 67, 68, 69, 130, 131, 140, 144, 145, 147, 199, 230
231, 1003P, 1113(Ped)

PRIVATE PEDESTRIAN BRIDGES (1)
514B

TUNNELS AND UNDERPASSES (16)
10, 99, 100, 101, 102, 172N, 172S, 173, 1101, 1113, 1142, 1143
1209, 1302, 1409, 1410

PRIVATE TUNNELS AND UNDERPASSES (2)
212, 2014

RAILROADS OVER DC STREETS & HIGHWAYS (24)
504, 506, 514A, 518, 520, 521-A, 522-A, 523, 525,
528, 530, 531, 532, 533, 535, 536, 537, 539, 542, 546A&B,
548, 553, 554, 555, 561, 562, 595, 1102R(RAMP A),
1102R(Ramp B), 1102R(Ramp D), 1135

APPENDIX C

CRITICAL FINDING REPORT FORM

FRACTURE-CRITICAL INSPECTION REPORT COVER FORM

Department of Transportation
Infrastructure Project Management Administration
Project Management Support Division

D.C. DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
CRITICAL FINDING REPORT FORM

BRIDGE NO._____

This form shall be used by the NBIS Inspection Team Leader for any bridge which requires immediate action due to one of the following reasons:

- Bridges with deficiencies in primary or fracture-critical members; or
- Bridges with scour and/or hydraulic problems; or
- Bridges with Condition Ratings of 3 or less for the superstructure or substructure or an appraisal rating of 3 or less for waterway adequacy; or
- Bridges with deficiencies which have already or will soon result in a substantial reduction in safe load capacity.

In case where the deficiency may pose immediate danger to public safety, the Team Leader shall immediately notify the Chief, Bridge Maintenance Branch of a "Critical Finding" and request one of the following actions (check the appropriate box) to be taken by DDOT:

☐ **An immediate load posting of ____ tons.**

☐ **An immediate closure of one or more traffic lanes.**

☐ **An immediate closure of the bride to all traffic.**

☐ **Other**

Requested By:_____
NBIS Inspection Team Leader Date

Brief Description of Critical Finding:

_____

For all cases, the team leader shall note the Critical Finding in the NBIS Inspection Report with recommendations for needed maintenance, strengthening or replacement and submit it to the NBIS Bridge Engineer of the Asset Management Division. The NBIS Engineer shall evaluate the condition of the bridge and recommend a course of action to the Chief Engineer.

Review/Evaluation:_____
NBIS Bridge Engineer Date

Recommended Action:

_____

Approved:_____
DDOT Chief Transportation Engineer Date

Corrective Action Completed _____ Restrictions _____

2012 Edition

Department of Transportation
Infrastructure Project Management Administration
Project Management Support Division

Fracture-Critical Inspection

BRIDGE NO.: _____ HIGHWAY: _____ INSPECTION DATE:
OVER: _____

DESCRIPTION _____

PRESENT POSTING: _____ SUFFICIENCY RATING: _____
YEAR BUILT: _____ DATES OF MAJOR REHABILITATION: _____
NUMBER OF SPANS: _____
CLEAR WIDTH BETWEEN CURBS: _____
APPROACH ROADWAY WIDTH INCLUDING SHOULDERS: _____
TYPE OF DECK AND SURFACING: _____
MILEPOST: _____ ADT (% TRUCK): _____ YEAR ADT: _____

EQUIPMENT USED: _____

FRACTURE CRITICAL TYPE:

_____	TWO GIRDER SYSTEM	_____	PIN & LINK ASSEMBLY
_____	CROSS GIRDER SYSTEM	_____	SUSPENDED SPANS
_____	HANGER ROD SYSTEM	_____	SWING SPAN
_____	CURVED STEEL BOX GIRDER	_____	BASCULE SPAN

INSPECTION TEAM LEADER: _____
INSPECTION TEAM MEMBERS: _____

REVIEWED BY: _____

REPAIRS NEEDED: _____ NONE _____ PROGRAMMED _____ URGENT

2012 Edition

APPENDIX E

BRIDGE INSPECTION REPORT FORMS

Bridge No.:_____ D.O.I.:_____
Name:_____

Department of Transportation
Infrastructure Project Management Administration
Project Management Support Division

2014 BRIDGE INVENTORY

BRIDGE NO.: _____ **HIGHWAY:** _____
OVER: _____
INSPECTION START DATE: _____ **INSPECTION END DATE:** _____
INSPECTION CYCLE: _____ **INSPECTION TYPE:** _____
DESCRIPTION: _____
_____
PRESENT POSTING: _____ **SUFFICIENCY RATING:** _____
YEAR BUILT: _____ **DATE OF MAJOR REHABILITATION:** _____
NUMBER OF SPANS: _____
CLEAR WIDTH BETWEEN CURBS: _____
APPROACH ROADWAY WIDTH INCLUDING SHOULDERS: _____
TYPE OF DECK AND SURFACING: _____
MILEPOST: _____ **ADT (% TRUCK):** _____ **YEAR ADT:** _____

(PHOTO)

LOOKING: NORTH _____ **SOUTH** _____ **EAST** _____ **WEST** _____