PROGRAMMATIC AGREEMENT
CONCERNING BRIDGES OVER THE NATIONAL
REGISTER ELIGIBLE
NEW YORK STATE CANAL SYSTEM

AMONG THE
FEDERAL HIGHWAY ADMINISTRATION
NEW YORK STATE DEPARTMENT OF TRANSPORTATION
THE STATE HISTORIC PRESERVATION OFFICER
AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION

WHEREAS, the Federal Highway Administration (FHWA) proposes to assist the New York State Department of Transportation (NYSDOT) in its plan to carry out improvements to the bridges on the New York State Canal System (Historic Canal System); and

WHEREAS, the New York State Canal System, including the Erie, Champlain, Cayuga/Seneca, Oswego, Genesee, Chemung, Chenango, Black River and related private canals (i.e., Western Inland Navigation, Chenango Extension and Junction Canals) and feeder canals were determined by the New York State Historic Preservation Officer (NYSHPO) to be eligible to the National Register of Historic Places (NRHP) on November 29, 1993; and

WHEREAS, the Old Champlain Canal is listed on the National Register of Historic Places (NRHP); and

WHEREAS, the Secretary of the Interior, National Park Service determined that the New York State Canal System is nationally significant and defined the period of significance for the Historic Canal System from 1730 (the earliest excavation of an oxbow on the Mohawk River) to 1959 (the completion of the St. Lawrence Seaway); and

WHEREAS, an inventory of all extant New York State canal bridges has been completed establishing the population of bridges on the Historic State Canal System; and

WHEREAS, the FHWA, the NYSHPO and the NYSDOT evaluated the population of 412 bridges on the New York State Canal System using the following items, as well as the NRHP criteria:

- Period of significance (1960 or earlier)
- Type of bridge
- The effect that the installation of the bridge had on the original canal prism
- Previous determination by NYSHPO that the bridge does not contribute to the NRHP Canal System; and

WHEREAS, the FHWA, the NYSHPO and the NYSDOT determined that 16 canal bridges are individually eligible to the National Register of Historic Places (NRHP) and 164 canal bridges are eligible as contributing components to the Historic Canal System (Appendix A). These 180 bridges will be referred to as historic. The remaining 232 bridges on the Historic Canal System do not contribute to the significance of the canal system and are not individually listed or eligible for listing on the National Register of Historic Places. (See Appendix A.1 for complete listing); and
WHEREAS, the NYSDOT owns 318 bridges on the Historic Canal System of which 13 bridges are individually eligible and 121 contribute to the Historic Canal System; and.

WHEREAS, FHWA has determined that the NYSDOT’s canal bridge program may have an effect on the Historic Canal System and has consulted with the NYSHPO and the Advisory Council on Historic Preservation (Council) pursuant to Section 106 of the National Historic Preservation Act (16 U.S.C. 470s) and determined, in accordance with 36 CFR Part 800.14, that this Programmatic Agreement (Agreement) provides alternative procedures to implement Section 106 for the NYSDOT canal bridge program; and

WHEREAS, representatives from the NYSHPO, the NYSDOT Main Office Structures Division, Environmental Analysis Bureau and Region 3, Design, Planning and Structures, formed a Task Force that completed the background research and analysis to collectively draft this Agreement and its Appendices; and

WHEREAS, the NYSDOT having participated in the consultation and is invited to concur in this Agreement; and

WHEREAS, as a cooperating agency, the United States (US) Coast Guard has reviewed the Agreement and endorses it, but does not feel it needs to be a signatory party to the Agreement (Appendix E); and

WHEREAS, the public is afforded an opportunity to comment on NYSDOT canal bridge projects through the NEPA process; and

NOW, THEREFORE, the FHWA, the Council, the NYSDOT and the NYSHPO agree that the NYSDOT canal bridge program shall be administered in accordance to this Agreement developed under the auspices of 36 CFR 800.14 with the following stipulations that satisfy the FHWA’s Section 106 responsibilities for the individual bridge undertakings.

**STIPULATIONS**

FHWA will insure that the following measures are carried out:

1. **Purpose**

   This Agreement sets forth the process that shall be followed by the NYSDOT to assist the FHWA to meet its responsibility under Section 106 and Section 110(f) of the National Historic Preservation Act (NHPA) for undertakings on canal bridges for Federal Aid Highway projects. To maintain the integrity of the Historic Canal System while ensuring the safe functioning of the transportation network, the NYSDOT shall institute bridge maintenance procedures as outlined in Historic Canal Bridge Treatment Hierarchy (Appendix C) and shall be committed to progressing bridge rehabilitation projects to extend the “life” of the canal bridges. Only when it becomes not feasible and prudent to retain the existing canal bridge shall bridge replacement projects be progressed.

2. **Applicability.**

   This Agreement shall apply to all the NYSDOT owned bridges and shall be followed by the NYSDOT in progressing canal bridge projects on the Historic Canal System.
3. **Responsibility of FHWA and NYSDOT**

In compliance with its responsibilities under National Historic Preservation Act and as a condition of its award of any assistance for canal bridge projects, the FHWA shall require the NYSDOT to carry out this Agreement.

The NYSDOT shall progress canal bridge undertakings in accordance with this Agreement to preserve the integrity on the Historic Canal System. The Flow Chart for Decision Making on NYSDOT Canal Bridge Projects, (Appendix B) shall be applied to NYSDOT canal bridge projects using the Historic Canal Bridge Treatment Hierarchy (Appendix C) as guidance to achieve the highest degree of preservation possible while insuring public safety. The NYSDOT shall only apply the New Canal Bridge Hierarchy (Appendix D) when they have thoroughly studied the alternatives in Appendix C and concluded that it is not feasible or prudent to retain the existing bridge.

4. **Relevant Guidelines, Standards and Regulations**

- Secretary of Interior's Standards for the Treatments of Historic Properties (1992)
- 36 CFR Part 800: Protection of Historic Properties (June 17, 1999)
- Recommended Approaches for Consultation on Recovery of Significant Information from Archaeological Sites (June 17, 1999)
- New York State Education Department Cultural Resources Survey Program Work Scope Specifications for Cultural Resource Investigations on New York State Department of Transportation Projects (January 1998)
- New York State Department of Transportation Cultural Resource Screening Program (Draft) (January 1999)

5. **Alternatives Listed in Appendix C and D that Avoid Adversely Affecting the Historic Canal Bridges and the Historic Canal System**

The NYSDOT, FHWA and NYSHPO agree that the following alternatives normally shall not adversely affect the Historic Canal System provided other National Register listed or eligible properties or districts in the project area are not adversely affected by the proposed project. (See Stipulations # 11 & 12 of this Agreement.) The alternatives are ordered by degree of change to a canal bridge beginning with those that are beneficial (maintenance) and proceeding through those alternatives that have increasing degrees of effect to the Historic Canal System:

- Maintenance (Appendix C. I)
- In-situ Rehabilitation, (Appendix C. II.A.B. & C)
- Minor Widening of Existing Bridge (Appendix C.II.E)
- In-situ Sale or Transfer Ownership with Covenant to retain bridge's integrity (Appendix C.II.D)
- Relocation on Historic Canal System (Appendix C.III.)
- Sale or Transfer Ownership with Covenant and Move Bridge to a New Location on Historic Canal System (C.III.C)
- Reuse of the Bridge Elements (railings, rail posts, etc.) from a Historic Canal Bridge on New Canal Bridge (Appendix D.I.A.)
6. **Evaluation of Alternatives**

The NYSDOT shall thoroughly evaluate the alternatives in Stipulation 5 that avoid adversely affecting historic canal bridges and the Historic Canal System by applying the Historic Canal Bridge Treatment Hierarchy (Appendix C) and New Canal Bridge Hierarchy (Appendix D). Since Appendix C and D are hierarchies, the NYSDOT shall proceed in order through the alternatives and will justify dismissing each alternative before moving on to the next listed alternative. Each alternative must be fully evaluated and only dismissed if it fails to meet any one of the following criteria.

**A. Technical Factors**

- Corridor Traffic Capacity
- Structural condition and capacity
- Vehicle Loads
- Geometric safety
- Updated Design and Construction Standards

**B. Vulnerabilities**

During the scoping phase of any bridge project, a determination of the bridges vulnerability to failure from any of the following mechanisms must be made:

- Hydraulics
- Overloads
- Seismic Forces
- Collision (motor vehicle and navigational traffic)
- Steel Details
- Concrete Details

This evaluation is mandated by the Graber Law, Chapter 781,S9097-A) and should be done using the NYSDOT Vulnerability Assessment Procedures.

If a canal bridge has a Vulnerability Rating of three (3) or less for any of the above listed vulnerabilities, the project development process must address this vulnerability. However, the NYSDOT may choose not to correct a particular vulnerability during a project if correction would significantly alter the intended scope of the project and if the integrity of the structure and the safety of the public are not determined to be jeopardized. Using sound and documented engineering judgment, the NYSDOT can choose to design a retrofit or repair that would still address the vulnerability (although not up to current design standards) and maintain the existing character of the bridge. Some examples of this type of work are:

- The installation of sheet piling around the existing substructure, driven to a depth sufficient to address scour concerns.
- The installation of vertical clearance constraints to support a weight restriction or load posting of a bridge. If the future use of the bridge is to be limited to bicycles and pedestrians, physical constraints can be placed on the bridge to prevent its use by motor vehicles.
- The addition of restraint features or new bearings to address seismic concerns.
- The addition of impact attenuators, barriers or cofferdam type fender systems to redirect or lessen impact damage.
- The correction of unacceptable weld details with bolted cover plates.
- The use of concrete repair procedures such as jacketing and pressure grouting, to correct concrete problems.

1. **C. Terrain**
   Relocation may be dismissed if the canal bridge is located at the only feasible site.

**D. Adverse Social, Economic or Environmental Impacts**
Adverse social, economic or environmental impacts may dismiss the relocation alternative.

**E. Engineering and Economy**
An alternative may be dismissed if cost and engineering needs reach unrealistic magnitude.

**F. No Maintenance Agreement**
If a Covenant cannot be negotiated, the alternative to sell or transfer an historic canal bridge will have an adverse effect on the Historic Canal System.

2. **Documentation**
The decision making process shall be documented in a report entitled Project Section 106 Record. The Project Section 106 Record shall specify how each step of Appendices B, C and D (if applicable) was addressed. This record shall be included in the project approval document and provided concurrently to the FHWA and the NYSHPO.

3. **Consultation**
In accordance with Appendix B, the NYSDOT shall provide the NYSHPO with the Initial Project Proposal (IPP) when a canal bridge project is initiated and will notify the NYSHPO if the NYSDOT is considering canal bridge removal/replacement. The FHWA and the NYSDOT may request the NYSHPO review on a proposed project at any time during project development. The NYSHPO may also request project information at any time during project development. The NYSHPO comments shall be addressed in the Project Section 106 Record. The NYSDOT shall provide the NYSHPO with the project approval document that contains the Project Section 106 Record during preliminary design prior to design approval to document the decision making process for canal bridge projects. Compliance with Section 106 is complete unless the NYSHPO objects within 45 days of receipt of the project approval document. If the NYSHPO objects, consultation shall proceed in accordance with Stipulation #17 of this Agreement.

Copies of the design approval document shall be provided for review to the consulting parties. It also will be available for public review as part of the NEPA process. Any questions or objections shall be addressed by the NYSDOT in consultation with the FHWA and the NYSHPO in accordance with this Agreement.
4. **Adverse Effect**

When the NYSDOT concludes and adequately documents to the FHWA and the NYSHPO that retaining the existing individually NRHP eligible canal bridge is not feasible, the proposed bridge removal/ replacement shall have an adverse effect to be mitigated in accordance with Stipulation 10.

5. **Mitigation**

   o **Historic American Engineering Record (HAER) Documentation**
     NYSDOT shall prepare the following HAER documentation on the historic bridges on the Historic Canal System. The documentation shall be submitted to the NYSHPO for review and acceptance. The documentation shall be finalized before any construction commences. Copies of the accepted documentation shall be provided to the New York State Archives, local repository (public library, museum, historical society) and the New York State Canal Museum, Syracuse, New York.
     
     o **NRHP Individually Eligible Canal Bridges (Appendix A)** NYSDOT shall prepare Level I HAER documentation. The NYSDOT will consult with the National Park Service on submission of the documentation to the HAER Collection in the Library of Congress.
     
     o **Contributing Canal Bridges (Appendix A)** The NYSDOT shall prepare Level III HAER Documentation but also include photographs of select existing drawings of the bridge.
     
     o **All Other Canal Bridges** HAER documentation shall not be prepared for non-historic bridges on the Historic Canal System.

   o **Design of New Bridges** New bridge design, in accordance with Appendix D, that includes innovative modern and signature designs, shall be developed by NYSDOT in consultation with the FHWA and the NYSHPO and used as replacement bridges as mitigation.

6. **Identification, Evaluation and Treatment of Archeological Sites.**

In accordance with the screening and surveying process currently in effect for the NYSDOT projects, the FHWA and the NYSDOT shall identify any NRHP listed and eligible archaeological sites in the area of potential effect for the proposed canal bridge project. The NYSDOT shall consult with the NYSHPO, and Indian Tribe(s) that may attach religious or cultural significance to the site to explore avoidance alternatives. If avoidance is not feasible, and the NYSHPO, the NYSDOT and the FHWA find that the archaeological site is only important for its information, and no Indian Tribe finds the site important for cultural or religious reasons, a data recovery plan shall be developed and provided to the NYSHPO for review and acceptance. The NYSDOT shall insure that a public outreach plan is included in the data recovery proposal and carried out under this Agreement. The data recovery report shall be reviewed and accepted by NYSHPO and copies of the accepted data recovery report shall be provided to the New York State Archives and a local repository.
7. **Identification, Evaluation and Treatment of Buildings/Districts in the Project Area**
   NYSDOT shall use the surveying and screening procedures referenced in Stipulation 4.D and E on the NYSDOT canal bridge projects to identify the NRHP listed and eligible buildings, objects, or districts in the area of potential effect of a proposed canal bridge project. The NYSDOT shall explore avoidance of any NRHP listed or eligible building, object or district. If avoidance is not feasible, the NYSDOT and the FHWA shall consult with the NYSHPO. If an adverse effect on these resources cannot be avoided, the project shall be progressed in accordance with 36 CFR Part 800.6

8. **Non-NYSDOT Owned Canal Bridges**
   While this Agreement does not apply to the non-NYSDOT owned bridges, the NYSDOT and the FHWA agree that this Agreement shall be made available to the non-NYSDOT canal bridge owners (Appendix A) to help them expedite their compliance responsibilities to Section 106 of the National Historic Preservation Act.

9. **Quality Assurance**
   During the first year of this Agreement, any party to this Agreement may request an evaluation of its effectiveness and amend as appropriate in accordance with Stipulation 15. Yearly evaluation will occur after the first year of implementation.

10. **Amending the Programmatic Agreement**
    Any party to this Agreement may request that it be amended, whereupon the parties to this Agreement shall consult to consider such amendment in accordance with 36 CFR 800.

11. **Public Participation**
    The NYSDOT and the FHWA shall provide project information on project effect on the Historic Canal System and its historic bridges or other NRHP listed or eligible properties to consulting parties, Indian Tribes that attach religious or cultural significance to a resource and other interested parties. The NYSDOT shall solicit public input during its normal project development process under the National Environmental Policy Act. If at any time during the implementation of the measures contained in this Agreement, an objection to any such measure or its manner of implementation is raised by the public, as that term is defined in 36 CFR 800.2 (d), the FHWA and the NYSDOT shall consult with the objecting party, the NYSHPO, and as needed, the Council to resolve the objection. An objection by the public, however, does not require the NYSDOT or the FHWA to suspend action on an undertaking.

12. **Dispute Resolution**
    Should any signatory to this agreement object within 45 days to any documents or plans provided for review or any actions proposed pursuant to this agreement, the NYSDOT and the FHWA shall consult with the party to resolve the disagreement. If the consulting parties fail to reach agreement, the FHWA shall comply with subpart B of 36 CFR 800.

13. **Termination**
    If any signatory determines that the terms of this Agreement cannot be carried out, the signatories shall consult to seek amendment of the Agreement. If the Agreement is not amended, any signatory may terminate it. In accordance with Subpart C 800.14(b) if the Agreement is terminated, the FHWA shall comply with subpart B of 36 CFR Part 800 for progressing individual projects under this Agreement.
Execution and implementation of this Programmatic Agreement evidences that the FHWA has satisfied its Section 106 responsibilities for all individual undertakings of the program.

FEDERAL HIGHWAY ADMINISTRATION

By: ________________________________
A. GRAHAM BAILEY
DIVISION ADMINISTRATOR

Date: _____________________________

NEW YORK STATE DEPARTMENT OF TRANSPORTATION

By: ________________________________
PAUL T. WELLS
ASSISTANT COMMISSIONER & CHIEF ENGINEER

Date: _____________________________

NEW YORK STATE OFFICE OF PARKS, RECREATION AND HISTORIC PRESERVATION

By: ________________________________
J. WINTHROP ALDRICH
STATE HISTORIC PRESERVATION OFFICE

Date: _____________________________

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: ________________________________
J.M. FOWLER
EXECUTIVE DIRECTOR

Date: _____________________________
APPENDIX A

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ABBREVIATIONS:

Reg = Region
DOT = Department of Transportation
RR = Railroad
TA = New York State Thruway Authority (Canal Corporation)
Co = County
Contri = Contributes to the Historic Canal System
Elig = Individually eligible to the National Register of Historic Places
Authority = Municipality or County Utility Authorities

CRITERIA USED FOR EVALUATING CANAL BRIDGES

A = Built after period of significance (1960+)
B = Built during period of significance (pre-1960) but bridge was modified and lost integrity
C = Built during period of significance but type is non-contributing
D = Non-contributing Railroad Bridge
E = Previous determination
APPENDIX B.1.

IMPLEMENTING THE FLOW CHART FOR DECISION MAKING ON NYSDOT CANAL BRIDGES

The process depicted in the Flow Chart for Decision Making on NYSDOT Canal Bridges Projects will be used to make life cycle and project specific decisions. Decisions will be documented in the Project Section 106 Record, explaining the considerations involved in each of the decisions.

Box

1. Start

2. *Transportation Vehicular Need* has both quantitative vehicle aspects and qualitative economic development and community sensitive aspects. Some of the interrelated factors are:
   - **Functional Classification**
     Relates to a highway's role in the transportation system as a whole. The first two categories usually carry touring route designations, and are generally owned by the State.
     - Interstate highways primarily provide for long distance movement of people and goods, as the name implies, between states
     - Arterial highways are the next level in the system, and provide for inter-regional and inter-city travel. By nature they cross county boundaries.
     - Collector roads and streets provide access to the arterial system. They may or may not have touring route designations, and could be owned by either the State or a county.
     - Local roads and streets provide access to individual land uses. They are generally in town or county ownership, and seldom carry a touring route number.

   - **Volume**
     Volume of people and goods using a particular transportation facility are also a good indicator of its usefulness. Volumes tend to parallel the functional classes (higher volumes on the higher functional classes).

   - **Availability of Suitable Detour**
     Detour considerations also parallel the functional classes, and the traffic volumes. The highest volumes are generally on the highest functional classes. This combination of expected function and volume makes detours away from these facilities unreasonable. Conversely, detouring low volumes on local roads generally has little impact.

The qualitative nature of "needs" obviously varies with different perspectives. NYSDOT’s responsibilities are prioritized from the Interstates down to their few
collectors. County needs are prioritized from their few arterials to the collectors and down to their few local roads. Local needs are priorities from their few collectors to mostly local roads. What appears to be a low priority need from the State perspective, may be high priority need from a local perspective. This is the rationale behind the "partnering" loop on the flow chart.(#12).

If there is a Transportation Need identified, go to Box 3. If not, go to Box 13.

3. Historic Significance - Is the structure listed in Appendix A as a NRHP individually eligible or contributing bridge? If yes go to Box 4, if not go to Box 7.

4. If the structure is important to the Statewide Transportation System, the NYSDOT will develop and pursue a capital project with regular transportation funds at the appropriate time. Go to Box 5. If the structure is not important to the statewide transportation system go to Box 11.

5. Rehabilitation will be the first alternative considered in the Scoping Phase after a project is added to the NYSDOT capital project program, as per the Appendix C, Historic Canal Bridge Treatment Hierarchy. Go to Box 9 if rehabilitation is not a reasonable option. If a rehabilitation project is not imminent, a Historic Bridge Preventative Maintenance Plan should be developed. Go to box 14. (Explanation of Box 14 is provided below in Item 14.)

6. A rehabilitation project is being progressed leading to Box 18, the end of this process.

7. There is a transportation need, and the structure is not identified on Appendix A as an historic structure. Determine if rehabilitation is possible. Proceed to Box 8 if rehabilitation is feasible or Box 9 if rehabilitation is not feasible and a replacement bridge plan will be progressed.

8. If rehabilitation is to be progressed, proceed to Box 18, the end of the process.

9. Rehabilitation is not feasible, and a replacement project will be progressed. The resulting project will be progressed in accordance with Appendix D, The New Canal Bridge Hierarchy. Go to Box 10.

10. The replacement project leads to Box 18, the end of the process.

11. If the structure serves a need that is important to other than the NYSDOT, progressing a project is dependent on the ability to formalize a partnership (Box 12) before a project is progressed. Go to Box 12.

12. With a satisfactory partnership in place, a project can be pursued. Go to Box 5. Absent that partnership, the NYSDOT will fulfill its ownership responsibilities through a Historic Bridge Preventative Maintenance Program. Go to Box 14.

13. Historic Significance (NRHP) is considered in Box 13 for bridges with no identified transportation need. If the bridge is listed on Appendix A as NRHP Individually eligible or
contributing but no longer meets a transportation need, go to Box 14. If the bridge is not listed on Appendix A, go to Box 17.

14. This box introduces the Historic Bridge Preventive Maintenance Program as defined in Appendix C.I. In the case of an historic bridge that will remain a part of the transportation system, the Historic Bridge Preventative Maintenance Program should consist of the actions described in Appendix C.I. A.1-3. It may even be appropriate to enhance the normal cyclical maintenance by shortening the intervals. Since there is no identified transportation need for this bridge, explore divestiture. Go to Box 15.

15. NYSDOT will advertise the availability of the historic canal bridge in accordance with Appendix C.II.D. and explore with potential new owners alternative uses for the bridge (C.II.C.). If NYSDOT is not successful in marketing the bridge or finding a new use then the Historic Bridge Preventative Maintenance Program (Box 14) will involve only the activities in Appendix C.I.A to forestall deterioration. When safety concerns dictate closure to vehicles, appropriate cyclical maintenance will continue to protect the historic resource commensurate with the NYSDOT's legal responsibility until demolition. (Box 17). If marketing is successful proceed to Box 16.

16. Ownership is transferred after a protective Covenant is executed with the new owner. (Model of a Covenant is provided in the Environmental Procedure Manual (EPM) 2.F1.B, page 30).

17. Demolition occurs when safety dictates.

18. End of process.
APPENDIX C

HISTORIC CANAL BRIDGE TREATMENT HIERARCHY

Appendix C begins with the Historic Bridge Preventative Maintenance Program (C.I). This Program applies to the NYSDOT owned historic bridges on the Historic Canal System as long as the bridge remains in state ownership. The remaining Items in Appendix C (II-V) are presented in priority order, most to least preferred. In planning any canal bridge project, the feasibility of each option should be explored, starting with the first treatment and proceeding through the hierarchy systematically until the "optimum" treatment is found. An optimum treatment is defined as one which is technically feasible; meets the most important program goals of the FHWA, NYSDOT, SHPO and the community; is cost effective and achieves the highest degree of preservation as defined under the treatment hierarchy without compromising the safety of the general public.

I. MAINTENANCE OF HISTORIC CANAL BRIDGES

The ultimate solution to preserving canal bridges that are historic is through a well conceived and aggressive maintenance program. Based on the condition of the bridge, the following treatments are proposed:

A. In-Service Historic Canal Bridges
   o **Cyclical Actions** (appropriate cycle)
     An action plan aimed at reducing the rate of deterioration of critical bridge elements should be developed. This action plan will undertake at appropriate cyclic intervals, the following maintenance treatments:
     o Bridge cleaning (yearly)
     o Sealing cracks in the wearing surface (4 yrs)
     o Sealing the concrete deck (4 yrs)
     o Replacing the asphalt wearing surface (12 yrs)
     o Lubricating bearings (4 yrs)
     o Sealing concrete substructures (6 yrs)
     o Painting bridge steel (12 yrs)

     These are only recommended durations. The conditions of each bridge may warrant longer or shorter time intervals.

   o **Non-intrusive Actions to Enhance Safety**
     These are actions that enhance a bridge's serviceability by better aligning a facility's (highway/bridge) operational characteristics with the structure's performance capabilities.
     o Improve or add guide rail to bridge rail transitions.
     o Post for load, vertical clearance or width restrictions, or post for reduced speed.
     o Signalize to facilitate one-way operation.
Corrective Repairs
These repairs will address localized bridge inadequacies in order to enhance the structure's serviceable life, but do not change major characteristics of the bridge. These types of repairs can impact critical bridge elements such as the bridge deck or even primary supporting members, but will minimally affect the general appearance of the structure or its functional tendencies.
- Deck repair/replacement
- Primary member repair/replacement
- Substructure repair
- Bearing repair/replacement
- Joint repair/replacement
- Railing repair/retrofit

B. Closed Bridges
If the canal bridge is historic, the following procedures will be undertaken:
- Document according to HAER standards at appropriate level.
- Market by advertising availability of the bridge for alternative use.
- Establish a preventive maintenance and condition monitoring program to retain the existing historic integrity of the structure. The maintenance and monitoring programs will be maintained for as long as the structure retains integrity and is structurally self supporting. The normal practice of terminating these programs after five years of closure will not be followed.
Preventive Maintenance will include the following actions:
- Periodic washing-initiated immediately and repeated as needed
- Spot painting
- Removal of unstable concrete
- Minor deck repairs
- Lubrication of bearings
- Lubrication of I-bar connections, turnbuckles, etc;
- Cleaning and clearing existing drainage troughs, scuppers and open joints of debris and dirt

C. II. OPTIONS FOR RETENTION AT ORIGINAL SITE
- In-Situ Rehabilitation for Vehicular Use
  - For reduced/minimum loading
  - For original design load
  - For upgraded design load
- In-Situ Rehabilitation for Another Transportation Use
  - Convert train to auto
  - Bicycle bridge as part of bicycle trail
  - Pedestrians use
  - Pedestrian use in conjunction with new crossing nearby
In-situ Rehabilitation for Non-Transportation Use
(Such as open-air market, performing arts space, picnic area, recreation, etc.)

Sell or Transfer Ownership With Covenant

Widen Existing Bridge
- Minor widening of the existing bridge
- For thru-girders or truss bridges, the existing sidewalk located on the internal area of the bridge would be replaced with a new cantilevered sidewalk on the outside of the bridge.
- Retain existing bridge and address need for additional corridor by twinning with a relocated historic bridge or a new structure.

D. III. NEW SITE ON CANAL
- Rehabilitate and Relocate Existing Bridge to New Crossing on Historic Canal System.
  Follow the steps in II above.
- Rehabilitate and Relocate Existing Bridge to Twin with Another Bridge.
  Follow the steps in II above.
- Sale or Transfer with Covenant to new location on the Historic Canal System.

IV. SALVAGE OF BRIDGE ELEMENTS
- Salvage and store in whole or in part functional load carrying elements (i.e. trusses, girders, etc.) to reuse as load carrying elements in a rehabilitation or twinning project. The extent of the salvage project will depend upon the condition of the existing bridge.
- Salvage and store decorative elements such as railing, posts, crests, end portals, etc. to be used in a bridge rehabilitation project.
- Salvage and store substructure components such as limestone blocks for possible reuse elsewhere on the canal.

V. REMOVE BRIDGE FROM CANAL
- Offer Bridge for Sale or Transfer.
- Disassemble and Store for Possible Reuse.
- Demolish.

A. APPENDIX D
NEW CANAL BRIDGE HIERARCHY

New bridges on the Historic Canal System should be designed to be compatible with the design, setting, feeling, materials and association of the canal. Because the canal passes through very urban locations as well as very rural settings, and as the canal itself changes character many times throughout its length, no one standard bridge design is appropriate for all locations.

**Towpath:** The towpath does not exist along the entire length of the Historic Canal System, and in some places existing piers and abutments already separate the towpath from the canal. New bridges, whether on existing alignments or new, must take into account the historic towpath where it exists. The historic and functional relationship of the towpath to the canal is that of an unobstructed adjacency, allowing horse/mule drawn ropes to tow the boats. Where this functional relationship exists it shall be maintained in the placement of new piers and abutments.

**Sidewalks:** If replacing an existing canal bridge that has a sidewalk, consider providing this feature on the new structure. Bridges having two sidewalks need only consider the replacement of a single sidewalk, unless the site conditions justify two sidewalks. On truss bridges consideration should be given to placing the sidewalk outside of the truss whenever feasible. This feature allows the pedestrian a direct recreational experience with the canal.

I. NEW BRIDGES REPLACING HISTORIC BRIDGES

- **Use of Salvaged Components from Historic Canal Bridges (As Noted in Appendix C. IV)**
  - Use salvaged components on a new superstructure on an existing sub-structure.
  - Use salvaged components on new bridge on a new sub-structure that matches the appearance of the existing sub-structure that is being replaced (cast-in-place concrete with form liners to replicate cut stone, etc.).
  - Use salvaged components on new bridge on a new substructure that incorporates details (i.e. decorative, ornamental panels depicting scenes of canal history on exposed concrete surfaces, etc.) that enrich the traveling experience of the recreational boating public on the canal.

- **New Truss Bridge Utilizing New Truss Configuration**
  - New sub-structure that uses materials and detailing that match the appearance of the historic substructure
being replaced (cast-in- place concrete, cast stone to look like cut stone.)
- New sub-structure of contemporary design that incorporates elements and details (i.e. decorative, ornamental panels, etc.) that will enrich the traveling experience of the recreational boating public on the canal.

- **New Concrete Bridge**
  - For bridges on canal feeders and canal lock impoundment channels
    - Reuse and/or replicate the existing railings, pylon, and light standards.
    - Use fascia treatments for the exposed areas of the concrete portions of the superstructure and substructure.
    - Replicate appearance of an existing concrete arched canal bridge.

- **New Multi-Girder Bridge**
  - Reuse or replicate bridge elements (railings, light fixtures, girder details).
  - Use new compatible bridge elements such as Texas concrete bridge railing.
  - Use existing sub-structure.
  - New sub-structure that uses materials and details that match the appearance of the historic sub-structure being replaced (cast-in- place concrete with form liners to replicate cut stone, etc.).
  - New sub-structure of contemporary design that incorporates elements and details (i.e. decorative, ornamental panels, etc.) that enrich the traveling experience of the recreational boating public on the canal.

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II. NEW BRIDGES REPLACING NON-HISTORIC BRIDGES

- **In- kind Replacement**
  ( i.e. multi-girder to multi-girder)

- **Replacement with a New"Modern" Design That is Compatible with the Canal and its Setting.**

- **Replacement with a New"Signature" Design that**
Continues the Tradition of Engineering Innovation Associated with the Historic Canal System.

For B. and C. above DOT Shall Continue to Consult with SHPO to Assure that "Modern" and "Signature" Bridges are Compatible with the Canal.

III. NEW BRIDGES AT NEW CROSSINGS

- A Traditional Design Found Elsewhere Along the Canal in Similar Settings.
- A New "Modern" Design that is Compatible with the Canal and its Setting.
- A New "Signature" Design that Continues the Tradition of Engineering Innovation Associated with the Historic Canal System.

For B. and C. above DOT Shall Continue to Consult with SHPO to Assure that "Modern" and "Signature" Bridges are Compatible with the Canal.

For questions or feedback on this subject, please contact Ruth Rentch at 202-366-2034. For general questions or web problems, please send feedback to the web administrator.