"Treatment of Historic Bridge on Low-Volume Local Road"
Analysis of Comments
March 21, 2007

The following is section by section analysis of: (1) the draft version of the "Treatment of Historic Bridge on Low-Volume Local Road", (2) a summary of the comments received, (3) discussion of the comments, and (4) the revised version of the "Treatment of Historic Bridge on Low-Volume Local Road" that was approved at the March 15, 2007 INDOT Standards Committee meeting.

Draft Version of "Introduction"

72-7.0 TREATMENT OF HISTORIC BRIDGE ON LOW-VOLUME LOCAL ROAD

A historic bridge is one which was built during or before 1965, or is in, or is eligible for inclusion in, the National Register of Historic Places. The Department has developed a listing of all publicly-owned historic bridges, and has classified each as either Select or Non-Select.

Comments:

1. ***The definition of historic bridge is not accurate as presented.***
2. ***Use the Section 106 definition of historic.***
3. ***Make minor revisions to second sentence to indicate the Department has developed/is developing the list of Select and Non-Select bridges.***
4. ***Address whether these standards are applicable to non-historic bridges built prior to 1966.***
5. ***Add a statement of purpose to document.***

Discussion:

- ***Agree with all comments. Text has been revised accordingly. Note: Comment #3 has been addressed in Section II. TYPES OF HISTORIC BRIDGES.***

Revised Version of "Introduction"

72-7.0 TREATMENT OF HISTORIC BRIDGE ON LOW-VOLUME LOCAL ROAD

I. INTRODUCTION

A historic bridge is one which was built prior to 1966, and is in, or is eligible for inclusion in, the National Register of Historic Places. The Department has developed a listing of all publicly-owned historic bridges that are National Register-eligible or -listed.

The purpose of this Section is to define standards to be used to determine if a historic bridge on a low-volume local road can be rehabilitated for continued vehicular use. A low-volume road is defined as having a design year ADT of less than or equal to 400.

A historic-bridge owner must first consider rehabilitating the bridge in accordance with this Section. The rehabilitation alternatives must include the option of a one-way pair that involves rehabilitating the existing bridge and constructing a new parallel bridge. If the bridge cannot be rehabilitated in accordance with one or more of the design criteria described in Section III below, the owner may request a Level One design exception(s).

Draft Version of "Types of Historic Bridges"

72-7.01 Types of Historic Bridges

72-7.01(01) Select Bridge

A Select bridge has been identified as an excellent example of its structure type to be a suitable candidate for preservation. The bridge owner must first consider rehabilitation. If rehabilitation is not feasible or prudent, bypassing must then be considered. If bypassing is not feasible or prudent, relocation must then be considered. The bridge owner must retain the relocated bridge.

72-7.01(02) Non-Select Bridge

A Non-Select bridge has not been identified as an excellent example of its structure type, nor is a suitable candidate for preservation. The bridge owner must first consider rehabilitation. If rehabilitation is not feasible or prudent, relocation must then be considered. The bridge owner need not retain the relocated bridge, and may market the bridge to potential new owners by way of a public hearing. If no party desires to assume ownership after the hearing, the bridge may be demolished.

Comments:

1. ***Remove the sentence, "The bridge owner must retain the relocated bridge." From the last sentence for 72-7.01(01).***
2. ***Add a sentence to 72-7.01(01) and 72-7.01(02) to indicate that the owners may request design exception(s) to these standards.***
3. ***Further define Select and Non-Select bridges as historic.***
4. ***Define feasible and prudent.***
5. ***Revise to indicate rehabilitation shall be undertaken in a manner that will preserve those distinguishing elements that make it a select bridge.***

6. ***Revise to indicate the Select bridge should be maintained so as to preserve the bridge after bypassing so that it is not allowed to deteriorate.***

Discussion:

1. ***Agree with comment. Text has been revised accordingly.***
2. ***Agree with comment. Text has been revised accordingly. Note: Comment has been addressed in Section I. INTRODUCTION.***
3. ***Agree with comment. Text has been revised accordingly.***
4. ***Text has been revised to remove the references to feasible and prudent and to indicate that meeting the standards of this section is the goal. The wording from the PA regarding bypassing, marketing, relocating, and demolishing bridges has been incorporated into this section. Text was added to reference the PA in several locations.***
5. ***Preserving the distinguishing elements that make it a Select bridge is implicate in the Section 106 regulations and need not be addressed here.***
6. ***The PA defines the preservation requirements in detail; therefore there is no need to repeat that information here.***

Revised Version of "Types of Historic Bridges"

II. TYPES OF HISTORIC BRIDGES

A historic bridge will be classified as either Select or Non-Select. The Department is in the process of determining each bridge's classification in accordance with the *Programmatic Agreement Among the Federal Highway Administration, the Indiana Department of Transportation, the Indiana State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Management and Preservation of Indiana's Historic Bridges (PA)*. A listing of Select and Non-Select bridges will be issued by the Production Management Division's Services and Cultural Resources Team. Until that time, each historic bridge should be regarded as Select.

A. Select Bridge

A Select bridge has been identified as a historic bridge that is an excellent example of its structure type to be a suitable candidate for preservation. The intent of the *PA* is to preserve Select bridges in place for continued vehicular use. If rehabilitation alternatives are not in accordance with Section III below, and the owner is not granted a design exception or does not request one, the Select bridge must be bypassed or relocated for another use. See the *PA* for further guidance on bypassing and/or relocating the bridge.

B. Non-Select Bridge

A Non-Select bridge has been identified as a historic bridge that is not an excellent example of its structure type, nor is a suitable candidate for preservation. If the rehabilitation alternatives are not in accordance with Section III below, and the owner is not granted a design exception or does not request one, the Non-Select bridge must be marketed for re-use. In accordance with the *PA*, if no party steps forward to assume ownership of the bridge, the bridge may be demolished. See the *PA* for further guidance on marketing and/or demolishing the bridge.

Draft Version of "Treatment Consideration – Design Criteria – Structural Capacity"

72-7.02 Treatment Considerations

72-7.02(01) Design Criteria

1. Structural Capacity. The structural capacity should be in accordance with Figure 72-7A, Historic Bridge Structural Capacity. The required capacity designations are those described in AASHTO *Standard Specifications for Highway Bridges*.

	Detour Length < 5 mi		5 mi ≤ Detour Length < 10 mi		Detour Length ≥ 10 mi	
Design Year ADT	< 100	100 ≤ ADT < 400	< 100	100 ≤ ADT < 400	< 100	100 ≤ ADT < 400
Required Capacity	H-15	HS-15	HS-15	HS-15	HS-15	HS-20

Notes:

1. The detour length is determined by the shortest route on which an HS-20 load is legally capable of traveling.
2. Vehicles that may use a bridge with required capacity of H-15 or HS-15 include ready-mix-concrete truck, school bus carrying up to 84 passengers, and single-unit fire engine.
3. Vehicles that may use a bridge with required capacity of HS-20 include all of the H-15 or HS-15 vehicles, plus garbage truck and tractor-apparatus fire engine.

HISTORIC BRIDGE STRUCTURAL CAPACITY
Figure 72-7A

Comments:

1. ***Use current year ADT, as projected ADT is problematic in interpretation as it assumes a certain growth in traffic that does not fit the reality of many situations. Must ensure ADT is accurate and reflects realistic growth.***
2. ***Lower required capacities in accordance with Texas manual as it represents current state of the practice; use HS-8, HS-15, HS-12, HS-15, HS-12, HS-15 (left to right across chart).***
3. ***Use H ratings in lieu of HS ratings; use H-15, H-18, H-18, H-20, H-20, H-25 (left to right across chart).***
4. ***Define detour length.***
5. ***Lower detour lengths "break points" to 1 and 5 miles respectively in lieu of 5 and 10 miles. Consider time delays, not just mileage.***
6. ***Show equivalent tons on Figure 72-7A.***
7. ***Change note 1 to reference HS-15.***

Discussion:

1. ***Agree that future ADT may be problematic but "state of practice" and regulations require that projects meet future traffic needs (i.e. future ADT). Note 5 added to Figure 72-7A.***
2. ***Do not believe that one other state's practice represents a "current state of the practice". H-15 and HS-15 represents needed capacity for critical vehicles (i.e. school bus carrying up to 84 passengers and single-unit fire engine). No change is recommended.***
3. ***Designers are accustomed to using the HS loading condition. H-15 and HS-15 represents needed capacity for critical vehicles (i.e. school bus carrying up to 84 passengers and single-unit fire engine). No change is recommended.***
4. ***Agree with comment. Text has been revised accordingly.***
5. ***5 and 10 miles represent reasonable time delays. The Texas Historic Bridge Manual uses a single 5 mile "break point". No change is recommended.***
6. ***Agree with comment. Figure 72-7A has been revised accordingly.***
7. ***Detours should facilitate all legal loads. No change is recommended.***

Revised Version of "Design Criteria – Structural Capacity"

III. DESIGN CRITERIA

A. Structural Capacity

The structural capacity should be in accordance with Figure 07-__A, Historic-Bridge Structural

Capacity. The required capacity designations are those described in AASHTO *Standard Specifications for Highway Bridges*.

	Detour Length < 5 mi		5 mi ≤ Detour Length < 10 mi		Detour Length ≥ 10 mi	
Design Year ADT	< 100	100 ≤ ADT ≤ 400	< 100	100 ≤ ADT ≤ 400	< 100	100 ≤ ADT ≤ 400
AASHTO Loading	H-15	HS-15	HS-15	HS-15	HS-15	HS-20
Required Capacity	15 tons	27 tons	27 tons	27 tons	27 tons	36 tons

Notes:

1. *Detour length is defined as the total additional travel a through-bound vehicle would experience from closing the bridge. This is determined by the shortest route on which a vehicle with a loading of HS-20 (36 tons) is legally capable of traveling.*

2. *Vehicles that may use a bridge with AASHTO loading of H-15 (15 tons) or HS-15 (27 tons) include typical farm vehicle (15 tons), school bus carrying up to 84 passengers (15 tons), loaded garbage truck (27 tons), and single-unit fire engine (27 tons).*

3. *Vehicles that may use a bridge with AASHTO loading of HS-20 (36 tons) include all of the H-15 and HS-15 vehicles, plus payloaded ready-mix concrete truck (30 tons), and tractor-apparatus fire engine (36 tons).*

4. *A bridge on a dead-end road will be considered as having a detour length greater than 10 miles.*

5. *The annual traffic growth factor used in determining Design Year ADT must be justified.*

HISTORIC BRIDGE STRUCTURAL CAPACITY
Figure 07-__A

Draft Version of "Treatment Consideration – Design Criteria – Hydraulic Capacity"

2. Hydraulic Capacity. Improvements may consist of removal of sand bars or debris, or channel clearing. If a bridge is to remain in place and its approaches are realigned, removal of existing roadway fill is an option toward improving the hydraulic capacity.

Comments:

1. ***Hydraulic capacity can also be attained by adding a supplemental structure.***

Discussion:

1. ***Agree with comment. Text has been revised accordingly***

Revised Version of "Design Criteria – Hydraulic Capacity"

B. Hydraulic Capacity

Improvements may consist of removal of sand bars or debris, channel clearing, or adding a supplemental structure. If a bridge is to remain in place and its approaches are realigned, the removal of existing roadway fill is an option toward improving the hydraulic capacity.

Draft Version of "Treatment Consideration – Design Criteria – Bridge Width"

3. Bridge Width. An existing bridge may remain in place without widening unless there is a site-specific safety problem related to bridge width. The minimum bridge width should otherwise be in accordance with Figure 72-7B, Historic Bridge Minimum Clear Roadway Width.

Lanes on Bridge	ADT < 100	100 ≤ ADT < 400
One *	15 ft	16 ft
Two	18 ft	20 ft

* Only a Select bridge may remain in place as a one-lane bridge. A one lane bridge may have either one- or two-lane approaches.

HISTORIC BRIDGE MINIMUM CLEAR ROADWAY WIDTH
Figure 72-7B

Comments:

1. ***Use current year ADT, as projected ADT is problematic in interpretation as it assumes a certain growth in traffic that does not fit the reality of many situations. Must ensure ADT is accurate and reflects realistic growth.***

2. ***Allow one lane bridges for both Select and Non-Select Bridges.***
3. ***Bridge width is not only a matter of safety; it is a matter of functionality. By allowing a narrow bridge to remain in place if there is no safety problem, ignores the functionality of the bridge that is not met by a narrow bridge. Remove first sentence and have Figure 72-7B serve as minimum widths, regardless of past safety problems.***
4. ***Need definition for Bridge Width***
5. ***Add text to assess the acceptability of the bridge width to be governed in part by the width of the roadway, as suggested by the AASHTO Low Volume Road Guide.***

Discussion:

1. ***Agree that future ADT may be problematic but "state of practice" and regulations require that projects meet future traffic needs (i.e. future ADT). Note 3 added to Figure 72-7B. Figure 72-7B revised to indicate Design Year ADT.***
2. ***Agree that one-lane configurations should be allowed for some Non-Select bridges. Text has been revised to allow a Non-Select bridge to be used in a one-lane one-way pair configuration. Text has been revised to require a design exception for using a Non-Select bridge in a one-lane two-way configuration. Note 1 added to Figure 72-7B.***
3. ***Agree with comment. Bridges must meet minimum functional standards, such as width. Text has been revised to indicate that Figure 72-7B sets minimum widths, regardless of past safety problems.***
4. ***Agree with comment. Note 2 added to Figure 72-7B.***
5. ***Do not agree with comment. Do not want to include such vague language in the standards. No change is recommended.***

Revised Version "Design Criteria – Bridge Width"

C. Bridge Width

The minimum bridge width should be in accordance with Figure 07-__B, Historic-Bridge Minimum Clear-Roadway Width.

Lanes on Bridge	Design Year ADT < 100	100 ≤ Design Year ADT ≤ 400
One *1*	15 ft	16 ft
Two	18 ft	20 ft

Notes:

1 Use the given values for rehabilitation of a Select bridge in a one-way pair or two-way configuration. Use the given values for rehabilitation of a Non-Select bridge in a one-way-pair configuration. For rehabilitation of a Non-Select bridge in a two-way configuration, the owner must obtain a design exception.

2 The minimum bridge width is defined as the most restrictive minimum distance between curbs, rails, or other obstructions on the bridge roadway.

3 The annual traffic growth factor used in determining Design Year ADT must be justified.

HISTORIC-BRIDGE MINIMUM CLEAR-ROADWAY WIDTH
Figure 07-__B

Draft Version of "Treatment Consideration – Design Criteria – Bridge Railing"

4. Bridge Railing. Bridge railing may be left in place if there is no documented crash history or other evidence of crash history within the past 5 years such as damaged railing or concerns by local police agencies. If only slightly damaged, railing should be replaced in kind. If there is evidence of crash history within the past 5 years, the possible causes should be corrected, or new bridge railing as described in *Indiana Design Manual* Section 61-6.0.

Comments:

1. ***A selection of acceptable, context sensitive, crash tested railing should be offered as alternatives for historic bridges.***

Discussion:

1. ***Agree with comment. Current text allows existing railing to remain in place or to be replaced in kind under some circumstances. Where there is evidence of crash history, new bridge railing may be required. Chapter 61-6.0 of the IDM allows context sensitive, crash tested bridge railings. Current text adequately addresses issue. No change is recommended.***

Revised Version of "Design Criteria – Bridge Railing"

D. Bridge Railing

Bridge railing may be left in place if there is no documented crash history or other evidence of

crash history within the past 5 years such as damaged railing or concerns by local police agencies. If only slightly damaged, railing should be replaced in kind. If there is evidence of crash history within the past 5 years, the possible causes should be corrected, or new bridge railing provided as described in *Indiana Design Manual* Section 61-6.0.

Draft Version of "Treatment Consideration – Design Criteria – Approach Guardrail"

5. Approach Guardrail. Approach guardrail, if in place, should remain. If not in place, it may be omitted if there is no documented crash history or other evidence of crash history such as vehicles hitting the ends of the bridge railing or vehicles leaving the roadway. Crash history, such as that regarding damaged ends of bridge railings, may be an indicator of the need for approach guardrail.

Comments:

1. ***A selection of acceptable, context sensitive, crash tested guardrail should be offered as alternatives for historic bridges.***
2. ***Add "within the past 5 years" to the end of "evidence of crash history…" in the second sentence to be consistent with the wording in the bridge railing section.***

Discussion:

1. ***Agree with comment. The Indiana Design Manual only allows a limited selection of guardrail types. Language similar to Section 61-1.02(02) should be include to allow for alternative, context sensitive, crash tested guardrail. Text has been revised accordingly.***
2. ***Agree with comment. Text has been revised accordingly.***

Revised Version of "Design Criteria – Approach Guardrail"

E. Approach Guardrail

Approach guardrail, if in place, should remain. If not in place, it may be omitted if there is no documented crash history or other evidence of crash history within the last 5 years, such as vehicles hitting the ends of the bridge railing or vehicles leaving the roadway. Crash history, such as that regarding damaged ends of bridge railings, may be an indicator of the need for approach guardrail.

In addition to those guardrails which the Department has standardized, there are others which have passed NCHRP 350 crash tests for specified Test Levels. If one of these devices is desired to be used for a specific project, the documentation to be provided is as follows:

1 an acceptance letter from the FHWA that approves the device for use; and
2 complete details for the device as successfully crash tested.

Draft Version of "Treatment Consideration – Design Criteria – Design Speed and Approach Roadways"

6. Design Speed. The existing posted speed should be used as the design speed. If the road is not posted, an engineering speed study should be performed and the road should be posted between logical termini.

7. Approach Roadways (Horizontal and Vertical Alignment). These should be analyzed within 300 ft of either side of the bridge in accordance with *Indiana Design Manual* Sections 55-4.02, 55-4.03, and 55-4.04.

Comments:

1. ***No comments were received. No change is recommended.***

Revised Version of "Design Criteria – Design Speed and Approach Roadways"

F. Design Speed

The existing posted speed should be used as the design speed. If the road is not posted, an engineering speed study should be performed and the road should be posted between logical termini.

G. Approach Roadways (Horizontal and Vertical Alignment)

These should be analyzed within 300 ft of either side of the bridge in accordance with *Indiana Design Manual* Sections 55-4.02, 55-4.03, and 55-4.04.

Draft Version of "Economic and Other Criteria – Select Bridge"

1. Select Bridge. To determine the appropriateness of rehabilitating a Select bridge, the cost effectiveness should be assessed as follows:

    a. If the initial rehabilitation cost is less than 50% of the replacement cost, rehabilitation is warranted.

b. If the initial rehabilitation cost is equal to or greater than 50% of the replacement cost, further consultation between the owner and FHWA is required to determine rehabilitation eligibility.

A Select bridge may be rehabilitated and left in place, and a new bridge and new approaches may be built adjacent to it. This effectively creates one bridge and approaches for each direction of travel. For this situation, the new bridge must meet all design standards for a new bridge. Where appropriate, the new 1-way bridge must be able to accommodate future widening to provide for 2-way travel.

Comments:

1. ***Add "in place" after "…rehabilitating a Select bridge…" in the first paragraph.***
2. ***Increase the economic threshold criteria from 50% to 125%.***
3. ***Add statement that it is the owner's discretion to rehab if the cost exceeds the threshold value.***
4. ***Are the 20-year design life and 75-year design life for rehab and new bridges appropriate?***
5. ***Add a statement that the rehabilitation project should result in a 20-year design life.***

Discussion:

1. ***In accordance with section 72-7.0 of this manual, these standards only apply to bridges that remain open for continued vehicular use. Therefore, the intent of this comment is already addressed. No change is recommended.***
2. ***The economic threshold value for rehabilitation costs versus replacement cost has been raised to 80%. This is two times the upper limit (40%) that a pure economic decision would yield. The 40% threshold is based on a 20-year design life for rehabilitation, a 75-year design life for new bridge; and a 2% discount rate. These standards allow the owner to rehabilitate bridges with higher rehab cost ratios upon further consultation with FHWA.***
3. ***Agree with comment. Text has been modified accordingly.***
4. ***The 20-year rehabilitation design life is a standard INDOT uses and has been confirmed as appropriate by nationally recognized consultant, Mead & Hunt Inc. All new bridges will be designed in accordance with the AASHTO LRFD Specification, which assumes a 75-year design life. No change is recommended.***
5. ***Agree with statement. Text has been revised accordingly.***

Revised Version of "Economic and Other Criteria – Select Bridge"

IV. ECONOMIC AND OTHER CRITERIA

A. Select Bridge

To determine the appropriateness of rehabilitating a Select bridge, the cost effectiveness should be assessed as follows:

1 if the initial rehabilitation cost is less than 80% of the replacement cost, rehabilitation is warranted; or

2 if the initial rehabilitation cost is equal to or greater than 80% of the replacement cost, the owner may request further consultation with FHWA to determine rehabilitation eligibility.

A rehabilitation project should result in a 20-year design life for the rehabilitated bridge.

A Select bridge may be rehabilitated and left in place, and a new bridge and new approaches may be built adjacent to it. This effectively creates one bridge and approaches for each direction of travel. For this situation, the new bridge must meet all design standards for a new bridge. Where appropriate, the new 1-way bridge must be able to accommodate future widening to provide for 2-way travel.

Draft Version of "Economic and Other Criteria – Non-Select Bridge"

2. Non-Select Bridge. To determine the appropriateness of rehabilitating a Non-Select bridge, the cost effectiveness and other criteria should be assessed as follows:

   If the initial rehabilitation cost is greater than or equal to 30% of the replacement cost, or the bridge meets any two of the criteria as follows:

   a. the bridge's waterway opening is inadequate (i.e., National Bridge Inventory Item 71 is rated 2 or 3);
   b. the bridge has a history of catching debris due to inadequate freeboard or due to piers in the stream;
   c. the bridge requires special inspection procedures (i.e., the first character of National Bridge Inventory Item 92A or 92C is Y);
   d. the bridge is classified as scour-critical (i.e., National Bridge Inventory Item 113 is rated 0, 1, 2, or 3) and cannot be adequately retrofitted;
   e. the bridge has fatigue-prone portions that are expected to reach the end of their service lives within the next 20 years; or
   f. the bridge has a Sufficiency Rating of lower than 35.

then replacement is warranted.

Comments:

1. ***Include NBI Item 67 (Structural Evaluation) in the criteria list. A rating of 2 or 3 for Item 67 is an indication of poor structural condition of the bridge.***
2. ***Delete criteria a. through e. The SR is sufficient to determine acceptability of rehabilitating the bridge.***
3. ***Current language prevents owners from correcting the offending criteria (i.e. a. through f.) and rehabbing the bridge.***
4. ***The "other criteria" may cause confusion and may be incompatible with the development of the Select and Non-Select criteria, which are expected to cover similar issues.***
5. ***Increase the economic threshold criteria from 30% to 75%.***
6. ***Are the 20-year design life and 75-year design life for rehab and new bridges appropriate?***
7. ***Add a statement that the rehabilitation project should result in a 20-year design life.***
8. ***Revise criteria e. to better define its meaning.***

Discussion:

1. ***Do not agree with comment. Using the SR gives a criterion that is related to the condition of the bridge. It was determined that one "Health Index" criterion is sufficient. No change is recommended.***
2. ***Do not agree with comment. The SR alone does not address the other factors that should be considered when determining whether a Non-select bridge should be rehabilitated.***
3. ***Some of the may not be able to be corrected. Agree that language should be added to allow an interpretation that owners may correct the offending criteria and rehab the bridge in accordance within the economic limitations set forth. Text has been revised accordingly.***
4. ***Do not agree with comment. These are factors that should be considered when determining whether a Non-select bridge should be rehabilitated. These criteria are in no way an attempt to classify a bridge as either Select or Non-Select. No change is recommended.***
5. ***The economic threshold value for rehabilitation costs versus replacement cost has been raised to 40%. This is the upper limit (40%) that a pure economic decision would yield. The 40% threshold is based on a 20-year design life for rehabilitation, a 75-year design life for new bridge; and a 2% discount rate.***
6. ***The 20-year rehabilitation design life is a standard INDOT uses and has been confirmed as appropriate by nationally recognized consultant, Mead & Hunt Inc. All***

new bridges will be designed in accordance with the AASHTO LRFD Specification, which assumes a 75-year design life. No change is recommended.

7. ***Agree with comment. Text has been revised accordingly.***
8. ***Agree with comment. Text has been revised accordingly.***

Revised Version of "Economic and Other Criteria – Non-Select Bridge"

B. Non-Select Bridge

To determine the appropriateness of rehabilitating a Non-Select bridge, the cost effectiveness and other criteria should be assessed as follows:

If the initial rehabilitation cost is greater than or equal to 40% of the replacement cost, or the bridge meets any two of the following criteria that cannot be economically corrected as part of a rehabilitation project, then replacement is warranted.

1 The bridge's waterway opening is inadequate (i.e., National Bridge Inventory Item 71 is rated 2 or 3).
2 The bridge has a documented history of catching debris due to inadequate freeboard or due to piers in the stream.
3 The bridge requires special inspection procedures (i.e., the first character of National Bridge Inventory Item 92A or 92C is Y).
4 The bridge is classified as scour-critical (i.e., National Bridge Inventory Item 113 is rated 0, 1, 2, or 3.)
5 A fatigue analysis conducted in accordance with *Indiana Design Manual* Section 72-2.03(04) indicates the bridge has fatigue-prone welded details that are expected to reach the end of their service lives within the next 20 years.
6 The bridge has a Sufficiency Rating of lower than 35.

A rehabilitation project should result in a 20-year design life for the rehabilitated bridge.