INDOT
LOCAL PUBLIC AGENCY PROGRAM

Asset Management for Local Public Agency Bridges

DECEMBER, 2015

Approved

______________________________ Date: ______________________
Kathy Eaton-Mckalip, Director
Local Public Agency Programs, INDOT

______________________________ Date: ______________________
Brandye L. Hendrickson, Commissioner
INDOT

Concurrence

______________________________ Date: ______________________
Richard J. Marquis, Indiana Division Administrator
Federal Highway Administration
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose</td>
<td>1</td>
</tr>
<tr>
<td>Bridge Asset Management</td>
<td>1</td>
</tr>
<tr>
<td>Bridge Preservation</td>
<td>2</td>
</tr>
<tr>
<td>Plan and Development</td>
<td>4</td>
</tr>
<tr>
<td>Local Bridge System</td>
<td>5</td>
</tr>
<tr>
<td>Projects and Funding</td>
<td>7</td>
</tr>
<tr>
<td>Appendix “A”</td>
<td>9</td>
</tr>
<tr>
<td>Appendix “B”</td>
<td>12</td>
</tr>
<tr>
<td>Sources and References</td>
<td>14</td>
</tr>
</tbody>
</table>
**PURPOSE**

Maintaining bridges in good condition has proven to extend service life and to be more cost effective than allowing deterioration. Bridge deterioration results in the need for more extensive and costly rehabilitation or replacement projects. Development and implementation of a comprehensive bridge preservation plan provides a local public agency a tool which can be used to identify their needs, prioritize its actions, and allocate available funds appropriately.

This *Asset Management for Local Public Agency Bridges* is intended to provide:

1. Assistance in understanding bridge management and preservation.

2. Guidance for Local Public Agencies (LPA’s) Officials and employees in the planning, developing, programming and implementing of effective and cost efficient capital program including maintenance actions to preserve the bridges under their jurisdiction.

3. Information to aid LPA’s
   a. In understanding their local bridge system.
   b. In understanding the importance of bridge preservation and implementing a strategic, long term program of identifying, programming, budgeting and completing bridge preservation projects to improve the statewide condition of these assets at the lowest possible cost to taxpayers.
   c. To support Call for Projects Application for Federal Funds.

**BRIDGE ASSET MANAGEMENT**

Per 23 CFR 500.107 Code of Federal Regulations: “*An effective BMS (Bridge Management System) for bridges on and off Federal-aid highways that should be based on the “AASHTO Guidelines for Bridge Management Systems” and that supplies analyses and summaries of data, uses mathematical models to make forecasts and recommendations, and provides the means by which alternative policies and programs may be efficiently considered. An effective BMS should include, as a minimum, formal procedures for:*

(a) Collecting, processing, and updating data;
(b) Predicting deterioration;
(c) Identifying alternative actions;
(d) Predicting costs;
(e) Determining optimal policies;
(f) Performing short- and long-term budget forecasting; and
(g) Recommending programs and schedules for implementation within policy and budget constraints.”
INDOT Bridge Asset Management (BAM) was initially established to comply with 1991 ISTEA legislation mandating State DOTs to devote personnel and resources for development and implementation of a process and application capable of analyzing bridge data to recommend cost-effective bridge projects for improving the bridge network. For LPA’s, the process is administered through INDOT Local Public Agency Programs. The LPA must submit their BAM PROGRAM to INDOT Central Office Bridge Asset Management Manager to obtain approval to assure that their BAM program is in compliance with Federal Regulations.

In a BAM program, the LPA should adopt a philosophy that supports their capital program by developing a mixture of activities which will maximize their funding sources. The LPA should determine the maintenance, repair, and rehabilitation needs for each bridge. By comparing the cost of implementing various preservation actions based on the needs of each bridge versus deferring work needed, the LPA can determine which is the most cost-effective use of their funding sources, bridge preservation or replacement. Replacement of a bridge may be warranted if replacement is the most cost-effective means to satisfy the existing structural or functional needs. Alternatively, if the physical condition of the bridge has deteriorated to a point where the bridge is considered unsafe, bridge replacement may be determined to be the only feasible alternative.

BRIDGE PRESERVATION

Surface transportation programs established by the Federal government allow States to use Federal Funds to improve the condition of highway bridges through replacement, and preservation activities using an approved systematic process. Bridge preservation includes rehabilitation and preventative maintenance.

Bridge replacement is defined in 23 CFR 650.405 Code of Federal Regulations: “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.” Replacement project work must improve the condition rating of the total bridge from “poor” to “good” or higher.

Bridge rehabilitation is defined in 23 CFR 650.405 Code of Federal Regulations: “The project requirements necessary to perform the major work required to restore the structural integrity of a bridge (e.g. superstructure, substructure, deck, etc.) as well as work necessary to correct major safety defects (e.g. bridge railings, scour, etc.) are eligible except as noted under ineligible work. Bridges to be rehabilitated both on or off the F-A System shall, as a minimum, conform with the provisions of 23 CFR part 625, Design Standards for Federal-aid Highways, for the class of highway on which the bridge is a part.” Rehabilitation project work must improve the condition of the total bridge from “poor” or “fair” to “good” or higher.
Bridge preservation is defined by Federal Highway Administration (FHWA) as: *Actions or strategies that prevent, delay, or reduce deterioration of bridges or bridge elements; restore the function of existing bridges; keep bridges in good condition; and extend their useful life.* Preservation consists of activities performed on bridge elements or components that aim to prevent, delay, or mitigate deterioration. Preservation activities do not entail structural or operational improvements of an existing asset beyond its originally designed strength or capacity. “*Preservation actions include rehabilitation and preventive maintenance. Preventive maintenance is further defined as being either condition based or cyclical based.*” Bridge preventive maintenance is defined as a planned strategy of cost-effective treatments to an existing roadway system and its appurtenances that preserves the system, retards future deterioration, and maintains or improves the functional condition of the system (without substantially increasing structural capacity).

A systematic plan to preserve bridges must define a specific goal for the maintenance activities and described what the systematic process is to be to achieve said goal. The FHWA defines a systematic process as “*a documented methodology regularly applied to repeatedly achieve a desired outcome or goal.*” INDOT’s Preventative Maintenance (PM) Agreement and Indiana Design Manual (IDM) has established what the benefits, measures and candidate criteria are for determining what preventative maintenance activities are considered cost effective and may be employed based on the condition ratings of different bridge components. INDOT’s PM and IDM are valuable resources which the LPA can utilize for including preservation activities in their BAM program.

Cyclical Based Preventive Maintenance is recognized as a cost effective way to maintain and/or extend the service life of bridges. Cyclical activities are those that are scheduled on a fixed cycle. Cyclical activities that have been determined to be cost effective are defined in INDOT’s PM and IDM.

Condition Based Preventative Maintenance is recognized as a cost effective way to maintain and/or extend the service life of bridges. Condition based activities are performed on bridge elements as needed and identified through the bridge inspection process. Condition based activities have been defined in INDOT’s PM and IDM.

An effective bridge preservation program:

1. Employs long term network strategies and practices that are aimed to preserve and/or increase the condition of bridges extending their service life.
2. Has an adequate and future funding source.
3. Ensures appropriate treatments are applied and performed at the appropriate time.
4. Supports INDOT's mission statement: "INDOT will plan, build, maintain and operate a superior transportation system enhancing safety, mobility and economic growth."
5. Supports INDOT’s Open Roads (Practical Design) Initiative by implementing low-cost project solutions that enhance the overall condition and function of bridges without sacrificing safety.

**PLAN and DEVELOPMENT**

An LPA is highly encouraged to develop a BAM program which includes preservation that maximizes the service life of bridges under their jurisdiction and optimizes available funding sources. The BAM program should include replacement, rehabilitation and preservation plans which improve the overall condition of their bridges at the lowest possible cost to taxpayers.

Per National Bridge Inspection Standards (23 CFR 650C), LPA’s are required to have their bridges inspected on an interval not to exceed two (2) years. INDOT requires that the findings of the inspection be recorded in the Bridge Inspection Application System (BIAS) Database. The BIAS Database stores both current and historical condition ratings for use by the LPA’s in developing their BAM program. Sufficiency rating and structural adequacy are some of the key measures which can be obtained from data in the BIAS Database.

The sufficiency rating is one component being utilized by the INDOT LPA Program in determining federal funding eligibility. The sufficiency rating formula combines structural adequacy (55%), serviceability and functional obsolescence (30%), and essentiality for public use (15%) to obtain a numerical percentage between 0 and 100. The rating is indicative of the bridges sufficiency to remain in service, where a score of 100 represents a completely sufficient structure and 0 represents a completely insufficient structure. A sufficiency rating below 80 qualifies a bridge for funding for rehabilitation, while a sufficiency rating below 50 qualifies a bridge for replacement funds.

Structural adequacy is another component being utilized by the INDOT LPA Program in determining federal funding eligibility. Structural adequacy also known as bridge deficiencies is based on condition and/or appraisal ratings. Listed below are the two terms used to summarize bridge deficiencies: “structurally deficient” and “functionally obsolete”:

A bridge is considered “structurally deficient” if significant load carrying elements are found to be in poor condition due to deterioration and/or damage, or the adequacy of the waterway opening by the bridge is determined to be extremely insufficient to the point of causing overtopping with intolerable traffic interruptions. A “structurally deficient” bridge is defined numerically as follows:

1. A bridge component (deck, superstructure, substructure or culvert) having an NBI condition rating of 4 or less (poor condition). NBI Items #58, 59, 60 or 62.

2. Structural Evaluation or Waterway Adequacy NBI appraisal rating of a 2 or less (a bridge with a very low load rating capacity, or a bridge that is subject to overtopping with significant or severe traffic delays). NBI Items # 67 or 71.

**NOTE:** Only one of the above must be true.
A bridge is considered “functionally obsolete” when the deck geometry, load carrying capacity (comparison of the original design load to the current State legal load), clearance, or approach roadway alignment no longer meets the usual criteria for the roadway system which the bridge is an integral part of. Functionally obsolete in general means that the bridge was built to standards which are no longer currently being used today. A “functionally obsolete” bridge is defined numerically as follows:

1. A deck geometry (width of bridge), underclearance, or approach roadway alignment NBI appraisal rating of 3 or less. NBI Items # 68, 69 or 72.

2. Structural Evaluation or Waterway Adequacy NBI appraisal rating of 3. NBI Items # 67 or 71.

NOTE: Only one of the above must be true.

Once their bridges have been inspected and the data entered into BIAS, the LPA will have the data for assessing the conditions of bridges under their jurisdiction and then must determine what activities must be performed to best preserve bridges under their jurisdiction. A properly developed BAM program usually includes a combination of activities ranging from Cyclical Based Preventative Maintenance, Condition Based Preventative Maintenance, Rehabilitation, and Replacement.

The developed BAM program should have short-term and long term objectives. Long-term objectives address the need for sustained investment in the local bridge system using a combination of preservation, and replacement activities. Short-term objectives address the bridges that are currently in “fair to good” condition using preservation activities to extend the service life of the bridge

**LOCAL BRIDGE SYSTEM**

National Bridge Inspection Standards (23 CFR 650C) require all publicly owned highway bridges on public roadways be inspected on an interval not to exceed two (2) years. Highway bridges by definition are structures carrying public roadways with a span length of 20 feet or greater.

The purpose of the inspections is to:

1. Ensure public safety.

2. Comply with all federal and state laws, rules and policies.

3. Provide condition and appraisal ratings which the LPA can use in determining what activities must be performed to best preserve their bridges at the lowest possible cost to taxpayers.
FHWA Recording and Coding Guide for Structure Inventory and Appraisal of the Nation’s Bridges have been established to provide more thorough and detailed guidance in evaluating and coding specific bridge data. Condition ratings are used to describe the current existing condition of the bridge components compared to their original as-built condition. Evaluations are completed on all major components of the structure. Major components of the structure are but not limited to, deck including joints, superstructure and substructure. The standard condition rating range with coding and description, structural adequacy and common feasible actions are shown in table below:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Structural Adequacy</th>
<th>Common Feasible Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>NOT APPLICABLE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>EXCELLENT CONDITION</td>
<td></td>
<td>Preventative Maintenance</td>
</tr>
<tr>
<td>8</td>
<td>VERY GOOD CONDITION – No problems noted.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>GOOD CONDITION – Some minor problems.</td>
<td></td>
<td>Preventative Maintenance and/or Repair</td>
</tr>
<tr>
<td>6</td>
<td>SATISFACTORY CONDITION – Structural elements show some minor deterioration.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>FAIR CONDITION – All primary structural elements are sound but may have minor section loss, cracking, spalling or scour.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>POOR CONDITION – Advanced section loss, deterioration, spalling or scour.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>SERIOUS CONDITION – Loss of section, deterioration, spalling or scour have seriously affect primary structure components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>CRITICAL CONDITION – Advanced deterioration of primary structural elements. Fatigue cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored, closing the bridge may be necessary until corrective action is taken.</td>
<td>Structurally Deficient</td>
<td>Rehabilitation or Replacement</td>
</tr>
<tr>
<td>1</td>
<td>“IMMINENT” FAILURE CONDITION – Major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Bridge is closed to traffic but corrective section may put back in light service.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>FAILED CONDITION – Out of Service – Beyond correction action.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Structurally Adequacy is based on NBI Items #58, 59, 60 and 62.
FHWA Recording and Coding Guide for Structure Inventory and Appraisal of the Nation’s Bridges have established appraisal ratings comparing currently in place items versus current design standards. These rating are used to evaluate the bridge compared to the level of service which it provides in relationship to functional classification of the roadway which it is part of. The standard appraisal rating range with coding and description and structural are shown in table below:

<table>
<thead>
<tr>
<th>Coding Guide</th>
<th>Structural Adequacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>Description</td>
</tr>
<tr>
<td>N</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>9</td>
<td>Superior to present desirable criteria</td>
</tr>
<tr>
<td>8</td>
<td>Equal to present desirable criteria</td>
</tr>
<tr>
<td>7</td>
<td>Better than present minimum criteria</td>
</tr>
<tr>
<td>6</td>
<td>Equal to present minimum criteria</td>
</tr>
<tr>
<td>5</td>
<td>Somewhat better than minimum adequacy to tolerate being left in place as is</td>
</tr>
<tr>
<td>4</td>
<td>Meets minimum tolerable limits to be left in place as is</td>
</tr>
<tr>
<td>3</td>
<td>Basically intolerable requiring high priority of corrective action</td>
</tr>
<tr>
<td>2</td>
<td>Basically intolerable requiring high priority of replacement</td>
</tr>
<tr>
<td>1</td>
<td>Rating Code not used</td>
</tr>
<tr>
<td>0</td>
<td>Bridge Closed</td>
</tr>
</tbody>
</table>

Structural Adequacy is based on NBI Items #67, 68, 69, 71 and 72

The INDOT Bridge Inspection Manual has been established to provide guidance in recording the findings of each LPA’s bridge inspection. The findings of each inspection must be recorded in the BIAS Database.

**PROJECTS and FUNDING**

The LPA Bridge Program will consist of 3 types of projects. Categorization of projects will be Replacement, Rehabilitation and Preventative Maintenance. One eligibility criteria is that the bridge must be in the NBI database. Specific criteria for eligibility are detailed in Appendix “A”. New bridges and culverts are not eligible.

Surface transportation programs established by the Federal government allows States to use Federal Funds to improve the condition of highway bridges through replacement, rehabilitation and preventative maintenance. With this being stated, the LPA Bridge Program is open to all LPA’s, however the funding mechanism is different. Bridges located **OUTSIDE** the urbanized areas of the MPO will be eligible to receive funding from the STP-Rural allocation. Bridges located **INSIDE** the urbanized areas of the MPO will be eligible to receive funding typically from the STP-Urban allocation.
LPA’s are allowed to apply for funding for Preventative Maintenance projects as long as the LPA has demonstrated an acceptable BAM Program. The BAM must at least meet the conditions outlined above in this policy. The INDOT Bridge Asset Management section will review the LPA BAM and issue a letter of acceptance. If the LPA does not have an acceptable policy and program in place, they will not be able to apply for or receive Preventative Maintenance funds during any future “Call for Projects.” As long as the LPA is in compliance with all federal and state rules and regulations and their bridge meets the criteria for Rehabilitation or Replacement projects, then they may apply for funding for those types of projects during any future “Call for Projects.”
APPENDIX “A”

CRITERIA FOR ELIGIBILITY

REPLACEMENT

1. Bridge must be on the NBI database. To be on the NBI Database, a bridge must meet the following criteria:
   a. Have an opening measured along the center of the roadway of more than twenty (20) feet (NBI Item 49) AND
   b. Highway bridge that carries a public roadway

2. A sufficiency rating below 50

3. Bridge must be “structurally deficient” or “functionally obsolete”
   a. Structurally Deficient
      • Conditional rating of 4 or less for
        • NBI Item #58 (deck) OR, NBI Item #59 (superstructure) OR NBI Item #60 (substructure) OR NBI Item # 62 (culvert) OR
      • Appraisal Rating of 2 or less for
        • NBI Item #67 (structural) OR, NBI Item #71 (waterway adequacy)
   b. Functionally Obsolete
      • Appraisal Rating of 3 or less for
        • NBI Item #68 (deck geometry) OR NBI Item #69 (underclearance) OR NBI Item #72 (approach roadway) OR
      • Appraisal Rating of 3 for
        • NBI Item #67 (structural evaluation) OR NBI Item #71 (waterway adequacy)

4. Bridge CANNOT have been rehabilitated or reconstructed (NBI Item 106) within the past ten (10) years regardless of funding source (i.e. local funds or federal funds)

5. Bridge CANNOT have been new or replaced (NBI Item 27) within the past ten (10) years regardless of funding source (i.e. local funds or federal funds)
**REHABILITATION**

1. Bridge must be on the NBI database. To be on the NBI Database, a bridge must meet the following criteria:
   
   a. Have an opening measured along the center of the roadway of more than twenty (20) feet (NBI Item 49) AND
   
   b. Highway bridge that carries a public roadway

2. A sufficiency rating below 80 qualifies

3. Bridge must be “structurally deficient” or “functionally obsolete”
   
   a. Structurally Deficient
      
      • Conditional rating of 4 or less for
         • NBI Item #58 (deck) OR NBI Item #59 (superstructure) OR NBI Item #60 (substructure) OR NBI Item #62 (culvert) OR
      
      • Appraisal Rating of 2 or less for
         • NBI Item #67 (structural evaluation) OR NBI Item #71 (waterway adequacy)
      
   b. Functionally Obsolete
      
      • Appraisal Rating of 3 or less for
         • NBI Item #68 (deck geometry) OR NBI Item #69 (underclearance) OR NBI Item #72 (approach roadway) OR
      
      • Appraisal Rating of 3 for
         • NBI Item #67 (structural evaluation) OR NBI Item #71 (waterway adequacy)

4. Bridge CANNOT have been rehabilitated or reconstructed (NBI Item 106) within the past ten (10) years regardless of funding source (i.e. local funds or federal funds)

5. Bridge CANNOT have been new or replaced (NBI Item 27) within the past ten (10) years regardless of funding source (i.e. local funds or federal funds)
**PREVENTATIVE MAINTENANCE**

1. Bridge must be on the NBI database. To be on the NBI Database, a bridge must meet the following criteria:
   a. Have an opening measured along the center of the roadway of more than twenty (20) feet (NBI Item 49) AND
   b. Highway bridge that carries a public roadway
2. A sufficiency rating above 50
3. Bridge CANNOT have been rehabilitated or reconstructed (NBI Item 106) within the past five (5) years regardless of funding source (i.e. local funds or federal funds)
4. Bridge CANNOT have been new or replaced (NBI Item 27) within the past five (5) years regardless of funding source (i.e. local funds or federal funds)
5. Preventative Maintenance Activities must be in compliance with the IDM and INDOT/FHWA PM Agreement
APPENDIX “B”

The submitted Bridge Asset Management Plan should at a minimum contain the following items:

1. List of all of the bridges within the LPA’s jurisdiction.

2. List the current NBI Condition Ratings for the following elements:
   a. Deck – NBI Item #58
   b. Superstructure – NBI Item #59
   c. Paint System – NBI Item #59B
   d. Substructure – NBI Item #60
   e. Channel – NBI Item #61
   f. Culvert (If applicable) – NBI Item #62

3. List the sufficiency ratings for all of the bridges

4. List all of the planned work on the bridges for the next 10 years. The estimated cost of the work should be included with each planned work item.
   a. The planned work should be summarized as one of the following work types:
      • Preventive Maintenance – Sufficiency rating above 50
      • Bridge Deck Overlay – Sufficiency rating above 50
      • Bridge Deck Replacement – Sufficiency rating below 80 but greater than 50
      • Superstructure Replacement – Sufficiency rating below 80 but greater than 50
      • Bridge Replacement – Sufficiency rating below 50
<table>
<thead>
<tr>
<th>Bridge Number</th>
<th>NBI #</th>
<th>Deck (Rating)</th>
<th>Superstructure (Rating)</th>
<th>Paint System (Rating)</th>
<th>Substructure (Rating)</th>
<th>Channel (Rating)</th>
<th>Culvert (Rating)</th>
<th>Sufficiency Rating</th>
<th>Work Type</th>
<th>Planned Repair Year</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR 1</td>
<td>140</td>
<td>7</td>
<td>7</td>
<td>8</td>
<td>8</td>
<td>7</td>
<td>N</td>
<td>90.2</td>
<td>Preventive Maintenance</td>
<td>2017</td>
<td>$20,000</td>
</tr>
<tr>
<td>BR 2</td>
<td>26005</td>
<td>6</td>
<td>6</td>
<td>N</td>
<td>6</td>
<td>6</td>
<td>N</td>
<td>90.1</td>
<td>Bridge Deck Overlay</td>
<td>2020</td>
<td>$150,000</td>
</tr>
<tr>
<td>BR 3</td>
<td>24260</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>7</td>
<td>N</td>
<td>71.2</td>
<td>Bridge Deck Overlay</td>
<td>2018</td>
<td>$300,000</td>
</tr>
<tr>
<td>BR 4</td>
<td>7798</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>96.7</td>
<td>Superstructure Replacement</td>
<td>2024</td>
<td>$500,000</td>
</tr>
<tr>
<td>BR 5</td>
<td>11120</td>
<td>4</td>
<td>4</td>
<td>N</td>
<td>6</td>
<td>5</td>
<td>N</td>
<td>65.1</td>
<td>Superstructure Replacement</td>
<td>2024</td>
<td>$500,000</td>
</tr>
<tr>
<td>BR 6</td>
<td>7780</td>
<td>4</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>3</td>
<td>83.1</td>
<td>Bridge Deck Replacement</td>
<td>2024</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>BR 7</td>
<td>980</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>3</td>
<td>99.3</td>
<td>Bridge Deck Replacement</td>
<td>2022</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>BR 8</td>
<td>990</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>4</td>
<td>7</td>
<td>3</td>
<td>35.1</td>
<td>Bridge Deck Replacement</td>
<td>2020</td>
<td>$300,000</td>
</tr>
<tr>
<td>BR 9</td>
<td>1070</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>3</td>
<td>80.9</td>
<td>Preventive Maintenance</td>
<td>2019</td>
<td>$20,000</td>
</tr>
<tr>
<td>BR 10</td>
<td>1080</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>3</td>
<td>78.9</td>
<td>Preventive Maintenance</td>
<td>2020</td>
<td>$20,000</td>
</tr>
<tr>
<td>BR 11</td>
<td>1110</td>
<td>7</td>
<td>7</td>
<td>8</td>
<td>8</td>
<td>7</td>
<td>N</td>
<td>90.2</td>
<td>Preventive Maintenance</td>
<td>2019</td>
<td>$20,000</td>
</tr>
<tr>
<td>BR 12</td>
<td>1120</td>
<td>6</td>
<td>6</td>
<td>N</td>
<td>6</td>
<td>6</td>
<td>N</td>
<td>90.3</td>
<td>Bridge Deck Overlay</td>
<td>2016</td>
<td>$150,000</td>
</tr>
<tr>
<td>BR 13</td>
<td>1170</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>7</td>
<td>N</td>
<td>71.2</td>
<td>Bridge Deck Overlay</td>
<td>2020</td>
<td>$300,000</td>
</tr>
<tr>
<td>BR 14</td>
<td>1180</td>
<td>7</td>
<td>7</td>
<td>6</td>
<td>6</td>
<td>7</td>
<td>6</td>
<td>96.3</td>
<td>Bridge Deck Replacement</td>
<td>2020</td>
<td>$300,000</td>
</tr>
<tr>
<td>BR 15</td>
<td>1000</td>
<td>7</td>
<td>7</td>
<td>5</td>
<td>5</td>
<td>7</td>
<td>5</td>
<td>67.5</td>
<td>Bridge Deck Replacement</td>
<td>2020</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>BR 16</td>
<td>1010</td>
<td>7</td>
<td>7</td>
<td>8</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>99.3</td>
<td>Bridge Deck Replacement</td>
<td>2018</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>BR 17</td>
<td>1020</td>
<td>4</td>
<td>4</td>
<td>N</td>
<td>6</td>
<td>5</td>
<td>N</td>
<td>65.1</td>
<td>Superstructure Replacement</td>
<td>2017</td>
<td>$500,000</td>
</tr>
<tr>
<td>BR 18</td>
<td>1030</td>
<td>7</td>
<td>7</td>
<td>6</td>
<td>6</td>
<td>7</td>
<td>4</td>
<td>98.1</td>
<td>Bridge Deck Replacement</td>
<td>2024</td>
<td>$300,000</td>
</tr>
<tr>
<td>BR 19</td>
<td>1040</td>
<td>7</td>
<td>7</td>
<td>6</td>
<td>6</td>
<td>7</td>
<td>4</td>
<td>98.1</td>
<td>Superstructure Replacement</td>
<td>2020</td>
<td>$500,000</td>
</tr>
<tr>
<td>BR 20</td>
<td>1090</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>7</td>
<td>4</td>
<td>22.1</td>
<td>Bridge Deck Replacement</td>
<td>2018</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>BR 21</td>
<td>1100</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>4</td>
<td>96.0</td>
<td>Superstructure Replacement</td>
<td>2024</td>
<td>$500,000</td>
</tr>
<tr>
<td>BR 22</td>
<td>1130</td>
<td>7</td>
<td>7</td>
<td>8</td>
<td>8</td>
<td>7</td>
<td>N</td>
<td>90.2</td>
<td>Preventive Maintenance</td>
<td>2020</td>
<td>$20,000</td>
</tr>
<tr>
<td>BR 23</td>
<td>1140</td>
<td>6</td>
<td>6</td>
<td>N</td>
<td>6</td>
<td>6</td>
<td>N</td>
<td>90.2</td>
<td>Preventive Maintenance</td>
<td>2020</td>
<td>$20,000</td>
</tr>
<tr>
<td>BR 24</td>
<td>1150</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>7</td>
<td>N</td>
<td>71.2</td>
<td>Bridge Deck Overlay</td>
<td>2023</td>
<td>$150,000</td>
</tr>
<tr>
<td>BR 25</td>
<td>1160</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>4</td>
<td>93.6</td>
<td>Bridge Deck Overlay</td>
<td>2024</td>
<td>$300,000</td>
</tr>
<tr>
<td>BR 26</td>
<td>1050</td>
<td>5</td>
<td>5</td>
<td>N</td>
<td>N</td>
<td>5</td>
<td>3</td>
<td>85.3</td>
<td>Bridge Deck Overlay</td>
<td>2024</td>
<td>$300,000</td>
</tr>
<tr>
<td>BR 27</td>
<td>1060</td>
<td>6</td>
<td>6</td>
<td>N</td>
<td>N</td>
<td>6</td>
<td>3</td>
<td>86.3</td>
<td>Bridge Deck Overlay</td>
<td>2024</td>
<td>$300,000</td>
</tr>
<tr>
<td>BR 28</td>
<td>24130</td>
<td>4</td>
<td>4</td>
<td>N</td>
<td>6</td>
<td>5</td>
<td>N</td>
<td>65.1</td>
<td>Superstructure Replacement</td>
<td>2018</td>
<td>$500,000</td>
</tr>
</tbody>
</table>

**SAMPLE BAM FORMAT**
**SOURCES AND REFERENCES**

The following sources and references were used in creating this document:

1. INDOT Local Public Agency Project Development Process Guidance Document for Local Federal-Aid Projects
2. INDOT/FHWA Preventative Maintenance Agreement
3. INDOT Bridge Inspection Manual
4. INDOT Design Manual
5. AASHTO Guidelines for Bridge Management Systems, 1992
6. FHWA Preventative Maintenance Eligibility memo (October 2004)
7. FHWA Bridge Preservation Guide
8. FHWA Bridge Asset Management
9. FHWA Guidance for Approval of Bridge Maintenance System and/or Systematic Process
10. FHWA Recording and Code Guide for Structure Inventory and Appraisal of the Nation’s Bridges