LYCOMING COUNTY SMALL BRIDGE INVENTORY PILOT PROGRAM

EXECUTIVE SUMMARY

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INTRODUCTION

The Lycoming County Planning Commission working in partnership with the PennDOT Small Bridge Inventory Task Force has recently completed a comprehensive inventory of locally owned bridges in Lycoming County with span lengths between 8 feet and 20 feet for purposes of developing a systematic inspection program on these types of smaller bridge structures. This special initiative was funded by Local Technical Assistance Program, (LTAP) supplemental planning funds provided to the Williamsport Area Metropolitan Planning Organization as part of participation in LTAP planning and outreach activities for Lycoming County.

Federal law requires all publicly owned bridges with span lengths greater than 20 feet to be inspected at least every two years or more frequently for weight limit postings or other documented critical deficiencies in accordance with National Bridge Inspection Standards, (NBIS) and criteria. Lycoming County has served as the lead umbrella agency recognized by PennDOT to perform all required NBIS inspections on 100 county and municipality owned bridges since 1995 using Lycoming County Engineer, Larson Design Group, Williamsport, PA These bridge inspection reports prepared by the County Engineer are reviewed and approved by PennDOT Engineering District 3-0 and issued to the local municipal bridge owners. Lycoming County utilizes these reports when assessing bridge priorities for funding purposes as part of the development of the

Williamsport MPO Long Range Transportation Plan and programming projects on the Transportation Improvement Program.

The County receives 80% federal reimbursement to cover the cost of NBIS bridge inspections and pays for the 20% local share from its county liquid fuels fund so municipalities owning bridges requiring NBIS inspections receive these inspections free of charge arranged by the County.

However, Lycoming County further recognized locally owned bridges between 8-20 feet span length were not being systematically inspected by municipal officials because NBIS inspections on these types of smaller spans are not federally required. Therefore, Lycoming County decided to develop its own pilot program to inspect these smaller bridges on a routine basis since these smaller bridges do deteriorate and can create public safety hazards and disrupt the local economy when rendered out of service as many of these bridges are in rural areas requiring long detours.

The purpose of this report is to present the methodology that was used to identify, inventory and assess the condition of locally owned bridges within Lycoming County with span lengths between 8 feet and 20 feet. The report further outlines a technical scope of work and estimated cost of performing a systematic inspection process for these smaller structures so that a preventative maintenance and capital improvement needs program can be developed and managed by municipal bridge owners to help extend the useful life of these particular structures so that more costly future repairs can be avoided

due to lack of awareness, knowledge and corrective action. The LTAP program plays a key role through education and technical assistance to municipal officials on proper bridge preventative maintenance techniques and how to review bridge inspection reports.

SMALL BRIDGE INVENTORY

METHODOLOGY & PROCEDURES

Compiling a thorough inventory of small locally owned bridges in Lycoming County is a daunting task as the County is the largest of all Counties in the Commonwealth in terms of geographic area containing more square miles than the State of Rhode Island. The County also has a vast locally owned road network exceeding 1,500 miles and also has over 2,200 miles of streams and creeks thus the potential for numerous bridge structures exists.

Therefore, as a starting point, the Lycoming County Planning Commission utilized its Geographic Information System (Lyco-GIS) to plot locations of potential small bridge locations where the orthophotography indicated locally owned roadways crossing bodies of water. NBIS bridges were then located and subtracted from this universe of 1,144 potential small bridge locations since these larger structures are already inventoried and inspected. Following the potential small bridge location map plotting exercise, individual GIS maps of each of the 52 municipalities in Lycoming County were printed so that the maps could be further examined by the appropriate municipal officials.

Once Lycoming County issued the mapping to all 52 municipalities, meetings were scheduled with each municipality and PennDOT Engineering District 3-0 Municipal Services staff to review the maps and to determine if any municipal compiled data existed about these potential structures.

When gathering information from municipal officials, prior to the site visits, PennDOT staff told them they were looking for any structures that were 6’ or greater. This was done because of a possible skew angle which could make a structure less than 8’ actually have a clear span of 8’ or greater. The field site visit would then determine if the structure was greater than 8’ or not.

The municipal official meetings resulted in the potential 1,144 structures being narrowed down to 172 sites for further fieldwork investigation. The field views were conducted by Municipal Services staff and municipal officials regarding each of the 172 potential structures to verify those structures that qualified for the small bridge inventory as being 8 feet to 20 feet in length. It should be noted that this span length was chosen for this inventory program since PennDOT compiles a database and routinely inspects state-owned bridges within this span length range as a good asset management practice even though federal requirements do not mandate routine inspection of these smaller structures.

Based on the fieldwork exercise, a total of 83 reportable small bridge structures (8 ft to 20 foot span length) county-wide were located with latitude and longitude noted using

Global Positioning System, (GPS) handheld units. These 83 structures qualified for inventory in the PennDOT Bridge Management System, (BMS) 2 database. Appendix A is a PennDOT form that is used to create a new structure in BMS2. This form outlines the required data items that are required to be coded in order to create a new structure prior to the initial bridge inspection. Therefore, fieldwork data collection activities focused on gathering as much information as possible about each structure in order to complete this form for BMS2 data entry. The actual data entry was performed by the PennDOT District 3-0 Bridge Inspection Unit personnel. Please be aware, the form in Appendix A was developed by PennDOT after Lycoming County conducted its fieldwork inventory and BMS2 data input exercise, so not all data items contained in the new form for our 83 structures are currently coded in BMS2. Our intent will be to code these items once a systematic in-depth inspection process is initiated within Lycoming County. It is further recognized that others interested in conducting a small bridge inventory will also be challenged to code all data items listed in the Appendix A form, especially due to a lack of as-built plans and data that may exist about many of these smaller structures, so dummy data inputs for certain items can be entered into BMS2 and later updated once better information becomes available through a more in-depth and systematic inspection process.

In addition to compiling the required data items for inventory in BMS2, PennDOT District 3-0 Municipal Services Staff also completed a quick condition assessment of each of the 83 qualified structures so that the general condition of small bridges in Lycoming County could be understood for planning purposes. It must be emphasized that

the condition assessment was a cursory review and **NOT** an in-depth inspection of each structure in accordance with NBIS requirements. It should be further noted that PennDOT District 3-0 Municipal Services Staff involved in this fieldwork exercise are certified bridge inspectors and were qualified to conduct the condition cursory assessment. This is not the case in every PennDOT Engineering District. Care should be taken by other counties/municipalities intending on conducting a small bridge inventory with a generalized condition assessment to utilize certified bridge inspectors.

The following pages provide a comprehensive list of all 83 small bridge structures inventoried throughout Lycoming County is grouped by local municipality. The BMS #, location, structure type, span length and general condition appraisal for each structure is noted. General condition appraisals were categorized using the terms “Good”, “Fair”, “Poor/Very Poor” based on professional engineering judgment upon field examination of each structure. Appendix B provides location maps for each bridge by municipality.

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LYCOMING COUNTY SMALL BRIDGE INVENTORY SUMMARY

Municipality	BMS #	Location	Condition Appraisal	Structure Type	Span Length (Feet)
Cascade Twp.	41-7206-0882-0001	T-882 over East Branch Wallis Run	Poor	Culvert (2-6' corr. Metal pipe	12
Clinton Twp.	41-7207-0423-0001	T-423 over Adams Creek	Fair	Culvert (2-4' r.c. pipe)	8.2
Clinton Twp.	41-7207-0520-0001	T-520 over Black Hole Creek	Poor	Arch (plate pipe arch)	10.2
Clinton Twp.	41-7207-0531-0001	T-531 over Unknown Trib to WB Susquehanna River	Poor	Culvert (2-6' r.c. pipe)	16
Cogan House Twp.	41-7208-0790-0001	T-790 over Big Sandy Run	Poor	Arch (stone arch)	18

Eldred Twp.	41-7210-0630-0001	T-630 over Lick Run	Good	Culvert (corr. Metal pipe)	12
Municipality	**BMS #**	**Location**	**Condition Appraisal**	**Structure Type**	**Span Length (Feet)**
Eldred Twp.	41-7210-0850-0001	T-850 over Calebs Run	Fair	Culvert twin steel pipe	11
Fairfield Twp.	41-7211-0542-0001	T-542 over Twin Run	Good	Culvert (r.c. pipe)	8
Fairfield Twp.	41-7211-0543-0001	T-543 over Trib. To Bennetts Run	Fair	Culvert (2-4' corr. Metal pipe)	8.5
Fairfield Twp.	41-7211-0597-0001	T-597 over Bennetts Run	Good	Culvert (r.c. box)	19
Fairfield Twp.	41-7211-0852-0001	T-852 over Bennetts Run	Fair	Culvert (r.c. box)	12
Franklin Twp.	41-7212-0463-0001	T-459 over Trib. To Laurel Run	Fair	r.c. slab	15
Franklin Twp.	41-7212-0465-0001	T-465 over Trib. To German Run	Fair	Steel I-beam	18.5
Franklin Twp.	41-7212-0469-0001	T-469 over Trib. To German Run	Fair	Culvert (steel plate	10.5

				pipe	
Franklin Twp.	41-7212-0732-0001	T-732 over Indian Run	Fair	Culvert steel plate pipe	13
Municipality	**BMS #**	**Location**	**Condition Appraisal**	**Structure Type**	**Span Length (Feet)**
Franklin Twp.	41-7212-0740-0001	T-740 over Deer Run	Fair	Steel I-beam	17
Gamble Twp.	41-7213-0691-0001	T-691 over Mill Creek	Fair	Arch (closed spandrel stone)	18
Gamble Twp.	41-7213-0693-0001	T-693 over Mill Creek	Good	r.c. slab	19.2
Gamble Twp.	41-7213-0847-0001	T-847 over Rose Valley Lake	Good	Steel I-beam (osg)	17.3
Gamble Twp.	41-7213-0868-0001	T-868 over East Branch Murray Run	Fair	Steel I-beam (r.c.deck)	10.2
Gamble Twp.	41-7213-0872-0001	T-872 over Joe Gray Run	Poor	Steel I-beam (timber deck)	17
Hepburn Twp.	41-7214-	T-489 over Trib.	Very Poor	Steel I-beam	16

	0489-0001	To Mill Creek		(osg)	
Jordan Twp.	41-7216-0530-0001	T-530 over Little Indian Run	Very Poor	Steel C channel	15.9
Municipality	**BMS #**	**Location**	**Condition Appraisal**	**Structure Type**	**Span Length (Feet)**
Jordan Twp.	41-7216-0746-0001	T-746 over Muncy Creek	Fair	r.c. slab	15.1
Lewis Twp.	41-7217-0840-0001	T-840 over Glendenen Run	Fair	r.c. slab	12.1
Lewis Twp.	41-7217-0857-0001	T-857 over Slacks Run	Poor	Steel I-beam (timber deck)	19.4
Limestone Twp.	41-7218-0305-0001	T-305 over Trib. To Antes Creek	Good	Aluminum plate arch	11
Limestone Twp.	41-7218-0317-0001	T-317 over Trib. To Antes Creek	Good	Aluminum plate arch	13.3
Limestone Twp.	41-7218-0317-0002	T-317 over Trib. To Antes Creek	Fair	Aluminum plate arch	13.3
Limestone Twp.	41-7218-0319-0001	T-319 over Antes Creek	Fair	Steel pipe (rr tanker)	8
Limestone Twp.	41-7218-0350-0001	T-350 over McMurrin Run	Good	Culvert (corr. Metal	8

				pipe)	
Loyalsock Twp.	41-7219-0447-0001	T-447 over Grafius Run	Fair	Arch (r.c. conc)	8
Municipality	**BMS #**	**Location**	**Condition Appraisal**	**Structure Type**	**Span Length (Feet)**
Loyalsock Twp	41-7219-0473-0001	T-473 over unknown trib. To susquehanna river	Good	Aluminum plate arch	13.3
Loyalsock Twp.	41-7219-0508-0001	T-508 over Trib. To Mill Creek	Poor	r.c. slab	15
Loyalsock Twp.	41-7219-0585-0001	T-585 over Millers Run	Good	Culvert (p/c box)	16
Loyalsock Twp.	41-7219-0589-0001	T-589 over Trib. To Grafius Run	Good	Culvert (r.c. pipe)	9.5
Loyalsock Twp.	41-7219-0607-0001	T-607 over Trib. To Lycoming Ck	Fair	r.c. slab	14
Loyalsock Twp.	41-7219-0616-0001	T-616 over Unknown Trib. To Susquehanna River	Fair	Arch (r.c. arch)	8.5
Loyalsock Twp.	41-7219-0623-0001	T-623 over Unknown Trib. To	Good	Culvert (2 r.c. pipe)	15.5

		Susquehanna River			
Municipality	**BMS #**	**Location**	**Condition Appraisal**	**Structure Type**	**Span Length (Feet)**
Lycoming Twp.	41-7220-0405-0001	Horn Rd. over Little Gap Run	Poor	Steel I-beam (osg)	14
Lycoming Twp.	41-7220-0688-0001	T-405 over Beautys Run	Good	Steel plate pipe arch	9.4
Mifflin Twp.	41-7224-0358-0001	T-358 over Trib. To Larrys Creek	Fair	r.c. I-beam	19.5
Mill Creek Twp.	41-7225-0576-0002	T-576 over Rush Run	Fair	r.r tanker	8
Moreland Twp.	41-7226-0445-0001	T-445 over Broad Creek	Fair	r.c. slab	19.9
Moreland Twp.	41-7226-0509-0001	T-509 over Little Sugar Run	Good	r.c. slab	14.2
Moreland Twp.	41-7226-0509-0002	T-509 over Jakes Run	Fair	Steel I-beam precast deck	15.5
Muncy Twp.	41-7227-0516-0001	T-516 over Oak Run	Fair	rc arch (corr plate)	12.5
Muncy Twp.	41-7227-	T-558 over	Good	Culvert	9

	0558-0001	Margaret Run		(corr.pipe)	
Muncy Creek Twp.	41-7228-0431-0001	T-431 over Trib. To Susque. River	Fair	Masonry arch	10
Municipality	**BMS #**	**Location**	**Condition Appraisal**	**Structure Type**	**Span Length (Feet)**
Muncy Creek Twp.	41-7228-0586-0001	T-586 over Trib. To Glade Run	Fair	r.c. slab	17
Penn Twp.	41-7231-0559-0001	T-559 over Sugar Run	Good	r.c. slab	18
Penn Twp.	41-7231-0571-0001	T-571 over Beaver Run	Fair	Masonry arch	18
Penn Twp.	41-7231-0571-0002	T-571 over Marsh Run	Fair	Culvert (2 rr tankers)	14.5
Penn Twp.	41-7231-0673-0001	T-673 over Jakes Run	Fair	Culvert rr tanker	8
Penn Twp.	41-7231-0698-0001	T-698 over Beaver Run	Fair	Masonry arch	16
Penn Twp.	41-7231-0708-0001	T-708 over Marsh Run	Fair	Culvert rr tanker	8
Piatt Twp.	41-7232-0336-0001	T-336 over Stewards Run	Good	Culvert (pc box)	8
Piatt Twp.	41-7232-	T-336 over	Good	Cluvert (pc	8

	0336-0002	Stewards Run		box)	
Piatt Twp	41-7232-0361-0001	T-361 over Trib. To Larrys Creek	Fair	r.c. t-beam	11.7
Municipality	**BMS #**	**Location**	**Condition Appraisal**	**Structure Type**	**Span Length (Feet)**
Pine Twp.	41-7233-0776-0002	T-776 over Branch of English Run	Poor	Steel I-beam timber deck	15.2
Porter Twp.	41-7235-0358-0001	T-358 over Trib. To Susque. River	Good	r.c. box culvert	15.8
Shrewsbury Twp.	41-7236-0656-0001	T-656 over Roaring Run	Fair	Masonry arch	14
Shrewsbury Twp.	41-7236-0658-0001	T-658 over Big Run	Poor	Culvert (Twin corr. Pipe)	12.5
Susquehanna Twp.	41-7237-0392-0001	T-392 over Bender Run	Fair	Culvert rr tanker	12
Susquehanna Twp.	41-7237-0392-0002	T-392 over Trib. To Bender Run	Fair	r.c. slab	13.9
Washington Twp.	41-7239-0384-0001	T-384 over Trib. To White Deer Hole Creek	Good	Culvert rr tanker car	9.5
Washington	41-7239-	T-397 over White	Fair	Steel plate	10

Twp.	0397-0002	Deer Hole Creek		pipe arch	
Washington Twp.	41-7239-0401-0001	T-401 over White Deer Hole Creek	Poor	r.c. slab	10.6
Municipality	**BMS #**	**Location**	**Condition Appraisal**	**Structure Type**	**Span Length (Feet)**
Washington Twp.	41-7239-0405-0002	T-465 over Trib. To Spring Creek	Fair	r.c. slab	10.5
Washington Twp.	41-7239-0424-0002	T-424 over Trib. To White Deer Hole Creek	Fair	Culvert (rr tanker)	8
Watson Twp.	41-7240-0340-0001	T-340 over Gamble Run	Poor	Culvert twin rr tanker	15
Wolf Twp.	41-7241-0145-0001	T-145 over Unknown Trib.	Fair	r.c. slab	13.5
Wolf Twp.	41-7241-0157-0001	T-157 over Pine Run	Good	Culvert (corr. Pipe)	8
City of Williamsport	41-7301-0000-0001	Highland Terrace over Grafius Run	Good	r.c. box culvert	16
City of Williamsport	41-7301-0000-0002	South View Ave. over Grafius Run	Fair	Masonry arch	10.3
City of Williamsport	41-7301-0000-0003	Trenton Ave. over Unnamed trib.	Good	r.c. box culvert	11

City of Williamsport	41-7301-0000-0004	Reach Road over unnamed trib.	Fair	r.c. box culvert	15
Municipality	**BMS #**	**Location**	**Condition Appraisal**	**Structure Type**	**Span Length (Feet)**
Jersey Shore Borough	41-7403-0000-0001	Thompson St. over Pfouts Run	Fair	r.c. slab	13.5
Jersey Shore Borough	41-7403-0000-0002	Washington Ave. over Pfouts Run	Fair	Culvert (corr. Pipe)	10
Jersey Shore Borough	41-7403-0000-0003	Wilson Street over Pfouts Run	Fair	r.c. slab	9.5
Jersey Shore Borough	41-7403-0000-0004	Hazel Alley over Pfouts Run	Fair	r.c. slab	13
Jersey Shore Borough	41-7403-0000-0005	Unnamed alley from Tomb St-N. Broad St.	Fair	r.c.slab	11
Jersey Shore Borough	41-7403-0000-0006	Seminary Street over Pfouts Run	Fair	r.c. slab	10.7

SUMMARY FINDINGS

- *A total of 29 out of 52 municipalities owned small bridges (8-20 ft span lengths) that were included in the overall Lycoming County inventory.*
- *A total of 83 structures were identified.*
- *23 bridges (28%) are categorized in "Good" condition.*
- *46 bridges (55%) are categorized in "Fair" condition.*
- *14 bridges (17%) are categorized in "Poor or Very Poor" condition.*
- *17 bridges (20%) are arch type structures*
- *32 bridges (39%) are culvert type structures*
- *1 bridge (1%) is a reinforced concrete T-beam type structure.*
- *33 bridges (40%) are steel I-beam type structures.*
- *Loyalsock Twp had the most structures (8).*
- *Eight municipalities (Cascade, Cogan House, Hepburn, Mifflin, Mill Creek, Pine, Porter and Watson Townships) had the least structures at one each.*
- *The only municipality owning more than one poor structure was Clinton Township with two structures rated poor.*
- *The bridge on Klump Road in Hepburn Township had to be closed to traffic immediately upon cursury inspection due to the severe deterioration of several superstructure support beams. This bridge is along a school bus route. Hepburn Township made emergency repairs with funding assistance provided by the*

Lycoming County Commissioners from their County Liquid Fuels Grant Assistance Program and the bridge has been since opened to traffic.

During the course of the fieldwork exercise, seven bridges were identified that were longer than 20 feet, however, it was discovered these structures were not included in the Lycoming County NBIS inventory and were therefore not receiving the required federally mandated inspections. These structures will now be added to the NBIS cycle. The following table provides a listing of these inadvertently omitted structures.

Municipality	**BMS #**	**Location**	**Condition Appraisal**	**Structure Type**	**Span Length (Feet)**
Franklin Twp.	41-7212-0459-0001	T-459 over Trib. To Laurel Run	Good	r.c. slab	20.5
Gamble Twp.	41-7213-0625-0001	T-625 over W. Br. Murray Run	Good	Steel I-beam	21.5
Loyalsock Twp.	41-7219-0---0001	White Oak Lane over Miller Run	Good	Steel I-beam	39
Loyalsock Twp.	41-7219-0456-0001	T-456 over Trib. To Grafius Run	Good	Culvert (2-5'r.c. pipe)	21
Loyalsock Twp.	41-7219-0619-0001	T-619 over Trib. To Susque. River	Good	Culvert (r.c. box)	21
Muncy Twp.	41-7227-	T-547 over	Poor	Steel I-beam	35.1

	0547-0001	Carpenters Run			
Penn Twp.	41-7231-0650-0001	T-650 over Gregs Run	Poor	Steel I-beam	21

SMALL BRIDGE INSPECTION

SCOPE OF WORK

In light of the major finding of this Lycoming County Small Bridge Inventory Pilot whereby 72% of the municipal owned bridges identified are rated either in fair or poor condition by PennDOT Engineering District 3-0 Municipal Services staff, the Lycoming County Planning Commission highly recommends that a systematic inspection process be developed for all of our 83 municipal owned structures with span lengths of 8-20 ft. The purpose is to produce a level of inspection that ensures:

- ***Safety of the traveling public***
- ***Good product***
- ***Affordability***
- ***State wide level application***
- ***Inventory structures in BMS2***
- ***Obtains adequate information for determining sufficiency ratings***
- ***Reliable information to establish funding priorities for programming purposes***

This section of the report provides a recommended technical scope of services with cost estimates in order to develop a systematic inspection process for smaller municipal owned bridges with 8-20 ft span lengths that meets the above-stated objectives. The

Lycoming County Planning Commission is especially grateful for the assistance provided by our County engineer, Larson Design Group for helping to develop this work scope and the cost estimates. As noted earlier in the report, Larson Design Group has performed the federally required NBIS inspections for 20 foot and over county and municipality owned bridge span lengths throughout Lycoming County since 1995 and has a wealth of technical expertise and perspective regarding bridge inspections.

SMALL BRIDGE INSPECTION REPORT REQUIREMENTS

A. REFERENCES: All work is to be in accordance with these guidelines and the following references:

1. National Bridge Inspection Standards (NBIS)
2. AASHTO Manual for Condition Evaluation of Bridges, 2nd Edition
3. FHWA Publications:
    a. Bridge Inspector's Reference Manual, October 2002, Report No. FHWA-NHI-03-001.
    b. Culvert Inspection Manual, Report No. FHWA-IP-86-2.
    c. Inspection of Fracture Critical Bridge Members, Report No. FHWA-IP-86-26.
    d. Recording and Coding Guide for the Structure Inventory and Appraisal of Nation's Bridges, Report No. FHWA-PD-96-001, December 1995.
    e. Bridge Inspector's Manual for Movable Bridges, FHWA-IP-77-10.

4. PennDOT Publications and Policy:

    a. Bridge Management System 2 (BMS2) Coding Manual, PennDOT Publication 100A July 2007, and its updates.

    b. Manual for Inspecting Bridge for Fatigue Damage Conditions, Research Project No. 85-02.

    c. Bridge Safety Inspection Manual, Policies and Procedures, Publication 238, 2nd Edition October 2002, and its updates and associated Stike-Off letters.

    d. Design Manual, Part 4, Structures, Publication 15 August 1993 Edition and Interim Revision 12/1994.

    e. Active Bureau of Design Strike-off Letters.

    f. Design Manual, Part 4, Structures, Publication 15M, April 2000 Edition (Dual Units) and its updates.

5. PennDOT Inspection and BMS Forms:

    a. BMS2 Coding Forms D-491 and their updates or a printout of the individal structure records from BMS.

    b. BMS2 iforms D-450 Inspection Forms and their updates.

B. TYPES OF SAFETY INSPECTION WORK

A. Initial NBIS Inventory and Inspection

Insufficient or no data is available in BMS on structure. An inspection fulfilling NBIS requirements has never been performed. For bridges carrying highway traffic, a separate Bridge Load Rating work item must also be done and its results incorporated into this initial inspection report.

1. The frequency will be established at this time. The yearly frequency will be derived from the Structural Rating (4A09).
2. If the structure is a non-standard type, the maximum frequency will be 2 years.
3. Engineering judgment can also be used to determine the frequency.

B. *Routine NBIS Inspection (4 YEAR FREQUENCY): with a structural rating of 6-7-8-9.* An NBIS inspection has been previously completed within the last four (4) years and that inspection report and / or documentation are available. Conduct a complete field inspection utilizing iForms.

C. *Routine NBIS Inspection (2 YEAR FREQUENCY): with a Structural Rating of 4-5-6-7.* An NBIS Inspection has been previously completed and that inspection report and/or documentation is available. Perform an inspection that is limited to portion(s) of the structure which require increased frequency of inspections.

D. *Interim NBIS Inspection (1 YEAR FREQUENCY): with a Structural Rating of 2-3-4.* An NBIS Inspection has been previously completed. Perform an inspection that is usually limited to portion(s) of the structure which require increased frequency of inspections. Interim Inspections fall under the general category of Special Inspections as outlined in Publication 238, 2.3.5, page IP 02-10.

E. *Flood Inspection*: As requested by the bridge owner after a high water event.

The scope of work for a Flood Inspection must be approved by the owner/District Bridge Engineer prior to initiating work. The report will include recommendations for follow up actions that may be required; such as: closing the structure, underwater or additional follow up inspections and a list of recommended repairs as a result of the flood event including an estimate of costs for the repairs.

F. *Bridge Load Rating*: Perform a structural analysis and load rating of the structure to determine its ability to carry PA's legal loads and must be approved by the owner/District Bridge Engineer prior to initiating work.

G. *Owners Meetings*: Coordinate and conduct a meeting with local bridge owners to discuss critical structure deficiencies found during the recent inspections. A critical deficiency meeting is required for all priority 0 and 1 maintenance activities defined as structural maintenance items by SOL 431-08-13.

C. INSPECTION REQUIREMENTS

A. Initial NBIS Inventory and Inspection

1. Conduct an Initial Inventory and Field Inspection utilizing iForms. The field inspection will focus on structural related items.

a. Approach roadway

b. Super-structure

c. Sub-structure

d. Channel

e. Scour

f. Maintenance needs

2. Complete BMS2 Inventory, D-491 (as listed in table 1) and related iForms coding.

3. If structure carries highway traffic, incorporate the Bridge Load Rating performed under separate work item into the Initial Inspection Report. Evaluate bridge for posting needs.

4. Prepare and Inspection Report.

B. Routine NBIS Inspection (4 YR FREQUENCY) structural rating of 6,7,8 or 9.

1. All bridges, except closed structures.

a. Conduct a field inspection on the structure utilizing iForms.

b. Update/ supplement the evaluation for posting needs for the structure's current condition. Determine if re-rating is warranted by comparing new vs. existing section loss measurements. If structure is to be re-rated, use the new load rating summary.

c. Update/amend the Inspection File providing new documentation as needed.

d. Update and/or complete the required minimum BMS2 inventory and inspection items on the printout of the BMS2 records. See Table 1 for minimum BMS2 items required.

e. Incorporate the results of previous or new load ratings into the report.

f. Prepare an Inspection Report to document all work and findings.

C. Routine NBIS Inspection (2 YR FREQUENCY) structural rating of 4,5,6,7

1. All bridges, except closed structures.

a. Conduct a field inspection that is limited to portion(s) of the structure, which require an increased frequency of inspections due to the structural rating utilizing iForms. Also complete a cursory inspection of all remaining elements.

b. Update/supplement the evaluation for posting needs for the structure's current condition. Determine if re-rating is warranted by comparing new vs. existing section loss measurements. If structure is to be re-rated, use the new load rating summary.

c. Update/amend the Inspection File providing new documentation as needed.

d. Incorporate the results of previous or new load ratings into the report.

e. Prepare an abbreviated Inspection Report to document all work and findings.

D. Interim Inspection (1 YR FREQUENCY) structural rating of 2,3 or 4.

1. All bridges, except closed structures.

a. Conduct a field inspection that is limited to portion(s) of the structure, which require increased frequency of inspections due to structural rating, utilizing iForms. Also complete a cursory inspection of all remaining elements.

b. Update/supplement the evaluation for posting needs for the structure's current condition. Determine if re-rating is warranted

by comparing new vs. existing section loss measurements. If structure is to be re-rated, use the new load rating summary.

c. Update/amend the Inspection File providing new documentation as needed.

d. Incorporate the results of previous or new load ratings into the report.

e. Prepare an abbreviated Inspection Report to document all work and findings.

E. Bridge Load Rating

1. Perform or update the structural analysis and load ratings using the latest specification and programs.

2. Identify the structural components or members that govern the ratings.

3. Prepare a load rating summary table and/or stress table for the Inspection Report.

F. Flood Inspections

1. If requested by the local bridge owner following a high water event, arrange and conduct an abbreviated inspection using iForms to list critical deficiencies found during the flood inspection.

2. Include recommendations for follow up actions and a list of repairs related to the high water event with costs.

3. Prepare an informal report related to the field conditions noted in iforms resulting from the high water event.

G. Owner Meetings

1. If requested by the local bridge owner, arrange and conduct a meeting to discuss critical deficiencies found during the inspection.
2. Prepare informal meeting minutes.

H. Closed Bridges

1. Bridges closed to highway traffic; to assure that the physical barriers are maintained and that the public safety is not jeopardized. Assess the physical integrity of the structure and any potential hazards to the public on or beneath the structure, especially if pedestrians use is to be allowed. This is to be completed by the bridge owner.

D. BMS2 INVENTORY AND INSPECTION DATA

a. Local Government Bridges and Others: Provide complete data unless otherwise directed to provide only minimum data.

b. MINIMUM REQUIRED INVENTORY AND INSPECTION DATA: Minimum data includes all BMS2 Items identified on Form D-491 and the following BMS2 Items:

Required Inventory and Inspection Data

5A01	Structure ID	4A08	SCBI
5A02	Name	VP02	Posting Status
5A04	District	6A04	CO Municipality Boundary Code
5A05	County	6A06	Sub Agency
5A06	City/Town/Place	6A19	Bus Plan NTK
5A07	Feature Intersected	6A23	Owner Description
5A08	Facility Carried	6A26	Material
5A09	Location	6A27	Physical
5A10	Latitude	6A28	Span Interact
5A11	Longitude	6A29	Structure Config.
5A15	Year Built	6A38	Dept. Structure Type
5A17	Type of Service On	6B40	Dk. Wearing. Condition Rating
5A18	Under	6A41	No of Joints
5A19	# Lanes Under	6A42	Rebar Type
5A20	Maintenance Respon.	6A43	Approach Pavement Width
5A21	Owner	6A44	Group Type
5B02	Deck Surface Type	6A45	Member Type
5B03	Deck Membrane Type	6A46	Fatig. Sus.

5B04	Deck Protection	6A47	Material
5B05	Left Curb Width	6A48	ADTT
5B06	Right Curb Width	6A53	CUM TK Traffic Fatigue Damage
5B07	Deck Width		
5B09	Skew		
5B10	Structure Flared	IR03	Calculation Date
5B11	No of Main Spans	IR04	Load Type
5B14	No of Approach Spans	IR05	NBI
5B17	Maximum Span Length	IR06	Load Rating Method
5B18	Structure Length	IR10	Inventory Rating
5B20	Total Length	IR11	Operating Rating
5C12	Future ADT		
5C15	Detour Length		
5C26	Approach Roadway		
5C27	Roadway		
5C30	School Bus Route		
5C32	Transit Bus Route		

Note: The codes are to be completed as shown on the iForm inspection report. Only applicable items need to be coded. All submitted data will be stored in BMS2. Owners are encouraged to collect and submit all inventory and inspection information available.

E. FIELD INSPECTION AND ASSESSMENTS

1. Completely inspect all bridge elements including the foundations that support the substructure elements. Clean members as needed to assess condition. For a routine and interim inspection, inspect only the specified areas/members. However, report any public safety threatening deficiencies that are observed elsewhere on the structure.

2. Clearly record all inspection field notes in iForms. Provide sufficient comments within iForms to outline the bridge's condition and to justify all condition and appraisal ratings. Precisely locate and describe deterioration and all areas of section loss. Perform dye penetrant testing if needed. Determine if current conditions warrant a re-rating for load capacity. Determine if current load posting status is appropriate. Prepare sketches and obtain photographic documentation.

3. Inspect all substructure units and culverts (e.g. abutments, piers, footings, etc.) visually or by feel (e.g. probing) for condition, scour, integrity, safe load capacity, etc. Use iForms D-450 Inspection forms to record findings. Conduct evaluation of the site and structure to determine the risk from scour. Investigate the scour potential and determine structure stability. Determine channel condition and waterway adequacy. Propose countermeasures appropriate for conditions. Determine the need for an underwater inspection by a professional diver and record reasons in the Recommendation section of the report.

4. Identify locations and provide description of Fracture Critical Members (FCM).

Use iForms 450F Inspection Form and or BMS2 IF Screen printout to record findings. Discuss future inspection frequency and procedures for these FC members.

5. Identify and record all maintenance and major improvement needs utilizing iForms D-450 Inspection Forms.

6. Arrange for rigging, inspection cranes, platform lift trucks, ladders, boats, etc. The use of safety boats or skiffs should be considered when working over water and the risk of falling is high. Arrange for any needed Traffic Control. Insure the safety of inspectors and public at all times.

F. STRUCTURAL ANALYSIS, LOAD RATING, AND POSTING EVALUATION

1. Perform the initial structural analysis and load ratings using Load Factor methodology where applicable. Where Load Factor is not applicable, rate bridge using a method acceptable to AASHTO and PennDOT. Load rate all bridges at Inventory and Operating levels for AASHTO H, AASHTO HS, PA's TK-527 and PA's ML-80 vehicle configurations.

2. Use conventional methods of analysis unless more complex and refined methods are specified, or warranted and specifically authorized by the owner.

3. Identify the structural components or members that govern the ratings. Define any section losses and/or other deficiencies on these members. Provide or reference typical cross-sections and/or framing plans. Include a table of stresses and a rating summary in the report. Reference calculation page number for values in the rating summary.

4. Calculate the load ratings using data available from inspection files and report, supplemental field information and testing data. When no data or drawings (or sketches) are available, field measure members and calculate load ratings.

5. Ensure that all computations are in accordance with current PennDOT and AASHTO Specifications. Update existing computations accordingly. When computer analysis is used, provide program input and output, calculations to prepare input, documentation of all assumptions, and any other post-processing calculations. Index computations so key data is readily available.

6. Use PennDOT's latest version of the appropriate bridge software for analysis and rating, if applicable.

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

8. Evaluate each bridge to determine its capacity in its current condition relative to the four vehicle configurations (H, HS, ML-80, TK-527) used to represent PA's legal loads and the need for a weight restriction and the level of posting.

9. Acquire authorization from the owner/District Bridge Engineer prior to updating or performing a structural analysis or load rating. For those situations where the Load Factor method results in lower ratings, a second rating utilizing an accepted method may be used to establish the posting levels.

G. PHOTOGRAPHS

Provide digital color photographs (approx. 3.5" x 5") to supplement field

inspection notes and drawings and to document conditions. Provide photographs sufficiently clear, properly identified, dated and indexed. Include views of the overall bridge plus its side elevation, the approach roadway and its alignment, any defects and structural details. All photographs must be in full color. Xerographic/laser copies of photographs, scanned prints, and prints from a digital electronic camera may be used as substitutes for report photographs if resolution and quality is acceptable to PennDOT District 3-0.

H.INSPECTION REPORT

1. Prepare a report to document the inspection, the bridge, its condition, the structural analysis, load rating, posting evaluation and recommendations. The report must be 8 ½" x 11" in size and copied on one side only.

2. A general outline of the report is as follows:

    a. Title page (structure ID Number, bridge name, location, inspection dates, inspector names, prepared for and by, and P.E. seal, signature and date).

    b. General description of the overall structure.

    c. Photographs.

    d. Load rating summary and posting evaluation.

    e. Recommendations.

    f. Frequency recommendation description.

3. Include the following in the Recommendations section:

    a. Need for Interim inspection and/or Supplemental inspections.

    b. Need for new or revised bridge weight restrictions

c. Signing needs: vertical clearance, narrow bridge, etc.

d. A prioritized and time scheduled listing (with costs) of immediate, short and long term improvement needs.

e. Reasoning for the recommended frequency.

4.Other Report Requirements

a. Routine NBIS Inspections without re-rating (4 year frequency): The complete detailed structural analysis and load rating computations from previous inspection/rating need not be included, unless otherwise specified. The load rating summary must still be included with the posting evaluation. Review/perform the posting evaluation for each bridge to ensure its posting status is appropriate for its just inspected condition.

b. Routine NBIS Inspections without re-rating (4 year frequency): The load rating summary must still be included with the posting evaluation. Review/perform the posting evaluation for each bridge to ensure its posting status is appropriate for its just inspected condition.

I. MEETINGS TO DISCUSS CRITICAL DEFICIENCIES WITH OWNERS

Meetings to discuss critical deficiencies may be requested by the local bridge owners. Discuss all critical structural and safety-related deficiencies, including posting/repair/maintenance recommendations and alternatives contained in the current inspection report with the bridge owner at a formal meeting. Arrange for appropriate municipal officials to be present. The contracting agency (Lycoming County) may also attend.

Place emphasis of discussion on uncorrected critical and other deficiencies brought forward from the previous inspection report. Prepare informal, minutes of the meeting that include attendance, issues discussed, proposed solutions, and needed follow-up items for the deficiencies.

J. EMERGENCY REPORTING

Notify the bridge owner (if applicable) and the PennDOT District 3-0 Bridge Engineer immediately whenever a potentially perilous or hazardous condition is observed. Provide written notification to the owner and the PennDOT District 3-0 Bridge Engineer within 24 hours. This task is incidental to inspection work. Examples of such situations could include:

1. Distress in primary members to the point where there is doubt that the members can safely carry the loads for which they are subjected and partial or complete failure of the bridge is a possibility.
2. Scour at or under the abutment or pier of a stream bridge is such that significant movement is likely which could cause the bridge to collapse.
3. Abutment movement or distress which is so excessive that there is a clear possibility that it may not be capable of supporting the superstructure and partial or complete failure is a possibility.
4. Suspected cracks in pins or hangers of two girder/truss bridges.
5. Missing weight restriction signs or vertical clearance signs.
6. Any situation where the structural integrity of the bridge is such that

its safety is in question.

K. QUALIFICATIONS OF PERSONNEL

Personnel assigned to the Inspection Project by consultant shall meet the requirements set forth in the National Bridge Inspection Standards for all work levels. Inspection Team Leader must hold a valid certification as "Bridge Safety Inspector" issued by PennDOT.

L. RELEASE OF INFORMATION

Do not release or distribute inspection information to any outside agencies without the written permission of the owner/PennDOT District 3-0 Bridge Engineer.

M. SUBMISSIONS

1. Personnel Qualifications: Thirty (30) days prior to beginning work, submit the list of names and qualifications of inspection personnel to the owner/PennDOT District 3-0 Bridge Engineer.

2. Draft Inspection Reports: Submit one (1) copy of the draft report within four weeks of the completion of each field inspection for review. Space submissions at frequent intervals to facilitate reviews.

3. Final Inspection Reports: All final reports are to be bound with non-

exposed fasteners.

4. Minutes of Critical Deficiency Meetings with Owners: Submit one copy each to District Bridge Engineer, Owner, and Lycoming County within 7 days of meeting.

5. Load Rating/Re-rating: Update Load Ratings in BMS2.

6. Priority “0” Sign Deficiencies: to be sent to municipal bridge owner within 7 days of the inspection.

7. Priority “0” Structural Deficiencies: notifies municipalities immediately.

N. AUTHORIZATION OF WORK AND DEADLINES

1. Be prepared to start work immediately upon receiving Notice to Proceed. Complete all work including the final report submission expeditiously. Perform inspections to maintain the inspection frequency as specified during the Initial Inspection Report.
2. Upon receipt of Notice to Proceed, start work on all Initial Inventory and Inspection safety inspections and Periodic (Routine) NBIS Inspections as they come due.
3. The following work items require the prior authorization by the owner/PennDOT District 3-0 Bridge Engineer before work can begin:
    a. Load Rating (or Re-rating) of bridges
    b. Interim inspections
    c. Supplemental inspections

d. Critical deficiency meetings

e. Material sampling and testing

f. Bridge instrumentation

4. Request authorization for work involving these items by submitting appropriate justification to the owner. Outline the proposed scope of work for task on each bridge in the justification. Do not proceed with these tasks until written authorization from the owner/PennDOT District 3-0 Bridge Engineer is received.

SMALL BRIDGE INSPECTION COST ESTIMATES

The Lycoming County Planning requested Larson Design Group provide estimated costs to perform the technical scope of services outlined in this report for performance of small bridge inspections in Lycoming County for future budgeting purposes. Our intent is to begin a systematic inspection of the 83 locally owned small bridges identified in the inventory for Lycoming County in 2010 which will also be the start of the new 5 year NBIS cycle for the locally owned bridges greater than 20 feet span length. Therefore, the same engineer performing the federally mandated NBIS locally owned bridges would also conduct the small bridge inventory inspections during the same timeframes. Further, it must be noted that unlike the federally required NBIS inspections that allow Lycoming County to receive 80% federal reimbursement, there is no federal reimbursement available to the County to perform the small bridge (8'-20'span lengths) inspections so these inspections would need to be covered entirely with County or municipal funding.

The table illustrated on the following page provides a cost summary per unit of work by bridge category for the upcoming five year cycle which includes adjustments for inflation as prepared by Larson Design Group. It should be recognized that other engineering firms may submit different costs so this information should be used as a budget guideline only.

SMALL BRIDGE INVENTORY INSPECTION COST SUMMARY

Submitted by Larson Design Group, Williamsport, PA

Inspection Type	Category	Structure Type	2010	2011	2012	2013	2014
Initial Bridge	IA-1	Bridge	$1,254.80	$ 1,324.04	$ 1,397.59	$ 1,475.72	$ 1,558.70
Initial Culvert	IA-2	Culvert	$1,095.24	$1,155.51	$1,219.52	$1,287.51	$1,359.73
Routine Bridge	R4-1	Bridge	$696.23	$733.05	$761.58	$801.52	$852.87
Routine Culvert	R4-2	Culvert	$534.01	$562.67	$593.12	$625.46	$659.81
Routine Bridge	R2-1	Bridge	$696.23	$733.05	$761.58	$801.52	$852.87
Routine Culvert	R2-2	Culvert	$534.01	$562.67	$593.12	$625.46	$659.81
Interim Bridge	I-1	Bridge	$614.20	$647.38	$682.62	$720.05	$759.81
Interim	I-2	Culvert	$535.44	$563.43	$585.13	$615.50	$654.55

Culvert							
Analysis	A-1	Bridge	$1,218.39	$1,285.86	$1,357.54	$1,433.66	$1,514.53
Flood	FD	All	$543.68	$573.16	$604.48	$637.75	$673.08
Meeting	MT	All	$760.22	$801.89	$846.16	$893.19	$943.13

Inspection Descriptions: There will be two categories of structures inspected: bridge and or culvert.

Initial Structure Inspections: This is the initial inspection of the structure.

IA-1 Initial inspection of a bridge

IA-2 Initial inspection of a culvert

Routine Inspection: with a structural rating of: 6-7-8-9 (4 year frequency)

These ratings will be determined after the initial inspection has been completed.

R4-1 Routine inspection of a bridge

R4-2 Routine inspection of a culvert

Routine Inspection: with a structural rating of: 4-5-6-7 (2 year frequency)

These ratings will be determined after the initial inspection has been completed.

R2-1 Routine inspection of a bridge

R2-2 Routine inspection of a culvert

Interim Inspection: with a structural rating of: 2-3-4 (1 year frequency)

These ratings will be determined after the initial inspection has been completed.

I-1 Interim inspection of a bridge

I-2 Interim inspection of a culvert

Appendix C provides a complete breakdown of costs to perform the initial inspection of all 83 structures contained in the Lycoming County Small Bridge Inventory during

calendar year 2010 based on the unit costs provided in the previous table. Please note, the total cost to perform all 83 initial bridge inspections is estimated at $ 165,221.76. The Lycoming County Commissioners have budgeted this amount from their County Liquid Fuels fund in the CY 2010 preliminary county budget which has not yet been adopted. Obviously, it will not be possible to cite budget figures to perform the small bridge inspections beyond 2010 until all of the initial bridge inspections are completed and these structural ratings are assigned as the structural ratings will determine the inspection frequency for each bridge. It is certain that lower budget amounts will be needed in years subsequent to 2010 since not all bridges will need to be inspected within the same year.

PENNDOT SMALL BRIDGE INVENTORY TASK FORCE

The Lycoming County Planning Commission would like to thank PennDOT for forming the Small Bridge Inventory Task Force. This task force consisted of representatives from PennDOT Central Office, PennDOT Engineering District 3-0, PennDOT Engineering District 2-0, Lycoming County Planning Commission, Northcentral PA Regional Planning Organization (RPO), SEDA-COG RPO, Northern Tier RPO, Centre Region MPO and Larson Design Group. The other MPO/RPO planning partners are participating in the task force because they have either started developing a similar small bridge inventory program in their planning jurisdictions or have expressed interest to PennDOT in possibly starting a program. The Task Force held a series of meetings and webinars throughout the study development process.

This Task Force was invaluable to the Lycoming County Planning Commission in terms of reviewing key methodologies and findings contained in this report so that it could be considered as a best practice example for other Counties and municipalities considering undertaking their own small bridge inventory and inspection program. We would recommend to others the formation of a similar task force to help guide the process with task force membership determined at the local level in consultation with PennDOT.

ROLE OF LOCAL TECHNICAL ASSISTANCE PROGRAM, (LTAP)

The Lycoming County Planning Commission has been partnering with PennDOT since 2005 to help promote and market the Local Technical Assistance Program, (LTAP) program within Lycoming County. During this four year period, we have doubled the amount of LTAP courses offered in Lycoming County and have increased municipal official attendance by 147%. This success is attributed to extensive outreach efforts made by the LCPC working in conjunction with PennDOT to offer training programs and technical assistance that best address the needs most frequently expressed by our municipal officials. Therefore, we believe that LTAP will provide a crucial role as we implement this small bridge inventory and inspection program through education on proper bridge preventative maintenance practices that will be recommended by engineers performing these bridge inspections along with providing a general understanding with regard to reviewing bridge inspection reports and taking appropriate corrective action in a timely fashion in order to avoid more costly bridge repairs in the future.

Already the Lycoming County Planning Commission has launched LTAP outreach efforts with municipal officials by hosting several pilot LTAP training sessions in 2009 on bridge maintenance and reviewing bridge inspection reports tailored to smaller structures.

LCPC Staff will arrange for technical assistance for municipalities that need help understanding and implementing the bridge inspection report recommendations which may include on-site visits. LCPC Staff also made a presentation at the National LTAP Conference in Pittsburgh on July 28, 2009 regarding our Small Bridge Inventory Pilot.

IMPLEMENTATION

As previously noted, the County of Lycoming is in the process of budgeting 100% of the necessary funding from its liquid fuels fund to begin the initial inspection of all 83 locally owned bridges identified in our small bridge inventory during 2010 since 72% of these structures have been rated in fair or poor condition by PennDOT Engineering District 3-0 Municipal Services staff.

The County is in the process of contacting all 29 municipalities to secure their written concurrence as bridge owner to have the County inspect their structures at no cost to each municipality. The County will not inspect any bridges where a municipality wishes to opt out of our program so this initiative will be conducted on a voluntary basis.

It should be noted that since most municipalities that own the smaller bridges (except Porter Township, Susquehanna Township, City of Williamsport and Jersey Shore Borough) are already participating in the Lycoming County NBIS Program (federally mandated inspections for 20ft. and longer municipally owned bridges) and are quite

satisfied with this program so it is anticipated that most if not all municipalities will decide to participate in our small bridge inspection program.

The Lycoming County Planning Commission acting as staff for the Williamsport MPO is also charged with the responsibility for carrying our the transportation planning and programming process within Lycoming County which includes development of the Long Range Transportation Plan and Transportation Improvement Program. The information from these inspections will be very useful to determine priorities for funding purposes. The Lycoming County Liquid Fuels Grant Assistance Program can also provide County funding which can be used as a matching source of funds to undertake small bridge improvement projects.

Lycoming County is also in the process of developing a website that will allow the users to access non-sensitive data collected as part of this small bridge inventory and inspection program. Users will be able to click on points noted on GIS mapping for each bridge to access the database for that particular bridge but will be read only format so that data cannot be entered by outside parties to maintain the integrity and security of the database. Information will be updated at the conclusion of each annual bridge inspection cycle.

Lycoming County does recognize the value in undertaking this Small Bridge Inventory Pilot Program as a systematic inspection of municipally owned bridges with span lengths of 8’-20’ within the County and is willing to make the investment necessary to carry-out these inspections even though federal funding is not currently available to help cover the

cost of the inspection of these types of smaller structures. However, we believe the Federal Highway Administration should become a funding partner to cover at least 50% of the cost of these inspections in order to provide an additional incentive for those counties / municipalities that would like to undertake a similar small bridge inspection program in order to maintain public safety on our local roadway network and ensure adequate levels of preventative maintenance are being performed on these smaller structures. The lack of any inspection of these structures for long periods of time along with the sudden increased heavy hauling activities on the local roadway network, especially from the truck traffic we are observing in Lycoming County and Northcentral PA region from natural gas exploration activity is causing a more urgent need to implement a small bridge inspection program.

Questions about the Lycoming County Small Bridge Inventory Pilot should be directed to Mr. Mark Murawski, Lycoming County Transportation Planner at (570) 320-2138 or email: mark.murawski@lyco.org

APPENDIX

APPENDIX B

Lycoming County Small Bridge Inventory

Bridge Location Maps

By Municipality

APPENDIX D

Sample Bridge Inspection Report Format