Bridge Inspection Program

2020 County Roads Conference
Bryon Fuchs, PE
NDDOT
History

- NDDOT
  - Completing inspections on state and local bridges (>20.0’ in length) since the NBIS program began
  - Original agreements with the counties signed back in 1980
  - NDDOT internal staff
    - Engineering, Construction, and Maintenance staff
      - All had the proper training, met inspection requirements, and had oversight
  - NDDOT used Consultants for the underwater inspections that are required on certain bridges – under a state contract (to continue)
  - NDDOT used Federal funds and billed the LPA’s for the local match
Why now, what changed?

- Ensure the continued SAFETY of Bridges on the LPA system!!
- Federal requirements
  - 23 Metrics
    - Inspection timing/frequency
    - Inspection documentation
    - Load rating of all bridges
- NDDOT staffing
Where are we at?

- New agreements were sent out to Counties, Cities, and other State Agencies
- RFP closed on January 27, 2020
  - 9 Proposals received
- Interview prospective consultants the week of February 3, 2020
  - Negotiate scope and fees
- Hope to have contracts signed by March 1, 2020
- Inspections to start April 2020
RFP

- Inspect bridges in 2020/2021 – approximately 3,600
  - 170 fracture critical
- Load rate approximately 3,200 bridges
  - 170 fracture critical
- Inspection from April 1 to November 30 each year
- Also includes approximately 50 bridges per year for repaired, rehabbed, replaced, etc.
- Bridges split into 4 regions
- Anticipate hiring 4 consultants
Scope and Fee Structure

- Inspection – Lump Sum per Bridge
  - Inspection cost for the bridge
  - Add-ons
    - Fracture Critical
    - Traffic control needed if more than some cones and signs. Such as a complete lane closure, flagging, etc.
    - Special access required – such as a snooper or lift truck
    - Stream crossing – to complete scour/channel profiles, plotting the information and prior information, boats may be needed or other equipment
    - RR crossing – insurance, permits, agreements, and flagging
Scope and Fee Structure

- Closed bridge Inspection Cost
- Routine load rating of the structure
- Fracture critical load rating of a structure

- Additional Investigation Service needs as a result of routine inspection
  - Special non-destructive testing needed
    - Consultant will need to discuss with Bridge Division first for a recommendation and justification prior to completing any work.

- Additional load rating service needs
  - Looking for plans, shop drawings, or other bridge information required in order to perform the load rating on the structure
Costs

- Going to be higher
  - More thorough documentation required
  - Load rating portion (one time), NDDOT hopes to be able to do the “maintenance” load rating in the future
  - Don’t have plans or shop drawings, need to do field measurements, look for data
  - Etc.
Costs

- Items to consider to lower costs - examples
  - Have plans/shop drawings/other data readily available
  - Remove poor or un-traveled bridges
    - 71 (2.3%) – currently closed bridges on the LPA system
    - 68 (2.2%) – bridges that are Alert Code 3
    - 710 (22.7%) – bridges that are posted for load
      - 430 (13.8%) – bridges that are less than 25 tons
      - 74 (2.4%) – bridges that are less than 10 tons
      - 49 (1.6%) – bridges that are less than 5 tons
    - 419 (13.4%) – bridges that are Structurally Deficient
Funding

- Inspections
  - Federal – 80.93% (Allocations to LPA's)
  - Local match – 19.07%

- Load Rating
  - Federal – 80.93% (NDDOT federal funds)
  - Local match – 19.07%

- Billing Local Match (monthly)
  - Billed after accepted/approved inspection report
  - Billed after accepted/approved load rating
Funding

- Additional funding to the state – Bridge Replacement and Rehabilitation Program (poor bridges)
  - Load rating – coming from additional funds
  - Bridge replacement – coming from additional funds (offset $ from County bridge program)
Additional Info related to Bridge Inspections/Load Rating

- State is going to “4” dedicated bridge inspectors
- State will need to hire for a certain number of bridges to be inspected and load rated as well – (number of and which bridges are uncertain at this time)
New items moving Forward

- All new bridges will require the following from this point forward:
  - Scour analysis (design phase and reviewed after piles have been driven)
  - Turned into NDDOT
  - Load Rated (must use BrR – AASHTOWare software) and the model needs to be turned over to NDDOT
    - Includes Bridges, box culverts, pre-fab structures, 3-sided boxes, etc. – anything that requires a bridge inspection according to the federal regulations that is 20.0’ or greater in span length
Questions?