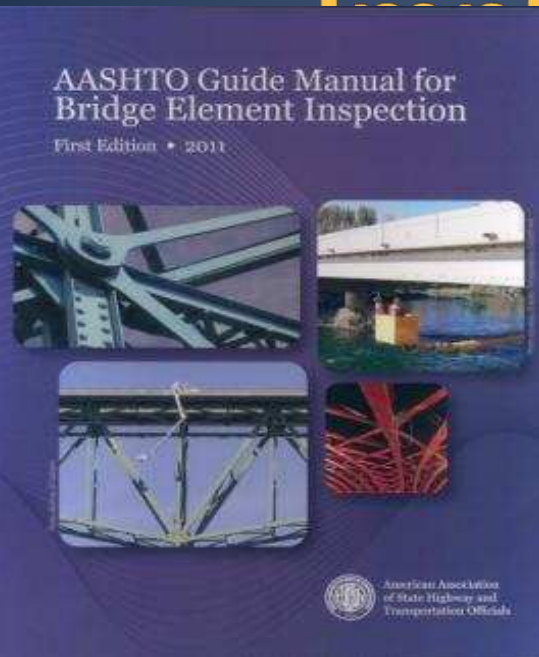# Implementation of the AASHTO Bridge Element Inspection Manual

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AASHTO Element Basics

- AASHTO Bridge Element Inspection Manual 2011
- Four condition states for all elements
  - Good, Fair, Poor, Severe
- Utilizes a multi-defect path assessment approach.
  - Each defect is defined separately with the criteria to place it in one of the four defined condition states.
- Units for decks and slabs changed to square area.
- Decks and wearing surfaces elements separated.
- Steel and protective coating elements separated.
- Defect Flags (Smart Flags) applied at the element level.

Element Types

- National Bridge Elements
  - The NBE's are standardized elements that represent all the primary load and safety components on a bridge.
  - NBE's are intended to be collected by the FHWA and cannot be edited by agencies
- Bridge Management Elements
  - Elements such as wearing surfaces, joints, protective coatings or similar bridge preservation elements.
- Agency Custom Elements
  - Other elements not covered above that are of interest to the agency.

Implementation Key Considerations

- Existing Element Data Conversion
- Inspector Training
- Inspection Software Coordination
- Timing Considerations
- Impacts on Performance Measures

Element Inspection Data

- Two options exist to create the new elements
  - Manually create the elements using the new AASHTO Bridge Element Inspection Manual.
  - Migrate your legacy elements using the AASHTO Element Migrator software.
- Regardless of the selected option, legacy element data needs to be preserved.
- Migration is the only practical option if you wish to convert all previous inspections.

Element Migration

- The AASHTO "Element Migrator" will mass convert CoRE elements to new elements.

- Will handle State developed elements.

- Recommend migrating existing elements and then checking over the inspection cycle.

- Migrator is software/DB independent and will be free to AASHTO states when released.

- Difficulty with some SMART/defect Flags.

Inspector Training

- Experienced element inspectors will need some training prior to implementation.
  - Measurement Conventions
  - Four State General Definition
  - Wearing Surfaces and Protection Sys.
  - Unit Changes
  - Defect Flag Application
  - Multi-Defect Language
  - New Elements
- Training Time Estimate

Inspector Training

- Inspector Training Activities
  - NHI 80 hour Bridge Inspector Training Course being updated to reflect new elements.
  - NHI Bridge Inspector Refresher Training Course being updated.
  - Bridge Inspection Reference Manual being updated.
- Web Training
  - Discussions are underway to provide free inspector training via webinar.

Software Interaction

- Agency custom software must be modified to support the new elements.
  - Database changes to support new element storage.
  - New inspector element interface
  - Custom reports, queries, etc. need to be modified.
- Migrator compatibility needs to be developed.
- NBE language should not be altered in custom applications to retain national consistency.

Interaction With Pontis

- Pontis 5.1.2 will support the new AASHTO elements.
  - Preloaded with all the elements.
  - New elements stored separately from old.
  - Support agency developed elements.
  - Supports element level defect flags and protection systems.
  - Support for Migrator XML file import.
- Modeling in Pontis 5.2
  - Pontis 5.2 (under development) will perform multi-objective modeling with new element data.
  - Improved elements will mean better modeling.

Implementation Timing

- Requirements before new element inspections occur.
  - Software that supports new inspections must be available.
  - Legacy inspections must be complete at cross over.
    - All inspection entities should cut over at once.
  - Element conversions need to have taken place.
  - Inspection staff need to have been trained.
  - Agency inspection manuals need to available.
  - Custom bridge inspection reports need to be available.
- Possible dates: Start of new cycle, after NBI data submission, start of new contract, slow season….

Sample Implementation Timing

Action	Dec 2011	Jan 2012	Feb 2012	Mar 2012	April 2012	May 2012	......	May 2014
Migrator Available	■							
Pontis 5.1.2 Available	■							
External Coordination	■	■	■	■	■			
Migrate Elements	■	■	■					
Update Reports/Manuals			■	■	■			
Train Inspectors					■			
Begin Inspections						■		
Validate Migration						■	■	■

Performance Measures / Translation

- New elements impact the Bridge Health Index
    - New elements better represent condition.
    - Bridge Health Index calculation unchanged.
    - Resulting values will differ from current.
    - May have impacts on GASB 34 reporting.
- NBI Translator Impacts
    - Translator will not work with new elements.
    - You may be using the translator without knowing it.

Summary

- The new elements provide improved inspection results.
- Converting over will take planning and effort.
- Migrator can help do the conversion from old to new.
- Pontis 5.1.2 will support new elements.
- Inspector training fairly straight forward.
- Performance measures may be influenced.
- Improved condition assessments will improve management decisions.