

# SEBPP Performance Measures Working Group

2013 SEBPP Report-Out

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# Mission Statement

- ▶ Develop guidelines for an agency to create Performance Measures
  - ▶ Guidelines must demonstrate the effectiveness of that agency's bridge preservation efforts
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# Properly Developed Performance Measures

- ▶ Provide an overall assessment of an agency's performance
  - ▶ Should be easy to calculate and understand
  - ▶ Layered
    - One or two measures are supported by additional measures
    - Then rolled up into the executive level performance measures
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# In Using Performance Measures

- ▶ What is being measured is accomplished
  - ▶ Don't expect an immediate vast improvement in condition
  - ▶ *If properly used*, performance measures can assist in improving the condition of assets over time
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# MAP 21

- ▶ Each state less than 10% of bridge deck area on the NHS considered to be SD
  - ▶ If a state exceeds this for three consecutive years, it will be forced to spend 50% of fed. bridge money addressing SD bridges
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# MAP 21

- ▶ We don't want to ignore SD... but... we don't want to “chase our tail” either
  - ▶ As the worst bridges are replaced, additional bridges will deteriorate to take their place
  - ▶ This measure easy to understand, but not complete
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# A Better Measure?

- ▶ Divide bridges into good / fair / poor by deck area
  - ▶ Provides a more complete understanding of condition
  - ▶ AASHTO Standing Cmte on Performance Management (SCOPM) has already proposed this for NHS bridges
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# One example

- ▶ Use condition ratings for deck, superstructure, substructure and culvert
  - ▶ Use a straight average of the condition ratings (use normal rounding procedures)
  - ▶ Use a weighted average of the condition ratings, for example deck 20%, superstructure 40% and substructure 40% (use normal rounding procedures)
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# To Define:

- ▶ Break these up by system – it's the agency's decision
    - On and off the state highway system
    - On and off the interstate system
    - State maintained bridges and locally maintained bridges
    - Rural versus Urban
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# Reporting to the Public

- ▶ Level of complexity is up to the agency
- ▶ Simpler is better



# Another Measure

- ▶ Measure the annual number of bridges or deck area of bridges becoming poor (or multi-year rolling average)
  - ▶ Drawback: if an agency's bridge inventory is aging, the annual number of bridges becoming poor will also increase
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# Yet Another Measure

- ▶ Calculate the average time it takes a bridge to move from fair condition to poor condition
  - ▶ Drawback: it will take some significant data analysis to determine and it will take several years before improvements are seen
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# Lower Level Performance Measures

Based on:

- ▶ Element Condition
  - ▶ Work Performed
  - ▶ *OR* a Combination
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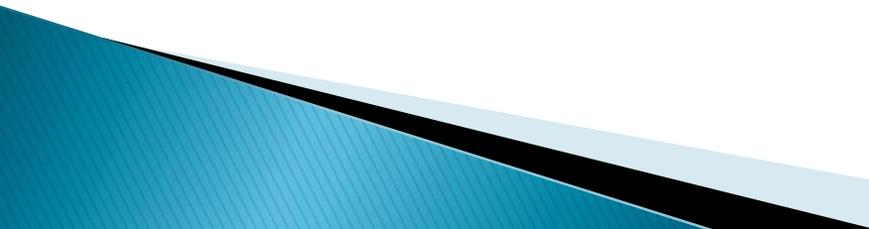
# 1. Element Condition

- ▶ MAP-21 mandates that states report National Bridge Element level data for bridges on the NHS starting in October 2014
  - ▶ NBE's Based on AASHTO Guide Manual
  - ▶ Could include the Bridge Management Elements (BME's)
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# Example Goals for Joints

- ▶ Maintaining X % of deck joint elements in condition state 1 (Good) or 2 (Fair) would reflect how well an agency is protecting the superstructure and substructure.

# Example Goals for Joints

- ▶ An agency may want to be able to identify joints in poor condition on bridges with good decks and joints in poor condition on bridges with poor decks, to prioritize joint repair work, since an agency would probably address poor joints on bridges with poor decks as part of a deck repair or replacement project.
  - ▶ Similar approach for decks and paint
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# Condition Performance Measure Examples

- ▶ Percent of deck joints in condition state 2 or better
  - ▶ Percent of deck or deck slab elements in condition state 2 or better
  - ▶ Percent of steel protective coating elements in condition state 2 or better
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# NBI Element Ratings

- ▶ Percent of bridges with deck condition rating of 6 or better (weighted by deck area)
  - ▶ Percent of steel bridges with superstructure condition of 6 or better (weighted by deck area)
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## 2. Work Performed and/or Needed

- ▶ Look at the amount of work of various types that are performed
  - ▶ Look at amount of work performed, however by expressing it as a percentage of need, may show management that more resources are needed for bridge preservation activities
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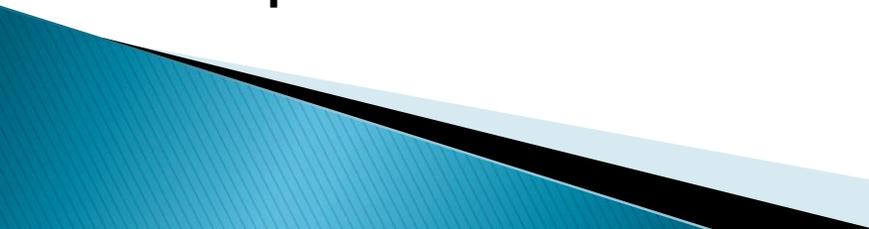
## 2. Work Performed and/or Needed

- ▶ Also look more specifically at work needed
  - ▶ If work needs are increasing then this may indicate that insufficient resources are being allocated for this work.
  - ▶ Useful in the budgeting process
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# Other Examples

- ▶ Percent of bridge work orders performed on time
  - ▶ Percent of bridge decks (or total deck area) sealed with penetrating sealant annually
  - ▶ Percent of bridge deck (or total deck area) with overlays installed
  - ▶ Percent of beam or girder ends (or linear feet) washed annually
  - ▶ Percent of bridges washed/cleaned annually
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# Related Examples

- ▶ Percent of deck joints in poor condition (or linear feet) repaired or replaced annually
  - ▶ Number, percent, square feet or cost of decks needing an overlay
  - ▶ Number, percent, square feet or cost of decks needing replacement
  - ▶ Linear feet, percent or costs of joints needing sealed
  - ▶ Linear feet, percent or costs of joints needing replacement
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# Summary

- ▶ Each agency should use performance measures that work best for them
  - ▶ Maybe best to start with condition based performance measures, and then select work performed/needed performance measures to address areas in need of improvement
  - ▶ Probably some combination of both types will be best
  - ▶ As always... further direction from FHWA or AASHTO may result in changes
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