Bridge Maintenance Academy 2009
A Process Oriented Approach to Healthy Bridge Systems
MEDP Conference
6/9/2009

Course Purpose and Objectives

- To bridge the gap between inspection recommendations and maintenance operations
- To inform participants of Best Practices for preventive maintenance and structural repairs
- To inform participants of available resources, including PennDOT applications and publications
- To provide a framework for the development of strategic bridge maintenance plans

Intended Audience

- Bridge Maintenance Coordinators
- Assistant Bridge Engineers for Inspection
- Assistant County Maintenance Managers for Bridges
- County Bridge Crew Foremen
Companion Handbook

- This course has a companion Handbook (version provided is abbreviated for MEDP Conference)
- The Handbook is a handy reference to the information presented during the course
- The Handbook lists best practices at the end of each chapter

Course Overview

- Chapter 1: Introduction
- Chapter 2: BMS2 – How to get from inspection to repairs
- Chapter 3: Annual and Strategic Planning
- Chapter 3a: Preventive Maintenance
- Chapter 3b: Structural Repairs
- Case Study Review

Chapter 1 - Introduction

This course:
- uses PennDOT publications and sources
- outlines a process for achieving healthy bridge systems
- begins with bridge inspection results and recommendations
- manages and resolves those maintenance recommendations
Chapter 1 - Introduction

- Bridge Maintenance & Preservation
  - Effective Maintenance
  - Planning
  - Budgeting
  - Scheduling
  - Performing
  - Reporting
  - Evaluating

What’s on our plate?

Bridge Condition Deterioration Curve

Bridge Maintenance
How did we do this year?
Chapter 1 - Introduction

This process:
- is comprehensive in scope, but not in detail
- is an approach, not a method
- allows for flexibility
- allows for adaptation to District needs

Chapter 2 Overview

BMS2: How to get from inspections to repairs

Learning Objective
Understanding BMS2 as a tool:
- What information is in it
- How it gets there
Chapter 3 Overview

Annual and Strategic Planning:
Learning Objectives
- To understand Strategic Plan Development
- To understand the process of annual planning
- To understand how BMS2 information contributes to annual maintenance plans
- To practice prioritizing maintenance activities
- To understand implications of environmental regulations for planning

How did we get here?

Greatest SD Deck Area
State DOT Bridges > 20’
FHWA Dec 2008 Data

Structurally Deficient Deck Area
Growth and Reduction – SD On Off

Structurally Deficient PENNDOT Highway Bridges > 8’
Bridge Deck Area by Year
Chapter 3 Overview

- Careful planning and programming of bridge maintenance activities is of the utmost importance
  - Very simply put, the goal of preventive maintenance is to **keep good bridges good**
  - This goal can be accomplished with a **strategic plan** to address maintenance for critical bridge components

Chapter 3 Overview

- An effective annual plan should address three major types of maintenance activities
  - Preventive maintenance activities
    - Includes deck and drainage system cleaning
  - Priority bridge repairs
    - Includes structural repairs to bridge components with Priority Codes of 0 & 1 on NBIS reports
    - Other structural repairs that may not be Priority 0 or 1, such as beam repairs, deck repairs
  - Non-regular maintenance
    - Includes major repair and rehabilitation projects
Structure Needs Inventory

- Process begins with inventory of structural deficiencies found during NBIS inspections
- Report generated by District Bridge Unit
  - Using BMS2 data, which is available through Crystal Reports
  - Showing general condition of bridges
  - Gives a picture of bridge needs within District

Structure Priority List

- Repairs are prioritized from the list
  - Considers needs and sizes of bridges
- List is developed between the District Bridge Unit and the CMMs or their designated representatives
- Work is categorized by work force capabilities
  - Determine work to be done by Department Forces
  - Determine work to be done by private forces

Chapter 3a Overview

Best Practices - Preventive Maintenance

Learning Objectives
- To understand basic maintenance procedures
- For a bridge, be able to:
  - Determine appropriate scheduled maintenance
  - Determine appropriate response-type maintenance, as indicated by inspection reports
Chapter 3b Overview

Best Practices – Structural Repairs

Learning Objectives

• Broaden understanding of structural repair procedures
• Determine appropriate structural repairs for a bridge

Conclusion

• We anticipate that this course will continue to be offered annually
• The Birmingham Bridge and Interstate 95 have renewed a focus on bridge maintenance and preservation
• Looking forward, our focus is to *keep good bridges good*