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 maintenance plans

Intended Audience

• Bridge Maintenance Coordinators
• Assistant County Maintenance Managers for Bridges
• Assistant Bridge Engineers for Inspection
• Bridge Maintenance Coordinators

Bridge Maintenance Academy 2009
A Process Oriented Approach to Healthy Bridge Systems

MEDP Conference
Healthy Bridge Systems
A Process Oriented Approach to
Bridge Maintenance

6/3/2009
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. It lists best practices at the end of each chapter.

Chapter 1 - Introduction

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

Course Overview

- Chapter 2: Structural Details
- Chapter 3: Preventive Maintenance
- Chapter 3A: Preventive Maintenance
- Chapter 3b: Preventive Maintenance

Case Study Review

- Chapter 2: BMS2 - How to get from
- Chapter 1: Introduction

Companion Handbook

- The handbook lists best practices at the end of each chapter
- Provides details of the course
- The handbook is a handy reference to the information
- This course has a companion Handbook (version provided is abbreviated for MEDP Conference)
Chapter 1 - Introduction

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

What's on our plate?

Bridge Condition Deterioration Curve

How did we do this year?

Bridge Maintenance Activities
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

BMS2: How to get from inspections to repairs

Learning Objective

Chapter 2 Overview

BMS2: How to get from inspections to repairs

Process Map

This process:
• allows for adaptation to District needs
• allows for flexibility
• is comprehensive in scope, but not in detail
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

Chapter 3 Overview

How did we get here?

Structurally Deficient Deck Area

Eliminated SD
New SD

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

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

Deck Area in Thousand sqft.

Fiscal Year

0500 1000 1500 2000 2500


Regulations for Planning:
• To understand implications of environmental regulations
• To practice prioritizing maintenance activities
• To understand how BMS2 information contributes to annual maintenance plans
• To understand the process of annual planning
• To understand Strategic Plan Development

Learning Objectives:
Annual and Strategic Planning:
Chapter 3 Overview

Very simply put, the goal of preventive maintenance is to keep good bridges good. This goal can be accomplished with a strategic approach.

Careful planning and programming of bridge maintenance activities is of the utmost importance. An effective annual plan should address three major types of maintenance activities.

1. Preventive maintenance activities
   - Includes deck and drainage system cleaning

2. Priority bridge repairs
   - Includes structural repairs to bridge components with Priority Codes of 0 & 1 on NBIS reports

3. Other structural repairs that may not be Priority 0 or 1
   - Includes beam repairs, deck repairs

Careful planning and programming of bridge maintenance is of the utmost importance.
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.
- Shows general condition of bridges.
- Gives a picture of bridge needs within District.
- Identifies and prioritizes deficiencies found during NBIS inspections.
- Develops and monitors standard maintenance procedures.
- To understand basic maintenance requirements.

Structure Priority List

- Repairs are prioritized from the list.
- Considers needs and sizes of bridges.
- Determines work to be done by District Bridge Unit.
- List is developed between the District Bridge Unit and the CMMs or their designated representatives.

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 3a Overview

-预防性维护的最佳实践
-学习目标:
  - 了解基本维护程序。
  - 对桥梁，能够做到：
    - 确定适当的定期维护。
    - 确定适当的响应型维护，根据检查报告。

Structure Needs Inventory

- 一个桥梁需求的图片在整个区域。
- 整合并管理桥的信息。
- 使用BMS2数据，通过Crystal Reports提供。
- 显示桥梁的一般状况。
- 提供桥梁需求的图片。
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.

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

Chapter 3b Overview
Best Practices – Structural Repairs
Learning Objectives
• Broaden understanding of structural repair procedures.
• Determine appropriate structural repair 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.