PREVENTATIVE BRIDGE MAINTENANCE

INVENTORY MANAGEMENT | PROGRAMMING | IMPLEMENTATION

PRESENTED BY JOHN PAPPONETTI, PE
SEPTEMBER 29, 2011
• In Business for 33 Years
• 190 Employees
• Headquartered in Rochester, NY
• Seven Office Locations in NY, PA, and NC
• Full Service Firm: Engineering | Architecture | Environmental | Planning
• Rochester, NY (HQ)
• Buffalo, NY
• Ithaca, NY
• Hornell, NY
• Coudersport, PA
• Scranton, PA
• Charlotte, NC
JOHN PAPPONETTI, PE

- 14 Years of Experience
- Associate and Project Manager
- AAS - Alfred State College
- BS - Rochester Institute of Technology
- PE in NY and PA
- Certified through the Structural Engineering Certification Board
WHY IS PREVENTATIVE MAINTENANCE IMPORTANT?
TODAY’S PRESENTATION

1. MAINTENANCE PROGRAM HISTORY
2. INVENTORY MANAGEMENT
3. PROGRAMMING
4. IMPLEMENTATION
5. Q & A
HISTORY OF THE CITY OF ROCHESTER’S BRIDGE MAINTENANCE PROGRAM

- Program first implemented in 1991
- 100% funded by the City of Rochester
- Average annual maintenance contracts are valued at $250,000.
- Consultant fees average $65,000/year
  - $45,000 for Inventory Management | Programming | Implementation
  - $20,000 for Construction Phase Services
- John has been involved in this program since 1998
- **GOAL:** Prolong the life of the City’s bridge infrastructure and reduce the need for large capital improvements

City of Rochester, NY
LaBella Associates provides the following services:

- Coordination & Administration
- Inventory Database Management
- Annual Bridge Inspections (Detailed & Cursory)
- Annual Bridge Maintenance Contract Documents
- Construction Management & Inspection
• **Inventory Management** is a process in which one oversees and tracks their assets.

• **Bridge Inventory** is data pertaining to the identification information, classification, type and material, operational condition, geometrics, load rating and posting, and inspections of the bridge.

• There are several ways to track this inventory depending on the owner’s needs:
  - Simple Excel Spreadsheet,
  - Microsoft Access Database, or
  - Bridge Management Software Program

• Database provides a central location for bridge data
  - Photos
  - Inspection Reports
  - Flag Reports
  - Work Orders
  - Contract Documents
• Mid-1990’s - City utilized MS Access to track bridge inventory

• 2008 – City purchased a Bridge Management Software Program to track bridge inventory

• City of Rochester utilizes Cartegraph’s BRIDGEview bridge management software program

• Initial purchase cost (including training and customization) = $15,000

• Yearly technical support and updates = $1,100 per license
Advantages of a Bridge Management Software Program:

- Accurately capture and maintain bridge data
- Proactively monitor overall condition of bridges
- Track current and historical bridge information
- Assists with factoring bridge maintenance into yearly budget.
- Reporting features help track bridge data that helps establish preventative maintenance schedules, and accurately determine replacement needs.
• Utilizing the Cartegraph Software Program, generate reports listing bridges with:
  ➢ Element specific deficiencies (condition ratings ≤ 4)
  ➢ Safety concerns
  ➢ Cyclical maintenance needs

• Based on this information, maintenance needs are prioritized

• Estimate cost to eliminate deficiencies or perform the cyclical maintenance needs

• Evaluate and compare needs, associated cost, and available funds

• Develop a list of maintenance repairs to be performed over a 5-year period
  ➢ Priority is placed on bridges with safety concerns and bridge elements with condition ratings ≤ 4

• 5-year Maintenance Program is a working document that is updated year-to-year based on current condition and needs of existing bridge inventory.
• Typical Cyclical Maintenance Items include:
  - Bridge Washing & Bridge Painting
  - Deck Sealing & Overlays
  - Concrete Substructure Sealing
  - Crack Sealing
  - Bearing Lubrication

• Element Specific Deficiency Repairs or Replacement include:
  - Superstructure and Substructure Concrete Repairs
  - Steel Girder Repairs
  - Joint Replacement
  - Bearing Replacement
  - Curb Repairs & Replacement
  - Scour Protection
  - Railing Repairs & Upgrades
  - Drainage Improvements
IMPLEMENTATION

- Construction Documents (Year One of 5-year Plan)
  - Plans & Details
  - Specifications
  - Proposal Book
  - Engineer's Estimate
- Bid & Award
  - Advertisement
  - Pre-bid Meeting
  - Bid Opening
  - Bid Analysis
  - Award Recommendation
• Construction Management & Inspection
  ➢ Preconstruction Meeting
  ➢ Progress Meetings
  ➢ Shop Drawing Review
  ➢ Pay Applications
  ➢ Change Orders
  ➢ Part-time Inspection
  ➢ Record Plans
CONCRETE SEALING
FASCIA REPAIRS
RAILING REPAIRS
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