Pavement Management Program
Northeastern Illinois Region

Chicago Metropolitan Agency for Planning

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CMAP Project Goals

• Implement a pavement management system
• Perform a comprehensive pavement condition survey
• Evaluate the impact of the municipality’s existing funding level on future pavement conditions over the next five years
• Determine funding levels needed to:
  ✓ Maintain current roadway conditions
  ✓ Modestly increase overall roadway conditions
  ✓ Eliminate the roadway rehabilitation and reconstruction backlog
• Recommend pavement preservation and rehabilitation projects
• Provide hands-on pavement management training
Current G&AI Projects

**Pilot Program  Fall 2018**
- City of Hickory Hills
- Village of Niles
- Village of Park Forest
- Village of Riverdale

**Round 2 Spring 2019**
- Village of Calumet Park
- Village of Country Club Hills
- Village of Dixmoor
- Village of Glenwood
- Village of Lynwood
- Village of Midlothian
- Village of Posen
- Sauk Village

**Total participation**
- 12 municipalities in Pilot Program
- 17 municipalities in Round 2

Pavement Management

- **Primary goal:** Determine **funding requirements** to meet municipality goals
- **Objective, repeatable** pavement condition assessments
  - Pavement Condition Index (PCI) – ASTM D6433
  - International Roughness Index (IRI) – ASTM E1926
- Model pavement deterioration and **predict future conditions**
- Assess the **level of rehabilitation** needed for each pavement
- Determine **approximate timing** for rehabilitation for each pavement
- **Estimate the cost** for rehabilitation for each pavement
PAVER 7 by US Army Corps of Engineers

- Manage pavement inventory
- Store routine pavement condition data
- Track pavement work history
- Predict future pavement conditions
- Determine pavement maintenance (M&R) and rehabilitation needs
- Determine funding
  - Consequences
  - Requirements
- Develop pavement M&R projects
Critical PCI - Acceleration of deterioration

Pavement Condition Index (PCI)

Preventive M&R - Less costly

Major M&R - More costly

Pavement Age

Seal Coat: 3 – 5 Years
Slurry Seal: 6 – 8 Years
Chip Seal: 8 – 10 Years
Cape Seal: 10 – 12 Years
Micro Surfacing: 10 – 12 Years
Mill and Overlay: 10 – 15 Years
Reconstruction: 15 – 20 Years
Lakewood Blvd. (PCI = 93)
Recommended maintenance: Seal paving lane joint + re-seal joints between pavement and curb.

Westwood Dr. (PCI = 42)
Recommended maintenance: Localized structural patching + cold mill and overlay or reconstruction.
Mantua St. (PCI = 24)
Recommended maintenance: Reconstruction.
Budget Analyses (2019 – 2023)

- Determine impact of existing funding level – $800K/YR
- Determine funding levels to:
  - Maintain current pavement conditions – $1.1M/YR
  - Reach an average overall PCI of 60 – $2.1M/YR
  - Eliminate municipalities existing backlog – $5.0 M/YR
- Determine impact of “worst case” scenario – $0/YR
5-Year Results

Estimated Rehabilitation Costs
- Reconstruction: $1.6M/Mile (Est.)
- Mill and Overlay: $650K/Mile (Est.)
Pilot program success stories

• Identification of roadways for pavement preservation – where to apply preservation activities for the largest ROI
• Identification of inappropriately applied maintenance and rehabilitation activities
• Justification for increased rehabilitation funding

Lessons learned

• Collaboration and education are critical to project success
• Pavement preservation should become standard operating procedure
• Existing rehabilitation practices do not yield desired performance
  • Keep historical records of roadway rehabilitation
  • Track performance of rehabilitation projects
• Funding levels have been inadequate
  • Roads are getting older; traffic is increasing
  • More roads have been added to agency networks
  • Funding levels have remained relatively unchanged but will be increasing with new increase in MFT and capital bill
Benefits to participating agencies

• Data-driven decision making
  • Rational assessment of existing needs
  • Optimization of funding
• Federal Aid Routes – Pavement management system shows the roadway condition and the agency’s plan for preservation and rehabilitation
• Objective assessment of roadway needs to help justify local MFT implementation
• Pavement management will help municipalities prioritize new state MFT they receive