

Pavement Management Program

Northeastern Illinois Region

Chicago Metropolitan Agency for Planning

Kurt A. Keifer, Ph.D., P.E. | kkeifer@ga-inc.net

Gorrondona and Associates Inc. | Pavement Engineering Division

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

Total participation

12 municipalities in Pilot Program
 17 municipalities in Round 2

Round 2 Spring 2019

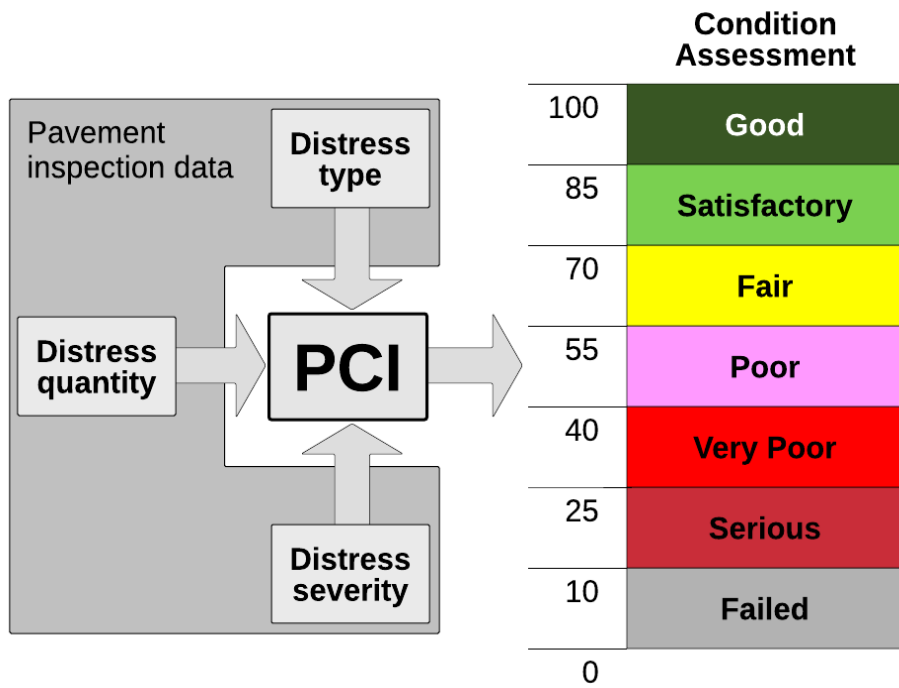
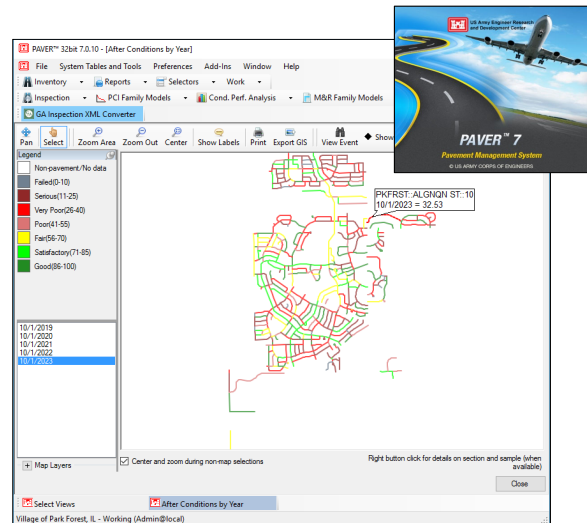
Village of Calumet Park
 Village of Country Club Hills
 Village of Dixmoor
 Village of Glenwood
 Village of Lynwood
 Village of Midlothian
 Village of Posen
 Sauk Village

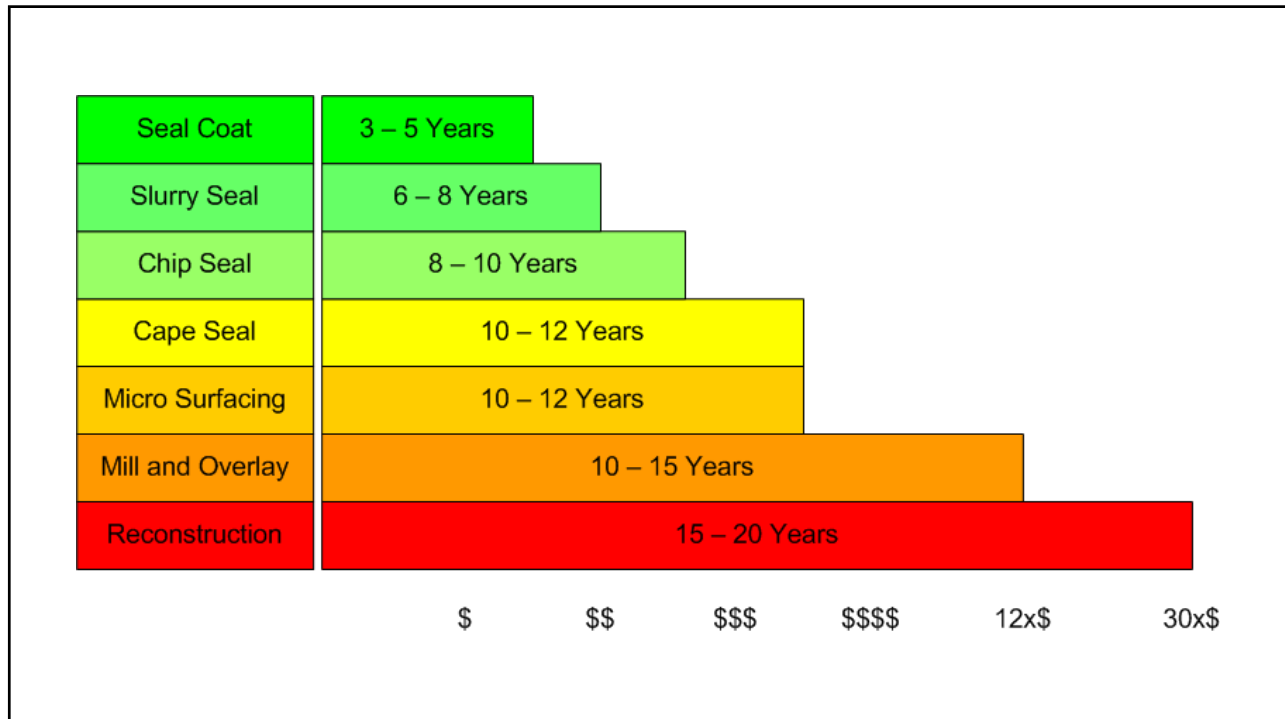
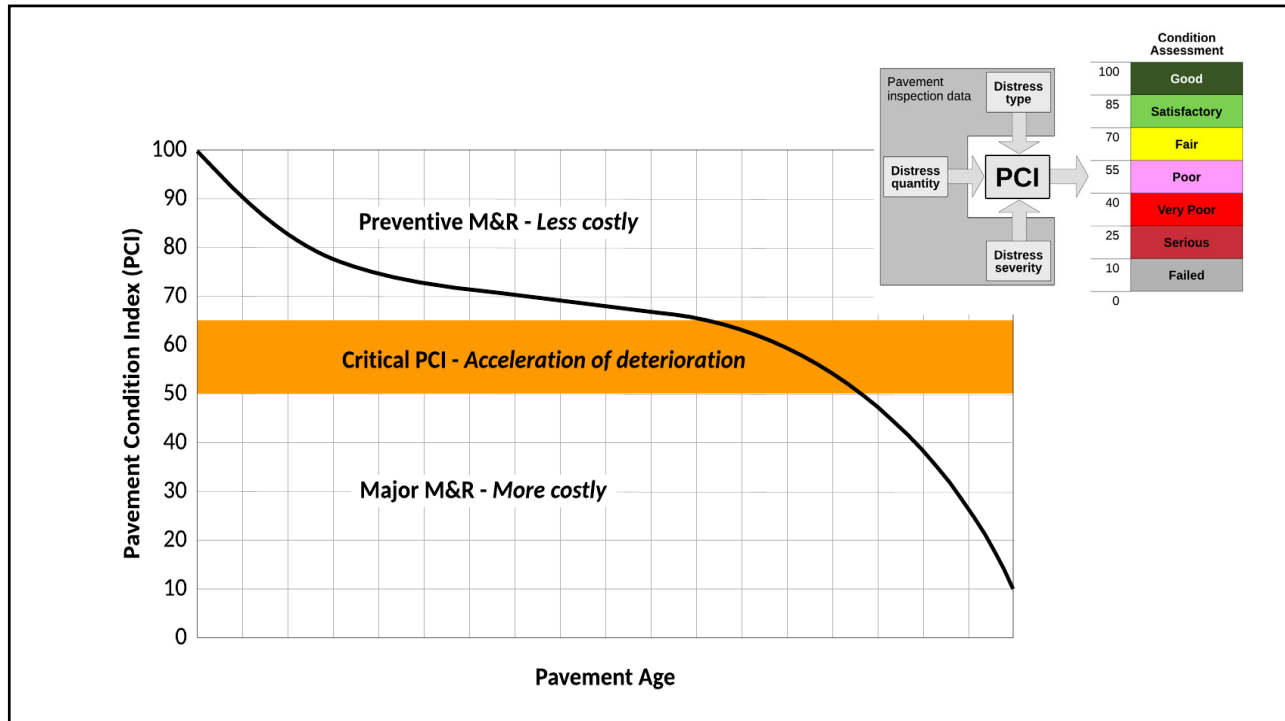
Pavement Management

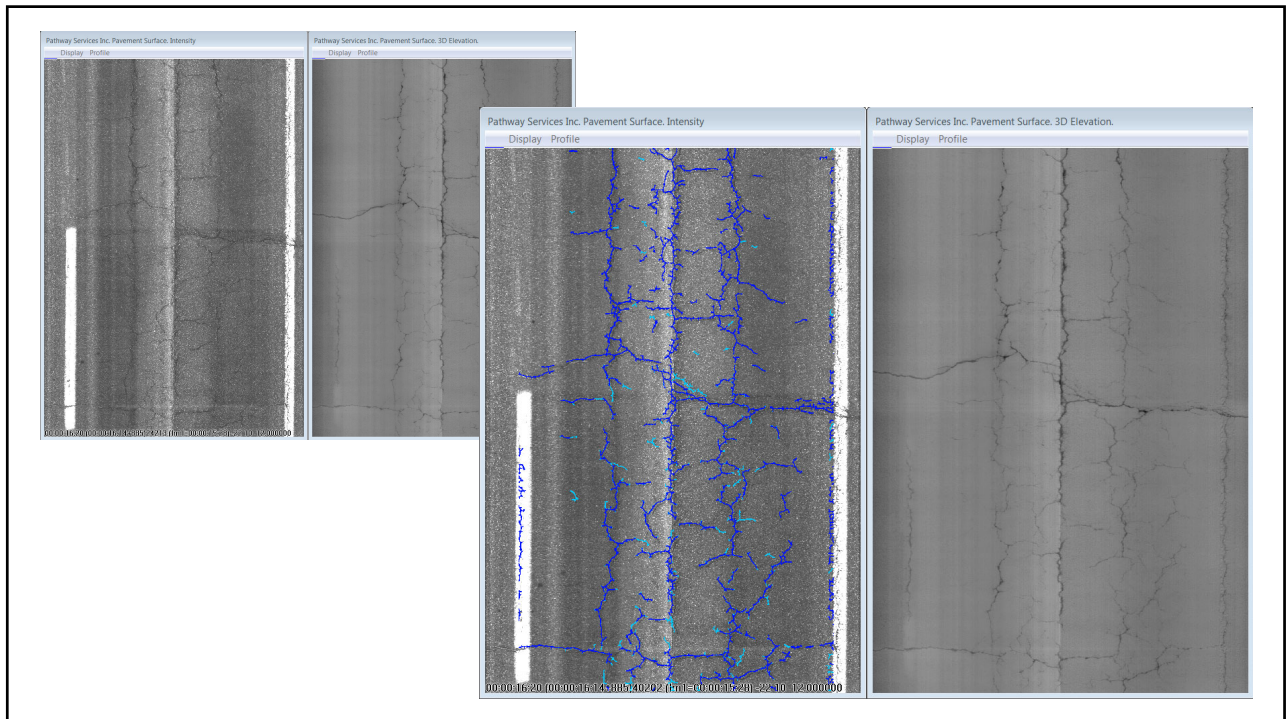
- **Primary goal:** Determine **funding requirements** to meet municipality goals
- **Objective, repeatable** pavement condition assessments
 - Pavement Condition Index (PCI) – ASTM D6433
 - International Roughness Index (IRI) – ASTM E1926
- Model pavement deterioration and **predict future conditions**
- 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







Lakewood Blvd. (PCI = 93)
 Recommended maintenance: Seal paving lane joint + re-seal joints between pavement and curb.

Condition Assessment	
100	Good
85	Satisfactory
70	Fair
55	Poor
40	Very Poor
25	Serious
10	Failed
0	

Westwood Dr. (PCI = 42)
 Recommended maintenance: Localized structural patching + cold mill and overlay or reconstruction.

Condition Assessment	
100	Good
85	Satisfactory
70	Fair
55	Poor
40	Very Poor
25	Serious
10	Failed
0	

Mantua St. (PCI = 24)

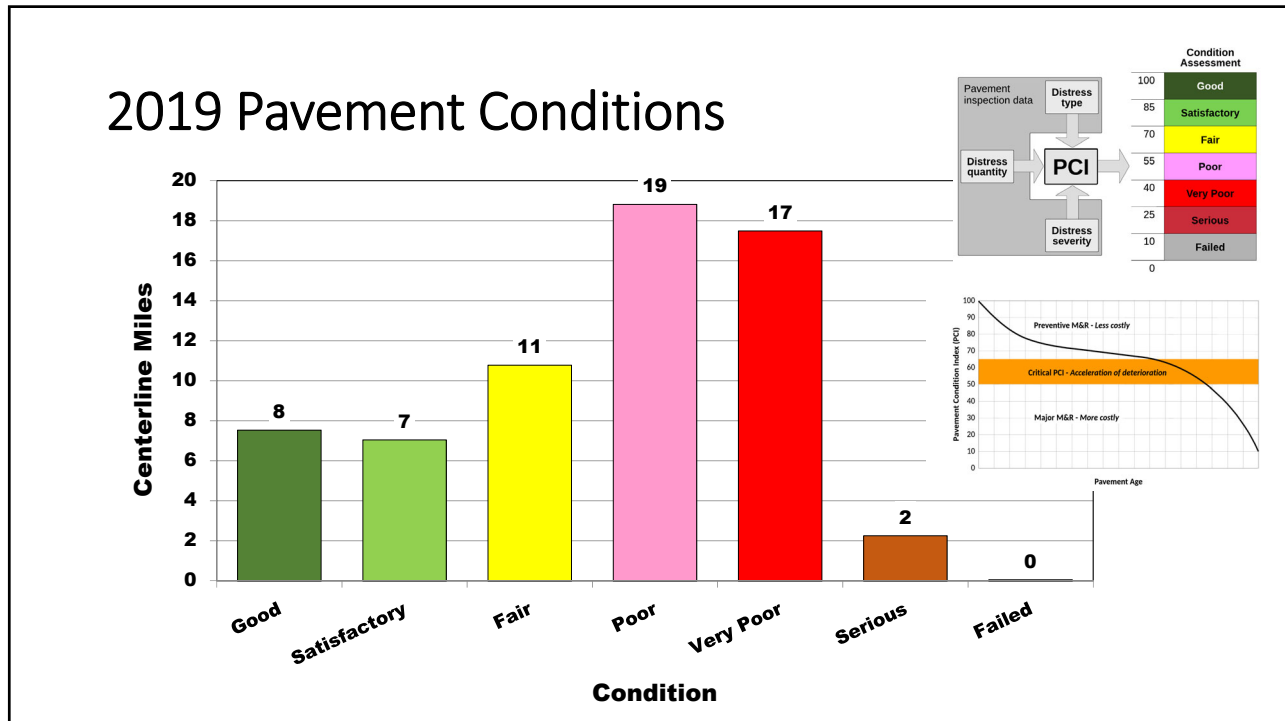
Recommended maintenance: Reconstruction.



Condition Assessment	
100	Good
85	Satisfactory
70	Fair
55	Poor
40	Very Poor
25	Serious
10	Failed
0	

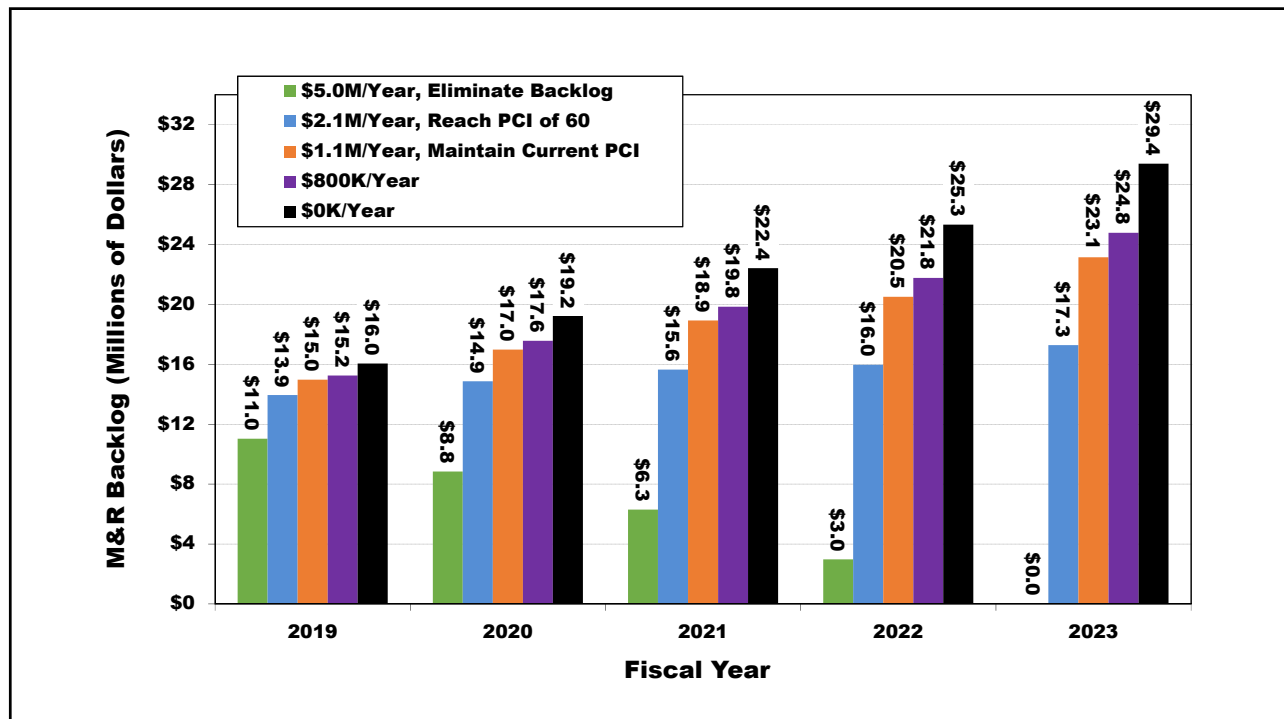


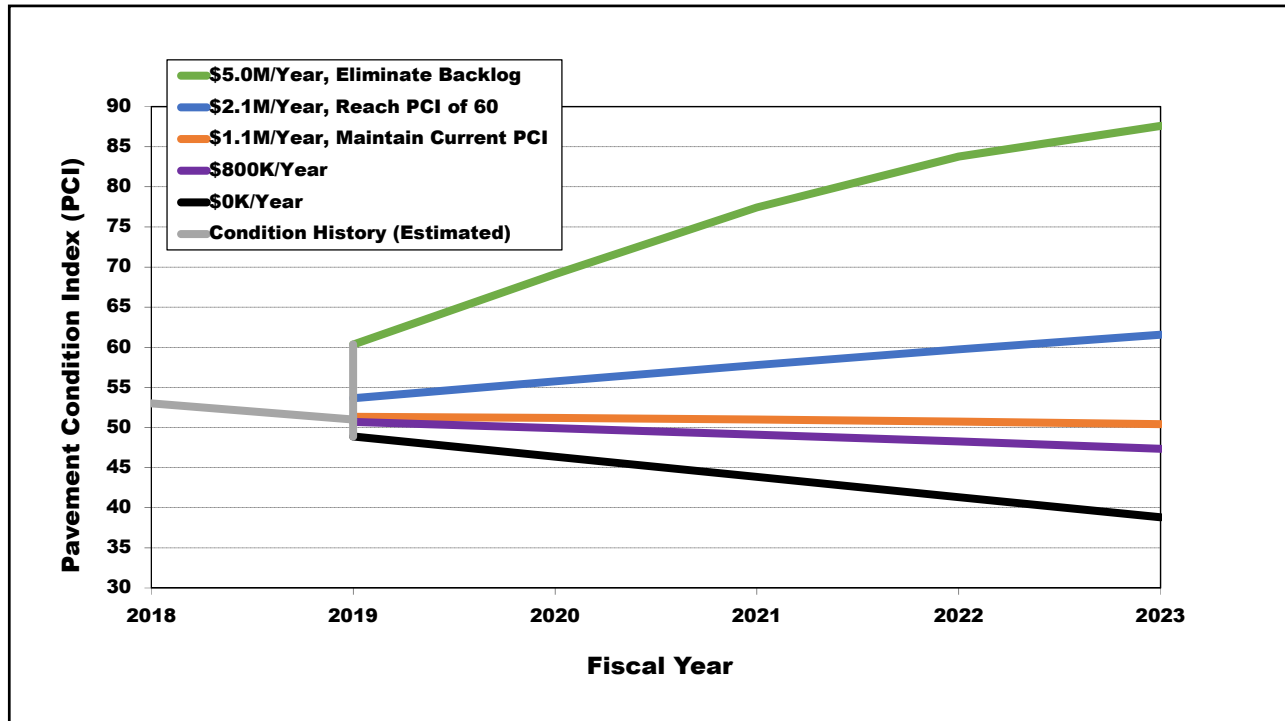


Budget Analyses (2019 – 2023)

- 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

Current Conditions

Current Funding - \$800K/Year

Maintain Conditions - \$1.1M/Year

Reach PCI of 60 - \$2.1M/Year

Eliminate Backlog - \$5.0M/Year

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