UTILIZING TRANSPORTATION ASSET MANAGEMENT TOOLS TO INTEGRATE ASSET MANAGEMENT INTO THE PLANNING PROCESS

Ohio Transportation Planning Conference
July 18, 2018
ABOUT NOACA

- NOACA is the federally designated metropolitan planning organization (MPO) for Northeast Ohio.
- Conducts multimodal transportation and air quality-related transportation planning for Cuyahoga, Geauga, Lake, Lorain and Medina counties.
- Functions as the “areawide” water quality planning agency for the region.
ABOUT NOACA

- Governed by 45 elected and appointed officials
- Staff of 45 employees, including planners, engineers, administrative and support staff
- Works with many planning partners, including Federal Highway & Transit Administrations, Ohio EPA, county engineers, transit agencies and local governments
NOACA will STRENGTHEN regional cohesion, PRESERVE existing infrastructure, and BUILD a sustainable multimodal transportation system to SUPPORT economic development and ENHANCE quality of life in Northeast Ohio.
Five Goals

**STRATEGIC DIRECTION**

- STRENGTHEN regional cohesion
- PRESERVE existing infrastructure
- BUILD a sustainable multimodal transportation system
- SUPPORT economic development
- ENHANCE quality of life in Northeast Ohio
TRANSPORTATION ASSET MANAGEMENT

One of NOACA’s key planning efforts critical to long term performance based planning and programming.
A TAMP is needed for successful long term planning. The subsequent program resulted in:

- Transportation asset management plan
- Investment strategy
- Transportation asset management policy
- Pavement management tool
- Bridge management tool
- Model for successful asset management planning
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Pavement Condition Rating (PCR) ..................................................................... 

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Appendix A: Performance Gap Assessment: Full Results .................................. A1
Appendix B: Bridge Performance Curve .............................................................. B1
Appendix C: NOACA Risk Register ................................................................. C1

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Transportation Asset Management Plan | 3

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Transportation Asset Management Program

Link to Long Range Transportation Plan

- From the Transportation Asset Management Plan
- 6 objectives
- The objectives are goals at a more specific and actionable level
- Provide a description of what NOACA intends to achieve through its Transportation Asset Management Program.
Long Range Transportation Plan Objectives:

• Objective 1. Establish Transportation Asset Management as a regional priority
• Objective 2. Serve as a liaison for NOACA members and partners like ODOT and FHWA
• Objective 3. Apply a “fix-it first” mentality for projects relying on NOACA funds
• Objective 4. Achieve a state-of-good-repair for roadway assets
• Objective 5. Promote a least-life-cycle cost approach to transportation infrastructure investment
• Objective 6. Expand Transportation Asset Management program to other modes
INVESTMENT STRATEGIES

- Dedicate the bulk of STBG funds to pavement projects of regional benefit on the urban and local federal-aid-eligible systems.
- Require local projects seeking NOACA funds to demonstrate that they match PMS program recommendations.
- Develop a Transportation Asset Management Policy to formalize NOACA investment in regional preservation.
Policy

• To adopt Transportation Asset Management as the official, institutional approach in managing infrastructure assets and making capital investment decisions at NOACA.
TRANSPORTATION ASSET MANAGEMENT PROGRAM

Performance Measures and Targets in the Long Range Transportation Plan

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<th>Target</th>
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<tr>
<td>Percentage of NOACA administered Surface Transportation Block Grant (STBG) funds dedicated towards preservation of the existing transportation system</td>
<td>90%</td>
</tr>
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<td>Average network condition level for the urban and local federal aid system, using an average weighted pavement condition rating (PCR) on a 0 to 100 scale</td>
<td>80</td>
</tr>
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<td>Percentage of the network above average weighted PCR of 55 for the urban and local federal aid system, using an average weighted pavement condition rating (PCR) on a 0 to 100 scale</td>
<td>85%</td>
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<td>Average general appraisal for all structures over 20 feet in length on the urban and local federal aid system. The General Appraisal (GA) is a composite condition measurement of the major structural items of a bridge such as superstructure, piers and abutments. General Appraisal values range from 0 to 9, with 9 being like new and 0 being out of service.</td>
<td>6.8</td>
</tr>
<tr>
<td>Percent of bridge deck area on structurally deficient bridges for all structures over 20 feet in length on the urban and local federal aid system. A bridge is considered structurally deficient if the deck, superstructure, substructure, or culverts are rated in &quot;poor condition&quot; (0 to 4 on the National Bridge Inventory (NBI) rating scale).</td>
<td>No more than 10%</td>
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TRANSPORTATION ASSET MANAGEMENT PROGRAM

- Management Tools
- Transportation Asset Management (Pavement) Software
- Transportation Asset Management (Bridge) Software
The software can store, retrieve, and process pavement-related condition and inventory data, allowing the user to analyze the current condition, future performance, and expected monetary needs of the pavement network.

Data Utilized:
- Pavement Condition Ratings – collected by ODOT
- Annual Average Daily Traffic
- Functional Classification
- Basic Characteristics
  - Length
  - Width
  - Area
- Road Characteristics
  - Number of Lanes
  - Pavement Type
  - Divided
- Speed
- Bike Lanes
- Transit

TRANSPORTATION ASSET MANAGEMENT (PAVEMENT) SOFTWARE

data
The software is an advanced analytical tool that enables better decision-making and maximizes the budget while achieving the highest possible return on investment.

The pavement treatment types being utilized are:

- 2.0 in. Hot Mill & Overlay
- Joint Repair
- Full Depth Rehabilitation
- Preventive Maintenance Minor
- Preventive Maintenance Major
- Minor Rehab without Repairs (AC)
- Minor Rehab with Repairs (AC)
- Functional CPR (Minor Concrete Repair)
- Structural CPR (Rehab with more repair work)
- Major Rehab/Reconstruction
Bridge Management Software

- The National Bridge Investment Analysis System (NBIAS) incorporates economic forecasting analysis tools to project the multiyear funding needs required to meet user-selected performance metrics over the length of a user-specified performance period.
To facilitate life-cycle management for structures, the Bridge Priority Index (BPI) was developed to rank all bridges in priority order for repair or reconstruction based on their condition, functional class, and traffic demand.

\[
BPI = 3.5 \text{ADT}_{wv} + 2.5 (\text{GA}_{wv} + \text{SR}_{wv}) + 1.5 \text{FC}_{wv}
\]

Where:
- **BPI**: Bridge Priority Index
- **ADT**: Average Daily Traffic Weighted Value
- **GA**: Bridge Condition General Appraisal Weighted Value
- **SR**: Bridge Condition Sufficiency Rating Weighted Value
- **FC**: Functional Class Weighted Value

The higher the Bridge Priority Index, the more urgent or compelling is the need to prioritize the bridge to address its condition.

TRANSPORTATION ASSET MANAGEMENT PROGRAM
Every two years, NOACA develops Community Pavement Condition Reports.

Individual reports for every City, Village and County in the NOACA region.
Each Report includes:

- The 2016 Pavement Condition Listing
- The 2018 backlog
- The Optimal Preventive Maintenance and Rehabilitation (M&R) Strategy, and
- A comparative analysis of four strategies
- Current NOACA TAM Policies
- Maintain 15% deficiency
- Maintain an average network PCR of 80
- Maintain lowest standard PCR
TRANSPORTATION IMPROVEMENT PROGRAM

TIP Development:

- Utilize scenarios developed in the Community Pavement Condition Reports
- Collaborate on priorities with Locals
- Apply regional criteria
- Based on NOACA’s regional strategic goals
• Update the Transportation Asset Management Plan
• Develop a Transit Asset Management Plan
  • Tier I and Tier II Group Plan
  • Inventory of (Capital) Assets
  • Condition Assessments
  • Decision Support Tools
  • Investment Prioritizations
• Additional Tier I Activities
• TAM and SGR Policy
  • Implementation Strategy
• Key Annual Activities
• Evaluation Plan
QUESTIONS

Contact:
Kathy Sarli
ksarli@mpo.noaca.org

ANY QUESTIONS?
NOACA will **STRENGTHEN** regional cohesion, **PRESERVE** existing infrastructure, and **BUILD** a sustainable multimodal transportation system to **SUPPORT** economic development and **ENHANCE** quality of life in Northeast Ohio.