Oklahoma Department of Transportation
October 2015

OKLAHOMA/OHIO PEER EXCHANGE (OKLAHOMA DOT ASSET MANAGEMENT SCAN)

A summary of activities and discussions out of the OHIO hosted asset management scan.

ACKNOWLEDGMENTS

CONTENTS

PURPOSE

The DOT scan is but one step in a series of activities that will offer principle players a framework to foster Oklahoma DOT's (OKDOT) own approach for developing a performance-driven Transportation Asset Management Plan (TAMP) as MAP-21 requires. Where early opportunities to organize thinking with Executives and top managers afford the most effective planning and execution towards TAMP efforts, the Ohio DOT (OHDOT) scan will offer exposure to best practices and lessons learned.

THE WELCOME

Oklahoma's arrangements for a full day of asset management activities were coordinated with the help of Andrew Williams, OHDOT's Administrator for the Office of Technical Services. Andrew was the primary meeting facilitator while other OHDOT staff engaged the Oklahoma team as the opportunity allowed.

As James Barna, OHDOT's Assistant Director of Transportation Policy addressed the group he recalled that a combination of drivers had contributed to the successes of asset management. He added that the biggest challenge had been changing the agency culture. Addressing data essentials and getting early buy-in at a high level had been critical pieces for continuity in asset management developments to survive changes in Administration. Even as the direction with asset management had been endorsed 100% by executive management support, Mr. Barna warned that internal information silos could still exists amidst a shifting culture.

THE OKLAHOMA DOT OVERVIEW

Tim Gatz, OKDOT Deputy Director gave an overview of the Oklahoma State transportation system and the agency's roles, including partnering with the Oklahoma Turnpike Authority and Oklahoma's four Metropolitan Planning Organizations (MPO's).

Oklahoma's experience had been a slow growth in State funding inside an environment of relative low tax-base. Mr. Gatz recalled the struggle to deliver OKDOT's construction program and address an aging transportation system with preservation strategies during that time. As Oklahoma nears the end of a 2005 R.O.A.D.S. fund appropriation, state investments in transportation will have tripled. With the additional revenue going into asset preservation activities that augment the capital project development process, OKDOT is beginning to see the difference that life-cycle-extending projects make. While State funding has seen some recovery, uncertainties in federal funding levels persist. OKDOT can see asset management as a tool to "assure investments strategies are being focused in the right place".

Collectively ODOT's organizational units and asset management systems had supported Division Engineers as they made decisions on meeting the needs of the system. Today's resource levels suggest that moving forward alongside Operations, efforts from both OKDOT's Strategic Asset & Performance Management Division and Project Management Division could support the strategic

focus and direction. The result would be a "true Asset Management System" that institutionalizes transparency and is beneficial across business areas.

THE OHIO DOT OVERVIEW

Ohio DOT like Oklahoma DOT had witnessed finite resources in the face of growing needs. As nearly 93% of funding persisted to be solicited just to preserve their system, alternative strategies to a "worst first" approach to managing needed to be sought. A shift from essentially 12 different district management styles across the State to a system-wide whole life approach seemed a workable solution to stretch benefits; and over the course of 5years of implementing an effective TAM program, Ohio DOT has effectively redirected $300 million.

Two basic factors organized early thinking:

1. Good data yields good decisions.
2. Early, top buy-in is critical.

Other views that shaped activities in asset management development:

- In order to adapt business processes, multi-disciplinary examination of current processes and technology is needed.
- A comprehensive framework that can foster the direction for asset management needs to be adopted at the executive level.
- Past efforts toward performance management need to be enhanced with a coordinated plan.
- Where internal mandates fall short, use of asset management can enable consistent decision making.

As Ohio DOT looked back they explained what had changed:

- The biggest process change was how the pavement work plan goes through development.
- Effectiveness of conversations had on preservation/capital investments between Planning and Operations had increased.
- There is now one concise message communicated about asset management; but tailored for all levels.
- Instead of two work plans, they are now combined.
- There is now an optimized strategy for statewide preservation treatments that covers the work-plan's full time-line.
- External conversations have shifted, from "project back logs" to "cost to maintain".
- Decisions on pavement allocations shifted, from being made based on historical knowledge to being based on optimized statewide pavement strategy.
- With the shift of budgets formulation a respective shift of responsibility in meeting targets was made; from districts to central office; resulting in greater partnership.

OHIO DOT ASSET MANAGEMENT PROGRAM OVERVIEW

Since the early 2000's Ohio had engaged performance management using an (OPI) Operational Performance Index to evaluate their priority transportation system. They ultimately observed condition improvements. However without a consistent road map for how targets would be achieved, challenges with performance management persisted. Thus a more robust business process called Transportation Asset Management was pursued. A new process for developing the pavement work plan became the basis for many initiatives that would follow. Ohio DOT offered the following lessons learned:

➢ There is high value in developing a communication plan for asset management that includes aspects involving MPOs, Executives, Internal staff levels, and Legislatures.
➢ An enterprise inventory data base promises an environment for business intelligence and information systems in kind to route through.
➢ As it is one of the more important assets, there is considerable need for effort and coordination in developing processes that standardize and explain what data and how data is collected.

COMMUNICATION AND COORDINATION

➢ A leadership team containing cross-sections of all field districts and key central office functions is ideal for answering the call to move the asset management program in the strategic direction, through the development and implementation of practical recommendations.
➢ The representation of Non DOT owners on leadership teams help, to communicate the meaning of measures, educate on appropriate management strategies, and to place the local needs for asset management training.
➢ Sub-groups to the core leadership team are critical as they can engage subject-matter-experts at the working level to flush out details needed to adopt the best business and technology solutions.
➢ The use of Planning Division as pivotal for asset management could counter information silos.

DATA AND INFORMATION

➢ Following determination of all data needs and the account of all business processes are the high value conversations and actions towards minimizing data costs and maximizing accessible information.
➢ Attempt to maximize the decision support utility of current management systems[1].
➢ A non-bias data governing body (like Ohio DOT's IT steering council) help to avoid rigidity in systems and offers cost savings involving investments in technology.
➢ Avoid product purchases until a full understanding is reached of how it will fit into environment.

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[1] Ohio's "new" optimized strategy for selecting and investigating pavement treatments incorporates "old" Deighton by-products like predicted PCR, account of committed projects, record of money spent for section, history of work done for section, in addition to individual pavement distresses.

TECHNOLOGY

As the Oklahoma DOT has undergone State IT consolidation, there is a distinct difference from Ohio's robust in-house IT department. Ohio recognizes its enviable position in this regard, and offered these lessons learned.

- ➢ University contracts can be advantageous means to meeting agency-specific technology needs. (ex. Ohio's prototype decision tool)
- ➢ An enterprise architectural plan explaining DOT uniqueness as it pertains to IT requirements could be a helpful communication tool externally.
- ➢ As business processes are adapted for better decision making look to revamp the use of existing management systems.

MAP-21

Ohio has worked to integrate MAP-21 requirements with its historical Asset Management efforts. TAMP as an impetus for enhancing already good business processes and decision making, is perceived as most effective with a broad look at what actions are taken towards a balanced program that yields the greatest benefit.

We don't want to be caught chasing MAP-21 requirements,
but we want to be caught doing good business.

- A TAMP should be specific to the agency, and should read respectively.
- Although not a preferred mechanism, some policy is needed in order to bind efforts that promote asset management.
- By putting processes in place, agencies can take an optimized approach using existing management systems.

TARGET SETTING

At the core of asset management is good inventory, condition, and performance data about the critical assets that necessitate investment strategies. At a basic level linking asset data to financial resources and outcomes; and understanding how decisions impact the outcomes is the art of target setting. All of these components lie within State DOT's like Oklahoma and Ohio, but the push from MAP-21 is to enhance business processes that pull all elements together.

Further, many States plan to keep historical measures. State measures have been effective in structuring public perceptions of the system and agency performance, and aiding business processes. The level at which States associate targets with their measures is inconsistent however. As Oklahoma prepares for MAP-21 and mandated target-setting, it is cognizant to the need to identify, maintain, and communicate measures that are meaningful and *do not create false impressions of the transportation system*. Ohio's approach has been to include investments required to maintain conditions coupled with the more easily detected "user ride". As the final rulemaking process is ongoing, States anticipate having the flexibility needed to successfully develop State targets, and if necessary adapt their State measures.

Condition reporting requirements mandated by MAP-21 are anticipated to be straight forward and thus implementation will not require much adaptation to the scheme of robust data collection that is being done today. Ohio recalls that a two year monitoring period is allowed to States who find adjustments need to be made to goals.

Cognizant of potential penalties imposed on States not satisfying progress towards goals, Ohio offered the following practice:

➢ Short of a formalized cross asset optimization program, performance management teams should work closely with finance and planning groups to conduct scenario analysis regularly.

PERFORMANCE DASHBOARDS

Initially, performance measures were an outgrowth of the need for OHDOT's districts to show a return on investment. But over the past 20 years they've evolved to a list of Department "critical success factors".

- Finalization of metrics awaits associated NPRMs (Notice of Proposed Rule Making); bi-monthly monitoring and analysis of performance values is a best practice
- An evaluation process to validate goals and measures between districts, central office, and district deputy directors is done quarterly.
- A concurrence process to effectiveness of goals and measure is done annually.
- To keep concise, metrics may not include all national goals. (for ex. "rate of crashes" may be omitted)
- Internally, any business area can incorporate additional detailed measures that could improve management.

OHIO DOT ASSET GROUPS

PAVEMENTS

With OHIO's new pavement management process in its first year of implementation, the department actively involves and looks to the irreplaceable human and engineering element to completely optimize the work plan. They feel confident that at the completion of a work plan developed through the new process, central office and district offices will arrive at an optimized balance of activities. The attitude is that if 75% of low-cost treatments[2] recommended in the work plan are adhered to, state performance goals will be satisfied.

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[2] Ohio's low cost preservation strategies include chip seal, thin overlay, crack seal, and newly incorporated underdrain locating and cleaning.

Other factors specific to enhancing OHDOT's pavement treatment decision support:

- Each field district is supported by a pavement engineer that works in planning.
- Each field district is supported by a planning engineer that works on planning aspect of all projects
- While central office handles all data collection, ultimately validation of pavement condition rating data happens at the district engineer's level.
- A long history of system data with a consistent rating system.
- Districts maintain flexibility to complete treatments using in-house forces.

BRIDGES

While Ohio does not employ a bridge management system, they continue to maintain preservation strategies like, sweeping, cleaning, deck sealing, painting. Bridge Engineer Tim Keller explained that the biggest change since TAM implementation is that strategies are being measured in ways that they hadn't previously. Ohio anticipates that things will change as data supports alternative strategies.

SAFETY

Ohio's $102 million (annual) safety program focuses on ensuring funds reach the local transportation level where the majority of crashes have been recorded. The program bases strategies on the four national safety measures, and sets State targets based on historical data.

In addition Michelle May offered lessons learned:

- ➤ Agencies can weight safety funds through sponsorship of pilot safety projects
- ➤ Project scoring process should incorporate goals in HSIP, benefit cost ratio, and measures to ensure better investments with safety funds

MAKING GOOD USE OF CENTRAL DATA

Ohio's Transportation Information Mapping System (TIMS) is their public facing website and ultimately becomes the front end of many asset management initiatives.

- With the design of workflows, a central data base simplifies access to data internally.
- As a tributary function, a central data base mitigates sourcing issues; making data reliable
- A central data base efficiently simplifies access to all enterprise data
- A central database simplifies interpretation of data by eliminating need for technical expertise (for ex. GIS and pavement analysis)

Lessons learned through developing a TIMS:

- ➤ The need for access to data outweighed the need for mapping the data
- ➤ Challenge with clearly illustrating within website the update cycles for each data set
- ➤ Good data and grasp on business intelligence overshadows any off-the-shelf decision support tool

OKLAHOMA LESSONS LEARNED

As Oklahoma looks at different TAM models, the Ohio scan experience afforded knowledge that will save the department time and money. The day ended with a brief wrap up session where the ODOT team was asked to identify takeaways from the scan experience. Those takeaways have been integrated throughout the body of this summary document.

NEXT STEPS

- UTILIZE COMMENTS AND TAKEAWAYS FROM BOTH THE UTAH AND OHIO SCAN, AND INFORMATION FROM A COLLECTION OF ONGOING TAMP EFFORTS TO DEVELOP A FINAL OUTLINE FOR THE ODOT TAMP WORKPLAN.

- AS AN AGENCY, ADOPT OUTLINE FOR TAMP WORK PLAN AND FORMALIZE SUPPORTING COMMITTEE STRUCTURES DETAILED WITHIN.

- CONDUCT AGENCY GAP ANALYSIS AND ACT UPON FINDINGS.

- DEVELOP TAMP AS A FOCAL POINT FOR PEOPLE, PROCESSES, AND TOOLS COMPRISING A SYSTEM OF INTERACTIONS THAT OBJECTIVELY MEET THE CALL FOR A FORMALIZED TRANSPORTATION ASSET MANAGEMENT PROGRAM, AND MEET THE REQUIREMENTS FOR MAP-21.

APPENDIX A

Oklahoma/Ohio Peer Exchange (Oklahoma DOT Asset Management Scan)

September 2, 2015

Oklahoma DOT Scan Team

Name	Title	Area
Kevin Bloss, P.E.	Division Engineer	Operations - Field Division Three
John Bowman, P.E.	Director of Capital Programs	Capital Programs
Tim Gatz	Deputy Director	Executive Management
Paul Green, P.E.	Director of Operations	Operations
Terri Holley, P.E.	Asset Management Engineer	Strategic Asset & Performance Management
David Ooten, P.E.	Division Engineer	Strategic Asset & Performance Management
Brad Mirth, P.E.	State Maintenance Engineer	Operations

Oklahoma/Ohio Peer Exchange (Oklahoma DOT Asset Management Scan)

September 2, 2015

Ohio Department of Transportation

Ohio Department of Transportation • 1980 West Broad Street • Columbus, Ohio 43223
2nd Director's Conference Room

7:30 to 10:00

- 7:30 – 7:50 Welcome, Opening Comments, Introductions
- 7:50 – 8:30 Oklahoma DOT Overview

  Expectations
  Current Processes
  Anticipated TAM Organization

- 8:30 – 9:10 Ohio Asset Management Program Highlights

  Leadership buy in, Strategic Direction, Journey to implementation
  Asset Management Leadership Team (AMLT)
  TAM Audit Group (Office of Asset Inventory John Puente, Office of Technical
  Services Ian Kidner)
  Maintaining Organizational Support to the TAMP Development
  Committees & Committee Chairs, Role / Responsibility to Ohio DOT's TAM
  framework

- 9:10 – 10:00 Programs Management Overview

  Program Overview & Financial Summary   (Office of Program Management Tim
  McDonald)
  Introduction to Pavement Management (Office of Program Management Shane
  Deer)

- 10:00 - 10:15 Break (Note: We will have our Assistant Director of Policy and Deputy Director of
  Planning stop in for introductions and to give an Executive view of the program after the break)

Session Topics: Guidance for agency priorities, and balancing funds between pavement, bridge, safety, and other programs. Approaches to (short/long term) financial forecasting [include any GASB34 respective specifics], Significant examples of how committee leaders engage and guide the TAMP development and its support staff. Highlights on coordination with non-DOT NHS owners. What does Ohio perceive as a reasonable time to develop/implement TAMP? Discuss internal staff and/or contract staff required to develop the TAMP.

10:15 to 12:00

- 10:15 – 10:30 Executive Management Support for TAM (Deputy Director of Planning Jennifer
  Townley, Assistant Director of Policy Jim Barna)

- 10:30 – 11:45   Asset Inventories/Management Systems (matrix of measures/collect data/ analyze)

> Pavements (wrap up) – Asset Group (Shane Deer, David Humphrey)
> Bridges – Asset Group (Tim Keller)
> Maintenance (Routine and Operations) – Asset Group (TBA Sonja Simpson)
> Safety – Asset Group (Office of Program Management Derrick Troyer)

Asset Inventory Management Topics: Management Systems used to identify criteria for preservation activities, and to predict future pavement conditions based on different funding scenarios. Management Systems matrix of measures included in the scope of TAM. Leveraging systems support with engineering judgement to yield Division flexibility yet promote repeatability. How funds are distributed to the Divisions, and the process for development of agency investment strategies. Process enhancements or changes, born of TAM, which lead to some shift in which projects decision-makers would elevate to development.

Lunch 12:00 to 1:15

1:15 to 3:45

- 1:15 – 2:00 Performance Measures, Targets, Goals

> Approach to Target Setting (Tim McDonald, Drew Williams)
> Strategies to Target Setting and Implications to Performance
> Risk Management (Drew Williams)

Performance Topics: Ohio's response to current NPRMs on performance measures. Are Ohio's performance measures established or awaiting final rules? Measures and targets emerging from TAMP development, and from legislature interests. Handling distinctions and accountability between federal and state measures/targets. Approaches to risk management process including rating identified risks and re-qualifying the risk register. How Ohio engages divisions to aid in the development of asset management standards. How the organizational framework supports management of information and efforts across those divisions. How practices have evolved since the implementation of TAMP.

- 2:00 – 3:30 Dashboards, Tools and Technology

> Analyzing project based trade-offs for asset performance
> Cross-asset optimization (Tim McDonald, Shane Deer)
> Aligning Data to support Strategic Direction/Asset Management
> Data Warehouse (Ian TIMS demo, TAM DST, etc.)

Dashboards Topics: How data becomes valued and treated as an asset in and of the TAM model. Resources (monetary, personnel, time) required to align data processes. How information from management systems is used in investment decision making (ex. preservation, safety, capacity, operations). How Ohio has approached the LCA Process, and the formulation of cross-asset tradeoffs. How Ohio is approaching the development of a centralized inventory database for pavements, bridges, and culverts; including data governance and savings in consolidation. *HOW PRACTICES HAVE CHANGED SINCE THE IMPLEMENTATION OF TAM.*

3:30-4:00
- Close out
- ODOT Take Away

Asset Management DOT Scan: Strategy

Deliverables

⇒ **Purpose:** The DOT scan is but one step in a series of activities that will provide principle players the framework to foster ODOT's approach for developing a performance-driven Transportation Asset Management Plan (TAMP) as MAP-21 requires.

Early opportunities to organize thinking with Executive/Top Managers affords the most effective planning and execution towards efforts.

⇒ **Objective:** Incorporating DOT scans as part of the Agency Self-Assessment, will provide added perspectives to our own discussions on the strategic direction TAM will take on, the TAMP Objective and Scope as it supports the agency TAM model, and ODOT's preferred approach to adressing MAP-21.

Because TAM/TAMP is such a broad-based initiative, participation is required from all areas managing transportation programs. The scan will offer exposure to best practices and lessons learned (about processes, tools, people,etc.)through others' journey to implementation.

⇒ **Goal:** Prepare for a valuable technology exchange.

Identify three-takeaways as a result of scan.

⇒ Helpful review materials as well as Utah "tidbits" will be offered by TAMP Lead.

Approach

TAM is...

"Our business process: which aids in visualizing tradeoffs for today's decisions on impacts to tomorrow's performance"

Scan comments, Scan takeaways, and other information from agency self assessment is used to endorse a Final Draft of the ODOT TAMP Framework and appended Committee Structures.

ODOT TAMP Work Plan Framework and Committee Structures recieves approval.

Outcomes

The focus for an Agency Gap Analysis is set.

ODOT moves into the agency GAP Analysis activities.

Participants will be asked to provide three comments or takeaways each that address any of the following:

⇒ How can I (my unit) Champion the use of asset management principles and concepts within the organization?

⇒ What is my (unit's) role in supporting the agency's asset management efforts?

⇒ Where is the maturity of the ODOT's asset management program?

⇒ What assets should be included in the comprehensive asset management framework?

⇒ What agency actions or decisions will be covered in our plan? (preservation activities, capital improvement, operational improvements, etc.)

⇒ What business processes will be included in the TAMP effort? (policy development, planning, programming, budgeting, program delivery, maintenance, operations, etc)

⇒ Which asset management efforts will be emphasized?(these are aspects that ODOT will apply consistently; like integrated information systems, advanced applications in data acquisition, strategic application of asset management systems, tradeoff analysis across programs, consideration of benefits in a LCA framework, etc.)

⇒ What are some plans for using existing resources to advance the agency's use of asset management principles?

⇒ Comments will be organized in order to:

Assist working groups' communications with Staff about the implications of a preferred approach to adressing MAP- 21 requirement.

Assist working groups' communications with Staff about the implications as ODOT personalizes minimum requirements to better meet Agency needs.

Assist TAMP coordination as we consider what is supported by and/or will support TAM; and what resources are available and/or will be required.

Scan discussion comments, Scan takeaways, and other information will be summarized in a short report of the DOT Scan experience.