

# Asset Management, Performance Management, and the Data that Drives It!

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## Asset Management

- Is the primary role of DOT's
  - Plan, design, build, and maintain/manage roadway systems
  - This role has grown beyond this mission
    - Multi-modal concerns – public transportation, rail, ferry systems, bike paths, car pool parking lots, and all the things that are related to travel



## The “New Management”

- Highway system has been managed in silos
- Technology has enabled more sophistication in how we treat these ‘silos’
- In many cases, we have treated our management systems as extensions of the design/construction process
  - Very precise, and thorough
  - Complicated methods to get our hands around the detail

## What Information is needed to Manage the System?

- Data needed to manage our systems is different than that needed to design and construct them
- Construction
  - Very precise and detailed engineering
  - Close tolerances, detailed specs
  - Focus on pay items, cost
  - Production schedules, inspections, etc.



## Data to Manage Assets

- Compared to construction
  - Details are not as important
    - It's been built, already
  - Location not as important
- Relevant performance measures
  - Relate to management decision making
- Need evaluation techniques
  - What are the "right" performance measures?
  - What "triggers" need to be set?
- Performance measures are more economic related than engineering

## Treating Data as an Asset

*Or, **How much is too much?***

- Cannot manage what you cannot measure
- Because you **can** measure, why?
  - We have capability of collecting LOTS of information
  - We probably don't have the ability to manage and use all of the data we can collect
- Collected data becomes a commitment, along with the costs of keeping it up to date.
- KISS principle
  - If you can't use the data, don't collect it

## How Much Should We Collect?

- Keeping it Simple
  - Use information from existing sources
    - Can we extract relevant information from design files? Plans?
    - We should collect very little info about the system
    - Most should be in existing documents
  - Much of this conference is about collecting feature and data that *should be* available from existing sources

## Monitoring System Conditions

- Once we get beyond inventory
  - Physical condition monitoring
    - Can only be done by visiting site
    - Condition assessment is not "collection"
  - Usage monitoring
    - E.g. Traffic monitoring, traffic growth, congestion, vehicle type and usage statistics
    - What is the usage of our assets?
    - It's not just about condition
- Monitor to enable use of the performance measures

## Michigan's Asset Management Council

- 11 Transportation Stakeholder Representatives
  - County roads (2)
  - MPO (1)
  - Townships (1)
  - Cities (2)
  - RPO (1)
  - MDOT (2)
  - County general government (1)
  - Data Agency (1) to handle statewide data
  - MDOT staff serves as staff to the Council



## Asset Management Council Charge

- Report to the legislature on the condition of the state's transportation system
- Implement asset management principles across jurisdictions
  - Starting with the Federal Aid system then moving to the non-Federal Aid system

## Council Successes

- This effort has been very successful
  - Lowering jurisdictional barriers
  - Council's data and analysis instrumental in the state's Transportation Funding Task Force (TF2) efforts
    - Council is 'honest broker' for data
  - Sharpened focus on the nature and extent of Michigan's transportation funding situation

## Implementing Asset Management from the Ground Up

- Pavement condition ratings
  - 4 years of good pavement condition data
- Strategic analysis tool is RoadSoft
  - Developed through LTAP program
- Treatment cost data collected using its Internet Reporting Tool (IRT)
  - Needs further refinement, but it's good

## Challenges

- Pavement condition quality control
  - Determining data quality across 80+ pavement rating teams
  - Training raters and “calibrating” them is hard
- Developing consistent multi-year ratings
- Developing representative pavement treatments
  - and their respective costs
- Developing meaningful pavement deterioration curves
- Training and support

## Longer Term

- Council’s processes, like others’ will settle down
  - Costs will become defined and useful to individual agencies, and to the statewide effort
- Condition assessments cover 1/3 of system per year
- All public roadways in the state
- Expanded asset classes being managed
  - Beyond pavement and bridge

## Where will AM Data Collection be in 10 Years?

- Extracting information from existing data sources, vs. collection
  - Use information directly from plans
  - More emphasis on “capturing” information
- Better handle on accuracy vs. precision
  - Knowing the accuracy levels needed to manage the system(s)
- Better, more usable performance measures

## What About Management Systems?

- More mature & robust
  - Management systems not fully implemented
  - Existing management systems will become more stable
- Performance measures will gain more consistency, and consensus within the systems
  - Allowing better tradeoffs across “silo” boundaries
- Be more inclusive of other asset types, and asset owners
- We will continue to get better at this

## Question for the Conference

- What is an asset?
  - Which will require explicit measurements inventory, and management systems?
- What is a feature?
  - Something that is a part of something else?
  - For example is a shoulder:
    - A feature (part of the pavement structure), or
    - An asset (managed as an entity in its own right)?

## Questions?

