**WHAT IS ASSET MANAGEMENT?**

**Government Definition:**
Transportation Asset Management (TAM-21) - “...a strategic and systematic process of operating, maintaining, and improving physical assets, with a focus on engineering and economic analysis based upon quality information, to identify a structured sequence of maintenance, preservation, repair, rehabilitation, and replacement actions that will achieve and sustain a desired state of good repair over the lifecycle of the assets a minimum practicable cost.”

*Doing the right treatment at the right time for the right reason.*

**ITD ASSET MANAGEMENT TIMELINE**

<table>
<thead>
<tr>
<th>Year</th>
<th>Initiative</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978</td>
<td>Pavement Performance Information System (PPIIS)</td>
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<tr>
<td>1986</td>
<td>Organ Simple Economic Analysis (OSAA)</td>
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<tr>
<td>2007</td>
<td>Highway Economic Requirements System (HERS-31)</td>
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<tr>
<td>2009</td>
<td>Ag-Assets Transportation Asset Management (AT-AM)</td>
</tr>
</tbody>
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**The Times have changed - Mission is Still the Same**

**Mission**
- Monitor assets throughout their life cycle
- Effectively collecting quality data,
- Developing accurate predictive models and investment scenarios,
- Communicating & prioritizing needs across the state, with a focus on stakeholder engagement,
- Provide continuity & effective service which ensure focused stewardship of tax dollars.

**WHY?**

**IT’S THE RIGHT THING TO DO! (AND WE HAVE TO)**

**HIGHWAY PERFORMANCE MONITORING SYSTEM (HPMS)**

- Federally Mandated
- Measure National Performance
- Monitor System Condition
- Appormentment

**TRANSPORTATION ASSET MANAGEMENT PLAN (TAMP)**

Focuses on ITD Processes for Asset Performance, Targets and Financial Planning

- **8 Required Sections**
  - Management Objectives
  - Life-Cycle Planning
  - Summary of Conditions
  - Risk Management
  - Measures and Targets
  - Financial Planning
  - Performance Gaps
  - Investment Strategies
Keys to Success

1. Be “Quality - Centric”
2. Honor the People
3. Define the Process
4. Respect the Tech
5. Life-Cycle -> Go with the flow
6. Align with and Drive Asset Management objectives
Pathway Inertial Profiler

- Collects rutting, roughness, cracking, geometric, GPS position, and roadway images
- Collect entire network every year
- Primary input into TAMS
- Produces the "Video Log"
  - 5.2 million points per second
  - 15 photos per second
  - 15 TB data per year

Pavement Friction Testing

WHY?
- Key component of roadway safety;
  - ~20% of crashes occur on wet pavement
  - Approximately 14% of all fatal crashes occur on wet pavement;
- Ensuring acceptable friction levels leads to 50-60% decrease in wet weather accidents;

Modeling Inputs

- Performance Models
- Decision Trees
- Construction History
- Performance Criteria
- Construction Costs

Network Outputs

- Network Pavement Performance
- Predicted Pavement Performance
- Budget Planning
Humans always make the decisions. Computers assist us by processing data, consistently following processes, performing unbiased analysis, and providing information.
**Travel Speed Deflectometer**

- State of the Art
- Measures structural capacity
- Builds on D6 work
- Part of a 3-year multi-state pooled fund study
- Collecting over 2,500 miles
- Allow ITD to tailor pavement treatments
- High ROI

**Research Projects**

- Next Gen Performance Measures
- Skid Number Translation
**Next Gen Performance Measures**
Project Background and Description: Utilizing existing data, processes, and asset management systems, validate and apply 8 leading performance measures and a cross-asset optimization to determine benefit of long-term investment strategizing and decision-making.

- Optimize treatments through life cycle planning and project selection
- Perform Tier 1-4 Analysis using Cross-asset and Cross-program analysis to build program
- Monitor Performance using TPM, Level of Service, and State of good repair
- Read a list box solution, this is a framework which will enable and reform HTD decision making regarding implications of prioritization across competing programs and assets

**SKID NUMBER TRANSLATION**
This study had the following objectives:
- In the correlation between SIU, pavement and speed
- Investigate the effect of pavement characteristics on the measured SN
- Develop a statistical model that can be used to predict SN at a reference speed
- Develop a software utility that can be used by operators to easily convert SN to different speeds

- We got an equation:
  \[
  S_{P0} = 0.9752 + 0.55093(S_N - 150) + 1.3776\times10^{5.67} 
  \]

Improved SAFETY
Improved EFFECTIVENESS
Showed value of CONSTRUCTIVE CULTURE
TAKING AWAYS

- Asset Management takes more than a computer program.
- Effective AM does the best with less.
- Quality AM requires people, process, technology.
- AM occurs across the pavement life cycle.
- Network AM vs Project AM.
- AM is about changing "data" into "information".