



Project 11.1

Operations Task Force

*Task Force Meeting 35:
ITS Asset Management Practices*

April 19, 2017

- Discuss **ITS asset management practices**
- Review **major events**
 - Solar Eclipse and Sturgis 2017
- **Next meeting**
 - Annual meeting in May
 - No Ops Task Force meeting in May
 - June 21, 2:30-3:00 (Central)
 - Topics for Technician's Forum in August



ITS Asset Management

- Background ¹
 - Asset management is a strategic process for managing physical assets in a state of good repair over their lifecycle at minimum practicable cost
 - October 2016: FHWA published final rule on required state-approved asset management plans and processes
 - Addresses requirements in MAP-21 and FAST Act
 - October 2019: If a State DOT doesn't develop and implement a compliant asset management plan, **max Federal share of NHPP** projects and activities carried out by State in that fiscal year **shall be reduced to 65%**

¹ Asset Management Plans & Processes Fact Sheet, FHWA, <https://www.fhwa.dot.gov/asset/pubs/hif17006.pdf>

ITS Asset Management

- Background (continued)¹
 - Minimum plan requirements
 - Summary listing and condition description of **NHS pavements and bridges**
 - NHS pavements and bridges targets
 - Asset management objectives and measures
 - Performance gap analysis
 - Risk analysis
 - Life-cycle planning
 - Financial plan (minimum 10 years)
 - Developing investment strategies

¹ Asset Management Plans & Processes Fact Sheet, FHWA, <https://www.fhwa.dot.gov/asset/pubs/hif17006.pdf>



ITS Asset Management

*Final rule focuses on
NHS pavements and bridges...*

*As agencies develop asset management
practices to address final rule,
how are they addressing other assets – like ITS?*



ITS Asset Management

- Panel discussion about ITS asset management practices
 - Travis Lutman and Brandon Beise, NDDOT
 - Brian Kary, MnDOT
 - Dave Huft, SDDOT



ITS Asset Management

- **Question 1:** Can you briefly describe the tool(s) your agency is using to inventory ITS assets?

Need & Approach

Need

- SDDOT has no system to track location, maintenance cycles, status, etc. of ITS assets
- Difficult to know current level of effort & expense
- Difficult to plan and budget for maintenance & replacement

Approach

- Identify requirements
- Investigate options:
 - Commercial Off-the-Shelf (COTS) software
 - Custom development
 - SDBIT
 - Contractor
 - Other DOT





ITS Asset Management

- **Question 1:** Can you briefly describe the tool(s) your agency is using to inventory ITS assets?
- **Question 2:** Please describe the type of information that's maintained about individual ITS assets.

Some Attributes of ITS Assets



- Complex
 - Multi-level
 - Facilities
 - Systems
 - Components
 - Multi-component
 - Physical
 - Electronic
 - Software/firmware
 - Utility connections
- Interconnected
- Movable
- Maintained by
 - Vendors
 - Staff
- Unique Attributes
 - Large scale integration
 - Systems components have unequal life cycles
 - Asset management needed for active operation, not just long-term planning



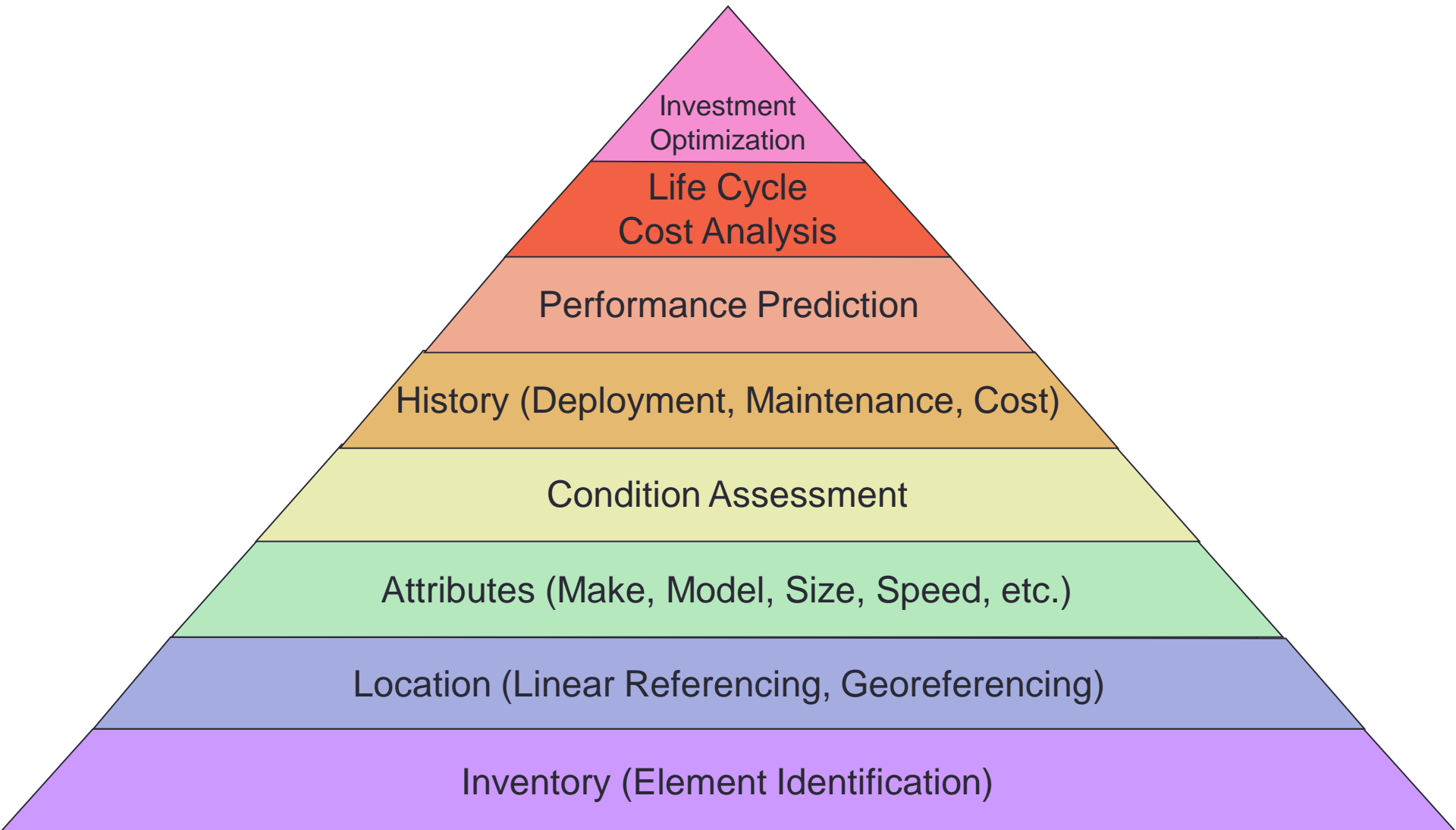
Environmental Sensor Station Example

- ESS Components

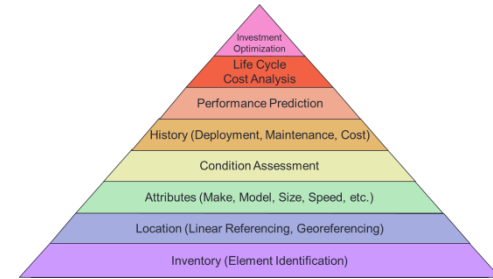
- Real Estate
- Foundation
- Tower
- Cabinet
- Controller
- Weather Sensor(s)
- Pavement Sensor(s)
- Traffic Sensor
- Camera
- IR Illuminator
- Router
- Cell Modem
- Electrical Service
- Communication Provider



Levels of Asset Management



Information by Levels



- Inventory

- Facilities
- Systems
- Devices

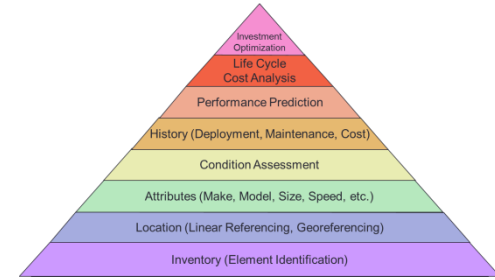
- Location

- Facility
- Linear Referencing
- Lat/Long
- Statewide

- Attributes

- Make
- Model
- Serial
- Communication Addresses
- Dimensions
- Photos/Diagrams
- etc.

Information by Levels



- Condition Assessment
 - Age
 - Inspection Rating
- History
 - By Facility
 - By System
 - By Device
 - Asset Transactions
 - Condition
 - Costs
- Performance Prediction
 - Age-Based
 - Remaining Life
 - Condition Deterioration Curves
- Life Cycle Cost Analysis
 - Cost and Performance
- Investment Optimization
 - Treatments
 - Timing

Vital Functions

Asset Transactions

- Specify
- Acquire
- Deploy
- Inspect
- Maintain
- Repair
- Move
- Retire

System Support

- Account Administration
 - Internal
 - External
- User Interface
 - Office
 - Field
- Data Import/Export
- Reports
- Link to GIS
(via SQL)
- Physical ID





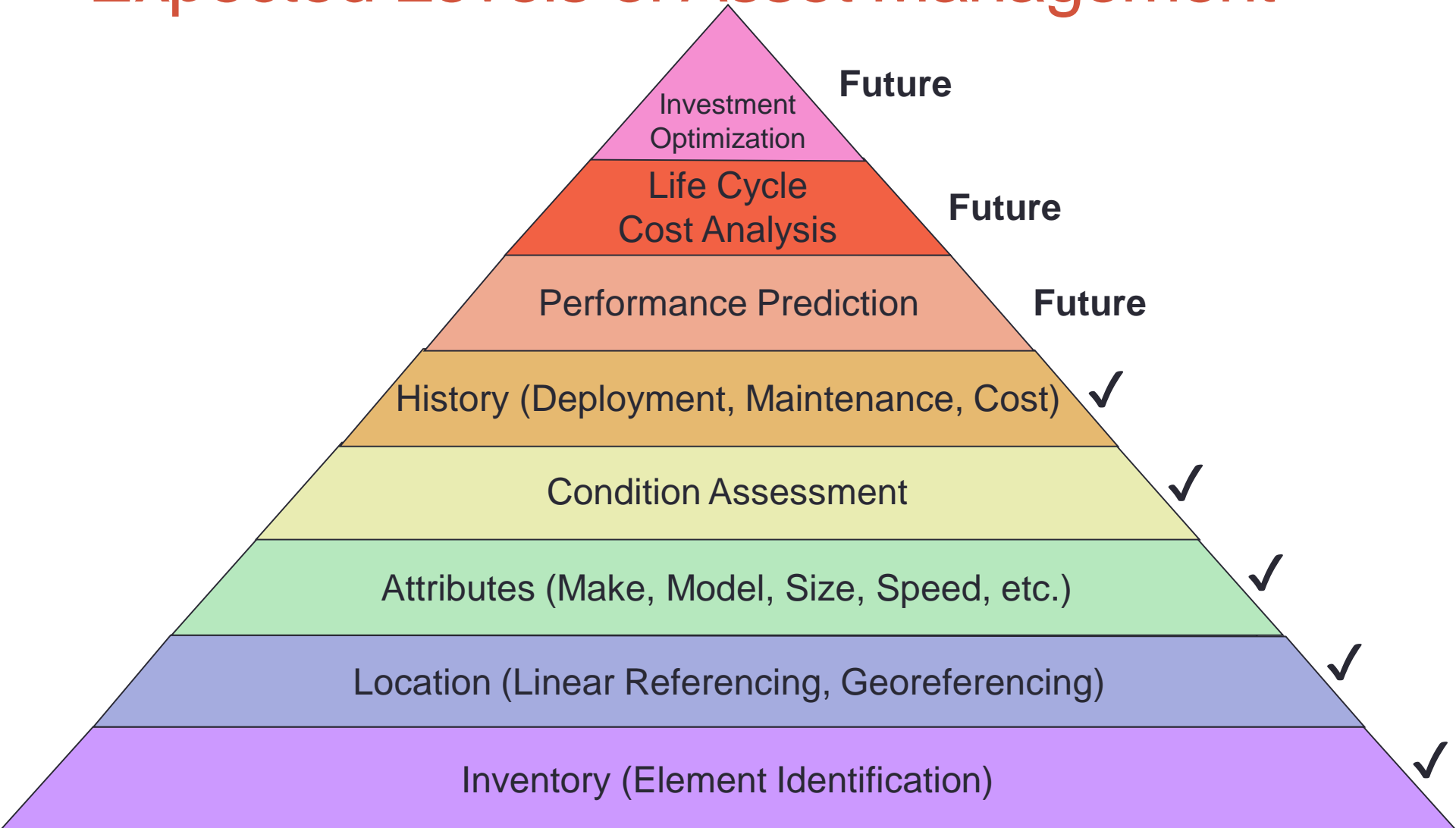
ITS Asset Management

- **Question 1:** Can you briefly describe the tool(s) your agency is using to inventory ITS assets?
- **Question 2:** Please describe the type of information that's maintained about individual ITS assets.
- **Question 3:** What kind of policies has your agency developed around ITS asset management?

Option Assessment

Option	Cost	Function	Flexibility	Support
COTS	L	M	L	L
Configurable COTS	L	H	H	M
Custom Development	H	H	M	H
Adopt Other DOT	M	M	M	M

Expected Levels of Asset Management



Next Steps (2017)

- Finish ConOps & Requirements
 - Procurement
 - Configuration
 - Use
-
- ITS Asset Management will not be included in SDDOT's TAMP

ITS Asset Management

Other questions for panelists?

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Brian Kary, MnDOT, brian.kary@state.mn.us

Dave Huft, SDDOT, dave.huft@state.sd.us



More information about asset management is available from FHWA at:
<https://www.fhwa.dot.gov/asset/>

Major Events

- (3/29, 9:14AM-11:31AM) WA I-90 WB **closed** due to **crash** near Easton
- (4/9, 10:35PM-4/10, 6:40AM) WY I-90 **closed** due to **winter conditions** Sheridan to Buffalo
- (Mid-March) WA I-90 **reduced speed limits** due to **weather-related pavement damage** west of Spokane

Major Events

- Major event planning for:
 - Sturgis 2017
 - August 4-13
 - Solar Eclipse
 - August 21





Questions and Next Meeting



***Task Force Meeting 36:
June 21, 2:30-3:00 PM (Central)
Technician's Forum Topics***