Applications of Enterprise GIS in Transportation (AEGIST)
Peer Exchange Dec 3rd – 5th, 2019

DEC 3rd (DAY 1): AEGIST GUIDEBOOK REVIEW

Session 1 - 8:00 AM – 9:10 AM: AEGIST Pooled- Fund Study (PFS) Project Vision, Goals and Objectives
Facilitator: Dave Loukes, WSP. **Speakers:** Joe Hausman, FHWA; Abhishek Bhargava, WSP
- Introductions
- AEGIST Pooled Fund Study: Project Vision, Goals and Objectives, Participating States
- AEGIST Phase 1 Accomplishments: Guidebook & Key Recommendations
- AEGIST Phase 2 Vision, Goals, Objectives, Scope, Schedule and Anticipated Roadblocks
- Peer-Exchange 2019 Goals and Objectives, Agenda

Session 2 - 9:10 AM – 10:00 AM: AEGIST Guidelines on Civil Integrated Management (CIM), Building Information Modeling (BIM), Data Governance and Need for a Standard Roadway Data Model
Facilitator: Dave Loukes, WSP. **Speaker:** Abhishek Bhargava, WSP
- Defining Civil Integrated Management (CIM), Building Information Modeling (BIM) and Relation to LRS, GIS
- Data Management for CIM/BIM – Data Models, Exchanges, Systems Integration, Quality, Governance
- Data Modeling Concepts and Principles: Spatial & Non-Spatial Data Models, Objects and Attributes
- National Transportation Data Model: Why? Model Content: Essential Roadway Features & Attributes

10:00 – 10:15 AM: BREAK

Session 3 - 10:15 AM – 11:15 AM: NRBM Data Model: Routes, Road Segments and Linear Referencing
Facilitator: Abhishek Bhargava, WSP. **Speaker:** Dave Loukes, WSP
- Route Network data model: Linear Referencing System and Referencing methods
- Route Network model content: Roadway Features & Attributes
- Route data editing and LRM data management workflows

Session 4: 11:15 AM – 12:00 PM: Model Inventory of Roadway Elements: Data Requirements
Facilitator: Abhishek Bhargava, WSP. **Speaker:** Robert Pollack
- Road Segment, Intersection and Interchange Data Modeling Requirements

12:00 PM – 1:00 PM: LUNCH

Session 5 - 1:00 PM – 2:00 PM: NRBM Data Model: Intersection Data Management
Facilitator: Dave Loukes, WSP. **Speaker:** Abhishek Bhargava, WSP
- Data Model: Intersection Components, Intersection Point, Segments; Navigation space, point, turn segments
- Model Use Cases & Deployment: Master Data Systems, Data Exchanges and Systems Integration for CIM

Session 6: 2:00 PM – 2:45 PM: NRBM Data Model: Interchange Data Management
Facilitator: Dave Loukes, WSP. **Speaker:** Abhishek Bhargava, WSP
- Data Model: Interchange Point, Mainline Route Segment, Ramp Segment, Navigation Point, Connectors
- Model Use Cases & Deployment: Master Data Systems, Data Exchanges and Systems Integration for CIM

2:45 PM – 3:00 PM: BREAK

Session 7: 3:00 PM – 3:45 PM: NRBM Data Model: Managing Signs, Guardrails, Pavement & Other Elements
Facilitator: Abhishek Bhargava, WSP. **Speaker:** Dave Loukes, WSP
- Data Model: Signs, Guardrail, Medians, Pavement, Project and Other Elements (Bridge, Tunnels, Walls etc.)
- Model Use Cases & Deployment: Master Data Systems, Data Exchanges and Systems Integration for CIM

Session 8: 3:45 PM – 4:30 PM: Data Management: Data Editing, Temporality
Facilitator: Dave Loukes, WSP. **Speaker:** Abhishek Bhargava, WSP
- Temporality, Editing Spatial and Non-Spatial Data Attributes

DEC 4th (DAY 2): STATE DOT DATA MANAGEMENT PRACTICES

Session 9: 8:00 – 12:00: Linear Referencing System, HPMS, ARNOLD Data Management and Reporting

Facilitators: Dave Loukes and Abhishek Bhargava, WSP

Speakers:
- Greg Ciparelli, Connecticut DOT,
- Frank Desendi, Pennsylvania DOT,
- Eric Conklin, Georgia DOT
- Will Thoman, Idaho DOT
- Mark Finch, Washington DOT

Agenda:
- Linear Referencing System and Methods: Route Network, Concurrencies, Divided/Un-divided Highways, Events – Editing, Workflows, QA/QC, Challenges in Route Network Editing, Current Initiatives and Next Steps.
- ARNOLD Data Compilation: Local agency coordination, data systems, data integration tools and techniques (e.g. edge matching to integrate local roads)
- HPMS Data Compilation: Pavement, Traffic, Safety and Road Network Data Integration, Processing, Workflows, People and processes
- Existing and/or upcoming initiatives, projects, data systems modifications; Roadmap of planned activities.
- Technical assistance needs associated with road network, HPMS, ARNOLD data management
- LRS and Asset Data Systems Integration Practices, Data Systems Integrated to receive Route Network Data
- Open Discussion and brainstorming on alignment of State DOT Practices with AEGIST Guidelines

12:00 – 1:00: LUNCH

Session 10: 1:00 – 5:00: Asset & MIRE Data Management: Roadway Segments, Intersections, Interchanges, Ramps, Curves, Guardrails, Bridge, Tunnel, Noise Wall, Pavement and Traffic Sections

Facilitators: Abhishek Bhargava and Dave Loukes, WSP

Speakers:
- David Lee, Tennessee DOT
- John Baker, New Mexico DOT
- Erin Lesh, North Carolina DOT
- Patrick Whiteford, James Meyer, Arizona DOT
- Eric Conklin, Georgia DOT

Agenda:
- System Integrations, Asset location (linear referencing) Updates, ETL Operations
- LRS and Asset Data Systems Integration Practices, Data Systems Integrated to receive Route Network Data
- Location referencing: Linear and/or geographic referencing of assets
- Asset data REST APIs, Data Sharing and Exchange
- Master data system: Spatial asset data editing, business attributes management
- Roadway and Assets data managed in GIS vs. Asset Management Systems
- MIRE Data management, data compilation and collection systems, tools and techniques
- Temporality: Systems with temporality features, Assets and/or roadway data with temporal history
- Existing and/or upcoming initiatives, projects, data systems modifications; Roadmap of planned activities.
- Technical assistance needs associated with Asset and MIRE data management
- Open Discussion and brainstorming on alignment of State DOT Practices with AEGIST Guidelines

DEC 5th (DAY 3): AEGIST NRBM Implementation

Session 11: 8:00 AM – 11:00 AM: GIS, LRS, Asset System Implementation - Challenges, Roadblocks, Resolutions
Facilitators: Abhishek Bhargava and Dave Loukes, WSP
Schedule:
- David Tinoco, Massachusetts DOT
- Patrick Whiteford and James Meyer, Arizona DOT
- Eric Conklin, Georgia DOT
- Erin Lesh, North Carolina DOT

Agenda:
- Assets modeling: LRS Routes model, Interchanges, Intersections, Self-intersecting routes, Roundabouts
- Asset location and business data editing processes, systems, roles and responsibilities: DOT & Local Agency
- Data management, common data environment (CDE), data warehousing initiatives at State and Local agencies, that are being used to address challenges and remove roadblocks
- Spatial and linear data management practices at local agencies and DOTs for assets not in HPMS, NBI (e.g. intersections, ramps, interchanges, culverts, railroad crossings, medians, guardrails, curves, signs, tunnels)
- Asset Inventory and MIRE data availability, collection issues, multi-user data editing environments/systems (web/mobile) resulting in data versioning and temporality management
- Integrating multiple asset data systems. Managing databases and systems used for editing and reporting
- Software system capabilities to handle Temporality, Temporal data queries
- Open Discussion on anticipated challenges and roadblocks in AEGIST implementation; Identifying Resolutions

11:30 PM – 12:30 PM: LUNCH

Session 12: 12:30 PM – 2:30 PM: AEGIST Implementation Needs, Technical Work Planning and Prioritization
Facilitators: Abhishek Bhargava and Dave Loukes, WSP
Speakers:
- John Farley, North Carolina DOT
- Ian Kidner, Ohio DOT

Agenda:
- Data Management Planning, Design, Master and Reference data management
- Building an enterprise data dictionary and deploying a single enterprise data architecture across all agencies in the State for Asset and Roadway data management
- Existing Software Systems evaluation, Configuration and/or Enhancements needed
- Systems Configuration and Development work: Database, Data Editing and Reporting Setup
- State GIS. LRS, Asset Data Management System Implementation Needs
- Integrating and governance transportation road network and asset data
- Compiling data from multiple data systems at DOT (Central office, districts), MPOs and other local agencies (e.g. municipalities), for reporting and data analytics
- Prioritizing NRBM Model Deployment: Recommended Next Steps
- Open Discussion on Implementing AEGIST Guidelines – Prioritized Next Steps

2:30 PM – 2:40 PM: BREAK

Session 13: 2:40 PM – 3:00 PM: Peer Exchange Summary & Next Steps
Speakers: Joe Hausman, FHWA; Abhishek Bhargava and Dave Loukes, WSP
Agenda:
- Report Out: Peer Exchange Summary and Key Discussion Points
- AEGIST Phase 2 Next Steps