

AEGIST Santa Fe Meeting Agenda (DRAFT)

August 23rd – 24th, 2022

DAY 1: AUGUST 23rd, 2022

SESSION 1: 8:30 AM – 12 PM - ROUTES, CENTERLINES, JUNCTIONS (NODES) & ROAD SEGMENTS (EDGES) INFORMATION MODELING

Session Goal: Discuss content in AEGIST Guidebook v2 – “*Chapter 2: Routes, Centerlines, Junctions (Nodes) and Road Segments (Edges) Modeling*”

Session Agenda:

- AEGIST Scope, Goals and Objectives
- AEGIST Santa Fe Meeting Goals, Objectives and Discussion Topics
- Discuss AEGIST Guidebook Chapter 2 Outline
- Discussion on specific Chapter 2 topics led by State DOT Presentations on these topics

Topics:

- o State, Local (NG911) and Other Data Sources – Integrating and Engineering Roads Data.
- o Roads data Integration and Engineering Policies, Rules and Approaches by State
- o Business Use Cases for Integrating State, Local and other Roads Data Sources
- o Address Referencing using ARNOLD and/or NG911 Road Centerlines

Discussion Questions:

1. Should we allow for different networks to be used for different business use cases? For e.g. network for funding analysis vs. network for operations? What roads data management/administration level will work (or are needed) for each State?
2. What would be the use cases supported by National Road Network (NRN)? What is NRN not supporting?
3. Do we need to build one authoritative road network data model to support all use cases and business stakeholders? Or, Should agencies create use case specific roads data models? E.g., for HPMS/ARNOLD, Digital Twin, Asset Management, NG911 operations etc. What use cases would need that integrated and authoritative roads data model?
4. Should NG911 Road Centerlines from local agencies be integrated with DOT maintained roads for creation of ARNOLD and National Road Network (NRN)? If NG911 and DOT Roads data are aligned, would the resulting conflated product be used for NG911 operations?
5. Are local agencies using ARNOLD Roads for referencing their data? Would it be easier to integrate State DOT and local agency-maintained asset, project, safety and mobility data if one road centerline dataset is created for the State?
6. What are the use cases for integrating statewide road network data? (e.g.: Address referencing, Travel Demand modeling GIS network, Freight Routing/demand analysis, Safety, Other?). How will the stakeholders of these benefit from implementing one road centerline within the State?
7. Public and Private sector agencies are utilizing one centerline road network data from sources like HERE, Open Street Maps, INRIX (XD segments) for modeling travel demand, analyzing freight routes (origin-destination analysis), detour routes modeling, analyzing mobility and safety – How can State transportation agencies take the responsibility of coordinating roads data across transportation agencies in the State to build a authoritative statewide road network data model?
 - a) What policies are needed?
 - b) What collaboration efforts are needed amongst agencies within the State?
 - c) How can FHWA, USDOT, NENA and other such national agencies help?

DAY 1: AUGUST 23rd, 2022

SESSION 2: 1:30 PM – 5:00 PM - INTERSECTION MODELING

Session Goal: Discuss content that will be in AEGIST Guidebook v2 – “*Chapter 3: Intersection Modeling*”

Session Agenda:

- Discuss AEGIST Guidebook Chapter 3 Outline
- Discussion on specific Chapter 3 topics led by State DOT Presentations on these topics

Topics:

- o Model Inventory of Roadway Elements (MIRE) & Highway Performance Monitoring System data collection scope, extent and approaches
- o Intersection Modeling Standards: FARS, NHTSA, CityGML, GDF, etc.
- o Developing Intersection (point and polygon) data model based on MIRE, topology and routable network requirements
- o Developing MIRE Road Segments and Routable Network Links data model. Integrating and aligning MIRE and Routable Network links with NG911 Road Centerlines

Discussion Questions:

1. How are you utilizing the overlap between HPMS data items and MIRE FDEs to determine the extent to which MIRE requirements are being met currently with data collected for HPMS full extent and sample sections?
2. How is your agency looking to meet intersection data modeling requirements?
 - a) Road Segments creation - Are you looking to create road segments that break at intersections?
 - b) Intersection and Road Segment attributes specified by MIRE - How are you collecting now and how would you collect in the future?
3. What are the rules that should be considered in automating the creation of geometry for - Intersection legs, Intersection Influence area
4. Do you agree that the following intersection data modeling standards should be considered in the modeling of intersections - GMNS, FARS, NHTSA, MIRE, OGC GDF, CityGML and IFC. Which ones are you considering today?
5. How would you like to manage an inventory of all intersections in the State?
6. Utilizing State DOT and Local Agency Road Centerlines for Engineering Junctions, Intersections
7. Utilizing All Roads Data maintained by State DOTs for Engineering Junctions, Intersections
8. Utilizing Open/Proprietary data sources in addition to DOT LRS Routes for Intersections

DAY 2: AUGUST 24th, 2022

SESSION 3: 8:30 AM – 12 PM – ENTERPRISE GEOSPATIAL INFORMATION SYSTEMS: SCOPE AND VISION

Session Goal: Discuss content that will be in AEGIST Guidebook v2 – “*Chapter 1: Enterprise Geospatial Information Systems – Scope and Vision*”

Session Agenda

- Discuss AEGIST Guidebook Chapter 1 Outline
- Discussion on specific Chapter 1 topics led by State DOT Presentations on these topics

Topics:

- o Identifying Geospatial Information Systems (GIS) at Transportation Agencies
- o Brainstorming 5-Year Roadmap for managing GIS – Data, Applications, Policies, Processes
- o Building Information Modeling (BIM) for Road Network Data Model
- o Data Governance for Road Network Data Model
- o Enterprise Road Network Data Model
- o Business Stakeholders and Use Cases to be supported by Road Network Data Model
 - Project Planning and Programming with Equity considerations
 - Asset Management & Information Modeling: Referencing Asset Inventory, Condition Surveys, Maintenance Work Orders
 - Construction Management: Work zone queue tracking (mobility), safety
 - Travel demand Modeling, Freight Network Modeling and Routing

Discussion Questions:

1. Which business groups and geospatial data management processes are your GIS / LRS / Data Analysis / Roadway Inventory management groups supporting today?
2. How is the role of your GIS / LRS / Data / Roadway Inventory group changing in your organization? What enterprise geospatial data management use cases do you envision supporting in the coming 2-5 years? For example:
 - o Digital Delivery / Building Information Modeling / Digital Twins?
 - o Geospatial road network data for travel demand modeling, safety analysis, routing?
 - o Enterprise Asset management
 - o Connected Vehicle Environment (CVE) Applications and Data Integration
3. In addition to ARNOLD, HPMS, MIRE data modeling and reporting standards, what other geospatial data modeling and management standards is your agency looking to adopt to deploy enterprise data standards?
4. What geospatial data management, integration and analysis activities do you envision taking up over the next 3-5 years to support the needs/requirements of internal and external stakeholders?

DAY 2: AUGUST 24th, 2022

SESSION 4: 1:30 PM – 5:00 PM - MULTIMODAL ROAD NETWORK, ASSET AND PROJECT INFORMATION MODELING

Session Goal: Discuss content that will be in AEGIST Guidebook v2 –

“Chapter 4: Multimodal Road Network Information Modeling”

“Chapter 5: Asset Information Modeling”

“Chapter 6: Project Information Modeling”

Session Agenda

- Discuss AEGIST Guidebook Chapter 1 Outline
- Discussion on specific Chapter 4, 5 and 6 topics led by State DOT Presentations on these topics

Topics:

- o Chapter 4: Bicycle, Pedestrian Route Networks Modeling Use Cases, Data and Standards
 - Complete streets for safety
 - Incorporating equity in project planning,
- o Chapter 5: Asset Information Modeling – Data and Standards, Data Quality, Data Integrations and Data Sharing
- o Chapter 6: Project Information Modeling - Data and Standards, Data Quality, Data Integrations and Data Sharing

Discussion Questions:

Chapter 4: Bicycle, Pedestrian Route Networks Modeling

1. What are the business rules and requirements that should be considered in the modeling of Bike and Pedestrian Route Networks?
2. Which business users & use cases at your agency require creation of bike & pedestrian routes?
 - Planning - Incorporating equity in decision support systems (e.g. measuring traffic level of stress for bicyclists and pedestrians)
 - Multi-modal network modeling - Bike, Pedestrians, Rail, Transit Routes etc.
 - Safety Analysis - Pedestrian and Bicyclists Safety
 - Bike and Pedestrian Travel Demand Modeling
3. Should standards such as Generalized Modeling Network Specifications be considered in modeling? Should data be extracted from open standards such as Open Street Maps?
4. What are the sources that can be used for modeling, integrating and engineering bike and pedestrian information models? For e.g.: Local Agency data, Proprietary data sources? Open Data Sources, Other?

Chapter 5: Asset Information Modeling

1. What assets should be considered in scope for standards and best practices associated with using Enterprise GIS systems for asset data modeling? For e.g.: Roads, Bridges, Signs, Right-of-way parcels etc?
2. What data modeling standards, approaches and best practice should be considered in asset information modeling and exchange using GIS systems?
 - Which need is more common - to see assets as events in LRS snapped to centerline or to see the assets in their true XY location? How should we balance these different needs?

Chapter 6: Project Information Modeling

1. How are DOTs managing assets that do not necessarily align with the road network? For e.g. Sound Walls? ROW Parcels? Addresses, Left and right sidewalks?
2. What project data modeling use cases should be considered in scope of Enterprise GIS systems-based data management?

3. What project data modeling standards, approaches and best practices should be considered for documentation in AEGIST Guidebook v2?