Quarterly Progress Report (QPR)
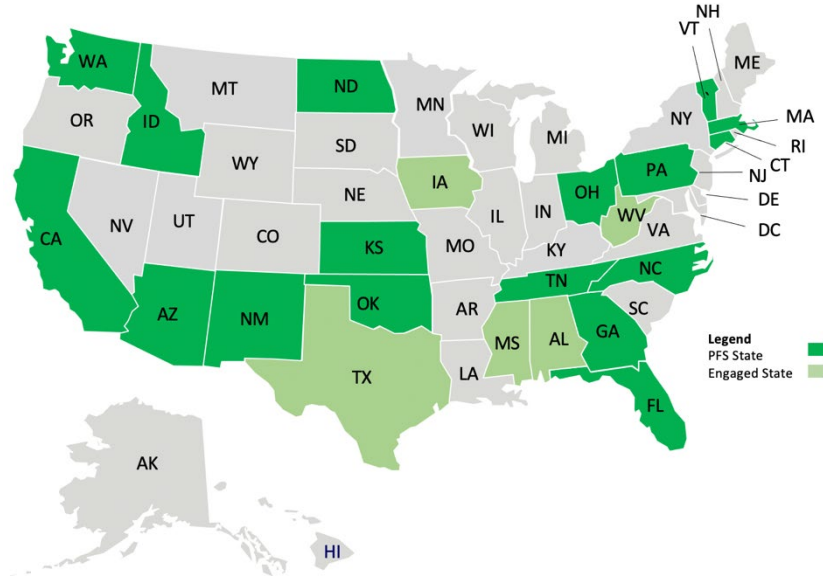# *Applications of Enterprise GIS in Transportation*

Progress Report for Quarter 1 [April 1st, 2023 – June 30th, 2023]

WSP Program Manager: Jag Mallela (jag.mallela@wsp.com)

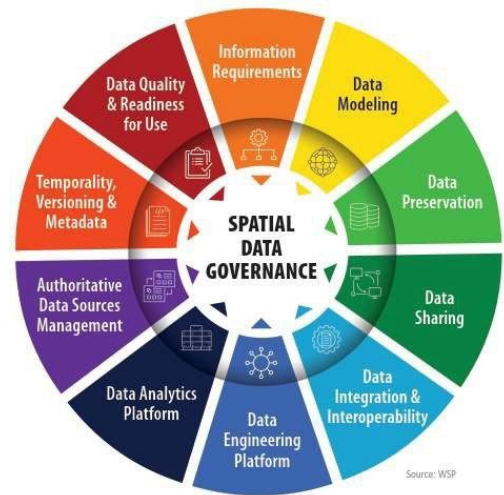WSP Technical Lead: Abhishek Bhargava (abhishek.bhargava@wsp.com)

Background

The Pooled Fund Study (PFS) on Applications of Enterprise GIS in Transportation (AEGIST) was initiated by FHWA in 2018. During Phase 1 of this study a guidebook was developed for transportation agencies in the United States, with the primary objective of documenting guidance on how spatial and linear referenced data should be managed by States. Phase 2 of this PFS was initiated in October 2019. This phase will span over 5 years (October 2019 – September 2024), during which the objectives outlined below would be accomplished.

Objectives

- Establish a standard for managing and governing data in spatial and linear referencing systems at transportation agencies, including but not limited to routes, intersections, interchanges, roundabouts, road segments, roadway characteristics, infrastructure assets, model inventory of roadway elements (MIRE), HPMS data items and ARNOLD road network.
- Develop guidance for States for modeling spatial transportation data, especially linear referencing system (LRS) data. Importing, exporting & conflating road network and roadway characteristics data across DOT LRS and Federal, State and Local data systems.
- Conduct a series of webinars, workshops, peer exchange meetings and provide consulting services to the States participating in the pooled fund to develop national standards in data modeling and management; enhance existing enterprise GIS systems at these agencies.
- Update the AEGIST Guidebook that was prepared in Phase 1 by documenting best practices, patterns and similarities across agencies in managing spatial data using enterprise data systems, including but not limited to Asset Management Systems, Traffic and Safety Systems, Project Planning and Programming Systems, Design and Construction Systems, and GIS and Linear Referencing Systems (LRS).
- Collaborate with States to enhance and develop spatial data management systems, processes, platforms to establish a structured and systematic approach for management of spatial data. This would involve establishing spatial data governance systems, business rules, applications, tools and platforms for:
    - Spatial Data Modeling
    - Spatial Data Integration and Engineering
    - Spatial Data Analytics

Completion Status and Summary

Time Frame:	October 1, 2019 to September 30, 2024
Total Time, months:	60
Time Expended, months:	48
Percent Calendar Time Expended:	80%

Percent Complete for Tasks & Sub-Tasks:

Base Period		
Tasks	**Sub-Tasks**	**Percent Complete**
Task 1: Project Management	1. Quarterly Meetings & Technical Tasks Planning	**100%**
	2. Quarterly Status Reports	
Task 2: Technical Services	1. Washington - **77%**	**89%**
	2. Georgia - **93%**	
	3. Tennessee - **70%**	
	4. California - **99%**	
	5. Pennsylvania - **96%**	
	6. Ohio - **92%**	
	Cross-Agency Activities: Guidebook Development - **100%**	
Task 3: Workshops, Webinars, Presentations	1. Webinar 1: Data Governance 2. Workshops: GIS-T 2019 and GIS-T 2021 3. Presentations 2020 and 2021 4. Flyers, Events Site Updates	**100%**
Task 4: Member State Meetings	1. Member State Meeting 1 – 2019	**100%**
	2. Member State Meeting 2 – 2020	
Task 5: HPMS 9.0 Recommendations	Road Network Data Architecture Data Modeling Standards, Use Cases, Topology	**100%**

Performance Period 1		
Tasks	**Sub-Tasks**	**Percent Complete**
Task 1: Project Management	1. Quarterly Meetings & Technical Tasks Planning	**55%**
	2. Quarterly Status Reports	
Task 2: Technical Services	1. New Mexico – **0%**	**28%**
	2. Connecticut – 54**%**	
	3. Florida – 2**%**	
	4. North Carolina – **7%**	
	5. Kansas – **7%**	
	6. Idaho – **61%**	
	7. Massachusetts – **7%**	
	Cross-Agency Activities: Guidebook Development - **0%**	
Task 3: Workshops, Webinars, Presentations	1. Workshops: GIS-T 2022 and GIS-T-2023 2. Presentations 2022 and 2023 3. Flyers, Events Site Updates	**63%**
Task 4: Member State Meetings	1. Member State Meeting 1 – 2022	**50%**
	2. Member State Meeting 2 – 2023	

Work Accomplished This Reporting Period: April – June, 2023

Task 1: Project Management
Task Objective: Perform project management activities, which include conducting monthly status meetings, developing quarterly status reports, creating project work plan, managing project resources, schedule, deliverables and communication with all stakeholders.

Activities:
1. Prepared and delivered AEGIST Quarterly Report #14 for the period January – March 2023.
2. Technical services tasks managed for following PFS States: Washington, Georgia, California, Ohio, Connecticut, North Carolina. Details provided in the section below on Task 2.

Task 2: Technical Services
Task Objective: Provide technical services associated to PFS States by completing various agency-specific and cross-agency activities identified in the work plan.

Activities:
- **Washington**
  [Task 2.WS.2] LRS Configuration Practices Review and Recommendations
    - Prepared agenda for workshop 1 and workshop 2 and published the agenda with workshop questions to be discussed. Workshop 1 was designed to focus on LRS database architecture and LRS network modeling configuration in Roads and Highways and Workshop 2 was designed to focus on LRS network modeling and LRS Business Events Data management. These workshops were planned to advance WSDOTs road network data modeling in R&Hs and share best practices and recommendations on LRS configuration. These workshops would also involve discussion on (a) LRS event data transformation from one LRM to another (b) LRS event data batch imports to relocate event based on new LRS versions (c) Managing temporality of LRS event data
    - Scheduled workshop 1 on May 31st, to discuss LRS Network configuration best practices. Scheduled Workshop 2 tentatively on August 2nd.
    - Preparation for Workshop 1 on LRS Network Modeling with WSDOT. This involved analysis of WSDOT LRS data and configuration, testing of various road network editing scenarios with WSDOT configuration and identification of discussion topics and questions for the workshop. Analyzed Washington's Roads and Highways data and developed discussion topics for the workshop with Washington DOT.
    - Conducted workshop 1 on Linear Referencing System Database Architecture and Linear Network Data Architecture with 25 people from WSDOT, including personnel from IT (Application Developers and Database Administrators), HPMS, LRS and GIS
    - Developed LRS Road Network data modeling configuration requirements, configuration checklist and configuration recommendations report for WSDOT based on practices in various States and requirements of WSDOT.
    - Presented plan for review of the LRS configuration report and development of additional discussion questions.
    - Scheduled discussion on integration of local roads data with Interstate, US and State Roads data maintained by DOT in the LRS system.
    - Updated the roads data modeling best practices document (a) Bi-temporal road network modeling (b) Calibration points modeling (c) LRMs setup (d) Route network edits management.
    - Updated following sections in LRS Configuration report: enterprise database migration, network types/local roads inclusion plans, measure value precision and rounding, route and calibration point data sources, temporal data architecture, date field naming conventions, equations event data source and editing workflows/considerations, geoprocessing tools to be run after editing workflows, LRS editing workflow considerations, Network Types, Calibration Methods, Route ID Configuration, Gap Calibration. Added examples from West Virginia, California, Pennsylvania Turnpike to show WSDOT how calibration points, linear referencing methods, route networks, metadata, temporality, gaps, divided-undivided highways can be best modeled.

- **Georgia**
  [Task 2.GA.1] Statewide Road Data Management and Data Supply Chain
    o Coordinated with the Georgia Association of Regional Commissions to discuss their REVAMP data processes for integration into the roads data management technical report.
    o Developed the technical report on Statewide Road Network data management in Georgia documenting information about processes and practices at each of the agencies involved in the REVAMP program.
    o Conducted an editorial review of the REVAMP Roads data management technical report.
    o Developed the executive summary report on Statewide Roads Data Management as requested by GDOT client.

- **California**
  [Task 2.CA.1] California Roads Data Sharing (CaRS) report
    o Presented the data and application architecture updates, including proposal for development of CaRS GeoHub Platform for local and State roads data integration.
    o Prepared and presented the schedule, agenda and objectives for meeting with CalOES, Caltrans and Merced County to discuss proposed data and application architecture and the plan for work, communication and engagements with other roads data stakeholders in California.
    o Updated data supply chain process diagram for the Arizona case study to include information about the feature classes that are created as part of the data validation process and as part of the change detection process.
    o Presented the Application architecture, Application communication diagram and dataflows proposed for the California Roads Sharing (CaRS) program. Presentation was made to Caltrans, CalOES and Merced County.
    o Discussed the next phase (Phase 4) of the work activities and actions that will be performed with other regional agencies and counties in California for reviewing the CaRS data and application architecture and for getting buy-in from all agencies.
    o Completed editorial review of the Data and Applications Architecture report and California Roads Sharing report.
    o Coordinated with Gene Barrera (Merced County) to schedule a discussion on converting FEMA Flood Plains semi-structured/geospatial data to linearly referenced data.
    o Coordinated with Arizona DOT to get additional information about their data supply chain and data processing steps for presentation of information about Arizona in the California report. Developed a list of action items for Arizona, which involve providing information about how local and DOT road centerlines are being compared, how changes are detected, and how local road centerline change proposals are developed before road centerlines are updated and made available for developing LRS route centerlines.

- **Ohio**
  [Task 2.OH.1] Strategic Roadmap for Road Network Data Modeling
    o Developed strategic roadmap report and updated LRS Network management chapter, including documentation of the different levels of administration. The roadmap was also aligned with AEGIST guidelines in Guidebook v2.
    o Reviewed BIM data modeling and BIM-LRS Integration best practices in Florida and Connecticut, for development of recommendations and guidance on BIM-LRS data integration.
    o Updated Chapter on LRS data publication for use by enterprise systems such as: Travel Demand Modeling System, Planning and Design Systems.
    o Updated Administration Levels for BIM-LRS data integration and incorporated examples of how LRS datasets can be updated from digital as-builts.
    o Reviewed development of graph data models for building connected road networks and assessed how such advanced geospatial data models can be used for faster querying and analytics.

- **Connecticut**
  [Task 2.CT.1] Road Data Quality Assessment Tool
    o Continued development of the road data quality assessment tool (FME Workspace) adding transformation functions for different roadway characteristics to assess quality.
    o Tested tool (FME workspace) with sample data to ensure that the tool is successfully identifying issues.

- **North Carolina**
  [Task 2.NC.2] LRS Data Governance
    - Updated NCDOT LRS Data Governance system based on 900 NCDOT data use patterns. These use patterns were categorized by purpose, associated with NCDOT departments, roles, geospatial data assets, and data systems including the HI-CAMS system and TEAAS System. Data quality assessment rules were also integrated.
    - Held workshop meetings with NCDOT to integrate feedback and ongoing updates to governance system.
    - Started development of NCDOT's Application Communication diagram in accordance with the TOGAF enterprise architecture standard.

- **All States: AEGIST Guidebook**
    - Updated chapter 1 'Enterprise GIS' based on LRS business use cases and road network modeling requirements information in AEGIST Interim Report, Guidebook v1.0 and discussions with State DOTs.
    - Updated chapter on Routes, Centerlines and Road segments. Also edited sections on data modeling and data management were edited.
    - Updated chapter on Intersection modeling. Added information on development of MIRE compliant intersection data model.
    - Conducted AEGIST Road network data modeling workshop at GIS-T to gather information for the Guidebook.
    - Compiled information from GIS-T AEGIST workshop findings on road network data modeling practices, recommendations, and approaches.
    - Developed LRS administration maturity model for modeling road network centerlines, divided-undivided highways and incorporated model in Guidebook v2.
    - Researched use of AI/ML techniques for estimation of AADT information for road segments.
    - Started planning of the 2023 Meeting of the Pooled Fund Study States.

Task 3: Marketing and Communication

Task Objective: Webinars and Workshops will be held, and Articles will be presented in conferences and other industry forums to communicate information about the activities of the project, especially the technical work products developed as part of the project.

Activities
- **Task 3.2.x: Workshops and Presentations**
    - **April 2023 - GIS-T Data Supply Chain Workshop:**
        - Updated data supply chain slides based on AEGIST work with Georgia DOT and Arizona DOT. Met with both states to ensure they were comfortable with the material and to make any necessary changes.
        - Developed data supply chain workflow diagrams and template for review and discussion on recommended models and practices that will be documented in the AEGIST guidebook.
        - Held workshop at GIS-T Conference on April 11th, 2023, in Oklahoma City including panel discussion following the presentation. Feedback was received from audience members using Meeting Pulse and will be integrated into the Guidebook v2.
    - **April 2023 – AEGIST GIS-T Workshop**
        - Updated slides for AEGIST GIS-T workshop on Roads data modeling by collaborating with state DOT presenters.
        - Coordinated with presenters to incorporate updates from States and presenters into the workshop deck.
        - Completed a dress rehearsal for GIS-T workshop presentation and roundtable discussions.
    - **July 2023 - Traffic Records Forum**
        - Developed presentation on AEGIST status and activities for presentation at the Traffic Records Forum in July

Task 4: Member State Meetings

Task Objective: Conduct annual meeting of the member States to discuss AEGIST practices, Guidebook and share information about activities associated with the project.

Activities

- **AEGIST Meeting of the Pooled Fund States**
    - Started planning of AEGIST Meeting of the Pooled fund States. Identified location and initiated discussions to discuss availability of the venues at this location for holding the meeting.
    - Prepared draft agenda for meeting. Draft agenda to be developed further in coordination with PFS States in the coming months.
    - Discussion on how workshop will focus on discussion of chapters in the AEGIST Guidebook v2.
    - Developed 'Save the Date' flyer based on objectives and agenda for annual meeting.
    - Developed list of people who would receive Save the date flyer and calendar blocks.
    - Planned meeting logistics: Hotel, Venue, Travel
    - Developed content for discussion at the meeting based on information in the AEGIST Guidebook.

Complete List of AEGIST Deliverables

Note: Deliverables on which work is complete (in green) and work is in progress (in light yellow).

Task	D#	Deliverable Name	Due Date	Status
Task 1*	1.1.0	Kick-off Meeting	10/30/19	Completed.
Task 1*	1.2.0	Work Plan Version 1: Cross-Agency Tasks, Deliverables & Schedule	4/30/20	Completed. Submitted to FHWA and PFS States.
Task 1*	1.3.1	Quarterly Progress Report - 1 (incl. 3 monthly reports and quarterly meetings)	12/31/19	Completed. Submitted to FHWA. Email sent to PFS States.
Task 1*	1.3.2	Quarterly Progress Report - 2 (incl. 3 monthly reports and quarterly meetings)	3/31/20	Completed. Submitted to FHWA. Email sent to PFS States.
Task 1*	1.3.3	Quarterly Progress Report - 3 (incl. 3 monthly reports and quarterly meetings)	6/30/20	MPR for April, May, June published. QPR-3 (April-June) published.
Task 1*	1.3.4	Quarterly Progress Report - 4 (incl. 3 monthly reports and quarterly meetings)	9/30/20	MPR for July and August prepared. QPR-4 Prepared.
Task 1*	1.3.5	Quarterly Progress Report - 5 (incl. quarterly meetings)	12/31/20	QPR-5 report prepared. QTR meeting held in Dec 2020
Task 1*	1.3.6	Quarterly Progress Report - 6: Jan-Apr 2021 (incl. quarterly meet)	4/31/21	QPR-6 prepared. QTR Meeting (Mar 2021)
Task 1*	1.3.7	Quarterly Progress Report - 7: May-July 2021 (incl. quarterly meet)	7/30/21	QPR-7 Completed and Submitted. Quarterly meeting held.
Task 1**	1.3.8	Quarterly Progress Report - 8: Aug-Sept 2021 (incl. quarterly meet)	9/30/21	QPR-8 Completed and Submitted. Quarterly meeting held.
Task 1**	1.3.9	Quarterly Progress Report - 9: Oct-Dec 2021 (incl. quarterly meet)	12/30/21	QPR-9 Completed and Submitted. Quarterly meeting held.
Task 1**	1.3.10	Quarterly Progress Report - 10: Jan-Mar 2022 (incl. quarterly meet)	3/31/22	QPR-10 Completed and Submitted. Quarterly meeting held.
Task 1**	1.3.11	Quarterly Progress Report - 11: Apr-Jun 2022 (incl. quarterly meet)	6/30/22	QPR-11 Completed and Submitted. Quarterly meeting to be held in July 2022.
Task 2*	2.1	TASK 2 Technical Services (incl. Work Plan v1.1 with State Tasks) - MONTH 8 - MAY 2020	5/30/20	Work Plan v1.1 has Caltrans Tasks. May 29th PFS States Presentation.
Task 2*	2.2	TASK 2 Technical Services (incl. Work Plan v1.2 with State Tasks) - MONTH 9 - JUN 2020	6/30/20	Work Plan v1.2 has CA, GA, ID Tasks. June 16th PFS States Presentation.
Task 2*	2.3	TASK 2 Base Period Technical Services (incl. Work Plan v1.3 with State Tasks) - MONTH 10 - JUL 2020	7/30/20	Work Plan v1.3 with ID Task updates. Weekly work planning with Idaho.
Task 2*	2.4	TASK 2 Technical Services (incl. Work Plan v1.4 with State Tasks) - MONTH 11 - AUG 2020	8/30/20	Work Plan v1.4. Tasks 2.1, 2.2, 2.ID.1
Task 2*	2.5	TASK 2 Technical Services (incl. Work Plan v1.5 with State Tasks) - MONTH 12 - SEP 2020	9/30/20	Work Plan v1.5 with ID Task updates. Tasks 2.1, 2.2, 2.ID.2 and 2.ID.3
Task 2*	2.6	TASK 2 Technical Services - MONTH 13 - OCT 2020	10/30/20	Work plan activities at ID, TN, CA and Tasks 2.1 and 2.2.
Task 2*	2.7	TASK 2 Technical Services - MONTH 14 - NOV 2020	11/30/20	Work plan activities at ID, TN, CA and Tasks 2.1 and 2.2.
Task 2*	2.8	TASK 2 Technical Services (incl. Work Plan v1.6 with State Tasks) - MONTH 15 - DEC 2020	12/30/20	Work Plan v1.6 with updates for ID, CT, TN and CA. Continued Tasks 2.1 and 2.2
Task 2*	2.9	TASK 2 Technical Services - MONTH 16 - JAN 2021	1/20/21	Technical Services to ID, TN, CA, PA, CT, OH and Cross-agency Tasks 2.1 & 2.2.
Task 2*	2.10	TASK 2 Technical Services - MONTH 17 - FEB 2021	2/28/21	Technical Services to ID, TN, CA, PA, CT, OH and Cross-agency Tasks 2.1 & 2.2.
Task 2*	2.11	TASK 2 Technical Services - MONTH 18 - MAR 2021	3/20/21	Technical Services to ID, TN, CA, PA, CT, OH and Cross-agency Tasks 2.1 & 2.2.

Task	D#	Deliverable Name	Due Date	Status
Task 2*	2.12	TASK 2 Technical Services - MONTH 19 - APR 2021	4/30/21	Technical Services to ID, TN, CA, PA, CT, OH and Cross-agency Tasks 2.1 & 2.2.
Task 2*	2.13	TASK 2 Technical Services - MONTH 20 - MAY 2021	5/30/21	Technical services to PFS States and for Cross-agency Tasks 2.1 & 2.2.
Task 2*	2.14	TASK 2 Technical Services - MONTH 21 - JUN 2021	6/30/21	Technical services to PFS States and for Cross-agency Tasks 2.1 & 2.2.
Task 2*	2.15	TASK 2 Technical Services - MONTH 22 - JUL 2021	7/30/21	Technical services to PFS States and for Cross-agency Tasks 2.1 & 2.2.
Task 2*	2.16.1	TASK 2 Technical Services - MONTH 23 - AUG 2021	8/30/21	Technical Services to 8 States as listed in the quarterly report.
Task 2**	2.16.2	TASK 2 Technical Services - MONTH 23 - AUG 2021	8/30/21	Technical Services to NC and KS, with FL, NM requirements considered as well.
Task 2*	2.17.1	TASK 2 Technical Services - MONTH 24 - SEP 2021	9/30/21	Technical Services to 6 Base Period States as listed in the quarterly report.
Task 2**	2.17.2	TASK 2 Technical Services - MONTH 24 - SEP 2021	9/30/21	Technical Services to NC and KS, with FL, NM requirements considered as well.
Task 2*	2.18.1	TASK 2 Technical Services - MONTH 25 - OCT 2021	10/30/21	Technical Services to ID, PA, CA and OH.
Task 2**	2.18.2	TASK 2 Technical Services - MONTH 25 - OCT 2021	10/30/21	Technical Services to NC and KS, with FL, NM requirements considered as well.
Task 2*	2.19.1	TASK 2 Technical Services - MONTH 26 - NOV 2021	11/30/21	Technical Services to ID, PA, CA, NC, KS and OH, as summarized in this report.
Task 2**	2.19.2	TASK 2 Technical Services - MONTH 26 - NOV 2021	11/30/21	Technical Services to NC and KS, with FL, NM requirements considered as well.
Task 2*	2.20.1	TASK 2 Technical Services - MONTH 27 - DEC2021	12/30/21	Technical Services to ID, PA, CA, NC, KS and OH, as summarized in this report.
Task 2**	2.20.2	TASK 2 Technical Services - MONTH 27 - DEC2021	12/30/21	Technical Services to NC and KS, with FL, NM requirements considered as well.
Task 2	2.21.1	TASK 2 Technical Services - MONTH 28 - JAN2022	1/30/22	Technical Services to PFS States in Base Period as listed in QTR Report #10.
Task 2**	2.21.2	TASK 2 Technical Services - MONTH 28 - JAN2022	1/30/22	Technical Services to NC and KS, with FL, NM requirements considered as well.
Task 2	2.22.1	TASK 2 Technical Services - MONTH 29 - FEB2022	2/30/22	Technical Services to PFS States in Base Period as listed in QTR Report #10.
Task 2**	2.22.2	TASK 2 Technical Services - MONTH 29 - FEB2022	2/30/22	Technical Services to NC and KS, with FL, NM requirements considered as well.
Task 2	2.23.1	TASK 2 Technical Services - MONTH 30 - MAR 2022	3/30/22	Technical Services to PFS States in Base Period as listed in QTR Report #10.
Task 2**	2.23.2	TASK 2 Technical Services - MONTH 30 - MAR 2022	3/30/22	Technical Services to NC and KS, with FL, NM requirements considered as well.
Task 2	2.24.1	TASK 2 Technical Services - MONTH 31 - APR 2022	4/30/22	Technical Services to PFS States in Base Period as listed in QTR Report #11.
Task 2**	2.24.2	TASK 2 Technical Services - MONTH 31 - APR 2022	4/30/22	Technical Services to NC and KS, with FL, NM requirements considered as well.
Task 2	2.25.1	TASK 2 Technical Services - MONTH 32 - MAY 2022	5/30/22	Technical Services to PFS States in Base Period as listed in QTR Report #11.
Task 2**	2.25.2	TASK 2 Technical Services - MONTH 32 - MAY 2022	5/30/22	Technical Services to NC and KS, with FL, NM requirements considered as well.
Task 2	2.26.1	TASK 2 Technical Services - MONTH 33 - JUN 2022	6/30/22	Technical Services to ID, TN, CA, PA
Task 2**	2.26.2	TASK 2 Technical Services - MONTH 33 - JUN 2022	6/30/22	Technical Services to NC, KS, GA, WA, NM, MA
Task 2	2.27.1	TASK 2 Technical Services - MONTH 34 – JUL 2022	7/30/22	Technical Services to ID, TN, CA, PA

Task	D#	Deliverable Name	Due Date	Status
Task 2**	2.27.2	TASK 2 Technical Services - MONTH 34 – JUL 2022	7/30/22	Technical Services to NC, KS, GA, WA, NM, MA
Task 2	2.28.1	TASK 2 Technical Services - MONTH 35 – AUG 2022	8/30/22	Technical Services to ID, TN, CA, PA
Task 2**	2.28.2	TASK 2 Technical Services - MONTH 35 – AUG 2022	8/30/22	Technical Services to NC, KS, GA, WA, NM, MA
Task 2	2.29.1	TASK 2 Technical Services - MONTH 36 - SEPT 2022	9/30/22	Technical Services to ID, TN, CA, PA
Task 2**	2.29.2	TASK 2 Technical Services - MONTH 35 – AUG 2022	8/30/22	Technical Services to NC, KS, GA, WA, NM, MA
Task 2	2.30	TASK 2 Technical Services - MONTH 37 - OCT 2022	10/30/22	Technical Services to ID, TN, CA, PA
Task 2**	2.30	TASK 2 Technical Services - MONTH 37 - OCT 2022	10/30/22	Technical Services to NC, KS, GA, WA, MA
Task 2	2.31	TASK 2 Technical Services - MONTH 38 - NOV 2022	11/30/22	Technical Services to ID, TN, CA, PA
Task 2**	2.31	TASK 2 Technical Services - MONTH 38 - NOV 2022	11/30/22	Technical Services to NC, KS, GA, WA, MA
Task 2	2.32	TASK 2 Technical Services - MONTH 39 - DEC 2022	12/30/22	Technical Services to ID, TN, CA, PA
Task 2**	2.32	TASK 2 Technical Services - MONTH 39 - DEC 2022	12/30/22	Technical Services to NC, KS, GA, WA, MA
Task 2	2.33	TASK 2 Technical Services - MONTH 40 - JAN 2023	1/30/23	Provided technical services to States listed in this report.
Task 2**	2.33	TASK 2 Technical Services - MONTH 40 - JAN 2023	1/30/23	Provided technical services to States listed in this report.
Task 2	2.34	TASK 2 Technical Services - MONTH 41 - FEB 2023	2/30/23	Provided technical services to States listed in this report.
Task 2**	2.34	TASK 2 Technical Services - MONTH 41 - FEB 2023	2/30/23	Provided technical services to States listed in this report.
Task 2	2.35	TASK 2 Technical Services - MONTH 42 - MAR 2023	3/30/23	Provided technical services to States listed in this report.
Task 2**	2.35	TASK 2 Technical Services - MONTH 42 - MAR 2023	3/30/23	Provided technical services to States listed in this report.
Task 2	2.36	TASK 2 Technical Services - MONTH 43 - APR 2023	4/30/23	Provided technical services to Ohio, Washington, Georgia, California,
Task 2**	2.36	TASK 2 Technical Services - MONTH 43 - APR 2023	4/30/23	Provided technical services work for Connecticut and North Carolina.
Task 2	2.37	TASK 2 Technical Services - MONTH 44 - MAY 2023	5/30/23	Provided technical services to Ohio, Washington, Georgia, California,
Task 2**	2.37	TASK 2 Technical Services - MONTH 44 - MAY 2023	5/30/23	Provided technical services work for Connecticut and North Carolina.
Task 2	2.38	TASK 2 Technical Services - MONTH 44 - JUNE 2023	6/30/23	Provided technical services to Ohio, Washington, Georgia, California,
Task 2**	2.38	TASK 2 Technical Services - MONTH 44 - JUNE 2023	6/30/23	Provided technical services work for Connecticut and North Carolina.
Task 3**	3.1.1	**Article 1**: Road Network Publication Data Model with Topology, Temporality, Routable Network Rule	5/30/21	No longer in scope. Information prepared for this article to be merged in Guidebook.
Task 3**	3.1.2	**Article 2:** Enterprise GIS Application for Spatial Safety Performance Functions Calibration and HSM-based Safety Analysis	5/30/22	No longer in scope. Information prepared for this article to be merged in Guidebook.
Task 3**	3.1.3	**Article 3:** Engineering, processing and integrating spatial Traffic and Safety Data using Cloud	12/30/22	No longer in scope. Information prepared for this article to be merged in Guidebook.
Task 3**	3.1.4	**Article 4:** Enterprise GIS Application for Modeling and Conflating Federal Lands Management Agency, DOT LRS and Local Agency Roads data	12/30/23	No longer in scope. Information prepared for this article to be merged in Guidebook.
Task 3**	3.1.5	**Article 5:** LRS Administration Levels and Maturity Mode	9/30/24	No longer in scope. Information prepared for this article to be merged in Guidebook.

Task	D#	Deliverable Name	Due Date	Status
Task 3	3.2.1	Workshop 1 - GIS-T 2021	4/30/21	GIS-T Workshop 2021 Delivered
Task 3*	3.2.2	AEGIST Presentations (2020)	12/30/20	**Following Presentations Delivered:** NY (Apr); TRF (Aug); KS (Jun); National Roads Symposium (Sep); Esri RHUG (Oct), AEGIST Modeling & Standards (Dec).
Task 3**	3.2.3	Workshop 2 – GIS-T 2022	5/30/22	Delivered Workshop in April 2022.
Task 3*	3.2.4	AEGIST Presentations (2021)	12/30/21	Completed delivery of following 2021 Presentations: (1) USDOT Presentation on April 2nd. (2) Presentations to new PFS States: WV, DC (3) Provided AEGIST Overview to Colorado. Presentation at NaTMEC on Jun 23rd. FHWA NRN Presentation on Aug 31st. (4) Presentation Slides for FHWA Safety Group on AEGIST-MIRE activities. (5) FLMA Presentation on Nov 9th.
Task 3**	3.2.5	AEGIST Presentations (2022)	12/30/22	Following presentations have been delivered in 2022, as of this quarter: (1) TRB AEGIST Update at AED40 Committee Meetings (2) USDOT Mobility Plan Business Group Update (Feb 1st) (3) AASHTO GIS-T Conference – AEGIST Updates (April 21st) (4) Presentation for Gloria Shepherd (5) Spatial Data Governance presentation to NC, TN, ID, PA (April 1st, 2022) (6) RDIP Conference in Rhode Island (April. 2022) (7) NaTMEC 2022 in June, 2022 (8) CTPP Conference in June, 2022 (9) RDIP Conference in West Virginia (June 2022) (10) IHEEP Conference Presentation Preparation (Sept 2022)
Task 3	3.2.6	GIS-T Workshop 2023	4/10/23	Workshop on April 11th, 2023. Georgia and Arizona teams presented their data supply chain processes.
Task 3	3.3.1	Webinar 1: Data Governance	2/11/21	Webinar delivered on Feb 11th, 2021
Task 4	4.1.0	Peer-Exchange 1 - 2019	12/30/19	Completed.
Task 4	4.2.0	Peer-Exchange 2 - 2020	12/30/20	Aug 25th-26th Peer Exchange Conducted.
Task 4	4.3.0	Peer-Exchange 3 – 2022	08/30/22	Conducted Santa Fe Peer Exchange Meeting
Task 5	5.0	HPMS 9.0 Remodeling Report/Article Database Design	5/30/21	Delivered report on Road Network Publication Data Model for FHWA and PFS States Review completed between July-Sept. Comments Addressed. Coordinate with FHWA to determine next Steps on publication to be determined.

* Tasks in Base/Original Period (CLIN 0001)
**Tasks in Performance Period 1 (CLIN 0002)