# *Quarterly Progress Report (QPR)*

# *Applications of Enterprise GIS in Transportation*

**Progress Report for Quarter [October 1, 2024 – December 31, 2024]**

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

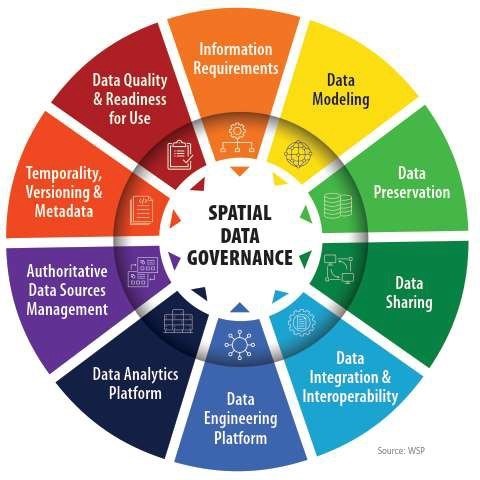
Map

Description automatically generatedWSP 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 – March 2025), 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 2019 to March 2025

Total Time, months: 66

Time Expended, months: 63

Percent Calendar Time Expended: 97%

Percent Complete for Tasks & Sub-Tasks:

|  |  |  |  |
| --- | --- | --- | --- |
| **Base Period: CLIN0001** | | | |
| **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 **- 100%** | | **100%** |
| 2.   Georgia **- 100%** | |
| 3.   Idaho - **100%** | |
| 4. California - **100%** | |
| 5. Pennsylvania **- 100%** | |
| 6. Ohio - **100%** | |
| 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  2. Member State Meeting 2 – 2020 | | **100%** |
| **HPMS 9.0 Data Architecture: CLIN0005** | | | |
| **Tasks** | **Sub-Tasks** | **Percent-Complete** | |
| Task 5: HPMS 9.0 Recommendations | Road Network Data Architecture  Data Modeling Standards, Use Cases, Topology | **100%** | |
| **Performance Period 1 and 2: CLIN0002 and CLIN0003** | | | |
| **Tasks** | **Sub-Tasks** | | **Percent Complete** |
| Task 1: Project Management | 1.  Quarterly Meetings & Technical Tasks Planning | | **90%** |
| 2.  Quarterly Status Reports | |
| Task 2: Technical Services | 1.   New Mexico – **100%** | | **95%** |
| 2.   Connecticut – **100%** | |
| 3.   Florida – **100%** | |
| 4. North Carolina **– 100%** | |
| 5. Kansas **– 100%** | |
| 6. Tennessee **– 100%** | |
| 7. Massachusetts **– 100%** | |
| 8. North Dakota – **80%** | |
| 9. Arizona – **100%** | |
| Cross-Agency Activities: Guidebook Development **- 100%** | |
| Task 3: Workshops, Webinars, Presentations | 1. Workshops: GIS-T 2023 and GIS-T-2024 2. Presentations 2023 and 2024 3. Flyers, Events Site Updates | | **100%** |
| Task 4: Member State Meetings | 1.  Member State Meeting 1 – 2022  2. Member State Meeting 2 – 2023 | | **100%** |

Work Accomplished This Reporting Period: October – December 2024

**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 #21 for the period October – December 2024.
2. Technical services tasks managed for following PFS States: Arizona, California, Kansas, North Carolina North Dakota, Massachusetts, and Tennessee. Details provided in the section below on Task 2.
3. Extended AEGIST Part 1 to March 2025 (from December 2024).

**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**:

* **Arizona [Task 2.AZ]**
* Finalized and delivered report with findings and recommendations on Route ID architecture. Work performed on the Route ID Architecture Report during this quarter included the following activities:
  + Finalized Application Communication Diagram to identify ADOT systems that need to be integrated with LRS and/or systems that need updates to Route ID use and exchange with ADOT LRS
  + Developed of graphics and illustrations to communicate difference between governing different route id architectures and governing the transformation scripts associated with converting one route id architecture to another.
  + Updated synopsis of discussions with business users to draw conclusions of changes and updates to Arizona Route ID
* Performed editorial review and quality checks of the Route ID Architecture
* Held Route ID Architecture Executive Summary Review meeting on Thursday, December 12th
* Held Route ID Architecture Summary Review meeting with larger stakeholder group on Thursday, December 19th
* Presented final Route ID Architecture report, findings, and recommendations to Arizona DOT at-large stakeholders
* Held final Executive Summary review meeting with ADOT project leads and incorporated suggestions provided into final Route ID Architecture report
* Provided final deliverable of Route ID architecture report and subsequent appendices to ADOT
* **Florida [Task 2.FL.]** 
  + Updated intersection model geoprocessing tool based on changes and improvements made for New Mexico
  + Reran results for Florida DOT using the routes data from the DOT to confirm that the updated geoprocessing tool generates results for Florida.
* **Kansas [Task 2.KS.]**
  + Coordinated with Kansas to request ALRS File Geodatabase
  + Accessed and downloaded ALRS geodatabase and reviewed files to prepare them for Intersection modeling.
  + Performed data quality checks on the ALRS files to ensure readiness of data for intersection modeling**.**
  + Executed Intersection geoprocessing tool to update the model using Kansas Geodatabase published during week Oct 14.
  + Updated geoprocessing tool to incorporate changes in AEGIST guidebook on Intersection modeling approach.
  + Packaging of the Intersection modeling tool into scripts for execution on any platform (platform agnostic toolkit)
* **Massachusetts [Task 2.MA.]**
  + Updates to the intersection data model using latest MassDOT Roads data published as web service.
  + Development of Roadmap for continuing work on Intersection Model, Data Quality Rules and NG911 Data integration in Phase 2
  + Coordination with MassDOT to setup discussion on deliverables and next steps
  + Presented the intersection data model with Intersection Legs (Approach, Departure), Nodes, Intersection Points and Road Elements.
  + Delivered AEGIST Part 1 deliverables – the intersection data model that was developed
  + Discussed activities for AEGIST Part 2 during 2025 including (a) Intersection model updates (b) Local agency roads data integration and (c) road data quality evaluation
* **Tennessee [Task 2.TN.]**
  + Maintenance updates on BIM-GIS tool for updating road network data in LRS using road design files.
  + Developed and a presentation for stakeholders at TDOT to communicate the BIM-GIS data integration findings from the AEGIST project
  + Evaluated recent updates to standards, tools and practices to update recommendations on software configuration and standards use for TDOT
  + IFC Road documentation and code "What is" question-answers document to advance BIM-GIS integration at Tennessee.
  + Developed and provided final deliverable package comprising of (a) Open Roads Design prototype roadway model (b) Design Workspace Configuration File (c) ArcGIS Pro Project (d) Geo-processing Tool (e) Exported Road Inventory Shapefiles (f) Final Report (g) Presentation slidedeck
  + Delivered design files, GIS project file, BIM-GIS pilot project report and presentation slide-deck
  + Presented deliverables and accomplishments to TDOT including recommended actions for various TDOT business groups, software partners and consultants to advance BIM-GIS integration
  + Discussed activities and next steps for 2025, including technical discussions to be had with stakeholders in the FHWA pooled funds for AEGIST and BIM for Infrastructure, and with the software vendors.

Presented how AEGIST deliverables would be leveraged to advance the discussions next year with the Stakeholders

* **New Mexico [Task 2.NM.1]**
  + Created tool to address snapping issues in road centerline data.
  + Updated Intersection model geoprocessing tool to generate nodes, intersection points and road elements. Updates were made to account for NMDOT specific schema
  + Tested generated nodes, road elements and intersection points to validate that the model is created correctly.
  + Prepared New Mexico’s Intersection Data Model for delivery
* **North Dakota [Task 2.ND.1]**
  + Processed lidar data to label the points associated with roads and prepare the lidar data for training an artificial intelligence (AI) model
  + Developed a AI model using Deep Learning to extract roads from the Lidar data. Adjusted model hyperparameters to fine-tune performance of the model
* **All States: AEGIST Guidebook**
  + Completed 508 compliance checks on figures in the entire guidebook and updates to the figures to ensure that they pass the checks
  + Developed, peer-reviewed and delivered the AEGIST Guidebook for FHWA review

**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**

1. **Task 3.2: Workshops and Presentations** 
   * **IHEEP Presentation:** Why Geospatial Information Systems (GIS) are key to Building Information Modeling (BIM)?
   * **GIS-T Workshop: AEGIST**
     + Discussion with FHWA on plan and agenda for GIS-T Workshop
     + Development of GIS-T workshop description, presenters list, presenters roles and bios
     + Coordination with presenters to finalize plan for conducting the GIS-T workshop

**Task 4: Annual Meeting of the Pooled Fund States**

**Task Objective:** Conduct the annual meeting of the AEGIST pooled fund states

1. **Task 4.5: Meeting of the Pooled Fund States, Meeting 5, Arizona**
   * Conducted meeting of the AEGIST Pooled Fund States in Arizona
   * Developed and discussed the contents of the AEGIST guidebook at the meeting of the States

**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 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 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 45 - JUNE 2023 | 6/30/23 | Provided technical services to Ohio, Washington, Georgia, California, |
| Task 2\*\* | 2.38 | TASK 2 Technical Services - MONTH 45 - JUNE 2023 | 6/30/23 | Provided technical services work for Connecticut and North Carolina. |
| Task 2 | 2.39 | TASK 2 Technical Services - MONTH 46 - JULY 2023 | 7/30/23 | Provided technical services to Ohio, Washington, Georgia, California, |
| Task 2\*\* | 2.39 | TASK 2 Technical Services - MONTH 46 - JULY 2023 | 7/30/23 | Provided technical services work for Connecticut and North Carolina. |
| Task 2 | 2.40 | TASK 2 Technical Services - MONTH 47 - AUG 2023 | 8/30/23 | Provided technical services to Ohio, Washington, Georgia, California, |
| Task 2\*\* | 2.40 | TASK 2 Technical Services - MONTH 47 - AUG 2023 | 8/30/23 | Provided technical services work for Connecticut and North Carolina. |
| Task 2 | 2.41 | TASK 2 Technical Services - MONTH 48 - SEPT 2023 | 9/30/23 | Provided technical services to Ohio, Washington, Georgia, California, |
| Task 2\*\* | 2.42 | TASK 2 Technical Services - MONTH 48 - SEPT 2023 | 9/30/23 | Provided technical services work for Connecticut and North Carolina. |
| Task 2 | 2.43 | TASK 2 Technical Services – MONTH 49 – OCT 2023 | 10/30/23 | Provided technical services work for North Carolina, California, North Dakota, Massachusetts. Developed intersection model for Kansas, New Mexico and Florida. |
| Task 2 | 2.44 | TASK 2 Technical Services – MONTH 50 – NOV 2023 | 10/30/23 | Provided technical services work for North Carolina, California, North Dakota, Massachusetts. Developed intersection model for Kansas, New Mexico and Florida. |
| Task 2 | 2.45 | TASK 2 Technical Services – MONTH 51 – DEC 2023 | 10/30/23 | Provided technical services work for North Carolina, California, North Dakota, Massachusetts. Developed intersection model for Kansas, New Mexico and Florida. |
| Task 2 | 2.46 | TASK 2 Technical Services – MONTH 52 – JAN 2024 | 1/31/24 | Provided technical services work for North Carolina, California, Arizona, Kansas, North Dakota, Massachusetts. |
| Task 2 | 2.47 | TASK 2 Technical Services – MONTH 53 – FEB 2024 | 2/29/24 | Provided technical services work for North Carolina, California, Arizona, Kansas, North Dakota, Massachusetts. |
| Task 2 | 2.48 | TASK 2 Technical Services – MONTH 54 – MAR 2024 | 3/31/24 | Provided technical services work for North Carolina, California, Arizona, Kansas, North Dakota, Massachusetts. |
| Task 2 | 2.46 | TASK 2 Technical Services – MONTH 52 – APR 2024 | 4/30/24 | Technical Services to PFS States |
| Task 2 | 2.47 | TASK 2 Technical Services – MONTH 53 – MAY 2024 | 5/30/24 | Technical Services to PFS States |
| Task 2 | 2.48 | TASK 2 Technical Services – MONTH 54 – JUN 2024 | 6/30/24 | Technical Services to PFS States |
| 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 forModeling 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 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 | Meeting of the States 1 - 2019 | 12/30/19 | Completed. |
| Task 4 | 4.2.0 | Meeting of the States 2 - 2020 | 12/30/20 | Aug 25th-26th Peer Exchange Conducted. |
| Task 4 | 4.3.0 | Meeting of the States 3 – 2022 | 08/30/22 | Conducted Santa Fe Peer Exchange Meeting |
| Task 4 | 4.4.0 | Meeting of the States 4 – 2023 | 08/30/23 | Conducted Meeting of 18 States in San Diego |
| Task 4 | 4.5.0 | Meeting of the States 5 – 2024 | 09/30/24 | Conducted Meeting of 18 States in Arizona |
| 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 and 2 (CLIN 0002 and CLIN0003)