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Header 2

 List View

General Information

Contact

Default Values

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Document Information

Clarification Request

Procurement Folder: 2046246

Procurement Type: Central Master Agreement

Vendor ID: VS0000042987 

Legal Name: BUSINESS SOLUTIONS AND TECHNOLOGIES LLC

Alias/DBA:

Total Bid: \$1,666,250.00

Response Date: 09/29/2026 

Response Time: 13:08

Responded By User ID: Mike.Stockman 

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SO Doc Code: CRFQ

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Solicitation Description: AI Utility Mapping (81270011)

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Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Solicitation Response

Proc Folder: 2046246
Solicitation Description: AI Utility Mapping (81270011)
Proc Type: Central Master Agreement

Solicitation Closes	Solicitation Response	Version
2026-09-29 13:30	SR 0803 ESR09292600000003313	1

VENDOR

VS0000042987
BUSINESS SOLUTIONS AND TECHNOLOGIES LLC

Solicitation Number: CRFQ 0803 DOT2700000011

Total Bid: 1666250 **Response Date:** 2026-09-29 **Response Time:** 13:08:26

Comments:

FOR INFORMATION CONTACT THE BUYER
John W Estep
304-558-2566
john.w.estep@wv.gov

Vendor
Signature X

FEIN#

DATE

All offers subject to all terms and conditions contained in this solicitation

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	Yr 1 Enterprise SaaS Application License (Unlimited Users)				153000.00

Comm Code	Manufacturer	Specification	Model #
43230000			

Commodity Line Comments: Enterprise SaaS Application License (Unlimited Users)

Extended Description:

AI Utility Mapping
Specifications Reference 3.1

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
2	Yr 1 Standard Project Processing (Up to 200 projects max)	200.00000	EA	575.000000	115000.00

Comm Code	Manufacturer	Specification	Model #
43230000			

Commodity Line Comments: Standard Project Processing (Up to 200 projects max)

Extended Description:

AI Utility Mapping
Specifications Reference 3.1a

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
3	Yr 1 Advanced QA / Engineering Validation	50.00000	EA	970.000000	48500.00

Comm Code	Manufacturer	Specification	Model #
43230000			

Commodity Line Comments: Advanced QA / Engineering Validation (Up to 50 projects max)

Extended Description:

AI Utility Mapping
Specifications Reference 3.1b

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
4	Yr 1 Dedicated Consulting & Research Hours	50.00000	HOUR	250.000000	12500.00

Comm Code	Manufacturer	Specification	Model #
43230000			

Commodity Line Comments: Dedicated Consulting & Research Hours

Extended Description:

AI Utility Mapping
Specifications Reference 3.2.1

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
5	Yr 1 Onboarding & Training Sessions	10.00000	EA	675.000000	6750.00

Comm Code	Manufacturer	Specification	Model #
43232502			

Commodity Line Comments: Onboarding & Training Sessions

Extended Description:

AI Utility Mapping
Specifications Reference 3.2.2

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
6	Yr 2 Enterprise SaaS Application License (Unlimited Users)				153000.00

Comm Code	Manufacturer	Specification	Model #
43230000			

Commodity Line Comments: Enterprise SaaS Application License (Unlimited Users)

Extended Description:

AI Utility Mapping
Specifications Reference 3.1
Optional Renewal Year 2

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
7	Yr 2 Standard Project Processing	200.00000	EA	575.000000	115000.00

Comm Code	Manufacturer	Specification	Model #
43230000			

Commodity Line Comments: Standard Project Processing (Up to 200 projects max)

Extended Description:

AI Utility Mapping
Specifications Reference 3.1a
Optional Renewal Year 2

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
8	Yr 2 Advanced QA / Engineering Validation	50.00000	EA	970.000000	48500.00

Comm Code	Manufacturer	Specification	Model #
43230000			

Commodity Line Comments: Advanced QA / Engineering Validation (Up to 50 projects max)

Extended Description:

AI Utility Mapping
Specifications Reference 3.1b
Optional Renewal Year 2

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
9	Yr 2 Dedicated Consulting & Research Hours	50.00000	HOUR	250.000000	12500.00

Comm Code	Manufacturer	Specification	Model #
43230000			

Commodity Line Comments: Dedicated Consulting & Research Hours

Extended Description:

AI Utility Mapping
Specifications Reference 3.2.1
Optional Renewal Year 2

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
10	Yr 2 Onboarding & Training Sessions	10.00000	EA	675.000000	6750.00

Comm Code	Manufacturer	Specification	Model #
43232502			

Commodity Line Comments: Onboarding & Training Sessions

Extended Description:

AI Utility Mapping
Specifications Reference 3.2.2
Optional Renewal Year 2

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
11	Yr 3 Enterprise SaaS Application License (Unlimited Users)				153000.00

Comm Code	Manufacturer	Specification	Model #
43230000			

Commodity Line Comments:

Extended Description:

AI Utility Mapping
Specifications Reference 3.1
Optional Renewal Year 3

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
12	Yr 3 Standard Project Processing (Up to 200 projects max)	200.00000	EA	575.000000	115000.00

Comm Code	Manufacturer	Specification	Model #
43230000			

Commodity Line Comments:

Extended Description:

AI Utility Mapping
Specifications Reference 3.1a
Optional Renewal Year 3

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
13	Yr 3 Advanced QA / Engineering Validation - max 50 proj	50.00000	EA	970.000000	48500.00

Comm Code	Manufacturer	Specification	Model #
43230000			

Commodity Line Comments:

Extended Description:

AI Utility Mapping
Specifications Reference 3.1b
Optional Renewal Year 3

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
14	Yr 3 Dedicated Consulting & Research Hours	50.00000	HOUR	250.000000	12500.00

Comm Code	Manufacturer	Specification	Model #
43230000			

Commodity Line Comments:

Extended Description:

AI Utility Mapping
Specifications Reference 3.2.1
Optional Renewal Year 3

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
15	Yr 3 Onboarding & Training Sessions	10.00000	EA	675.000000	6750.00

Comm Code	Manufacturer	Specification	Model #
43232502			

Commodity Line Comments:

Extended Description:

AI Utility Mapping
Specifications Reference 3.2.2
Optional Renewal Year 3

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
16	Yr 4 Enterprise SaaS Application License (Unlimited Users)				153000.00

Comm Code	Manufacturer	Specification	Model #
43230000			

Commodity Line Comments:

Extended Description:

AI Utility Mapping
Specifications Reference 3.1
Optional Renewal Year 4

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
17	Yr 4 Standard Project Processing (Up to 200 projects max)	200.00000	EA	575.000000	115000.00

Comm Code	Manufacturer	Specification	Model #
43230000			

Commodity Line Comments:

Extended Description:

AI Utility Mapping
Specifications Reference 3.1a
Optional Renewal Year 4

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
18	Yr 4 Advanced QA / Engineering Validation - max 50 proj	50.00000	EA	970.000000	48500.00

Comm Code	Manufacturer	Specification	Model #
43230000			

Commodity Line Comments:

Extended Description:

AI Utility Mapping
Specifications Reference 3.1b
Optional Renewal Year 4

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
19	Yr 4 Dedicated Consulting & Research Hours	0.00000	HOUR	250.000000	0.00

Comm Code	Manufacturer	Specification	Model #
43230000			

Commodity Line Comments:

Extended Description:

AI Utility Mapping
Specifications Reference 3.2.1
Optional Renewal Year 4

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
20	Yr 4 Onboarding & Training Sessions	10.00000	EA	675.000000	6750.00

Comm Code	Manufacturer	Specification	Model #
43232502			

Commodity Line Comments:

Extended Description:

AI Utility Mapping
Specifications Reference 3.2.2
Optional Renewal Year 4

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
21	Yr 5 Enterprise SaaS Application License (Unlimited Users)				153000.00

Comm Code	Manufacturer	Specification	Model #
43230000			

Commodity Line Comments:

Extended Description:

AI Utility Mapping
Specifications Reference 3.1
Optional Renewal Year 5

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
22	Yr 5 Standard Project Processing (Up to 200 projects max)	200.00000	EA	575.000000	115000.00

Comm Code	Manufacturer	Specification	Model #
43230000			

Commodity Line Comments:

Extended Description:

AI Utility Mapping
Specifications Reference 3.1a
Optional Renewal Year 5

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
23	Yr 5 Advanced QA / Engineering Validation - max 50 proj	50.00000	EA	970.000000	48500.00

Comm Code	Manufacturer	Specification	Model #
43230000			

Commodity Line Comments:

Extended Description:
 AI Utility Mapping
 Specifications Reference 3.1b
 Optional Renewal Year 5

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
24	Yr 5 Dedicated Consulting & Research Hours	50.00000	HOUR	250.000000	12500.00

Comm Code	Manufacturer	Specification	Model #
43230000			

Commodity Line Comments:

Extended Description:
 AI Utility Mapping
 Specifications Reference 3.2.1
 Optional Renewal Year 5

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
25	Yr 5 Onboarding & Training Sessions	10.00000	EA	675.000000	6750.00

Comm Code	Manufacturer	Specification	Model #
43232502			

Commodity Line Comments:

Extended Description:
 AI Utility Mapping
 Specifications Reference 3.2.2
 Optional Renewal Year 5

EXHIBIT A - PRICING PAGE
LOCATION - BUILDING 5, ROOM A-720 CHARLESTON, WV 25305
81270011 AI Utility Mapping

Specifications Reference	Description	Unit of Measure	Quantity	Unit Cost	Extended Price Total	Year 2	Year 3	Year 4	Year 5
3.1	Enterprise SaaS Application License (Unlimited Users)	Year	1	\$153,000.00	\$153,000.00	\$ 153,000.00	\$ 153,000.00	\$ 153,000.00	\$ 153,000.00
3.1a	Standard Project Processing (Up to 200 projects max)	Project	200	\$575.00	\$115,000.00	\$ 115,000.00	\$ 115,000.00	\$ 115,000.00	\$ 115,000.00
3.1b	Advanced QA / Engineering Validation (Up to 50 projects max)	Project	50	\$970.00	\$48,500.00	\$ 48,500.00	\$ 48,500.00	\$ 48,500.00	\$ 48,500.00
3.2.1	Dedicated Consulting & Research Hours	Hour	50	\$250.00	\$12,500.00	\$ 12,500.00	\$ 12,500.00	\$ 12,500.00	\$ 12,500.00
3.2.2	Onboarding & Training Sessions	Sessions	10	\$675.00	\$6,750.00	\$ 6,750.00	\$ 6,750.00	\$ 6,750.00	\$ 6,750.00
\$335,750.00						\$335,750.00	\$335,750.00	\$335,750.00	\$335,750.00

The Pricing Pages contain a list of the Contract Items and quantities to be purchased.
All quantities are estimated and can be more or less

Vendor Signature

\$765,000.00
\$575,000.00
\$242,500.00
\$62,500.00
\$33,750.00
\$1,678,750.00



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
Artificial Intelligence (AI) for Utility Mapping
TECHNICAL RESPONSE
KnowledgeView Utility Intelligence Platform

Solicitation No.	CRFQ 0803 DOT2700000011
Procurement Description	AI Utility Mapping (81270011)
Prepared For	West Virginia Department of Transportation
Prepared By	Business Solutions and Technologies, LLC dba BizSolutions.Tech
Address	One Creative Place, Charleston, WV 25311
Principal Contact	Mike Stockman, Founder and CEO
Phone	+1 602-434-1596
Email	mike.stockman@bizsolutions.tech
Proposal Date	September 2026

This technical response supplements the State-required CRFQ forms, pricing pages, certifications, signatures, and acknowledgements.

Cover Letter

Dear Evaluation Committee Members,

BizSolutions.Tech is pleased to submit this technical response to CRFQ 0803 DOT2700000011 for the West Virginia Department of Transportation's Artificial Intelligence (AI) for Utility Mapping pilot. We propose KnowledgeView as a secure, browser-based Utility Intelligence Platform combining geospatial processing, document intelligence, evidence-grounded AI, workflow orchestration, and qualified human review. The mandatory mapping and advanced-QA services will be available at activation; subsequent onboarding and configuration will support WVDOT adoption without deferring those services.

Our approach builds on the KnowledgeView foundation for complex West Virginia public-sector workflows, configured for transportation utility mapping. The core includes cloud-native workflow, GIS ingestion and spatial analysis, RAG/GraphRAG, document processing, human-in-the-loop controls, auditability, identity/security controls, and operational monitoring. The proposed WVDOT service includes the Utility Intelligence module for multi-source utility correlation, ASCE 38-22-aligned evidence handling, utility conflicts, project-level mapping, and advanced QA.

KnowledgeView is designed as a decision-support environment. AI-generated locations, relationships, confidence indicators, and quality recommendations are presented with supporting evidence; they do not replace required physical field verification or authorized engineering judgment. This preserves the boundary required by the solicitation while allowing WVDOT to measure the practical efficiency and effectiveness of AI-assisted utility mapping during early design.

BizSolutions.Tech is a Charleston, West Virginia-based, veteran-owned technology firm with deep experience in enterprise workflow, integration, intelligent systems, training, cloud architecture, and governed AI. We welcome the opportunity to help WVDOT establish a practical, measurable, and defensible AI utility-mapping capability.

Sincerely,

Mike Stockman

Founder and CEO

Business Solutions and Technologies, LLC dba BizSolutions.Tech

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1. Executive Summary

WVDOT is seeking a cloud-based SaaS application that uses artificial intelligence to support utility mapping across transportation design projects. The pilot must support unlimited WVDOT users, process up to 200 projects per contract year with up to 50 of those receiving advanced QA, align outputs with ASCE 38-22 Quality Levels, and preserve physical field verification. Standard processing and designated advanced QA each have a five-business-day turnaround following WVDOT project submission, as specified in Addendum 1 Q7 and Q26.

Proposed Solution

Provide the KnowledgeView governed-AI platform as a WVDOT tenant with its Utility Intelligence module. The service correlates project, GIS, survey, plan, utility, and supporting evidence; proposes candidate utility features; records provenance, confidence, conflicts, and ASCE-related evidence; and routes results through human review and designated advanced QA before an approved mapping package is delivered.

The response distinguishes the required service available at activation from WVDOT-specific onboarding, configuration, and ongoing calibration. Utility mapping, evidence handling, standard review, and advanced QA form part of the required service. Project-specific configuration will not defer mandatory functionality or the required delivery times.

Layer	What WVDOT Receives
Reusable KnowledgeView Core	Cloud-native SaaS, workflow orchestration, web portal, document intelligence, RAG/GraphRAG, GIS/PostGIS, HITL, audit logging, security, monitoring.
WVDOT Configuration	Tenant/project model, WVDOT identity, project quotas, utility data adapters, contract reporting, pilot metrics, training, support workflows, State AI-policy controls.
WVDOT Utility Intelligence	Canonical utility data model, Utility Intelligence Engine, ASCE 38-22 evidence service, conflict engine, Utility Map/QA Workspace, and Advanced QA workflow available for the contracted service.

1.1 Solution Principles

- AI assists; WVDOT and qualified engineering personnel retain decision authority.
- Every mapped candidate is traceable to source evidence, collection context, and provenance.
- ASCE 38-22 quality designation support is evidence-based and subject to human/engineering validation.
- AI confidence is tracked separately from ASCE quality designation; confidence does not create a higher quality level.
- Physical field verification remains authoritative where required.
- State data is isolated from model training, fine-tuning, cross-customer learning, and unauthorized retention.
- Every material AI or human action is recorded in an auditable decision record.
- The pilot is measured quantitatively so WVDOT can determine whether AI improves time, quality, and cost during early design.

2. Understanding of the WVDOT Requirement

This procurement is not a general-purpose chatbot or a permitting automation project. It is an open-end WVDOT pilot intended to evaluate AI-assisted mapping of underground and above-ground utilities for transportation design projects. The business value is early visibility: helping project teams assemble, correlate, and review available utility evidence earlier in design while preserving engineering and field-verification authority.

2.1 Mandatory Operational Outcomes

- Cloud-based SaaS accessible through standard web browsers without unauthorized desktop software or plug-ins.
- Enterprise subscription supporting an unlimited number of WVDOT users without per-user seat fees.
- Capacity to manage and process up to 200 design projects per contract year, each covering up to 10 acres defined by GPS coordinates or KMZ.

- Advanced higher-level QA review for up to 50 WVDOT-designated projects from that standard-project population; technical/SME review is acceptable under Addendum 1 Q5 and Q27.
- AI-assisted mapping of both underground and above-ground utilities.
- Five-business-day delivery for standard processing and designated advanced QA following WVDOT submission; REST integration and approved secure FTP exchange for standard design files.
- Mapping outputs that maintain alignment with ASCE 38-22 Quality Levels.
- Ongoing maintenance, updates, technical support, onboarding, recorded/virtual training, and utility-mapping research/consulting.
- Protection of WVDOT project, GIS, infrastructure, and related data under State/WVOT requirements.
- Compliance with current and future West Virginia State AI policies.
- State ownership of data and explicit prohibition on using WVDOT data to train, fine-tune, or refine commercial or third-party AI models.

2.2 Decision-Support Boundary

KnowledgeView will not represent AI-generated geometry as field-verified truth. The platform will distinguish candidate geometry, corroborated evidence, engineering validation, and physical verification states. This distinction is central to the solution design and is visible in the user interface, exports, and audit record.

EVIDENCE TO APPROVED OUTPUT

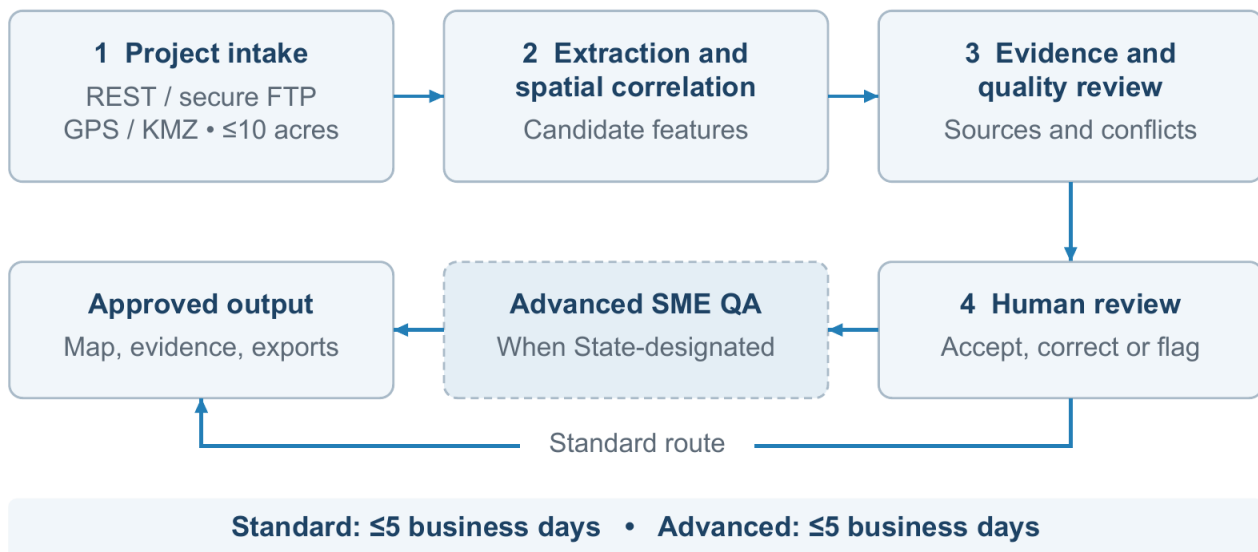


Figure 1. Proposed project delivery workflow. Both standard processing and designated advanced QA meet the applicable five-business-day deadline; the QA branch does not add a further five days.

3. About BizSolutions.Tech

Business Solutions and Technologies, LLC dba BizSolutions.Tech is a Charleston, West Virginia-based, veteran-owned technology consulting firm. We bring decades of experience in intelligent systems, enterprise workflow platforms, solution architecture, integration, cloud delivery, software implementation, and technical training.

Our delivery model combines architecture and hands-on implementation with practical enablement. For WVDOT, BizSolutions.Tech will provide the KnowledgeView SaaS platform, cloud and AI architecture, workflow configuration, GIS/data engineering, security controls, pilot analytics, training, and program governance. Advanced utility-engineering QA will be performed by appropriately qualified transportation utility/SUE engineering resources assigned to the engagement.

3.1 WVDOT-Relevant Strengths

- West Virginia-based delivery and executive accountability.
- Veteran-owned small-business perspective and onshore delivery model.

- Enterprise workflow architecture, implementation, integration, and training experience.
- AI/RAG/agentic-system design with explicit human-in-the-loop governance.
- Cloud-native AWS architecture and security-control implementation.
- GIS ingestion, spatial data normalization, PostGIS, evidence visualization, and reviewer workflows.
- Ability to configure KnowledgeView around WVDOT process, data, security, and pilot-measurement requirements rather than forcing a generic product workflow.

4. KnowledgeView Platform Foundation

KnowledgeView is BizSolutions.Tech's governed AI workflow platform for complex, evidence-intensive work. It embeds AI services inside controlled workflows so that models can extract, retrieve, correlate, summarize, and recommend while human reviewers retain control over consequential actions.

Core Capability	Reusable WVDOT Foundation
Workflow Orchestration	Multi-stage project processing, queues, approvals, exception paths, event-driven processing.
Document Intelligence	PDF/plan-document ingestion, extraction, classification, metadata, evidence linking.
RAG / GraphRAG	Source-grounded retrieval and relationship mapping across projects, owners, documents, records, and features.
GIS / Geospatial	GIS file ingestion, coordinate normalization, PostGIS, spatial overlays, map visualization, spatial evidence.
Human-in-the-Loop	Mandatory review gates, overrides, comments, approval history, escalation to specialized reviewers.
AI Decision Records	Source references, extracted facts, confidence, validation results, model/version metadata, reviewer actions.
Security / Operations	Identity/RBAC, encryption, secrets, logging, monitoring, web application protection, backup/DR controls.
Usage / Analytics	Processing metrics, workflow volume, AI usage, reviewer effort, cost-control and pilot-measurement data.

4.1 Existing GIS Capability Reused for WVDOT

The KnowledgeView GIS layer supports GIS file ingestion, coordinate normalization, spatial storage, map visualization, external data correlation, spatial validation, and reviewer evidence workflows. WVDOT configuration applies these capabilities to the utility-specific information model and approved coordinate reference systems.

5. WVDOT Configuration and Service Readiness

Requirement	Treatment	KnowledgeView Response
SaaS tenant and project model	Configure	WVDOT tenant, project workspace, project numbering, role model, processing quotas, archival rules.
Unlimited users	Configure	Enterprise identity model without per-seat entitlement; role-based access controls remain enforced.
WVDOT/WVOT identity	Configure	SAML/OIDC integration with the State-approved identity provider and MFA.
200-project annual capacity	Configure	Project quotas, concurrency controls, processing metrics, capacity alarms, queue scaling.
Utility feature data model	Service	Canonical model for geometry, owner, type, elevation/depth, source, date, method, quality, confidence, conflicts, verification, and provenance.
AI-assisted utility mapping	Service	Utility Intelligence Engine for extraction, spatial correlation, candidate generation, conflict detection, and evidence packaging.
ASCE 38-22 evidence	Service	Quality/evidence service with approved criteria and qualified human review; unsupported methods remain unverified.
Advanced QA up to 50 projects	Service	Advanced QA queue, evidence package, review record, and qualified utility SME review for up to 50 of the standard projects.

Requirement	Treatment	KnowledgeView Response
Utility research / consulting	Configure	Research workspace, source registry, external/public data adapters where authorized, findings and evidence records.
Security and SaaS Addendum	Configure	Compliance plane, data residency, incident workflow, access-log export, retention/deletion, change notices, evidence repository.
No-training AI controls	Configure	Approved Model Gateway enforcing training/retention policies and provider/model registry.
Quarterly/annual reporting	Configure	Contract-unit dashboard for projects, advanced QA, consulting hours, training sessions, plus pilot KPIs.
72-hour activation	Activate	Following confirmed delivery order and completion of WVOT cloud/security review, fully activate the mandatory service, administrative access, and unlimited-user subscription within 72 hours.

Service readiness

The WVDOT service uses the KnowledgeView workflow, evidence, security, GIS, and operational foundation. Mandatory mapping and advanced-QA functionality will be available at activation. Later configuration, onboarding, and calibration do not postpone the required service or its delivery deadlines.

6. Proposed Utility Intelligence Solution

6.1 Project Workspace and Intake

Each design project receives a governed workspace containing project metadata, source datasets, utility owners, uploaded plans, GIS layers, evidence, candidate features, reviewer assignments, QA status, and final exports. WVDOT supplies the project area as GPS coordinates or KMZ, covering up to 10 acres. Templates can be configured by design program, district, project type, or corridor. Submission time and the applicable five-business-day delivery deadline are recorded at intake.

WVDOT
Utility Intelligence

Projects
Manage transportation projects and utility mapping activities.

Notifications WVDOT User

Transportation Projects
View and manage projects submitted for utility mapping and engineering analysis.

+ New Project

Search project number, name, county, or manager All Statuses All Districts All QA Status

Showing 7 of 7 projects

Project Number	Project Name	District	County	Manager	Phase	Status	QA
DOT-2027-041	I-64 Corridor Utility Improvements	District 1	Kanawha	Sarah Jones	60% Design	QA Review	Re
DOT-2027-042	US-119 Road Widening	District 1	Boone	Michael Smith	30% Design	AI Processing	Re
DOT-2027-043	Bridge 221 Replacement	District 2	Putnam	Robert Davis	Preliminary	QA Review	Re
DOT-2027-044	WV Route 10 Improvements	District 2	Lincoln	Amanda Hall	90% Design	Data Collection	Co

WVDOT User
Project Manager

Figure 2. KnowledgeView Projects screen showing project search, status/district/QA filters, and transportation-project records. The screen supports project intake and workload navigation.

6.2 Utility Data Ingestion Layer

KnowledgeView will use a server-side ingestion pipeline accessible through a standard browser, provide REST API integration with State GIS repositories, and support standard design-file exchange through the State-approved secure FTP arrangement. Authorized GIS layers, utility-owner records, surveys, plans, as-built drawings, PDFs, georeferenced imagery, external datasets, and field-verification results can supplement the project evidence. Onboarding confirms endpoint credentials, formats, schemas, and coordinate systems; it does not defer the amended integration requirements.

- Uploaded content is assigned project, source, date, owner, coordinate-system, and provenance metadata.
- Spatial data is normalized to WVDOT-approved coordinate reference systems before correlation.
- Original source files are retained as evidence; normalized representations are derived without overwriting the original.
- Ingestion errors, unsupported formats, missing coordinate metadata, and low-quality source documents are surfaced for human resolution.

6.3 Canonical Utility Data Model

Attribute Group	Representative Fields
Identity	Project, feature/segment ID, utility type, owner/operator.
Spatial	Geometry, coordinates, elevations/depth when supported by source evidence, coordinate reference system, and units; unavailable values explicitly marked unknown.
Evidence	Source, date, document reference, documented collection/detection method, and supporting links; inferred methods identified separately as unverified.
Quality	ASCE-related quality designation/status, evidence sufficiency, validation state.
AI	Candidate-generation method, AI confidence/corroborator score, model/version metadata.
Review	Conflict status, reviewer, review date, engineering QA status, override/reason.
Verification	Physical/field verification status and reference, where available.
Provenance	Complete lineage from source evidence through derived feature and approved output.

6.4 Utility Intelligence Engine

The Utility Intelligence Engine combines document extraction, geospatial analysis, utility-record correlation, feature detection, conflict detection, and approved historical/external research to create candidate utility features with supporting evidence. It is part of the mandatory service available at activation.

- Extract utility references, dimensions, labels, owner names, station/offset references, and other configurable attributes from source documents.
- Correlate documentary evidence with GIS/survey geometry and project context.
- Identify candidate relationships between utility segments, owners, plan sheets, survey observations, and field records.
- Flag contradictory locations, attributes, or quality evidence rather than silently selecting one source.
- Generate a reviewer-ready evidence package explaining what sources caused the system to propose a location or relationship.

6.5 Multi-Source GraphRAG Correlation

GraphRAG is used to represent relationships that are difficult to preserve in flat search results. A WVDOT transportation project can be linked to utility owners, records, plan sheets, surveys, GIS features, field observations, utility segments, review findings, and final approved outputs. This allows KnowledgeView to identify corroboration as well as contradictions.

Example Conflict

A plan sheet shows a water line at one location, a GIS layer places it elsewhere, and a survey record indicates a third location. KnowledgeView records the conflict, preserves all three sources, lowers confidence/corroboration as configured, and routes the feature to a Utility Conflict / Evidence Review task instead of manufacturing a single authoritative answer.

6.6 ASCE 38-22 Quality / Evidence Service

KnowledgeView supports WVDOT's ASCE 38-22 alignment requirement by storing evidence, documented collection method, quality designation/status, validation state, and reviewer approval for each utility feature or segment. Inferred methods are recorded separately as unverified hypotheses. Unknown or unsupported evidence remains insufficient and cannot support a higher quality designation. A model confidence score cannot elevate a quality level.

QUALITY STATUS FOLLOWS EVIDENCE

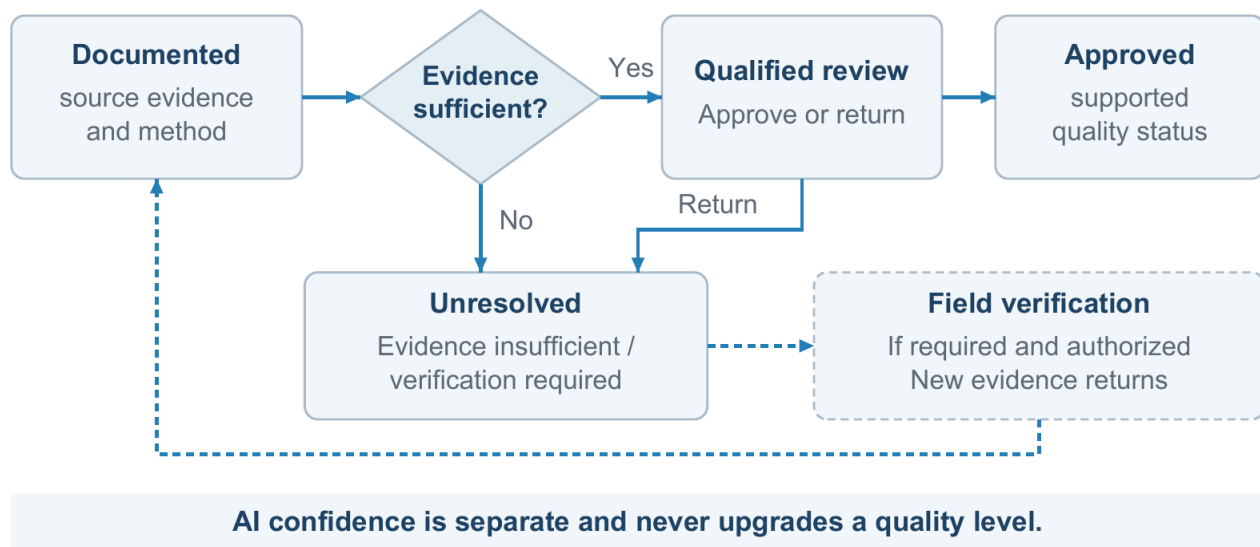


Figure 3. Proposed quality and evidence decision flow. Qualified review establishes the documented quality status; AI confidence remains a separate indicator, and required field verification remains authoritative.

Quality Level vs. AI Confidence

An ASCE 38-22 Quality Level is an engineering/evidence designation. AI confidence is a separate system indicator describing how strongly available sources corroborate a candidate finding or how certain an extraction/correlation is. A high AI confidence score does not replace the evidence and engineering steps needed for a quality designation.

6.7 Human Review and Field-Verification Boundary

Every standard project includes a vendor human-review step before delivery. WVDOT retains its acceptance and engineering decision authority. Physical verification results, when available, are linked to the candidate feature and evidence record. Workflow calibration and measurement will not use State data to train, fine-tune, or refine commercial or third-party AI models.

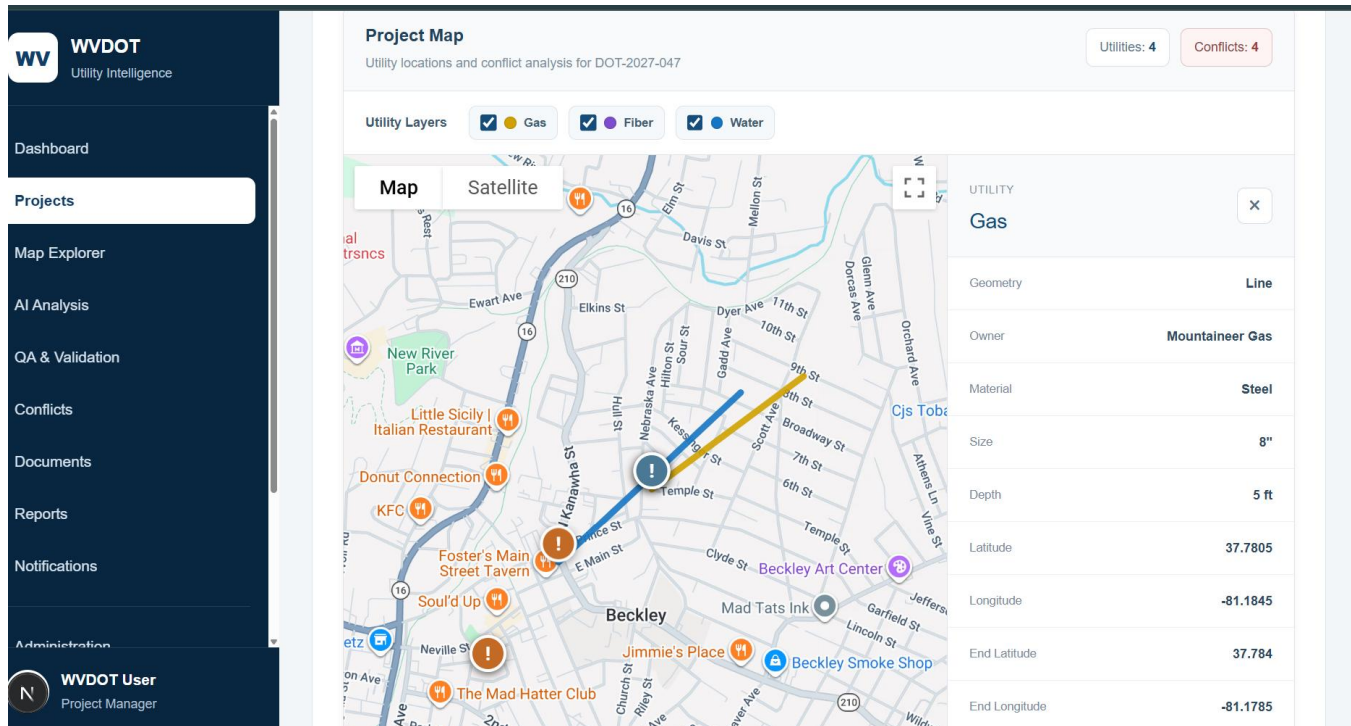


Figure 4. KnowledgeView Project Map showing gas, fiber, and water layers, conflict markers, and selected utility attributes. Displayed locations and depth remain subject to the evidence-review and field-verification requirements described above.

6.8 Advanced Engineering QA - Up to 50 Projects

Up to 50 WVDOT-designated projects from the annual standard-project population will enter the Advanced QA workflow. BizSolutions.Tech will assign an appropriately qualified utility technical/SME reviewer or subcontractor, with any licensure required for the specific work. Standard processing and designated advanced QA will each be delivered within five business days following WVDOT project submission. The advanced-QA path does not create an additional five-day extension. Capacity monitoring, backup coverage, and escalation protect this commitment.

- AI-generated utility map and candidate feature list.
- Source evidence and provenance.
- ASCE-related quality evidence and current validation state.
- Utility conflicts and low-corroboration findings.
- Source documents, GIS overlays, and prior reviewer actions.
- Field-verification information when available.
- Engineering disposition, corrections, limitations, approval, reviewer identity, and date.

The result is an Engineering QA Record linked to the project and retained with the approved mapping package. WVDOT may also configure automatic recommendations for advanced QA based on conflicts, low corroboration, design-critical proximity, or material human overrides; WVDOT remains free to designate any project directly.

6.9 Utility Mapping Research and Consulting

KnowledgeView will provide a research workspace for authorized users and consulting personnel to evaluate source coverage, data quality, utility-owner information, mapping discrepancies, processing methods, and pilot effectiveness. Research results will retain citations/provenance and can be attached to a project or pilot-wide finding.

The estimated pricing quantity is 50 consulting/research hours in each contract year, including Year 4 under Addendum 1 Q12. BizSolutions.Tech will prepare a statement of work identifying tasks, deliverables, hours, schedule, and acceptance criteria before the corresponding Agency Delivery Order under the master agreement. Actual quantities and optional renewals are not guaranteed.

7. Technical Architecture

The proposed KnowledgeView architecture uses AWS services within a governed application boundary. It supports elastic processing, evidence lineage, security telemetry, and browser access. The diagram identifies the service and data boundaries; actual service/region configuration and control evidence form part of the State security review.

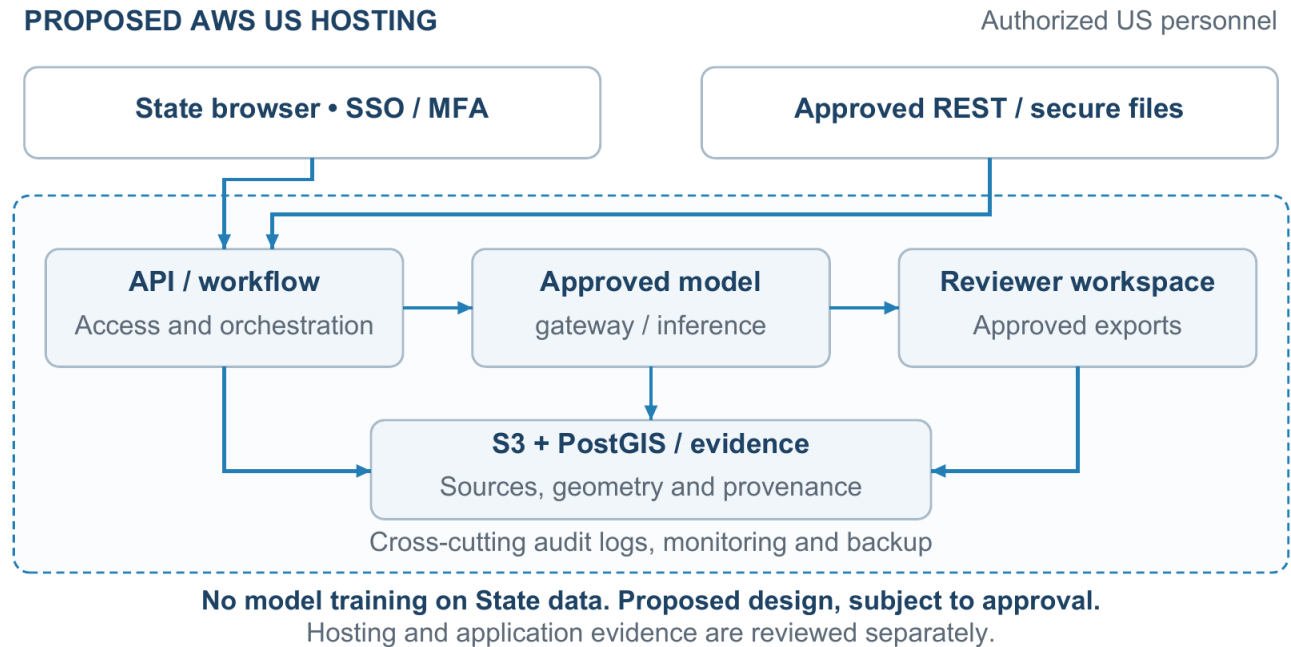


Figure 5. Proposed architecture and data boundaries. Hosting assurance and KnowledgeView application controls are documented separately; the diagram does not represent completed State authorization or certification.

Architecture Layer	Key Components
Experience Layer	WVDOT Portal, Project Workspace, Utility Map Viewer, Evidence/Conflict Review, Engineering QA Workspace, Admin/Contract Dashboard.
Identity & Access	State-approved SSO/MFA, RBAC, project/role authorization, administrative access controls.
API & Workflow	API Gateway, Lambda-based services, Step Functions, EventBridge, queue/event processing, workflow state controls.
Utility Intelligence	Document extraction, utility correlation, candidate feature generation, conflict detection, research adapters.
AI / Knowledge	Approved Model Gateway, RAG, GraphRAG, source registry, prompt/policy/version controls.
Geospatial	GIS ingestion, coordinate normalization, PostgreSQL/PostGIS, spatial queries, overlays, geometry/evidence services.
Evidence & QA	ASCE quality/evidence service, AI Decision Records, HITL tasks, Engineering QA records.
Data Services	S3 object storage, PostgreSQL/PostGIS, OpenSearch/vector/search services, metadata and audit stores.
Security & Operations	KMS encryption, secrets management, IAM, WAF, CloudTrail, CloudWatch, backup/DR, vulnerability and incident workflows.

7.1 Logical Processing Flow

Figure 1 shows the delivery sequence and the optional advanced-QA branch. Every delivered feature remains linked to its source evidence, quality basis, reviewer disposition, and unresolved limitations. Vendor review precedes delivery; WVDOT retains acceptance authority. Intake validation, exception handling, and queue monitoring support the five-business-day commitments without an automatic pause for incomplete inputs.

7.2 Browser-Only User Experience

All normal user and administrator workflows will be delivered through standard web interfaces. Specialized source files are processed server-side after upload or through approved integrations; WVDOT users will not be required to install unauthorized browser plug-ins or desktop software to use KnowledgeView.

7.3 Accessibility

User-facing components will meet applicable Section 508 requirements at activation and will be tested and maintained for accessibility. The Utility Map Viewer will be paired with accessible tabular/search views of utility features, evidence, conflicts, status, and reviewer actions so critical information is not available only through a map. Actual accessibility findings and remediation evidence will be supplied for State review as required.

8. Security, Privacy, AI Governance, and SaaS Addendum Alignment

WVDOT project, GIS, and infrastructure data require explicit operational controls beyond application functionality. KnowledgeView will include a WVDOT Compliance Plane that operationalizes the State SaaS Addendum and State AI-policy requirements.

Control Area	KnowledgeView / BizSolutions.Tech Approach
Identity / MFA	Integrate with WVDOT/WVOT-approved third-party identity provider; enforce MFA and least-privilege RBAC.
Encryption	Encrypt all State data at rest and in transit. Document the cryptographic modules/endpoints and applicable validation standard accepted by WVOT, including FIPS 140-3 for personal data where the current DPA applies.
U.S. Data Residency	Keep State data storage, processing, backups, and model routing in approved U.S. locations, with authorized U.S.-based personnel access. Enforce the applicable remote-access, portable-device, and local-storage restrictions.
Security Logging	Capture user access success/failure, source IP, access history, security events, administrative changes, and data-access events.
CSV Reporting	Provide agreed access/security reports in CSV format; retain source logs for audit support.
Incident Notification	Report confirmed security incidents as soon as practicable and no later than 24 hours after awareness; immediately report discovery of a breach or unauthorized access to non-public data using State-designated channels.
Breach Follow-up	Cooperate immediately and provide the required known personal-data breach details within 72 hours of discovery. Supply the employee security contact and 24x7 coverage immediately after award.
Secure Deletion	Return/export State data, perform NIST-approved deletion when authorized, and provide destruction certification.
Change Notice	Provide 30-day advance notice for upgrades/system changes that may affect availability or performance.
BC/DR	Maintain business-continuity/disaster-recovery plan and operational monitoring; provide executive summary on request.
Personnel / Subcontractors	Background-check process, NDAs, separation of duties, least knowledge, security training, and flow-down of applicable SaaS terms.
Accessibility	Section 508-compliant user interfaces at activation, with accessible alternatives for geospatial data and actual testing/remediation evidence for State review.

8.1 Explicit AI Data Isolation and No-Training Controls

WVDOT infrastructure, GIS, and project data will be used only to perform the contracted service. KnowledgeView will enforce an Approved Model Gateway so model endpoints are registered and validated before use.

- No training of commercial or third-party models using WVDOT data.
- No use of WVDOT data to train, fine-tune, or refine commercial or third-party AI models.
- No cross-customer learning or use of WVDOT content to improve another customer's system.
- No provider retention beyond approved operational requirements for eligible model endpoints.
- Inference-only processing through approved endpoints with documented provider, model, region, retention policy, training policy, security approval, model version, and effective dates.

- Material model, prompt, guardrail, or routing changes follow change control, validation, and audit logging.

8.2 AI Decision Records and Explainability

For material mapping recommendations, KnowledgeView will record the task context, source references, extracted facts, spatial evidence, rules/checks applied, candidate geometry, confidence/corroboration, quality evidence, model/version metadata, human corrections, approvals, and final disposition. The audit record is designed to explain and defend the decision process without exposing raw internal model chain-of-thought.

8.3 State AI Policy Change Management

KnowledgeView will maintain a policy/control registry for West Virginia AI requirements. When the State publishes a new or revised AI policy, BizSolutions.Tech will assess impact, map the change to platform controls, test required configuration changes, obtain WVDOT approval where appropriate, and retain evidence of the production change.

8.4 SaaS Assurance Evidence

BizSolutions.Tech will complete and submit the required CAIQ before award and maintain the required annual evidence. We will identify the applicable AWS annual SOC 2 report, service/region scope, and reporting period, and provide KnowledgeView application-control and operating evidence separately. Any proposed equivalent and the combined evidence scope remain subject to State acceptance. AWS hosting assurance does not establish a SOC 2 examination or FedRAMP authorization for KnowledgeView or BizSolutions.Tech.

The solicitation includes the 2019 Cloud SaaS Addendum; the current WVOT policy library lists the February 2026 Data Protection Addendum as its replacement. We will reconcile the applicable form and controls with WVOT through the authorized procurement process and preserve the solicitation obligations. The evidence package will address data/access locations, encryption, identity, application testing and remediation, accessibility, recovery, and required authorization before production use of State data.

Security Evidence Handling

Certain cloud-provider audit packages are distributed under confidentiality restrictions. BizSolutions.Tech will make permitted evidence available to the State through the appropriate confidential review process rather than reproducing restricted audit content in a public bid package.

9. Data Ownership, Retention, Export, and Exit

All WVDOT data and outputs derived from WVDOT data remain State property. KnowledgeView will separate State data by tenant/project, restrict access to authorized purposes, and support export and disposal throughout the contract lifecycle.

- Secure import and export in agreed standard formats, in whole or in part.
- Project outputs will state utility quality designation/status, utility type, coordinates/elevations, and detection/location method with source provenance and review information. Unknown elevation or unsupported attributes will be explicitly identified. Exports include agreed standard data/report formats; CAD files will follow WVDOH CAD Standards. Onboarding confirms coordinate systems, units, schemas, and delivery formats.
- Exportable access logs, security logs, AI Decision Records, engineering QA records, reviewer actions, and approval history.
- Data and outputs will be available long-term to WVDOT Right Of Way through a securely protected central repository and State-controlled exports. Access, repository ownership, and preservation/transition arrangements will be documented across renewals and exit.
- Orderly return of State data at contract termination or transition.
- No intentional deletion during required suspension/termination preservation periods.
- Where no return time/format is agreed, apply the addendum default preservation periods: 10 days after contract-period expiry, 30 days after convenience termination, or 60 days after termination for cause, subject to the contract conditions and legal preservation duties.
- Permanent deletion using NIST-approved methods after State-approved return/retention requirements are satisfied.
- Certificate of destruction when required by the SaaS Addendum.

- Notify the State of legal requests involving its data before responding, unless notification is prohibited by law.

10. Scalability, Browser Access, Unlimited Users, and 72-Hour Activation

10.1 Unlimited User Subscription

KnowledgeView will be licensed to WVDOT as an enterprise SaaS subscription without per-user seat fees. Individual accounts and service identities remain controlled through RBAC, SSO/MFA, and audit logging, but the commercial subscription will not impose a seat count.

10.2 Capacity for 200 Projects per Contract Year

Serverless workflow execution and elastic data services allow project processing to scale independently from user count. WVDOT-specific capacity controls will track project intake, processing queues, storage, workflow duration, failed jobs, concurrency, and advanced QA volume.

- Annual project quota and forecast dashboard.
- Queue/concurrency monitoring and capacity alerts.
- Per-project processing metrics and exception reporting.
- Storage and GIS-processing telemetry.
- Separation of standard project processing from advanced engineering QA volume.

10.3 72-Hour Subscription Activation

Following a confirmed delivery order and completion of WVOT cloud/security review, BizSolutions.Tech will grant platform and administrative access and fully activate the unlimited-user subscription within 72 hours. Mandatory utility mapping, standard review, advanced QA, and required safeguards will be available at activation. Activation notification and access delivery will be sent to dottechpurchasing@wv.gov and dotsupport@wv.gov using approved secure credential handling. Onboarding, identity coordination, and project configuration will not defer mandatory service or security requirements.

11. Implementation and Pilot Approach

The implementation plan covers readiness confirmation, State review, activation, and adoption of the required service. Post-activation activities configure agency workflows, validate project-specific settings, train users, and measure pilot performance. They do not establish a later date for mandatory mapping or QA functionality, or extend the project-processing deadlines.

READINESS AND SERVICE ACTIVATION

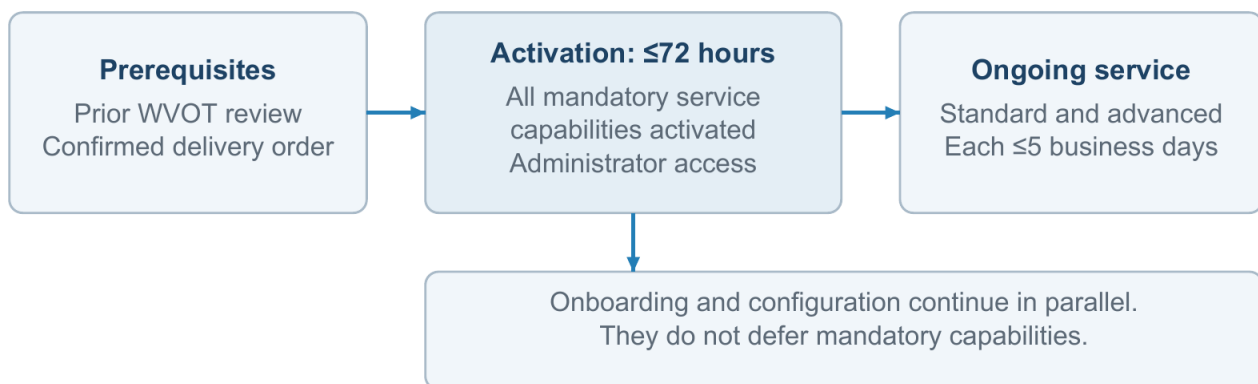


Figure 6. Proposed readiness, activation, and operation sequence. WVOT review precedes activation; subsequent onboarding does not postpone the mandatory service or its five-business-day project delivery commitments.

11.1 Onboarding and Configuration Records

The following records capture WVDOT-specific settings, sources, review rules, and measurement decisions for the operating service:

- WVDOT Utility Mapping Information Model.

- Source System and File Format Inventory.
- Coordinate System / Spatial Normalization Plan.
- ASCE 38-22 Quality Evidence Decision Matrix approved by appropriate engineering stakeholders.
- Utility Research Source Registry.
- Standard Project Processing Workflow.
- Advanced Engineering QA Workflow.
- Pilot Success Metrics and Baseline Measurement Plan.
- Security, identity, retention, and State AI-policy configuration plan.

11.2 Controlled Calibration

For each pilot result, KnowledgeView will preserve the chain from candidate map through evidence, quality status, reviewer corrections, designated advanced QA, and available field verification to the final mapping package.

WVDOT can compare results and calibrate workflow settings without using State data to train, fine-tune, or refine commercial or third-party AI models.

12. Training and Change Enablement

The pricing schedule provides an estimated 10 onboarding and training sessions in each contract year.

BizSolutions.Tech will deliver role-based live virtual and/or recorded sessions, supported by job aids and reusable recordings. Actual session quantities follow State orders.

Training Module	Audience	Focus
Platform Orientation	All WVDOT users	Project navigation, roles, evidence, status, search, accessibility features.
Project / Design User	Project managers and design staff	Create projects, submit source packages, review utility findings and conflicts.
GIS / Utility Analyst	GIS and utility staff	Spatial layers, feature/evidence review, coordinate issues, conflict resolution.
Engineering QA	Advanced reviewers	ASCE evidence package, candidate disposition, corrections, limitations, approval record.
Administrator	WVDOT admins	Roles, project configuration, source registry, usage and audit reporting.
Security / Audit	IT/security/audit personnel	Access reports, incident evidence, model registry, audit trail, retention/export.
Pilot Analytics	Program leadership	KPI dashboard, project comparison, overrides, QA utilization, efficiency/cost indicators.
Refresher / Office Hours	As needed	Release updates, workflow changes, new users, issue-driven coaching.

Training content will be updated when material workflow, security, AI-policy, or model changes affect user behavior. Sessions will be scheduled within the annual quantities ordered by WVDOT.

13. Maintenance, Support, and Service Operations

Ongoing software maintenance, updates, and technical support are included for the pilot subscription as required. BizSolutions.Tech will designate a primary Contract Manager available during normal business hours and will maintain a separate 24x7 security contact for breach/incident obligations.

Service Area	Commitment
Application Support	Business-hours support for user issues, workflow configuration, troubleshooting, and administrative assistance.
Maintenance / Updates	Security patches, defect fixes, supported dependency updates, controlled feature releases, model/guardrail governance.
Monitoring	Workflow/job health, API errors, security events, storage, queue/backlog, availability, performance, and capacity.

Service Area	Commitment
Nonconforming Service	Correct a notified deficiency and provide the full required product/service within five business days of written notice, or another mutually agreed timeframe, at no additional cost. If unresolved to the Agency's satisfaction, provide full credit or refund for the purchase price of the nonconforming item or service at its discretion.
Security Incidents	Report confirmed incidents as soon as practicable and within 24 hours; immediately report breaches or unauthorized non-public-data access; provide required known personal-data breach details within 72 hours.
Change Notice	Provide 30-day advance notice for upgrades/system changes that may affect service availability or performance.
Service Reviews	Periodic operational review of project volumes, QA use, support trends, security/compliance items, and pilot KPIs.
BC/DR	Maintain backup, recovery, and continuity procedures; retain actual recovery-test results and provide the required summary/evidence.

14. Project Governance and Staffing

The engagement will use defined governance, risk management, WVDOT SME validation, and change control. Configuration decisions that affect utility evidence rules, ASCE quality handling, approved data sources, AI model routing, or production security will be reviewed before promotion.

Delivery assignments will identify the utility SME lead, backup reviewer, GIS capacity, contract manager, and employee security contact, with qualifications and availability confirmed for their duties. Queue and workload monitoring will protect the five-business-day service commitments. Named staff, commitments, and test results will be supported by actual records; role descriptions do not substitute for that evidence.

Role	Primary Responsibility
Executive Sponsor / Contract Manager	Executive accountability, contract oversight, escalation, customer relationship, required State reporting.
Project Manager	Plan, schedule, backlog, risk/issue log, status reporting, training and stakeholder coordination.
Solution Architect	Overall architecture, workflow, integration, security, data model, design decisions.
AI / Knowledge Engineer	RAG/GraphRAG, model gateway, extraction/correlation workflows, validation, observability.
Cloud / Security Engineer	AWS deployment, encryption, monitoring, logging, vulnerability remediation, backup/DR, compliance evidence.
GIS / Data Engineer	Spatial ingestion, coordinate normalization, PostGIS, overlays, data quality, export formats.
Utility Engineering / SUE Reviewer	ASCE 38-22 evidence interpretation, advanced QA validation, utility-engineering limitations and approval.
QA / Test Lead	Functional, integration, accessibility, security, regression, data-quality and acceptance testing.
Trainer / Technical Writer	Role-based training, recordings, job aids, administrator and support documentation.

14.1 Governance Cadence

Activity	Cadence	Purpose
Project Status	Weekly during implementation	Schedule, decisions, blockers, risk/issues.
Solution Demonstration	Bid submission and onboarding	Submit a working-product demonstration and supporting sample outputs with the bid; use subsequent demonstrations for onboarding and configuration feedback.
Architecture / Security Review	Milestone-based	Identity, data, AI model, integration, security changes.
Engineering Calibration Review	During pilot	Review utility conflicts, ASCE evidence, corrections, false positives/negatives.
Operational / Pilot Review	Quarterly or as ordered	Project volumes, advanced QA, support, metrics, security/compliance, lessons learned.

15. Deliverables

Deliverable Area	Included Deliverables
SaaS Activation	Fully activated mandatory service, administrative access, enterprise unlimited-user subscription, and support contacts within 72 hours after the required order and WVOT review gates.
Utility Mapping Information Model	Canonical utility schema, taxonomy, source/evidence fields, quality/confidence/verification states.
Utility Data Ingestion	Configured source adapters, spatial normalization, source/provenance registry, ingestion exception handling.
Utility Intelligence Module	Extraction/correlation, candidate feature generation, GraphRAG relationships, conflict detection, evidence packages.
ASCE Evidence Service	Configurable quality/evidence rules, proposed status, human/engineering validation, audit trail.
Utility Map / QA Workspace	Map and accessible tabular views, conflicts, evidence, reviewer actions, standard project approval.
Advanced Engineering QA	Designated queue, evidence package, technical/SME review, disposition, and review record for up to 50 of the standard projects; five-business-day delivery.
Pilot Analytics	Efficiency/effectiveness dashboard, AI-vs-review metrics, corrections, QA usage, turnaround and cost indicators.
Security / Compliance Plane	SSO/MFA, model registry, access/security logs, CSV reporting, incident workflow, retention/deletion, change notices.
Contract Reporting	Projects processed, advanced QA projects, consulting hours, training sessions, ordered quantities and annual/quarterly summaries.
Training / Documentation	Role-based sessions, recordings, job aids, admin/support and operating documentation.
Data Export / Exit	Required output attributes, agreed standard exports and compliant CAD files, long-term Right Of Way access, audit records, preservation, return, deletion, and destruction evidence.

16. Pilot Measurement and Reporting

The purpose of the pilot is to determine whether AI-assisted utility mapping improves efficiency and effectiveness during early design. KnowledgeView will therefore measure more than successful system execution.

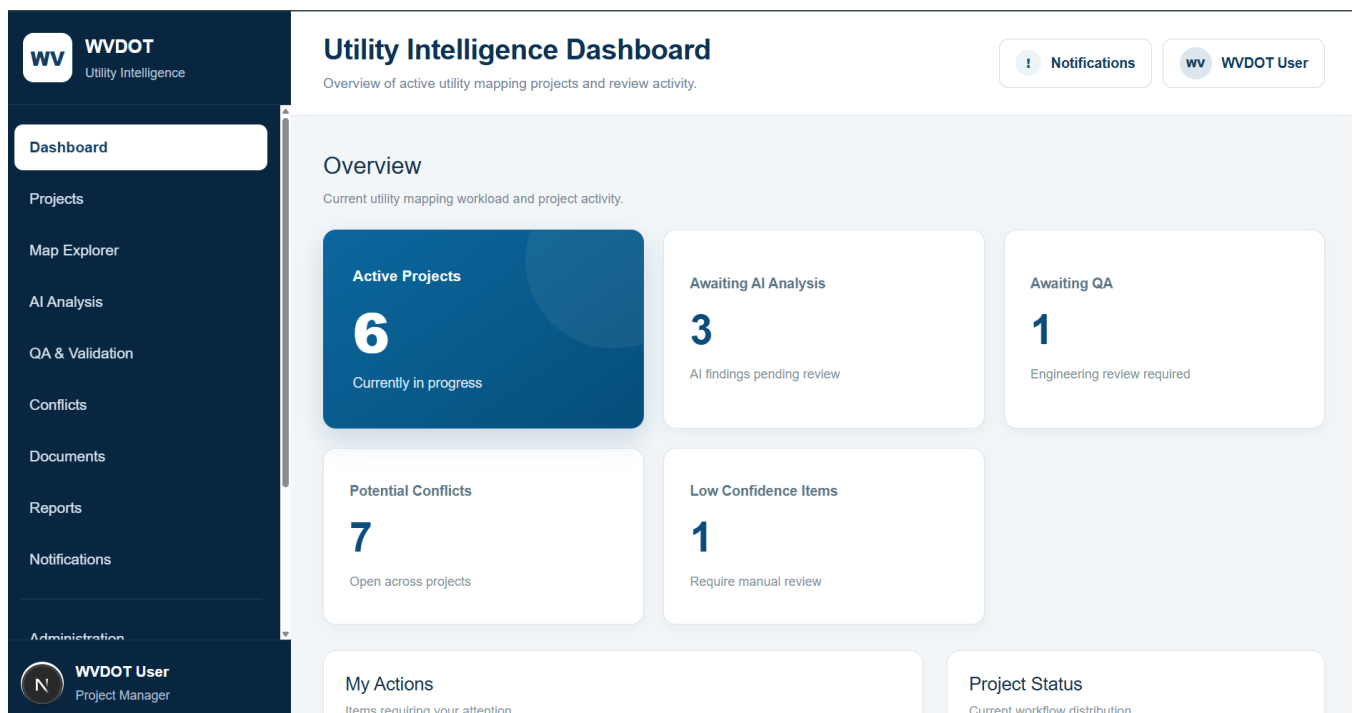


Figure 7. KnowledgeView Utility Intelligence Dashboard showing project activity, AI-analysis and QA queues, potential conflicts, and low-confidence items. Displayed counts are a point-in-time screen view, not measured pilot performance.

Metric Area	Examples
Throughput	Projects initiated/completed, processing backlog, standard vs. advanced QA volume.
Cycle Time	End-to-end project time, AI processing time, human review time, advanced QA time.
Utility Findings	Candidate features identified, corroborated findings, conflicts, unsupported/insufficient-evidence findings.
Corrections	Reviewer edits, rejected candidates, geometry/attribute corrections, source conflicts resolved.
AI vs. Engineering	Agreement/disagreement with engineering QA and, where available, physical verification.
ASCE Evidence	Distribution of quality/evidence states and changes after engineering review.
Human Oversight	Overrides, escalation reasons, advanced-QA triggers, correction categories.
Cost / Efficiency	Processing effort, consulting use, cost per project where WVDOT provides cost inputs, turnaround improvement.
Data Quality	Missing source metadata, coordinate issues, duplicate/conflicting sources, source coverage.

Quarterly reports and annual summaries will include contract-unit quantities and values: projects processed, advanced QA reviews, consulting/research hours, training sessions, and applicable ordered amounts. We will also provide reports upon Agency request showing purchased items, quantities, and total purchase value in the State-required form.

17. Risk Management

Risk	Mitigation
Incomplete or conflicting utility data	Preserve provenance, detect conflicts, reduce confidence/corroboration, route to human review; never manufacture certainty.
ASCE quality overstatement	Separate quality evidence from AI confidence; require engineering validation; prevent model-only elevation.
AI hallucination / unsupported inference	Use source-grounded retrieval, deterministic validations, citations/evidence packages, constrained output schemas, HITL approval.
Field-verification gap	Clearly mark candidate/engineering/field states; maintain solicitation boundary that physical verification remains authoritative.
GIS/CAD format variability	Inventory formats early, normalize coordinate systems, configure adapters, preserve original source files and transformation metadata.
Advanced QA capacity	Confirm qualified utility SME and backup availability; monitor workload and the designated advanced-QA queue to meet five-business-day delivery.
No-training requirement	Approved Model Gateway, provider/model registry, endpoint policy checks, no training/fine-tuning/cross-customer learning.
Security / privacy noncompliance	Compliance plane, least privilege, logging, incident workflows, U.S. residency, encryption, retention and deletion controls.
72-hour activation	Maintain tenant provisioning and readiness records; complete applicable WVOT review before activation and preserve mandatory service availability during onboarding.
User adoption	Role-based training, recorded sessions, practical workflows, pilot feedback, accessible views, office hours.

18. Assumptions and Scope Boundaries

- WVDOT will identify and provide access to the project, GIS, plan, utility, survey, and other data sources authorized for pilot use.
- WVDOT will identify authoritative coordinate systems, endpoint credentials, and systems of record during onboarding. The service supports the amended REST/secure file interfaces, GPS/KMZ areas up to 10 acres, required output attributes, and WVDOT CAD Standards for CAD deliverables.
- KnowledgeView is an AI-assisted decision-support application and does not replace required physical field verification.

- The platform will not claim that a utility feature has a higher ASCE 38-22 quality level solely because an AI model is confident.
- Advanced engineering QA will be performed by appropriately qualified utility/SUE engineering resources; any WVDOT-required licensure or credential will be validated before those reviews are performed.
- WVDOT will provide access to appropriate SMEs for utility taxonomy, project workflow, quality/evidence rules, acceptance criteria, and pilot evaluation.
- No use of WVDOT data for commercial/third-party model training, fine-tuning, or cross-customer learning is included or permitted.
- The technical response does not include pricing. Prices, quantities, renewals, and commercial terms are provided on the State's CRFQ pricing pages and required forms.
- Addendum 1 Q12 corrects Year 4 consulting/research to 50 estimated hours. Pricing uses 50 estimated hours in each contract year; actual quantities and optional renewals are not guaranteed. The selected price schedule, official forms, and portal entries will be consistent with the amendment.
- Cloud-provider restricted audit materials will be provided only through an authorized confidential review process consistent with provider terms.

19. Conclusion

KnowledgeView gives WVDOT a practical way to evaluate AI-assisted utility mapping while preserving engineering and field-verification authority. The proposed service combines its governed-AI, workflow, GIS, evidence, security, and audit foundation with a utility information model, multi-source correlation, ASCE 38-22 evidence handling, conflict review, advanced QA, and pilot measurement. Mandatory functions are available at activation; ongoing configuration supports adoption and project-specific use.

The result is a configurable statewide SaaS service that can support unlimited WVDOT users, up to 200 projects per contract year, and up to 50 advanced QA reviews while preserving State data ownership, model-training restrictions, human decision authority, security obligations, and the physical-verification boundary required by the CRFQ.

Appendix A. Requirements Alignment Matrix

The following matrix traces the principal Specifications, Addendum 1 clarifications, and SaaS obligations to the response. Delivery timing distinguishes mandatory service at activation from pre-award, approval, and operating duties. These are proposal commitments; actual capability and assurance evidence are identified separately in Appendix C.

Ref.	Requirement Summary	Delivery timing	KnowledgeView Response
Purpose / Scope	AI utility-mapping pilot statewide; test efficiency/effectiveness; up to 200 projects and up to 50 advanced QA.	At activation	Utility Intelligence tenant, project pipeline, engineering QA, pilot analytics.
2.1.2	Cloud SaaS using AI to map underground and above-ground utilities.	At activation	KnowledgeView SaaS plus Utility Intelligence Engine, GIS correlation, evidence and review.
2.1.3	Enterprise subscription; unlimited WVDOT users without per-user fees.	At activation	Unlimited-user entitlement; identity/RBAC governs access, not seat count.
2.1.4	Process/manage up to 200 design projects per contract year.	At activation	Elastic workflow, project quotas, queue/capacity telemetry, project dashboard.
2.1.5	Advanced higher-level engineering/QA review for up to 50 designated projects.	At activation	Advanced Engineering QA workflow and qualified utility/SUE engineering reviewer.
2.1.6	Align outputs with ASCE 38-22 Quality Levels; decision support; physical field verification remains required.	At activation	ASCE evidence service, separate AI confidence, HITL/engineering validation, verification state.
2.2.1.1	Ongoing maintenance, updates, technical support.	At activation	Maintenance/release process, monitoring, troubleshooting, business-hours support, security incident process.
2.2.1.2	Comprehensive onboarding/training, virtual and/or recorded.	At activation	Role-based live/recorded curriculum, job aids, refreshers.
2.2.1.3	Utility-mapping research capability / consulting hours.	At activation	Research workspace, source registry, evidence-grounded findings, consulting usage metering.
2.3.1	Secure WVDOT project data, GIS layers, and State infrastructure information under WVOT standards.	At activation	WVDOT Compliance Plane, identity, encryption, logging, U.S. residency, operations controls.
2.3.2	Standard browsers; no unauthorized desktop software/plugins.	At activation	Browser-only portal and server-side GIS/document processing.
2.3.3	Sign/adopt WVOT Cloud SaaS Addendum.	As contract requires	SaaS Addendum controls mapped to security, privacy, retention, incident, change and evidence processes.
2.3.4	Comply with current and future WV State AI policies.	At activation	AI policy registry, approved model gateway, governed change process.
2.3.5	State owns data; no use to train/fine-tune/refine commercial/third-party models.	At activation	No-training/no-fine-tuning/cross-customer controls; inference-only approved endpoints.
5.1 / Q28	Fully activate subscription and administrative access within 72 hours after order and WVOT review.	Activation	Sections 10.3 and 11; mandatory functions available; access delivery to designated State recipients.
5.4	Correct notified deficient SaaS/deliverables/QA within five business days or agreed period.	Operations	Section 13; no-cost correction and full credit/refund remedy if unresolved.
7.3	Quarterly, annual and on-request reports of ordered items, quantities and purchase value.	Operations	Section 16; contract-unit dashboard and required reports.
7.5	Designated Contract Manager available during normal business hours.	As contract requires	Named Contract Manager and escalation path after award.
SaaS §3 / current policy	MFA, encryption, data/access location and restricted-data controls.	Before production	Sections 7-8; US data/access boundary; documented cryptography and applicable-policy reconciliation.
SaaS §4-5	Immediate breach/non-public-access report, incident notice within 24 hours, known details within 72 hours.	Operations / award	Sections 8 and 13; State routing; employee security contact and 24x7 coverage immediately after award.
SaaS §7	Data return, retention, NIST-approved disposal, certificate of destruction.	At activation	Exit workflow, preservation periods, secure deletion and evidence.
SaaS §8-9	Background checks and oversight of authorized persons.	As contract requires	Personnel screening, policy acknowledgement, disciplinary and access-removal process.
SaaS §10	CSV user-access/security reports.	At activation	Security-log export schema and on-demand/periodic CSV reporting.

Ref.	Requirement Summary	Delivery timing	KnowledgeView Response
SaaS §11	CSA STAR/CAIQ self-assessment before award and on request.	Before award / operations	Complete and submit required self-assessment; maintain annual evidence.
SaaS §12	Annual data-center SOC 2 audit or State-approved equivalent.	Before award / operations	Section 8.4; actual applicable hosting report plus separate application evidence; State acceptance of any equivalent.
SaaS §13	30-day advance notice of impactful upgrades/system changes.	As contract requires	Release calendar, impact assessment, change-notice workflow.
SaaS §14-15	Security safeguards, vulnerability remediation, NDAs, separation of duties.	As contract requires	Vulnerability management, security training, least privilege, SoD, NDAs, audit evidence.
SaaS §16	Secure import/export in standard format.	At activation	Project/data exports, standard GIS/data formats, full or piecemeal export.
SaaS §18	Subcontractors subject to applicable data/security restrictions.	As contract requires	Subcontractor registry, agreements, access boundaries, flow-down controls.
SaaS §20-23	BC/DR, Section 508, web services, validated encryption.	As contract requires	BC/DR plan, accessible UI, APIs/web services, encryption controls.
Q3 / Q25	REST integration and standard design-file exchange through approved secure FTP.	At activation	Sections 6.2 and 7; endpoint/schema coordination during onboarding.
Q4 / Q26	GPS/KMZ area up to 10 acres; quality, utility type, coordinates/elevations, method; CAD standards.	Each project	Sections 6.1-6.3 and 9; unknown values explicit; WVDOT CAD Standards for CAD files.
Q7 / Q26	Five-business-day delivery for standard processing and designated advanced QA.	Each submission	Sections 6.1, 6.8 and 7.1; no automatic extension or additive QA allowance.
Q8 / Q12	Vendor consulting SOW before order; 50 estimated hours every year, including Year 4.	Orders / pricing	Sections 6.9 and 18; quantities and renewals not guaranteed.
Q9 / pricing	Estimated 10 training sessions each contract year; remote delivery permitted.	As ordered	Section 12; live virtual/recorded role-based sessions.
Q11	Secure long-term data/output access for WVDOT Right Of Way.	Operations / exit	Section 9; protected repository, State-controlled exports and documented transition.
Q13	Working-product demonstration with the alternate SaaS bid.	Submission	Appendix C; actual demo and sample outputs, separate from illustrative diagrams.
SaaS §6	Notify State of legal requests before response unless prohibited by law.	As required	Section 9; legal-request notification and preservation process.

Appendix B. KnowledgeView Configuration Catalogue

Configuration Area	Examples of WVDOT-Configurable Detail
Tenant & Identity	WVDOT tenant, role taxonomy, SSO/MFA, admin roles, service identities, project authorization.
Project Template	Project metadata, district/program fields, corridor/route identifiers, project status, processing stages.
Utility Taxonomy	Utility types/subtypes, owners/operators, above/below-ground classification, configurable attribute sets.
Source Registry	GIS layers, plans, surveys, utility-owner sources, source reliability/context, date, coordinate system, authoritative flags.
GIS Ingestion	State GIS REST integration, standard design-file exchange via approved secure FTP, GPS/KMZ project areas up to 10 acres, coordinate transformations, geometry validation.
Utility Evidence	Source-document links, extraction location, documented collection method, evidence date, corroboration, conflict status; inferred methods separately unverified.
ASCE Evidence Matrix	Engineering-approved criteria, quality status, evidence sufficiency, validation and field-verification state.
AI Confidence / Corroboration	Separate confidence categories/thresholds, source corroboration scoring, escalation thresholds.
Conflict Rules	Spatial discrepancy tolerance, owner/type mismatch, date/version conflicts, missing depth/vertical data, duplicate features.
Standard Review	Vendor reviewer assignment, evidence view, edit/accept/reject, comments, override reasons, and delivery approval; WVDOT acceptance retained.
Advanced QA	WVDOT designation, threshold recommendations, engineering queue, review template, sign-off, limitation statement.
AI Model Registry	Provider, model, region, retention/training policy, version, effective dates, approved purposes, security approval.
AI Decision Record	Sources, extracted facts, evidence, model/version, confidence, rules, reviewer action, final disposition.
Pilot Metrics	Cycle time, corrections, conflicts, agreement, QA usage, overrides, cost/efficiency, source quality.
Contract Usage	Projects processed, advanced QA reviews, consulting hours, training sessions, annual/quarterly summaries.
Compliance Plane	Incident reporting, access/security CSV, change notices, retention/deletion, evidence repository, BC/DR, subcontractors.
Training	Role curricula, session scheduling, recordings, quick reference guides, release updates.

Appendix C. Submission and Operational Compliance Checklist

This checklist is provided to support final bid assembly and transition to contract operations. The signed State forms and Purchasing Division instructions control the final submission.

Item	Timing	Action
Signed CRFQ cover/form	Submission	Complete vendor information, FEIN/date and authorized signature.
Pricing pages	Submission	Enter unit and extended pricing for all applicable Year 1 and renewal-year line items.
Addendum acknowledgements	Submission	Include any WVDOT addenda issued for DOT2700000011 and acknowledge as required.
Technical response	Submission	Include this response and product specifications; verify commitments against the demonstrated release. Diagrams illustrate the proposed service and do not substitute for a working demo.
No password/encryption restrictions	Submission	Ensure electronic bid files can be opened, viewed, and printed by Purchasing.
Contract Manager information	Submission/award	Provide designated contact and business-hours availability.
Insurance evidence	Before award	Provide the required General Liability and Cyber Liability evidence under the State terms.
CSA STAR / CAIQ	Pre-award	Complete and submit SaaS Addendum self-assessment.
Data-center audit/equivalent evidence	Pre-award / on request	Provide current applicable hosting audit scope and report, application-control evidence, and State acceptance of any equivalent. Use the authorized confidential channel.
Primary security contact	Immediately after award	Provide 24x7 security contact for breach obligations.
Identity / security readiness	Before production / activation	Complete applicable WVOT review and required identity/security safeguards before use of State data; onboarding cannot defer mandatory controls.
72-hour activation	Order plus WVOT review	Fully activate mandatory service and administrative access within 72 hours; deliver activation/access information to designated State recipients.
Utility engineering resource	Before advanced QA	Confirm assigned qualified utility/SUE engineering reviewer and any required licensure.
Contract reports	Operations	Provide quarterly, annual, and on-request reports of ordered items, quantities, and purchase value, with pilot metrics.
30-day change notices	Operations	Issue required notices for upgrades/system changes affecting availability/performance.
Incident/breach reporting	Operations	Immediate breach/non-public-access reporting; confirmed incidents as soon as practical and within 24 hours; required known personal-data breach details within 72 hours.
Data exit/destruction	Termination/transition	Return/export State data, observe preservation periods, securely delete and certify as required.
Working-product demonstration	Submission	Include an accessible actual demo and sample mapping/QA outputs showing amended interfaces, output attributes, evidence traceability, and reviewer actions.
Signed cloud addendum	Submission / State review	Complete and sign the required vendor sections; reconcile current-policy applicability with WVOT without silently substituting forms.
Vendor registration	Before award	Confirm required registration, good standing, and applicable fee or exemption.
Evidence index	Submission / pre-award	Identify actual demo/output artifacts, reviewer qualifications and availability, CAIQ, hosting reports, application/security tests and remediation, accessibility, recovery, and State approvals as applicable.

Before submission, verify the current official listing and every amendment. Addendum 1 supersedes the earlier September 22 date and corrects Year 4 consulting to 50 hours. Reconcile the selected price schedule and all official entries, and retain the submission receipt.