WEST VIRGINIA
DNR

REQUEST FOR PROPOSALS

STATE OF WEST VIRGINIA

WILDLIFE RESOURCES CUSTOM CLOUD DATABASE

#ARFP DNR2500000001

PREPARED BY

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GOV WEBWORKS

5 Milk st Portland Maine 04101
govwebworks.com

State of West Virginia
Agency Request for Proposals
Info Technology

Proc Folder:	1464847
Doc Description:	Wildlife Resources Custom Cloud Database
Proc Type:	Agency Contract - Fixed Amt
Reason for Modification:	

Date Issued	Solicitation Closes	Solicitation No	Version	Phase
2024-08-26	2024-09-24 13:30	ARFP 0310 DNR2500000001	1	Final

BID RECEIVING LOCATION

BID RESPONSE
DIVISION OF NATURAL RESOURCES
PROPERTY & PROCUREMENT OFFICE
324 4TH AVE
SOUTH CHARLESTON WV 25303-1228
US

VENDOR

Vendor Customer Code:

Vendor Name : Portland Webworks, Inc. (GovWebworks)

Address : 5 Milk Street

Street : —

City : Portland

State : Maine **Country :** United States **Zip :** 04048

Principal Contact : Tom Lovering, Director of Business Development

Vendor Contact Phone: 207-773-6600 **Extension:** —

FOR INFORMATION CONTACT THE BUYER

James H Adkins
(304) 558-3397
jamie.h.adkins@wv.gov

Vendor Signature X (Tom Lovering) **FEIN#** 010529638 **DATE** 10/26/2024

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

INVOICE TO	SHIP TO
D. .SION OF NATURAL RESOURCES	DIVISION OF NATURAL RESOURCES
WILDLIFE RESOURCES SECTION ELKINS OPERATIONS CENTER	WILDLIFE RESOURCES SECTION ELKINS OPERATIONS CENTER
PO BOX 67	738 WARD RD
ELKINS WV 26241	ELKINS WV 26241
US	US

Line	Comm Ln Desc	Qty	Unit of Measure	Unit Price	Total Price
1	Online database information retrieval systems				

Comm Code	Manufacturer	Specification	Model #
83121604			

Extended Description:
Online database information retrieval systems

SCHEDULE OF EVENTS

Line	Event	Event Date
1	TECHNICAL QUESTION DEADLINE	2024-09-05

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

CONSTRUCTION CONTRACTS: Under W. Va. Code § 5-22-1(i), the contracting public entity shall not award a construction contract to any bidder that is known to be in default on any monetary obligation owed to the state or a political subdivision of the state, including, but not limited to, obligations related to payroll taxes, property taxes, sales and use taxes, fire service fees, or other fines or fees.

ALL CONTRACTS: Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Employer default" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (*W. Va. Code* §61-5-3) that: (1) for construction contracts, the vendor is not in default on any monetary obligation owed to the state or a political subdivision of the state, and (2) for all other contracts, that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

ALISON MARIE SCHESTOPOL
Notary Public-Maine
My Commission Expires
April 16, 2029

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: Portland Webworks, Inc. (GovWebworks)

Authorized Signature: T. Lovering (Tom Lovering) Date: 11/26/24

State of Maine

County of Cumberland, to-wit:

Taken, subscribed, and sworn to before me this 26 day of November, 2024.

My Commission expires April 16, 2029.

AFFIX SEAL HERE

NOTARY PUBLIC _____

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: ARFP DNR25*01

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:
(Check the box next to each addendum received)

[xx]	Addendum No. 1	[ ]	Addendum No. 6
[xx]	Addendum No. 2	[ ]	Addendum No. 7
[xx]	Addendum No. 3	[ ]	Addendum No. 8
[xx]	Addendum No. 4	[ ]	Addendum No. 9
[ ]	Addendum No. 5	[ ]	Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Portland Webworks, Inc. (GovWebworks)
Company

Authorized Signature

12/5/2024
Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.
Revised 6/8/2012

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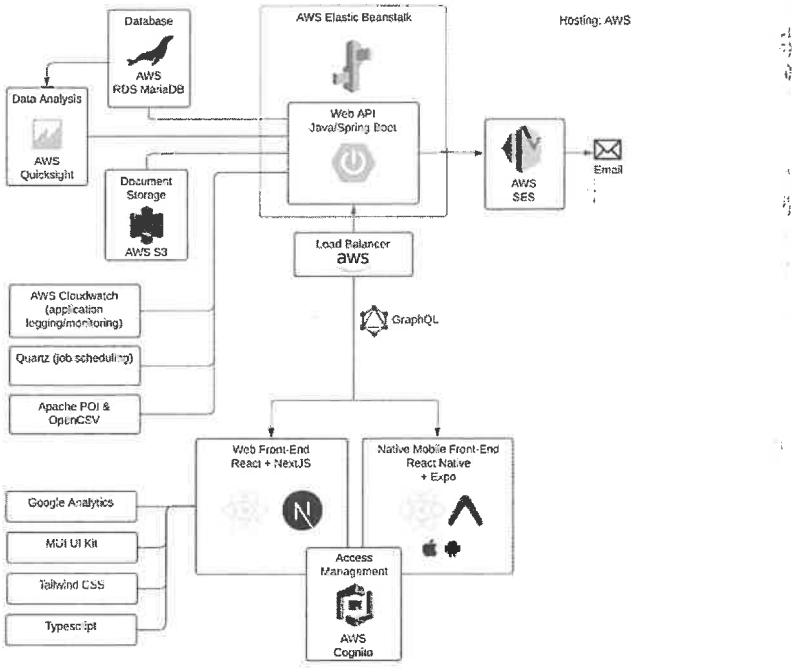
1. Approach and Methodology, Part I: Envisioned Technical Solution

The anticipated outcome of this Project would be a consolidated new software product/solution, with custom functionality that would support the State's ongoing operations relative to fish management, wildlife diversity management, citizen hunting/angling, citizen science, and other administrative/regulatory concerns (permits, etc.). The product/solution would run from the cloud, serving as a single, centralized system of record, with data that is shared and properly integrated, where possible, across all relevant programs and units. Authorized admins at the State level would be able to work through the back-end interfaces of the system to shape and adjust the user experience, controlling and restricting functional and data access, based on an agreed role scheme (RBAC). The exposed interfaces of the system would be friendly and self-explanatory, with clear prompting that would direct and guide user attention. Built-in automations would regulate the system's workflows, driving a steady pace of productivity and operational progress. Validation rules would enforce conformity of submitted information with established standards (for formatting, interoperability, etc.). Many aspects of the system would leverage/incorporate contemporary GIS features and capabilities, making it possible for WVDNR to more easily accomplish geo-referencing of datapoints, mapping and spatial analysis. The system would also provide its users with on-demand access to a wide variety of role-appropriate reports that would yield meaningful insights (thereby supporting effective decision making). The entire product/solution would be engineered based on modern software development principles, emphasizing reliability, security, compliance, and sustainability. Configurability will be enabled, to the maximum extent practical, to ensure that the system can remain as flexible and adaptable as possible, for many years to come.

The diagram below provides a high-level conceptual sense of the anticipated technology stack that we would ideally hope to leverage/apply:



- **Front End:** A user facing application will be written in React using the Next.JS framework and Typescript language to provide rapid implementation of a scalable and fully custom user interface. The Material UI (MUI) UI Kit and TailwindCSS will similarly be used be used to provide high quality, accessible implementation at a more rapid pace of delivery. The resulting front end application will make API calls to the back end architecture described below.

- **Back End:** The back-end application will be developed in Java with a Spring/Spring Boot application framework. The application would be engineered to deliver an independent, service-driven, cloud-based API that can directly interact with the front end application described above.

- **Mobile Client Application:** The mobile application would be built using React Native. This is a platform agnostic technology that would run on both android and iOS. The application would operate locally on the phone, and could do so asynchronously, without a real time web connection. Local data would be synchronized with the cloud at regular intervals. The mobile application could be published to the Apple iStore and Google Play Store.

- **Hosting:** Cloud hosting for the resulting solution would be provided through AWS, a reputable hosting service. The hosting would be stable, and would afford access to useful tools and resources that would expedite development, as explained in the other architectural bullets listed here.

- **Data Storage:** The system will also use an open source MariaDB database for persistence of application data. The database would be managed as a service with AWS RDS to help reduce overall system maintenance and operations. AWS S3 will be utilized for storing any files.

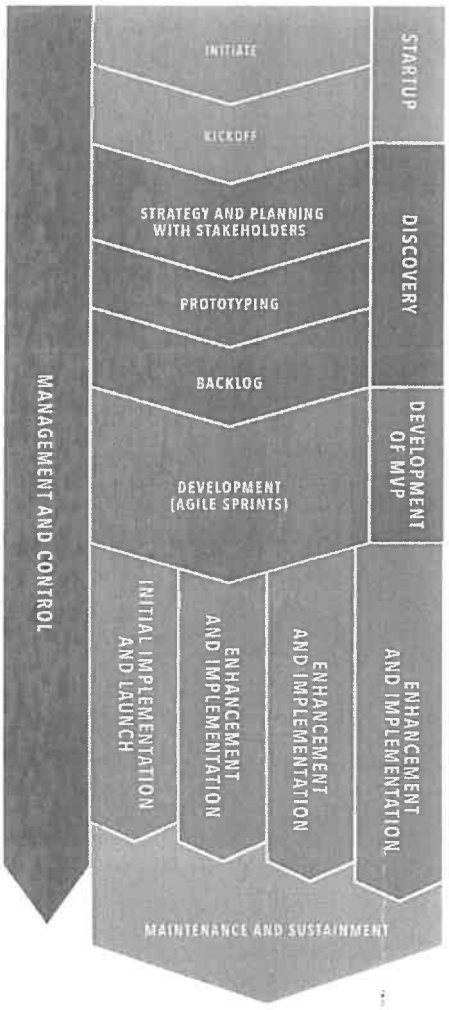
- **Messaging and Notifications** AWS SES would provide robust email processing functionality, and would be integrated directly into the system. We would use a supplemental technology, called Quartz, to handle message scheduling/timing.

- **Authentication:** User authentication would leverage AWS Cognito.

- **Status Monitoring:** Standard application logging and monitoring will be available through AWS CloudWatch and Google Analytics. These tools would allow for usage monitoring and standard telemetry data.

2. Approach and Methodology, Part II: Overview of Work Plan

A baseline rendition of the solution could be put in place within a matter of 6-8 months. The actual duration of the initial implementation effort would depend largely on the finalized scope of development decisions. The process for implementation is represented by the graphic below (right side). Some highlights would be as follows:



- **Initiation:** Activities at this stage would be spearheaded by our Project Manager and Business Development Department. Efforts at this stage would encompass actual signing of the contract, internal announcement of the win, introduction of the Project Manager, coordination of schedules, configuration of internal systems for the new account, and planning of any necessary travel. Team members would also take advantage of this period to become familiar with the Contract, the RFP and SOW, and any other relevant materials made available.

- **Kickoff:** An official Kickoff would be scheduled to occur promptly after award. This would be an in-person meeting. The meeting would be attended by GovWebworks' Project Manager and select other team Leads from our company. We would also anticipate that the State's Key Decision Makers and Stakeholders (esp. WVDNR's Project Manager, and any members of the Project Steering Committee) would likewise participate. The Kickoff Meeting would be used to introduce team members to one another, share contact information, deliver a summary of the anticipated Project Management Plan (see below), and define roles. In this capacity, discussions would cover the overarching scope of the Project, the general methodological approach, the roadmap of activities and master schedule (rough, high level), and official plans for communication, deliverables, configuration control, technology (reviewing the anticipated technology stack), quality control, and risk management. The meeting would establish basic expectations, building mutual understanding about key objectives, processes and procedures.

- **Strategy and Planning with Stakeholders:** We would conduct a deep dive into the State's vision and requirements for the solution. We would work openly with all designated parties. Our efforts would include analysis of WVDNR's short-term and long-

term objectives for the solution. We would help WVDNR to prioritize features and make decisions about what should be accomplished as a part of the initial platform launch, and what could be deferred to a future phase of solution enhancement. At the conclusion of this effort, we would prepare a formal Requirements Package / Project Brief, outlining and enumerating the agreed scope of functionality for the baseline implementation (also referred to as the "minimum viable product" or MVP). The deliverable would address, at an "epic" level, the precise data schemes and operational features that would need to be produced/accommodated. deliverable would articulate an initial roadmap, as well as plans for future desirable features and enhancements.

- **Prototyping:** After receiving approval on the Requirements Package, we would start working to prototype the essential product interfaces for the baseline/MVP implementation. The process would be iterative. We would start with low fidelity wireframes, and as consensus builds among designated stakeholders, we would move gradually toward higher fidelity clickable/interactive mockups. The successive renditions would be cycled and tested among stakeholders and end user for discussion and approval. We would use InDesign, a popular interactive prototyping tool, to support the prototyping process.

- **Backlog:** When WVDNR determines that the interface mockups are sufficiently acceptable, we would convert the accumulated solution requirements into a format that could be used to guide and track technical implementation efforts. We would work with WVDNR to carefully groom and refine the apparent requirements and interface plans into final actionable specifications, and then would get started immediately on the technical work (see Execution below).

- **Execution:** We would apply an agile method. Functionality would be gradually and iteratively rolled-out, in relatively small manageable chunks, over the course of multiple, successive sprints and product increments. Tangible progress would be demonstrated at the end of each sprint cycle (every two weeks) for WVDNR approval.

- **Rollout, Piloting and Launch:** As development winds down, we would conduct a final "beta" pilot of the solution. Participation in the pilot would be coordinated through WVDNR's designated Project Manager. We would begin the pilot period with some formal system training/orientation (would be supplemented with written reference material and video recordings). We would accept all feedback, and would make changes that are mutually agreed with WVDNR. When everything is stable and resolved to WVDNR's satisfaction, we would issue a letter of readiness and would work with the State to obtain full authority to operate. Then, after full acceptance, we would send the solution live, turning over full control for use and operation as WVDNR sees fit.

- **Maintenance, Support, and Enhancement:** We would work with the State to orchestrate standardized governance protocols, and would support technical sustainment/maintenance of the solution in accordance with an agreed SLA. Our assigned Project Manager, UX Lead and Technical Lead for the Project would be able to work in a consultative capacity with WVDNR as needed to plan further enhancements. At WVDNR's discretion, such enhancement work could proceed on a fixed price task order or T&M basis as needed.

OWNERSHIP OF DELIVERABLES

Should WVDNR have any long-term aspirations in the direction of product marketing and evolution (see Section 10.A), we would be open to discussing appropriate terms early in the post-award contract lifecycle. Otherwise, by default, all deliverables produced under the contract, inclusive of all designs and code, would become the property of the State to the extent that intellectual property (IP) ownership on any such deliverable item is transferable. Unless otherwise agreed in writing (for the purpose of enabling product marketing and evolution), our company would retain no ownership claim over any of the contract deliverables.

3. Approach and Methodology, Part III: Schedule / Timing

The schedule below reflects our anticipated Project timeline. **Please do note that this schedule should still be considered somewhat tentative and subject to additional discovery and negotiation.** Individual dates may slide forward or backward, based on the State's needs and priorities.

Milestone Description	Approx. Timing**	Primary Deliverables
Initiation • *Sign contract* • *Provide a Project Manager contact info* • *Coordinate timelines & meetings* • *Configure internal systems* • *Internal staff orientation*	Week 1	PM contact info; Finalized Project Work Plan / SOW; Signed Contract; Negotiated and Signed SLA; Schedule and agenda for kickoff
Kickoff Meeting	Week 2	Attendance at meeting; Project Management Plan
Strategy & Planning with Internal Stakeholders	Week 2-3	Live, discussion(s); Requirements Package (a.k.a. Project Brief)
Prototyping • *Wireframes / Prototypes* • *Testing & Validation*	Weeks 4-10	Wireframes/prototypes; Fully articulated screen mockups; Presentation of final agreed designs
Compilation of Backlog & Begin Initial Grooming	Week 10	Backlog items implemented in JIRA, and prioritized
Development / Execution (Agile Sprints) • *Setup and configure environment(s)* • *Technical Coding and Configuration* • *Technical Solution Documentation* • *QA & compliance testing*	Weeks 10-30	Agile/scrum process ceremonies; Functional solution outcomes; QA testing records and results of accessibility scans
Rollout • *Training* • *User Acceptance / Beta Testing (select community)* • *Final Bug Fixing* • *Letter of Readiness* • *Authority to Operate / Final Acceptance* • *Full Launch*	Weeks 30-34	Rollout Plan; Training & documentation library; Solution documentation; Live training; Final Bug and Fix Logs; Letter of Readiness; Live Publication of Mobile App
Support and Maintenance	Week 34+***	IAW Agreed SLA

** reflects approximate timing only, not level of effort
*** within agreed terms of contract and SLA

4. Approach and Methodology, Part IV: Management and Control

Some highlights of our routine management approach would be as follows:

- **Single Point of Contact, Direct Access to Project Leadership:** We would assign a full-time Project Manager to lead our day-to-day contract initiatives. The assigned Project Manager would be WVDNR's primary point of contact with GovWebworks. The Project Manager would be able to participate in daily, weekly, monthly, and quarterly meetings and phone conferences with WVDNR, as may be necessary to address contract activities and progress. The Project Manager would ensure that WVDNR is kept continuously apprised of contract progress and major developments. For the duration of the contract, it will furthermore be the responsibility of the Project Manager to ensure that contract objectives are being consistently fulfilled by our team. The Project Manager will delegate duties and make sure that all work is accomplished by qualified personnel with sufficient technical knowledge, experience, and skills to effectively fulfill requirements. The Project Manager would furthermore be able to assess the necessary skill mix and mobilize internal backup team resources to supplement Project staffing as needed.

- **Performance Tracking:** The Project Manager would use our JIRA System (http://www.atlassian.com/software/jira/overview) to maintain the Project Backlog (requirements/task list), and track and monitor contract activities. The system would provide real-time insight into task completion, expenditures, burn rates, and performance velocities. By carefully scrutinizing the system's data on a regular basis, the Project Manager would be able to make sure that the Project remains on-track, within budget, and compliant with timelines and schedules promised to WVDNR. System access would be shared with WVDNR representatives (incl. WVDNR Project Manager, and other designated Key Decision Makers and Stakeholders). This would enable real-time transparency and on-demand visibility into progress and activities.

- **Grooming:** At regular weekly intervals, specially-focused backlog discussion sessions – called "grooming sessions" -- would be conducted in conjunction with WVDNR's Project Manager and decision makers. During these sessions, we would work with WVDNR to review, analyze, reconfigure and agree upcoming Backlog items to ensure that efforts can move forward timely, in a way that is addressed towards manageable chunks of Project scope. Grooming would provide further definition to Backlog items, assuring that the items are absolutely clear, with concrete and objective Conditions of Satisfaction (COS). Grooming would also be used to accomplish estimation of the relative levels of effort that would be involved in completing the work for respective items (typically done on the basis of "story points"). The duration of each such session would be approximately one hour. We would work with WVDNR's Project Manager to plan and coordinate attendance for each session. Attendance and participation needs

might vary, depending on the scope of Backlog items/stories being addressed. From our end, our assigned Project Manager, Technical Lead, UX Lead, Content Lead and QA Lead would always participate. Participation would be important, because the sessions would be used to achieve well-documented consensus as to the concrete and actionable scope of work that needs to be accomplished. Decisions reached during grooming sessions would result in direct updates to Jira records.

- **Scrum:** We would exercise a best practice called scrum as we move through each sprint. This would involve hosting of daily internal standup meetings, which would be led by our assigned Project Manager. During the daily meetings, we would conduct round-robin-style discussions. Each team member, in turn, would explain three matters to the other meeting participants: 1) his/her individual progress the prior day, 2) his/her plans for the current day, and 3) any foreseeable roadblocks/impediments to getting the work done. The scrum approach facilitates frank discussion of day-to-day activities and progress. The process enhances transparency, productivity and accountability, and it is very good at pronouncing, escalating and quickly resolving unanticipated impediments (such as dependencies on customer decisions and/or products from other team members). In our experience, there is no better way to ensure that the appropriate resources are available to maintain progress. The Project Manager would ensure that such meetings run smoothly, and in the event that WVDNR representatives could not participate (***client participation is always strongly encouraged***), the Project Manager would additionally ensure that issues and questions are promptly resolved with designated WVDNR decision makers.

- **Metrics:** The assigned Project Manager will be able to closely monitor such metrics as Sprint Burndown; Story/Assignment Cycle Time; Story/Assignment Points Committed vs. Completed (on a per sprint basis); Sprint-to-Sprint Point Velocity; Ratio of Total Story/Assignment Points Completed to Total Points Scoped (holistically, across entire project lifecycle). Such metrics would allow for something like an Agile version of an EVM analysis of progress.

- **Monthly Account Reviews / Management Meetings:** The Project Manager would be able to engage WVDNR's contract authorities in regular monthly sessions ("Monthly Management Meetings"), during which our company would be prepared to discuss, at a higher level, recent achievements, performance velocity, and upcoming contract milestones/activities/objectives. These sessions could be used to review the Project schedule and plan/forecast/coordinate any necessary resourcing adjustments. The sessions could also be used to discuss any high-level concerns or interests that may arise for WVDNR over the course of performance. Senior representatives from our company would be able to participate in these sessions as needed. These management sessions would normally be accomplished via phone conference or Zoom. Approximately one week prior to each Monthly Management Meeting, our Project Manager would send WVDNR's contract authorities a formal monthly budget report.

The report would present current budget status and future projections. The consolidated report would serve as a basis for discussion. The report would provide sufficient detail to enable discussion and analysis pertaining to ceiling costs, resources, budget and level of effort. A mutually agreeable format for the report would be identified subsequent to award, as a part of the management plan.

- **Communication and Collaboration:** We would use a suite of online collaboration resources to support and enable our development operations. Our repertoire of tools would include Zoom (for group screensharing, voice chat, video conferencing), Slack (for chat, file sharing, and other ad hoc interactions), InVision (for design collaboration) and Confluence (for file archiving and project knowledge base). If WVDNR has alternative preferred systems/resources in place, we would be happy to explore such tools. Ultimately, all of our assigned personnel would actually participate equally in the relevant communication channels (live reporting systems, chat channels, etc.). The State would be able to post messaging and inquiries in real time. Direct, live, ongoing, team-to-team interaction (chat, voice, and video) would thus be possible throughout each day.

5. Mandatory Project Requirements

	Specification	A	B
Mandatory General Custom Database Requirements			
4.2.2.1	Does your solution provide the ability to collect and process natural resources and environmental data?	Y	We are proposing a custom built solution in alignment with WVDNR objectives. We will use a user-centered design approach, and will leverage a range of open source tools to deliver a new, comprehensive data management platform. Please see our technical narrative for an explanation of our approach.
4.2.2.2	Does your solution centralize data storage and management, utilizing relational database design to establish links between related datasets?	Y	The system will use an open source MariaDB database for persistence of application data. The database would be managed as a service with AWS RDS to help reduce overall system maintenance and operations. AWS S3 will be utilized for storing any files.
4.2.2.3	Does your solution allow for improvements and expansion as staff and partners require greater data capturing capabilities? Is your solution adaptable as projects and needs change?	Y	The platform will be developed in an agile way, incorporating emergent requirements as they are uncovered. Ultimately a "definition of done" will be achieved, but the platform will have been developed in an extensible way to allow for future enhancement and modification.
4.2.2.4	Does your solution implement a versioning process utilizing one central relational database that all appropriate staff can access and edit?	Y	The solution could potentially accommodate versioning, workflows, and audit trails. During the discovery process, we would work with the State to explore the prevailing SECTION needs and the prospective use cases for this sort of functionality.

	Specification	A	B
4.2.2.5	Does your solution create user accounts and secure logins with a unique ID?	Y	The platform will utilize a proven user management and authentication framework, such as Spring Security, to maintain user identity and activity tracking.
4.2.2.6	Does your solution support clear permission levels, allowing for restriction of data from the public, group permissions, and graduated permission levels for data consumers (read-only), editors (read/write) and owners (read/write/create/delete)?	Y	Spring Security supports granular user roles and permissions, maintaining appropriate access levels for the various user types imagined.
4.2.2.7	Does your solution track both edits to the data and the person making an edit for transparency, accountability, and data integrity?	Y	The solution could be setup to maintain a comprehensive audit trail. Activity could be logged alongside corresponding user information. Logged information would be visible to authorized users.
4.2.2.8	Does your solution incorporate design for self-service, with the ability for users to access data on their own within a permission controlled environment?	Y	The platform can be designed to facilitate user self-service through a typical web interface. User role assignments would provide the basis for permissions, authorizations and restrictions.
4.2.2.9	Does your solution allow for improving processes incrementally, applying an iterative approach to implementation?	Y	The platform will be developed in an agile way. We would first aim to deliver an initial Minimum Viable Product (MVP), and then would work to progressively and iteratively enhance the solution over the course of multiple sprints and product increments.
4.2.2.10	Does your solution include recommendations for standard retention and end-of-life procedures for datasets, notifying owners as appropriate?	Y	Data retention and archiving protocols will be determined in conjunction with WVDNR during discovery. The platform will be developed in accordance with these requirements.
4.2.2.11	Does your solution provide the user with accessible and easy to follow menus and directions?	Y	Our user-centered design approach will ensure that the application is intuitive and easy to use. Appropriate support tools would be incorporated for each of the respective user types.

	Specification	A	B
4.2.2.12	Does your solution support data conversion from legacy SECTION systems? Please detail the data conversion process; including, division of responsibilities between the SECTION and Vendor. See Attachment B: Wildlife Resources Section Data Systems Assessment for a listing of databases and recommendations for conversion.	Y	Data conversion and migration is understood to be a requirement for the new platform. Our team will work to analyze the various data sources and apply appropriate transformation techniques to ensure data consistency in the new platform. We can make use of various ETL (Extract-Transform-Load) tools to provide different strategies and levels of sophistication for migrating different types of data as needed. We will seek to create a repeatable process that can be tested and executed multiple times to ensure it delivers the expected results consistently. It should be understood that SECTION will have a roll in the process as well. We would rely on SECTION for an overarching sense of the data lineage/flow and the value/purpose of each respective datapoint. Such information would be integral to effective migration. Field-level insight/comprehension will also be integral to the planning and development of necessary interfaces, tools and workflows.

6. Non-Mandatory Scoreable Requirements

	Specification	A	B
Data			
4.2.3.1	Does your solution perform basic and table-driven validations and business rules (e.g., required field is empty, invalid entry, too many or not enough digits, invalid character(s), naming conventions, geographic areas)?	Y	The scope of necessary validations would be agreed with the State during discovery. We would be able to enforce rules for data inclusion and formatting, and would incorporate conventional prompting to users where appropriate.
4.2.3.2	Does your solution prevent accidental duplicate data entry?	Y	We would explore the needs for such functionality during discovery, and would build-in appropriate functionality as warranted to minimize data duplication. Records could be checked for duplication on the fly, at time of submission, and prompting to users could be provided accordingly.
4.2.3.3	Does your solution generate meaningful and easy-to-understand error messages for data issues?	Y	During discovery, we would explore the scope of typical data issues that might arise, and would build-in custom prompting accordingly.
4.2.3.4	Does your solution assign a unique number and track all records?	Y	Within respective data types, each record would be assigned a unique key. Keys would be permanently assigned, and would not be re-used.
4.2.3.5	Does your solution maintain an audit trail of data changes?	Y	Audit trails could be enabled for all data types, at the State's discretion. During the discovery process, we would work with the State to explore the prevailing SECTION needs and the prospective use cases for this sort of functionality.

	Specification	A	B
4.2.3.6	Does your solution take measures to prevent the accidental deletion or manipulation of data and/or recovery of data?	Y	We would respect the State's wishes and preferences in this regard. Where warranted, we would be able to advise the state with respect to conventions and best practices for data management. As needed, we could err on the side of data preservation. Instead of totally eliminating deleted records, it would certainly be possible to mark deleted records as "removed," or otherwise set deleted records into a latent state that would make the records subject to archiving. This could potentially be done in lieu of total deletion/elimination. The system would be setup to backup its data to an agreed cloud repository. The backups would occur frequently, so that data could be recovered in the event of a problem.
4.2.3.7	Does your solution store georeferenced data where appropriate?	Y	We would explore the State's needs during discovery. Storage and management of geodata could be accommodated as needed. This would be custom-built functionality, tailored to the State's precise needs..
4.2.3.8	Does your solution allow for photo collection and storage or allow for linkages to external cloud photo storage locations (e.g., Google Photos)?	Y	We would explore the State's needs during discovery. Storage and management of imagery could be accommodated as needed. This would be custom-built functionality, tailored to the State's precise needs.
4.2.3.9	Does your solution provide the ability to edit data collection requirements when reporting requirements change?	Y	We would explore the State's needs during discovery. If the State wishes to incorporate functionality to enable form configuration (to support data collection), we would build-in the necessary interfaces. This would be custom-built functionality, tailored to the State's precise needs.

	Specification	A	B
Tools			
4.2.3.10	Does your solution incorporate online and/or mobile tools for data collection, management, collaboration, analysis, and reporting?	Y	Both a web based experience and a mobile experience could be provided. We would explore the State's needs in both regards during discovery, and would make recommendations accordingly as to the sorts of functionality that would be best suited to each context, within the available budget.
4.2.3.11	Does your solution allow consumers and editors to flag possible erroneous data for review?	Y	Submitted records could be subjected to review and approval workflows, and mechanisms furthermore be incorporated to enable users to raise attention to questionable entries on-the-fly, at any time issues are noticed.
4.2.3.12	Does your solution provide workflow for additional quality assurance/quality control (QA/QC) of data? Please describe.	Y	The solution would support automated workflows that would queue records for review and approval. Based on record status and actions taken, the workflows could move the records back and forth between designated users/roles. This would make it possible to ensure systematic review and sign-off on data by all parties, as needed. Branching business logic could be applied to ensure that records are routed appropriately. Tools and mechanisms would also be incorporated into data submission and editing interfaces to ensure that data remains of a suitable level of quality (ex. SCAYT, grammar check, field-level validation rules, etc.). We would explore the State's needs in these regards during discovery.

	Specification	A	B
4.2.3.13	Does your solution allow for SECTION users to add, edit, and delete data utilizing queries or bulk data clean-up tools?	Y	Batch processing controls could be provided that would enable efficient operations on multiple records simultaneously (ex. Batch update, batch delete, etc.). We would explore the State's needs in these regards during discovery, and would make recommendations as to where it would make the most sense to incorporate such features, within the constraints of the project budget.
4.2.3.14	Does your solution include the ability to create and run customizable analyses and reports? Can these analyses or reports be saved and repeated?	Y	We would provide access to an off-the-shelf data reporting tool that would allow for on-the-fly configuration and retention of any necessary data views, reports and dashboards.
4.2.3.15	Does your solution include the following analysis and reporting functionality: filter, query, sum, sort, display, compile, save, and print to screen, device, or an electronic file?	Y	Some interactive querying and reporting functionality would be incorporated into the system itself. Results pages could certainly incorporate controls for sorting and filtering, printing, exporting, etc. We would additionally provide access to an off-the-shelf data reporting tool that would allow for on-the-fly configuration and retention of any additional data views, reports and dashboards that might be desired.
4.2.3.16	Does your solution provide interactive search and exploration functionality?	Y	We would explore the State's needs in these regards during discovery. We would work closely with the State to weigh competing business priorities and determine the scope of interactive functionality that could be accomplished within the constraints of the project budget.
4.2.3.17	Does your solution support basic geographic inquiry, and data formats for utilization in a GIS? Are quick access, web-based map tools incorporated in your solution?	Y	We would explore the State's needs in these regards during discovery. We would work closely with the State to weigh competing business priorities and determine the scope of interactive GIS/map functionality that could be accomplished within the constraints of the project budget.

	Specification	A	B
4.2.3.18	Does your solution have standard default analysis and reporting capabilities? Please describe.	Y	Some interactive querying and reporting functionality would be incorporated into the system itself. We would additionally provide access to an off-the-shelf data reporting tool that would allow for on-the-fly configuration and retention of any additional data views, reports and dashboards that might be desired.
4.2.3.19	Does your solution provide an interactive and dynamic analysis and reporting capability?	Y	Some interactive querying and reporting functionality would be incorporated into the system itself. We would additionally provide access to an off-the-shelf data reporting tool that would allow for on-the-fly configuration and retention of any additional data views, reports and dashboards that might be desired.
4.2.3.20	Does your solution's analysis and reporting tool allow end-users to dynamically modify views and parameters using drag-and-drop and similar functionality?	Y	We would aim to deliver a suite of tools that would be operable by individuals with limited technical expertise (i.e., GUI-driven interfaces, with highly intuitive controls that are simple-selection-driven and/or of a drag-and-drop nature). Some interactive querying and reporting functionality would be inherently built into the system itself. We would additionally provide access to an off-the-shelf data reporting tool that would allow for on-the-fly configuration and retention of any additional data views, reports and dashboards that might be desired.
4.2.3.21	Does the solution's analysis and reporting tool allow data to be displayed in charts, tables, etc.?	Y	The reporting capabilities of the solution would encompass data tabulation (presentation of data in tables), as well as visualization (charts, graphs, etc.). Some relevant functionality would be built into the system itself. We would additionally provide access to an off-the-shelf data reporting tool that would allow for on-the-fly configuration and retention of any additional data views, reports and dashboards that might be desired.

	Specification	A	B
4.2.3.22	Does your solution generate standard reports in accordance with a pre-defined schedule, with recurring frequency, and using predefined parameters?	Y	We would explore the State's needs in these regards during discovery. We could either build this functionality into the system itself, or otherwise leverage scheduling functionality from the reporting tool that is provided. During discovery, we would work closely with the State to determine the optimal approach to delivering the functionality that is deemed necessary. This may entail weighing competing business priorities against available options and cost/budget implications.
4.2.3.23	Does your solution distribute standard reports to pre-defined recipients, including both individuals and distribution groups?	Y	See 4.2.3.22 above. Reports could be accessed through system interfaces, and/or be distributed to individuals via email (attachment or link), in a scheduled and automated manner. Reports could thus be made available to as many individuals as necessary. Feasibly, reports could be sent to specific fixed recipient lists, or otherwise be issued dynamically, based on role. We would explore the State's needs in these regards during discovery.

	Specification	A	B
4.2.3.24	Does your solution allow standard report parameters to be modified over time as needed?	Y	We would aim to deliver a suite of reporting tools that would allow individuals, with limited technical expertise, to prepare custom reports. In part, this would be accomplished by providing access to GUI-driven report configuration interfaces, with highly intuitive controls that are driven by simple-selection and/or drag-and-drop actions. We would also be able to ensure that appropriate dynamic sorting and filtering controls are made available from result pages. This should provide users with plenty of options, such that they would be able to build, modify and winnow reports, applying custom parameters/criteria as needed. We would explore the State's needs in these regards during discovery. This may encompass discussion of any reporting limitations that would need to be applied for respective roles. We would also expect to accomplish some grounded user research and prototyping, to precisely validate the respective user/role requirements.
4.2.3.25	Is the solution capable of using data from multiple, disparate sources with which the solution interfaces?	Y	We would be able to accomplish data integration as needed. Data could be consumed from as many external sources as necessary. We would explore the State's needs in these regards during discovery. It should be understood that any costs for third party services would not be covered by the present pricing.
4.2.3.26	Does your solution have an interactive management dashboard function that displays real-time and historical data?	Y	A personalized, configurable dashboard would be made available to each administrator. The dashboards would be comprised of panels, some of which could be interactive, allowing for dynamic data presentation (ex. options for selectable date ranges, particular filters, etc.). All panels would be reflective of available data in real time.

	Specification	A	B
4.2.3.27	Does your solution provide a dashboard that is populated based on the user selecting information and metrics from a predefined list of information and metrics available?		A personalized, configurable dashboard would be made available to each administrator. The dashboards would be comprised of panels, some of which could be interactive, allowing for dynamic data presentation (ex. options for selectable date ranges, particular filters, etc.). The users would be able to adjust the composition of their personalized dashboards on demand, on-the-fly, at any time they wish. Panels in the dashboards could be swapped in/out (based on an available panel list). During discovery, we would explore the State's needs relative to these features and capabilities. We would also expect to accomplish some grounded user research and prototyping, to precisely validate the requirements.
4.2.3.28	Does your solution allow reports to be sent via email or as a dynamic link?	Y	See 4.2.3.22 above. Reports could be accessed through system interfaces, and/or be distributed to individuals via email (attachment or link), in a scheduled and automated manner. Reports could thus be made available to as many individuals as necessary. Feasibly, reports could be sent to specific fixed recipient lists, or otherwise be issued dynamically, based on role. We would explore the State's needs in these regards during discovery.
4.2.3.29	Does your solution support secure data export for offline analysis in GIS (e.g., ArcGIS formats), statistical (e.g., R, csv, txt formats), business intelligence and data visualization (e.g., Tableau, Power BI formats), and other formats? Provide a list of data formats/file types your solution can export to.	Y	We would explore the State's needs in these regards during discovery. Convenient exporting in an agreed scope of formats would be supported through pertinent designated interfaces. Users would be permitted to select the preferred export format, where multiple options must be made available.

	Specification	A	B
4.2.3.30	Does your solution have a process for archiving data?	Y	We would work with the state during discovery to decide upon suitable business logic for archiving. Automation processes could be executed on a regular basis to flag archivable records accordingly. Flagged records could be subjected to workflows and/or be compressed and transferred into secondary storage.
4.2.3.31	Does your solution support replication to a WV hosted database for direct connection to primary, unprocessed data?	Y	We would be able to accomplish data integration as needed. We would explore the State's needs in these regards during discovery. It should be understood that any costs for third party services would not be covered by the present pricing.
4.2.3.32	Does your solution include training for users?	Y	Training would be planned and coordinated with the State as needed. Current pricing would cover up to 60 hours of training support. These hours would be spread across sessions targeting respective user groups.
4.2.3.33	Does your solution provide a Frequently Asked Questions feature? If so, please describe.	Y	We would expect to provide a knowledgebase in tandem with the solution. The knowledgebase could include FAQ content.
4.2.3.34	Does your solution provide Help Desk services? If so, please provide a proposed structure for a Help Desk function, including division of responsibility between the SECTION and Vendor, services provided, and hours of coverage.	Y	Solution support would be available M-F, 8am-5pm est. Our support staff would be familiar with the solution, and would be able to provide user instruction, assistance and triage. All calls and issues would be logged within the JIRA system. In general, verbal guidance and instruction would be the first response tactic of our support representatives. If the requestor seems in any way confused or interested in further support, or if the requestor otherwise suggests that he/she has attempted normal operations without achieving desired results, then the support representative would initiate a screen share session.

	Specification	A	B
Mobile Application			
4.2.3.35	Does your solution allow for off-line data collection on a mobile application? Could your solutions be integrated with ArcGIS Survey123 and/or Field Maps? Please explain.	Y	We would explore the State's needs in these regards during discovery. We would be able to accommodate offline data entry, with capacity subsequent synchronization when a connection later becomes available. Integrations would be supported as needed, including integrations with mapping/GIS/GPS systems.
4.2.3.36	Does your solution include a native app for both iOS and Android platforms for data collection and basic reporting? Please describe.	Y	We would explore the State's needs in these regards during discovery. We could provide native mobile applications, and/or responsive web interfaces. We would, at minimum, be able to support iOS and Android devices using contemporary browsers, regardless of form factor.
4.2.3.37	If an app is provided, does your solution maintain the app and the responsibility for posting and updating the app through the various app stores?	Y	We would explore the State's needs in these regards during discovery. The app(s) could indeed potentially be posted to the Apple Play Store and Google Play. Alternatively, if the state prefers, we could instead make arrangements for private app distribution.
Technical			
4.2.3.38	Does your solution include a dedicated Development environment?	Y	We would be applying mature Continuous Integration and Continuous Development (CI/CD) protocols and techniques. The solution would be built-up over the course of multiple sprints. During respective sprints, generated code and configurations would flow systematically through various "branches" and "environments," gradually advancing towards a place of record, where the outcomes would ultimately be demonstrated to WVDNR for approval. Approved outcomes would be deployed to production. The process would ensure the absolute integrity and stability of the version of the site that is being readied for live publication.

	Specification	A	B
4.2.3.39	Does your solution include a dedicated User Acceptance Testing (UAT) environment?	Y	See response to 4.2.3.38 above.
4.2.3.40	Does your solution include a dedicated Production environment?	Y	See response to 4.2.3.38 above.
4.2.3.41	Does your solution have a testing/release process? Please describe and include what procedures it includes.	Y	See response to 4.2.3.38 above. A battery of tests, checks and validations will be conducted on all sprint outcomes, as code and configurations move through the respective branches (Feature Branches, Development Branch, Main Branch, and Master Branch) and across environments (Local Development Workstations, Dev environment, QA/Test environment, and eventually the Production environment as well). A preponderance of our efforts - in terms of tests, checks and validations - will be addressed towards the feature/functional level. Such efforts would make sure the resulting software works as expected, based on agreed specifications. Our efforts would also address the integration level. Such efforts would aim to ensure that the features developed work together to form a comprehensive business solution, suitable to upstream and downstream business requirements. In practice, the anticipated scope of efforts would be expected to span static analysis, dynamic analysis, end-to-end testing, peer code review, manual functionality testing, performance testing, accessibility checking, design review/critique, threat and vulnerability testing, usability monitoring, and final acceptance.

	Specification	A	B
4.2.3.42	Does your solution allow for the management of upgrades? Please describe the process.	Y	It is anticipated that there would be a negotiated support agreement (SLA). During the term covered by the SLA, we would provide periodic maintenance on the solution (updates, upgrades, patches, etc.). Maintenance activity would be engaged automatically, with no particular action required from State representatives. We would always notify the State's Project Manager prior to implementing any changes to the system, regardless of size/scope. The necessary maintenance activities would be accomplished during low traffic times, and would not result in any downtime. The maintenance work would be done by our most qualified team members. High criticality patching and maintenance would normally be accomplished within a matter of hours. Lower criticality patching and maintenance would occur within a matter of days. Non-critical patching and maintenance would, at minimum, be accomplished twice each year.
4.2.3.43	Please list specific browsers for which the solution is compatible and not compatible.	Y	We would support the last two version of each major browser, to include Chrome, Edge, Safari, iOS and Android.
4.2.3.44	Does your solution use a responsive design for use with mobile devices?	Y	All interfaces would be responsive.
4.2.3.45	Does your solution allow for internal (SECTION) system, account, and permissions administration? Please describe.	Y	The solution would include interfaces to allow for user and account administration. At minimum, the interfaces would allow for management of access, and assignment of relevant roles. It would additionally be possible to build-in a degree of configurability around roles and permissions. During discovery, we would work closely with the State to assess the functional needs in these regards. As needed, we would also help the State to weigh competing business priorities and their cost/budget implications.

	Specification	A	B
4.2.3.46	Does your solution provide secure, remote access for conducting system administrator functions?	Y	The system would allow for secure, role-based access. Through this capability, administrators would be afforded access to specialized, restricted functionality. We would work with WVDNR during discovery to agree the precise scope of administrative functionality that would be required. There would likely be more than one type of administrator role (super admin, admins for respective divisions of the SECTION, etc.)
4.2.3.47	Does your solution time out after a specific period of inactivity?	Y	Timeout could be enforced at the State's discretion. We would defer to the State's preferences in these regards, but would generally recommend that timeouts be scheduled to occur within a relatively short period of inactivity (perhaps 10-15 minutes). This matter would be addressed with WVDNR during discovery.
4.2.3.48	Does your solution employ interactive help features for specific data elements to offer explanations (e.g., mouse-overs, pop-ups, etc.)?	Y	Interactive prototyping and user testing would be accomplished to validate that intended interfaces will be easy to operate and highly usable. Plain language prompting and conventional tool tips would be incorporated into each screen. In addition, we would expect to provide a knowledgebase in tandem with the solution.
4.2.3.49	Does your solution use the most current technologies available? Please describe.	Y	We would use the latest versions of each selected technology. An architectural diagram has been provided in our response to Section 1.
4.2.3.50	Does your solution operate in a real-time, integrated transactional environment?	Y	All interfaces would handle data in real time, through live web service interactions/transactions.
4.2.3.51	Is your solution fully compatible with end user equipment?	Y	We would work with WVDNR during discovery to agree the precise scope of equipment that would need to be supported, and would help the State to weigh competing business priorities and their cost/budget implications.

	Specification	A	B
4.2.3.52	Does your solution have a capacity planning methodology for managing high/low use levels? Please describe.	Y	Hosting would be arranged through Amazon Web Services, and associated resourcing would be scaled automatically, dynamically, and elastically. The relatively modest levels of anticipated solution use, as expressed later in this table, would not impact solution performance.
4.2.3.53	Is your solution scalable to allow for increases in users and functional capacity without degrading performance?	Y	See response to 4.2.3.52 above.
4.2.3.54	Is your solution designed such that compromised functions, errors or faults will not degrade the overall integrity of the system?	Y	We would work with WVDNR during discovery to agree on suitable tools and strategies (redundant environments, container management, etc.). In the process of such discovery efforts, we would help the State to weigh competing business priorities and their cost/budget tradeoff implications.
4.2.3.55	Does your solution provide the capability to interface with existing SECTION systems to obtain information?	Y	We would be able to accomplish data integration as needed. We would explore the State's needs in these regards during discovery. We would expect to accomplish most such integrations using JSON and RESTful services, although other methods/tactics could be considered as well.
4.2.3.56	Does your solution provide secure FTP (File Transfer Protocol)?	Y	This could be accommodated if it proves necessary.
4.2.3.57	Does your solution provide a consistent and standard design style sheet for all modules using the same page layouts, color scheme and data fields?	Y	In the interest of cost control, we would expect the initial MVP implementation to use a popular styling system, like Bootstrap. Customization of design could be introduced afterwards, as an enhancement.

	Specification	A	B
4.2.3.58	Does your solution provide the ability to monitor the system for breaches and intrusions and log attempts? Please describe what occurs when an attempted system breach or intrusion is identified.	Y	Logging would be accomplished at the application and server levels. Logged data would be available to the State's administrators, transparently, on demand. SIEM integration could be accomplished as an enhancement (not covered by current pricing).
4.2.3.59	Does your solution alert designated persons when performance issues arise?	Y	We would use industry-standard tools (Ex. New Relic, StatusCake, PagerDuty) to monitor and assess performance, and automatically notify designated parties when issues arise.
4.2.3.60	Does your solution provide escalation alerts for system issues?	Y	See response to 4.2.3.59. We would be able to provide a service status dashboard as a potential future solution enhancement (not covered by present pricing).
4.2.3.61	Does your solution maintain logs of all system access/log-on attempts, successful or not?	Y	This would be possible at the application level, if the State deems such logging a priority. We would expect to explore the State's needs in these regards during discovery.
4.2.3.62	Does your solution maintain logs of all system activity?	Y	As noted previously, the solution could potentially accommodate audit trails. During the discovery process, we would work with the State to explore the prevailing SECTION needs and the prospective use cases for this sort of functionality.
4.2.3.63	Does your solution maintain logs of all system errors?	Y	Error logging would be accomplished at the application and server levels. Logged data would be available to the State's administrators, transparently, on demand. SIEM integration could be accomplished as an enhancement (not covered by current pricing).
4.2.3.64	Does your solution issue alerts if an interface or data source becomes unavailable?	Y	See response to 4.2.3.59. We would be able to provide a service status dashboard as a potential future solution enhancement (not covered by present pricing).

	Specification	A	B
4.2.3.65	Does your solution issue alerts if the system becomes unavailable?	Y	See response to 4.2.3.59. We would be able to provide a service status dashboard as a potential future solution enhancement (not covered by present pricing).
4.2.3.66	Does your solution provide web analytics for monitoring visitor traffic and usage of the system?	Y	We could build-in analytics capabilities. We could do so within the system itself, and/or could integrate with Google Analytics (or equivalent) for this purpose. The scope of necessary analytics would be discussed and agreed with WVDNR during discovery.
4.2.3.67	Does your solution notify online users of scheduled downtime when they log in (if they are trying to interact with the system during or immediately prior to a maintenance period)?	Y	In general, we would not anticipate any need for system down time. The system would be able to present a notice of scheduled downtime, if reason ever arises.
4.2.3.68	Does your solution have the ability to scale up/down support services as needed (help desk, development, etc.)?	Y	Hosting would be arranged through Amazon Web Services, and associated resourcing would be scaled automatically, dynamically, and elastically. The relatively modest levels of anticipated solution use, as expressed later in this table, would not impact solution performance.
Hosting			
4.2.3.69	Does your solution include redundancies, expandability, capacity management, and monitoring?	Y	We would work with WVDNR during discovery to agree on suitable tools and tactics (elastic resourcing, redundant environments, container management, etc.). In the process of such discovery efforts, we would help the State to weigh competing business priorities and their cost/budget tradeoff implications.
4.2.3.70	Does your solution provide a physical location within the United States for all solution components including, but not limited to, data centers, infrastructure, network, hardware, and software?	Y	We would use a hosting package that would restrict data storage and handling to locations within the United States.

	Specification	A	B
4.2.3.71	Does your solution provide for hosting in a Tier 4 secure facility?	Y	We would expect to use cloud hosting through Amazon Web Services. During discovery, we would be able to explore possible alternatives with the State. Hosting on existing WVDNR infrastructure might potentially be a plausible option.
4.2.3.72	Does your solution provide for hosting in an environment with a redundant power source?	Y	Amazon Web Services would handle data backups and outage prevention/failovers. They would also provide best-in-class tools for rapid recovery.
4.2.3.73	Does your solution provide a redundant architecture that is supported by multiple geographically diverse data centers?	Y	The recommended hosting package would include distributed and redundant hosting.
4.2.3.74	Does your solution's system architecture provide route diversity between the primary data center and the back up/redundant data center?	Y	Route diversity between data centers is well supported by the tools and services available from Amazon Web Services. We don't have a one-size-fits-all approach to network and data center redundancy and resiliency, but we could tailor a solution that satisfies the specific needs of the SECTION taking into account competing constraints and objectives.
4.2.3.75	Does your solution provide the back-up, fail-over site with performance levels identical to the primary site?	Y	All of this would be managed by Amazon Web Services, as a part of the agreed high-reliability hosting package.
4.2.3.76	Does your solution provide the capability to remain operational in the event of loss of availability of one or more data sources?	Y	Amazon Web Services guarantees a high level of uptime (99.9%+). Service interruptions would be quite rare.
4.2.3.77	Does your solution provide components that are physically and logically segregated from the components of other systems?	Y	The deployed solution would be physically and logically segregated from those of third parties.
4.2.3.78	Does your solution use hardware that is dedicated to the SECTION solution? If not, please explain.	Y	The hardware for hosting would be dedicated to this project.

	Specification	A	B
4.2.3.79	Does your solution provide data backup? Please describe the approach and the location of where backup will be stored.	Y	Integral data would be securely duplicated on a daily basis. Duplicated data would be persisted for 6 months. In the event that critical information or content is ever erased, as a result of malicious activity or otherwise, it would be a reasonably small matter to fully restore/recover the complete site from the latest duplicated version. Backups would be encrypted with 256-bit advanced encryption cyphers.
Security and Privacy			
4.2.3.80	Does your solution authenticate users and manage and automate resetting of passwords? Please describe and cite compliance with any industry standards if applicable. Please include details such as displaying passwords on screen, storage and encryption, response to failed login attempts, transmission of user identification, and any other relevant details about the process.	Y	Our company routinely provides advanced software application development services for government entities, and our operations are therefore regularly held to the highest standards for system and data security. Across our full portfolio of public sector contracts, our teams have worked with some of the most sensitive forms of private and personal information. This includes Federal Tax Information (FTI), court and criminal justice records, and data that is subject to HIPAA and FERPA regulations. As a matter of standard practice, we accomplish our development work in environments that are compliant with NIST standards (800-171, 800-53). Our methods have most recently been endorsed by the State of Idaho's Department of Health and Welfare, for the purpose of working on the State's COVID response infrastructure (approval and acceptance based on professional audit through Booze Allen Hamilton). Our procedures have also previously been acknowledged and approved through the IRS (based on U.S. Internal Revenue Service Publication 1075 standards). Some highlights of the anticipated authentication implementation would include:

	Specification	A	B
			• Login would accomplished for all users through a conventional authentication interface (name and password field, multifactor authentication could be added as an enhancement) • There would be an interface through which administrators would be able to manage user accounts (control status and assign roles). • Password refresh/cycling could be enforced at the State's discretion. We would work with the State during discovery to ascertain the need for such functionality. We would recommend that the State should allow users to sustain their credentials for periods of at least 90 days. • Users would be permitted to change passwords as frequently as necessary, but we would otherwise aim to avoid password presentation on screen. • The entire user experience would be setup to operate through TLS / HTTPS. • Tokens would not be exposed, and would only be transmitted as encrypted data. • Encryption and obfuscation would be supported based on standards like RSA or, AES • The system could lock accounts after an agreed number of failed login attempts. We would work with the State during discovery to ascertain the need for such functionality.

	Specification	A	B
4.2.3.81	Does your solution comply with federal and state laws and regulations including the protection of personally identifiable information? If yes, please cite the specific laws and regulations with which the solution complies.	Y	We would endeavor to limit the handling of PII. Development would be accomplished in accordance with agreed standards. This may include prevailing NIST standards, and/or other designated standards of the State. See our response to 4.2.3.80 for more information. The following best practices would be applied where applicable: • Where possible, instead of handling PII directly, we would aim to leverage SSO and integration with existing systems that the State is already using for PII handling/storage. • We would redact PII from shared data when possible, limiting and monitoring who has access to data • We would ensure that PII is removed when no longer needed • We would limit and redact logging output to ensure PII isn't leaked through logs
4.2.3.82	Does your solution store confidential data? Please describe the storage process.		The system would indeed be capable of storing confidential data. All data would be encrypted while in transit and at rest. Encryption and obfuscation would be supported based on standards like RSA, AES

	Specification	A	B
4.2.3.83	Does your solution protect against viruses, malicious software and other online threats?	Y	Applied security/protective measures would include: • All workstations of the developers would be encrypted and locked with 2fa. • Scans of all code would be conducted at build time, and subsequently on a routine basis, to identify vulnerabilities (would use Nessus). • Hardened security profiles are enforced for all development workstations including enforced software updates of the OS and critical or potentially vulnerable applications. • We would build-in functionality to sanitize incoming and outgoing data; also to mitigate potential vectors such as cross-site scripting attacks, injection, clickjacking and similar attacks (i.e., address the OWASP top 10 and SANS top 25 vulnerabilities). • We would work with the State to establish reasonable controls surrounding uploads. Restrictions could potentially be applied in terms of file types, naming (length, allowable characters, etc.) and size. All uploaded data would be subjected to scanning. • Work could be accomplished through secure encrypted connections. We would also apply standard WAF procedures, and could utilize VPC for hosting (isolating development servers from the web). • Where applicable, we would be able to implement reCAPTCHA to assure input is coming from a human (not an automated attack vector).
4.2.3.84	Does your solution employ reliable state of-the-art technology for resisting denial of-service and other hostile attacks?	Y	This would be arranged through Amazon Web Services. The relevant service is called "AWS Shield."

	Specification	A	B
4.2.3.85	Does your solution secure sensitive data such as using industry standard encryption methods? Please describe.	Y	All data would be encrypted while in transit and at rest. Encryption and obfuscation would be supported based on standards like RSA and/or AES (as supported out-of-the-box by services like AWS SES).
4.2.3.86	Does your solution encrypt all data in transit, including data transfers?	Y	All data would be encrypted while in transit and at rest. Encryption and obfuscation would be supported based on standards like RSA and/or AES.
Minimum Performance Volumes			
4.2.3.87	Does your solution support up to 100 concurrent internal SECTION users?	Y	Hosting would be arranged through Amazon Web Services, and associated resourcing would be scaled automatically, dynamically, and elastically. This relatively modest level of anticipated solution use would not impact solution performance.
4.2.3.88	Does your solution handle a minimum of 250 projects?	Y	It is unclear what might constitute a "project," but assuming this is simply a data type, we are confident that a collection of 250 "projects" could be easily accommodated, even if there are hundreds of thousands, or even millions of associated/related records involved.
4.2.3.89	Does your solution store up to 40 million database records?	Y	MariaDB would be the chosen database technology. This is a widely adopted, highly reputable, best-in-class open source database software. The database would be managed as a service with AWS RDS to help reduce overall system maintenance and operations. The database would be able to handle 40 million records without a problem. Hosting could be setup to enable automatic scaling accordingly.

	Specification	A	B
4.2.3.90	Does your solution's website hosting support over 100 concurrent visitors during daytime hours?	Y	Hosting would be arranged through Amazon Web Services, and associated resourcing would be scaled automatically, dynamically, and elastically. This relatively modest level of anticipated solution use would not impact solution performance.
Warranty, Maintenance, and Operations			
4.2.3.91	Does your solution provide warranty support and maintenance? Please include specifics as to when the warranty begins and the duration of the warranty.	Y	It is anticipated that there would be a negotiated support agreement (SLA). During the term of the support agreement, any malfunctions (i.e., software behaviors that do not comply with the agreed specifications) would be resolved at no additional cost. A single call to our company would be enough to assure that our assigned Manager and our developers are all made simultaneously aware of an issue. No further escalation would be necessary. Our assigned Project Manager would ensure that the relevant issues are addressed and resolved promptly. The Manager would respond to any confirmed bugs/defects with a live follow-up phone call to the State's designated point of contact. The Manager would mobilize any necessary team members from our company, and would monitor required work to ensure that any necessary fixes are accomplished. Typical response times for technical problems would be dependent upon the agreed support terms. Critical system failures (many users effected, no workaround available) would automatically receive emergency support, even during off hours.
4.2.3.92	Does your solution provide the most recently available version(s) of software, operating systems and database management systems used at the time of deployment? Describe the proposed approach.	Y	We would expect to use the latest versions of all technologies chosen for development. This would be done immediately prior to commencing technical development efforts. All chosen technologies and versions would be agreed with the State.

	Specification	A	B
4.2.3.93	Does your solution provide on-going upgrades throughout the life of the contract?	Y	It is anticipated that there would be a negotiated support agreement (SLA). During the term covered by the SLA, we would provide periodic maintenance on the solution (updates, upgrades, patches, etc.). Maintenance activity would be engaged automatically, with no particular action required from State representatives. We would always notify the State's Project Manager prior to implementing any changes to the system, regardless of size/scope. The necessary maintenance activities would be accomplished during low traffic times, and would not result in any downtime. The maintenance work would be done by our most qualified team members. High criticality patching and maintenance would normally be accomplished within a matter of hours. Lower criticality patching and maintenance would occur within a matter of days. Non-critical patching and maintenance would, at minimum, be accomplished twice each year.
4.2.3.94	Does your solution provide maintenance and on-going technical assistance for the hosted solution, including the proposed levels of support and application fix resolution times?	Y	See our response to 4.2.3.93 above for information about the proposed approach to maintenance. In turn, our response to 4.2.3.91 addresses our proposed approach to warrant and resolution of defects. We would provide access to helpdesk-style support for State administrators, to assist with system issues that might arise. This type of support would be available during normal business hours (M-F 8am-5pm est). Support staff would be able to assist with troubleshooting of hosting issues, as needed.

7. Qualifications and Experience, Part I: History and Background

Portland Webworks, Inc. has been delivering software and web development services since 1999. Fundamentally, we are a proven, highly reliable, stable, Agile tiger team, comprised of seasoned technical and creative professionals, with many years of experience working together on award-winning, public-facing systems, mission-critical applications, and major IT program infrastructure projects. The depth, expertise, creativity, drive, stability, and synergy of our staff are just some of the reasons customers tend to select our team as a solution provider. Clients call us when outcomes, expertise and efficiency will matter, and when the project at hand simply cannot fail.

Under the emergent brand name, "GovWebworks," we are currently working as a consultative partner to many public sector customers throughout the nation, assisting them in their efforts to find new and better ways to operate and engage with citizens, stakeholders and constituents. We apply contemporary user-centered design principles that facilitate discovery and revelation of sensible innovations, which can be adopted and institutionalized through well-planned, streamlined, technology solutions.

When the epiphanies strike, we support the ensuing changes, and the needs for modernization and digital transformation that arise, offering a comprehensive suite of services, encompassing solution planning, design, development, implementation and sustainment. Our custom solutions emphasize outstanding quality of user experience, compelling design, compatibility, interoperability, and standards compliance.

Our ongoing focus tends to be on these main project types: *1 - "missing piece" applications* (custom software that meets emergent needs, or that fills-in gaps between existing systems and applications), *2 - incremental modernization* (gradual replacement of major infrastructure, one piece at a time, while keeping all infrastructure running), *3 - modular system extension* (incorporation of new interfaces, features and integrations to legacy infrastructure), *4 - enterprise web portals/presences,* and *5 - mobile* (custom hybrid and progressive applications that can be operated from a variety of devices and platforms).

Since 2015, our operational footprint has been rapidly and aggressively expanding throughout many regions of the country. We have contracts and vehicles with departments and agencies in California, Colorado, Idaho, Iowa, Kentucky, Maine, Massachusetts, Minnesota, Mississippi, Missouri, North Dakota, North Carolina, South Carolina, Vermont, and Washington. We additionally are authorized as a federal services provider under the GSA MAS schedule.

We work predominantly with open-source frameworks that can save our customers a great deal of expense. Our projects as a prime contractor have ranged in scope and size from a few hundred thousand dollars for small custom application undertakings, all the way upwards of $15 million for major infrastructure integration and modernization projects. We can handle the most complex and sophisticated technical requirements without breaking stride, applying the latest industry-embraced best practices. We are currently delivering approximately 65,000 hours of custom software development services annually. Some of the foremost competencies of our team are outlined in the chart below.

FRAMEWORKS AND COMPETENCIES

JAVA		WEB		TESTING	SERVER/HOSTING	CMS	DATA/RDBMS
JPA	Wildfly	HTML	VueJS	Selenium	Pantheon	WordPress	Oracle
Spring	JDBC	CSS	Vite	jUnit	Acquia	Drupal	mySQL
ActiveMQ	JAAS	Javascript	Docusign	Cobertura	AWS	Composer	Postgre SQL
SOLR	XStream	SaSS	SurveyJS	jMock	Tomcat	Contentful CMS	SQL Server
Flying Saucer	JASYPT	Angular	QuestionPro	Cucumber	Apache		XML
QueryDSL	Quartz	jQuery	React Hook Form	Wallaby.js (Karma)	Glassfish		SQL
Jersey 1.13	JAXB	Lodash	YUP	Puppeteer	Jetty		MariaDB
Jackson 2.0	Spring Boot	JSP	Gatsby	Cypress.io	jBoss	OTHER	DB2
Apache HTTP Server	Lombok	nodeJS	Google Maps	TestCafe	Juul		AWS Athena
JBoss AS	JTA	Typescript	Leaflet	React Testing Library	IIS	Rails	AWS S3
WRO4j	JAX-WS	GraphQL	Google ReCAPTCHA	Zephyr	WebSphere	C#	AWS DynamoDB
Jasper	JaVers	React	Google Analytics	Eggplant	Redis	.net	Kysley
JMS	Dozer	NextJS	Google Data Studio		AWS Fargate	PHP	TanStack Query
JSF	Activiti	RxJS	Svelte		AWS ECS	ASP.NET	
Thymeleaf	Domain Graph Service	Tailwind CSS	Alpine.js		Azure services	Dynamics 365	
JDBC	AWS Lambda	MUI	Maizzle				

AI TECHNOLOGY		SECURITY	BUILD	ACCESSIBILITY	DEV TOOLS	
Google Dialogflow	Amazon Lex	SAML	Maven	ANDI	Liquibase	Axe
Cloud Vision	IBM Watson	JASYPT	Webpack	Colour Contrast Analyzer	Pattern Lab	GitHub
AWS Textract	Azure Cognitive Services	JAAS	CircleCI	JAWS	Fractal	BitBucket
ChatGPT	Hugging Face	Cognito	Bitbucket Pipelines	NVDA	Flyway	Subversion
Sagemaker	GitHub Copilot	HTTP Basic Auth	Gradle	Voiceover	Git	New Relic CodeStream
TabNine		JEE Security	GitHub Actions	Vox	Landc	Microsoft Dev Proxy
		Spring Security	Gulp	Lighthouse	Docker	Figma
MOBILE		Active Directory	GitLab	Monsido	SendGrid	
Ionic	Expo	Auth0	SonarQube	PowerMapper	Postman	
React Native	Native iOS/Android	JWT	Snyk	Compliance Sheriff	AWS SES	
PWA		NextAuth	Trivy	Axe	Jira	
Responsive		AWS Control Tower		Pa11y	VS Code	
					CodeStream	

We have been very fortunate to count among our past clients many leading public and private sector organizations that have environmental and eco-oriented mission agendas. Foremost among these, in recent years, have been the Missouri Department of Conservation; the Mississippi Department of Wildlife, Fisheries and Parks; the Maine Department of Agriculture, Conservation and Forestry; the Colorado Department of Parks and Wildlife; the Colorado Center for New Energy Economy; and the Massachusetts Clean Energy Commission. Over the course of other assignments and projects, we have also worked with the U.S. Environmental Protection Agency, the Maine Department of Fish and Wildlife, the Northern Maine Development Commission, the Maine Campground Owner's Association, and the National Environmental Health Association. Additional prominent clients in the private sector have included the Nature Conservancy, LL Bean, and Lucas Tree. We have also worked in the industrial sector, with Environmental Health and Safety (EH&S) programs and operations, for clients like Sappi, Union Atlantic Energy and TruQC.

Across our past projects in the "environmental and natural resource" domain (broadly), we have dealt with some highly-relevant technical requirements. We have, for instance, worked on solutions that have been used to index and track species. We have also worked on several solutions that incorporated robust GIS features and capabilities, directly supportive of natural resource mapping/tracking. We even have experience working on a custom system that was purpose-built to support integrated state-wide fishery management. We also have experience building tools that allowed for capture of geo-referenced citizen observations (crowd-sourced citizen science). Within the forthcoming section of this submission that presents our past performance and references (Section 8), we have enclosed further detailed information about some of these specific undertakings.

We are very simply a reputable and dependable team – some might even say a "tiger team" – comprised of experienced, adaptable, competent, hard-working professionals, who genuinely know how to get great software development work done for government clients. We will undeniably be able to achieve a superb and reliable outcome, on time and on budget, that will address and satisfy WVDNR's expectations, while controlling expenses and minimizing risk.

The following are some further experience and capability highlights that we hope WVDNR will take into consideration:

- **Robust Operational Management Systems:** We have developed more than a few large, mission-critical management systems for State government entities. Our systems have supported mutli-party operations, with role-based permissions and data access restrictions. Our systems have incorporated dozens of custom objects, complex workflows, and functionality for data ingestion, day-to-day records management, data searching and lookup, system administration, application-level interfacing/integration, automated business logic processing, message routing and visual/statistical reporting. Good examples of this sort of work would include projects that we accomplished for Idaho (i.e., Idalink integrated eligibility, and Nexi child support), the Minnesota Department of Employment and Economic Development (CareerForce labor portal), and Maine (dog licensing portal, and integrated animal control case tracking and management system; also an integrated system for emergency responders in the state). In the private sector, we have done similarly robust custom application work for international corporations like Sappi (an integrated worldwide suite of applications delivering functionality supporting operations in the areas of HR, warehouse inventory management, customer service and ecommerce) and L.L. Bean (enhanced product search tools).

- **Exceptionally Competent Solution Engineering:** We have proven our capacity to deliver technical leadership for complex projects at the State level. We have worked on multi-agency initiatives, providing consultation and data scheme planning, as well as actual technical execution. Our team members have strong skills and outstanding grasp of best practices in the areas of data modeling and systems architecture (multi-tiered, SOA, microservice, etc.). However complex WVDNR's needs might eventually become,

our professional team will be able to keep in-step with WVDNR's vision, offering sound solutions aligned with industry best practices.

- **Integrations:** We have extensive first-hand experience working with service-driven architectures and solution components that transmit and synchronize data in real-time and near-real-time. Our contracts have called upon our team to handle such fundamental integration tasks as message/data exchange (60+ endpoint types on some projects), application interface and web service development (ex. REST, SOAP, File/SFTP, GraphQL), message routing (ex. ESB, dynamic endpoint routing, JMS), planning and analysis of message schemas (ex. REST, SOAP, ActiveMQ, JMS/QBased, S3), implementation of message patterns and protocols (ex. message queues, transactions, distributed patterns, transmission retries, and error handling), and business logic processing. Some very good examples of our experience in these areas would include the work we have done for Minnesota's Office of Higher Education (included extraction and ingestion of data from external systems like College Scorecard, as explained in the first bullet above), the State of Idaho Department of Health and Welfare (benefits projection, based on combined processing of data drawn from court, tax, and benefit administration systems in the State), and the South Carolina Department of Revenue and Fiscal Affairs (Statewide statistical reporting, leveraging AI technologies and sophisticated business logic to extract, parse, transform and normalize financial data from multiple discrete sources).

- **Mobile Applications and Field Tools:** We have considerable experience creating mobile applications for enterprise-level customers. We have worked with mobile responsive solutions (a.k.a., mobile optimized solutions), as well as hybrid applications, cross-platform native applications and progressive applications. Examples of our work in this area have included software that we produced for the Idaho Department of Health and Welfare (an app targeting new parents, whose children require clinical audiologist attention), the Maine Department of Agriculture, Conservation and Forestry (Animal Welfare tracking and investigation), Lucas Tree (vegetation control activity reporting, safety, and compliance in the field) and Axiom Technologies (two apps for the State of Maine, one dealing pesticide application data, the other with fisheries reporting). Other noteworthy mobile products produced by our team have been created for the Iowa Department of Education (food and nutrition app) and Sappi (warehouse app). Several of our past projects have involved integrations with back-end systems that have powered the mobile tools. One excellent example of this would be the work that we did for the University of New England (drug addiction resource tool). Our typical platform-agnostic approach to mobile development tends to result in better Project value -- at least in contrast to native application development, which tends to lock customers into specific technology frameworks, ultimately increasing costs when multiple separate applications must be maintained.

- **Technical Security:** Our company routinely provides advanced software application development services for government entities, and our operations are therefore regularly held to the highest standards for system and data security. Across our full portfolio of public sector contracts, our teams have worked with some of the most sensitive forms of private and personal information. This includes Federal Tax Information (FTI), court and criminal justice records, and data that is subject to HIPAA and FERPA regulations. As a matter of standard practice, we accomplish our development work in environments that are compliant with NIST standards (800-171, 800-53). Our procedures have also previously been acknowledged and approved through the IRS (based on U.S. Internal Revenue Service Publication 1075 standards). What this means is that, from a technical perspective, our professional security capabilities would far exceed what is typically encountered among most other vendors.

- **Accessibility:** Accessibility is a baseline factor in every project we tackle. Nearly all of the work accomplished by our team has necessitated compliance relevant standards (508, ADA, WCAG and W3C). We have provided compliant solutions for many government institutions. Our products and solutions have actually been subject to auditing and acceptance by accessibility review boards/committees and have even periodically included WCAG Level 3 (AAA) checkpoints, which actually exceed minimum 508 requirements. We combine human testing with reputable auditing tools to systematically ensure that all produced interfaces remain compliant. The specialists at our company who support these compliance objectives maintain appropriate credentials (ex. 508 Trusted Tester training, certification from the International Association of Accessibility Professionals).

- **Hosting:** We have been providing hosting solutions for many public sector clients, as a part of the normal and typical scope of our software development and sustainment contracts. We have consistently delivered outstanding results in this regard, affording turnkey, highly reliable access to powerful and dependable cloud environments and resources. Our staff are able to handle everything from account setup, to environment/platform configuration, to ongoing triage, management, performance tuning, troubleshooting and maintenance. We work confidently with many of the most popular platforms, to include Amazon Web Services (certified reseller), Acquia (certified community partner), Pantheon (Premiere Partner) and Rackspace. We have supported customers whose implementations have received traffic in excess of tens of millions of visits per year – sometimes with traffic exceeding 10,000 simultaneous users. Across the board, the solutions that we have provided to our customers have been extremely stable, secure and reliable. Our substantial experience with high profile, high traffic, national and statewide web projects provides our company with better perspective, enabling us to make confident recommendations. We have repeatedly proven that we can accurately predict requirements, and have even demonstrated that we have an acute capacity to anticipate "overlooked" and "unarticulated" customer needs.

- **Exceedingly Reliable Solutions with Prominent Profile:** We work frequently with public facing portals and applications. We have delivered solutions supporting use at the national level, by millions of citizens throughout the United States, and have also provided major public facing solutions for state government departments, agencies and institutions in California, Colorado, Idaho, Iowa, Minnesota, Missouri, Massachusetts, New Hampshire, Vermont, and Washington. We have shown repeatedly that we can apply responsible approaches to accommodate the distinctive needs and challenges of major enterprise-level technology projects that will have a high level of sensitivity and public exposure.

- **Effective Discovery and Requirements Capture:** Our team has planned and captured requirements across a breadth of past government projects, ranging in scope from small websites all the way up to major mission critical infrastructure. Much of our team's success over the years can be attributed to the fact we apply proven, formalized, user-centered techniques that yield practical, actionable intelligence. On a regular basis, we have helped customers to shape their project plans through a combination of stakeholder engagement, market research, and direct interaction with end users/audiences. In many scenarios, we have accomplished rapid prototyping and user testing, to enable our customers to validate their intentions and make better informed design and usability decisions. We have received tier-1 awards and recognitions for our government products. Our accolades have included honors from the Webby Awards, the W3 awards, the Ragan Awards, the IAVA Communicator Awards, the MITX interactive awards, the Web Awards, the Summit Awards, and the American Business Awards. Our products have also received recognition from State governments for industry innovation.

- **Professional Project Management:** Agile is the dominant and preferred methodology applied by our organization across all of our contracts. Under the purview and guidance of our professional Certified Scrum Masters, we have completed hundreds of sprints and thousands of standups. Our procedures are genuine and aligned with prevailing best practices, even to the extent that we have periodically been called upon to provide Agile mentoring and consultancy to major international organizations and State agencies. Our Agile project approach is conducive to total project control and transparency. We enable clients to observe, monitor, redirect and re-prioritize efforts on demand. We present customers with tangible progress at two-week intervals. Our collaboration tools – to include JIRA, Confluence, InVision and Slack – eliminate the traditional barriers between the project team and product stakeholders. WVDNR's stakeholders would be able to reach out, on-demand, in a direct and unmediated way, to any team member assigned to the Project, including our most qualified senior technical staff. Our project managers possess comparatively advanced credentials and certifications (ex. PMPs, PMI-ACP certification, master's degree, post-graduate coursework, etc.).

- **Stronger Emphasis on Quality:** We maintain an internal Quality Team that remains actively engaged in sprint activities, reviewing deliverables as the deliverables are being finished. Our QA Engineers use manual and automated testing techniques to ensure the software we produce works under any circumstances. We accomplish everything from end-to-end testing, to cross browser testing, to stress/load testing, to scanning for other common quality issues.

- **Impressive Track Record of System Longevity:** Most of our solutions have withstood the tests of time. One excellent example of this would be the system that we created for Maine's Drug Court division, back in 2009 - a product that is still in regular use today, a full decade later. Many of our customer products have been used by our customers for more than a decade.

- **Lowest-Risk Staffing:** We will undeniably be able to mobilize the "right" mix of professionals -- a known and dependable team, not a new and untried team -- to deliver an outcome that will genuinely address and respond to WVDNR's instant requirements. We operate as a relatively small, highly cohesive, integrated software task force. Our team is extremely stable, with minimal turnover. Our team members have been working together for quite some time. This means that our customers can always expect superior collaboration and immediate productivity from our team - blending the best and most sensible technology innovations with low-risk industry protocols and highly standardized operating procedures. The inherent value of this "task force" proposition should not be underestimated. We would be putting at WVDNR's disposal the same core team that has made our other projects so successful. This approach tends to differentiate our company from most typical consultancy shops, who tend to assemble their assigned staff only on a temporary, short term, as-needed, project-by-project basis (frequently resulting in higher-risk, unproven teams, with no prior experience working together). The team won't just be disbanded after the project is complete, leaving WVDNR with a product that can't be easily supported. When future changes and maintenance are necessary in relation to the deployed solution, we will undoubtedly be able to operate with superior productivity, due to our team members' long-term involvement and built-up familiarity with the relevant infrastructure and architecture.

- **Partnership-Driven Adaptability:** We have repeatedly demonstrated an unwavering commitment to building longer-term relationships with our customers. We will be able to provide enthusiastic team interest and support, executive attention, and access to industry-leading talent. Efforts under the contract will adhere to a proven repertoire of best practices that cultivate trust, mutual respect, transparency, accountability, and a genuine sense of operational partnership.

8. Qualifications and Experience, Part II: Relevant Experience

In the forthcoming pages, we present a series of recent project references. These examples will demonstrate that our organization has the expertise and aptitude to perform the work of the contract that would result from this RFP. We encourage WVDNR to contact the listed individuals to hear first-hand how well our company performs.

Colorado Parks and Wildlife
Dates: March 2024 - June 2029
Status: Active dev. underway, nearing completion of initial MVP product
Approx. current value is $1,000,000
Website: not applicable
Reference: Kirk Teklits, Business Operations Manager, 303-291-7763

Colorado Parks and Wildlife (CPW) is responsible for protecting and caring for Colorado's natural and cultural resources. Their agency has been in operation for more than a century, manage wildlife, and ensuring the quality, health and future of Colorado's state parks, through cutting- edge science and innovative conservation practices.

In 2023, after many years of working with legacy internal systems that did not fully meet the State's prevailing day-to-day operational needs, CPW opted to procure a new custom software solution that would enable integrated, statewide management of the State's many fishers and fish-and-water-related science/health programs.

Our company was selected as the preferred solution provider. We were selected because of our clear grasp of the State's intentions, our proven background in the conservation space, and our advanced competencies in the areas of open source development and user centered design.

We commenced the project with a period of discovery and planning, during which we worked alongside State representatives to gather and validate the essential functional requirements for the new system. We then proceeded to prepare, test and refine a series of notional interface prototypes based on the State's apparent needs. Approved concepts were thereafter used as the basis for subsequent technical development.

Ensuing technical work was carried out in accordance with an Agile methodology. We assigned a full scrum team, and accomplished more than 16 sprints. Work focused initially on critical features, and then gradually expanded to encompass other secondary functional interests.

The resulting solution provided the following core functionality:

- **Core Data Tracking:** Functionality was provided to support tracking of waters, facilities, staff and labs

- **Hatchery Operations:** Functionality was provided to support tracking and management of inventory, resource expenditures and operating costs, specimen availability projections, feed/resource shipments, personnel authorizations and assignments, stocking and transfer orders/events, facility-specific rules/restrictions, lots and containers, feeding, diagnostics, prescriptions, treatments, certifications, support requests, and more.

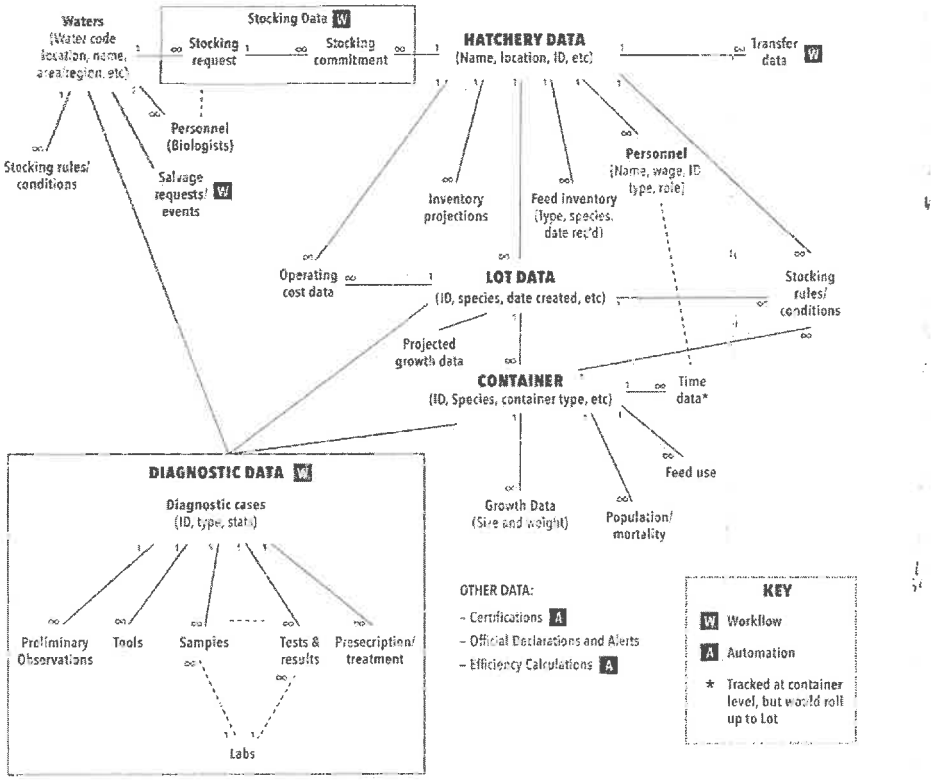
- **Stocking, Transfer and Salvage Operations:** Functionality was provided to facilitate multi-party coordination and workflows. This included functionality for tracking and managing originating requests, facility commitments, agency approvals, and actual pickups and deliveries.

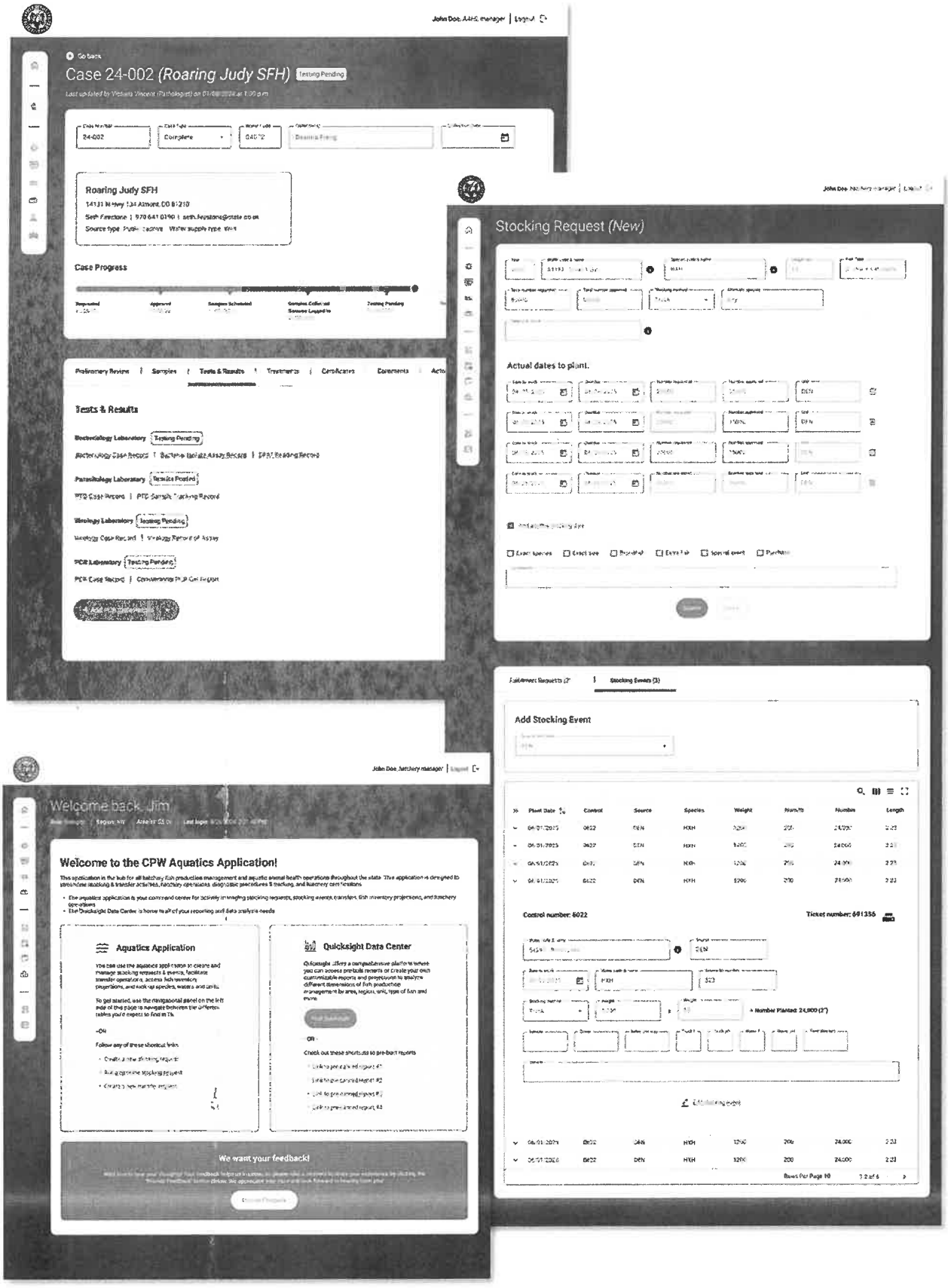
- **Fish Health:** Functionality was provided to facilitate coordination and workflows that pertained to diagnostic operations. This included functionality for observation tracking, case management, test ordering, sample gathering, and result reporting. It also included functionality for prescription tracking/management.

- **Certifications:** Integration functionality was provided to facilitate multi-party coordination and workflows pertaining to annual facility certification and rule/restriction setting.

- **Administrative Reporting:** The system provided agency representatives with access to calculated statistics and graphs regarding current species inventory, feed availability, growth trends, mortality/survival rates, future projections, and cost efficiency (cost per fish, per inch of fish, etc.). This sort of information was made available at both the State-wide level and the hatchery level.

NOTIONAL DATA SCHEMA




Case 24-002 (Roaring Judy SFH)
Testing Pending
Roaring Judy SFH
Case Progress
Tests & Results
Stocking Request (New)
Actual dates to plant.
Add Stocking Event
Welcome back, Jim
Welcome to the CPW Aquatics Application!
Aquatics Application
Quicksight Data Center
We want your feedback!

Colorado Avalanche Information Center
Dates: January 2022 - November 2024
Status: Initial implementation completed; Active dev. ongoing
Approx. current value is $355,000
Website: avalanche.state.co.us
Reference: Jacob Barney, 303-499-9650, Jacob.barney@state.co.us

The Colorado Avalanche Information Center (CAIC) was created in 1973 to provide research, monitoring, tracking and forecasting of snow-and-avalanche-related conditions. Operating in the interests of public safety, risk reduction, and commercial and economic protection, their agency continues to serve as a vital statewide source of pertinent communications, education and alerts. CAIC is managed in partnership with the Colorado Department of Natural Resources, the Department of Transportation, and the Friends of the CAIC.

Prior to our engagement with CAIC, the agency had already put in place substantial infrastructure that was supportive of their core mission. This included a network of remote monitoring stations/devices and a set of centralized, Ruby-based systems that accommodated data collection and storage. However, their data remained largely siloed and unavailable for public reference. The agency was also using some conventional and less efficient (manual) methods for processing day-to-day incoming accounts/observations from citizen witnesses in the field.

Accordingly, CAIC had some high priority interests in modernization. The agency wanted to transparently expose a broader scope of its available data and information. They also wanted to ease, automate and streamline some of their essential data intake and publishing procedures. They additionally wanted to ensure that any further deployed solutions would remain accessible, compliant and sustainable into the future.

A competitive bid process was conducted, and GovWebworks was selected as the preferred provider. We were selected for our experience with public sector systems, and our proven expertise with integrations, GIS, and custom data-driven implementations. We also had substantial prior experience with other intensive modernization undertakings.

We got started on the work by conducting an initial round of discussions with key executives and stakeholders from the agency. Through these discussions, we helped CAIC to refine the project vision and articulate a more precise agreed scope of functional expectations. From there, we then helped CAIC with some general decision-making pertaining to solution engineering.

We also spent time with CAIC exploring audience needs and interests. It became apparent that prospective users would have varying levels of familiarity and understanding. Whereas many users (ex. general public, recreationists) would likely want information to be presented in very simple safety terms, other users (professional athletes, transport companies, those who work in the mountains) would instead want deeper technical information about the nature of the snowpack and the exact prevailing conditions.

Guided by the insights that we derived from our discussions with CAIC, we then moved forward with planning and design of a comprehensive digital experience that would satisfy all prospective user needs and interests. We started with low fidelity wireframes, and then gradually iterated towards more fully detailed, higher fidelity mockups. We provided landing page designs, as well as designs for secondary pages, widgets and forms. Our designs factored aspects of prescribed State styling, as well as some input from another vendor who had previously delivered some preliminary interface concepting to CAIC.

Technical work on the solution thereafter proceeded using Drupal and React. We worked iteratively, applying an Agile development approach, delivering outcomes and enhancements at two-week intervals (sprinting cycles). At the end of each sprint/interval, we would demonstrate our latest accomplishments to CAIC decision makers and stakeholders. We would any gather input and feedback, and then would immediately proceed with our next set of assignments/obligations.

The resulting digital experience built-up quite quickly, over the course of just a few months. It presented much of the necessary information in the framework of an interactive map. The map format allowed for convenient, consolidated, highly visual, intuitive, at-a-glance exploration of the aggregated sensor data that was being collected throughout the State, in something close to real time. The interface was created using Restful integration with CAIC systems and Google Maps API. It incorporated various graphic layers that tracked zoning and severity of dangers. It allowed for quick reference by most users, while still accommodating drill-down and display of granular, technical specifics, via optional callout trays that would share deeper information (of greatest interest to professional specialists).

As a part of the solution, we also provided a new means of capturing and processing incoming information about citizen/witness observations. An interface was provided to allow for simplified new observation logging. The interface was capable of capturing location coordinates and details about apparent cracking and collapsing. The interface even allowed for media upload. A corresponding workflow made the process of CAIC review, and subsequent public announcement, significantly more rapid and expeditious. We additionally provided the means for users to conveniently search and query/filter the published accounts.

The entire digital experience was made fully mobile responsive. This was critical to accommodate routine browsing of detailed avalanche information from any outdoor location in the State, where the information could be lifesaving. The mobile compatibility was also integrally necessary to allow new observations to be captured and widely shared/disseminated in real time, on-the-fly, from the field.

We also took tremendous care to ensure that the entire experience would be optimally accessible to all users. Extra time and attention were invested in the adaptation of traditional avalanche symbolism and risk colorations to 508 and ADA accessibility standards. We accordingly added special icons to our design scheme, to assure a suitable level of compliance. We also added contrast to essential map iconography (ex. zone boarders). Additionally, we enabled focus states that would make keyboard-driven operation feasible

(allowing those who would be using the application with assistive technologies to easily browse/cycle through each of the areas on the map).

The new experience was sent live in the winter of 2022-2023. It garnered much attention, and achieved a historically noteworthy level of traffic. It also prompted many kudos from users, who deemed the update outstanding and overdue. Since that time, we have continued to work with the CAIC to add further enhancements, in accordance with agency priorities and public feedback.

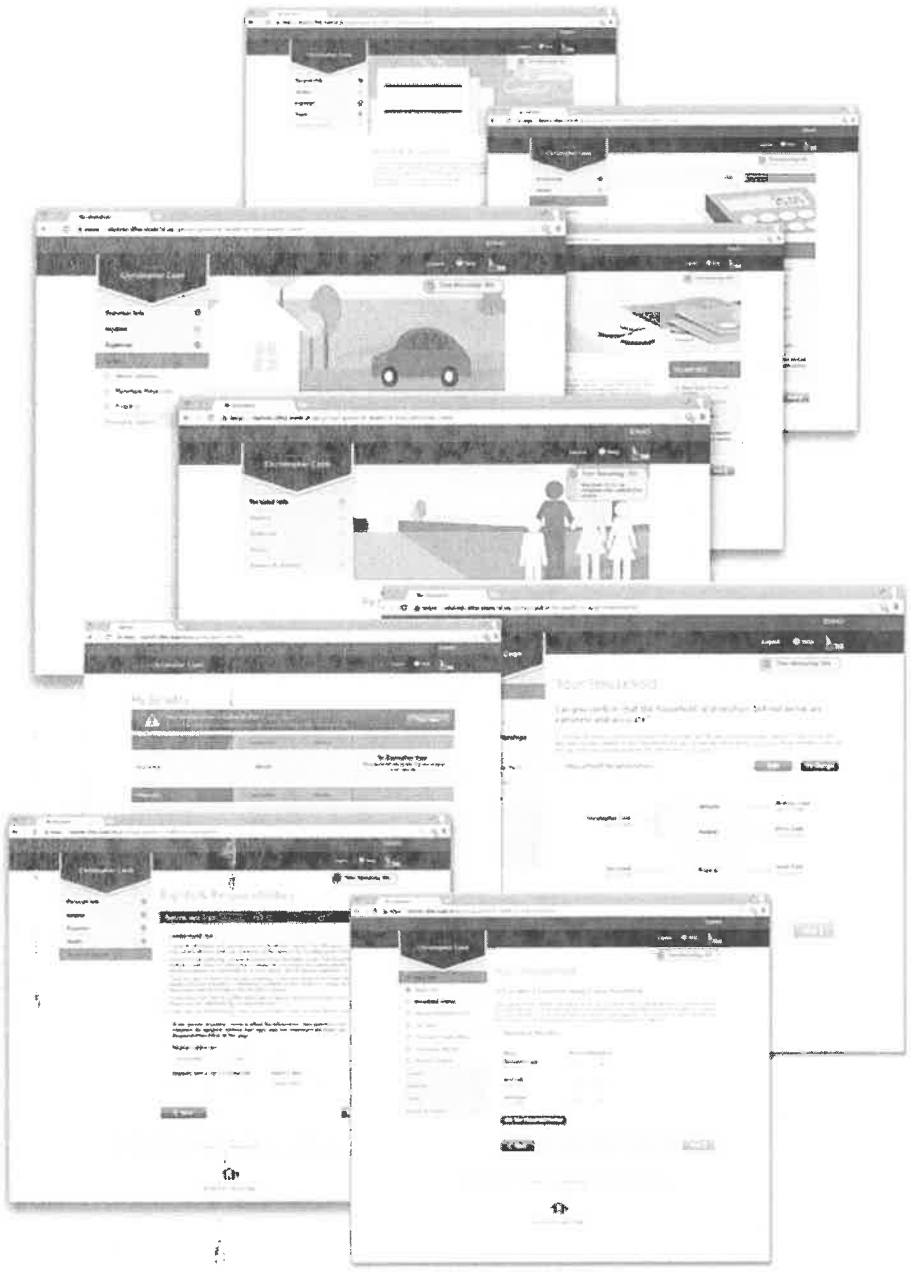
Idaho Department of Health and Welfare
Dates: 09/18/2012 - 06/30/2025 (current actual schedule)
Status: Many projects and assignments completed, with live solutions; Active dev. ongoing
Approx. current value is $18 million
Website: healthandwelfare.idaho.gov
Reference: Angie Johnson, 208-869-7390, Angie.Johnson@dhw.idaho.gov

For over eight years, we have been working with the Idaho Department of Health and Welfare. During this period, we have handled a variety of custom software and web development assignments for various statewide products and projects. We have delivered multiple public-facing solutions that have enabled the state to promote access to available services, facilitate registration/application/enrollment, manage individual cases, and ease visibility into specific program quality interests. The scopes of our projects have been robust and highly complex in nature, with compliance expectations encompassing prevailing NIST, IRS and HIPAA standards. Much of the Idaho work accomplished by our team has moreover been subject to ambitious usability standards and user-centered design objectives. All work has been accomplished in accordance with an iterative, agile methodology, which has enabled the state to enhance and improve its resulting software capabilities over time, based on evolving departmental priorities.

Idaho Project Example #1: idaLink

Our company built a new, public-facing integrated benefits eligibility portal for the State of Idaho. Over time, we delivered more than 60 product increment releases. Some key features and capabilities of the solution included: initial and follow-on citizen application/registration for benefits; management of personal profile records, complete with various elements of PII (income, expenses, assets, dependents, other highly sensitive federal tax information); official document uploading and management; application progress tracking; ingestion and flow of data to other State-wide mission critical systems; multi-channel process and workflow automation; application status and outcome monitoring; personal change reporting; benefits summary, reporting and projection; and secure data lookup for authorized third parties. The main end user interface for this project entailed a guided and stepped user experience. Our highly competent and qualified team engineered and implemented the solution, working in tandem with the State's stakeholders, using proven and well-established open source technologies, such as Java and Angular. Our company provided required project management, design and UX, technical development, and quality assurance. We also delivered DevOps support, product visioning recommendations and other consultation. A very significant investment was made in user-centered research for this project, and the resulting solution received industry recognition in 2014, through the Webby Awards program for outstanding user experience. The solution is compliant with State of Idaho Standards, HIPPA standards, FTI standards, and NIST standards. Meaningful ongoing sustainment and enhancement efforts for this project are still active and underway (development work will continue for some time to come).

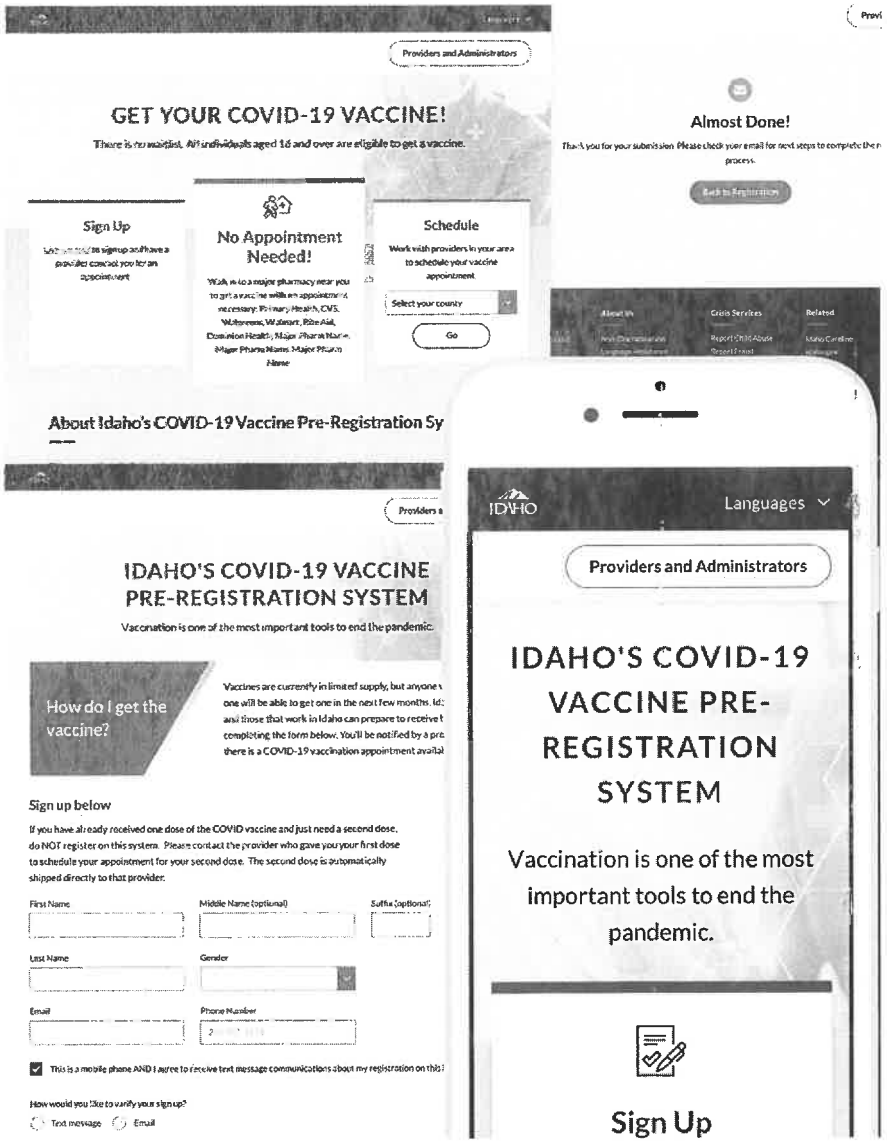
Many of the interfaces produced for this project were extremely sophisticated. The citizen-facing interface for data capture delivered a robust, multi-stepped experience, driven by extensive decision tree logic.



Idaho Project Example #2: Covid Vaccine Registration

We developed the Idaho's COVID vaccine registration platform, which collected substantial personal information, including key contact data and other essential information that is subject to sensitive PII and HIPAA regulations. The platform became a central data hub/broker for all vaccination intuitions throughout the entire state, enabling citizen queuing and prioritization of prospective vaccine recipients, as well as data sharing across multiple authorized third-party systems. The solution was accessible via the web, and was suable from mobile devices as well.

Information collected through the platform was used to generate communications and messaging to citizens. The application allowed for both SMS and email transmissions to be executed. The capability was leveraged for the purpose sharing news, announcements, and information about appointment openings. The functionality was also used to generate personal reminders, and periodic motivational-boost-style encouragements.



Idaho Project Example #3: NEXI Child Support

The State of Idaho was operating a legacy child support system, called Mia. The Mia system was running on technology that was nearing the end of its life. This legacy system had a steep learning curve that limited holistic understanding of case flows. Few people had sufficient experience or training to handle all aspects of a case, so there were many handoffs from one staff member to another. Moreover, there were multiple involved systems with varying levels of integration, which introduced opportunities for data discrepancies and confusion. All this contributed to significant case backlog and worker fatigue.

Our company was selected to develop a new, customer-focused case management system (NEXI) to improve the agency's capacity and capabilities. Our new system offers a modern and user-friendly experience to professionals who are involved with the State's child support workflow. The new system was rolled-out in a phased/modular manner (an excellent example of modernization in place, while the proverbial plane was operating and in flight). Development commenced in 2017. An initial scope of "read only" production functionality was released in 2018. Since that time, more than 20 major product increment releases have transpired, incrementally adding more system features and additional functionality.

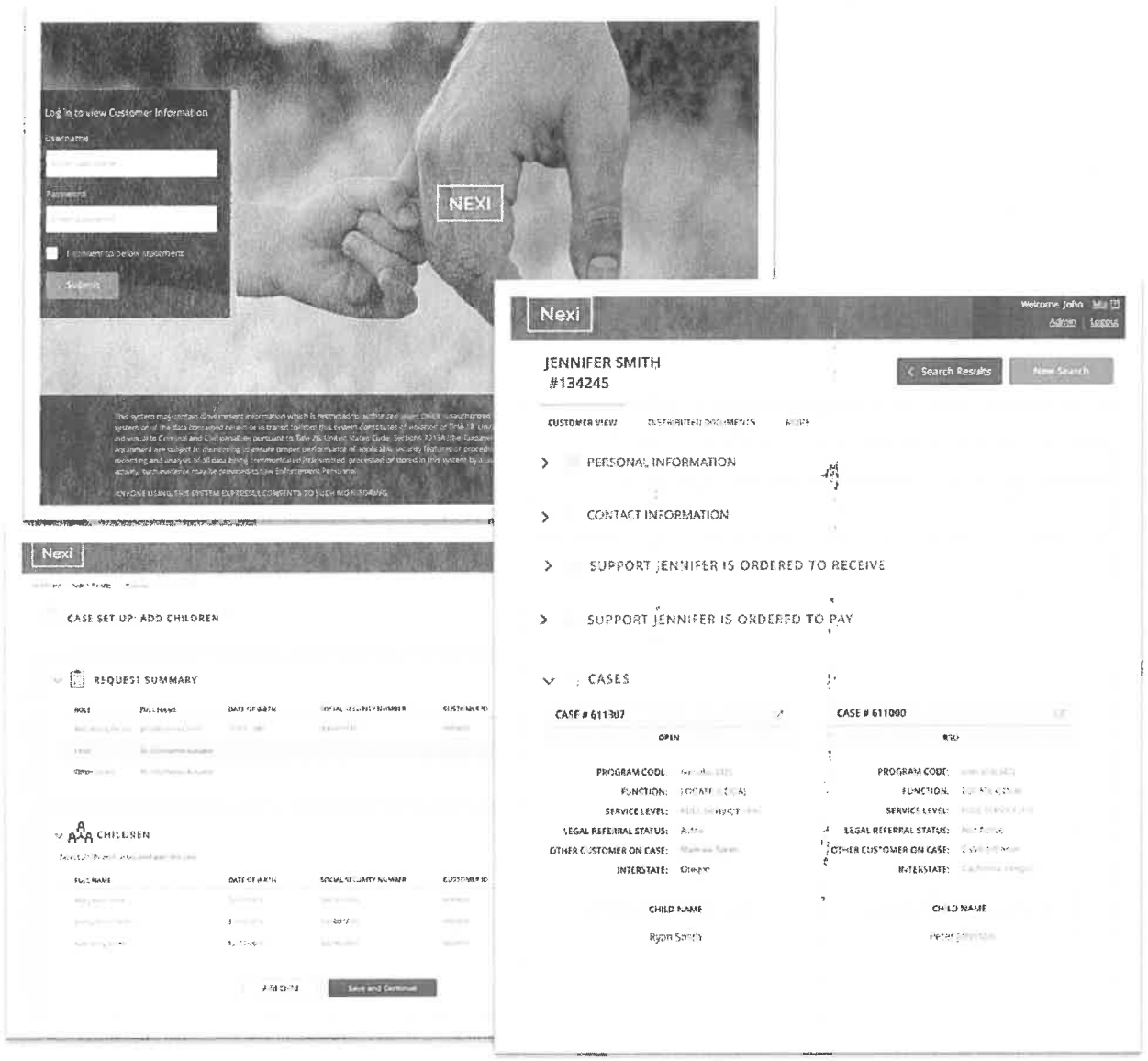
Work on this project has been accomplished in tight coordination with ongoing State efforts pertaining to other upstream and downstream State systems. The solution is compliant with State of Idaho Standards, FTI standards, and NIST standards. Our highly competent and qualified team rapidly engineered and implemented the new solution, working in tandem with the State's stakeholders, using proven and well-established open source technologies, such as Java and Angular.

Key functionality and features of the system include, but are not limited to:

- Case creation and editing
- State workforce specialization tracking, assignment and delegation
- Parent and guardian tracking, including but not limited to financial profiles, criminal status and relevant legal judgement dispositions
- Paternity validation and documentation
- Calculation of parental payment obligations and support capacity, in accordance with prevailing regulatory guidelines
- Tracking of relevant legal actions and court activities
- Management of requests for change orders
- Multi-channel communications to case stakeholders
- Case coordination and cross-party workflow automation
- Case Status Monitoring
- Case reporting
- Integration with various other State data systems

The upgrade to Nexi has brought about a cultural shift within the department from a case-focused approach, to a more customer-focused approach. Previously, cases were managed in stages, as they passed through a series of specialists for review and updates before ultimate resolution. Now, support staff can work directly with customers to resolve issues and update their cases in a fraction of the time. Nexi also improves resolution times for open cases, while providing better access to system records. Its features streamlined procedures for management of cases, enabling work to be assigned to individuals with appropriate skillsets.

The new platform supports a broader audience than the prior Mia implementation. The system is used by the department's internal case management specialists, supervisors, court clerks and attorneys. The well-coordinated, streamlined and modernized processes have enabled much better coordination between these parties, translating into significant improvements in the quality of services and support that the State is able to render to children and families.



Maine Department of Agriculture, Conservation and Forestry; Animal Welfare Division
Dates: May 2019 - Present
Status: Active
Approx. Current Value is $500,000
Website: Not public
Reference: Ronda Steciuk, 207-485-4900, Ronda.Steciuk@maine.gov

The Maine Department of Animal Welfare ensures humane and proper treatment of animals. The agency develops, implements and administers a comprehensive set of programs that uphold the animal welfare laws of Maine through communication, education and enforcement.

We worked with the agency to develop and deliver a new and integrated solution that provided mission-critical functionality to the agency. The solution that we delivered supported pet licensing, dangerous animal tracking, animal abuse case management, town account administration, ACO activity tracking, public communications, and reporting. The resulting database application delivered new functionality and situational awareness, enabling animal welfare efforts to become elevated to the level of a state-wide operation, giving stakeholders throughout Maine the ability to work in tandem, in a more consistent, unified, synchronous, systematic, integrated and regulated way.

It was clear from the start that many users would need to be engaged with the system, to include residents, municipal town clerks, municipal animal control officers, field agents/inspectors, agency dispatchers/clerks, agency administrators, the agency director, and agency accounting staff. We worked with key stakeholders from the agency to identify the core functionality needed, and also conducted some targeted user testing. We conceived and validated a solution that would prove user friendly, and that would be suited to both desktop and mobile field (both real time, and synchronized) operation.

The licensing aspect of the system essentially created a new central registry of all licensed dogs in the state. Some key highlights of the system's capabilities in this area included:

- The platform allowed for Self-service licensing
- The system enabled a wide variety of information to be reliably captured and maintained for pet owners; the scope of information encompassed pet and owner information, chip information, spay/neuter information, and rabies vaccination certification.
- The system could handle multiple pets per transaction, and could transact payments and provide receipts.
- The platform allowed for administrative approvals and processing (assign / specify tag numbers for paid applications, plus follow-on workflows, such as physical turnover and/or mailing of tags).
- The system allowed the agency to generate statewide mail and email reminders for licensing renewal.

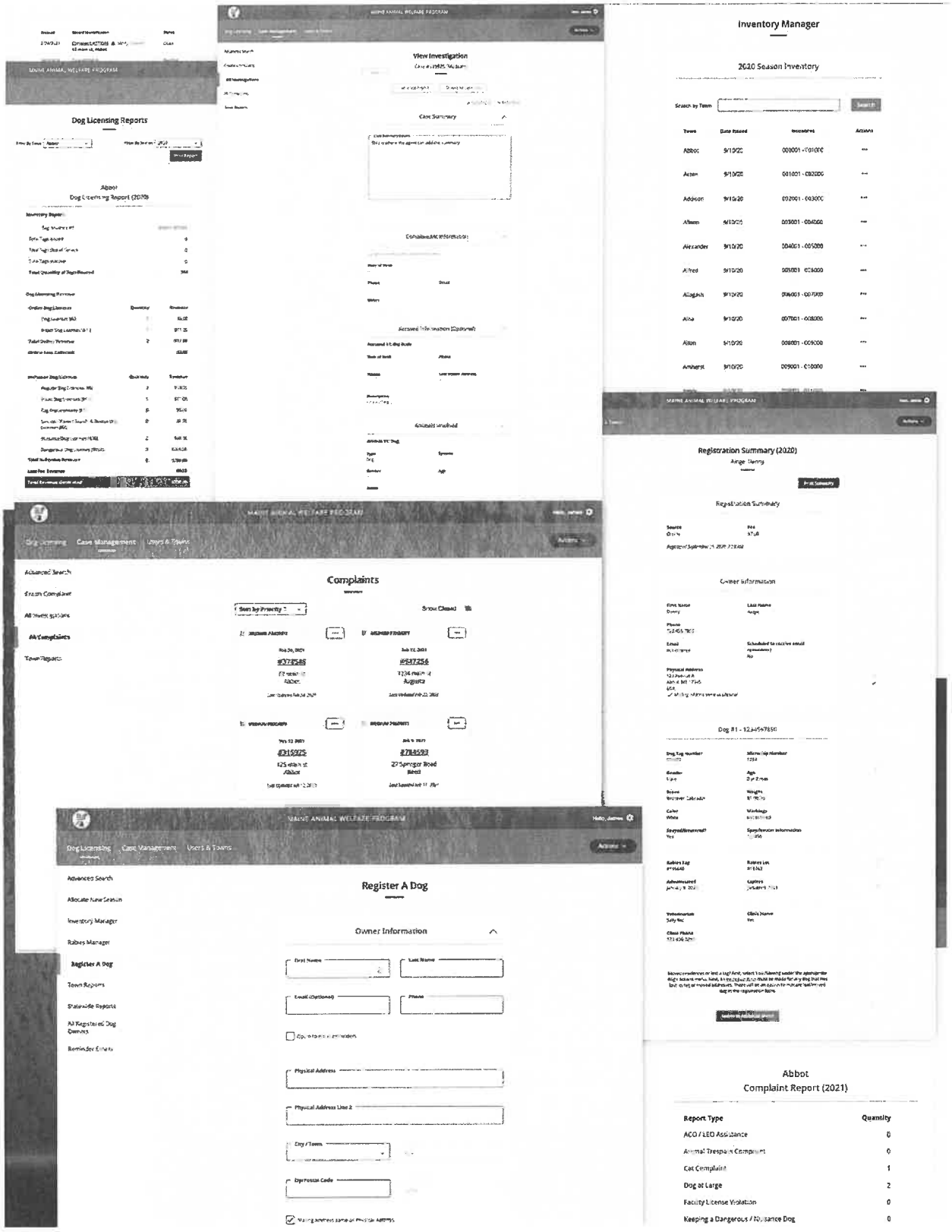
- Authorized State administrators gained access to detailed querying and reporting capabilities (incl. reporting based on multivariate criteria: owner, town, address, license number, date range of issue/expire, etc.).

The new licensing and data tracking capabilities were delivered in tandem an integrated case management capability. This aspect of the system greatly enhanced the agency's capacity to track, monitor, analyze, and coordinate activities surrounding highly sensitive animal abuse reports and confirmed incidents throughout the State. Some highlights of the system functionality and benefits in this regard included the following:

- The platform supported role-driven access for Field Agents/Inspectors, Agency Dispatchers/Clerks, Law Enforcement Officers, and Municipal Animal Control Officers.
- The system enabled dispatchers to capture initial complaint data, to include source (complainant) information, accused information, animal(s) involved, and evidence.
- The system allowed for assignment of unique case numbers, while also accommodating tracking of relationships between records.
- The platform allowed for coordinated dispatching and assignment of investigator/field agents to cases, and also supported automated notifications on critical case events.
- The platform allowed users to capture and manage associated case evidence, including but not limited to official documents, lab reports, videos and images.
- Status controls on records enabled case information to be appropriately workflowed through official review and approval channels.
- The platform made it possible for agency staff to flag dangerous and addresses.
- The platform supported operational expense tracking through input of cost information and upload of expense documents.
- The platform integrated with legal infrastructure to support tracking of legal cases, and assessment of violation fees, fines and penalties applied through official judgements
- The platform also offered a variety of other judicial-system-integrated capabilities, such as tracking of court orders, search-warrant checklists, and issuance of ATN/CTN numbers for summons
- The platform supported easy case lookup, and also allowed for a wide range of querying and reporting to meet administrative agency requirements.

Important Note: Our original proposed approach to this project was scaled back to fit the client's available budget. In the process, significant portions of the proposed project scope were cut, including certain user research services that we had deemed prudent. We worked in good faith with the individual who was the agency's Director, at the time, and delivered an agreed-upon solution, in accordance with our contractual obligations, to the apparent satisfaction of the State. However, the solution has not been sent live to date, due to a misalignment of certain functionality with local Clerk workflows and expectations. Since the time of final delivery and acceptance, a new Director has taken over control of the agency, and is in the process of evaluating options and alternatives to fix the situation. It is possible that the State may require additional solution adjustments/enhancements in the future to allow for full rollout and adoption.

A sample montage of screenshots from the system is shown below.



Center for New Energy Economy, Colorado State University
Dates: September 2022 - August 2023
Status: Active
Approx. current value is $270,000
Website: cnee.colostate.edu (new site expected to go live within the next month)
Reference: Carlyn Petrella, 716-673-5507, Carlyn.Petrella@colostate.edu

The Colorado Center for New Energy Economy (CNEE) was founded, in 2011, as a high-profile Department at Colorado State University. The organization operates in both educational and professional consultative capacities, providing technical expertise, research, political strategy, and legislative guidance that is supportive of our nation's transition towards clean energy. CNEE is led by Colorado's 41st Governor, Bill Ritter, Jr., with assistance from a team of energy and environmental policy experts.

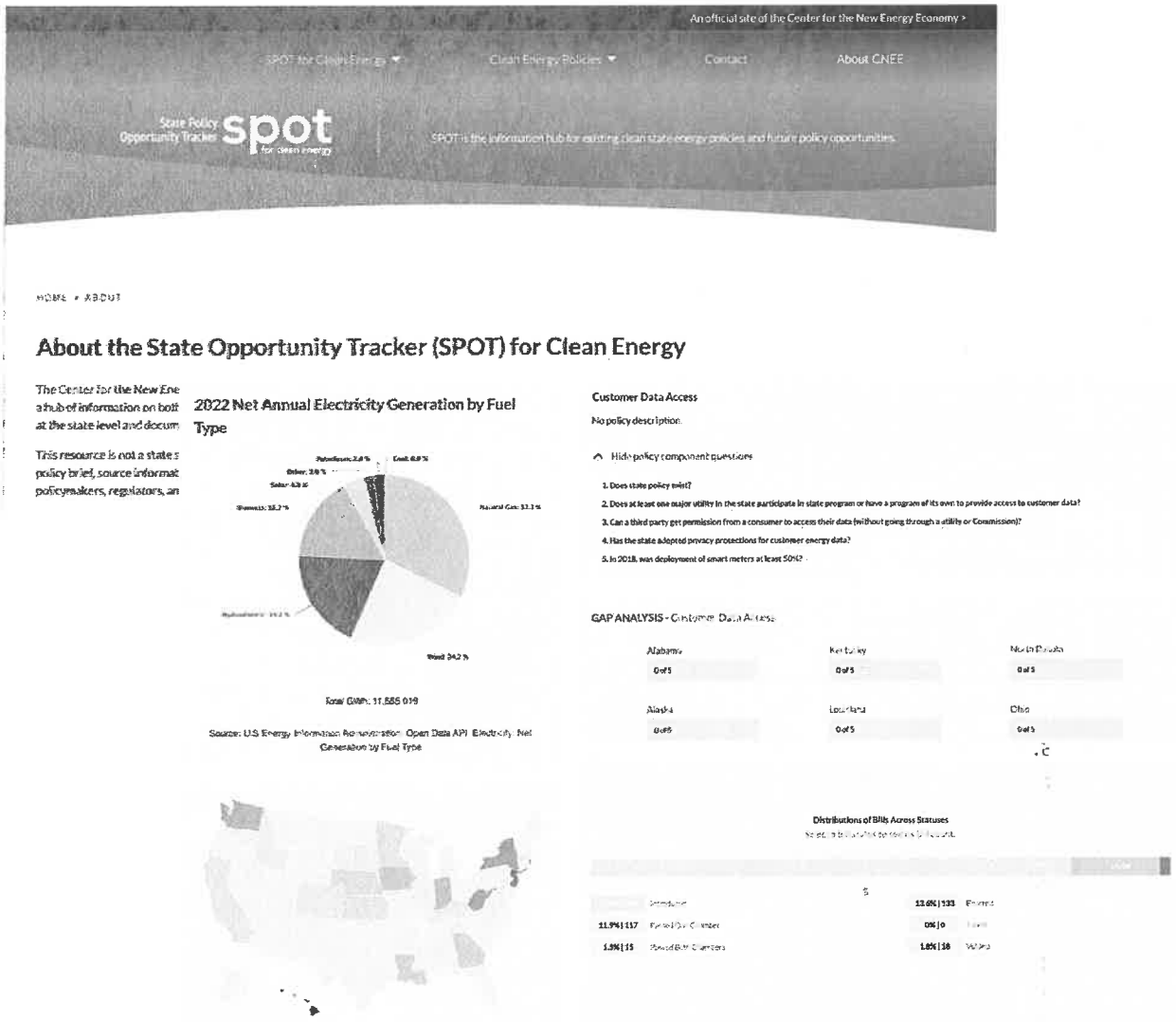
In 2023, we helped CNEE to modernize two of its primary public-facing systems. The systems in question were custom legacy applications, which tracked energy use, generation, and policy trends on a state-by-state basis. The systems were implemented in a complicated manner that made them difficult to sustain, and neither of the applications were fully meeting CNEE's evolving operational needs. Both legacy applications had been created with the Wordpress platform.

We replaced both legacy implementations with a consolidated, new, modern, custom-built, service-driven application. The back-end of the new solution was developed using Java/Spring. React, MUI and Tailwind were, in turn, used to create the front-end client, which interfaced with the back-end services. The new system exposed an API layer, and leveraged GraphQL-driven integrations with several external, third party, private and federal data sources (ex. LegiScan and a system owned by the U.S. Energy Information Administration). For data persistence and storage, we used MariaDB. Hosting for the application was arranged through AWS.

Although technical redevelopment and modernization was the overriding emphasis of the Project, we did have the opportunity to help CNEE with some important design/UX innovations. Initially, we utilized insights derived from early stakeholder interviews to move forward with some preliminary concepting of prospective design/ux revisions. We worked methodically, iterating from low fidelity mockups, towards higher fidelity clickable prototpyes. which were eventually used to conduct testing with actual end users to validate the emergent intentions. Testing encompassed navigation challenges and monitoring of data use/consumption patterns. We also obtained some feedback regarding the overall interactive/visual appeal of the applications. These efforts led to significant design/ux improvements.

The resulting new application offered a rich interactive experience. Almost every screen incorporated extensive visualizations, calculated statistics and other data-driven presentations. We used Highcharts to create many of the necessary dynamic infographics. Some demonstrative screens from the system are depicted on the next page.

The project is presently in its final stages. User acceptance will be occring over the course of the next month, and the site is presently expected to be sent live by early September. Our working version of the application can be access from https://prod.spot.cneecsu.link/ and https://prod.aeltracker.cneecsu.link/.



Mississippi Department of Wildlife, Fisheries and Parks
Dates: February 2023 - May 2024
Status: Implementation complete
Approx. current value is $400,00
Website: https://www.mdwfp.com/
Reference: Michael McRae, 601-432-2033, michael.mcrae@wfp.ms.gov

The Department of Wildlife, Fisheries, and Parks (MDWFP) is responsible for the regulation, management, preservation and protection of Mississippi's natural resources and outdoor recreation areas. The purview of the Department spans policy administration, law enforcement (ranger service), fishery governance, wildlife area oversight and superintendence, and day-to-day operation of parks and attractions. The Department's programs and policies have a direct impact on many residents, tourists, travelers and businesses throughout the entire State.

In 2023, MDWFP determined that the time for a wholesale refresh of its legacy web presence was close at hand. The Department accordingly released an RFP to identify a qualified vendor who would be capable of updating their legacy Umbraco-based site. They sought a single provider who could manage everything from discovery and user research, to design and engineering, to technical execution, to content migration, to rollout (training, piloting, launch, etc.).

Our company was selected as the successful offeror. We were, in part, chosen for our parallel experience with other government agencies in the conservation domain. MDWFP also saw strong value in our proven, user-centered design competencies. In addition, MDWFP recognized that our proposed technical approach, using Drupal, would yield a best-in-class, exceptionally high-value outcome.

During the first several weeks of the project, our efforts were oriented largely towards initial startup activities. We accomplished a kickoff and worked closely with the State to conceive and agree a suitable project plan, with a clear timeline, milestones, and success metrics.

Thereafter, we moved forward with a period of focused discovery and orientation. We staged a series of discussion sessions to explore the State's detailed functional expectations, and then accomplished a comprehensive audit of the State's entire legacy site (covered content, navigation and accumulated behavioral analytics). We then followed-up with some market research (analogous sites) and some user research (interviews and focus groups).

The combined insights from the discovery and orientation efforts were leveraged to prepare a formal project brief. The brief included an analysis of the content types that would be required in the new/updated web presence. It also included a corresponding summary of the functional requirements that would be applicable to new site and its underlying content management platform. In addition, the brief also included a collection of target user personas.

The next stage of project turned attention towards site redesign. We prepared wireframes for selected page types and all page components, across an agreed scope of form factors.

Concepts were cycled with State stakeholders and end users alike. Based on collected feedback, we made iterative adjustments, gradually adding increasing levels of detail and refinement, until ultimately, we were ready to produce final high-fidelity design comps. These comps were delivered to the customer in conjunction with a new style guide that would inform the imminent implementation.

Concurrently with the design work, we also collaborated with the States technical representatives to finalize engineering plans. This encompassed decision making relative to user roles, permissions and workflows, as well as decision making about hosting and relevant development procedures/processes/tactics.

Full technical execution was afterwards accomplished in a matter of just a few months. Our team applied an Agile (scrum) methodology during this period of the work. We adhered to a standard and conventional two-week sprint cycle, advancing through requirements systematically, addressing respective backlog items in order of importance. In this manner, the team was able to ensure that MDWFP's minimum expectations were all met and satisfied up front, as early in the project lifecycle as possible, well-within the project's allocated budget and funding constraints.

The finished solution ultimately leveraged Drupal 10. We handled all aspects of the necessary coding and configuration, and collaborated with MDWFP to accomplish content population/preparation. Initial content preparation entailed transfer/loading of materials from more than 10,000 legacy nodes/urls (pages and files). All outcomes, at both the technical and content levels, were subjected to rigorous quality assurance and compliance testing.

In preparation for launch, we delivered extensive training to State staff. This included baseline training for all content managers (covered practical aspects of content entry and publication, as well as fundamental styling/compositional standards). We also provided training for senior communications personnel, who would bear responsibilities for platform administration and analytics monitoring. The latter training covered various aspects of site strategy.

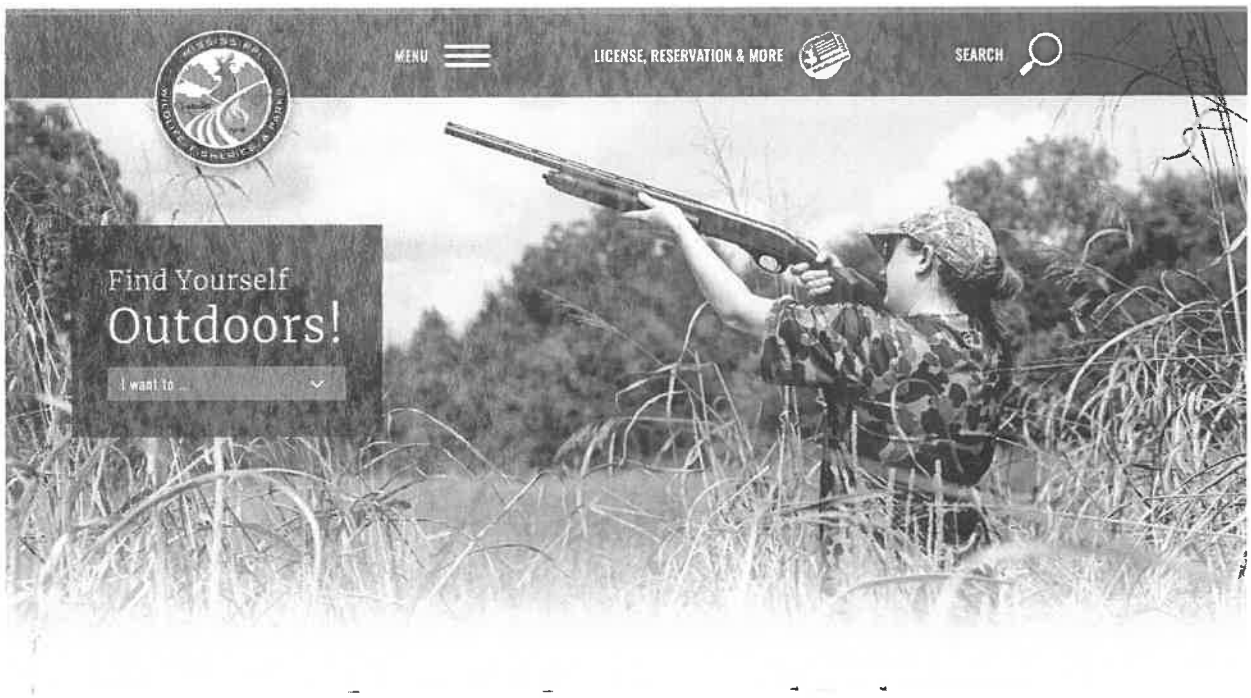
Training was followed by a period of piloting / beta testing and final acceptance. We worked closely with the State's technical specialists to obtain authority to go live. Upon launch, we then transitioned into a supporting role, to enable ongoing platform sustainment and maintenance.

Noteworthy outcomes of the project included:

- provided a fresh ,new and robust user experience (UX), with an overhauled information architecture and navigation scheme (organized content and functionality under prominently featured site areas, such as Wildlife and Hunting, Fishing and Boating, Parks and Destinations, and Enforcement and Education).
- introduced a series of new interfaces that enabled citizens to discover the State's extensive network of parks and wildlife management areas
- created new tools to aid discovery of hunting and fishing resources and other educational materials.

- enhanced the content management experience for administrators, affording access to a new visual page building experience that could be easily controlled and manipulated by non-technical users, thereby freeing up MDWFP's own developers to focus on other tasks.
- added reliable semantic structure to content, increasing overall SEO optimization

The totality of the above work was actually accomplished through a (second-tier) subcontracting arrangement with Treinen Associates (first-tier subcontractor), under a master contractual vehicle that the State had already set in place with Knowledge Services (prime contractor). However, even though Treinen and Knowledge Services were officially both involved in the relevant contractual arrangements, our company remained exclusively responsible for the execution of the project's day-to-day performance responsibilities. We delivered nearly all of the necessary project management services, and independently handled all necessary aspects of stakeholder engagement, business objective analysis, user research, visual design, technical engineering, technical development, content preparation, and solution maintenance/sustainment. In their turns, Treinen and Knowledge Services were involved in the project only modestly, in a manner consistent with their higher-order contractual roles (a modest level of oversight and quality assurance was provided by their organizations, particularly in terms of client introduction and ongoing deliverable monitoring/review/sign-off).



Missouri Department of Conservation
Dates: June 2017 - May 2023
Status: Active; Implementation complete; continuing enhancement underway
Approx. current value is $1,101,568
Website: mdc.mo.gov
Reference: Chris Cloyd, 573-751-4115 ext 3842, chris.cloyd@mdc.mo.gov

GovWebworks has been working with the Missouri Department of Conservation (MDC) since 2016. We took over the contract form a previous provider, and rapidly assumed responsibility for maintenance, sustainment and enhancement of the MDC's existing Drupal website infrastructure. Early on, we helped the MDC to conceive a platform roadmap, adopt Agile practices, and instantiate an actionable backlog. Our early productive efforts were focused on optimization of site performance (including restructuring of code to facilitate future development) and improvement of targeted aspects of site usability (UX enhancement). We also improved overall site accessibility, supporting 508 and WCAG/AA compliance (a new enterprise platform, and new scanning tools, were implemented to help MDC manage compliance).

In late 2019, we then started planning a full-scale site redevelopment upgrade and migration effort. The redevelopment efforts subsequently launched in 2020. The requirements of the undertaking entailed consolidation of three separate sites (Hunting and Fishing, Discover Nature, and Fishing Report) into one main, fully-modernized web presence. There were more than 17,000 nodes of content involved in the undertaking. We accomplished extensive content auditing, user research, prototyping, and design testing. We then proceeded with development on a Drupal platform, and helped MDC to introduce significantly enhanced, powerful new functionality. Work proceeded in accordance with an Agile methodology.

The resulting site provided access to regulatory guides and interactive field guides, with detailed information about common habitats and species. The site also provided access to an interactive resource map, a newsroom, and an events calendar, as well as seasonal announcements and relevant publication links.

The work of the project was accomplished in side-by-side collaboration with MDC staff. We provided all necessary services, to include project management; business analysis; user experience consultation/strategy; design; technical engineering; technical installation, configuration and development; content redevelopment and migration; quality assurance;

and solution maintenance and sustainment. As a part of the project, our technical specialists worked in a variety of modalities alongside the State's internal team of web technologists, periodically sharing and mutually coordinating development responsibilities to advance the overarching project objectives.

Other noteworthy highlights of the project efforts and outcomes were as follows:

- The new platform developed by our company included a modernized, low-code, component-driven page and layout building interface.
- The platform introduced a brand-conformant, highly consistent pattern library that could be used to enforce styling across programs and divisions.
- The platform made it possible to manage content changes and technical updates more efficiently, in one place. We setup multiple roles and associated approval workflows for MDC.
- We incorporated powerful AI and Machine Learning features to assist with media management and content tagging.
- We added integration with an Esri GIS system, and enabled real-time data exchanges among a series of primary data platforms. This was a considerably complex aspect of the project, entailing integration with a number of resources from other State agencies. We setup processes to synchronize data at regular intervals. The application accomplished extensive data transformation and normalization across sources. The resulting interface (accessible from https://mdc.mo.gov/discover-nature/places) is the only one that effectively combines all of the available information in the State, and in this sense has become an important consolidated source of record.
- We added features to improve mobile access, including headless data service functionality.
- We also helped the department to prototype, test, select and develop a new AI driven chatbot agent, powered by leading best of breed technologies in the field (seven alternate technologies were vetted and tested for the customer).
- We added enhanced Solr-driven search capabilities, allowing for faceted filtering of federated (multi-source, multi-data-type) results
- We entirely re-engineered the site navigation, delivering a clean, intuitive Information Architecture, with content that is organized and easy to find for MDC's engaged community. The final approved architecture included top-level menu areas for hunting and trapping, fishing, permits, discovery of nature, trees and plants, wildlife, property ownership/management, and community betterment/stewardship.
- We provided extensive design, wireframing, interactive prototyping, and user testing (to validate the usability of the information architecture with actual end users).
- We introduced a CI/CD process leveraging best-in-class tools like Github Actions, Docker, Lando and Composer. Hosting was provided through Pantheon.
- We worked with the MDC's technologists, assisting with requirements capture, making recommendations to improve governance, organization and control.
- The resulting site provided access to regulatory guides and interactive field guides, with detailed information about common habitats and species. The site also provided access to an interactive resource map, a newsroom, and an events calendar, as well as seasonal announcements and relevant publication links.
- The site serves many audiences, to include land owners, environmentalists, nature lovers / enthusiasts, hunters and anglers, educators, students, scientists, industry professionals (business owners, foresters, etc.), media representatives, federal agencies, volunteers, legislators, internal staff and job seekers.

9. Qualifications and Experience, Part III: Profile Information (Identity, Organization, Locations, Business Relationships)

A. Vendor name. Portland Webworks (legal entity)
GovWebworks (brand)

B. Parent company. N/A

C. Vendor address. 5 Milk Street
Portland, ME 04101

D. Telephone number. 207-773-6600

E. Fax number. 207-775-1307

F. Email address. info@portlandwebworks.com
info@govwebworks.com

G. Websites. www.portlandwebworks.com
www.govwebworks.com

H. TIN. 01-0529638

I. DUNS. 141995121

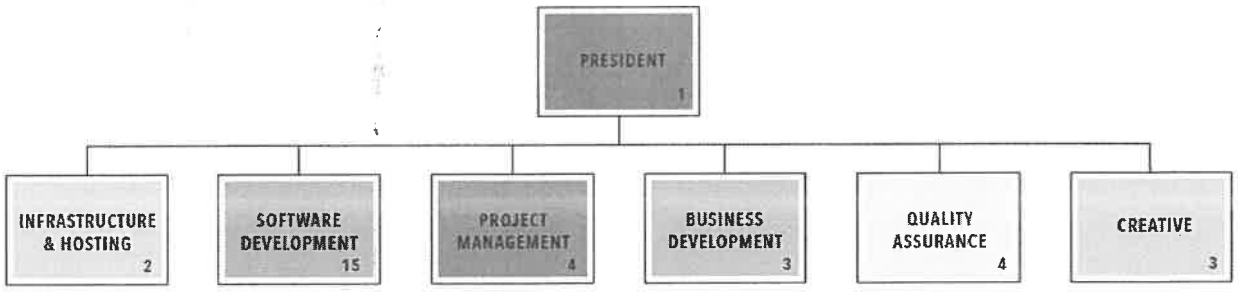
J. CAGE. 386W8

K. Date Established. December 23, 1999 (~23 Years in Business)

L. Ownership. Private Corporation (S-Corp)

M. Officers. Justin Davis
President

N. Organization. The corporate organization chart is presented below.



O. Employee turnover rate. 4%

P. Outstanding legal actions. N/A

Q. Mergers or acquisitions. N/A

R. GSA Schedules. 47QTCA19D00GW (formerly IT 70)
47QRAA20D000H (formerly 00CORP)
www.govwebworks.com/contracts/

10. Qualifications and Experience, Part IV: Long Term Outlook (Post Launch Support / Vision for Future)

The anticipated outcome of the project would be a totally new software product, devised and implemented to meet the State's precise needs, based on a full and proper accounting of the end user community's actual preferences and day-to-day operating patterns. The product would be built using some of the best, most current and powerful open source technologies available, as we previously explained in Section 1.

WVDNR would be able to permanently stamp its identity on the result. The product/solution would remain available to access and operate at WVDNR's own discretion, without limitation. WVDNR would have ownership in perpetuity of all code that we produce under the contract, and would not be required to start over from "square one" after the contract term concludes. We would urge WVDNR to weigh this factor very carefully against the approaches that might be proposed by other vendors.

We would be prepared to support the resulting product, far into the future, as contractual terms permit. Whenever we accept a new contract, we make a pledge that we will deliver an unparalleled level of support. Our entire team - all the way up to the executive level - takes this promise incredibly seriously. We go to great lengths to ensure that each of our customers can reap tremendous ongoing value from their products. Ultimately, we want our company to be seen as more than "just another mere vendor" - because as a team, we are really a group of honest, trustworthy, reliable, highly skilled, collaborative, hardworking experts, who are incredibly dedicated to helping our customers succeed.

The scope of support that would be available under the resulting contract could feasibly encompass 1) product marketing and evolution, 2) Product sustainment, and 3) Custom enhancement. What follows is an explanation of our team's approach to these requirements.

A. Product Marketing and Evolution

We would be aiming to deliver a corpus of software capabilities that would yield genuine business/porductivity value, given the preferences of the WVDNR user community with regard to the State's prevailing operational patterns/practices. The software outcome would be thoroughly bespoke, and even potentially idiosyncratic, completely reflective of the distinctive ways that WVDNR would ideally prefer to operate.

Even so, we do suspect that it might be possible to market the resulting product, in whole or part, to other customers. While we would not be working to build-out generalized capabilities, nor otherwise be asking the State to conform or adapt its practices to a different model that would prove better-suited to a more generic system setup, we believe it to be very likely that some or all of the resulting system components could feasibly be of interest to other States. Indeed, our research and experience to date suggests that there is probably a good deal of overlap between the challenges and struggles of DNR offices throughout all regions of the whole country.

Accordingly, if WVDNR finds itself amenable, when the time comes, we would certainly be open to the prospect of trying to rally some further product interest among other prospective adopters. This could certainly entail some targeted and directed outreach to decision makers and thought leaders who work with DNRs in other States. It could also, or alternatively, entail attendance/participation at appropriate trade conferences, alongside WVDNR representatives, so as to allow for product demonstration and discussion.

From time to time, we have endeavored to undertake similar promotional initiatives for the products of our other customers, with varying degrees of success. Beyond the obvious professional prestige of having conceived a new and appealing solution that can be adopted by others, the primary benefit of such a course of promotion would most likely be, from WVDNR's perspective, the possibility of defraying longer-term platform maintenance and enhancement costs, as follows:

- The revenue from additional product sales could potentially be used to offset certain direct maintenance expenses.
- A broader community of adopters would mean more functional demand and more access to development resources; resulting new features and functionality could potentially be rolled out, across the board, to the whole adopter community, at modest additional expense.
- When new ideas, policies and regulations eventually arise that prompt operational changes for all adopters, associated costs could potentially be borne/divided/shared equally among all engaged States.
- To the extent that it would be possible to keep respective implementations parallel to one another, expenses associated with updates and upgrades could likely be minimized, due to inherent efficiencies of scale.

We would expect to explore the State's product ownership vision and intentions, along these lines, very early in the post-award contract lifecycle. If it turns out that WVDNR does have some aspirations towards making the resulting product more broadly available to other DNRs, we could definitely discuss expectations and reach consensus around some reasonable terms for prospective marketing, distribution and reuse.

B. Warranty and Service Level Agreement

Within the timeframe covered by the contract, GovWebworks would provide ongoing support for the implemented software solution as follows, in accordance with the terms defined by a Service Level Agreement (SLA):

- We would use standard monitoring technologies to ensure that the solution remains operable and performant on a 24/7/365 basis.

- Any malfunctions (i.e., software behaviors that do not comply with the agreed specifications) would be resolved at no additional cost.

- We would provide periodic maintenance on the technologies used to power the solution (updates, bugfixes, patches, etc.). Maintenance activity would be engaged automatically, with no particular action required from State representatives. We would always notify the State's Project Manager prior to implementing any such updates to the system. Updates would not result in any downtime. High criticality patching and maintenance would normally be accomplished within a matter of hours. Lower criticality patching would occur within a matter of days. Non-critical patching would, at minimum, be accomplished twice each year.

- Our staff would remain available to assist users with basic system operations. The scope of support available in this regard would encompass simple verbal guidance and reminders regarding proper system operation. Screenshare sessions could be initiated as needed to allow for observation of user intentions, and to test functionality with users. We would also be able to offer screenshare sessions to provide ad hoc instructional guidance. This type of support would remain available to WVDNR staff during normal business hours (M-F 9am-5pm est).

- Prompt support would be provided to deal with afterhours emergencies. Basic support would encompass triage assistance for hosting and infrastructure outages. Basic support would also cover recovery assistance for any scenarios involving significant software failures that prevent essential business operations from being carried out.

- Our assigned Project Manager would ensure that any malfunctions are addressed promptly. The Manager would respond to each situation with a live follow-up phone call to the designated point of contact (i.e., WVDNR's Project Manager). The Manager would mobilize any necessary team members from our company, and would monitor required work to ensure that any necessary fixes are accomplished.

- Calls and issues would be logged to a formal ticketing system. We would provide a monthly Technical Support Services Report to WVDNR. This report would provide a description of all technical support inquiries received during the month, their current status, and the response and resolution timeframes as appropriate. Representatives of the State would also be able to access the ticketing system directly, to monitor requests and resolutions in real time.

C. Solution Enhancement

After initial launch and rollout, we would transition into a sustainment mode. In the event that WVDNR then wishes to further customize (add or change) functionality, our Project Manager would address the matter personally. The Project Manager would initially convene a quick phone conference with WVDNR's Project Manager to determine and verify the general nature of the additional/new requirements at hand.

For small customization/enhancement requests, the Project Manager would consult internally with our technical team and provide an actionable quote. Such quotes would normally be turned around within a few days (often, in a matter of hours).

For larger assignments, a preliminary and non-binding ballpark ranged estimate would first be prepared to give WVDNR a very rough sense of potential scope. If the ballpark estimate is then approved by WVDNR, conversations between technical resources WVDNR representatives would thereafter be scheduled as needed. For each request, technical plans would be discussed, cycled, and finalized, and then a final good faith estimate of the actual scope of work would be provided to WVDNR for approval. The turnaround time on such estimates, from initial call to receipt of finalized estimate, would normally be 1-2 weeks, although a number of variables (esp. availability of WVDNR's representatives) could potentially extend this timeframe considerably.

In the event that WVDNR decides to proceed with any such customization/enhancement assignment, our Project Manager would work with WVDNR to ensure that backlog records are prepared as needed, complete with fully groomed and development-ready specifications. We would then handle the technical updates in stride as a part of our normal Agile process. The backlog items for the agreed customizations/enhancements would simply be accepted, in priority order, into our company's development sprints.

The timeframe, from initial call to actual rollout of new functionality, would be entirely dependent on the scope of the customizations/enhancements that are being accomplished. Modest customization/enhancement assignments would normally be accomplished within 2-8 weeks. Larger customization/enhancement requests could potentially extend this timeframe considerably.

(IMPORTANT NOTE: Although our company is fully prepared to support customization/enhancement requirements, as described above, the scope of such requirements is not presently foreseeable. Our current proposed fixed pricing for the baseline product implementation therefore does not cover prospective customization/enhancement work. It is anticipated that such work could be handled on a Fixed Rate T&M basis, or through Fixed Price modification.)

D. Emerging Technologies and Standards

We work hard to keep abreast of emergent technologies and industry trends. We monitor popular industry-wide publications, including but not limited to the Gartner Magic Quadrant, the "Technology Radar" of ThoughtWorks, and the Annual Developer Survey published by Stack Overflow – among many others. Our Developers also regularly network with other industry peers, through trade events, professional associations, and routine client engagements.

Should new technologies be deemed by our staff to be of potential interest and value, the new technologies would be subjected to consideration and assessment. Typically, this would begin with a preliminary presentation to the entire development tea, to provide an overview of the technology in question. Where deemed prudent, team members would then be assigned duties for further research, exploration of use cases, and product testing. In scenarios where it would seem to make sense, we stage further demonstrations and evaluate the possibility of broader experimental project adoption. Successful implementations are considered for broader use and application.

The active research and testing that we described in the preceding paragraph is actually an ongoing process. Relevant presentations and demonstrations, along the lines that we described in the preceding paragraph, typically occur on a weekly basis. Our efforts significantly broaden our team's scope of technical awareness, enabling our staff to make sound, forward-thinking recommendations to customers when relevant needs arise.

As needed, we would be able to work with WVDNR to ensure that ongoing decision making around the resulting product/solution can proceed in a manner that is strategic, thoughtful, carefully considered and intentional. We could work with WVDNR to facilitate the instantiation of new operating practices that would allow for systematic consideration of prospective product/solution changes, as might be warranted by enhancement requests and/or by tge release of emergent new technologies that could yield significant value. In close coordination with WVDNR, we could take the lead in managing and maintaining the official product roadmap (would include forecasts of anticipated product/release increments, with corresponding timelines). In addition, we could continue to support backlog management, accomplishing grooming for actionable items as needed. We could also, of course, assist with ongoing tracking and monitoring of evolving tech trends and compliance requirements, providing necessary consultation, guidance, and in-advance recommendations, when and where applicable.

11. Qualifications and Experience, Part V: Continuity Assurance (incl. Security and Recovery)

The solution delivered under this contract will constitute critical infrastructure for WVDNR. We fully recognize the deployed components will need to remain accessible and operable on demand, on a 24/7/365 basis. Downtime will need to be prevented and minimized, and in the unfortunate event of any unanticipated outage, service will need to be restored as rapidly as possible. What follows in this section is an explanation of some of the relevant tactics and strategies that will be applied to assure that functionality remains continuously available.

A. General Corporate Security Practices

Our company routinely provides advanced software application development services for government entities, and our operations are therefore regularly held to the highest standards for system and data security. Across our full portfolio of public sector contracts, our teams have worked with some of the most sensitive forms of private and personal information. This includes Federal Tax Information (FTI), court and criminal justice records, and data that is subject to HIPAA and FERPA regulations. As a matter of standard practice, we accomplish our development work in environments that are compliant with NIST standards (800-171, 800-53). Our handling of such information has most recently been endorsed by the State of Idaho's Department of Health and Welfare, for the purpose of working on the State's COVID response infrastructure. Our procedures have also previously been acknowledged and approved through the IRS (based on U.S. Internal Revenue Service Publication 1075 standards). What this means is that, from a technical perspective, our professional security capabilities far exceed what is typically encountered among most web marketing service providers.

Some highlights of our internal security best practices would be as follows:

- Only assigned personnel would be provided with access to project resources and repositories. Access will be removed if/when personnel permanently transition off the project. Our designated security officer will handle all such access/provisioning changes.

- All workstations of our staff would be encrypted and locked with 2fa.

- As a part of our routine hiring process, all personnel would be required to pass background screening, which is national in scope, emphasizing all previous places of residence. Personnel would also be subjected to screening through the E-Verify system.

- All personnel would be bound with non-disclosure, confidentiality and data protection agreements. We would be happy to provide copies of these agreements for WVDNR review. We would additionally be able to have personnel sign WVDNR non-disclosure and data protection agreements at whatever intervals are needed.

- We maintain an ongoing security training program for all personnel. Our training program encompasses annual personnel certification, periodic alerts/notices/briefings, and frequent simulated threat checks/testing through a highly reputable third-party provider (Knowbe4). In combination, these activities ensure that the entire team remains highly conscious and cognizant of security issues on an ongoing basis.

- We have a designated corporate security officer, who is responsible for monitoring systems and reporting incidents.

- We conduct manual and automated QA, and perform peer code review and validation, ensuring that submitted code remains secure and adherent with best practices, without any nefarious insertions.

- We conduct scans of all code at build time, and subsequently on a routine basis, to identify vulnerabilities (typically uses Nessus). We also conduct routine scanning of local developer environments.

- Work is regularly accomplished through secure encrypted connections. If necessary, we could also apply standard WAF procedures, and could utilize VPC for hosting (isolating development servers from the web).

- Our staff will monitor system intrusion alerts for all pertinent systems and environments in real time.

B. Standard Implementation Measures

As a matter of common best practice, the following tactics would be applied:

- Hosting would be configured for flood prevention, threat detection, and automatic IP blocking/restriction

- The entire user experience would be setup to operate through TLS / HTTPS

- The solution would enable control of roles and permissions, and would confirm proper authentication and authorization before granting access to data and functionality

- At WVDNR's discretion, we would institute password formatting rules, password rotation rules

- Session timeouts would be enforced at agreed intervals (ex. after 10 minutes of inactivity)

- We would incorporate mechanisms to sanitize incoming and outgoing data; also to mitigate potential vectors such as cross-site scripting attacks, injection, clickjacking and similar attacks (i.e., address the OWASP top 10 and SANS top 25 vulnerabilities).

- Tokens would not be exposed, and would only be transmitted as encrypted data.

- We would ensure that all input is validated on both the client and server sides.

- In any places where sensitive data submission might be necessary, we could explore the possibility of encrypting the data while at rest in the system (this could entail conformity with standards like RSA, AES or 3DES)

- We would work with WVDNR to establish reasonable controls surrounding uploads. Restrictions could be applied in terms of file types, naming (length, allowable characters, etc.) and size.

- Where applicable, we would be able to implement modules like Honeypot, Captcha, reCAPTCHA and Flood Control to assure input is coming from a human (not an automated attack vector).

C. Real Time Monitoring and Live Support

We would use industry-standard tools (Ex. New Relic, StatusCake, PagerDuty) to monitor and assess performance. The selected tools would automatically notify our team's specialists, and designated WVDNR parties, of performance issues. Critical outage incidents would receive immediate emergency support, even during off hours.

WVDNR's key project stakeholders (ex. Project Manager, executives, steering committee members, etc.) would be provided with contact information for all project leads, including the Project Manager, Technical Lead and DevSecOps Lead, among others from our team. WVDNR's key stakeholders would also receive direct access to a real time project discussion channel, through our Slack system – essentially enabling direct, real time engagement. This would allow for prompt communication and mobilization in the event of a significant system outage/failure.

This distinctive approach - which radically abridges the traditional multi-tier, multi-step customer-support process - promises immediate access to our company's most senior project team members, who would have deep hands-on knowledge of the infrastructure, software and code. We essentially would be putting these most qualified staff at arms reach, 24 hours a day, with minimal effort and no delay when sudden and unexpected corrective requirements arise.

D. Maintenance, Updates and Patching

Updates to the solution will be required periodically to assure ongoing security and data protection. Our team will provide all necessary patching and updates for the duration of the contract in accordance with a structured, mutually-approved Service Level Agreement. For more detailed information about our pertinent procedures, please refer to Section 10.

E. Ongoing Risk Management

We will provide a formal Risk Management Plan that will define how risks - including security risks - associated with the Project will be identified, analyzed, and managed. The plan will outline how risk management activities will be performed, recorded, and monitored throughout the lifecycle of the project. As a part of the plan, a standard "Risk Register" template would be provided for recording, reporting and prioritizing pertinent risks.

The Project Manager, working with the Project team and designated representatives from WVDNR, will ensure that risks are actively identified, analyzed, and managed throughout the life of the Project. Perceived risks and threats will be tracked until remediated and alleviated. Assessment and planning will endeavor to characterize and plan around perceived risks, taking into consideration the potential and probable impacts in terms of project scope, schedule, cost, technical requirements, quality of service, legal implications, and operational/process challenges.

F. Incident Response

WVDNR would have direct, on-demand access to all log data. If our team should notice or otherwise have reason to suspect that an attempt at intrusion has occurred, the matter would be immediately reported to WVDNR, with full investigation and report to follow. Notification would be sent to WVDNR's Project Manager and/or designated IT executive. Notification would be provided by either our Project Manager or our designated corporate Security Officer.

G. Rapid Recovery

We would use mainstream, reputable cloud services to ensure that our work products are protected and recoverable. Some highlights of the approach would be as follows:

- The application would be hosted in the cloud, as previously explained. On a daily basis, integral data would be securely and redundantly duplicated within the hosting provider's infrastructure. Duplicated data would be persisted for 6 months. In the event that critical information or content is ever erased, as a result of malicious activity or otherwise, it would be a reasonably small matter to fully restore/recover the complete application, and the most recently captured image of the stored data, from the latest duplicated version. Backups would be encrypted with 256-bit advanced encryption cyphers.

- We would use a cloud-based continuous integration process, through a reputable provider like Bitbucket (or a similar set of tools from another provider, if WVDNR would prefer the use of a different resource/platform). This would help to ensure that any committed code is retained on reliable infrastructure. The repository would be secure (ex. multi-factor authentication, SSH keys, etc.). It would provide an audit trail and version histories. There would effectively be zero risk of code loss.

- We will use mainstream cloud services, like Atlassian Confluence, to maintain control of all deliverables. Like the other cloud resources described here, these tools would likewise provide for secure authentication, routine backup and redundancy.

- Individual documents will also be stored to highly stable, redundant and reliable repositories that are maintained by Google (Google Drive)

12. Staffing

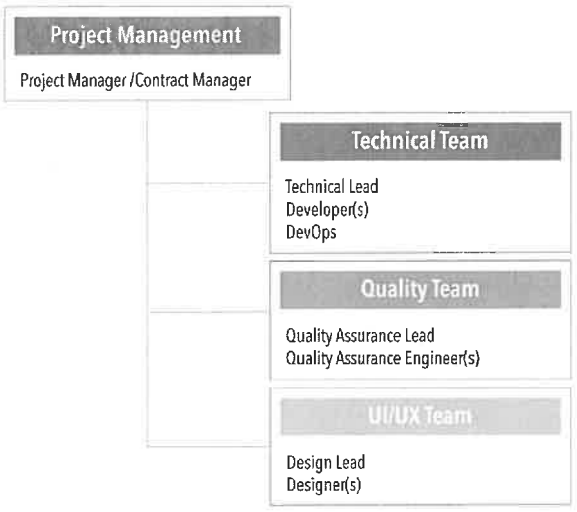
As a company, we generally operate as a relatively small, highly cohesive, integrated task force. This is one of the many areas where GovWebworks differs significantly from most other competitors. We position ourselves as genuine partners, and offer the unparalleled level of productivity that could only be achieved by a tight-knit, highly skilled, professional, synergy-imbued, true-blue development team.

The inherent value of this "task force" proposition should not be underestimated. We would be putting at WVDNR's disposal an entire, existing, experienced, stable, long-term, in-house, core team comprised of seasoned, expert professionals. As indicated above, this approach tends to differentiate our company from most typical consultancy shops, who tend to assemble their assigned staff only on a temporary, short term, as-needed, project-by-project basis (frequently resulting in higher-risk, unproven teams, with no prior experience working together).

Many of our customers have come to appreciate the inherent benefits of this highly stable team-based approach. Our team won't disappear or be dissolved after implementation is complete. On the contrary, we are recognized as a "Best Place to Work" in our State, and our team continues to remain extremely stable. If/when future changes and maintenance are necessary in relation to the deployed solution, we will be able to operate with superior productivity, due to our ability to retain the team long term.

Our relevant team members would include a Project Manager, a Design/UX Lead, a Technical Lead, a group of developers, a Quality Lead, a group of Quality Assurance Engineers, and a DevOps Engineer. All of these positions would support the contract on as as-needed basis. Communication between the Project Manager, Leads, and other personnel would be continuous throughout each day.

PROJECT ORGANIZATION CHART



The anticipated concept for operational structure is summarized in the graphic to the right. The general responsibilities of each depicted sub-team, as shown in the organization chart, would be as follows:

- **Technical Team:** Technical engineering; code creation and editing; hosting and environment setup; third-party tool configuration; technical solution documentation
- **UI/UX Team:** Experience planning/strategy; user research; interactive prototyping; design; assist with any snips for implementation

- **Quality Team:** Quality control over technical issues and compliance; Production of QA test records/logs

Our intended level of project staffing is summarized by the chart below.

Team / Role	Discovery, Design and Engineering*	Execution*	Rollout and Beyond*
Project Leadership	1	1	1
Technical	1	2-3	1**
Design/UX	2	1-2	0-1**
QA	1	1-3	0-1**

* Approximate representation in the preceding chart is in terms of manpower availability only; The chart does not necessarily reflect the actual level of effort in terms of full-time hours.

** The intent will be to "right fit" assigned staffing based on WVDNR plans for moving forward; We will be capable of ramping-up for additional project work accordingly.

On the pages that follow, we are enclosing representative resumes for a number of proposed personnel. The personnel that we are proposing will be working in their normal roles during the Project. For each individual, we have provided an experience summary, an education summary, and an outline of the individual's relevant proficiencies. The approach would be highly collaborative among assigned staff.

Personnel Security

The majority of the work that we do at our company is for government customers. We are therefore obligated to conduct background investigations on all employees. We conduct the necessary investigations through Sterling, a well-known and highly reputable firm in the industry. The investigations done for our personnel are national in scope, emphasizing all previous places of residence. Personnel are also subjected to screening through the E-Verify system. In addition, all personnel are bound with non-disclosure, confidentiality and data protection agreements.

13. Compliance with Mandatory Qualifications/Experience

A. Vendor must be an established information technology and consulting firm with a minimum of 10 years of experience.

As indicated in Section 7, we are a custom software and website development company that has been operating and serving customers since 1999 (~25 years in business). Throughout our many years of performance, we have handled all manner of project requirements. We have quite regularly provided business analysis, planning and consulting, solution engineering, and actual hands-on technical development and execution. Our history of performance thus greatly exceeds the minimum 10-year requirement for consulting experience in the IT domain.

B. Vendor must have appropriate staff and experience to develop and host a custom cloud database as outlined in the RFP.

As indicated above, our company has been in operation, delivering custom software and website development services, for nearly 25 years. During our history of performance, we have provided many government customers with custom cloud-based solutions. This would include solutions for state government departments, agencies and institutions in California, Colorado, Idaho, Iowa, Minnesota, Missouri, Massachusetts, New Hampshire, Vermont, and Washington. Our projects as a prime contractor have ranged in scope and size from a few hundred thousand dollars for small custom application undertakings, all the way upwards of $15 million for major infrastructure integration and modernization projects.

C. Vendor must have a minimum of ten (10) years of experience in project management.

As indicated above, our company has been in operation, delivering custom software and website development services, for nearly 25 years. Project management has been an integral part of every one of our pasty assignments. For the past 12 years, Agile has been the dominant and preferred methodology applied by our organization across all of our contracts. We have completed hundreds of sprints and thousands of standups. Our procedures are genuine and aligned with prevailing best practices, even to the extent that we have periodically been called upon to provide Agile mentoring and consultancy to major international organizations and State agencies. Our project managers possess comparatively advanced credentials and certifications (ex. PMPs, PMI-ACP certification, master's degree, post-graduate coursework, etc.).

D. Vendor must have a minimum of five (5) years of technology expertise at advanced level.

We are currently delivering approximately 65,000 hours of custom software development services annually. Over the years, we have developed more than a few large, mission-critical management systems for State government entities. Our systems have supported mutli-party operations, with role-based permissions and data access restrictions. Our systems have incorporated dozens of custom objects, complex workflows, and functionality for data ingestion, day-to-day records management, data searching and lookup, system administration, application-level interfacing/integration, automated business logic processing, message routing and visual/statistical reporting.

Our relevant projects as a prime contractor have ranged in scope and size from a few hundred thousand dollars for small custom application undertakings, all the way upwards of $15 million for major infrastructure integration and modernization projects. Good examples of this sort of work would include projects that we accomplished for Idaho (i.e., Idalink integrated eligibility, and Nexi child support), the Minnesota Department of Employment and Economic Development (CareerForce labor portal), and Maine (dog licensing portal, and integrated animal control case tracking and management system; also an integrated system for emergency responders in the state).

For Idaho alone, we accumulated have a continuous, unbroken and ongoing record of multi-scrum-team performance, along the above lines, that dates all the way back to 2012. Idaho is just one of our current clients, and yet that one contract, on its own, readily fulfills the stipulated minimum level of technology expertise, representing more than double the necessary experience at the advanced level. We could easily cite other client examples upon request.

E. Vendor must have a minimum of five (5) years of experience in web and mobile development at advanced level.

As noted above, we are currently delivering approximately 65,000 hours of custom software development services annually. Nearly all of our projects have encompassed requirements for web-based solutions/components. The overwhelming majority of our projects have additionally necessitated the delivery of functionality for mobile devices (either responsive functionality or native mobile functionality).

Some noteworthy examples of our work with mobile solutions would include software that we produced for the Idaho Department of Health and Welfare (an app targeting new parents, whose children require clinical audiologist attention), the Maine Department of Agriculture, Conservation and Forestry (Animal Welfare tracking and investigation), Lucas Tree (vegetation control activity reporting, safety, and compliance in the field) and Axiom Technologies (two apps for the State of Maine, one dealing pesticide application data, the other with fisheries reporting). Other noteworthy mobile products produced by our team have been created for the Iowa Department of Education (food and nutrition app) and Sappi (warehouse app). Several of our past projects have involved integrations with back-end web systems that have

powered the mobile tools. One excellent example of this would be the work that we did for the University of New England (drug addiction resource tool).

F. Vendor must have a minimum of five (5) years of experience in database development and management at advanced level.

As noted above, we are currently delivering approximately 65,000 hours of custom software development services annually. Nearly all of our past projects have involved relational database components. Noteworthy examples would include solutions that we delivered and sustained for the State of Idaho (2012-Present), the State of Maine (various, 2010-Present) and the State of Colorado (various, 2011-Present). Through such past projects, we have convincingly demonstrated strong skills and an outstanding grasp of best practices, especially in the areas of data scheme planning, database modeling and systems architecture (distributed, multi-tiered, SOA, microservice, etc.).

G. Vendor must have a minimum of ten (10) years of experience with Natural Resources Management Data and/or Biological Data and processes.

We have been very fortunate to count among our past clients many leading public and private sector organizations that have natural-resource-oriented agendas. Foremost among these, in recent years, have been the Missouri Department of Conservation; the Mississippi Department of Wildlife, Fisheries and Parks; the Maine Department of Agriculture, Conservation and Forestry; the Colorado Department of Parks and Wildlife; the Colorado Center for New Energy Economy; and the Massachusetts Clean Energy Commission. Over the course of other assignments and projects, we have also worked with the U.S. Environmental Protection Agency, the Maine Department of Fish and Wildlife, the Northern Maine Development Commission. Additional prominent clients in the private sector have included the Nature Conservancy, LL Bean, and Lucas Tree. We have also worked in the industrial sector, with Environmental Health and Safety (EH&S) programs and operations, for clients like Sappi, Union Atlantic Energy and TruQC. All of this amounts to a relatively continuous track record of conservation domain involvement that dates back almost 15 years. Some sample project narratives have been enclosed in Section 7.