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Management Consulting

for

State and Local

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Quality Assurance

Executive Advisement

Project Oversight

Project Management

Independent Verification and Validation (IV&V)

Risk Reduction

Quality Assurance Assessment of Feasibility Study

for the

Columbia River Gorge Commission (CRGC)

Access Database Replacement (ADR) Project

July 2022

Prepared by

Bluecrane, Inc.

bluecrane ®

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Ms. Krystyna Wolniakowski
Executive Director
Columbia River Gorge Commission
P.O. Box 730
White Salmon, WA 98672

Dear Ms. Wolniakowski:

bluecrane is pleased to present you with our Assessment of the Feasibility Study for the Columbia River Gorge Commission's Access Database Replacement (ADR) Project.

Please contact me with any questions or comments.

Sincerely,

Allen Mills

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1. Executive Summary

1.1 Introduction

In late June 2022, the Columbia River Gorge Commission (CRCG or "Gorge Commission") engaged Bluecrane, Inc. ("*bluecrane*") to provide Quality Assurance (QA) services for the Commission's Access Database Replacement (ADR) Project from June – August of 2022. Our services during this period include: (1) assessing the quality of the Feasibility Study developed for ADR and (2) conducting a Readiness Assessment for the ADR Project in compliance with the State of Washington's Minimum QA Activities – Readiness Assessment 132.20 Policy. This report documents the results of our QA Assessment of the ADR Feasibility Study.

CRGC is a bi-state compact regulatory agency charged with managing land use in the Columbia River Gorge National Scenic Area (NSA). The National Scenic Area Act was passed by Congress in 1986 to protect 292,500 acres of land along 85 miles on both sides of the Columbia River.

In accordance with the National Scenic Area Act, CRGC must review land use applications and approve land use permits in Klickitat County, Washington, and oversee/review permit applications issued by the other five counties in the NSA that adopted the NSA Management Plan as an ordinance in their county (Wasco, Hood and Multnomah Counties in Oregon, and Clark and Skamania Counties in Washington).

To carry out their day-to-day work, CRGC must track and monitor all contact with landowners; all permit applications, denials, and approvals; and for those permits approved, compliance with all permit conditions. CRCG must also track the locations of all proposed and existing developments within the NSA, findings with respect to permit applications (past and present), impacts on resources, and all correspondence in electronic and written forms. CRGC currently relies on an outdated Microsoft Access database to perform this work. After an initial review and several discussions with the Washington State Office of the Chief Information Officer (OCIO) and the Washington Department of Technology (WaTech), it was determined that the Gorge Commission's Access database system should be replaced.

1.2 Background on the ADR Feasibility Study

In December 2021, CRGC contracted with Environmental Science Associates (ESA; formerly Sitka Technology Group) to develop a feasibility assessment that would:

- Document current workflows and processes related to the permit activities described above
- Identify cloud-based solutions to meet CRGC's needs
- Evaluate the feasibility of identified solutions
- Recommend a solution to replace the Access database system

The feasibility assessment was conducted over the course of several months and included analyses of user types, workflows, current systems, and the agency's future needs. The purpose of the feasibility assessment is to (1) identify the type of system that would best meet CRGC's needs for historical

documentation of land use decisions and support permit processing and tracking going forward and (2) evaluate the cost of replacing the current system.

1.3 QA Criteria/Methodology for Assessing Feasibility Study

A project feasibility study is essentially a "viability" analysis. The objectives of a feasibility study are to assess whether or not a project adequately meets the needs identified by the business and is practically achievable in terms of technology, operations, scheduling, financial investment required, and any relevant legal and regulatory requirements. At a high-level, these characteristics include:

- **Business Need**
    - Degree to which proposed solution meets the needs identified by the business
- **Technology**
    - Capabilities of the organization's technical resources
    - Evaluation of required hardware and software for alternative solutions
- **Scheduling**
    - Estimation of time required to complete the proposed project
- **Operations**
    - Likelihood of fulfilling business needs on an operational basis once the proposed solution is delivered
    - Ability of organization's staff to "operate" the solution
- **Financial investment**
    - Estimation of costs
    - Estimation of business benefits
- **Legal and regulatory requirements, if applicable**
    - Compliance with requirements (e.g., data protection regulations)

The study informs the audience whether or not a project is worth the investment required. The study evaluates the project's potential to deliver a solution successfully and the business value of the solution to be delivered.

A high-quality feasibility study should include:

- Background of the business problem and/or improvement opportunity
- Market research on potential solutions
- Descriptions and analyses of alternative solutions, including advantages and disadvantages of each alternative

- A recommend approach (i.e., identification of the alternative solution that is recommended and why)
- Financials describing the investment required, including maintenance and operations costs (both the technology and business costs) of the new solution once "in production" and the likely business benefits of the proposed solution
- Identification of how the solution meets legal and regulatory obligations, if any

Benefits of conducting a feasibility study include:

- Establishing and/or validating business rationale for undertaking a project
- Facilitating key decision-making prior to project initiation
- Prioritizing elements of addressing the business problem and/or improvement opportunity
- Narrowing the scope of the project by a reasoned analysis of what aspects of the solution are highest value-added and what is practical
- Helping ensure project success by providing information relevant to project planning (e.g., scope and resources required) prior to project initiation

Our QA assessment of the CRGC's ADR Feasibility Study evaluated whether the study contained the information described above and the thoroughness of the information and the analysis of the information.

1.4 Summary of QA Assessment Results

Our assessment of CRGC's feasibility study for the ADR Project concludes that the feasibility study meets or exceeds minimum quality criteria in all areas evaluated. Areas assessed and the criteria used in our assessment are described in Section 2 of this report. In summary, we believe the feasibility study is an excellent foundation for CRGC to move forward with seeking final approvals and funding for the ADR Project. We congratulate the agency on a job well-done in developing the feasibility study.

Following the Executive Summary, the remainder of this document includes the following:

- A description of *bluecrane's* methodology for assessing the feasibility study
- Our detailed assessment results

2. *bluecrane* Methodology for Assessing the Feasibility Study

2.1 Areas of Assessment and Criteria Used

Our approach to assessing the quality of a feasibility study entails evaluating the content of the study in a number of areas as described in Table 1 below. Table 1 also provides a summary of the assessment criteria we use for each area.

Table 1. *bluecrane's* Definition and Description of Assessment Categories

Area of Assessment	Assessment Criteria
Stakeholder Participation	
Stakeholder Engagement	✓ Breadth of stakeholders interviewed and otherwise consulted in developing the study
Business Need	
Description of Business Problem/Opportunity	✓ Compelling description of business problem to be solved / business need to be met by new solution
Expected Business Outcomes	✓ Measurable objectives and outcomes that the new solution is expected to achieve to validate the project's success with stakeholders
Current State Analysis	
Description of Current State "Actors"	✓ Descriptions of "roles" that participate in and/or interact with the current solution
Descriptions and Analysis of Business Workflows	✓ Documentation of explicit business process workflows of current solution ✓ Documentation of implicit business process workflows of current solution
Description of System(s) Component(s) of Current Solution	✓ Description of existing system components of current solution, if any
Future State Analysis	
Description of Future State "Actors"	✓ Descriptions of "roles" that will likely participate in and/or interact with the future solution

Area of Assessment	Assessment Criteria
Descriptions and Analysis of Future Business Workflows	✓ Documentation of future business process workflows ✓ Description of benefits of future workflows
Analysis of "Gaps" between Current State and Future State	
Identification of Gaps	✓ Descriptions of gaps between Current State and Future State
Business and Functional Requirements for Future State Solution	
Business Requirements	✓ "High-level" and broad business-focused requirements that describe the desired outcomes that the business is trying to achieve ✓ Adequate description of stakeholder expectations and business goals
Functional Requirements	✓ More specific and detailed requirements that must be met to fulfill the business needs ✓ Descriptions of specific and detailed requirements with a focus on the technicalities of how the new solution will fulfill business needs and goals
Technical Requirements for Future State Solution	
Technical Requirements	✓ "High-level" to "medium-level" technical requirements that the future state solution must meet
Analysis of General Risks (i.e., not specific to a particular solution)	
Funding Risks	✓ Description of funding risks for any selected alternative solution
Staff Capacity	✓ Description of staffing risks to support any selected alternative solution
Data Conversion/Migration	✓ Description of likely challenges for data conversion/migration under any selected solution
Utilization of a Vendor-Provided Solution	✓ Description of likely challenges in managing any vendor-provided solution
Procurement	✓ Description of likely challenges in procuring hardware, software, and services for any selected solution

Area of Assessment	Assessment Criteria
Partner and Community Engagement	✓ Description of likely challenges in engaging CRGC's broad range of stakeholders, partners, and users for any selected solution
Market Research	
Research Activities	✓ Use of literature research, Requests for Information (RFIs), and other methods to identify potential solution alternatives
Completeness of Alternative Solutions Considered	✓ Breadth of alternatives identified by research and considered in the feasibility study
Analysis of Alternative Solutions	
Technical Feasibility	✓ Ability of CRGC's technical resources to support the alternative ✓ Hardware and software requirements of the alternative
Scheduling Considerations	✓ Estimation of time required to complete the proposed project
Operational Considerations	✓ Likelihood of fulfilling business needs on an operational basis once the proposed solution is delivered ✓ Ability of CRGC's staff to "operate" the solution
Ability to Meet or Exceed Business and Technical Requirements	✓ Identification of any "gaps" in alternative's ability to meet requirements
Alignment with Future State Objectives	✓ Degree of consistent, standardized data collection ✓ Automation of current manual and paper-based processes ✓ Configurable and robust data quality enforcement ✓ Built-in task and contact management ✓ Centralized data and document management ✓ Self-service analytics and reporting ✓ Support for GIS ✓ Support for integrations of external systems (e.g., via Application Programming Interfaces (APIs)) ✓ Role-based "permissions" and access rights ✓ Online data management and collaboration tools

Area of Assessment	Assessment Criteria
Analysis of Alternative Solutions (continued)	
Initial and Ongoing Costs	✓ Estimation of initial costs ✓ Estimation of operating and maintenance costs ✓ Estimation of business benefits
Ability to Meet Pertinent Legal and Regulatory Requirements, if Any	✓ Compliance with requirements
Recommended Alternative	
Alternative Recommended	✓ Explanation for recommending specific alternative
Considerations Related to Recommendation	✓ Internal resources required ✓ Procurements required ✓ Consultative expertise required
Initial Project Planning Considerations	
Identification of Key Aspects of Project Management Plan Required	✓ Identification of specific steps that CRGC should take in initiating and managing the project that will result if the feasibility study is approved and the project funded
Timeline	✓ Projected timeline for conducting the project

2.2 Macro-Level Assessment Results

In addition to the detailed narratives provided in Section 3 of this report, we provide a color-coded "macro-level" quality assessment as defined in Table 2 below.

Assessed Status	Meaning
	Feasibility study meets or exceeds minimum quality criteria.
	There is room for improvement in the information or analysis contained in the feasibility study.
	Feasibility study falls short of meeting minimum quality criteria.

3. Feasibility Study Assessment Results

Using the methodology and definitions described in Section 2 above, our assessment found that CRGC's ADR Feasibility Study is of high-quality and provides an excellent foundation for the Gorge Commission to make decisions regarding the project and go forward with funding requests in both Washington and Oregon.

Our detailed assessment results are documented in Table 2 below.

Table 2. Detailed Assessment Findings and Recommendations

Area of Assessment	Assessment Criteria	*bluecrane* Assessment
Stakeholder Participation		
Stakeholder Engagement	✓ Breadth of stakeholders interviewed and otherwise consulted in developing the study	✓ Section 1.3.1 of the feasibility study lists 18 stakeholders who were interviewed during the development of the document. The stakeholders listed include the Executive Director of CRGC, three CRGC commissioners, the CRGC GIS Manager, seven additional CRGC staff, and representatives from Hood River County, Skamania County, Wasco County, and the United States Forest Service. Given the size of CRGC and the breadth of external stakeholders, this group is assessed as more than adequate for the feasibility study effort.
Business Need		
Description of Business Problem/Opportunity	✓ Compelling description of business problem to be solved / business need to be met by new solution	✓ The business need is well-documented in Sections 3.1 and 3.2 of the feasibility study. ✓ The first sentence in Section 3.3 encapsulates the opportunity.
Expected Business Outcomes	✓ Measurable objectives and outcomes that the new solution is expected to achieve to validate the project's success with stakeholders	✓ Section 3.3.1 documents the "target state objectives clearly and specifically.

Area of Assessment	Assessment Criteria	*bluecrane* Assessment
Current State Analysis		
Description of Current State "Actors"	✓ Descriptions of "roles" that participate in and/or interact with the current solution	✓ Section 2.1, Personas, of the feasibility study documents specific roles that participate and interact with the existing "system," which is a combination of manual and automated elements.
Descriptions and Analysis of Business Workflows	✓ Documentation of explicit business process workflows of current solution ✓ Documentation of implicit business process workflows of current solution	✓ Section 2.2, As Is Workflows, documents the workflows used by five of the counties in the NSA as well as the unique workflows utilized by a sixth county in the NSA. ✓ Section 2.2 also documents workflows that are used by CRGC staff.
Description of System(s) Component(s) of Current Solution	✓ Description of existing system components of current solution, if any	✓ Section 1.3.1, Discovery Phase, documents current system components. Table 1.3 provides specific details on the system components.
Future State Analysis		
Description of Future State "Actors"	✓ Descriptions of "roles" that will likely participate in and/or interact with the future solution	✓ Sections 3.3.2 and 3.3.3 which describe future workflows provide descriptions of actors in the future state. ✓ Because the actors are the same as in the current state, a standalone section dedicated to describing the actors is not necessary.
Descriptions and Analysis of Future Business Workflows	✓ Documentation of future business process workflows ✓ Description of benefits of future workflows	✓ Section 3.3.2 documents future workflows and the improvement benefits they offer for Klickitat County. ✓ Section 3.3.3 documents future workflows and the improvement benefits they offer for the other five counties in the NSA.

Area of Assessment	Assessment Criteria	*bluecrane* Assessment
Analysis of "Gaps" between Current State and Future State		
Identification of Gaps	✓ Descriptions of gaps between Current State and Future State	✓ Section 3.4, Gaps Between Current and Target State, provides a detailed assessment of gaps by permitting lifecycle (Pre-Application, Active Application, Issuance of Director's Decision, and Post-Permitting for (1) Klickitat County and (2) the other five counties in the NSA. ✓ In addition, Section 3.4 documents gaps in workflow for (1) Development History Trends and (2) CRGC Performance Testing. ✓ The level of detail in Section 3.4 is excellent.
Business and Functional Requirements for Future State Solution		
Business Requirements	✓ "High-level" and broad business-focused requirements that describe the desired outcomes that the business is trying to achieve ✓ Adequate description of stakeholder expectations and business goals	✓ The high-level business requirements are encapsulated in Section 3.3, Target State. ✓ Section 3.3 clearly articulates the business objectives and goals.
Functional Requirements	✓ More specific and detailed requirements that must be met to fulfill the business needs ✓ Descriptions of specific and detailed requirements with a focus on the technicalities of how the new solution will fulfill business needs and goals	✓ The specific and detailed functional requirements are documented in Section 4.1, Business Requirements. They are not identified as "functional" requirements, but that is not a cause for concern. ✓ The specific and detailed requirements provide documentation of how the new solution will fulfill the business needs and goals.

Area of Assessment	Assessment Criteria	*bluecrane* Assessment
Technical Requirements for Future State Solution		
Technical Requirements	✓ "High-level" to "medium-level" technical requirements that the future state solution must meet	✓ Section 4.2, Technical Requirements, documents the technical needs in the categories of: ○ Accessibility ○ Authentication/Authorization ○ Availability ○ Cloud-Based Capabilities ○ Data Management ○ Internal Controls ○ Interoperability ○ Performance ○ Productivity ○ Reliability ○ Security ○ System Architecture
Analysis of General Risks (i.e., not specific to a particular solution)		
Funding Risks	✓ Description of funding risks for any selected alternative solution	✓ Section 5.1, Funding, describes the funding risks associated with undertaking the proposed project.
Staff Capacity	✓ Description of staffing risks to support any selected alternative solution	✓ Section 5.2, Staff Capacity, describes the staff resourcing and capacity risks associated with undertaking the proposed project.
Data Conversion/Migration	✓ Description of likely challenges for data conversion/migration under any selected solution	✓ Section 5.3, Data Migration, describes the risks associated data quality, migration timing, and staff capacity to conduct the data conversion needs of the proposed project.

Area of Assessment	Assessment Criteria	*bluecrane* Assessment
Analysis of General Risks (i.e., not specific to a particular solution) (continued)		
Utilization of a Vendor-Provided Solution	✓ Description of likely challenges in managing any vendor-provided solution	✓ Section 5.4, Vendor Solution, provides a comprehensive description of the risks associated with: ○ Selecting a commercial-off-the-shelf (COTS) solution that may not meet each and every requirement *exactly* ○ Managing stakeholder expectations for meeting complex requirements ○ Dependence on a vendor, including the longevity and solvency of the vendor
Procurement	✓ Description of likely challenges in procuring hardware, software, and services for any selected solution	✓ Section 5.5, Procurement, provides a description of certain risks associated with procurement, including insufficient responses and/or inadequate solutions. ✓ While not a cause to modify the feasibility study, *bluecrane* would also caution CRGC that current procurement timelines in WA and OR have been extended to fairly long durations (up to a year or more) due to staff shortages at some of the agencies that oversee procurements.
Partner and Community Engagement	✓ Description of likely challenges in engaging CRGC's broad range of stakeholders, partners, and users for any selected solution	✓ Section 5.6, Partner and Community Engagement, describes risks associated with engaging stakeholders as well as the potential for some of the NSA counties to follow Klickitat's example and rely more on CRGC for the permit review process.

Area of Assessment	Assessment Criteria	*bluecrane* Assessment
Market Research		
Research Activities	✓ Use of literature research, Requests for Information (RFIs), and other methods to identify potential solution alternatives ✓ Breadth of alternatives identified by research and considered in the feasibility study	✓ Section 1.3.2, Analysis Phase, documents an RFI process that CRGC conducted with ESA's assistance. The RFI generated thirteen vendor responses for four different categories of solutions.
Completeness of Alternative Solutions Considered	✓ Depth of information for each alternative identified by research and considered in the feasibility study	✓ The RFI responses included descriptions of proposed solutions, assessments of how proposed solutions meet CRGC's high-level requirements, and estimates for initial and ongoing costs.
Analysis of Alternative Solutions		
Technical Feasibility	✓ Ability of CRGC's technical resources to support the alternative ✓ Hardware and software requirements of the alternative	✓ Section 5.2, Staff Capacity, provides an assessment of the ability of CRGC's staff to manage a new solution from both business and technical aspects. ✓ Section 6.1, Alternatives provides a high-level overview of the architecture and required infrastructure for each alternative considered.
Scheduling Considerations	✓ Estimation of time required to complete the proposed project	✓ Section 8.2, Project Timeline, addresses the time required to complete the proposed project. A single timeline is applied to all alternatives considered.
Operational Considerations	✓ Likelihood of fulfilling business needs on an operational basis once the proposed solution is delivered ✓ Ability of CRGC's staff to "operate" the solution	✓ Section 6.1, Alternatives provides high-level operational considerations of each alternative considered. ✓ Section 6.5 provides an assessment score for the level of effort to operationalize each considered alternative. ✓ Section 5.2, Staff Capacity, provides an assessment of the ability of CRGC's staff to manage a new solution from both business and technical aspects.

Area of Assessment	Assessment Criteria	*bluecrane* Assessment
Analysis of Alternative Solutions (continued)		
Ability to Meet or Exceed Business and Technical Requirements	✓ Identification of any "gaps" in alternative's ability to meet requirements	✓ Section 6.2.1, Pros and Cons, provides summary information on the ability of each considered alternative to meet CRGC's requirements.
Alignment with Future State Objectives	✓ Degree of consistent, standardized data collection ✓ Automation of current manual and paper-based processes ✓ Configurable and robust data quality enforcement ✓ Built-in task and contact management ✓ Centralized data and document management ✓ Self-service analytics and reporting ✓ Support for GIS ✓ Support for integrations of external systems (e.g., via Application Programming Interfaces (APIs)) ✓ Role-based "permissions" and access rights ✓ Online data management and collaboration tools	✓ Section 6.2.1, Pros and Cons, provides summary information on the ability of each considered alternative to meet CRGC's requirements.

Area of Assessment	Assessment Criteria	*bluecrane* Assessment
Analysis of Alternative Solutions (continued)		
Initial and Ongoing Costs	✓ Estimation of initial costs ✓ Estimation of operating and maintenance costs ✓ Estimation of business benefits	✓ Section 6.3.3, Upfront and Ongoing Cost Analysis, provides a comparison of initial and ongoing costs by alternative considered. ✓ Section 6.2.1, Pros and Cons, provides summary information on the business benefits of each alternative considered.
Ability to Meet Pertinent Legal and Regulatory Requirements, if Any	✓ Compliance with requirements	✓ Section 6.2.1, Pros and Cons, provides summary information on the ability of each considered alternative to meet CRGC's requirements.
Recommended Alternative		
Alternative Recommended	✓ Explanation for recommending specific alternative	✓ Section 7.1, Recommended Access Database Replacement Solution, provides an explanation for why the recommended alternative was selected, as well as information on why other alternatives were ultimately rejected.
Considerations Related to Recommendation	✓ Internal resources required ✓ Procurements required ✓ Consultative expertise required	✓ Section 7.1, Recommended Access Database Replacement Solution, recommends that CRGC conduct a solution vendor procurement. ✓ Section 7.3, Recommended Resource Model, provides recommendations on internal CRGC staff resources and consultative resources.
Initial Project Planning Considerations		
Identification of Key Aspects of Project Management Plan Required	✓ Identification of specific steps that CRGC should take in initiating and managing the project that will result if the feasibility study is approved and the project funded	✓ Section 8.1, Project Management Plan, identifies specific steps for CRGC to undertake to initiate and manage Phase 2 of the project (which focuses on the procurement, configuration, and implementation of the new solution).

Area of Assessment	Assessment Criteria	*bluecrane* Assessment
Initial Project Planning Considerations (continued)		
Timeline	✓ Projected timeline for conducting the project	✓ As noted above, Section 8.2, Project Timeline, addresses the time required to complete the proposed project.