



City Council Workshop Agenda Monday, March 18, 2024, 4:30 PM Council Chambers, 616 NE 4th AVE

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To observe the meeting (no public comment ability)

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To participate in the meeting (able to public comment)

- go to <https://us06web.zoom.us/j/84065790336>

(public comments may be submitted to publiccomments@cityofcamas.us)

CALL TO ORDER

ROLL CALL

PUBLIC COMMENTS

WORKSHOP TOPICS

1. [Professional Services Agreement with Carollo Engineers for Water System Per- and Polyfluorinated Substances \(PFAS\) Evaluation and Well 13 Treatment Design](#)
[Presenter: Steve Wall, Public Works Director](#)
[Time Estimate: 15 minutes](#)
2. [Lacamas Lake Treatment 2024 Scope of Work](#)
[Presenter: Steve Wall, Public Works Director](#)
[Time Estimate: 10 minutes](#)
3. [Accessory Dwelling Unit Code Amendments](#)
[Presenter: Alan Peters, Community Development Director and Madeline Sutherland, Planner](#)
[Time Estimate: 20 minutes](#)
4. [Our Camas 2045 Comprehensive Plan Update – Population and Employment Allocations](#)
[Presenter: Alan Peters, Community Development Director](#)
[Time Estimate: 20 minutes](#)
5. Public Pool Conversation
Presenter: Trang K. Lam, Parks & Recreation Director
Time Estimate: 30 minutes

6. Staff Miscellaneous Updates
Presenter: Doug Quinn, City Administrator
Time Estimate: 10 minutes

COUNCIL COMMENTS AND REPORTS

PUBLIC COMMENTS

CLOSE OF MEETING



Staff Report

March 18, 2024 Council Workshop Meeting

Professional Services Agreement with Carollo Engineers for Water System PFAS
Evaluation and Well 13 Treatment Design
Presenter: Steve Wall, Public Works Director
Time Estimate: 15 minutes

Phone	Email
360.817.7899	swall@cityofcamas.us

BACKGROUND: The Washington State Department of Health has taken a proactive approach for testing and monitoring of PFAS (Per- and polyfluoroalkyl substances) in public drinking water systems. The State has developed rules and limits for PFAS over the last few years that were more stringent than recommendations set forth by the Environmental Protection Agency (EPA). However, EPA is anticipated to adopt limits for some PFAS constituents in 2024 that are proposed to be lower than the current State limits. Presuming that happens, the State will need to determine if they will adopt EPA's regulations or something more stringent.

The City has tested and monitored the water system for PFAS over the last 2 years and consistently found that PFAS are higher in Well 13 than the current State Action Level (SAL) and higher than the limits proposed by EPA in their pending regulation. The Oak Park/Wellfield and East Wellfield well sources have also experienced some positive results for PFAS that fall below the SAL but above the proposed EPA limit. As shown in Figure 1, Well 13 is located on the north side of the Washougal River and most of the City's other wells are located on the south side of the Washougal River.

SUMMARY: The City advertised a Request for Qualifications for firms interested in being considered for a project to complete a Wellfield Risk Assessment and to potentially fast-track design and permitting of PFAS treatment at Well 13. The City received 6 submittals from local and national consulting firms and ultimately selected Carollo Engineers to develop a Scope of Work and cost estimate to complete the project. Carollo will be providing engineering, permitting, and agency coordination for PFAS treatment facilities at Well 13. It will be the primary focus of Carollo to complete the design so a contractor can have PFAS treatment operating at the site by June of 2025, if possible. A study of properties surrounding the area around Well 13 and upgradient of the Well will also be completed to determine if sources of potential groundwater contamination can be determined.

An evaluation of the Oak Park/Wellfield East well fields for risk of PFAS contamination will also be completed. Staff and the consultant team will review current and potential future PFAS contamination of the Well Fields and potential sources of PFAS and determine the relative risk to

the City's existing drinking water supply. In addition to potential risk, the team will also review options for mitigation such as treatment facilities, new sources, and other potential alternatives. This work will all combine to essentially develop a PFAS Response Plan for the City's water system. There is no design of PFAS treatment at the Well Field included in this scope of work.

Carollo will also work closely with the City's Communications Director to produce public messaging for the community on the status of the Well 13 project, risk assessment and PFAS legislation. At least one open house with the community will be held to allow for community input and updates on the project. Carollo will also assist the City in tracking potential grants or other funding that may become available to fund any portion of the project.

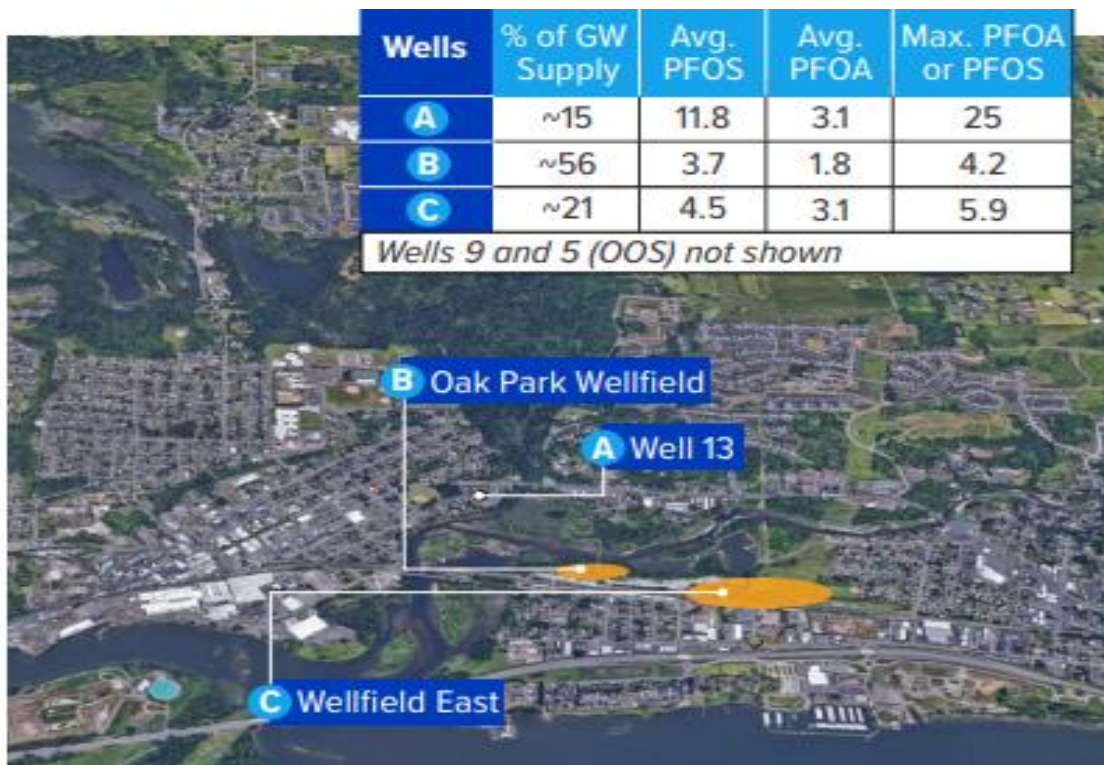


Figure 1: City of Washougal wellfield supply.



Figure 1: Well 13 proposed PFAS treatment facilities

BENEFITS TO THE COMMUNITY: Review the potential risk to the City's water system from PFAS contaminants and develop options for treatment and/or other alternatives that will provide for treated water meeting or exceeding the water quality standards set by Washington State and the EPA.

POTENTIAL CHALLENGES: Addition of a treatment facility at the Well 13 site will be challenging due to the location of the well building in relation to the Washougal River and the proximity of residential neighbors. Availability of equipment and media may also be an issue due to demand and a limited number of suppliers.

Community expectations are already high regarding the overall topic of PFAS. There are currently no requirements by Washington State for drinking water purveyors to treat for or try and eliminate PFAS in drinking water – current regulations only require monitoring and public notifications. Additionally, there have been recent news stories regarding EPA's proposed regulations that make it sound like adoption of the regulations may be delayed beyond EPA's goal of "early 2024". Additionally, the costs of treating PFAS are significant and the science and information around the topic continues to evolve. The City will need to find the balance of reacting quickly, managing community expectations, and developing options that maximize our ability to fund treatment and source alternatives.

BUDGET IMPACT: The cost of services in the proposed scope of work are estimated to be \$1,614,621. Approximately 75 percent of this amount is related to Treatment for Well 13, and the remaining is associated with public outreach and development of the system-wide PFAS Response Plan. There are sufficient funds within the Water Rates to cover this expense; however, money will need to be added to the 2024 Budget through an Omnibus.

RECOMMENDATION: Staff recommends this item be placed on the April 1, 2024, Regular Meeting Council Consent Agenda for Council's consideration.

CITY OF CAMAS

WATER SYSTEM PFAS EVALUATION AND WELL 13 PFAS TREATMENT DESIGN

SCOPE OF WORK

BACKGROUND

Like many Washington communities on the Lower Columbia River, the City of Camas (City) is proactively developing a strategy to discuss and address the public health concerns associated with per and polyfluoroalkyl substances (PFAS) in its drinking water. PFAS has been detected in groundwater at the City's Lower Washougal Wellfield (LWWF) and threatens both the quality and quantity of its primary supply source. The need for response is urgent; PFAS levels from LWWF Well 13 exceeds Washington State Action Levels (SAL), and other LWWF wells have yielded results that exceed the United States Environmental Protection Agency's (USEPA) proposed maximum contaminant levels (MCL).

The City has advanced a Water System Plan Addendum, opening the door to state and federal funding opportunities paving the way for a PFAS mitigation strategy. With this project, the City intends to 'fast track' the planning and implementation of wellfield development, treatment, funding, and an outreach approach that addresses the near-term water quality and quantity needs of the City, while establishing a sustainable and equitable approach for long-term PFAS mitigation.

OBJECTIVES

Objective No. 1: Quickly develop Near-Term Treatment Plan at Well 13 to Reduce the Presence of PFAS below the State Action Levels

- Minimize the impacts of PFAS on the City's water supply as quickly as possible. To that end, the project will fast-track the addition of treatment to Well 13, and the optimization of existing groundwater capacity at Wells 7, 8 10, 11 and 12. All early efforts are intended to reduce the presence of PFAS below SALs.
- Implement near-term solutions that support a long-term mitigation strategy, maximizing the return of every dollar spent, and minimizing stranded investments.

Objective No. 2: Thoughtfully Develop Long-term Mitigation Plan

- Understand extent of existing of PFAS contamination, link to historical sources/land uses when possible, and establish a long-term mitigation plan for sustainably and equitably addressing the City's PFAS challenges moving forward.
- Leverage other regional and national experiences, trends and technologies when developing the long-term plan.

Objective No. 3: Secure and Maintain Key Stakeholder Support

- Help the City leadership discuss and explain the complicated PFAS risks in a clear, understandable manner throughout current and all future PFAS-related projects.

The following Scope of Services has been developed to define the work required to meet all of the above project objectives. The tasks listed under this Scope of Services have been prepared based on the Consultant's understanding of the proposed project, based on discussions with City staff.

ABBREVIATIONS

AACE	Advancement of Cost Engineering
BOE	Basis of Estimate Report
CAMP®	Concentrated Accelerated Motivational Problem-Solving
City	City of Camas
cm	centimeters
CMC	Camas Municipal Code
CUP	Conditional Use Permit
DOH	Department of Health (Washington)
EOM	electronic operations and maintenance
H&S	Health and Safety
LOS	level of service
LWWF	Lower Washougal Wellfield
MCL	maximum contaminant level
NEPA	National Environmental Policy Act
O&M	operations and maintenance
ODC	other direct costs
OPCC	opinions of probable construction cost
OS	open space
PCM	proposed conditions model
PDR	Preliminary Design Report
PFAS	per and polyfluoroalkyl substances
PFD	process flow diagram
PMP	Project Management Plan
QM	quality management
RFI	Requests for Information
RHA	Rivers and Harbors Act
RSSCT	rapid small scale column test
SAL	State Action Levels
SHPO	State Historic Preservation Officers
SOP	standard operating procedures
SOQ	Statement of Qualifications
SRF	State Revolving Loan Fund
TIR	Technical Information Report
TM	Technical Memorandum
USEPA	United States Environmental Protection Agency

1.0 SCOPE OF SERVICES

GENERAL PROJECT ASSUMPTIONS

- Carollo Engineers, Inc. and partner Consultants are referred to as "Consultant" in this document.
- The City of Camas and its staff are referred to as "City" in this document.
- Design, Planning, and Bidding efforts detailed in this Scope of Work are centered around installing PFAS treatment at the site of Well 13 and maximizing the capacity of the existing wellfield. However, it is likely that system wide PFAS mitigation planning will require additional capacity, PFAS treatment and associated infrastructure improvements at Wells 7, 8 10, 11 and 12. For this reason, preliminary facility/site utilization planning for this work will be performed within Task 1000.
- To minimize travel costs, all meetings/workshops will allow remote participation, unless otherwise stated in specific scope task descriptions.
- Draft submittals shall be provided in electronic copy (.pdf and .docx) and transmitted via email or secure file transfer. City comments and Consultant responses to draft submittals will be tracked via 'red line' markups incorporated into an electronic version of the submittal and formal 'comment/response' logs.
- Drawings shall be provided in electronic copy (.pdf) and transmitted via email or secure file transfer.
- Calculation tables shall be provided in .xlsx and .pdf format.
- Meeting notes and related materials shall be transmitted electronically (.pdf and/or .docx) via email.
- The City will print and produce additional copies of all documents, as necessary, for its use.
- The City will facilitate coordination and review with local jurisdictions and state regulatory agencies.
- In providing opinions of probable construction cost (OPCC), financial analyses, economic feasibility projections, and schedules for potential projects, Consultant has no control over cost or price of labor and material; unknown or latent conditions of existing equipment or structures that may affect operation and maintenance costs; competitive bidding procedures and market conditions; time or quality of performance of third parties; quality, type, management, or direction of operating personnel; and other economic and operational factors that may materially affect the ultimate project cost or schedule. Therefore, Consultant makes no warranty that the City's actual project costs, financial aspects, economic feasibility, or schedules will not vary from Consultant's opinions, analyses, projections, or estimates.
- Consultant shall be entitled to use and rely upon all such information and services provided by the City or others in performing Consultant's services under this Agreement.
- The design deliverables shall comply with Carollo's general CAD standards.
- Consultant shall be entitled to the following Other Direct Costs (ODC) for out-of-state and local travel:
 - » Out-of-town trips, including overnight stays (hotel, meals, car rental).
 - » In town trips: mileage, meals.
- Security improvements of the proposed improvements shall be based on the following assumptions:
 - » Scope of the security improvements shall be limited to 'access control' to occupied facilities and a secure perimeter (i.e. fencing) around the wellfield improvements.

- » If desired, City will work to identify a preferred provider for security services (if not self-performed), and will work with this provider to detail the scope of the security improvements at the proposed wellfield improvements.
- » Consultant will work with the City's preferred provider to include the required conduit/power/network for the City's preferred security system for all new infrastructure associated with the wellfield improvements.
- » The City will contract with the preferred provider to execute the scope for both the new infrastructure, as well as improvements to the existing facilities, if needed.
- This scope of work is limited to Engineering services during planning, design and bidding; all construction-related services shall be negotiated under a separate contract following conclusion of this work.

2.0 TASKS

To meet the objectives of this scope of services, the Consultant shall complete the tasks, as summarized in the table below and discussed in detail in the following subsections.

Task	Title
<i>Task 1000 - Fast-track Mitigation (Well 13 PFAS Treatment Improvements and Wellfield Optimization Planning)</i>	
Task 1100	Early Work Activities
Task 1200	Planning, Design and Bidding
Task 1300	Permitting
Task 1400	Support Services
<i>Task 2000 - System-wide PFAS Response Plan</i>	
Task 2100	Risk Assessment
Task 2200	Mitigation / Alternatives Analysis Screening
Task 2300	Response Plan
Task 2400	Hydrogeological Support Services
<i>Task 3000 - Communications and Funding Support</i>	
Task 3100	Stakeholder Engagement and Outreach Support
Task 3200	Funding Opportunity Tracking and Support
<i>Task 4000 - Project Management</i>	
<i>Task 5000 - Optional Services / Contingency Activities</i>	

TASK 1000 - FAST-TRACK MITIGATION

The purpose of this task is to quickly identify the risks and opportunities associated with treatment at Well 13 and capacity optimization at the City's existing LWWF sites, develop a near-term strategy for mitigating the risks associated with PFAS, and design PFAS treatment for Well 13.

TASK 1100 - EARLY WORK ACTIVITIES

The purpose of Task 1100 is to provide engineering support for key early-work activities on the critical path for project completion.

Task 1100 Activities

1101. Level of Service Goals

1. Consultant shall host a workshop to define level of service (LOS) Goals for the project to define the following project objectives:
 - a. Water quality objectives.
 - b. Water quantity objectives.
 - c. Reliability objectives.
 - d. Redundancy objectives.

1102. Regional Opportunities

1. Consultant shall facilitate collaboration with other Washington and Oregon groundwater users, utilities, and agencies to develop understanding of regional issues, and identify opportunities for collaboration, including:
 - a. Groundwater monitoring and modeling.
 - b. Media supply/purchasing.
 - c. Media disposal.
 - d. Regulatory influence.
 - e. Funding coordination and collaboration.
 - f. Legal coordination and alignment.
2. Consultant shall host a workshop to discuss key issues, identify mitigation strategies and collaborate on a regional solution if/when available/appropriate.

1103. PFAS Site Tours

1. Consultant to facilitate tours of two PFAS facilities (one with GAC-based PFAS treatment, and one with IX-based PFAS treatment) to help City staff better understand the operational and maintenance requirements associated with the various alternatives for PFAS treatment. The site tours may require travel outside of our region due to the lack of IX-based municipal PFAS treatment facilities in the State of Washington. An out of region trip to Arizona would allow City Staff to see firsthand operational considerations for IX facilities, as well as view the West Coast's only regeneration and incineration facilities for these media technologies – a critical long-term cost and risk implication of this project. Based on these tours, Consultant to collaborate with City staff to determine City preferences, if any, that may influence the overall PFAS treatment planning and design efforts.

1104. Bench-Scale Screening

Bench-scale tests and pre-design sampling and analysis efforts shall be performed to gain a better understanding of site-specific water quality characteristics and their impact on design considerations. These design considerations include:

- Optimal media type and efficacy of PFAS removal.
- Media exchange frequency.
- Cost estimate data development.

- Pretreatment needs.
- Post-treatment needs.

Bench-scale tests are assumed to include:

1. Four (4) Rapid Small Scale Column Tests (RSSCT), one using test water from Well 13, and another using test water from the Well 11/12 site.
2. Consultant will perform data analysis of RSSCT testing results. Data analysis of RSSCTs will include modelling media performance in Carollo's proprietary treatment modelling software, BluePlanIT®.

Pre-treatment screening efforts are assumed to include:

1. A Rossum sand test to help determine pretreatment needs.
2. Pre-treatment filtration comparison bench-scale sampling to optimize pretreatment selection.
3. A desktop study of corrosion control impacts from addition of treatment processes to maintain lead and copper rule compliance. NOTE: This will inform if there is a need for future bench-scale wet testing for corrosion control treatment study needs.

1105. Sampling and Analysis

1. Consultant will develop a near-term sampling plan, which will include sampling for PFAS throughout the LWWF, as well as additional water quality parameters at Well 13, Oak Park Wellfield (Wells 7, 8, 10, 11 and 12), additional groundwater wells suitable for monitoring as well as select locations within the distribution system.
2. Consultant will perform data analysis on PFAS results and water quality results to facilitate decision making on early work activities.
3. A Treatment Considerations technical memorandum (TM) will be developed to summarize the results of the efforts described within Task 1104 and 1105. The TM will recommend media type, pretreatment configuration, and any post-treatment that may be needed.

1106. Site Utilization Planning

1. Site 'utilization plans' shall be developed considering future infrastructure needs: PFAS treatment requirements, chemical storage and handling, power, constructability, permitting, schedule and operational considerations. One site plan shall be developed for each of the two sites:
 - a. Well 13.
 - b. Oak Park Wellfield (Wells 7, 8, 10, 11 and 12) and associated nearby wells.
2. Site plans and associated implications shall be summarized in annotated site plan drawings, and presented to the City during a Site Utilization Workshop. Consultant shall utilize SketchUP models to provide real-time 'what if' analysis during the workshop to help the City optimize and finalize the plans. Final recommendations shall be used to inform Task 2000, long-term activities. Site utilization efforts for Well 13 shall be used to support preliminary design efforts for Task 1201. Site utilization results from the Oak Park Wellfield will help inform planning efforts for future capacity and treatment expansion.

1107. Early Department of Health Coordination

1. Consultant to support a City-led introductory meeting with Department of Health's (DOH) City liaison to provide background on the City's proposed facilities, near-term improvements to address PFAS impacts on the system.

2. Consultant to coordinate upcoming State Revolving Loan Fund (SRF) meeting to discuss this, and other DOH Funding opportunities. NOTE: See task 3200 for funding support services.
3. Consultant to coordinate early source protection activities meeting to discuss preliminary findings and opportunities for source mitigation.

1108. Near-term Operations Support

1. Consultant to provide operational support strategies for the City staff, with the goal of minimizing the need for Well 13 in 2024. Strategies include:
 - a. Maximizing production and operational window of the Slow Sand Filter Plant.
 - b. Maximizing production out of the existing wellfield.
 - c. Regional supply considerations.
2. Consultant shall facilitate monthly meetings to review the results of the Near-term Operation Support efforts.

Task 1100 Workshop Summary

1. Workshop 1101: LOS Goals.
2. Workshop 1102: Regional Opportunities.
3. Workshop 1103: Plant Tours
4. Workshop 1106: Site Utilization.

Task 1100 Assumptions

1. Sub-task 1101 - LOS Goals.
 - a. Workshop shall be attended by key team members of the Consultant team, including: Project Manager, Project Engineer, Technical Advisors, Permitting specialists, Hydrogeologist
 - b. Workshop will be attended by key City Staff, including the City Project Manager, operations staff, public relations staff, and other staff the City deems appropriate.
2. Sub-task 1102 - Regional Opportunities.
 - a. Consultant to schedule up to three workshop with peer agencies/water suppliers in the region. Workshops shall be attended by the Consultant Project Manager, Project Engineer, and two subject matter experts.
 - b. Consultant to work in collaboration with the participants to develop the agenda and goals for the workshop.
3. Sub-task 1103 - PFAS Site Tours.
 - a. Site tours shall be attended by the Consultant's Project Manager, Project Engineer and Technical Advisor. Duration of the tours shall be eight hours, four hours per plant.
 - b. Out of state travel shall be limited to the Consultant's Project Manager and Project Engineer from the Consultant team.
4. Sub-task 1104 - Bench-scale Screening.
 - a. RSSCT testing shall be performed at Carollo's Water ARC® facility located in Boise, Idaho.
 - b. One fifty-five-gallon drum of water from each source will be required during the bench-scale testing, for total of two drums. Water for bench-scale testing shall be collected and shipped by the City.

- c. Shipping costs will be paid by the City.
 - d. Water quality sampling costs associated with the RSSCT testing will be paid by the City. NOTE: This can be a significant expense (assuming analysis and shipping costs are ~\$400 per sample, and each test will require 20 samples, a total of 80 samples will be required, costing \$32,000.)
5. Sub-task 1105 - Sampling and Analysis.
- a. The near-term sampling plan developed as part of Task 1105 will outline the specific water quality sampling that the Consultant will recommend the City performs to support early-work activities. It is assumed the City will conduct two rounds of sampling and pay for costs associated with shipping and laboratory analysis. These sampling efforts may include, but are not limited to, sampling for chloride and sulfate, additional PFAS sampling, total suspended solids, and total organic carbon, iron, manganese, pH, temperature, and free chlorine downstream of injection. Data analysis associated with the near-term sampling plan assumes that Carollo will maintain the data in a project database and will perform any necessary QA/QC analysis on the data. It also assumes that sampling under the early work activities will be limited to two fast-track sampling events and that analysis will be limited to standard PFAS analysis, including trends associated with the compound type, concentration, and relative prevalence compared to national standards or guidelines.
6. Sub-task 1106 - Site Utilization.
- a. Workshop duration shall be four hours.
 - b. Workshop shall be attended by key team members of the Consultant team, including: Project Manager, Project Engineer, Technical Advisors, Permitting, and Hydrogeologist.
 - c. Oak Park Wellfield site utilization will be done with existing information and assumes no additional site surveys, permitting, or additional support service investigations.
7. Sub-task 1107 - Early DOH Coordination.
- a. Meeting shall be held via Teams with a scheduled duration of 2 hours and will require 4 hours of preparation time. Meeting shall be attended by Consultant's Project Manager, Project Engineer, and System Integration specialist, and Hydrogeologist.
8. Sub-task 1108 - Near-term Operational Support.
- a. Monthly meetings shall be two hours in duration and shall be attended by the Consultant's Project Manager, Project Engineer, and Hydrogeological Lead. An additional two hours will be required for each participant in preparation for the meeting.
 - b. For local staff, meetings shall be held at City offices from March through October of 2024. Remote staff, including the hydrogeologist, shall participate via Teams.

Task 1100 City Deliverables

- 1. Review and comment on draft and final draft documents provided by Consultant.
- 2. City to provide additional water quality testing, hydrogeologic and well performance data gathered throughout the duration of the project.
- 3. Weekly water operational data summaries for Consultant review.

Task 1100 Consultant Deliverables

- 1. Draft and Final Agenda and Presentation for each workshop.
- 2. Meeting minutes for each workshop.

3. Near-term sampling plan (Draft and Final).
4. Treatment Considerations TM (Draft and Final).
5. Site Utilization Plans (Draft and Final).
6. Draft and Final Early DOH Coordination Meeting Agenda and Presentation.
7. Monthly Near-term Operations Support recommendations.

TASK 1200 – WELL 13 PFAS TREATMENT PLANNING, DESIGN AND BIDDING

The objective of Task 1200 is to develop and deliver design documents for PFAS treatment at Well 13.

Task 1200 Activities

1201. Preliminary Design Efforts/Basis of Design CAMP®

1. *Basis of Design:* Consultant shall develop sufficient engineering to define the basis of design for the Well 13 PFAS treatment improvements and associated ancillary facilities. Consultant will work collaboratively with the City to align this new infrastructure with past Master Planning efforts to identify the required sizing of the new facilities. The Basis of Design shall include the following:
 - a. Final process schematic providing an overview of the related process improvements and interconnecting piping.
 - b. Hydraulic profile for the proposed facilities.
 - c. Final design criteria for the proposed facility and related appurtenant systems.
 - d. Final layout and site plan including process and building layouts and electrical service, as appropriate.
 - e. Process piping diagrams.
 - f. Proposed electrical service upgrades including preparation of a single line diagram and recommendations for plant standby power generation capacity and approach.
 - g. List of major equipment and summary of long lead items.
 - h. Identify risks and opportunities associated with the various construction/delivery alternatives, and recommend final delivery strategies.
 - i. Identify risks and opportunities associated with long-term operations of the project.
2. *Basis of Design CAMP®:* Consultant shall conduct a Basis of Design CAMP® meeting with the City to advance and transition the basis of design for project elements to final design level detail. The Design CAMP® - an acronym for Concentrated, Accelerated, Motivated Problem solving - is a facilitated workshop meeting in which City Engineering and Operation staff actively participate in design development. The purpose of the CAMP® is to finalize the key design details, layouts, equipment preferences, and other key decisions with City staff.
3. *Preliminary Design Report:* Consultant shall prepare a Preliminary Design Report (PDR) to memorialize key Basis of Design/CAMP® decisions, and lay the foundation for detailed design efforts.
 - a. Preparation of design documents and a specification outline; drawings anticipated for inclusion in the submittal have been identified in the drawing list (see Section 4.0 - Drawing List.)
 - b. Internal quality control review and comment incorporation.
 - c. Updates to the design schedule.

- d. Facilitate a review workshop with City staff to discuss key comments and confirm assumptions.
- e. City comment review log shall be maintained to document all City review comments and associated design team responses/actions to address the comments.

1202. Early Procurement/Bid Packages

To meet the project schedule requirements, development of equipment procurement packages shall be accelerated for several project components. The objective of this task is to accelerate the procurement and submittal phases of equipment with long delivery schedules to better align delivery of the equipment with the project schedule. After review by the City of the PDR, Consultant shall progress the design of two major procurement packages to a final detailed design completion level: PFAS treatment equipment and key, long-lead electrical/mechanical equipment.

1. Consultant to provide examples of pre-procurement documents, and key lessons learned from recent PFAS pre-procurement efforts.
2. Each procurement package shall include: preliminary layout drawings, process and instrumentation diagrams, and required technical specifications. For each procurement package, Consultant shall:
 - a. Submit draft documents for City review.
 - b. Schedule and facilitate a one-day review workshop with City to present the documents and review any time sensitive items.
 - c. Provide responses to bidder questions and prepare addenda, as required.
 - d. Review bid proposals and provide recommendation for award.
3. Consultant shall provide procurement package front-end specifications for City legal review/approval, for inclusion in final pre-procurement documentation.
4. Consultant shall review equipment vendor proposals and provide recommendations on 'best value' in support of the City's selection process.
5. Consultant shall assist the City during final contract negotiations with the selected equipment manufacturers.

1203. 60 Percent Design

1. Following completion of the PDR, Consultant shall quickly proceed with development of the 60 percent design documents. 60 percent design services include:
 - a. Further development of design documents and select specification; drawings anticipated for inclusion in the submittal have been identified in the drawing list (see Section 4.0 - Drawing List.)
 - b. Internal quality control review and comment incorporation.
 - c. Updates to the design schedule.
2. An overview of the 60 percent documents (via 3D model review), and a discussion of preliminary City comments shall be presented at the 60 percent Design Review Workshop.
3. City comment review log shall be maintained to document all City review comments and associated design team responses/actions to address the comments.

1204. 90 Percent Design

1. Following completion of the 60 percent Design Phase, Consultant shall proceed with development of the 90 percent design documents. 90 percent design services include:
 - a. Further development of design documents and complete specifications; drawings anticipated for inclusion in the submittal have been identified in the drawing list (see Section 4.0 - Drawing List.)
 - b. Internal quality control review and comment incorporation.
 - c. Updates to the design schedule.
2. An overview of 90 percent documents (via 3D model review), and a discussion of preliminary City comments shall be presented at the 90 percent Design Review Workshop.
3. City comment review log shall be maintained to document all City review comments and associated design team responses/actions to address the comments.

1205. Final Design

1. Consultant shall provide final drawings and specifications, stamped and signed, ready to issue for final bidding. Consultant shall incorporate comments from the City's review of the 90 percent submittal, as well as any conditions of permitting/land use approval into a final set of drawings and specifications.

1206. Opinion of Probable Construction Costs

1. Consultant shall prepare OPCC estimates at key design milestone in general accordance with the guidance established by the Association for the Advancement of Cost Engineering (AACE). Each estimate shall be summarized in a Basis of Estimate Report (BOE), including all back-up at each design submittal. Estimates shall be prepared at the following design milestones:
 - a. An independent cost estimate shall be prepared at the PDR design milestone. It is anticipated that basis of design and corresponding preparation of effort will be consistent with AACE's Class 5 estimate description.
 - b. An independent cost estimate shall be prepared at the 60 percent design milestone. It is anticipated that basis of design and corresponding preparation of effort will be consistent with AACE's Class 3 estimate description.
 - c. An independent cost estimate shall be prepared at the 90 percent design milestone. It is anticipated that basis of design and corresponding preparation of effort will be consistent with AACE's Class 2 estimate description.
 - d. An independent cost estimate shall be prepared at the 100 percent design milestone. It is anticipated that basis of design and corresponding preparation of effort will be consistent with AACE's Class 2 estimate description.
2. Consultant shall respond to each City review comment and submit a comment response log prior to finalizing the estimate at each design stage.

1207. Design-related Permitting Support

During the Design Phase, Consultant shall provide permitting support to facilitate obtaining of the required permits for the project. Support activities shall include the following:

1. Preparation of figures/drawings, maps, and calculations and narrative descriptions of the facilities for use by the Consultant's Permitting Team in obtaining the required Land Use Permit.
2. Preparation of figures, maps, drawings, and calculations for use by the Contractor in obtaining required building permits.

1208. Early Operations and Maintenance Manual Efforts

The following scope of work outlines the recommended early work associated with the Operations and Maintenance (O&M) Manual.

1. Visioning Workshop. Immediately following commencement of PDR, Consultant shall conduct a visioning Workshop with City staff to discuss the relative pros/cons for a variety of O&M platforms. Example templates shall be provided to the City for review prior to the Workshop.
2. Electronic Operations and Maintenance (EOM) System Set-up. Consultant shall work with the City to lay the foundation for the EOM option selected in the Visioning Workshop. Consultant shall provide a recommended system specification that defines the preferred configuration. This specification will be finalized based on comments received, and included in the final contract documents.
3. Early standard operating procedures (SOP) Development: Following the delivery of the 90 percent design, the consultant shall make recommendations on the benefits of developing SOP before construction begins to capture key design or operational intents.

1209. Bid Assistance

Bid assistance activities shall assist the City in conducting a fair process in obtaining construction bids and selecting a construction contractor.

1. Department of Health Approval for Bid Document: The Consultant shall assist the City in obtaining the DOH approval of the bid documents.
2. Pre-Bid Conference: Consultant shall organize, prepare the agenda, and conduct the pre-bid conference and site tour for the construction contractors to allow acquaintance of potential contractors with the work. Meeting minutes shall be prepared to document the questions, comments and responses received during the pre-bid conference visit.
3. Addenda: The City will receive all questions from prospective bidders and interested parties. The Consultant shall prepare responses to technical questions forwarded by the City during the bid phase. If necessary, addenda support information shall be prepared and forwarded electronically to the City. The City will incorporate the support information into the final addenda and issue the final addenda.
4. Construction Contractor Bid Reviews: The Consultant shall assist the City with construction contractor bid reviews, through attendance at the bid opening. It is assumed that the Consultant will prepare the bid tabulation summary, evaluate the bid results, and provide written recommendations to the City concerning the award of the contract. It is assumed that one bid period will be conducted.
5. Preparation of Conformed Contract Documents: Consultant shall incorporate changes made by addendum into the Project specifications and drawings for use during construction. Electronic, print-ready versions of all conformed documents will be provided to the City.

Task 1200 Workshop Summary

1. Workshop 1201a: Basis of Design CAMP®.
2. Workshop 1201b: Preliminary Design Report City Comment Review.
3. Workshop 1203: 60 Percent Design Review.
4. Workshop 1204: 90 Percent Design Review.
5. Workshop 1208: O&M Manual Visioning Workshop.
6. Workshop 1209a: Pre-Bid Conference
7. Workshop 1209b: Bid Opening

Task 1200 Assumptions

1. Sub-task 1201 - Preliminary Design Efforts/Basis of Design CAMP®.
 - a. Basis of Design CAMP® shall occur over a three-day period. Consultant shall provide a draft and final CAMP® Workshop agenda prior to the meeting and workshop minutes after the meeting with an updated comment and decision log.
 - b. Basis of Design CAMP® shall be attended by the Consultant's Project Manager, Project Engineer, and three Discipline Leads.
 - c. Consultant shall prepare the PDR design drawings using a combination of MicroStation CAD software and SketchUp. The final PDR shall be provided to the City in PDF format. PDR drawings to be included in the submittal are summarized in Section 4.0 of this Scope of Work.
 - d. City will review the PDR and provide written (or electronic) review comments.
 - e. Design efforts shall not impact existing chemical storage and feed facilities.
2. Sub-task 1202 - Early Procurement/Bid Packages.
 - a. Consultant shall develop two early procurement packages, one for long-lead infrastructure, and one for the key electrical equipment.
 - b. For each early procurement package, the Consultant shall be responsible for all front-end and technical specifications.
 - c. No pre-procurement Workshop will be required.
 - d. Consultant shall review no more than 3 bid packages for each procurement effort.
 - e. Pre-procurement shall be a one-step process; no pre-qualification process is required.
3. Sub-task 1203 - 60 Percent Design.
 - a. Consultant shall prepare the 60 percent design drawings; all final drawings shall be provided to the City in PDF format. 60 percent drawings to be included in the submittal are summarized in Section 4.0 of this Scope of Work.
 - b. Consultant shall prepare 60 percent specifications using Consultant's standard specifications, which will include the following:
 - i. Completed Table of Contents of project specifications.
 - ii. Preliminary structural, mechanical and electrical specifications for major components not previously included in pre-procurement packages.
 - c. City will review the 60 percent design drawings and provide written (or electronic) review comments.

- d. 60 percent Design Review Workshop shall be a one-day workshop held in Camas and will be attended by the Consultant Project Manager, Project Engineer, and two Discipline Engineers.
 - e. Consultant shall provide a draft and final 60 percent Design Review Workshop agenda prior to the meeting and workshop minutes after the meeting with an updated comment and decision log.
4. Sub-task 1204 - 90 Percent Design.
- a. Consultant shall prepare the 90 percent design drawings; all final drawings shall be provided to the City in PDF format. 90 percent drawings to be included in the submittal are summarized in Section 4.0 of this Scope of Work.
 - b. Consultant shall prepare 90 percent specifications using Consultant's standard specifications, which will include a complete set of specifications required for the delivery of the project.
 - c. City will review the 90 percent design drawings and provide written (or electronic) review comments.
 - d. 90 percent Design Review Workshop shall be a one-day workshop held in Camas and will be attended by the consultant project manager, project engineer, and two discipline engineers.
 - e. Consultant shall provide a draft and final 90 percent Design Review Workshop agenda prior to the meeting and workshop minutes after the meeting with an updated comment and decision log
 - f. Final 90 percent design documents shall be used for building permitting purposes.
5. Sub-task 1205 - Final Design.
- a. Final design documents shall be used during bid process.
 - b. Carollo drawings will be prepared under Carollo's CAD standards.
 - c. No efforts assumed for detailed design of security systems.
 - d. Design efforts will assume a new PLC/RTU panel. No PCS/SCADA software or hardware upgrades are included.
 - e. No generator upgrades will be assumed in design efforts. Modifications will only assume tying in remote monitoring signals for existing generator.
6. Sub-task 1207 - Design-related Permitting Support.
- a. Consultant design team shall provide up to 4 written responses to City and Agency review comments and shall incorporate City and Agency review comments/conditions of approval into the design documents.
 - b. Consultant design team shall attend up to 4 regulatory agency meetings to discuss information requirements and construction methods.
7. Sub-task 1208 - O&M Manual.
- a. Review and comment on draft and final draft concepts/specifications provided by Consultant.
8. Sub-task 1209 – Bidding Services.
- a. Pre-qualification efforts for Contractors, if needed, will be led by the City.
 - b. One bid period will be conducted resulting in one addendum.
 - c. One set of contract documents will be prepared.
 - d. Bidding will be based on a lump sum approach with up to three bid schedule alternatives.

- e. PDF documents will be provided to the City's document management system for the Contractor to download/print. Copies of the Bid Documents will be paid for by the interested Contractor/Subcontractors.
- f. The original Bid Documents and Addenda will prevail over the conformed Contract Documents in the event there is discrepancy between the subject documents.

Task 1200 City Deliverables

1. Review and comment on draft and final draft documents provided by Consultant.
2. Participation in Consultant-facilitated Basis of Design CAMP®.
3. City-preferred front-end documents for early procurement efforts and final bid documents.
4. Agency comments to various permit applications for Consultant review/comment.
5. Review O&M Manual templates in advance of the O&M Manual Visioning Workshop; develop a final recommendation on O&M platform one week following the workshop.
6. Participation in EOM Operational Interviews.
7. Participation in pre-bid conference.
8. Develop and issue all related Addenda.

Task 1200 Consultant Deliverables

1. Sub-task 1201 - Preliminary Design Efforts/CAMP®.
 - a. Draft and Final Basis of Design CAMP® Agenda and Meeting Minutes.
 - b. Draft and Final Preliminary Design Report.
 - c. Draft and Final Preliminary Design Report Comment Review Meeting Agenda and Meeting Minutes.
2. Sub-task 1202 - Early Procurement/ Bid Packages.
 - a. Example PFAS treatment/electrical equipment pre-procurement documents and lessons learned.
 - b. Consultant shall prepare draft and final pre-procurement packages, including both front-end and technical specifications.
 - c. Consultant shall provide bid addenda, as required.
 - d. Consultant shall provide bid review comments and final recommendation for contract award.
3. Sub-task 1203 - 60 Percent Design.
 - a. 60 percent drawings, specification Table of Contents and select specifications (PDF format).
 - b. Draft and Final 60 percent Design Review Workshop agenda and minutes.
 - c. Updated 60 percent comment, decision and change logs.
 - d. Updated design schedule.
4. Sub-task 1204 - 90 Percent Design.
 - a. 90 percent drawings and complete specifications (PDF format).
 - b. Draft and Final 90 percent Design Review Workshop agenda and minutes.
 - c. Updated 90 percent comment, decision and change logs.
 - d. Updated design schedule.

5. Sub-task 1205 - Final Design.
 - a. Final drawings and specifications in electronic format (PDF). Four copies of the final drawings shall be provided in half size versions (11-inch by 17-inch); four copies of the final specifications shall also be provided.
6. Sub-task 1206 - Opinion of Probable Construction Costs.
 - a. OPCC BOEs at the PDR, 60 percent, 90 percent and 100 percent design milestones.
 - b. City comment response log.
7. Sub-task 1207 - Design-related Permitting Support.
 - a. Support documentation for the Land Use permit application.
 - b. Support documentation for the Building permit application.
8. Sub-task 1208 - Early O&M Manual Efforts.
 - a. Draft and Final Visioning workshop agenda, presentation and meeting minutes.
 - b. Draft and Final EOM system specifications.
 - c. Draft and Final early SOP recommendations.
9. Sub-task 1209 – Bid Assistance.
 - a. Pre-Bid Conference Agenda.
 - b. Draft and Final Pre-Bid Conference Meeting Minutes.
 - c. Addenda support documentation.
 - d. Bid tabulation summary.
 - e. Conformed Documents.

TASK 1300 - PERMITTING

The purpose of Task 1300 is to execute the permitting strategy to facilitate delivery of Well 13 PFAS treatment as quickly as possible to mitigate PFAS impacts on the City's water supply.

Task 1300 Activities

1301. Permitting Strategy Development

1. Environmental Permitting Strategy Consultant shall prepare a natural resources permitting strategy document to identify natural resource permitting requirements for the Project. The natural resource permitting strategy shall incorporate available natural resource information to inform the permitting process, propose a schedule for permit application submittal and approval, and identify critical path elements and risks associated with permitting the proposed Project. The strategy will be based on the current project description, current permitting requirements and conversations with the relevant resource agencies to confirm permit requirements and approach. The natural resource permitting strategy shall include the following elements, as necessary:
 - a. List of required permits.
 - b. Design considerations and implications for each permit.
 - c. Permitting schedule, including critical path permit tasks.
 - d. General mitigation requirements and opportunities.

As part of this task, the Consultant shall attend up to four hours of meetings and advise the City on National Environmental Policy Act (NEPA) general requirements for different funding agencies.

Because each funding agency requires different documentation, a full NEPA scope is not possible at this time. If federal funding is acquired, a contract amendment will be required to develop the necessary documentation.

2. Land Use Permitting Strategy Consultant shall prepare a land use permitting strategy document that will identify the required land use approval requirements for the Project. The document will provide the following: summarize the major land use standards, approval criteria, and submittal requirements; provide an outline and schedule of the required land use approval processes, including public notice and public hearing requirements (if applicable); identify the decision makers and timing of land use decisions; identify and describe the potential risks and proposed approach for mitigating risks and appeals associated with land use permitting.

The Land Use Permitting Strategy shall also include a discussion of timing for the Project. For example, land use permits and approvals may be valid only for one or two years. Within the expiration period, a building permit must be issued and substantial development must occur for the land use permit to remain valid. The City may be able to apply for extensions beyond the deadline, but each extension requires a separate request, must demonstrate good cause, and carries the risk that City permitting staff may not approve an extension.

1302. Natural Resource Permitting

1. Consultant shall conduct a wetland and fish and wildlife habitat critical areas assessment within tax lots 91034000, 91031000, and 90928000. Up to two wetland functional assessments will be prepared to document the category of wetland. In addition, fish and wildlife habitat critical areas (snags, Oregon white oak, sensitive species) present on the site will be documented. Consultant shall prepare a joint wetland and fish and wildlife habitat critical areas report. Consultant shall coordinate a site visit with the local Washington Department of Ecology wetland specialist to review the wetland and stream delineation and to discuss proposed development onsite. This meeting will support the project's avoidance, minimization, and mitigation efforts to ensure early agreement and to avoid later design changes.
2. Consultant shall prepare a Shoreline Narrative that discusses how the project complies with the City Shoreline Management Program. The project will require a Conditional Use Permit (CUP) for utility work in a Medium Intensity Shoreline designation. All work will be conducted more than 50-feet from the ordinary high-water mark of Lacamas Creek; shoreline variances are not included in this scope. Consultant shall attend the public hearing and coordinate with Ecology to facilitate approval of the CUP.
3. Consultant shall prepare a mitigation plan for shoreline vegetation and/or riparian buffer impacts. All mitigation will be conducted onsite or at a mitigation bank; off-site selection is not included. The mitigation plan will include delineation of the mitigation footprint, plant selection and quantities, and monitoring/maintenance schedule. The plan will be coordinated in advance with Ecology.

1303. Land Use Permitting and Civil Engineering Design

The following scopes reflect the current understanding of the project. Exact permitting requirements may be different once the project's footprint and basic design are finalized and presented to City planning staff.

1. City of Camas Land Use Permitting. The Project will involve the construction of new PFAS infrastructure on the existing Well 13 site. The Project area is located within the City jurisdiction and

will therefore demonstrate conformance with the City of Camas Municipal Code. The Project area, which consists of three separate tax parcels, is zoned R-18 and is approximately 0.56 acres in size. Per Camas Municipal Code (CMC) Chapter 18.07.040 - Table 2, minor public facilities are listed as a conditional use in the R-18 multifamily zone and, therefore, require a Type III CUP. Additionally, per CMC Chapter 18.19.020, all new developments within multifamily zones are also subject to a Design Review submittal. The southern portion of the site is located within the Medium Intensity Shoreline designation. Should any improvements be proposed within the 200-foot shoreline buffer, a Shoreline Conditional Use Permit will also be required. The Type III CUP for the proposed use and the Shoreline CUP will be processed concurrently by the City of Camas with a public hearing held in front of a Hearing Examiner. While the Hearing Examiner will rule on the Type III CUP for the land use, only a recommendation will be provided by the Hearing Examiner on the Shoreline CUP. The Shoreline CUP will then be submitted to the Washington State Department of Ecology which will have the final regulatory approval of the Shoreline CUP. Please find more information regarding the Shoreline CUP under the Environmental Scope.

- a. The following is an outline of the land use process for this project with Consultant's scope included:
 - i. Consultant shall prepare, submit and attend one Pre-Application Conference with City of Camas jurisdictional staff to verify and confirm the land use approvals and procedures that will be required. Consultant's scope for the Pre-Application Conference is as indicated below:
 - (1) Prepare an Existing Conditions plan based on GIS and/or survey data and meeting City of Camas submittal checklist requirements;
 - (2) Prepare a Site Plan based on GIS and/or survey data prepared by MSi, CAD file of proposed site plan layout (as provided by Consor) and meeting City of Camas submittal checklist requirements;
 - (3) Prepare/compile material for a Pre-Application Conference submittal to the City of Camas. These components include the following:
 - (a) Plans as indicated above;
 - (b) Application form;
 - (c) Developer's GIS packet;
 - (d) Narrative describing the proposal;
 - (4) Submit the Pre-Application Conference application to the City.
 - (5) Attend the Pre-Application Conference.
 - (6) Review the Pre-Application Conference final report and provide recommendations for the Type III Conditional Use Permit submittal.
 - ii. Consultant shall prepare and submit a land use application package to the City for review and approval. Consultant's scope for the Type III Conditional Use Permit, Design Review and Shoreline Conditional Use Permit submittal is as indicated below:
 - (1) Prepare an Existing Conditions Plan based on survey data.
 - (a) Consultant will prepare a boundary and topographic survey of the subject parcels as well as tying the Ordinary High-Water Mark of Lacamas Creek.
 - (2) Prepare a Preliminary Site Plan based on survey data.

- (3) Prepare a Preliminary Development Plan showing compliance with City stormwater requirements.
- (4) Prepare a Preliminary Stormwater Technical Information Report (TIR) as required addressing compliance with the City's stormwater ordinance.
- (5) Prepare a Preliminary Landscape Plan meeting City of Camas' tree ordinance, landscaping and buffer requirements.
- (6) Prepare/compile material for a fully complete Type III Conditional Use Permit and Design Review submittal to the City of Camas. These components include the following:
 - (a) Plans as indicated above and elsewhere in this proposal.
 - (b) Application forms.
 - (c) Applicable submittal fees.
 - (d) Pre-Application Conference summary.
 - (e) Developer's GIS packet.
 - (f) Narrative describing the proposal and how compliance with applicable zoning code and design review standards are being met.
 - (g) Shoreline narrative and other documents as required for a Shoreline CUP submittal.
 - (h) SEPA environmental checklist.
 - (i) Quarter section map and mailing labels for all properties within 300 feet of the site.
 - (j) Other associated applications, plans or studies as indicated in the notes from the Pre--Application Conference meeting.
- (7) Coordinate with other consultants for incorporation of other's work into the submittal package.
- (8) Submit the Type III CUP, Design Review and Shoreline CUP application to the City.
- (9) Facilitate the installation of a 4-foot by 8-foot sign on the subject property detailing the project and listing the date of the public hearing.
- (10) Track the approval process.
- (11) Prepare a Powerpoint Presentation and/or other exhibits as required for the public hearing.
- (12) Attend the public hearing.
- (13) Review Hearing Examiner's Final Order and advise as to any required conditions of approval.
 - (a) Consultant shall address incompleteness items, if any, and coordinate with City planning staff as needed to facilitate land use approvals within the statutory timeframe for approval.
 - (b) Consultant shall prepare final civil engineering plans following issuance of the Hearing Examiner's Final Order addressing erosion control, grading and stormwater. Plans shall be submitted to the City of Camas for review and approval prior to construction activities on the site.
 - Consultant shall prepare a final Landscape Plan, Irrigation Plan, landscape and irrigation specifications and construction details to be included in the final civil engineering plan set.

- Consultant shall prepare a Final Site Plan to be included in the final civil engineering plan set.
- Consultant shall submit a Final Site Plan to the City of Camas meeting any conditions of approval as outlined in the Hearing Examiner Final Order.

(14) Consultant shall provide construction administration related to site development and landscape architecture and those items contained within the civil engineering and landscape plans for site development.

- iii. Consultant shall prepare and submit as-built civil engineering drawings to the City of Camas for review and approval.

1304. Cultural Resources Surveys and Permitting

1. Consultation, Background Research and Permitting. Consultant shall conduct background research in DAHP site and survey databases, and within its library. Consultant staff shall also review previous geotechnical reports, General Land Office maps, soils and wetland data, and any other resources deemed appropriate during the course of the investigations. Consultant will carry out on-going consultation with the project engineers, the City, the lead federal agency, relevant Tribes, and others, as needed. This does not take the place of the mandated government-to-government consultation under Section 106 of the NHPA.
 - a. Consultant assumes that the project is receiving federal funds and is therefore considered a federal undertaking from the cultural resource review standpoint. As such, consultant assumes that no state archaeological excavation permits will be required to carry out the cultural resource inventory effort.. However, if the project becomes subject to review at the state or local level, Consultant may apply for an Washington State Archaeological Excavation Permit to complete subsurface archaeological investigations within a previously recorded site at the Well 13 parcel.
2. Cultural Resources Field Surveys. the project areas have been previously surveyed. The Well 13 project area was surveyed in 2007 and a pre-contact site was found. The Well 6 and 14 project area was surveyed by Archaeological Services, LLC in 2018 for a water main project. Consultant shall consider these previous surveys to plan the field inventory efforts for the Well 13 PFAS Treatment project. The surveys will, at a minimum include pedestrian walkover and documentation of current conditions. If deemed appropriate, additional subsurface investigations may be carried out – this would consist of the excavation of shovel test probes, described below. A new report tailored to the Well 13 PFAS Treatment project will be prepared.
 - a. The pedestrian archaeological survey will involve archaeologists walking along transects spaced no more than 20 meters apart systematically examining the ground surface for archaeological materials. If shovel probes are excavated, they will measure 30 centimeters (cm) in diameter and will extend to a minimum of 50 cm below surface. Should soil profiles encountered in shovel probes warrant deeper investigation, a 6-inch bucket auger may also be used to excavate below the typical depth of shovel probes. The bucket auger would be placed in the bottom of a shovel probe at approximately 70-80 cm below the surface and be excavated up to two meters below the surface.

- b. All soils will be screened through 1/8-inch hardware mesh. All diagnostic materials will be photographed. Up to one archaeological resource (archaeological site, archaeological isolate) will be recorded on the appropriate DAHP resource forms.
 - c. The architectural survey will involve an architectural historian taking notes and photo-documenting any structures that are 45 years or older and completing documentation forms for above-ground structures.
3. **Cultural Resources Reporting.** Consultant shall evaluate the results of background research and fieldwork and prepare a report to DAHP and federal standards to aid in satisfying the cultural resources evaluation requirements of Section 106 of the NHPA. The report will include documentation of background research, methods and results of the field investigations, and conclusions and recommendations for further work, if any. The report will include all necessary graphics and resources forms for up to two resources. If appropriate, above ground historic properties will be recorded in the Washington Historic Property Inventory Any archaeological resources will be recorded using the state's online resource form portal. All final documentation will be submitted to the lead federal agency and Washington DAHP via the WISAARD project management system.

Task 1300 Workshop Summary

- 1. Workshop 1303 - City of Camas Land Use Permitting Coordination Meeting.

Task 1300 Assumptions

- 1. Sub-task 1301 - Environmental and Land Use Permitting Strategies.
 - a. Preliminary identification of potential jurisdictional wetlands and waterways, species of concern, and sensitive habitat areas will be accomplished through a desktop-level analysis. Formal wetland delineations and/or biological surveys may not be completed prior to finalizing the permitting strategy.
 - b. Up to three meetings with resource agencies to describe the project and confirm permitting requirements.
 - c. Consultant shall evaluate natural resource-related considerations associated with different design options; however, a formal alternatives analysis will not be prepared for this task.
 - d. An evaluation of the potential climate change impacts associated with the Project will not be conducted.
 - e. A review of cultural resource permitting requirements and considerations is not included as part of this task.
 - f. Sub-consultant shall receive one set of consolidated comments on Draft documents from Consultant and City.
- 2. Sub-task 1302 - Natural Resource Permitting
 - a. Up to 24 hours are included for the permit strategy.
 - b. Up to 4 hours of meeting attendance is included to support the potential NEPA process. If federal funding is acquired, a contract amendment will be required to develop the necessary documentation.
 - c. All delineation flags will be collected by professional land surveyors outside of this task.
 - d. The delineation will include a one-day field effort for Well 13.
 - e. Hydrology monitoring is not included.
 - f. A single agency site visit is included.

- g. A single in-person public hearing is included.
 - h. Direct wetland/stream impacts are not included. U.S. Army Corps of Engineers permitting is not included.
 - i. No work (including vegetation removal) will occur within 150 feet of the ordinary high water mark of Lacamas Creek and Washougal River.
 - j. A Shoreline Conditional Use Permit is included. A Shoreline Variance is not included.
 - k. Ground disturbance will be less than 1 acre; a construction stormwater general permit is not included.
 - l. Sub-consultant shall receive one set of consolidated comments on Draft documents from Consultant and City.
3. Sub-task 1303 - Land Use Permitting and Civil Engineering.
- a. The City will pay all required agency review fees.
 - b. No land use approvals other than the City are anticipated for this Project.
 - c. Pre-construction permits including, but not limited to, grading, NPDES and building permits are excluded from this scope, and assumed to be obtained by the Contractor or the City.
 - d. City will provide all required signatures and proofs of ownership and pay all permit application fees in a timely manner.
 - e. This scope assumes that the land use decision will not be appealed by a third party. Should the decision be appealed, an amendment will be required to address this additional level of effort.
 - f. Any items required for the Type III Conditional Use Permit applications as listed in the Pre-application Conference Report or as requested by City staff, that are not identified above, are not included in this scope.
 - g. This scope does not include addressing CARA requirements.
 - h. Consultant shall not be responsible for changes to the documents required by the jurisdiction based upon rules, regulations, codes or requirements of the jurisdiction that are not written regulations or correspondence from the jurisdiction. Changes required due to unwritten rules, regulations, codes or requirements by the jurisdiction shall be considered additional services that are not part of this contract.
 - i. Sub-consultant shall receive one set of consolidated comments on Draft documents from Consultant and City.
4. Sub-task 1304 - Cultural Resources Surveys and Permitting.
- a. Approval of a Washington State Archaeological Excavation Permit will take 40-50 days.
 - b. Recording of up to one archaeological resource (site or isolate) is included in this Scope of Work. Should other resources be discovered during field surveys and require recording with State Historic Preservation Officers (SHPO), additional scope and fee will be required.
 - c. Consultant shall submit the final deliverables to SHPO directly in fulfillment of the state permit requirements.
 - d. Sub-consultant shall receive one set of consolidated comments on Draft documents from Consultant and City.

Task 1300 City Deliverables

- 1. Review and comment on draft and final draft documents provided by Consultant.
- 2. Payment for all permit applications.

Task 1300 Consultant Deliverables

1. Sub-task 1301 - Environmental Permitting
 - a. One draft and one final Natural Resource Permitting Strategy.
 - b. One draft and one final Critical Areas Report.
 - c. One draft and one final Shoreline Narrative.
 - d. One draft and one final Mitigation Plan.
2. Sub-task 1302 – Land Use Permitting and Civil Engineering.
 - a. One draft and one final Conditional Use Permit application packages for the City.
 - b. One draft and one final draft set of civil engineering and landscape plans for the City.
 - c. One draft and one final set of civil engineering as-built drawings.
3. Sub-task 1304 - Cultural Resources Surveys and Permitting.
 - a. One electronic copy of the state permit application, in pdf format.
 - b. Summary of results of field survey.
 - c. One draft and one final Cultural Resources Report.
 - d. GIS line work.

TASK 1400 - SUPPORT SERVICES

The purpose of Task 1400 is to provide additional technical support services to support the design and delivery of Well 13 PFAS treatment infrastructure improvements at the City's groundwater supply system.

Task 1400 Activities

1401. Geotechnical Services

1. Geotechnical Services:
 - a. Geotechnical Investigation. Conduct site visits, background information review, and conduct a review of available geologic information to identify geologic settings and assessing potential hazards at Well 13. Prior to the explorations, we will conduct a site reconnaissance. During the site reconnaissance, we will mark and reference the exploration locations (borings) in the field, and we will contact the utility notification center (One-Call) for utility clearance. Consultant will conduct one geotechnical boring to 50 feet deep to assess the subsurface soil and groundwater conditions at each of the two sites, for a total of two borings. The borings will collect standard penetration test and thin wall Shelby tube soil samples for laboratory testing and assessing soil parameters for seismic liquefaction evaluation and foundation design.
2. Geotechnical Engineering Analysis and Reports:
 - a. Based on the field logs and laboratory testing results, we will develop the boring log for the explorations. Our geotechnical engineering design and construction recommendations will include the following:
 - i. Assess soil seismic profile (site classification) and site response parameters in accordance with the 2021 Washington State Building Code (2021 International Building Code). If the sites are potentially liquefiable, the soil seismic profile will be only for the facilities with seismic periods less than 0.5 second.
 - ii. Evaluate the liquefaction potential, and liquefaction induced effects such as seismic-induced settlements, lateral spreading, and potential reduction in soil bearing capacities.

- iii. Evaluate static and seismic soil bearing capacities, subgrade modulus and total and differential settlements for the proposed foundations.
- iv. Provide recommendations and design criteria for the preferred foundations (i.e. shallow or deep foundations) or ground improvements to mitigation soil liquefaction hazard.
- v. Provide lateral load resistance recommendations, including passive earth pressure and coefficient of friction.
- vi. Provide recommendations for shoring and dewatering of any deep excavations.
- vii. Provide recommendations for site preparations, grading, drainage, and wet-weather earthwork procedures.
- viii. Provide engineered fill recommendations for the foundation or ground improvement and compaction criteria.

Task 1401 - Workshops

- 1. N/A

Task 1401 - Assumptions

- 1. Investigations will occur at Well 13. Results from the investigation will be combined into one single report.
- 2. City of Camas to provide site access and to locate buried utilities onsite that are unknown to the One-Call utility locating service.
- 3. The explorations do not include environmental assessments, and the site is assumed to be "clean" regarding contaminated and hazardous materials.
- 4. Key results from this analysis shall be reviewed with the City during the Design CAMP®.

Task 1401 - City Deliverables

- 1. Review and comment on Draft and Final Draft documents provided by Consultant.

Task 1401 - Consultant Deliverables

- 1. Draft and Final Geotechnical Engineering Report.

1402. Utility Location, Mapping, and Surveying

- 1. Site Survey.
 - a. The purpose of this task is to collect existing topographic features and provide a basemap for the design of the improvements to Well 13 and Wells 7, 8, 11 and 12. Consultant shall collect topographic data of constructed and natural features within the project limits. Detailed mapping shall include the following features:
 - i. Buildings and structures.
 - ii. Above ground and underground utilities.
 - iii. Ground shots and grade breaks.
 - iv. Trees (6-inch diameter breast height and larger). Tree tags are not included in this scope.
 - v. Significant surface features such as roads, landings, water treatment pools, concrete pads, guardrails, etc.
 - vi. Wetland delineation.

- vii. Ordinary High Water Mark (OHWM) for Lacamas Creek.
 - viii. Wetland delineation and OHWM by others. Flags and/or marks will be located prior to survey work.
 - b. Consultant shall establish survey control for this project. The horizontal datum shall be NAD 83 (2011), Washington State Plane South Zone (Survey Feet). The vertical datum shall be National Geodetic Vertical Datum of 1929 (Survey Feet). Client to verify vertical datum with surveyor prior to work commencing. Consultant shall create a digital terrain model using topographic data collected.
2. Underground Utility Locate.
- a. Consultant shall work with a private utility locator to conduct a pre-survey utility locate and identify the locations and depths of underground utilities. The steps for locating the underground utilities are as follows:
 - i. Step 1:
 - (1) Obtain construction and as-built plans from City of Camas.
 - (2) Call Washington Utility Notification Center to request a pre-survey utility locate (if applicable).
 - ii. Step 2:
 - (1) Direct private utility locator Consultant to locate underground utilities.
 - iii. Step 3:
 - (1) For utilities of concern, and dependent on the type of information required, Consultant shall work with the private utility locator to either:
 - (a) Perform geophysical survey using ground penetrating radar to obtain locations and depth of utilities, or
 - (b) Perform potholing to verify locations and obtain depths of utilities.

Task 1402 - Workshops

- 1. N/A

Task 1402 - Assumptions

- 1. Assumptions related to survey scope:
 - a. Permission to enter any properties will be obtained by the client prior to scheduling the survey.
 - b. No monuments will be set nor will any boundary lines be marked or staked during this survey.
 - c. Preparation of and recording of a Record of Survey is not included.
 - d. Preparation of an ALTA survey is not included.
 - e. Preparation of deed history for a legal lot determination is not included.
 - f. Horizontal Datum will be based on Washington State Plane South and Vertical Datum will be determined by client;
 - g. Recording fees are not included.
 - h. No tree survey is included in the scope of work.

Task 1402 - City Deliverables

- 1. City will provide as-builts plans.

Task 1402 – Consultant Deliverables

1. Civil 3D drawing with digital terrain model.

1403. Hydrogeological Support Services

1. Provide hydrogeologic perspective and input to early work activities to identify issues and approaches relevant to fast-track mitigation.
2. Provide hydrogeologic perspective to interpret existing PFAS sampling data (including Task 1100 data), characterize the current extent and possible hydrogeologic mechanisms associated with known PFAS contamination, and assess the degree to which the recent contaminant source inventory (Mott MacDonald, in press) may be helpful as a preliminary means of assessing potential PFAS sources.
3. Explore opportunities to shift the distribution of pumping among LWFF wells and/or develop new groundwater sources in known or alternative locations.
4. Assist with the permitting, preparing technical specifications, drilling, design, testing and documenting a new well within the Oak Park Wellfield to increase its overall capacity. This task will also include: evaluating well performance, maximum sustainable well yield and interference drawdowns between wells.
5. Assist with possible modification of existing wells within the Oak Park Wellfield to increase its overall capacity.
6. Provide analysis to optimize wellfield yield and pumping operations.
7. Consultant will prepare for and host a workshop to discuss opportunities to increase Oak Park Wellfield yield, select preferred opportunities, identify logistical considerations, and assign roles for further actions.

Task 1403 - Workshops

1. Workshop 1403: Current Wellfield Opportunities.

Task 1403 - Assumptions

1. Well 13 mitigation currently assumes drilling of one new well within the Oak Park Wellfield, but could be expanded to include modifications to existing wells and pumps and/or drilling more than one additional well.
1. City will contract directly with well driller. Hydrogeologic services associated with new or modified wells could be contracted under this project or directly under the PSC between the City and Mott MacDonald.
2. Mott MacDonald and Carollo Engineers, Inc. will work cooperatively to complete the DOH Susceptibility Assessment form required for authorization of a new production well.
3. Analysis of near-term sampling results assumes that Carollo will maintain the data in a project database and will perform any necessary QA/QC analysis on the data.
4. Strategy development for Near Term Operations Support (Task 1108) assumes that the updated groundwater model will not be ready and available during this “early work activity” stage. Instead, this task will rely upon aquifer test analysis. The City may elect to run a LWFF wide aquifer test under Mott’s direction early on in 2024 such that wellfield responses to various pumping combinations can be used to characterize wellfield behavior and optimize wellfield yield. If performed, the wellfield test will be conducted under separate contract.

Task 1403 - City Deliverables

1. Review and ranking of the drilling and well modification options.

Task 1403 - Consultant Deliverables

1. Technical memorandum (TM) presenting recommendations for redistributing pumping between existing Oak Park and Lower Washougal Wellfield wells, drilling of new production well(s), and/or reconfiguration of existing wells.
2. Hydrogeologic report associated with new production well.
3. Hydrogeologic input to WDOH Susceptibility Assessment form required to authorize withdrawals from a new production well.

TASK 2000 - SYSTEM-WIDE PFAS RESPONSE PLAN

The purpose of this task is to build an adaptive PFAS response plan for the City to strategically plan for system-wide, sustainable and equitable PFAS mitigation. The goal of these long-term PFAS response efforts will be to develop a roadmap to compliance with the USEPA's proposed PFAS MCLs by the agency's deadline. The response plan will include a risk assessment, a mitigation screening evaluation, continued PFAS monitoring and source management, and hydrogeological efforts to support decision making. Each one of these elements is described in turn below.

TASK 2100 - RISK ASSESSMENT

The Risk Assessment will serve to identify near-term and long-term actions that can be taken to mitigate PFAS and maintain the City's commitment to providing high-quality water by ranking the highest risks facing the City with respect to PFAS. Efforts from Task 2400 - Hydrogeological support services will also support development of risks and opportunities.

Task 2100 Activities

2101. Risk Register

Consultant to develop and maintain a working risk register throughout the duration of the project. The Risk Register will be initially developed in collaboration with the City via a PESTLE workshop.

1. Consultant to facilitate a 'PESTLE' workshop with City staff and key project stakeholders. PESTLE is an acronym for Political, Economic, Social, Technical, Legislative and Environmental. Participants will use these categories to help brainstorm, organize and preliminarily rank potential project risks and opportunities, not only for Well 13, but for system-wide PFAS mitigation.
2. Results from the PESTLE exercise shall be used to populate the preliminary risk register. Consultant Project Manager shall work with the City's Project Manager to quantify the likelihood and consequence of occurrence for each risk and opportunity. The risks and opportunities will then be ranked; the Consultant Project Manager shall work with the City's Project Manager to collaborate on mitigation strategies for the most critical items. The risk register shall support task 2300, which will consist of quarterly meetings to update a PFAS Response Plan, based on the risks and opportunities identified within this task.

2102. Contaminant Source Risk Inventory

1. Consultant will review Ecology and Clark County land use information, including a parcel-level historical review as warranted, to identify potential past and present sites or facilities that could be associated with PFAS contamination (desktop study). The geographic extent of the review will be limited to the expected wellfield.
2. Consultant will consider groundwater flow patterns when assessing relative risk of potential contaminant sources to City supply wells. The groundwater flow model may be used to support groundwater flow path analysis, particularly if it is updated prior to performing this task.
3. Consultant will develop a draft TM to present our results and host an online workshop to discuss findings and glean local knowledge that may be useful for understanding contaminant source risks. The TM will be updated based on the results of this workshop. Specific risks could potentially be incorporated into the Risk Register.

2103. Long-Term PFAS Sampling Plan

This sampling plan will serve to supplement the near-term PFAS sampling plan identified in Task 1105.

1. A comprehensive, long term PFAS sampling plan will help the City prepare for compliance with USEPA PFAS sampling requirements, and guide efforts to maximize value out of sampling throughout the groundwater area and within the distribution system. The sampling plan results will help guide efforts in Task 2200 and 2300 and will help track progress of PFAS mitigation as the project progresses.
2. Consultant will analyze PFAS data and provide the CITY with analysis tools and resources for interpreting results that can be efficiently updated as new data becomes available. Efforts will include:
 - a. Development of objectives, goals and questions to be answered through the sampling effort via a meeting between the CONSULTANT and CITY.
 - b. Ongoing refinement of the sampling plan based on PFAS mitigation progress and USEPA sampling requirements.
 - c. Ongoing data analysis as results become available to analyze trends and provide insights towards answering the questions presented in the sampling plan.

Task 2100 Workshop Summary

1. Workshop 2101: PESTLE Exercise.
2. Workshop 2102: Contaminant Source Evaluation.
3. Workshop 2103: Long-term Sampling Plan Goals.

Task 2100 Assumptions

1. PESTLE Exercise shall be two hours in duration, and shall be attended by the Consultant's Project Manager and Project Engineer, as well as representatives from our key subconsultants. Preparation time shall be eight hours for the Project Manager and four hours for the Project Engineer. City will engage all key City Staff to participate in the PESTLE exercise, including operations staff, communications staff, and any additional staff the City feels would provide benefit to the exercise. Use of the groundwater flow model to assess potential contaminant transport towards City supply wells assumes that the model is updated external to this project.
2. Task 2103.2 assumes that the City will conduct four rounds of sampling over the course of a year, beginning when the short-term sampling for early work activities is completed. With each of the four

rounds of data we receive, Carollo will maintain a simple database, perform data QC when data is received, and work with Mott to perform an analysis from the data available. This will involve analyses of any trends in concentration, location, or PFAS type and may include hydrogeologic considerations.

Task 2100 City Deliverables

1. Review and ranking of the Risk Register.
2. Review of the long-term sampling plan.
3. Review of PFAS data analysis and analysis tools.

Task 2100 Consultant Deliverables

1. Risk Register.
2. Draft and Final PFAS Source Assessment TM.
3. Long-term Sampling Plan.
4. PFAS Analysis Summary.

TASK 2200 - MITIGATION/ALTERNATIVES ANALYSIS SCREENING

This effort includes ongoing evaluations to find the best alternative for PFAS mitigation system wide in a manner that will ensure compliance by USEPA's proposed deadline of 2026. Screening options will generally be divided into the categories of treatment-based mitigation or operational-based mitigation.

Task 2200 Activities

2201. System Integration Baseline

1. Consultant will help to establish an understanding among key Project members regarding the water system, key criteria, operational restrictions, and future capacity and infrastructure expansion plans. The Project team will establish initial options to screen for system-wide PFAS mitigation through brainstorming of options that are in alignment with both the City's economic development plans, the LOS goals established in Task 1101, and the USEPA's MCL enforcement schedule.
2. Consultant will outline up to four options to be screened that will provide system-wide compliance with a preliminary screening options TM.

2202. PFAS Alternatives Mitigation Screening

1. Using the Risk Register and the preliminary screening options TM as guidance, a collaborative meeting will:
 - a. Establish a method by which mitigation options will be screened and ranked for feasibility. Screening will consider the City's economic development plans, the level of service goals established in Task 1101, and the USEPA's MCL enforcement schedule. Screening options will consider treatment options and other mitigation options, such as new wells, alternate operational strategies, or regional-based solutions, for example. Non-cost factors to evaluate options will also be established.
 - b. Collaboratively discuss, screen, and rank various PFAS mitigation options and non-cost factors that affect their ranking.

2. Consultant will prepare planning-level, parametric costs for the two top-ranked options to support decision making.
3. Consultant will prepare a summary TM that lists the results of the mitigation screening exercise. The TM will include a summary of the top-ranked options with associated planning-level cost and non-cost factors. Screened options will also be memorialized in the TM.

Task 2202 Workshop Summary

1. PFAS Mitigation Screening Workshop

Task 2202 Assumptions

1. PFAS Mitigation Screening Workshop shall be 2 hours in duration and shall be attended by the Consultant's Project Manager and Project Engineer, as well as representatives from our key subconsultants.

Task 2202 City Deliverables

1. Review of the PFAS Mitigation Alternatives TM.

Task 2202 Consultant Deliverables

1. PFAS Mitigation Alternatives TM.

TASK 2300 - RESPONSE PLAN

The goal of a PFAS response plan will be to develop a roadmap to compliance with the MCLs by USEPA's proposed deadline. It will incorporate results from the Risk Register (Task 2100) and the Screening Evaluations (Task 2200) into a comprehensive, adaptive, plan for the City to ensure compliance with upcoming MCLs that can be updated over time as conditions within the system change and risks are mitigated.

Task 2300 Activities:

2301. PFAS Response Plan Database Meetings

1. Consultant will develop a PFAS response plan. The response plan will serve as a comprehensive, live document that contains the Risk Register and actions that can be taken to mitigate the risks, which will be based on the PFAS alternatives evaluation in Task 2200.
2. PFAS response plan will be updated quarterly to reflect project status, and associated impacts on the risks and opportunities. Quarterly update meetings are assumed to include the City's PM, the Consultant's PM, and Consultant's PE.
3. Consultant will evaluate ongoing efforts for PFAS mitigation and recommend actions as needed to ensure mitigation efforts align with the City's CIP and economic development plan. Efforts to update CIPs, future water system plan updates, economic development plans, or other master planning efforts are available as an optional task in Task 5000.

2302. PFAS Status Tracking.

1. Consultant will track regional and national PFAS news, updates, and report applicable information to City. Consultant and City will collaborate on any changes to near-term actions or PFAS response plan items as a result of these status updates.

Task 2300 Workshop Summary

1. Quarterly PFAS Response Plan Update (Quarterly) .

Task 2300 Assumptions

1. Quarterly PFAS Response Plan updates shall require three hours of the Consultant Project Manager and six hour of the Project Engineer's time per quarter.

Task 2300 City Deliverables

1. Review of the PFAS response plan.

Task 2300 Consultant Deliverables

1. PFAS response plan updates.
2. Regional/National PFAS status updates.

TASK 2400 - HYDROGEOLOGIC SUPPORT SERVICES

Hydrogeologic input from Mott MacDonald will be provided to support the 2000-level tasks, including: assessing contaminant risks to groundwater quality, identifying mitigative alternatives to reduce/eliminate pumping of PFAS contaminated groundwater into production wells, and supporting response planning. The hydrogeologic input will draw upon understanding of the groundwater flow system, expected groundwater flow directions, stream-aquifer interactions, production well performance and wellfield operations. Hydrogeologic understanding will be coupled to environmental assessment of potential past and current PFAS sources.

In order to support the Task 2400 activities, the City may elect to have Mott MacDonald perform additional work (likely outside of this contract) to improve characterization of the groundwater flow system and to update the groundwater flow model. The updated model could be used to: assess groundwater flow patterns (particularly where data are unavailable); assess how changes in pumping can affect groundwater flow patterns; assess how groundwater/surface-water interactions may affect the origin of groundwater pumped from the City's wells; update delineation of wellhead protection capture zones; predict groundwater flow pathways originating at potential sources of PFAS contamination; identify preferred locations for monitoring wells; optimize wellfield operations to maximize yield and minimize required PFAS treatment.

Task 2400 Activities**2401. Identify Potential PFAS Sources and Contaminant Transport Pathways**

1. Reviewing Ecology and Clark County land use information, including a parcel-level historical review as warranted, to identify potential past and present sites or facilities that could be associated with PFAS contamination (desktop study). *This activity supports Task 2102.*
 - a. Identify potential historic and current land uses that could be associated with introduction of PFAS into underlying groundwater.
 - b. Apply hydrogeologic conceptual model and/or groundwater flow model to better understand groundwater flow patterns, PFAS occurrence, and potential contaminant transport pathways within the groundwater flow system.

2402. Identify Monitoring Opportunities

1. Identify water level and water quality monitoring recommendations based on findings of Task 2401 and discussion with City Staff regarding the suitability of their infrastructure for monitoring along with potential cooperation with other entities monitoring groundwater within the area of interest. *This activity supports Task 2103.*

2403. Identify Mitigation Strategies

1. Identify mitigative strategies for reducing (or avoiding) capturing PFAS-contaminated groundwater. *This activity supports Tasks 2200 and 2300.*
 - a. Strategies would likely focus on operational modifications and/or optimization of the City's groundwater sources.

Task 2400 Workshop Summary

1. Hydrogeologic considerations will be presented at workshops proposed for the tasks above (2102, 2103, 2200, 2300).
2. If requested by the City, Mott MacDonald will provide stand-alone workshops to discuss: understanding the hydrogeologic conceptual model; understanding the design and capabilities of the groundwater flow model; recommended changes in wellfield operations; understanding potential PFAS sources, transport in groundwater and potential mitigations; recommendations for enhanced groundwater monitoring; and other topics (as requested).

Task 2400 Assumptions

1. Since Mott MacDonald is both a member of this project team and also consults directly for the City, hydrogeologic support services may be performed under this project or under their direct Professional Service Contract, as desired by the City.
 - a. Tasks related to improving the conceptual hydrogeologic model have not yet been specifically defined, and might be performed outside this scope of work (e.g. under direct contract between Mott MacDonald and the City).
 - b. Use of the groundwater flow model to better understand groundwater flow patterns and potential impacts of modified wellfield operation on flow patterns assumes that the model will be updated. Update of the groundwater flow model might be performed outside this scope of work (e.g. under direct contract between Mott MacDonald and the City).
2. Cost estimate does not include stand-alone hydrogeologic workshops. If requested, such workshops would require a scope/budget modification.
3. Documentation of hydrogeologic findings will be incorporated into reports and TM's associated with the 2000-level tasks, as noted above. No standalone hydrogeologic interpretation will be developed unless specifically requested/authorized by the City. If requested, such documentation would require a scope/budget modification.
4. City staff will continue to assist in collecting pumping and water level data from supply wells. City staff may assist in developing cooperative relationships with entities that have monitoring wells within the area of interest.
5. The level of effort for Historic Site Review under the Contaminant Source Risk Inventory (Task 2102) is difficult to predict without starting in on the task. The task will likely incorporate a commercially

available historic land use analysis (Environmental Data Resources, or “EDR”) – and the City will purchase this commercial product directly. Without knowing the number of potential sites requiring investigation, the hours shown on the project cost estimate represent a fixed level of effort. If the EDR data suggest that the number of sites worthy of review exceeds the assumed level of effort, the City could elect to increase the task budget with a contract amendment.

6. Development of the Long Term PFAS Sampling Plan (Task 2103) is limited to a planning level effort. It will identify monitoring opportunities, general methods, and possible locations for additional monitoring. It will not include consideration of sampling from existing cleanup sites (which would include access, liability and other arrangements).

Task 2400 City Deliverables

1. A number of City deliverables listed under Tasks 2100, 2200, and 2300 may be directly relevant to hydrogeologic support services.

Task 2400 Consultant Deliverables

1. Documentation of hydrogeologic findings will be incorporated into reports and TMs associated with the 2000-level tasks, as noted above. No standalone hydrogeologic interpretation will be developed unless specifically requested/authorized by the City. If requested, such documentation would require a scope/budget modification.

TASK 3000 - COMMUNICATIONS AND FUNDING SUPPORT

TASK 3100 - STAKEHOLDER ENGAGEMENT AND OUTREACH SUPPORT

The purpose of this activity is to maintain project support and feasibility through securing stakeholder support via communications and outreach efforts.

Task 3100 Activities

3101.Kick-Off Meeting

Review communications scope and objectives with the City staff and Consultant project team.

3102. Public Outreach Support

1. Review of City’s PFAS Public Outreach Plan. Consultant will review City’s PFAS outreach and public involvement materials, plan, and coordination efforts and make recommendations based on Consultant’s experience. The content that may be reviewed may include items or key outreach topics such as target audiences, messaging and talking points, tools and materials, outreach channels, schedules, and assignments.
2. Consultant will organize meetings and facilitate coordination between the City’s communication’s staff and public relations/ communications staff from local or regional utilities to facilitate collaboration and information sharing on PFAS topics.
3. Consultant will support the City in hosting an “open house”. Open house will be public, in-person opportunity for members of the public to ask questions about PFAS and their water system.
4. Consultant will support the City in presenting the status of PFAS in Camas to Camas City Council members.

Task 3100 Workshop Summary

1. Peer agency Communications Staff collaboration meetings.
2. Support with one City-led "Open House" events.
3. Support with three City Council updates regarding the PFAS status in Camas, including pre-council preparation meetings.

Task 3100 Assumptions

1. City will lead the organization and logistics of one Open House event. Consultant will act in a support role, helping to guide discussion points or answer technical questions (not questions or discussion that are strictly City-specific matters).
2. City will prepare any required pre-work or logistics planning necessary to support the City Council meetings. Consultant may help prepare staff reports. It is assumed the City will coordinate with Council members and schedule pre-council meetings to discuss the topic with council members in an informal setting, such as a Teams meeting, prior to the City Council meeting.

Task 3100 City Deliverables

1. Review of City council presentation slides.

Task 3100 Consultant Deliverables

1. City council meeting presentation slides

TASK 3200 - FUNDING OPPORTUNITY TRACKING AND SUPPORT

The purpose of this task is to track funding opportunities and ensure the City is maximizing opportunities to secure funds for the project.

Task 3200 Activities**3201. Funding Survey**

1. Carollo will identify potential local, state, and federal grant funding opportunities that may be applicable to any or all portions of this project. Carollo will research and compile a list of potential state and federal grant funding opportunities, including the USEPA, Bureau of Reclamation, Department of Energy, Economic Development Administration, Federal Emergency Management Agency, State Water Resources Control Board, Department of Water Resources, Washington State-level grants, and others, and will identify potential opportunities through the Bipartisan Infrastructure Bill and the Inflation Reduction Act. The results will be documented in a Funding Matrix which will include details such as funding agency, program, description of funding program eligibility, requirements and limitations, total funding provided, documentation requirements, timing, relevance to the project, and "next steps."
2. Carollo will develop a brief Funding Strategy Project Memorandum summarizing the approach to the identification, CIP projects evaluated, and the funding opportunities identified/ considered. The memo will include the funding summary matrix and a mapping of these opportunities to the identified projects.
3. Carollo will update the funding matrix and Funding Strategy Project Memorandum based on review input from the City and discussions from a follow up meeting regarding the funding opportunity matrix.

Task 3200 Workshop Summary

1. Funding opportunity review workshop.
2. Quarterly updates to update the funding matrix.

Task 3200 Assumptions

1. Preparation of grant or loan funding applications is not included but is included in Task 5000 - Optional Services should the City desire support in preparing applications for funding.

Task 3200 City Deliverables

1. Review of the Draft Funding Strategy TM and finding matrix.

Task 3200 Consultant Deliverables

1. Draft and Final Funding Strategy TM.

TASK 4000 - PROJECT MANAGEMENT ACTIVITIES**TASK 4100 - PROJECT MANAGEMENT DURING DESIGN**

The purpose of this task is to direct all project activities, while maintaining the project within the contracted scope, schedule, and budget. This includes project administration, monthly invoicing, City and team coordination and quality assurance/quality control review necessary to successfully the project to the City's expectations.

Task 4100 Activities**4101. Kick-Off Meeting**

Review scope and objectives with the City staff and Consultant project team.

4102. Project Management and Health and Safety Plans

1. Prepare a Project Management Plan (PMP) that describes project roles and responsibilities, lists contact information for the project team, and describes communications protocols, quality management (QM), including the scope of work, schedule and budget. The Draft PMP shall be introduced and discussed with the City's project team as part of the Project Kick-off Meeting. A revised, Final PMP shall be delivered following incorporation of City Comments. QM includes, but is not limited to the following elements:
 - a. Project Manager overview of all primary documents to verify technical consistency and compliance with the contract requirements.
 - b. Designate and assign qualified Consultant staff to develop assigned project deliverables, and manage Consultant staff for schedule, quality and budget relative to assigned deliverables.
 - c. Develop a proposed timeline for project delivery.
 - d. Protocol for maintaining a decision log, tracking all decisions as they occur.
 - e. Protocol for maintaining a risk register identifying all potential project risks with input from City and other key stakeholders.
2. The Consultant shall prepare a draft and final site-specific Health and Safety (H&S) plan for acceptance by the City, covering field work to be performed by the Consultant and Subcontractor(s) staff for the design and construction of the Well 13 PFAS Treatment project. The Consultant shall

facilitate Consultant and Subcontractor (who perform field work) compliance with these requirements. The Consultant shall comply with applicable federal, state, and local environmental, health, and safety legislation, regulations, and codes.

- a. The Consultant shall provide a draft site-specific health and safety plan with the PMP. Updates for specific, planned field work shall be provided by the Consultant for the City to review and comment, to confirm compliance with overall City safety goals.
- b. Before the start of Well 13 PFAS Treatment construction, the Consultant shall update their site-specific Health and Safety Plan for acceptance by the City. The Consultant's H&S Plan shall be coordinated with the Contractor's H&S plan. Updates for specific, planned fieldwork shall be provided by the Consultant for the City to review and comment, to confirm compliance with overall project safety goals.

4103. Monthly Progress Reports and Invoices

1. This subtask includes assisting the project team members in the implementation of the task items, reviewing the work-in-progress reports and monthly invoices. Consultant shall prepare and submit monthly activity reports showing current project scope, budget and schedule status, identifying key issues, or elements of the project that will need to be addressed in the proceeding weeks. An electronic version of the monthly progress reports (including updated project schedule) and invoices shall be sent to City for review and approval.

4104. Consultant Team Coordination.

1. Manage the Consultant project team to track time and budget, work elements accomplished, work items planned for the next period, manpower, scope changes and time and budget needed to complete the project tasks.
2. Create and maintain a working project schedule, based on the baseline schedule in the PMP; provide revised schedule with monthly progress reports, as defined in Task 4103.

4105. Project Website and Associated Document Management Training

1. Consultant to develop a Project Website for Consultant, Contractor and City use throughout the duration of the project. The website shall be used to capture key documents/deliverables, presentations, project logs and meeting agendas/minutes developed as part of the project, track key schedule milestones and events on a project calendar, and archive project photographs.
2. Consultant to provide training for City and Contractor staff, as required, to facilitate use of the Project Website.

4106. Progress Meetings

1. Bi-weekly Project Status conference calls shall be held to review project status, including scope, budget, and schedule. Prepare an agenda and document discussions, including action items and decisions, in meeting minutes which shall serve as the following week's agenda.
2. Quarterly Project Summary Meetings to provide project status updates to the City leadership and/or key stakeholders, as required.

4107. Project Logs

Consultant shall maintain the following logs, which shall be reviewed on a bi-weekly basis with the City's Project Manager.

1. Consultant shall maintain a log of key Action Items throughout the project duration, summarizing key actions, due dates and status of all action items identified throughout the project duration.
2. Consultant shall maintain a log of key Decisions made throughout the project, focusing on key design decisions that impact cost and/or operability.
3. Consultant shall maintain a log of key Design Changes to identify items that may significantly change design and/or construction costs from the previous deliverable.

4108. Project Communications Protocol

1. Consultant will coordinate with City's Legal department to discuss and establish communications protocols for the project.

Task 4100 Workshop Summary

1. Workshop 4101: Project Kick-off Meeting.

Task 4100 Assumptions

1. The total duration of the design phase is two years (24 months).
2. Kick-Off meeting shall be attended by Consultant's Project Manager, Project Engineer and Task Lead. Meeting duration shall be two hours; preparation time shall be six hours for the Consultant Project Manager, and 2 hours for each additional attendee.
3. Consultant Team Coordination Meetings shall occur weekly during design efforts, and shall be attended by the Consultant's Project Manager and Project Engineer. Meeting durations shall be one hour; one hour of preparation if required by the Consultant's Project Engineer.
4. Baseline Schedule shall be updated monthly throughout design efforts. Updates shall require one hour of Consultant's Project Manager and Project Engineer.
5. Project website trainings shall be two hours in duration, and will require four hours of preparation time. A total of four trainings shall be offered.
6. Bi-weekly Project Status Meetings shall either be held via conference call, or shall be scheduled to coincide with a Workshop; participation limited to Consultant and City Project Managers. Total duration for each meeting is one hour, with one hour of preparation time. A total of 48 meetings are anticipated.
7. Quarterly Project Summary Meetings to provide project status updates to the City Leadership and/or key stakeholders will require participation from the Consultant Principal in Charge and Project Manager. Total duration for each meeting is one hour, with one hour of preparation time. A total of eight meetings are anticipated.
8. Project Logs shall be updated on a weekly basis; the Consultant's Project Manager and Project Engineer's shall dedicate one hour/week for log updates.

Task 4100 City Deliverables

1. Review and comment on draft and final draft documents provided by Consultant.
2. Team member contact information.
3. Respond to data requests in a timely manner.
4. Receive, review, and process Consultant invoices in a timely manner.
5. Render decisions and provide guidance in a timely manner.

Task 4100 Consultant Deliverables

1. Data request list.
2. Draft and Final Project Management and Health and Safety Plans
3. Draft and Final Project Website; maintenance of the Website throughout duration of the project.
4. Monthly progress reports and invoices.
5. Bi-weekly Project Status Meeting agendas and minutes.
6. Quarterly Project Summary Meeting agendas and minutes.
7. Preliminary project logs, with weekly status updates throughout the duration of the project.

TASK 5000 - OPTIONAL SERVICES/CONTINGENCY ACTIVITIES

Items listed under Task 5000 are anticipated, but currently undefined scope items. The following scope and associated level of effort are intended as placeholders based on the Consultants' current understanding of these efforts, for use as part of future scope negotiations.

5100.Cost Escalation

The original proposed billing rates are based on 2024 dollars, and do not include escalations for future years. The escalation clause included in the City's standard agreement allows increases to billing rates. To help the City plan for these future escalations, we have included a relatively conservative escalation of 5% per year to plan for the future. Escalation contingency tasks include:

5101. 2025 Escalation of Costs

1. To be finalized following determination of 2025 activities.

5102. 2026 Escalation of Costs

1. To be finalized following determination of 2026 activities.

3.0 WORKSHOP AND DELIVERABLE SUMMARY

The following tables provide an overview of the Workshops and Deliverables for the Camas PFAS Evaluation and Design Project. NOTE: Task 5000 information is not included in these summaries.

Summary Of Workshops	
Workshop 1101	▪ LOS Goals
Workshop 1102	▪ Regional Opportunities
Workshop 1103	▪ Plant Tours
Workshop 1106	▪ Site Utilization
Workshop 1201a	▪ Basins of Design CAMP®
Workshop 1201b	▪ Preliminary Design Report City Comment Review
Workshop 1203	▪ 60 Percent Design Review
Workshop 1204	▪ 90 Percent Design Review
Workshop 1208	▪ O&M Manual Visioning Workshop
Workshop 1209a	▪ Pre-Bid Conference
Workshop 1209b	▪ Bid Opening
Workshop 1303	▪ City of Camas Land Use Permitting Coordination Meeting
Workshop 1403	▪ Current Wellfield Opportunities
Workshop 2101	▪ PESTLE Exercise
Workshop 2102	▪ Contaminant Source Evaluation
Workshop 2103	▪ Long-term Sampling Plan Goals
Workshop 2202	▪ PFAS Mitigation Screening Workshop
Workshop 2300	▪ PFAS Response Plan Update (Quarterly)
Workshop 3100	▪ Open House
Workshop 3200	▪ Funding Opportunity Review

Summary of Deliverables	
Task 1100	<ul style="list-style-type: none"> ▪ Draft and Final Agenda and Presentation for each Workshop. ▪ Meeting minutes for each workshop. ▪ Near-term sampling plan (Draft and Final) ▪ Treatment Considerations TM (Draft and Final). ▪ Site Utilization Plans (Draft and Final). ▪ Draft and Final Early DOH Coordination Meeting Agenda and Presentation. ▪ Monthly Near-term Operations Support recommendations.

Summary of Deliverables

Task 1200	<ul style="list-style-type: none"> ■ Sub-task 1201 - Preliminary Design Efforts/CAMP®. <ul style="list-style-type: none"> » Draft and Final Basis of Design CAMP® Agenda and Meeting Minutes. » Draft and Final Preliminary Design Report. » Draft and Final Preliminary Design Report Comment Review Meeting Agenda and Meeting Minutes. ■ Sub-task 1202 - Early Procurement/ Bid Packages. <ul style="list-style-type: none"> » Example PFAS treatment/electrical equipment pre-procurement documents and lessons learned. » Consultant shall prepare draft and final pre-procurement packages, including both front-end and technical specifications. » Consultant shall provide bid addenda, as required. » Consultant shall provide bid review comments and final recommendation for contract award. ■ Sub-task 1203 - 60 Percent Design. <ul style="list-style-type: none"> » 60 percent drawings, specification Table of Contents and select specifications (PDF format). » Draft and Final 60 percent Design Review Workshop agenda and minutes. » Updated 60 percent comment, decision and change logs. » Updated design schedule. ■ Sub-task 1204 - 90 Percent Design. <ul style="list-style-type: none"> » 90 percent drawings and complete specifications (PDF format). » Draft and Final 90 percent Design Review Workshop agenda and minutes. » Updated 90 percent comment, decision and change logs. » Updated design schedule. ■ Sub-task 1205 - Final Design. <ul style="list-style-type: none"> » Final drawings and specifications in electronic format (PDF). Four copies of the final drawings shall be provided in half size versions (11-inch by 17-inch); four copies of the final specifications shall also be provided. ■ Sub-task 1206 - Opinion of Probable Construction Costs. <ul style="list-style-type: none"> » OPCC BOEs at the PDR, 60 percent, 90 percent and 100 percent design milestones. » City comment response log. ■ Sub-task 1207 - Design-related Permitting Support. <ul style="list-style-type: none"> » Support documentation for the Land Use permit application. » Support documentation for the Building permit application. ■ Sub-task 1208 - Early O&M Manual Efforts. <ul style="list-style-type: none"> » Draft and Final Visioning workshop agenda, presentation and meeting minutes. » Draft and Final EOM system specifications. » Draft and Final early SOP recommendations. ■ Sub-task 1209 – Bid Assistance. <ul style="list-style-type: none"> » Pre-Bid Conference Agenda. » Draft and Final Pre-Bid Conference Meeting Minutes. » Addenda support documentation. » Bid tabulation summary. » Conformed Documents.
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Summary of Deliverables

Task 1300	<ul style="list-style-type: none"> ■ Sub-task 1301 - Environmental Permitting <ul style="list-style-type: none"> » One draft and one final Natural Resource Permitting Strategy. » One draft and one final Critical Areas Report. » One draft and one final Shoreline Narrative. » One draft and one final Mitigation Plan. ■ Sub-task 1302 – Land Use Permitting and Civil Engineering. <ul style="list-style-type: none"> » One draft and one final Conditional Use Permit application packages for the City. » One draft and one final draft set of civil engineering and landscape plans for the City. » One draft and one final set of civil engineering as-built drawings. ■ Sub-task 1304 - Cultural Resources Surveys and Permitting. <ul style="list-style-type: none"> » One electronic copy of the state permit application, in pdf format. » Summary of results of field survey. » One draft and one final Cultural Resources Report. » GIS line work.
Task 1400	<ul style="list-style-type: none"> ■ Sub-task 1401 – Geotechnical Services. <ul style="list-style-type: none"> » Draft and Final Geotechnical Engineering Report. ■ Sub-task 1402 – Utility Location, Mapping, and Surveying. <ul style="list-style-type: none"> » Civil 3D drawing with digital terrain model. ■ Sub-task 1403 – Hydrogeological Support Services <ul style="list-style-type: none"> » Draft and Final Technical memorandum (TM) presenting recommendations for redistributing pumping between existing Oak Park and Lower Washougal Wellfield wells, drilling of new production well(s), and/or reconfiguration of existing wells. » Draft and Final Hydrogeologic report associated with new production well. » Hydrogeologic input to WDOH Susceptibility Assessment form required to authorize withdrawals from a new production well.
Task 2100	<ul style="list-style-type: none"> ■ Risk Register. ■ Draft and Final PFAS Source Assessment TM ■ Long-term Sampling Plan. ■ PFAS Analysis Summary.
Task 2200	<ul style="list-style-type: none"> ■ PFAS Mitigation Alternatives TM.
Task 2300	<ul style="list-style-type: none"> ■ PFAS response plan updates. ■ Regional/National PFAS status updates.
Task 3000	<ul style="list-style-type: none"> ■ City council meeting presentation slides. ■ Draft and Final Funding Strategy TM.
Task 4000	<ul style="list-style-type: none"> ■ Data request list. ■ Draft and Final Project Management and Health and Safety Plans ■ Draft and Final Project Website; maintenance of the Website throughout duration of the project. ■ Monthly progress reports and invoices. ■ Bi-weekly Project Status Meeting agendas and minutes. ■ Quarterly Project Summary Meeting agendas and minutes. ■ Preliminary project logs, with weekly status updates throughout the duration of the project.

5.0 LEVEL OF EFFORT

The following tables provide a summary of the Level of Effort anticipated for the Camas PFAS Evaluation and Design Project.



CITY OF CAMAS
PFAS TREATMENT AND WATER SYSTEM EVALUATION
CONSULTANT LEVEL OF EFFORT

TASK / DESCRIPTION	TOTAL COST
TASK 1000: FAST-TRACK MITIGATION	\$ 1,119,943
Task 1100. Early Work Activities	\$ 205,807
Task 1200 (Well 13 PFAS Treatment). Planning, Design, and Bidding	\$ 690,272
Task 1300. Permitting and Civil/Landscape Design Support	\$ 91,354
Task 1400. Support Services	\$ 132,510
TASK 2000 - SYSTEM WIDE PFAS RESPONSE PLAN	\$ 264,461
Task 2100. Risk Assessment	\$ 46,323
Task 2200. Mitigation/Alternatives Analysis Screening	\$ 51,376
Task 2300. Response Plan	\$ 25,398
Task 2400. Hydrogeological Support Services	\$ 141,363
TASK 3000 - COMMUNICATIONS AND FUNDING SUPPORT	\$ 65,766
Task 3100. Stakeholder Engagement and Outreach Support	\$ 45,530
Task 3200. Funding Opportunity Tracking and Support	\$ 20,236
TASK 4000: PROJECT MANAGEMENT ACTIVITIES	\$ 164,452
Task 4100. Project Management during Design	\$ 164,452
TOTAL (TASK 1000 - 4000)	\$ 1,614,621
TASK 5000: OPTIONAL SERVICES/CONTINGENCY ACTIVITIES	\$ 35,000
Task 5100. Cost Escalation	\$ 35,000



Staff Report

March 18, 2024 Council Workshop Meeting

Lacamas Lake Treatment 2024 Scope of Work

Presenter: Steve Wall, Public Works Director

Time Estimate: 10 minutes

Phone	Email
360.817.7899	swall@cityofcamas.us

BACKGROUND: The City and its partners completed the Lacamas, Round, and Fallen Leaf Lakes Management Plan in 2023. One of the outcomes and recommendations of the Lake Management Plan was to focus on a near-term strategy of treating Lacamas Lake with a chemical addition of Aluminum Sulfate ("Alum"), Phoslock, or some other proprietary chemical to strip (or sequester) the phosphorus from the water column and/or lock in the phosphorus in the sediments to limit the amount of phosphorus available for production of harmful algal blooms. This proposed near-term strategy was recommended to allow continued use of Lacamas Lake through the recreational season.

SUMMARY: There are limited suppliers and applicators in the pacific northwest that complete lake treatment with Alum or similar products. After researching available options, staff worked with AquaTechnex, LLC from Centralia, WA and EutroPHIX to develop the attached scope of work. The scope is currently drafted assuming one application of EutroSORB WC in 2024 in Lacamas Lake. EutroSORB WC is a proprietary aqueous blend of phosphate binding minerals that allow for rapid and permanent inactivation of phosphorus from the water column. It is typically applied via surface spray application and has an excellent safety profile with no environmental, health, personnel, or safety concerns associated with the use. EutroSORB WC would not have any water use restrictions (e.g. fishing, swimming, pets, boating) due to its chemistry and low concentrations of use. The public will be made aware of treatments and applicators typically ask that recreators give them room while on they are on the lake applying products.

Based on the recommendations in the Lake Management Plan, Lacamas Lake will be the only lake treated the first couple of years, assuming that the downstream Round Lake will also see some benefits. The intent of the Scope of Work as written is to complete one round of treatment and be able to monitor the effectiveness of chemical addition through pre- and post-monitoring and testing and monthly monitoring thereafter. However, based on conversations with AquaTechnex and EutroPHIX, based on experience in other lakes, all parties are assuming that a second application will likely be needed later in the summer, depending on the outcomes from the monitoring.



Figure 1: EutroSORB application on Kitsap Lake



Figure 2: Close-up of Boat Spray Application on Kitsap Lake

BENEFITS TO THE COMMUNITY: Near-term effective treatment of Lacamas Lake to reduce phosphorus levels and reduce the potential for harmful algal blooms.

For reference, the following link is an example of a success story of using the EutroSORB product and applying it in Kitsap Lake in Bremerton, WA.

<https://eutrophix.com/2022/04/03/case-study-restoring-water-quality-at-kitsap-lake/>

POTENTIAL CHALLENGES: Chemical treatment of Lacamas Lake does not “solve” the bigger picture, long-term need to improve water quality within the entirety of the Lacamas Creek Watershed. As discussed with Council in the past, the poor water quality within Lacamas Creek being fed by other streams within the Watershed is estimated to be approximately 80 percent of the phosphorus loading in Lacamas Lake.

Chemical treatment of the water is an option that will likely need to be continued once started. Users of the Lakes and the community at large may come to expect the benefits received from treating the Lakes. However, the long-term costs are potentially more than the City can support on our own.

There is an Aquatic Plant and Algae Management General Permit application, or Notice of Intent that is required to be filed prior to completing the work. Staff is currently working with AquaTechnex, EutroPHIX and the Department of Ecology to complete the Notice of Intent. The General Permit requires that the applicator aquatic pesticide license and that multiple notifications are provided to the public, including specific notices to shoreline property owners in advance, and on the day of, application.

BUDGET IMPACT: The total cost estimate for one application and two applications of EutroSORB WC is approximately \$73,000 and \$136,000; respectively. As discussed with Council previously, funding from the \$500,000 2023 State Budget Direct Grant (appropriation) will be used to complete at least the first two years of Lake Treatments.

RECOMMENDATION: Staff recommends placing the Lacamas Lake Treatment Contract with AquaTechnix on the April 1, 2024 Consent Agenda for Council's consideration.

Lacamas Lake Treatment w/ EutroSORB (2024)

Scope of Work

Task one: Permit Compliance

When issued the permit will require two levels of public notification.

The first is a 10 day prior mailing to all property owners on the lake shore. Developing and sending this mailer would cost \$850.00. The mailer should list all potential treatment date ranges in case we want to do more than one application.

The second is day of treatment posting of all properties and public access sites with signage indicating treatment is occurring. We will mobilize a team and perform this work the day prior to application. The cost will include mobilization, printing and materials to perform the task. \$750.00

- **Task One Sub-Total: \$1,600**
 - **10-day Prior Public Notification - \$850**
 - **Day of Postings - \$750**

Task Two: Pre- and Post-Monitoring

Perform a BioBase hydroacoustic survey prior to treatment. This system maps the bathymetry and calculates exact water volume. It also maps aquatic plant biovolume and sediment composition at the same time. This would provide us with a tool to see where organic sediments were located. This will also provide for a very accurate contour map that could be used with the dissolved oxygen/temperature profile so we know the location and volume of water under the thermocline to look at sediment treatments. This would cost \$1,750.00 to mobilize mapping boats, collect the data and process it to make maps.

There should be a monitoring program in place to develop accurate dosing rates just prior to treatment to track results and to recommend additional applications as necessary through the summer. Our team would mobilize to the lake, collect profiles for dissolved oxygen, temperature, and pH. We would also collect water samples at surface, mid-depth and bottom waters and have them analyzed by a State Certified Lab for Total and Ortho Phosphorus, and Alkalinity. The cost for mobilization, boat and biologist and data collection would be \$750.00 per event. The lab costs are estimated to be \$600.00 per event. AquaTechnex would perform this work two weeks prior to treatment, two weeks post treatment and at least monthly thereafter through October to develop (if needed) a scope and estimate for additional doses. For the purposes of estimating costs associated with this work, it is assumed that treatment will occur in the May timeframe.

- **Task Two Sub-Total: \$11,200**
 - **BioBase Hydroacoustic Survey - \$1,750**
 - **Pre- and Post-Treatment Monitoring - \$2,700**
 - **Monthly Monitoring (June-Oct) - \$6,750**

Task Three: Phosphorus Mitigation Treatments

Based on water quality data collected by Geosyntec in the Lake Management Plan, we would recommend multiple low dose treatments spread across the summer to meet water quality objectives. For purposes of this quote, all tasks and amounts assume one application (unit cost per each application). We recommend implementing adaptive management principles of utilizing monitoring data to optimize dosing for effectiveness and costs. Due to the unique water chemistry of Lacamas Lake (80% soluble phosphorus < 50 ug/L concentrations and soft waters) EutroSORB WC would be the preferred treatment option due to effectiveness, costs, and margins of safety for aquatic organisms. Use of EutroSORB WC would rely on approval of the experimental permit from Washington Department of Ecology. EutroSORB G would also be an appropriate treatment providing sufficient margins of safety for aquatic organisms and low monitoring requirements. The water chemistry conditions listed above require a high dosing ratio for Alum to be equally effective at water column stripping. Alum would also need to be buffered to improve margins of safety in use, but still presents a risk to aquatic organisms. There are also considerable monitoring costs with utilizing Alum in Washington.

The EutroSORB WC option for water column stripping would be recommended through 2-3 treatments over the summer. The recommended application rate will be fine-tuned using current phosphorus data just prior to treatment, but for planning purposes assume 2,200 Prescription Dose Units (PDU) on the first application. The cost for mobilization of treatment boats and applicators, delivery of material and treatment would be \$54,600.00 per application. Additional PDU's if necessary, would be at \$18.00 each.

- **Task Three Sub-Total: \$60,000**
 - **EutroSORB WC Treatment - \$54,600**
 - **Contingency - \$5,400**

Total Cost for One Application of EutroSORB WC = \$72,800

Total Cost for Two Applications of EutroSORB WC = \$136,250



Staff Report

March 18, 2023 Council Workshop Meeting

Accessory Dwelling Unit Code Amendments

Presenter: Alan Peters, Community Development Director and Madeline Sutherland, Planner

Time Estimate: 20 minutes

Phone	Email
360.817.7254	apeters@cityofcamas.us

BACKGROUND: Accessory dwelling units (ADUs) are small, self-contained residential units located on the same lot as an existing single-family home. ADUs are regulated in Camas by CMC Chapter 18.27 and are allowed in all zones where residential uses are permitted. In 2023 the Washington State Legislature passed HB 1337, a bill requiring cities to allow two ADUs per lot and limiting how cities can regulate ADUs. Staff discussed these new requirements with Council at a December 2023 workshop where concern was raised about a couple of larger ADUs recently constructed within the community. After a follow up presentation at the annual Council planning meeting in January, it was requested that staff present recommendations for code amendments to mitigate concerns about neighborhood compatibility.

SUMMARY: CMC 18.27 defines ADUs as "an additional smaller, subordinate dwelling unit on a lot with or in an existing or new house". The code also states that ADUs should provide "minimal . . . disruption to existing neighborhoods" and "not cause not cause unanticipated impact on the character or stability of single-family neighborhoods". These goals are supported by development standards which include height and size limitations as well as design guidelines summarized in Table 1 below.

Table 1: ADU Development Standards and Design Guidelines

Development Standards	Design Guidelines
25 ft. height limit	Exterior finishes duplicate or reflect those on the primary dwelling
40% of the size of the primary dwelling	ADUs taller than 15 ft. must match roof slope of the primary dwelling
Architectural compatibility with the primary dwelling	Additional requirements for historic structures

While the CMC does not include a maximum upper size limit for ADUs, ADUs are limited to 40% of the size of the primary dwelling. This ensures that ADUs are smaller and subordinate to the primary dwelling.

HB 1337 requires all GMA municipalities – regardless of population – to allow at least two ADUs per lot in all urban growth areas for lots that meet the minimum lot size required for the principal housing unit. The bill also includes several other restrictions on how cities can regulate ADUs. While these requirements will not apply to Camas until six months after our next comprehensive plan deadline, any changes that are made to the City’s ADU regulations should be consistent with HB 1337 so that they do not need to be changed yet again once HB 1337’s requirements apply in Camas. The following table includes limitations that HB 1337 places on development and design standards.

Table 2: Summary of HB 1337 limits on ADU design regulations

Development Standards	Design Guidelines
<p>ADU size limits must allow a gross floor area of at least 1,000 sq. ft.</p> <p>ADU height limits cannot be less than 24 ft.</p> <p>Cannot impose setback requirements, yard coverage limits, tree retention mandates, restrictions on entry door locations, aesthetic requirements for ADUs that are more restrictive than those for principal units</p>	<p>Cannot impose requirements for design review for ADUs that are more restrictive than those for principal units</p> <p>(HB 1293) Design requirements must be “clear and objective”</p>

Staff has identified several options for code amendments that align with HB 1337 and address ADU size, compatibility, and privacy for adjacent properties.

Set maximum size limit of 1,000 sq. ft.

“The city or county may not establish a maximum gross floor area requirement for accessory dwelling units that is less than 1,000 square feet” RCW 36.70A.681(1)(f)

A maximum size limit of 1,000 sq. ft. is consistent with HB 1337 and would establish an upper size limit on ADUs. Under the current 40% standard there is no upper size limit. Most ADUs are under 1,000 sq. ft. currently, but two ADUs were approved above 1,000 sq. ft. last year at 1,200 and 1,600 sq. ft.

Set maximum height of 24 ft.

“The city or county may not establish roof height limits on an accessory dwelling unit of less than 24 feet, unless the height limitation that applies to the principal unit is less than 24 feet, in which

case a city or county may not impose roof height limitation on accessory dwelling units that is less than the height limitation that applies to the principal unit” RCW 36.70A.681(1)(g)

A maximum height of 24 ft. is consistent with HB 1337 and less than the current 25 ft. height limit. The height limit for primary dwellings is 35 ft.

Require ADUs to match primary unit design elements exactly

“A city or county may not impose setback requirements, yard coverage limits, tree retention mandates, restrictions on entry door locations, aesthetic requirements, or requirements for design review for accessory dwelling units that are more restrictive than those for principal units” RCW 36.70A.681(1)(h)

While HB 1337 would prohibit Camas from adopting conventional design standards for ADUs because we do not have any such standards for single-family dwellings, design standards that require exact matching of design elements on the primary dwelling would not be in conflict with HB 1337.

Example language may include:

Exterior Materials. Exterior building materials such as trim and siding, shall be of the same type, size, color and placement as those of the primary dwelling unit.

Window Style and Placement. Windows shall be of the same style and be located in a similar location as the primary dwelling unit.

Adopt window placement standards to address neighbor privacy

“A city or county may not impose setback requirements, yard coverage limits, tree retention mandates, restrictions on entry door locations, aesthetic requirements, or requirements for design review for accessory dwelling units that are more restrictive than those for principal units” RCW 36.70A.681(1)(h)

While HB 1337 includes strict limits on ADU design regulations, it does not appear to limit regulation of window placements. In fact, guidance from the Department of Commerce states, “In some cases, standards may be used to address privacy, for example making sure that the ADU’s windows are located to preserve privacy between the ADU and neighboring properties or private open space.” (Guidance for Accessory Dwelling Units in Washington State).

Example language may include:

Privacy. Locate and design the ADU to minimize disruption of privacy and outdoor activities on adjacent properties. Strategies to accomplish this include, but are not limited to:

- a. Windows and doors shall not align with such features on abutting properties.*
- b. Upper level windows, entries and decks that face common property lines shall be avoided to reduce overlook of a neighboring property.*
- c. Landscaping shall be installed if it provides privacy and screening of abutting property.*

BENEFITS TO THE COMMUNITY: The identified code amendments would support the stated purpose of the City's ADU regulations in CMC 18.27:

- A. Provide for a range of choices of housing in the city;*
- B. Provide additional dwelling units, thereby increasing densities with minimal cost and disruption to existing neighborhoods;*
- C. Allow individuals and smaller households to retain large houses as residences; and*
- D. Enhance options for families by providing opportunities for older or younger relatives to live in close proximity while maintaining a degree of privacy.*
- E. Ensure that the development of an ADU does not cause unanticipated impact on the character or stability of single-family neighborhoods.*

POTENTIAL CHALLENGES: The City is currently undergoing a comprehensive plan update that will address new state requirements related to ADUs and middle housing. ADU regulations must be compliant with HB 1337 within six months of the comprehensive plan update deadline. Any ADU amendments should align with HB 1337. A summary of changes that would be needed to comply with HB 1337 are included in Table 3.

RECOMMENDATION: Staff recommends that Council provide direction on code amendments.

Table 3: Comparison of HB 1337 with CMC requirements

	HB 1337 Regulations	Current Camas Code	Comply with HB 1337?	Possible Solutions
1	Fees may not exceed 50% of primary dwelling.	25%-internal or 35%-external	Yes	N/A
2	ADUs may be detached.	Allows for internal, attached, or detached.	Yes	N/A
3	Allow ADUs on lots that meets min. lot size for the zoning.	No restriction on lot size for ADUs.	Yes	N/A
4	Allow existing structures to be converted into ADUs.	Existing structures may be converted if ADU code is met.	Yes	N/A
5	Cannot require more than one parking space on lots smaller than 6,000sf.	Requires up to one parking space if no on street parking is allowed.	Yes	N/A
6	Cannot require more than two parking spaces on lots greater than 6,000sf.	Requires up to one parking space if no on street parking is allowed.	Yes	N/A
7	Height cannot be limited to less than 24 ft, unless limit for primary dwelling is less than 24 ft.	Maximum height of 25ft.	Yes	Option 1 - No changes Option 2 - Reduce height limit to 24 ft.
8	Cannot require off-street parking if within 1/2 mile of major transit stop.	No major transit stops.	N/A	N/A
9	Allow zero lot line for ADUs along a public alley, unless city plows snow on alley.	5 ft rear/side setback, or 20 ft to a side lot line along a flanking street of a corner lot.	No	Allow of zero lot line detached ADUs along public alley's.
10	Cannot require owner occupancy.	Requires owner occupancy of either ADU or primary dwelling.	No	Delete owner occupancy requirement.
11	Allow for ADUs to be sold as a condo.	Does not regulate condo ownership or address in code.	No	Add language to allow for ADU condos.
12	Not require public street improvements with ADU permit.	Case by case basis.	No	Not require public street improvements with ADU.
13	Two ADUs per lot.	Limited to one ADU per lot.	No	Allow for two ADUs.
14	Max floor area cannot be less than 1,000 sf.	Up to 40% of primary dwelling sf.	No	Limit size to 1,000sf.
15	Cannot impose more restrictive standards (setbacks, yard coverage, tree retention, entry door location, design) than that of the primary dwelling. Standards need to be objective.	Subjective design standards and entry door location requirements.	No	Option 1 - Delete front door entry requirement. Option 2 - Delete Architectural Standards (18.27.050.G). Option 3 - Adopt objective design standards that require compatibility and are not more restrictive than primary dwelling. Option 4 - Add privacy requirements.



Staff Report

March 18, 2024 Council Workshop Meeting

Our Camas 2045 Comprehensive Plan Update – Population and Employment Allocations

Presenter: Alan Peters, Community Development Director

Time Estimate: 20 minutes

Phone	Email
360.817.7254	apeters@cityofcamas.us

BACKGROUND: The City of Camas is undergoing a periodic update of the comprehensive plan required under the Washington State Growth Management Act (GMA). Under the GMA's planning framework, the City must plan consistent with growth allocations developed and adopted by Clark County. The Clark County Planning Commission will hold a public hearing on March 21, 2024, and the County Council will hold a hearing on April 23, 2024, to consider allocations proposed by County staff.

SUMMARY: Under the GMA, each county uses population projections from the state Office of Financial Management (OFM) to determine, in consultation with cities, where anticipated population growth should be directed to occur. Once projections are adopted and allocated by the county, cities use them in their comprehensive planning processes and make sure that their plans can accommodate the projected level of growth.

Population Growth Targets: The Clark County Council has already adopted a 2045 population target of 718,154. The adopted number is between the "middle" and "high" projections provided by OFM. This is a population increase of 190,754 over the Clark County population as of 2023.

Clark County has projected that 95% of new growth will occur in cities and urban growth areas (UGAs). The county proposes to allocate this population to cities and UGAs based on the percentage of total housing unit capacity that can be accommodated in each UGA according to the Vacant Buildable Lands Model (VBLM). The percentage of each UGA's housing capacity is multiplied by the overall projected population growth to derive each UGA's allocation.

According to the VBLM, Camas's residential unit capacity accounts for 4.26% of existing vacant buildable land capacity in Clark County and has therefore been assigned this percentage of population growth or **7,729 persons over the next 20 years for a 2045 population estimate of 37,080.**

Housing Growth Targets: The projected total future housing need for the entire county in 2045 is 309,711 units. The net new housing need through 2045 is 103,698. These units are allocated to each UGA to meet the population growth targets. **Camas's proposed residential unit allocation through 2045 is 4,226 units.** Our current VBLM residential unit capacity is 4,222 units.

Housing Needs by Economic Segment: In all prior comprehensive plan updates, cities were only required to plan for a total housing allocation. However, House Bill 1220, adopted by the Washington State Legislature in 2021, requires cities to plan for and accommodate housing affordable to all income levels. This is a significant change to how cities must plan for housing and requires that cities plan for sufficient capacity for all housing needs, including moderate, low, very low and extremely low income, as well as emergency housing and permanent supportive housing.

This figure shows statewide future housing needs broken down by area median income groups 0-30% of Area Median Income (AMI); 30-50% AMI; 50-80% AMI; 80-100% AMI; 100-120% AMI; and >120% AMI.

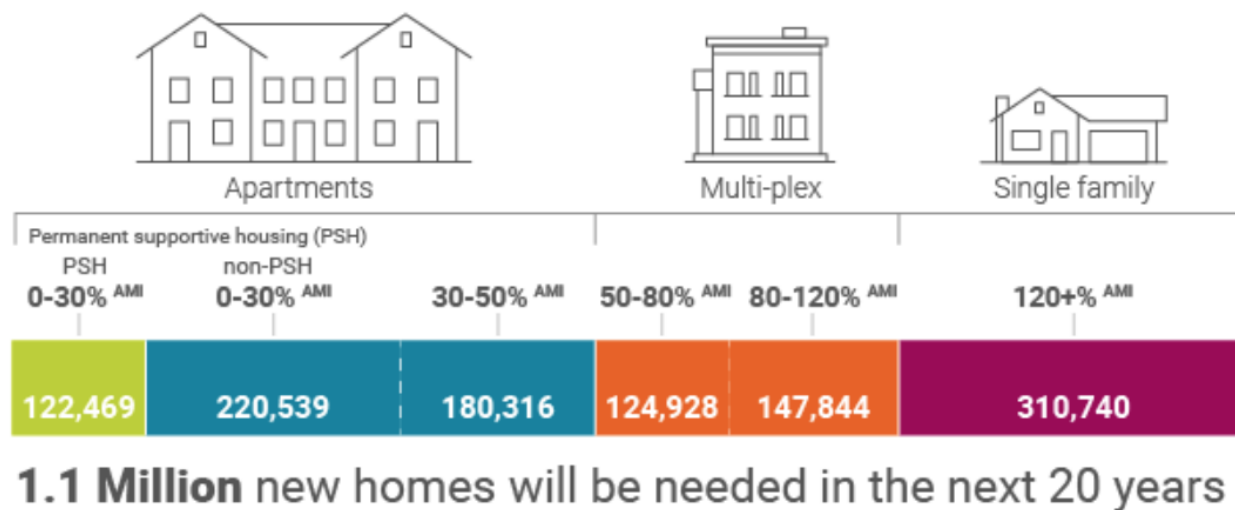


Figure 1: Statewide future housing needs broken down by area median income (AMI) groups.

The Department of Commerce has created a tool to help jurisdictions identify countywide housing needs and allocate these needs to each UGA called the Housing for All Planning Tool or (HAPT). Table 1 displays the total countywide housing unit needs by income band.

Table 1: Countywide future housing needs broken down by area median income (AMI) groups.

Projected Countywide Housing Needs Based on User Inputs

Clark County

Population Target = 718,154

	Total	Affordability Level (% of Area Median Income)						
		0-30%		30-50%	50-80%	80-100%	100-120%	120%+
		Non-PSH	PSH					
Total Future Housing Needed (2045)	309,711	17,422	8,195	33,630	77,892	47,653	38,172	86,747
Estimated Housing Supply (2023)*	206,013	4,570	571	16,223	60,225	37,292	28,348	58,785
Net New Housing Needed (2023-2045)	103,698	12,852	7,624	17,407	17,667	10,361	9,824	27,962

The above countywide totals must be met for each income level, but the distribution of these units is left to local discretion. The HAPT tool includes two methods for allocating these units to each jurisdiction. Method A accommodates all housing needs through new housing production. This results in each jurisdiction being allocated the same percentage shares of their net new housing growth target by income level. Method B requires that each jurisdiction plan for the same

percentage share of their total housing supply at each income level by 2045. Therefore, allocations result in differences in current housing supply at each income level and mean that jurisdictions with less affordable housing currently will be allocated a greater share of affordable housing needs over the next 20 years.

For Camas, Method B would require that the city plan for a much greater share of housing from the 0-50% AMI bands and results in a negative allocation in the 120%+ AMI range. Method A would still require that we plan for a significant amount of 0-50% AMI housing need, but would still allow for additional housing in the 120%+ AMI range. Both methods include roughly the same amount of middle housing allocation (50%-120% AMI range).

Table 2: Proposed Method A Unit Allocations

Population Target=718,154		Permanent Housing Needs by Income Level (% of Area Median Income)					
	Total	<80%		>80 - 120%		>120%	
Vancouver Unincorporated + Rural Clark County	44,038	22,759	52%	8,270	19%	13,010	30%
Battle Ground city+UGA	6,979	3,589	51%	1,304	19%	2,086	30%
Camas city+ UGA	4,226	2,316	55%	842	20%	1,068	25%
La Center city+UGA	2,123	1,117	53%	406	19%	601	28%
Ridgefield city+UGA	5,815	3,783	65%	1,375	24%	657	11%
Vancouver city	36,527	19,970	55%	7,257	20%	9,300	25%
Washougal city+UGA	3,735	1,894	51%	688	18%	1,152	31%
Woodland city+UGA	105	50	48%	18	17%	37	35%
Yacolt town+UGA	150	72	48%	26	17%	52	35%
Total 2023-2045	103,698	55,550		20,185		27,962	
Percent of Total		54%		19%		27%	

Table 3: Proposed Method B Unit Allocations

Population Target=718,154		Permanent Housing Needs by Income Level (% of Area Median Income)						
	Total	Non-PSH	PSH	>30-50%	>50-80%	>80-100%	>100-120%	>120%
Vancouver Unincorporated + Rural Clark County	44,037	5,845	3,435	7,921	13,808	4,708	1,187	7,134
Battle Ground city+UGA	6,979	539	395	1,116	1,214	335	1,208	2,172
Camas city+ UGA	4,226	648	372	1,068	1,680	1,052	-233	-362
La Center city+UGA	2,123	165	95	272	704	296	252	340
Ridgefield city+UGA	5,815	613	306	1,149	2,421	856	796	-326
Vancouver city	36,527	4,662	2,724	5,450	-3,110	2,629	6,230	17,941
Washougal city+UGA	3,735	342	275	452	972	480	314	900
Woodland city+UGA	105	5	4	10	25	14	12	34
Yacolt town+UGA	150	34	18	-32	-47	-9	58	128
Total 2023-2045	103,696	12,852	7,624	17,407	17,667	10,361	9,824	27,962
Percent of Total		12%	7%	17%	17%	10%	9%	27%

Employment Growth Targets: The county has projected a total of 73,500 net new jobs. According to the VBLM, there is capacity for 65,091 new jobs in the county currently. Using the same allocation method based on existing vacant buildable employment lands in each jurisdiction as was used for the population allocations, **Camas has a proposed employment allocation of 11,360 additional jobs through 2045.** The VBLM capacity is currently 11,363.

Table 4: Proposed Employment Capacity and Allocation by UGA

Jurisdiction	2023-2045 Employment Allocation	2023 VBLM Capacity
Battle Ground city+UGA	7,675	7,677
Camas city+ UGA	11,360	11,363
La Center city+UGA	2,095	2,096
Ridgefield city+UGA	7,996	7,998
Vancouver city	18,019	18,025
Vancouver UGA	15,163	15,168
Washougal city+UGA	2,403	2,404
Woodland city+UGA	-	-
Yacolt town+UGA	360	360
UGA Total	65,071	65,091
Government	8,600	NA
Construction	6,500	NA
Rural (5%)	4,405	NA
Work From Home (4%)	3,524	NA
County Total*	88,100	N/A

RECOMMENDATION: This item is informational only.