



## Staff Report

For City Council Meeting - 4/3/2024

### ***Subject - New Business - RFP - Groundwater Modeling Services and Request for Funds***

**Synopsis:** Last month, Council approved publishing a request for proposals seeking Groundwater Monitoring Services; Specifically, to develop a groundwater flow model to assist in the assessment of potential increased pumping at the Gearhart municipal wellfield currently operating under Oregon Water Resource Department (OWRD) Permit G-16390 to Appropriate Public Waters. The primary objectives of the requested scope of services are to support the City's request for an additional water right and to evaluate a range of potential wellfield pumping scenarios, and to assess potential impacts of wellfield operations at specified locations. The City received one bid for Council to consider, which is attached. Public Works Director Mark McFadden was also able to review the submission and has a favorable recommendation. City staff is also requesting funds up to \$83,000 to fund the awarded bidder.

#### ***Council Options:***

1. Motion to award the Groundwater Monitoring Services project to Todd Groundwater of Hyatt GeoSciences, LLC and approve the funds request up to \$83,000 to cover costs;
2. Take other action desired by Council.

**Recommendation:** Staff recommends awarding Hyatt GeoSciences LLC the City's Groundwater Monitoring Services project and awarding funds up to \$83,000.

**Legal Analysis:** Proposals were advertised on the League of Oregon Cities' RFP site, the post office, the City website, social media, and blog. The project will be in multiple phases due to procurement rules.

**Financial Analysis:** There is \$1,269,767 available in water reserve funds. There is also an additional request for water reserve funds on the agenda.

Respectfully Submitted,



Chad



Krysti Ficker <krysti@cityofgearhart.com>

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## RFP Groundwater Modeling Services

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**Chris Hyatt** <chrishyatt@hyattgeo.com>

Tue, Mar 26, 2024 at 4:58 PM

To: Krysti Ficker <krysti@cityofgearhart.com>

Cc: "Mark McFadden - City of Gearhart (publicworks@cityofgearhart.com)" <publicworks@cityofgearhart.com>, Mike Maley <MMaley@toddgroundwater.com>, Jon Turner <JTurner@ddmsinc.com>

Ms. Ficker -

Hyatt GeoSciences, Todd Groundwater, and ddms are pleased to provide the attached proposal in response to the Request for Proposals (RFP) for providing Groundwater Modeling Services to the City of Gearhart.

The proposed scope of work and tasks outline our approach to develop a groundwater flow model to assist in the assessment of potential increased pumping at the Gearhart municipal wellfield, and to support the City's request for an additional water right.

If you have any questions or require any additional information, please do not hesitate to contact us at (503) 887-9323.

*Chris Hyatt, RG, LHG*

Senior Geologist/Hydrogeologist

**HGS** HYATT GEOSCIENCES

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HGS Hyatt GeoSciences, LLC



## PROPOSAL

### Groundwater Modeling Services

**Submitted by:**

Todd Groundwater  
Hyatt GeoSciences, LLC  
ddms, inc.

**Prepared for:**

City of Gearhart, Oregon



March 27, 2024

March 27, 2024

## PROPOSAL – SCOPE OF WORK

**To:** Krysti Ficker, Executive Assistant  
Mark McFadden, Public Works Director

**From:** Mike Maley, Principal Hydrogeologist, Todd Groundwater  
Chris Hyatt, Principal Geologist, Hyatt Geosciences, LLC  
Jon Turner, Sr. Project Manager, ddms

**Re:** **Groundwater Modeling Services Proposal**  
City of Gearhart

Our Project Team, consisting of

- Hyatt GeoSciences, LLC,
- Todd Groundwater, and
- ddms , inc.

is pleased to provide The City of Gearhart, Oregon (“City”) with our proposal to develop a groundwater flow model to assist in the assessment of potential increased pumping at the Gearhart municipal wellfield currently operating under Oregon Water Resource Department (OWRD) Permit G-16390 to Appropriate Public Waters (hereinafter the “Permit”). Our team brings an unmatched combination of technical expertise and local knowledge to support the City in the OWRD Water Use Permit Application process.

## PROJECT UNDERSTANDING

The City of Gearhart utilizes groundwater and wholesale water purchased from the City of Warrenton as a supplemental source to meet seasonal high water demands. The City began appropriating water under Permit G-16390 in July 2012. Water is appropriated via eight water supply production wells. Six monitoring wells are used for measuring groundwater quality and/or groundwater elevations. A surface water gauging station in Neacoxie Creek, located east of the wellfield, is used to monitor stream stage and several water quality parameters.

The City obtained the Permit in November 2008, allowing the City to appropriate groundwater for municipal use. The Permit allows the City to appropriate a maximum flow rate of 2.18 cubic feet per second (cfs) or approximately 42.3 million gallons per month (MGM) from November through June each year. However, maximum allowable pumping rates are reduced to between 0.289 cfs (5.8 MGM) and 0.485 cfs (9.7 MGM) from July through October.

The City’s goal of obtaining additional water supply is based on necessity, economics, and independence. The current water right permit allows for sufficient flow to meet current City water demands from January through June each year. However, the Permit curtails the flow rate allowed for the months of July through October each year when population and demand are at their peak. This seasonal limitation of flow results in the City needing to purchase treated water from the City of Warrenton.



The City imports between 25 and 35 million gallons of treated water from the City of Warrenton every year. The City would enjoy the cost benefits of having its own independent water source during the summer months when water demands are highest.

In addition, the City has experienced an unexpected growth in the residential population over the past several years which has put added stress on the City's water system. The increase in population, along with future planned residential developments has led the City to realize that additional capacity will be required to meet future water demands.

The City has been in discussions with OWRD regarding the seasonal water limitations and the available options for acquiring additional water capacity. OWRD has indicated that supplementary capacity may be provided thru an additional water right, however, a detailed groundwater flow model providing quantified estimates of key groundwater budget parameters (interactions with Neacoxie Creek and the Pacific Ocean, etc.) should be included to support the water right application package.



The City's wellfield is situated between Neacoxie Creek and the Pacific Ocean

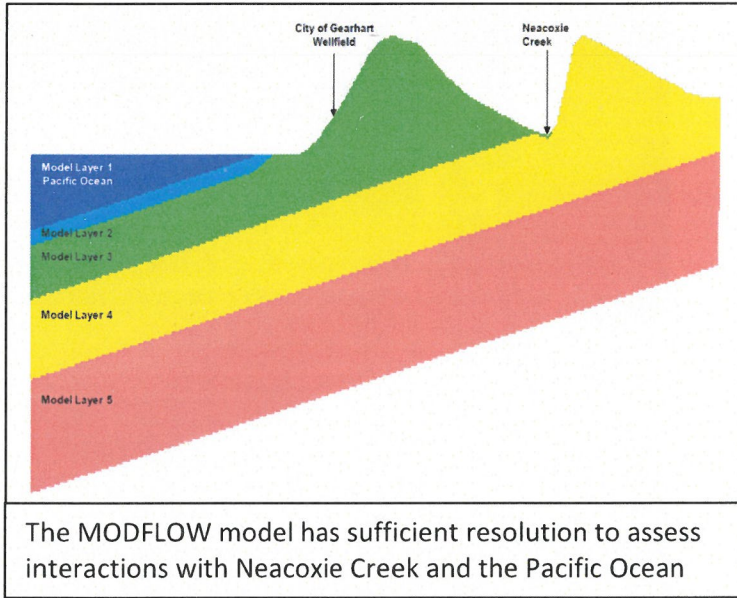
## APPROACH

We understand that the primary objectives of the requested scope of services are to support the City's request for an additional water right and to evaluate a range of potential wellfield pumping scenarios, specifically to assess potential impacts of wellfield operations on the following:

- Groundwater interactions with Neacoxie Creek,
- Groundwater interactions with the Pacific Ocean, and
- Influence of seasonal variations of groundwater, creek levels, and pumping.

From our prior experience with the City, we understand that the Gearhart aquifer is recharged primarily by rapid percolation of precipitation that falls on the sand dune deposits. Groundwater in the Gearhart area discharges primarily as seeps and underflow to the Pacific Ocean, but minor amounts of groundwater also discharges locally to primary drainages such as Neacoxie Creek. The general shape of the groundwater elevation contours is a low north-south oriented ridge that coincides with the extent of the sand dunes. The highest groundwater elevations occur under the higher topographic areas. Lowest groundwater levels are observed along the ocean, but localized lows converge towards Neacoxie Creek.





Our approach is to update the five layer MODFLOW model that was developed by Mike Maley of our Project Team for the previous water rights application. This model was constructed with 5 model layers to provide sufficient resolution to evaluate vertical groundwater gradients within the aquifer. Model Layer 1 represents the Pacific Ocean, whereas Model Layers 2, 3, 4 and 5 are subdivisions of the sand dune aquifer. Model Layer 5 was constructed so that the entire screened interval of the Gearhart City Wellfield was included in this layer.

Our initial step in the modeling process is to compile and process the extensive

groundwater level and water quality data that the City has been collecting over the past 10 years. This data is being managed by Jon Turner of our Project Team. We will conduct an initial data review to assess the potential groundwater-surface water interactions with Neacoxie Creek and influences with the Pacific Ocean. We will then use this data to further calibrate the existing model to better refine our groundwater simulations with emphasis on understanding the interactions with Neacoxie Creek and the Pacific Ocean.

Using the updated MODFLOW model, we will develop model scenarios to evaluate the potential impacts of the increased pumping capacity that will be requested from OWRD. We will use the updated MODFLOW coupled with the particle-tracking Model MODPATH results to calculate groundwater flow lines to determine the 10-year capture zone, or source area, for the Gearhart wells and quantify potential groundwater-surface water interactions. We will prepare a presentation and technical report that we will give to the City and, if requested, to OWRD.

Parallel to the model development, we will prepare and submit a “Draft” Water Use Permit application for submittal to the OWRD for initial review. Chris Hyatt will lead the water permit application and will coordinate with the City to outline the appropriate operational pumping conditions. The application will serve as a placeholder pending an initial review by OWRD and, in anticipation of upcoming OWRD regulatory changes, will also ensure the application is “grandfathered-in” under existing OWRD regulations.

## Proposed Scope of Services

Our Project Team will update the existing MODFLOW model potential impacts from pumping from the Gearhart wellfield. We will develop model scenarios to evaluate a range of potential wellfield pumping scenarios that incorporate seasonal variations of groundwater, creek levels, and pumping to assess potential impacts of wellfield operation on Neacoxie Creek and the Pacific Ocean. The primary objective is to support a new water use permit application for increased pumping rates between July through October each year, and to accommodate increased annual demands based on projected population growth.



## Task 1: MODFLOW Model Updates and Scenarios

Task 1 will consist of the primary technical tasks associated with updating the existing groundwater model. We have defined three subtasks for Task 1. These includes

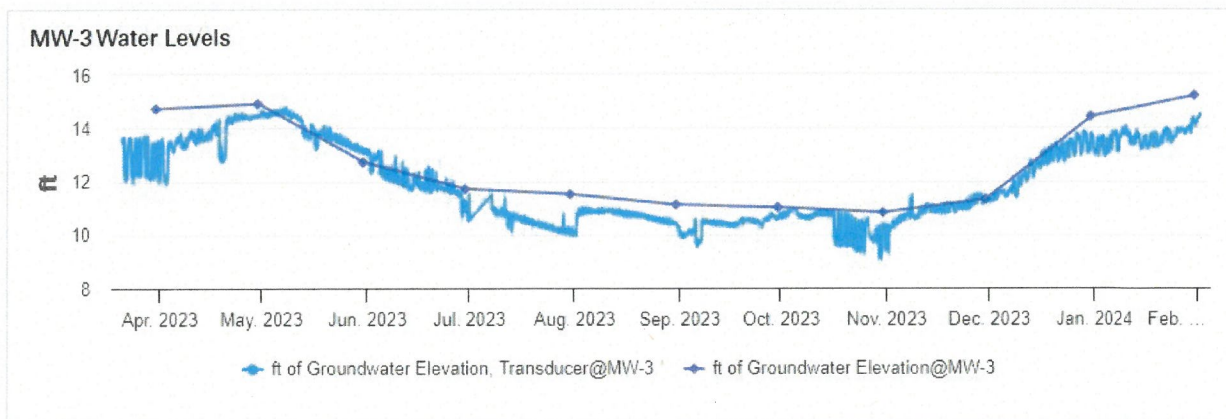
1. the compilation and initial analysis of City's data,
2. recalibrating the existing MODFLOW model with the new data, and
3. running operational scenarios to support the Water Use Permit

### Subtask 1: Data Compilation

Most of the data and information required to complete the scope of work is available from the City data management consultant. ddms will provide data management support with initial analysis of groundwater and surface water monitoring data. ddms will create visualizations from the existing Gearhart water database to support the initial analysis, and will extract and summarize updated data for input into the MODFLOW model.

- Project Portal
  - Access and Support
  - Analysis, Reporting, Mapping, Data Export tools available for the project team
- Time-Series Graphs for Initial Analysis
  - Monthly Precipitation
  - Groundwater Elevation
  - Monthly pumping volume
  - Groupings of Location/Measurements per direction of team
  - Water quality data including TDS, salinity and other relevant data
  - Water Usage
    - Monthly Production Well water volumes
    - Monthly Warrenton imported water volume
    - Monthly Total Gearhart water consumption volume

Todd Groundwater will conduct the initial data review to assess the potential groundwater-surface water interactions with Neacoxie Creek and influences with the Pacific Ocean. During this subtask, we will prepare the data to further calibrate the existing model to better refine our groundwater simulations and to increase our understanding the interactions with Neacoxie Creek and the Pacific Ocean.

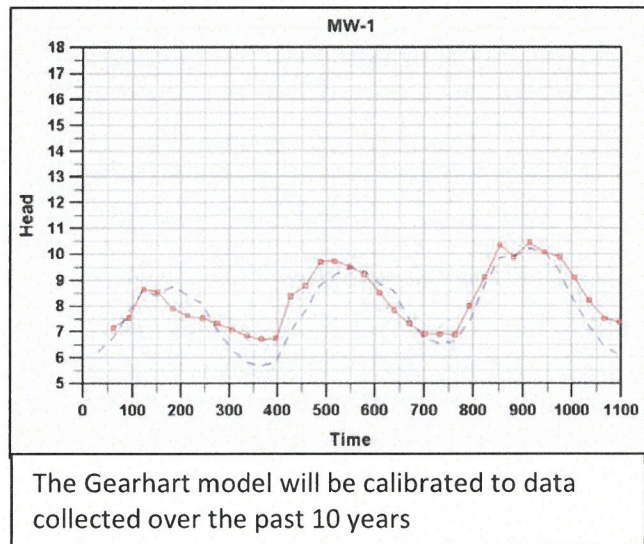




## Subtask 2: Model Update and Recalibration

Task 2 consists of the update and recalibration of the existing MODFLOW model with new data collected by the City as need to support the Permit. The base-model input parameters will be adjusted to reflect updated groundwater and surface water monitoring data. The revised model will utilize updated monitoring data including groundwater production and demand data, groundwater elevation data, surface water elevation data, and groundwater quality data to validate and improve model calibration.

The model update will incorporate new data collected by the City. The base-model input parameters will be adjusted to reflect updated groundwater and surface water monitoring data. The revised model will utilize updated monitoring data including groundwater production and demand data, groundwater elevation data, surface water elevation data, and groundwater quality data to validate and improve model calibration.



## Subtask 3: Operational scenarios to support the Water Use Permit

The primary objective of this revised groundwater flow model is to assess potential detrimental impacts such as seawater intrusion from proposed increased pumping rates of the established wellfield. The increased pumping rates are anticipated to be confined to the period of July through October each year, however, may be expanded to include increased annual demands based on projected population growth.

The revised MODFLOW model will be used to evaluate up to 6 operational scenarios for the Gearhart wellfield. These scenarios will be developed based on discussions with the City of Gearhart staff and, as appropriate, OWRD. Potential scenarios may include evaluations of operational contingencies, climatic variations such as an extended drought, projected population growth, or for evaluating long-term monitoring goals. The model scenarios results will be used to develop operation plans for maximum pumping rates, distribution of pumping and monitoring targets for varying conditions.

## Task 2: Prepare Technical Memorandum

The MODFLOW model update and the model scenarios results will be summarized in a concise technical memorandum that outlines the conditions that were evaluated and provide recommendations on how these results may be used for making operational decisions.

Todd Groundwater will prepare draft and final reports presenting the TDS and nitrate projection methodology and results and provide a presentation of the results to the City. The report will include descriptions of the work in all the preceding tasks and will be a complete record suitable for transmittal to the RWQCB and other interested parties. Report preparation includes the following specific steps:

- **Draft Technical Memo.** An electronic version of the draft TDS and Nitrate Concentration Projection Report will be prepared and submitted to the City for staff review and comments. An illustrated presentation of the draft will be provided to the City in a web-based meeting when

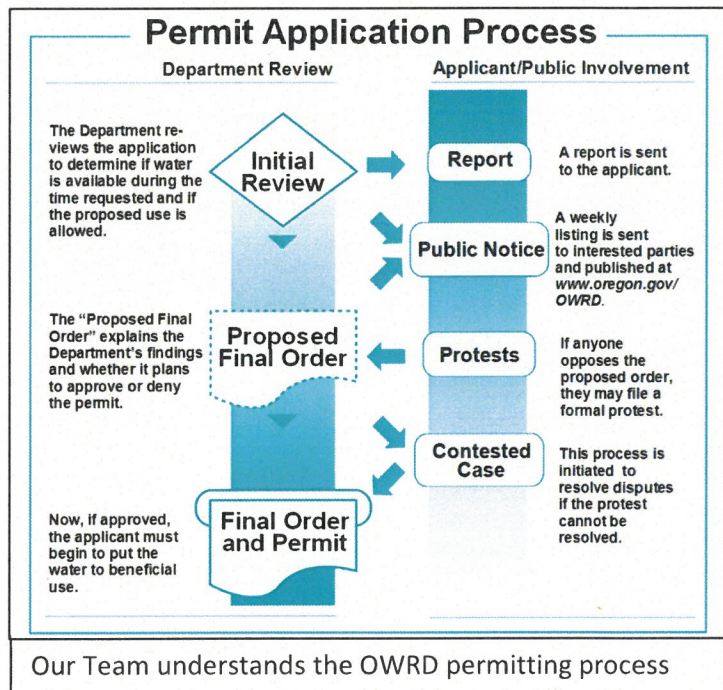


the draft is delivered. For scheduling purposes, City comments will be expected within two weeks.

- **Final Technical Memo.** Todd Groundwater will revise the **Technical Memo** to reflect City comments and will submit a final report. The final **report** will be submitted to the City in electronic format; copies of the report text will be provided in Microsoft Word™ format and the entire report with tables, figures, and appendices will be provided in Adobe Acrobat™ format.

### Task 3: Water Rights Application and Coordination with OWRD

Our Project Team will provide technical support to the City with assessing the water supply availability and data requirements for a new OWRD water right. Chris Hyatt of HGS will provide technical support to the City with assessing the water supply availability and data requirements for a new OWRD water right. We will prepare and submit a “Draft” Water Use Permit application for submittal to the OWRD for initial review. The application will serve as a placeholder pending an initial review by OWRD and, in anticipation of upcoming OWRD regulatory changes, will also ensure the application is “grandfathered-in” under existing OWRD regulations.



Following completion and submittal of the groundwater model, key project personnel will participate in a meeting(s) with OWRD and present model results, and address OWRD comments and any potential public protests/concerns or revisions. Some scope parameters may need to be clarified or adjusted as work proceeds, or to resolve any potential public comments or concerns.

Our Project Team will participate in meetings with OWRD and present model results, and address OWRD comments and revisions. Some scope parameters may need to be clarified and refined as work proceeds and/or additional data becomes available.

### Task 4: Project Coordination

Activities associated with this task include scheduling, coordination, and logistics with project personnel and OWRD staff; communications; meeting(s) with the City and/or its agents and OWRD; budget tracking; and general administrative tasks associated with project management.

## COST OF SERVICES

Our Project Team provides our estimated costs of the project. Based on the scope of work described herein, we have estimated costs for the GSP preparation as shown on the Table 1. The proposed cost estimate is a “not-to-exceed” amount of \$82,200. Throughout the project, the Project Team will look for opportunities for cost and time savings.

Todd Groundwater will be the contracting firm with the City. Hyatt Geoscience, LLC and ddms will subconsultants to Todd Groundwater. Mike Maley will be the point of contact for the contract whereas Chris Hyatt will be the point of contact for the technical project.

**TABLE 1 – Cost Proposal for City of Gearhart Groundwater Modeling Services**

TASKS	Hyatt Geosciences LLC	Todd Groundwater	DDMS, Inc.	Estimated Cost
<b>Task 1: MODFLOW Model Updates and Operational Scenarios</b>	\$2,600	\$30,000	\$4,500	\$37,100
<b>Task 2: Prepare Technical Memorandum</b>	\$1,600	\$15,000	\$0	\$16,600
<b>Task 3: Water Rights Application Support</b>	\$12,000	\$8,000	\$500	\$20,500
<b>Task 4: Project Coordination</b>	\$5,000	\$2,500	\$500	\$8,000
<b>TOTAL</b>	<b>\$21,200</b>	<b>\$55,500</b>	<b>\$5,500</b>	<b>\$82,200</b>



## EXPERIENCE AND REPUTATION IN THE FIELD

The project team key personnel have extensive experience providing a wide variety of consulting services to both public and private clients, including the City of Gearhart. Scopes of services conducted for the City under previous contracts have included water supply, planning and feasibility studies, water rights assistance, aquifer testing and production well design, aquifer characterization, groundwater monitoring and regulatory compliance, data acquisition and management, and groundwater modeling.

In addition to these services, each of the key personnel listed below has worked with the City, as well as many other public clients, providing consulting and data management services in support of water supply and water rights compliance projects throughout the Pacific Northwest.

Given the project team's specific experience and knowledge of the City's history and compliance monitoring program, as well as our demonstrated success in meeting the objectives of the City over the past ten years, the project team's key personnel and qualifications are uniquely qualified to perform the City's requested scope of services.

## FIRM QUALIFICATIONS

### Hyatt GeoSciences (HGS)

HGS's professional experience includes providing technical expertise for groundwater supply and water development projects, site characterization and remediation, project management, and representing clients and legal counsel with regulatory agencies. We have experience with municipal, industrial, agricultural, ranching operations, food and beverage companies, federal agencies, petroleum and railroad companies, real estate development, and chemical manufacturing clients.

Specializing in groundwater supply and contaminant hydrogeology, HGS has designed and implemented hydrogeologic characterizations, constructed and installed groundwater monitoring networks, performed aquifer testing and characterizations for municipal water supply projects, participated in large production well design and construction, conducted water rights analyses and compliance monitoring, designed well inspection and rehabilitation projects, performed aquifer and test well studies, installed groundwater remediation systems, and modeled groundwater contaminant fate and transport.

### Todd Groundwater

Todd Groundwater is a consulting firm specializing in groundwater studies, including evaluation, monitoring, modeling, management, and protection of groundwater resources. Our firm was founded in



Chris Hyatt of HGS designed existing City wellfield





Mike Maley of Todd Groundwater developed the original MODFLOW model

1978 by Dr. David Keith Todd, internationally recognized expert in groundwater and author of the textbook, Groundwater Hydrology.

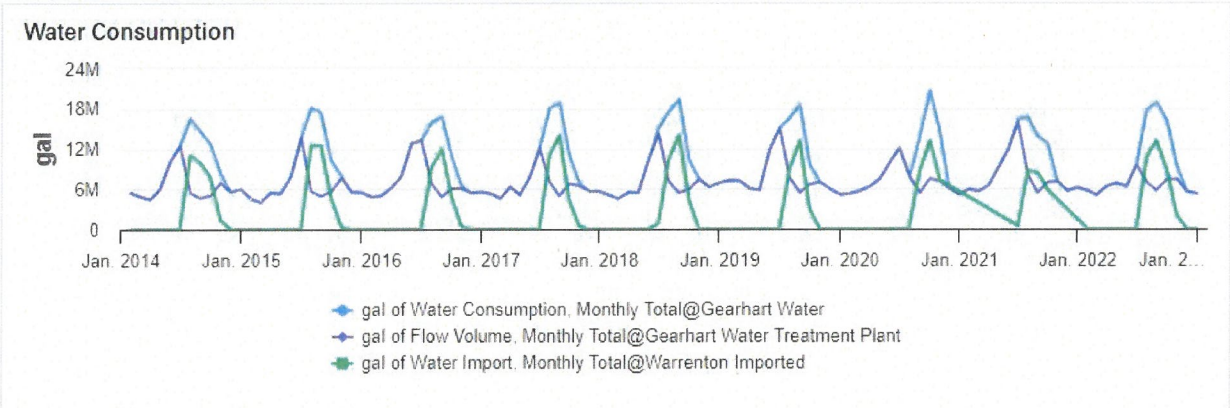
Our staff is composed of fourteen professionals and two administrative staff. Our professional staff members have advanced degrees in civil engineering, geology, hydrogeology, geochemistry, geography, and environmental sciences. All our geologists and engineers are professionally registered, and most of our geologists are also certified hydrogeologists. With an average staff tenure of 10 years, we provide our clients with reliable service from a cohesive team.

Over the past 40+ years, Todd has provided the full spectrum of hydrogeological and groundwater management services to numerous private and public clients. Most of our work is conducted for public agencies, and has included basin characterization, water supply assessment, water quality characterization, groundwater flow and water quality modeling, managed aquifer recharge, groundwater management plans and since

2014, development of GSPs in compliance with SGMA.

**ddms**

de maximis Data Management Solutions (ddms) is a service-oriented company that provides world-class environmental data management services, analytics, visualization and enterprise implementation services to a multitude of industries. ddms employs industry leading project managers, scientists, database administrators, geospatial professionals, software engineers and cartographers who collectively have deep domain experience and represent the top environmental data management team in the field. We join your team as partners, using our expertise to help you make more insightful decisions through all aspects of your environmental compliance project.



Jon Turner of ddms maintains the City's wellfield database



## PROJECT TEAM EXPERIENCE

Todd Groundwater proposes a selected team, who bring groundwater basin management experience, SGMA expertise, requisite technical skills, and knowledge of the Kern County Groundwater Subbasin.

- **Chris Hyatt** will be the primary point of contact with the City throughout the Project based on his long experience with the Gearhart wellfield. He will lead the Water Use Permit application and Coordination with OWRD.
- **Mike Maley** will be the technical lead for the groundwater modeling based on his overall modeling experience and specific experience from the development of the original groundwater model for the City.
- **Jon Turner** will provide data management support based on his long involvement in management of the City's water supply system database.



### **Chris Hyatt, RG, LHG - Project Geologist/Hydrogeologist**

Chris is a licensed geologist and hydrogeologist specializing in groundwater supply and contaminant hydrogeology. His extensive hydrogeology and groundwater supply experience has included design and implementation, hydrogeologic characterizations, installation of monitoring well networks, aquifer testing, municipal water supply projects, water rights analysis and compliance monitoring for a wide variety of clients. Mr. Hyatt has been involved with the City's water supply project since its inception in 2006. He designed the existing Gearhart wellfield, was involved with procuring the City's existing water right permit and has provided continued technical support in helping Gearhart comply with the Permit.



### **Mike Maley, PE, PG, CHG, CEG, - Groundwater Modeling Lead**

Mike is a specialist at applying MODFLOW-MT3D, IWFM and FEFLOW groundwater models for groundwater management, environmental impacts analysis and engineering design. He has demonstrated the capability to successfully calibrate complex models through close attention to the physical processes that govern groundwater flow and contaminant transport. Many of his models developed have undergone rigorous peer, regulatory, and expert review. Through this experience, he has provided valuable insight into the hydrogeological controls that influence groundwater flow from large groundwater basins to local engineering projects.



### **Jon Turner - Data Management Lead**

Jon has over twenty-five years of experience in the environmental industry. Jon currently focuses on environmental and spatial data management, data workflows, analysis, and visualizations primarily associated with water resources, industrial, manufacturing, and waste disposal activities. In addition, he works with expert witnesses in environmental litigation to support data centralization, analysis, visualizations, and regulatory data submittals. Jon understands the importance of providing easy access to quality, reproduceable data to support his client's activities.



## Groundwater Modeling Experience

Todd Groundwater is a highly experienced and active firm in groundwater modeling . Through this experience, Todd Groundwater has an extensive background in understanding the local groundwater conditions and groundwater management practices in the Subbasin that will help support the City with their Water Use Permit Application. Mike Maley, Principal Hydrogeologist at Todd Groundwater, will lead the Groundwater Modeling. In brief, his experience includes:

- **Groundwater Wellfield Development, City of Gearhart, Oregon.** Mr. Maley was the lead modeler for the previous Gearhart project. He evaluated the local hydrogeology and developed a MODFLOW model for a source area assessment of a proposed municipal wellfield in a coastal aquifer. He evaluated the potential for seawater intrusion and impacts to streams to support groundwater permit application.
- **Groundwater Management and Modeling, Mendocino City Community Services District, California.** Mr. Maley developed the hydrogeologic conceptual model and MODFLOW groundwater model to define perennial yield and groundwater management options for the Headlands Aquifer. He used the model to define criteria based on rainfall and water levels for the Drought Contingency Plan for four stages of drought emergency. He has served as technical expert to support the District during a lawsuit by developing a technical report and coordinating with legal counsel.
- **Recycled Water Facility Plan, Pierce County Department of Public Works, Washington.** Mr. Maley developed a MODFLOW groundwater model to evaluate the capacity of recycled water discharge to shallow aquifer to determine volume, size and location of potential injection well and percolation ponds alternatives. He evaluated impacts of groundwater mounding and seawater interactions with Puget Sound.
- **Mint Farm Groundwater Supply Project, City of Longview, Washington.** Mr. Maley conducted hydrogeological evaluation to support wellhead protection plan, engineering design and permit application for new groundwater wellfield in alluvial aquifer along the Columbia River. He defined the local hydrogeology and used a MODFLOW/MT3D model to quantify water supply, define groundwater surface water interactions with the Columbia River, and assess potential impacts on nearby shallow contaminant sites.
- **Lake Merced Lake-Level Restoration Project, San Francisco Public Utilities District, California.** Mr. Maley developed a comprehensive groundwater-surface water model of Lake Merced calibrated to over 50 years of historical data to evaluate lake level management alternatives including stormwater, groundwater and imported water. He evaluated local hydrogeology to identify potential well sites around Lake Merced.
- **Discharge Compliance Project, Incremental Recycled Water Program, City of Santa Rosa, California.** Mr. Maley evaluated hydrogeology of Russian River Valley including groundwater-surface water interactions with the Russian River. He developed MODFLOW/MT3D models to support project siting, engineering design, and CEQA impact analysis of wastewater disposal ponds in alluvial sediments along the Russian River. He evaluated the impact to groundwater levels, water quality and groundwater-surface water interactions.
- **Groundwater Management Plan, South Tahoe Public Utilities District, California.** Mr. Maley worked collaboratively with the District to develop the Groundwater Management Plan with basin management objectives, a monitoring plan, and implementation schedule. He updated hydrogeological conceptual model by incorporating updated geologic cross sections and

groundwater contour maps. He conducted four stakeholder meetings to develop regional acceptance and establish the preliminary framework for compliance with SGMA.

- **Nitrate from Septic Systems Impact Study, Elsinore Valley Municipal Water District, California.** Mr. Maley used MODFLOW/MT3D numerical model to evaluate nitrate transport within the enclosed groundwater basin. Characterized nitrate sources, primarily septic tanks, within the basin. He upgraded the existing MODFLOW model to simulate nitrate transport, verified calibration to groundwater and nitrate data, and evaluated future nitrate trends at municipal production wells to assess long-term impacts of septic tank on groundwater quality.
- **Nitrate and TDS Future Projections, Temescal Groundwater Management Zone, Riverside County, California.** Mr. Maley was the Lead Modeler for developing the Temescal GSP MODFLOW model was coupled with a solute transport model (MT3D-USGS) to develop the 20-year projections of TDS and nitrate concentrations for the Temescal Basin as required by the Santa Ana RWQCB that manages salt and nutrients in the Santa Ana River Basin as part of the Santa Ana River Basin Cooperative Agreement. The simulation included reclaimed water discharges to Temescal Wash and Santa Ana River.
- **Kern County Subbasin SGMA Water Budget Modeling, Kern County, California.** Mr. Maley led groundwater model development utilizing C2VSim to evaluate SGMA water budgets for groundwater and surface water. The model is based on DWR's integrated groundwater-surface California Central Valley Model (C2VSim) with updates to surface water deliveries, imported water, groundwater banking, and irrigation water demand updated with local data compiled for the Kern County Subbasin. Developed basin-wide water historical and future water budgets, including climate change scenarios, to evaluate groundwater sustainability with proposed SGMA management actions.
- **Antelope Valley Model Update, Antelope Valley Watermaster, Kern and Los Angeles Counties, California.** Todd Groundwater has been the Watermaster Engineer for the adjudicated Antelope Valley groundwater basin since 2017. As part of these responsibilities, Mr. Maley is leading a phased update of the existing USGS model to better represent hydrogeological and water use conditions in the Valley.
- **Bedford-Coldwater, Temescal and Elsinore Valley Groundwater Sustainability Plans, Riverside County, California.** Mr. Maley was the Lead Modeler for developing a MODFLOW model for three GSPs on adjacent groundwater basins. The modeling analysis evaluated groundwater-surface water interactions along Temescal Wash and multiple smaller streams. The Subbasin included several areas with active and inactive gravel quarries that affected groundwater-surface water interactions. The model results were used to evaluate water budgets, groundwater sustainability criteria and SGMA management actions.
- **Palms Recharge Project EIR, Buena Vista Water Storage District, California.** Mr. Maley is the lead hydrogeologist and groundwater modeler to evaluate groundwater impacts to support the CEQA compliance for a proposed groundwater banking project. He has applied a MODFLOW superposition model to assess the potential extent and magnitude of mounding and drawdown associated with recharge and recovery operations for the Palms Project. The technical report includes an assessment of potential impacts to neighboring operations as well as overall groundwater conditions in the basin.

## Database management

Jon Turner of ddms has provided groundwater data management and Project Portal hosting for Gearhart since 2014. ddms currently works to support SoundEarth and Hyatt GeoSciences to import, store and submit electronic data to OWRD. In brief, his experience includes:

- Project Portal is a cloud-based SaaS offering developed by ddms to optimize data distribution, data analysis and information management across a secure platform. Project Portal is used to support Gearhart environmental data management, organization, continuous data hosting and sharing. The Environmental Database Module allows users to access, view and analyze analytical and field-measured environmental data. Project Portal provides users with a query interface which allows them to refine their data by sample location, parameter, date and medium. Users can then view and further analyze their results in a dynamic online results table. Users may graph, map (through the use of the Map Module) or export the data directly into one of many formats for use outside the system.
- The current Gearhart groundwater database contains manual and continuous groundwater levels from Production and Monitoring wells; continuous surface water levels from Neacoxie Creek; continuous groundwater measurements for specific conductivity, temperature, resistivity, salinity, total dissolved solids (TDS); periodic laboratory results for TDS and chloride; monthly precipitation; monthly production well water volumes extracted; and monthly Warrenton imported water consumption volumes.
- ddms has extensive experience managing and supporting water resource projects, not only through our Project Portal system, but also through custom data streaming workflows; Geographical Information Systems (GIS) and mapping; time-series graphing; statistical analysis and water chemistry data review.
- Provided technical support to create an analysis tool for groundwater banking study for a major water district in Central Valley, California. Data entry staff converted driller well logs to digital format (locations were plotted using Google Earth) to be imported to a Geographic Environmental Management System (GEMS) database and ESRI geodatabase. Converted lithology data to a binary texture classification (fine vs. coarse) based on the USGS Central Valley Hydrologic Model's (CVHM) texture classification schema. Subsequently merged the data with CVHM data from the study area and imported to a Mining Visualization System/Environmental Visualization System (MVS/EVS) for 3D visualization and analysis. Project documents and online GIS were made available via the secure web sharing application "Project Portal".
- Served as data coordinator for expert witness testimony on a Central Valley, California groundwater litigation case. Coordinated the compilation of environmental and hydrogeologic data from municipal, industrial and domestic wells into the project database and GIS. Driller lithology logs and well construction data were converted to digital format. Assisted in development of binary texture classification (fine vs. coarse) based on the USGS CVHM texture classification system. Data exported for data analysis in MVS/EVS, ArcGIS, MODFLOW, and other software. Created numerous cross-sections, maps, graphs, and tables for expert witness report. Project documents and online environmental database were made available to the greater project team via Project Portal.



## **SCHEDULE AND AVAILABILITY**

Assuming approval of this project, we can complete the proposed scope of work and submit the project to OWRD for consideration by July 31, 2024. Work on the model update and draft Water Use Permit Application is planned to be conducted during May through July 2024. A draft report will be provided to the City for review and comment in early July 2024. The final report is anticipated to be completed by July 31, 2024.

## REFERENCES

Our Project Team is pleased to provide three (3) references from public clients for whom similar services have been performed within the last 5 years.



**City of Gearhart:** Hyatt Geoscience, LLC has been involved with the City's water supply project since its inception in 2006. He designed the existing Gearhart wellfield, was involved with procuring the City's existing water right permit and has provided continued technical support in helping Gearhart comply with the Permit.

**Contact: Mark McFadden – Public Works Director**

698 Pacific Way

Gearhart, OR

Phone: (503) 738-5501

Email: [publicworks@ci.gearhart.or.us](mailto:publicworks@ci.gearhart.or.us)



**Camp Rilea Armed Forces Training Center:** Chris Hyatt worked with the Oregon Military Dept. to assess the water supply potential of the Clatsop Plains Aquifer beneath the Camp Rilea military facility. For his role in this project, he evaluated the feasibility of the military developing an independent water supply utilizing the aquifer, assessed land-use practices and potential well field locations, and determined the yield and water supply capacity of the underlying Clatsop Plains Aquifer.

**Contact: Jim Arnold – Environmental Branch Chief**

33168 Patriot Way

Warrenton, Oregon 97146

Phone: (503) 836-4052



**Mendocino City Community Services District:** Mike Maley has been the district hydrologist since 2004. He developed the MODFLOW groundwater model used to define perennial yield and groundwater management options for the Headlands Aquifer. He used the model to define criteria based on rainfall and water levels for the Drought Contingency Plan for four stages of drought emergency. He has served as technical expert to support the District during a lawsuit by developing a technical report and coordinating with legal counsel.

**Contact: Ryan Rhoades – District Superintendent**

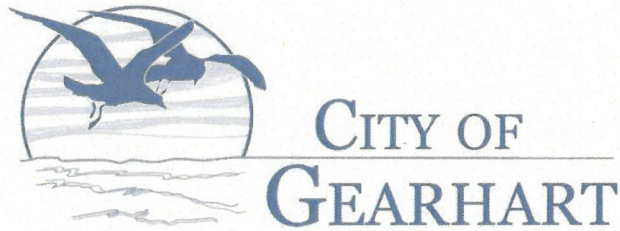
P. O. Box 1029

Mendocino CA 95460

Phone: (707) 937-5790

Email: [mccsd@mcn.org](mailto:mccsd@mcn.org)





## Request for Proposal (RFP)

Issued March 8th, 2024

### Groundwater Modeling Services

#### Proposal Requested

The City of Gearhart, Oregon (“City”) is seeking proposals from qualified individuals or firms (“Applicant”) to develop a groundwater flow model to assist in the assessment of potential increased pumping at the Gearhart municipal wellfield currently operating under Oregon Water Resource Department (OWRD) Permit G-16390 to Appropriate Public Waters (hereinafter the “Permit”).

The primary objectives of the requested scope of services are to support the City’s request for an additional water right and to evaluate a range of potential wellfield pumping scenarios, specifically to assess potential impacts of wellfield operations on the following:

- Groundwater interactions with Neacoxie Creek,
- Groundwater interactions with the Pacific Ocean, and
- Influence of seasonal variations of groundwater, creek levels, and pumping.

All proposals should be sent, and all questions and correspondence should be directed to the City Hall, Mark McFadden, [publicworks@cityofgearhart.com](mailto:publicworks@cityofgearhart.com), (503) 738-5501 at 698 Pacific Way, PO Box 2510, Gearhart, Oregon. Proposals must be signed by an authorized representative of the company.

The City intends to retain the services of the Applicant evaluated to be the best qualified to perform the work for the City, based on the Applicant’s experience, compatibility, cost and other performance criteria factors. In order to ensure a fair review and selection process, Applicants submitting proposals are specifically requested not to make other contact with City staff or Council members regarding their proposal.

Proposals will be accepted up to the hour of 3:00 pm local time on March 27th 2024, at City Hall, 698 Pacific Way, PO Box 2510, Gearhart, Oregon 97138.

#### Estimated Timelines

This schedule is subject to change. The City does not have an obligation to conduct interviews for this RFP process; however, should staff determine there is a need, Applicants will be notified on the date

noted below. The City will not be legally obligated to adhere to the dates for the interviews, recommendations, and award.

Posting of RFP	March 8, 2024
Deadline for clarifications/questions/changes to RFP	March 15, 2024
Deadline for Protests of RFP	March 22, 2024
Proposal Due	March 27, 2024 by 3:00PM
Evaluation of Proposals Complete	March 28, 2024
Invitation to Proposers for Interview & Presentation (if necessary)	March 29, 2024
Interview & Presentation Meetings (if necessary)	April 1, 2024
Evaluation of Interview & Presentation Complete	April 2, 2024
City Council Approval	April 3, 2024
Posting Notice of Intent to Award	April 5, 2024
Deadline for Protests of Award	April 12, 2024
Commencement of Personal Services Agreement	April 14, 2024

### Project Background

Gearhart utilizes groundwater and wholesale water purchased from the City of Warrenton as a supplemental source to meet seasonal high water demands. The City began appropriating water under Permit G-16390 in July 2012. Water is appropriated via eight water supply production wells. Six monitoring wells are used for measuring groundwater quality and/or groundwater elevations. A surface water gauging station in Neacoxie Creek, located east of the wellfield, is used to monitor stream stage and several water quality parameters.

The City obtained the Permit in November 2008, allowing the City to appropriate groundwater for municipal use. The Permit allows the City to appropriate a maximum flow rate of 2.18 cubic feet per second (cfs) or approximately 42.3 million gallons per month (MGM) from November through June each year. However, maximum allowable pumping rates are reduced to between 0.289 cfs (5.8 MGM) and 0.485 cfs (9.7 MGM) from July through October.

The City's goal of obtaining additional water supply is based on necessity, economics, and independence. The current water right permit allows for sufficient flow to meet current City water demands from January through June each year. However, the Permit curtails the flow rate allowed for the months of July through October each year when population and demand are at their peak. This seasonal limitation of flow results in the City needing to purchase treated water from the City of Warrenton.

The City imports between 25 and 35 million gallons of treated water from the City of Warrenton every year. The City would enjoy the cost benefits of having its own independent water source during the summer months when water demands are highest.

In addition, the City has experienced an unexpected growth in the residential population over the past several years which has put added stress on the City's water system. The increase in population, along with future planned residential developments has led the City to realize that additional capacity will be required to meet future water demands.

The City has been in discussions with OWRD regarding the seasonal water limitations and the available options for acquiring additional water capacity. OWRD has indicated that supplementary capacity may be provided thru an additional water right, however, a detailed groundwater flow model providing



quantified estimates of key groundwater budget parameters (interactions with Neacoxie Creek and the Pacific Ocean, etc.) should be included to support the water right application package.

### Scope of Work

A MODFLOW groundwater flow model was previously developed for the Gearhart area to assist in the assessment of potential impacts from pumping at the then-proposed Gearhart wellfield. The model was used to evaluate a range of potential wellfield pumping scenarios, specifically to assess potential impacts of wellfield operation on the following:

- Groundwater interactions with Neacoxie Creek,
- Groundwater interactions with the Pacific Ocean, and
- Influence of seasonal variations of groundwater, creek levels, and pumping.

The primary objective of this revised groundwater flow model is to assess potential detrimental impacts such as seawater intrusion from proposed increased pumping rates of the established wellfield. The increased pumping rates are anticipated to be confined to the period of July through October each year, however, may be expanded to include increased annual demands based on projected population growth.

The scope of work includes updating the existing MODFLOW model or developing a new model with new data collected as required by the Permit. The base-model input parameters will be adjusted to reflect updated groundwater and surface water monitoring data. The revised model will utilize updated monitoring data including groundwater production and demand data, groundwater elevation data, surface water elevation data, and groundwater quality data to validate and improve model calibration.

The revised MODFLOW model may also be used to evaluate up to 6 operational scenarios for the Gearhart wellfield. These scenarios will be defined based on discussions with the City of Gearhart staff and OWRD. Potential scenarios may include evaluations of operational contingencies, climatic variations such as an extended drought, projected population growth, or for evaluating long-term monitoring goals. The model scenarios results will be used to develop operation plans for maximum pumping rates, distribution of pumping and monitoring targets for varying conditions.

The MODFLOW model update and the model scenarios results will be summarized in a concise technical memorandum that outlines the conditions that were evaluated and provide recommendations on how these results may be used for making operational decisions.

The Applicant will provide technical support to the City with assessing the water supply availability and data requirements for a new OWRD water right. The Applicant will participate in meetings with OWRD and present model results, and address OWRD comments and revisions. Some scope parameters may need to be clarified and refined as work proceed and/or additional data becomes available.

It shall also be known that the Gearhart City Council requires the project be submitted to OWRD for consideration by July 31<sup>st</sup>, 2024.

### Proposal Content

The proposal should clearly address the following:

- Approach and Project Understanding – The proposal shall be of such scope and depth to sufficiently demonstrate the Applicant’s understanding and approach to the project. The proposal shall demonstrate the experience level and expertise of the firm for similar projects.

- Cost of Services – Provide estimated costs, schedule, and demonstrated understanding of the purpose, nature, and requirements of the project.
- Experience and Reputation in the field – Provide a brief description of the Applicant’s qualifications and experience of the project team key personnel.
- Schedule and Availability – Provide a description of the resource capacity and availability of the Applicant and appropriate staff to complete the scope of work within the general timeframe and budget.
- References – Provide at least three (3) references from public clients for whom similar services have been performed within the last 5 years.

### Submission Requirements

Proposals must be received by the City no later than **3:00 pm local time on March 27, 2024**, via email, regular mail, or hand delivery. Proposals received by facsimile will not be accepted. Late proposals may not be considered; it is the City’s sole discretion to accept or reject a late proposal. It is the Applicant’s responsibility to ensure that the Proposals are received prior to the stated submission deadline.

EMAIL: Proposals by email should be sent to Executive Assistant Krysti Ficker at [krysti@cityofgearhart.com](mailto:krysti@cityofgearhart.com). Proposals will be considered time-stamped and received by the City when they are received in the email inbox listed above. Please mark the email subject line as follows: **“RFP Groundwater Modeling Services.”** Applicants must include their name, address and contact information in the body of the email. Electronic proposal attachments shall be formatted using Adobe Acrobat (pdf), Microsoft Word (docx), or Microsoft Excel (xlsx).

REGULAR MAIL: Applicants must submit one (1) signed copy and two (2) copies of their Proposal. The proposal should clearly be labeled **“RFP Groundwater Modeling Services.”** Proposals should be addressed to:

City of Gearhart  
RFP Building Official Services  
PO Box 2510  
Gearhart, OR 97138

HAND DELIVERY: Applicants must submit one (1) signed copy and two (2) copies of their Proposal. The proposal should clearly be labeled **“RFP Groundwater Modeling Services.”** Proposals should be addressed to:

City of Gearhart  
RFP Building Official Services  
698 Pacific Way  
Gearhart, OR 97138

Proposals must provide all requested information and must be in conformance with the instructions. The City reserves the right to reject any or all proposals.

### General



The City will consider proposals only from Applicants that, in the City's sole judgment, have demonstrated the capability and willingness to provide high-quality services to the public of the City in the manner described in this RFP.

### **Evaluation and Scoring Criteria**

Proposals will be evaluated by the City on the basis of what is most advantageous for the City. The evaluation will consider:

- Approach and Project Understanding (20%)
- Cost of Services (20%)
- Experience and Reputation in the Field (20%)
- Schedule and Availability (20%)
- References (20%)

### **Selection of Qualified Applicant**

Each proposal must satisfy the objectives and requirements detailed in this RFP. The City will select the most advantageous proposal based on all the evaluation factors set forth in this RFP. The City will make the award that is in the best interest of the City. Successful respondents shall be determined by an evaluation of the total content of the proposal submitted. The City reserves the right to:

1. Cancel the procurement or reject any or all proposals in accordance with ORS 279B.100,
2. Award a contract for the requested services,
3. Request additional information from those making a proposal,
4. Request personal interviews.

Every proposal submitted should be valid for a minimum of 90 days after the RFP submittal deadline.

### **Method of Reward**

The City reserves the right to award this project to the Applicant that demonstrates the best ability to fulfill the requirements of the contract. The successful Applicant will be chosen based on the selection criteria described above.

The City intends to award the selected Applicant with a contract for a period of 6 months. However, the City retains the right to extend the length and terms of the contract for an extended period based on the discretion and best interest of the City.

The Applicant selected will be given the first right to negotiate an agreement acceptable to the City. In the event that an agreement satisfactory to the City cannot be reached, the City may enter into negotiations with one or more of the remaining Applicants who submitted a proposal. The successful Applicant shall commence work only after execution of an acceptable agreement and the City's approval. The successful Applicant will perform services indicated in the RFPs in compliance with the negotiated Agreement.

### **City Rights**

The City reserves the right to reject all or portions of any or all proposal, to waive irregularities and technicalities, to re-advertise, or to proceed to provide the services otherwise, in the best interest of the City. The City may, at its sole discretion, modify or amend any and all provisions herein. The City will not

pay for any information herein requested, nor is it liable for any costs incurred by the participating Applicant.

The City reserves the right to extend the proposal submittal date if needed. All changes and/or clarifications will be distributed to all Applicants indicating interest in the form of addenda.

### **Inquiries**

Any questions related to this request must be directed to the City, Attention: Krysti Ficker, Executive Assistant, [krysti@cityofgearhart.com](mailto:krysti@cityofgearhart.com). Inquiries must be made in writing and submitted no later than March 15, 2024. Questions answered verbally will be followed up by written addenda as deemed necessary; oral interpretations shall have no effect.