

TECHNICAL MEMORANDUM

To: Jolynn Becker, City Manager
City of Banks, Oregon

From: Robert Long, *RG, LHG, CWRE*
Ian Godwin, *GIT*

Date: May 19, 2022

Subject: Water Supply Development Phase 1: Tasks 1-6 Summary Update for April 2022

EXECUTIVE SUMMARY

This document provides as summary of the tasks completed and results of the City of Banks water supply planning project Water Supply Development Phase 1 (Project). This project included six tasks:

- TASK 1. WATER MANAGEMENT AND CONSERVATION PLAN
- TASK 2. GROUNDWATER CLAIMS OF BENEFICIAL USE FOR WELLS 1 & 2
- TASK 3. WESTSIDE WATER DEVELOPMENT
- TASK 4. UPPER VALLEY WATER RIGHT AVAILABILITY
- TASK 5. NEW GROUNDWATER SUPPLY LOCATIONS
- TASK 6. WATER NEGOTIATIONS WITH OTHER ENTITIES

This document is organized by task with a description of each task and the deliverables provided for each task. This project was made possible by federal funding and required the following statement:

Preparation of this document was funded by the Federal Safe Drinking Water Revolving Loan Fund through Business Oregon

TASK 1. WATER MANAGEMENT AND CONSERVATION PLAN

This task updated the City's Water Management and Conservation Plan (WMCP) from 2010 to 2020 (including a five year analysis at the 2015 benchmark) as required by the Final Order issued at the approval of the City's previous WMCP (August 9, 2010). Additionally, this new and updated WMCP presented the City's water resources management plan for the next 20 years (to 2040), keeping it in compliance with Administrative Rules Chapter 690 Division 86.

Key Deliverables:

-Required 10-year update to the Water Management and Conservation Plan (**COMPLETED**)

Deadlines and Completion Dates:

-Update to the Water Management and Conservation Plan: **Was Due August 9, 2020**

-CwM submitted the draft WMCP to the OWRD: August 9, 2020

-CwM submitted the WMCP revisions to OWRD: April 2, 2021

-Delivery of Final WMCP to City Council: June 1, 2021

-WMCP Final Order was issued by OWRD: June 14, 2021

Summary:

A draft updated WMCP was submitted to OWRD on August 9, 2020. After reviewing the document, OWRD provided comments and suggested revisions. CwM addressed the OWRD's comments and resubmitted the document to Kerri Cope at OWRD on April 2, 2021. Kerri returned the document and requested an update to the information regarding the Gould residence metering. CwM resubmitted the WMCP after addressing the final comments and the report was approved by the OWRD in June. The Final Order was issued on June 14, 2021, completing this task.

TASK 2. GROUNDWATER CLAIMS OF BENEFICIAL USE FOR WELLS 1 & 2

This task originally involved the completion and submittal of Claims of Beneficial Use (CBU) applications for Wells 1 and Well 2, or Permits G-7593 and G-16312, respectively. Completing the CBUs required conducting and approving a pump test or filing a multiple-well pump test exemption form for each well as required by permit conditions and in accordance with OWRD specifications. The Task also included the transfer of the Quail Valley Well onto the certificated Well 2 water right once the CBU was complete. The City's goals changed during the duration of the project, as explained below.

Key Deliverables:

- Pump Test Approval for Wells 1 and 2 (**COMPLETED**)
- Claim of Beneficial Use for Well 1 (**Claim of Beneficial Use Survey and Report were completed and submitted to OWRD. Following agency review, OWRD required that both Well 1 and Well 2 be required to pump at the same time. This was due the interconnection of aquifers and the construction of the well. Banks chose to with**
- Claim of Beneficial Use for Well 2 (**COMPLETED**)
- Quail Valley Transfer Application (**GOAL CHANGED**)- **This application has been prepared, but the City requires guarantees from the land owner for set-backs, rights of way, and ownership that have not yet been agreed on.**

Deadlines and Completion Dates:

-Deadline for Well 1 CBU / pump test approval: **Due October 1, 2027** (completion date of permit)

- Well 1 CBU application prepared: July 2020
- Pump test exemption form was received by OWRD: March 29, 2021
- Pump test exemption form was approved by OWRD: February 8, 2022
- A CBU application was submitted to OWRD: September 13, 2021
- *The City has withdrawn the CBU because of a change of strategy (see below)*
- Deadline for Well 2 CBU / pump test approval: **Due April 24, 2028 (completion date of permit)**
- Pump test form received by OWRD: June 6, 2019
- Pump test was approved by OWRD: **June 2019**
- Well 2 CBU application provided to City: December 2020
- Well 2 CBU received by OWRD: April 2, 2021
- The Well 2 CBU was approved and Cert. 95849 was issued: August 6, 2021
- Deadline for Quail Valley transfer application:
 - Quail Valley Transfer provided to City: December 2020
 - *The transfer application will no longer be submitted. After communication with OWRD, the City has determined that Well 2 must be modified to isolate only one water-bearing zone before additional wells can be added to the water right. The ownership of the well and rights of way for conveyance are also in negotiations as different developers review the site and frame their proposals to the City*

Summary:

The City of Banks held two water right permits, G-7593 and G-16312 (Wells 1 and 2, respectively) that need to be certificated by the OWRD to be complete. OWRD requires a pump test on each well as part of that process. The two wells are only approximately 67' apart from one another, and due to their proximity, have similar hydraulic characteristics. Since there is a high potential for interference effects, a pump test on Well 1 requires Well 2 to remain off and vice versa, which is not feasible given typical operations of the wells.

A 47-hour 465 gallon per minute (gpm) constant-rate pump test was performed on Well 2 (WASH 62373) in Spring of 2009. The results of this pump test on are on file with OWRD (posted to the OWRD web site on 6/6/2019). However, in lieu of idling Well 2 for a pump test on Well 1, the results of Well 2's pump test were respectfully submitted to OWRD as having very similar hydraulic characteristics and performance as Well 1. The exemption application was received on March 29, 2021 and was approved in June 2021.

A Claim of Beneficial Use Application for Well 2 was also completed July 2020 and submitted to counsel for review. The application was submitted to the OWRD in April 2021 along with the approved pump test form. OWRD approved the CBU and issued Certificate 95849 for 1.0 cfs from Well 2.

Changed Goals:

A Claim of Beneficial Use Application for Well 1 was completed July 2020 and submitted to counsel for review. Counsel recommended that the City hold off on submitting the application to OWRD

because in order to claim the full 0.67 cfs rate, the City had to first file an updated WMCP by January 2021. After the WMCP was approved in June 2021, the City submitted the CBU application for the full 0.67 cfs on Permit G-7593. The OWRD reviewed the application and requested that evidence that the full rate had been produced by Well 1 over at least a 4-hour period in order to certificate the right. The OWRD also expressed concerns over Well 1 and Well 2 being able to pump at the full permit rates simultaneously given their proximity and hydraulic connectivity.

The City does not have hourly pumping data for the well and was unable to meet these data and operational requirements at this time. Based on conversations between the City, Kennedy-Jenks, and OWRD, the decision was made to delay the CBU until additional shallow basalt wells could be added to the permit or the well could be modified. With multiple wells capable of operating at once, the 4-hour requirement for the full rate would be readily obtainable during Well 2 operations.

An application for a Permanent Water Right Transfer through an additional point of appropriation from the QVW to Well 2 was completed in December 2020. The original intent was to add the Quail Valley Well to the Well 2 water right once certificated so that the wells could share production capacity. After communications with the OWRD, it was determined that the transfer would likely not be approved due to both wells being open to both the shallow and deep basalt water-bearing zones. The current plan involves the eventual modification of Well 2 to isolate the deep basalts, after which additional points of appropriation can be transferred to the certificate. The Quail Valley transfer application will not be submitted.

TASK 3. WESTSIDE WATER DEVELOPMENT

The City has an opportunity to work with property owners to acquire irrigation season surface water rights and land for a new treatment plant on West Dairy Creek. CwM is assisting the City with developing goals, strategy, and supporting negotiations for water rights and property for water treatment plant facilities. The goals of this task were to identify locations for developing a surface water diversion and treatment plan and to acquire up to 1.0 cfs (449 gpm) of water rights for a year-round water diversion from West Dairy Creek.

Key Deliverables:

- CwM Conceptual Site Map (**COMPLETED**)
- CwM Technical Memo on Water Quality Assessment (*nearly completed*)
- West Fork Dairy Creek Surface Water Application (**COMPLETED**)

Deadlines and Completion Dates:

-Conceptual Site Map:

-Site Map provided to City: November 2019

-Water Quality Tech Memo:

-Technical Memorandum completed: March 2021

-Application for West Fork Dairy Creek Water Right:

- Application submitted: January 2021
- OWRD Initial Review: March 26, 2021
- Public Comment Period: ended April 29, 2021
- Form M resubmitted and accepted: April 22, 2021
- OWRD, DEQ, Watermaster, and ODFW reviews completed: May 24, 2021
- OWRD Proposed to Approve (no proposed final order yet): May 2021

Summary:

CwM and Kennedy-Jenks met with City Officials on November 21, 2019 to discuss options for the location of a new water treatment plant (WTP). To facilitate discussions, a large Conceptual Site Map, titled, “Banks WTP Location Feasibility Map” was created.

In order to characterize the water quality, and therefore the suitability of West Fork Dairy Creek as a potential water source for a new water treatment plant, water quality sampling was necessary. The West Fork of Dairy Creek sampling location was located below the NW Cedar Canyon Road crossing of Dairy Creek, approx. 300 ft downstream of the potential WTP diversion point. The first sampling event was completed on April 16, 2020 and samples were taken to Alexin Analytical Labs for analysis. Results were received on May 21, 2020.

A water right application for winter surface water use from the West Fork of Dairy Creek was submitted to OWRD in January 2021. This application, assigned the application number S-88915, proposes the diversion of up to 2.0 cfs for municipal use at the proposed WTP location along NW Cedar Canyon Road. The water right as proposed would be active from December through April and would allow for recovery of the City’s groundwater resources (through replacement with treated surface water) and for an Aquifer Storage and Recovery (ASR) system to support peak-season demands. An initial review by the OWRD was completed on March 26, 2021 with a “proposed to approve” status contingent upon minor edits to the application, which were submitted in April 2021. The initial reviews by the OWRD, Watermaster, and ODFW were completed by May 2021, though the proposed final order for the issuance of a surface water permit has not yet been issued.

TASK 4. UPPER VALLEY WATER RIGHT AVAILABILITY

By 2019, the City had established a water supply development goal of 250 gpm (0.56 cfs) to 450 gpm (1.00 cfs). One of the options under consideration to meet the water development goal was to divert surface water from West Dairy Creek, just west of the City’s UGB. The acquisition of a new water right as described in Task 3 would only cover winter supply (December – April). Any new summer water supply (May – November) must come from existing irrigation water rights on the West Fork of Dairy Creek. The goal of the City’s Water Supply Development Phase I Task 4–Upper Valley Water Right Availability was to assess existing water rights on West Dairy Creek, upstream of the proposed water treatment plant west of the City (see Task 3).

The purpose of this task was to investigate the number and volume of water rights located upstream of the City along West Fork Dairy Creek to assess transaction opportunities and estimate costs. Currently, West Dairy Creek has no available water to support an additional water diversion from May to November.

Key Deliverables:

- Upper Valley Water Right Memo **(COMPLETED)**
 - o Attachment 1 - *Priority Water Rights with Highest Authorization Rate* **(COMPLETED)**
 - o Attachment 2 - *Upstream West Dairy Creek Water Right Usage* **(COMPLETED)**
 - o Attachment 3 - *Summary of Recent Real Estate Transactions Including Water Rights in the Greater Banks Area* **(COMPLETED)**

Deadlines and Completion Dates:

-Upper Valley Water Rights Tech Memo provided to the City: **July 30, 2019**

Summary:

The Oregon Water Resources Department (OWRD) website was used to search for irrigation water rights upstream of the City of Banks. Over 150 water rights were identified. After going through the list of remaining active water rights, CwM prioritized this list to assess 74 water rights with the potential to meet the City's 1.0 cfs mitigation demand. This list was further narrowed down to the evaluation of 13 water rights which carry the highest water use by rate and duty, such that two or three of these water rights, if acquired, could meet the City's goal for a new supply of mitigation.

TASK 5. NEW GROUNDWATER SUPPLY LOCATIONS

The purpose of this task was to identify potential drilling locations and develop a conceptual plan for installation of new groundwater sources.

Key Deliverables:

- CwM Memo outlining agenda and goals for meeting with OWRD on Water Supply Development Options **(COMPLETED)**
 - o Meeting with OWRD, Salem, OR, July 22, 2019 **(COMPLETED)**
 - o OWRD Technical Memo: Groundwater Assessment of Banks Area, Tualatin Valley, Oregon. Prepared by: J. Woody and J. Iverson, October 15, 2019
- Technical Memo – CwM Groundwater Supply Development **(COMPLETED)**
- CwM Presentation, "Quail Valley Well Investigation Aquifer Testing Results" **(COMPLETED)**
- Conceptual Well Design **(COMPLETED)**
- Shallow Well Application Pkg **(GOAL CHANGED)**
- Deep Well Application Pkg **(GOAL CHANGED)**
- CwM Presentation, "The City of Banks Water Resources: History and Future" **(COMPLETED)**

Deadlines and Completion Dates:

- CwM Tech Memo and Meeting with OWRD provided to the City for meeting on **July 22, 2019**
- New Groundwater Supply Locations Tech Memo provided to the City: **May 20, 2020**
- Quail Valley Aquifer Testing Presentation Presented to the City: **January 12, 2021**
- Applications for New Deep and Shallow Wells:
 - *Application packages were provided to the city on October 5, 2020. However, due to changes to the strategies for developing and certificating the Well 1 and Well 2 water rights, these applications were not submitted. Similar applications will eventually be submitted to add points of appropriation to Well 1 and Well 2, though these must be altered from the applications provided under this task.*
- History of Banks Water Resources Presentation Presented to the City: **March 2, 2021**

Summary:

The goal of Task 5 was to identify three potential drilling locations and develop a conceptual site plan for the installation of two to three new groundwater sources. The identified locations were then to be investigated for future permanent real estate transactions, long-term lease agreements, and/or purchase of options to develop the sites within a 20-year window. The Tech Memo delivered in May 2020 outlined the process of identifying these sites. After the OWRD's initial review of the updated WMCP, it became clear that obtaining a new groundwater right would not be possible before reducing water loss in the Banks distribution system and optimizing use under the existing water rights. The focus was then placed on identifying locations for a new well that could be transferred onto the existing Well 1 water right, and on transferring the Quail Valley Well onto the Well 2 water right to maximize production. These options were demonstrated in the CwM presentations delivered in January and March of 2021.

As described under Task 2, the City's approach to developing and certificating the Well 1 and Well 2 water rights changed after a CBU application for Well 1 was reviewed by the OWRD. It has become clear that the construction of Well 2 and the hydraulic connection between the two wells is problematic for the further development of the rights. The Well 1 permit cannot be certificated until other wells are added to the permit and can share development of the 0.67 cfs while Well 2 is operating. Well 2 must be modified to isolate the lower basalt zone before additional wells can be added to that certificate. Until these processes are underway, the applications to add additional points of appropriation will be held. Changes to the proposed well locations and designs must be made before the applications can be resubmitted as a later date.

TASK 6. WATER NEGOTIATIONS WITH OTHER ENTITIES

This task provides a budget of 65 hours to coordinate with other water providers in the Tualatin Basin, such as the Tualatin Valley Water District (TVWD), the Joint Water Commission (JWC), nearby cities, and others. Legal representation is also considered.

Key Deliverables:

- CwM Letter of Intent to the Joint Water Commission expressing the City's interest in entering into negotiation as a wholesale water customer **(COMPLETED)**
 - o Staff Report from the Joint Water Commission, October 9, 2020, recommending Board approval of potential JWC Wholesale Agreement and capacity offer to the City of Banks
- Contacted Tualatin Valley Irrigation District (TVID) **(COMPLETED)**

Deadlines and Completion Dates:

-CwM Letter of Intent to JWC sent on behalf of City: **March 27, 2020**

-Initiated Communications with TVID: **Spring 2021**

Summary:

The goal of Task 5 was to provide support the City Council, Mayor, and City Manager in meetings and in negotiations with other Tualatin Basin water providers including: Tualatin Valley Water District, Joint Water Commission, and other Cities. Communication with the JWC and with TVID regarding the existing pipeline connection with Quail Valley Golf Course have been initiated since 2021. The City worked with Bob Long of CwM and Rob Peacock to draft a response to the JWC regarding the possibility of a water supply contract.