Oregon
Kate Brown, Governor

Water Resources Department
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MEMORANDUM

TO: Water Resources Commission

FROM: Thomas M. Byler, Director

SUBJECT: Agenda Item F, June 24, 2020
Water Resources Commission Meeting

Feasibility Study Grants: Funding Recommendations and Awards

I. Introduction

The Feasibility Study Grants (Water Conservation, Reuse and Storage Grant Program) funds studies to evaluate the feasibility of water conservation, reuse, and storage projects. This report describes the Application Review Team's evaluations, public comments received, responses to those comments, and Department recommendations for funding. The Commission will be asked to award funding.

II. Background

The Feasibility Study Grants funding opportunity was established by Senate Bill 1069 in 2008 to fund the qualifying costs of studies that evaluate the feasibility of developing water conservation, reuse, or storage projects. Grants require a dollar-for-dollar match. A feasibility study evaluates a proposed project to determine *if* and *how* the project should proceed to implementation. These studies typically take one to three years to complete.

The Department offered three grant cycles in the 2015-2017 biennium and funded 29 studies for a total of approximately $2.1 million. Due to limited staff resources, the Department did not award funds in 2018. Therefore, only one funding cycle was presented for the 2017-2019 biennium and $446,773 in grant funding was awarded. The Department anticipates two grant cycles in the 2019-2021 biennium with $2,207,536[1] available to award.

Applications for the 2019-2020 cycle were due on November 15, 2019. The Department received nine complete applications requesting $1,455,069 in grant funds. Individual grant requests ranged from $10,000 to $385,875. Per statute, awards are capped at $500,000.

III. Grant Application Review Process

Applications are reviewed by an inter-agency Application Review Team (ART), which convened in February 2020 to evaluate the applications and provide funding recommendations

[1] An additional $422,467 of General Fund is available to award in the 2019-2021 biennium. Due to anticipated revenue shortfalls resulting from the economic impacts of COVID-19, the Department is anticipating that these funds may not be available to award; therefore they are not included in $2,207,536 listed.

to the Department. The ART consisted of representatives from the Oregon Departments of Agriculture, Environmental Quality, Fish and Wildlife, and State Lands, as well as Business Oregon, Oregon Health Authority, and Water Resources Department staff. See Attachment 1 for evaluations of each application.

Based on the ART evaluations, the Department does not recommend two proposed studies for funding at this time. The "Falcon Cove Beach Water District ASR Study" proposal does not show technical preparedness and readiness for funding, because it does not sufficiently address all tasks needed to achieve the identified study goals. The "Upper John Day Aquifer Management Feasibility Study" proposal may not be at the right scale for identifying future water projects and it was not clear how the information collected would be used in examining the feasibility of potential projects. The Department encourages these applicants to revise and resubmit.

The funding recommendations were posted on the agency website for a 30-day public comment period that closed on April 29, 2020. The Department received ten public comments on one grant application. See Attachment 2 for the public comments received. The Department received comments from those supporting and opposing the Falcon Cove Beach Water District ASR Feasibility Study. The Department reviewed the comments and determined that they did not provide information that addresses the review team's concerns regarding the likelihood of the study to achieve its goals.

Tribes were notified of the funding recommendation and also given the opportunity to provide comments for Commission consideration. No comments were received.

IV. 2019-2020 Grant Award Recommendations

Based on the ART recommendations, public comments, and Department review, the Department recommends seven of the nine applications for grant funding. If approved by the Commission, Department staff will work with the grant recipients to develop grant agreements. Table 1 lists the funding recommendations for the proposed studies.

Table 1. Funding Recommendation

Study Name / Applicant Name	Project Type	Funding Requested	Funding Recommendation
City of Umatilla Feasibility Study for Hydraulically Connected Wells / City of Umatilla	Conservation	$370,000	Recommend
Drewsey Reclamation Ditch: Can we pipe it? / Malheur Watershed Council	Conservation	$ 24,750	Recommend
Gordon Creek Aquifer Storage and Recovery Feasibility Study / Corbett Water District	Below-ground Storage	$284,300	Recommend
Harney Basin Groundwater Market Feasibility Study / The Nature Conservancy	Conservation	$ 41,168	Recommend

Pine Creek Reservoir Feasibility Study / Walla Walla Basin Watershed Council	Above-ground Storage	$105,976	Recommend
Stayton Aquifer Storage and Recovery Feasibility Study / City of Stayton	Below-ground Storage	$154,000	Recommend
Westland Irrigation District Water Conservation Study / Farmers Conservation Alliance	Conservation	$ 79,000	Recommend
Falcon Cove Beach Water District ASR Study / Falcon Cove Beach Water District	Below-ground Storage	$ 10,000	Not recommended at this time
Upper John Day Aquifer Management Feasibility Study / Grant Soil and Water Conservation District	Below-ground Storage	$385,875	Not recommended at this time
	TOTAL REQUESTED	**$1,455,069**	

V. Summary

If approved, these funding recommendations will result in grant awards totaling $1,059,194. This would leave $1,148,342 available for future funding cycles.

VI. Alternatives

The Commission may consider the following alternatives:

1. Adopt the staff funding recommendations contained in Table 1, Section IV of this report.
2. Adopt modified funding recommendations.
3. Direct the Department to further evaluate the applications and return with a revised funding proposal.

VII. Recommendation

The Director recommends Alternative 1, to adopt the staff funding recommendations contained in Table 1, Section IV of this report.

Attachments:

1. Study Evaluation Summaries
2. Public Comments Received on Applications

Kim Fritz-Ogren
503-986-0873

Becky Williams
503-986-0869

OREGON WATER RESOURCES DEPARTMENT

Feasibility Grant Applications

Evaluation Summaries – 2019-2020 Cycle

Background

Feasibility Study Grants provide funding for qualifying costs of project planning studies that evaluate the feasibility of developing a water conservation, reuse, or storage project. A feasibility study is an evaluation of a proposed project or plan and can be used to determine *if* and *how* a project should proceed to the implementation phase. This funding opportunity will cover up to 50% of the study cost.

Document Description

The following are evaluations summaries for complete grant applications received by the November 13, 2019 deadline for the current Feasibility Study Grant funding cycle. The evaluation summaries include a project summary, feedback from the Application Review Team (ART), and the ART's funding recommendations.

Next Steps

Applications and the ART recommendations will be posted on the Department's website for a 30-day public comment period from March 25, 2020 to April 24, 2020. The Department will present funding recommendations and the comments received to the Water Resources Commission at its meeting tentatively scheduled for June 11-12, 2020. The funding recommendation will be based on the ART recommendations and public comments received. The Commission will make the final funding decisions.

More Information

Additional information about this funding opportunity is available at the Water Resources Development Program website. If you have questions please contact Grant Program Coordinator, Becky Williams, at 503.986.0869 or WRD_DL_feasibilitystudygrants@oregon.gov.

List of Applications Received

Study Name	Project Type	County	Funding Requested	Total Cost of Study[1]
City of Umatilla Feasibility Study for Hydraulically Connected Wells	Conservation	Umatilla	$370,000	$777,800
Drewsey Reclamation Ditch: Can we pipe it?	Conservation	Harney	$ 24,750	$ 57,060
Gordon Creek Aquifer Storage and Recovery Feasibility Study	Below-ground Storage	Multnomah	$ 284,300	$ 586,400
Harney Basin Groundwater Market Feasibility Study	Conservation	Harney	$41,168	$87,112
Pine Creek Reservoir Feasibility Study	Above-ground Storage	Umatilla	$105,976	$304,826
Stayton Aquifer Storage and Recovery Feasibility Study	Below-ground Storage	Marion	$154,000	$308,000
Westland Irrigation District Water Conservation Study	Conservation	Umatilla, Morrow	$79,000	$204,000
Falcon Cove Beach Water District ASR Study	Below-ground Storage	Clatsop	$10,000	$20,000
Upper John Day Aquifer Management Feasibility Study	Below-ground Storage	Grant	$385,875	$777,877
		Total	**$1,455,069**	**$3,123,075**

[1]Studies require at least a dollar-for-dollar cost match.

2019 Applications

City of Umatilla Feasibility Study for Hydraulically Connected Wells

Recommended for Funding

Study Information (adapted from application)

Applicant Name: City of Umatilla

County: Umatilla

Funding Requested: $370,000

Total Project Cost: $777,800

Study Summary: The proposed feasibility study is needed to confirm whether the completion of a new well hydraulically connnected to the Columbia River would supply the quality of water needed to conserve water. The City of Umatilla provides a supply of groundwater which industrial facilities currently use in non-contact cooling tower systems. Because the City's groundwater has a high silica content and salinity, the data centers can only recirculate such water back through their cooling systems a limited number of times before clogging occurs. To address this issue, the City conducted a Beneficial Reuse Feasibility Analysis which proposed developing a low-silica content source of water from the City's unused surface water right. The feasibility of this solution must be determined. Additional conservation opportunities may be identified based on information gained by conducting a potability determination under the Oregon Health Authority standards in a preliminary engineering feasibility study.

Evaluation Summary

The study aims to examine the potential to conserve water through identifying a source that can be used more efficiently than current water sources. Should the study determine that the water quality is lower in mineral content and accessible, the future project has the potential to benefit groundwater levels in a Critical Groundwater Area. Current groundwater conditions limit economic growth potential and this project could be a driver for further economic development. The study proposal included highly detailed task descriptions, a flexible timeline, and documentation of community support. The application properly identified potential permit issues that may impact later tasks and timelines. The review team commented that the technical work described in the application is comprehensively designed and is likely to help determine the eligibility for the surface water to groundwater transfer. The review team noted that the applicant proposes to consult with the Department as study findings become available which may inform water right processes.

The application would be improved by providing a clear estimation of potential conservation, and by further discussing the connections between the proposed work and the benefits for future and existing water users. The study could be improved by 1) exploring other methods for meeting the city's water needs, and 2) estimating conservation metrics.

Drewsey Reclamation Ditch: Can we pipe it?

Recommended for Funding

Study Information (adapted from application)

Applicant Name: Malheur Watershed Council

County: Harney

Funding Requested: $24,750

Total Project Cost: $57,060

Study Summary:
The purpose of the study is to determine the feasibility of piping all or part of the Drewsey Reclamation Ditch to stop ditch losses, which in turn would require less water to be diverted from the Malheur River. The water saved could be protected in-stream to benefit aquatic habitat, listed fish species, and water quality. The proposal seeks to hire an engineer to complete a survey to assess an alternate route, conduct a water-loss analysis, investigate water rights, and develop alternatives, cost estimates, and a 60% design from the selected alternatives.

Evaluation Summary

Determining which sections have high seepage losses in the Drewsey Reclamation Ditch would provide essential information to identify, and conduct project preparation actions, for those critical sections that would best conserve water for instream and out-of-stream needs. A strength of the proposal is that it supports the Malheur River Basin Agricultural Water Quality Management Area Plan, and is in an Oregon Department of Agriculture Strategic Implementation Area. The applicant plans to work with landowners to determine the legal feasibility of the project and to determine landowner participation. The review team noted that the level of landowner participation could impact the piping location and impact the effectiveness of the proposed piping project.

The application could be improved by providing additional detail on how ditch losses will be measured to identify the leakiest sections. The study could be improved by determining the impact of seepage loss reduction on the sub-irrigation of land below the ditch, and describing the interaction of the Drewsey Reclamation Ditch with parallel ditches.

Gordon Creek Aquifer Storage and Recovery Feasibility Study

Recommended for Funding

Study Information (adapted from application)

Applicant Name: Corbett Water District

County: Multnomah

Funding Requested: $284,300

Total Project Cost: $586,400

Study Summary: This proposed study would assess the feasibility of using Aquifer Storage and Recovery (ASR) to store water from Gordon Creek for use during the source-limited times of the year in support of municipal water supply for the Corbett Water District (CWD). The study would 1) design and construct an exploratory test well to evaluate the hydraulic properties of the aquifer and the geochemical compatibility between the surface water and the groundwater, and 2) assess the feasibility of the groundwater resource and an ASR well. The study would also provide the storage-specific study requirements as required for projects that divert water from a stream that supports sensitive, threatened or endangered species. Information from the study would guide the CWD with its decision on whether to proceed with utilizing groundwater to supplement the existing surface water supply because other water supply alternatives are not available.

Evaluation Summary

The study goal is to assess the feasibility of ASR to store and provide water for the CWD during source-limited seasons. The application described in detail conditions of the surface water source vulnerabilities, the current reservoir fill rate, treatment plant capacity, and other water source options considered by the water district. The study proposal was comprehensive, including technical planning and details signaling readiness to proceed. The feasibility study triggers the Storage Specific Study Requirements and the proposal provided an acceptable scope of work to meet the requirements. The application provided good examples of community support and involvement, as well as describing the State parks this system supplies with water. The review team noted that no new water source is needed to implement the proposal.

While the need for an alternate water source is clearly defined, the application would be strengthened with evidence for the urgency of the project. The study proposal would be improved by describing a plan to consult with the Oregon Health Authority requirements, as needed. The project would benefit from hydrologic assessments above and below the proposed project area as a potential project may impact the stream above and below the diversion. The applicant should be aware that an additional water right authorization is needed if they intend to use groundwater as an additional source of water supply.

Harney Basin Groundwater Market Feasibility Study

Recommended for Funding

Study Information (adapted from application)

Applicant Name: The Nature Conservancy

County: Harney

Funding Requested: $41,168

Total Project Cost: $87,112

Study Summary: The over-allocation of groundwater rights has led to significant aquifer declines in the Harney Basin, Oregon, resulting in economic, social, and ecological impacts. The goal of this Groundwater Market Feasibility Study is to develop the legal, logistical, and technological foundation necessary to develop and implement a market-based solution. A groundwater market in the Harney Basin would directly and equitably conserve water via a decreasing annual allocation of water shares. This market based strategy would provide year-to-year flexibility for water users while reducing overall water use in a transparent and predictable way. A well-designed groundwater market, based on this feasibility study, would increase economic resilience to drought and limit the economic, social, and ecological consequences of over allocation. This feasibility study was approved by consensus of the Harney Basin Community-Based Water Planning Collaborative, a diverse stakeholder group that includes ranchers, domestic well users, Burns-Paiute Tribal members, land managers, conservation nonprofits, and federal, state, and local government staff.

Evaluation Summary

The application proposes an innovative approach to seeking solutions to address the declining groundwater levels and water resource challenge in the Harney Basin. The proposal seeks to explore an existing concept, a water market, and determine if the approach is applicable in this location. The proposed timeline is aligned with the Department's intended rulemaking process to address groundwater declines. Support from the Harney Community Water Planning Collaborative indicates the consensus of a strong collaboration amongst diverse interests. The review team commented that the study objectives and deliverables were clearly described and well prepared.

Careful management of expectations may be important to evaluating findings and implementation of the approach. The application describes work to be done by the Department; while the Department is committed to partnering with the basin, a recommendation for funding does not indicate a commitment by the Department to the tasks as detailed in the application. The Department encourages the applicant and partners to work through the technical assistance request process available through Place-Based Water Planning.

Pine Creek Reservoir Feasibility Study

Recommended for Funding

Study Information (adapted from application)

Applicant Name: Walla Walla Basin Watershed Council

County: Umatilla

Funding Requested: $105,976

Total Project Cost: $304,826

Study Summary: The Pine Creek Reservoir storage feasibility study funding would include the following work needed to evaluate the feasibility of the reservoir site: 1) complete geotechnical investigations, 2) seismic analysis, 3) further analysis of Walla Walla River water availability, and 4) Pine Creek geomorphology, biology, and hydrology analyses necessary to complete the Oregon storage-specific study requirements. The goal is to determine if this Pine Creek Reservoir site in Umatilla County on an intermittent stream can store a portion of the abundant winter and early spring flows of both the Walla Walla River and Pine Creek in order to provide an alternative source of irrigation water to Walla Walla valley irrigation districts. The irrigation districts would then leave a corresponding amount of their existing irrigation water rights instream during late spring, summer, and the fall when limited Walla Walla River stream flows impact fish passage, rearing habitat, and water quality for federally protected Endangered Species Act listed steelhead and bull trout, and for chinook salmon reintroduced to the Walla Walla River by the Confederated Tribes of the Umatilla Indian Reservation. This Pine Creek Reservoir project has been identified as a priority project to be investigated by the ongoing Walla Walla Basin Integrated Flow Enhancement Study.

Evaluation Summary

The study proposal is likely to provide valuable information for determining if the potential project is the preferred option for the basin. The application clearly describes the instream water need, and the tasks describe methods for determining an alternate irrigation water source. Storage Specific Study Requirements apply and the proposed approach meets those requirements. The application is well written and thoroughly prepared, indicating readiness and technical preparedness. This feasibility study would build upon the Walla Walla Basin Integrated Flow Enhancement Study.

The study would be strengthened by determining the level of support from the local irrigation districts referenced as potential beneficiaries of the project. The study would also be strengthened by researching the required water rights acquisition and permitting processes. A future water right application would require a Division 33 review that could impact water availability and a pre-application conference with the Oregon Department of Fish and Wildlife is available. The review team commented that if the project moves to construction, the applicant will need to work with the Department of State Lands regarding a mitigation plan.

Stayton Aquifer Storage and Recovery Feasibility Study

Recommended for Funding

Study Information (adapted from application)

Applicant Name: City of Stayton

County: Marion

Funding Requested: $154,000

Total Project Cost: $308,000

Study Summary: The proposed study would evaluate the feasibility of an Aquifer Storage and Recovery (ASR) system to provide a redundant municipal drinking water source for the City of Stayton to meet seasonal peak demands and when the North Santiam surface supply is offline. The study would assess the Columbia River Basalt Group aquifer storage characteristics, provide a regulatory review, identify candidate sites, conduct hydraulic testing via an exploratory borehole, and develop preliminary system design. The study would result in a report detailing the evaluation and recommendation for the City of Stayton on whether to move forward with ASR.

Evaluation Summary

The application included a comprehensive list of tasks which were thoroughly explained and prepared, indicating a readiness to proceed and likelihood of achieving the study's goal. The water need and the capacity of City of Stayton's current treatment plant is well explained in the application, and the need for a redundant municipal drinking water source was identified in the City's 2006 Management Plan. Previous studies recommended investigating ASR as an option for redundancy. The proposal received support from local government interests. The proposed study triggered the Storage Specific Study Requirements and the minimum requirements were met in the application.

The review team commented that the volume of previous studies attached made it difficult to understand what was missing from previous efforts and required additional study. Additional detail on the service area, and need for an ASR beyond identification in City plans would have strengthened the application. The application would be strengthened by describing why other alternatives for supply redundancy were not available.

Westland Irrigation District Water Conservation Study

Recommended for Funding

Study Information (adapted from application)

Applicant Name: Farmers Conservation Alliance

County: Umatilla and Morrow

Funding Requested: $79,000

Total Project Cost: $204,000

Study Summary: The goal of the proposed feasibility study is to produce a comprehensive System Improvement Plan for Westland Irrigation District, which is located in Umatilla County. The study would identify and evaluate opportunities to modernize the District's infrastructure in a manner that benefits agriculture, the environment, and the community. The result of the study would be a comprehensive evaluation of improving the District's infrastructure with associated high-level engineering designs, cost estimates, projected water savings, and projected hydroelectric power generation and energy conservation potentials.

Evaluation Summary

The application clearly described the study goal to develop a system improvement plan and investigate potentials for water conservation and energy savings. Based on the increasingly limited water supply in Umatilla County, the need for conservation is clear. The study will look to address instream and out-of-stream needs. The description and detail of the study tasks provided in the application demonstrated that the study was well prepared and could successfully reach its goal. Letters of support from former Farmers Conservation Alliance cooperators provided documentation of similar work.

The application would be strengthened by 1) providing more detail on total diversion and instream water rights to quantify and provide context of the amount of water needed, 2) clarifying costs for work done outside of consulting costs, and 3) describing how seepage loses will be identified and quantified.

Falcon Cove Beach Water District ASR Study

Not Recommended for Funding at this time

Study Information (adapted from application)

Applicant Name: Falcon Cove Beach Water District

County: Clatsop

Funding Requested: $10,000

Total Project Cost: $20,000

Study Summary: Based on concern due to historically low water production from the primary water source – the North Spring, the Water District declared a moratorium on new water connections and seeks potential solutions. One alternative is to investigate Aquifer Storage and Recovery as a possible solution that could provide an opportunity to store water during the October through June when the North Spring has robust water production and store this water for use in the dry summer months.

Evaluation Summary

The application clearly describes that it is the goal of the proposed study to determine the feasibility of aquifer storage and recovery to meet the water need. While the goal of the feasibility study is clearly stated in the application, the study tasks do not contain a sufficient amount of technical preparedness and detail to demonstrate that the stated goal could be achieved by the proposed study. The amount of water needed for storage was unclear, and therefore, the review team was unable to determine if the existing water right could fulfill the need. The review team commented that additionally the size of the study scope appears insufficient to achieve the desired outcomes. The application would benefit from additional details, steps and explanation. An investigation into alternate sources of funding and solutions may assist the District in determining its next steps and examining alternatives.

Upper John Day Aquifer Management Feasibility Study

Not Recommended for Funding at this time

Study Information (adapted from application)

Applicant Name: Grant Soil and Water Conservation District

County: Grant

Funding Requested: $385,875

Total Project Cost: $777,877

Study Summary: The goal of this feasibility study is to assess and quantify the groundwater aquifer characteristics of the Upper Main stem John Day River Basin to support active infiltration of surface water at times of surplus to enhance seasonal stream flow discharge and supplement irrigation withdrawals. The study would apply an Airborne Electromagnetic Method survey to create a 3D hydrogeologic framework for the project area to supplement and correlate existing hydrogeologic and borehole data resources to forecast aquifer characteristics, groundwater flow paths, potential recharge areas, and calculate water storage capacity. Data findings would be presented at a public event and be made available through the Grant Soil and Water Conservation District and its website. The collected survey information would further provide a permanent geologic record of the assessment area to be available for other related evaluations.

Evaluation Summary

A study proposes an approach that represents both an innovative and appropriate method to address the questions the proposal seeks to answer. The application represents a collaborative work effort with the Bureau of Reclamation. While there is a need for groundwater information in this area, the review team was not certain that the work proposed in the study was the right scale for identifying future water development projects. There was some concern that the project would collect information but it was not clear how the information would be used in examining the feasibility of potential projects. The application could be improved by more clearly describing the work or steps needed to connect the resulting study information to future projects.

The review team recommend that the applicant engage other local interest groups such as the John Day Partnership, the Place Based Planning collaborative, or others to assist in concept development and future efforts.

Public Comments on Funding Recommendations

Feasibility Study Grants

2019-2020 Funding Cycle

Document Description

After the Application Review Team (ART) evaluated each application and made funding recommendations, the Department is required by rule to post a summary of applications for funding and the recommendations for public comment. The ART recommendations were published on the Department's website and distributed on the Water Resources Development Program's listserv for a 30-day written period which took place March 30 through April 29, 2020. The Department received comments from ten individuals and organizations regarding one application. Public comments on the 2020 ART funding recommendations are in the order and page number listed below. The Department carefully reviewed the comments to determine if new information was provided. The Department provides further discussion regarding the public comments in the Staff Report.

Contents

From: Joanne Cornelius
To: WRD_DL_feasibility study grants
Subject: Falcon Cove Beach Water District
Date: Monday, April 20, 2020 1:51:44 PM

Joanne K. Cornelius
44920 Tide Avenue
Arch Cape, OR 97102
jkcornelius@charter.net
April 20, 2020

To Whom it May Concern; Re: ASR Feasibility Study Falcon Cove Beach Domestic Water Supply District

This small district which has no paid employees, grant writers, water masters, and only 94 houses (which are second homes for most of the owners in the district) has operated for many years with those of us who live here permanently donating time to the district. Until the past few years, as home owners who have handed over their second homes to vacation rental companies as businesses (thus increasing water use) and obvious environmental changes, the board has had to search for more water.

It seems to me that the small amount of dollars requested from the state to help start a water storage study of whether or not it would even be feasible makes sense. Since there are no geologist, etc., on our board it would be necessary to hire professionals to advance this project and we in our budget are willing to finance that start.

I have spent 25 years serving on this board and am now serving on the budget committee. I served on the Tillamook Planning Commission for 8 years during the late 80's and early 90's. This is a rural community with locals living on a fixed income and yet the district has a need for planning for future unknowable growth and water need. It must remove the moratorium for building soon as several land owners are standing by.

Please reconsider your decision on this study.

From:	Charles Dice
To:	WRD_DL_feasibility study grants
Cc:	Charles Dice; Beth Radich
Subject:	Public Comment on Feasibility Grant Applications Evaluation Summaries - 2019-2020 Cycle
Date:	Tuesday, April 21, 2020 11:48:27 AM

Dear Madame/Sir,

The following are my Public Comments on the "funding not recommended" recommendation for the Falcon Cove Beach Water District Application for an ASR Feasibility Study:

1. As far as I can determine, the Application from the Falcon Cove Beach Water District (FCBWD) was the only one form a District that has such serious problems that it has gone through the time, trouble, effort and governmental hurdles to declare a Moratorium on new Service for their District. Taking this action not only required a great deal of effort to comply with all of the regulatory steps required by the applicable ORS rules but also causes quite a bit of stress in our Community from Property owners who now can not sell their lots or build on their properties until such time as the Moratorium is lifted.

2. The FCBWD is very small Water District with no employees, no staff, no professional Grant Writers, no "consultants", with just VOLUNTEER Commissioners to manage and run the District and with an annual operating Budget of approximately $50k. As a such a small Water District with limited resources, I think that perhaps our Application may have not been as "polished" as some others where the Applicants had professional Grant Writers or Staff to generate their Applications. We filled out the Application as best we could in accordance with the Questions that were asked in the Application and based on the very limited details contained in those questions. If more detail was required, then I think the Application should have really spelled out what was required. We submitted this Application on 10 Nov 2019 and we heard nothing from OWRD until we received the "not recommended" evaluation results per the Feasibility Study Grants – Public Comment Opportunity notification email on 3/30/2020 so we were under the impression that everything was "fine" regarding our application and request.

3. The Evaluation Summary stated that "the study tasks do not contain sufficient amount of technical preparedness and detail to demonstrate that the stated goal could not be achieved by the proposed study". This is VERY difficult to understand and accept. Our request was for a very small amount of funding ($10k) to help us fund a FEASIBILITY STUDY to determine if it would be possible to develop an Aquifer Storage and Recovery (ASR) capability/facility for our Water District that would help us get out of our need for the Moratorium. The fact that this project is pertinent and important and of great Urgency to our Community should be self-evident since we clearly stated that we currently have a Moratorium in place. We proposed to hire a professional Engineering Firm to do the FEASIBILITY Study – which, by definition, would be a Study to determine if such a facility would be possible in our area and, if so, what might be required, technically, to construct such a facility (at a very generic level). Clearly, given the fact that we have no technical expertise in our District to define exactly how the study is to be done nor what elements

might be included in such a study, this would be the reason why we are asking a Professional consultant skilled in this area to prepare such a study. We only have VOLUNTEER Commissioners to fill out the Application – not an engineering staff or Grant Writers on staff.

4. After receiving the "not recommended" status from OWRD, I asked for a telephone call to understand this further and such a call was arranged on 7 April with Becky Williams and a member of the Evaluation Team (Rachel LovellFord) to review why the team felt that there were deficiencies in our Application. After an hour long discussion, I must say that I still do not understand what specific information was missing from our Application. The Application was NOT for construction of a project, nor for technical work to complete such a project – it was simply for a FEASIBILITY STUDY using a skilled, professional Engineering firm to determine if an ASR facility was
    a. possible (which such a firm should be able to determine with no further guidance from us apart from a map of our Water District), and if it was possible, then
    b. what elements might need to included in an ASR facility (presumably some type of well meeting some well understood (to the Engineering firm) requirements and perhaps some type of measurement or monitoring capability (again, presumably well understood by a professional Engineering firm at a "Generic" level). This is exactly what was described in "Task 3" as an "Estimate" for an engineering solution.

Our small Water District has successfully completed several Applications to IFA/BizOregon in the past including a very similar Application for a Feasibility Study for a Well for our District – a project which was successfully completed on time and on Budget. Quite frankly I am completely at a loss to understand why, specifically, this Application missed the mark and what we could have done differently.

I would ask the Evaluation Team or whomever reviews these Public Comments to take another look at our Application and, in light of our Communities urgent need to complete an ASR study so as to determine if this might be a viable way to get out of our existing Moratorium and to approve our small request for $10,000 for the study.

Sincerely,

Charles A. Dice
Tel=503-436-0146
Email = cadice@hotmail.com

4/20/2020
Biz Oregon/IFA
Feasibility Study Grants

To Whom it may concern: Re: Falcon Cove Beach Water Supply District ASR Study

As a volunteer member District we have for over 50 years managed to capture the output of two springs and are in the final stages of completing the development of a promising well. For the last (3-4) years our springs run low during the hottest months July, August and September. The increased pressure for supplying enough water to service the 94 homes currently in existence and looking ahead to the fact of several existing vacant properties being purchased (4 are currently waiting to build and there are many other lots for sale) have made it a critical certainty that we can either look to the future or stay with the status quo. Doing nothing makes no sense.

A year ago we found it necessary to declare a 'Moratorium' on new home development until we could at least stabilize our existing water supply. We decided, after much study, to find and drill a well which we found, and are in the process of bringing online when we get approval. Even with the well coming on and looking at the limited number of options available to us, we as a Board and community, decided to put $10,000 of our dollars into funding a 'feasibility study' to discover the possibility of developing an aquifer into which we would pump the excess water flowing from the springs during the colder months (October-June). This seemed a reasonable and least expensive option available to us. We would achieve a reserve that was flowing into the ocean anyway and help further assure the continued water needs of our community.

Our application was deemed "complete" by the IFA reviewing staff. We were never asked any questions regarding our application. There is no way for our lay person volunteer to know the details about an ASR facility. That's the reason we were looking for your help in funding the study to hire an expert.

What do we do now? We cannot afford this study without help and turning to BIZ Oregon IFA seemed like the best and most reasonable avenue to pursue. I respectfully request you look at our application again and give us a list of deficiencies in our application. We want to work with you and look forward to your response.

Best Regards,
David E. Cleland, Board Commissioner (FCBDWSD)

From:	Guido Paparoni
To:	WRD_DL_feasibility study grants
Subject:	Public Comment not recommending the Feasibility Study Grant "Falcon Cove Beach Water District ASR Study / Falcon Cove Beach Water District"
Date:	Monday, April 27, 2020 10:10:31 AM
Attachments:	Public Comment Feasibility Grant Falcon Cove Beach Water District and Figures.pdf

Dear Sir/Madam,

I am a property owner in Cove Beach Oregon and have been following the enactment and subsequent extensions of the Moratorium for new water connections imposed by the Falcon Cove Beach Water District (FCBWD or the District) since December of 2018. The Grant in question is being requested by the District as an option for lifting the Moratorium. I am hereby providing public comment to not support this Grant.

The application for the Grant does not mention that the District currently already has access to a ground water Well (Well #1) capable of producing 50 gal/min. An application for water rights for this well has been in process since December 02, 2019, and on January 22nd, 2020, the District was awarded a $125,000 Safe Drinking Water Revolving Loan Fund (SDWRL) loan to tie-back this well to the water infrastructure in the District. Therefore, an ASR study is not needed at this time.

There are a number of inconsistencies in the application that are detailed in the attached document, including the fact that a Moratorium was not needed in the first place.

Funding of this study will not only lead to additional unnecessary expenses by the community going forward, but may also have the negative effect of continuing to curtail development in the area until the ASR study and future activities mentioned in the study are completed.

I hope that your staff will instead use this opportunity to either direct the District to tie-back Well #1 using the 15,000 gal/min that it is already entitled to as an Exempt Domestic Group use, and/or expedite the approval process of the water rights for Well #1 which are 0.11 cfs or 72,000 gal per day. This amount of additional capacity would allow the District not only to suspend the Moratorium at once, but also allow the development of the remainder lots platted in the area.

Sincerely,

Guido Paparoni, Ph. D.

Cove Beach Property Owner

April 27, 2020

Grant Program Coordinator
725 Summer Street NE, Suite A
Salem, Oregon 97301

Re: Public Comment in support for not recommending the Feasibility Study Grant "Falcon Cove Beach Water District ASR Study / Falcon Cove Beach Water District"

Dear Sir/Madam,

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Sincerely,
Guido Paparoni, Ph. D.
Cove Beach Property Owner

Additional Supporting information

We have conducted a number of public records requests to the FCBWD and several government agencies, and also incorporated publicly available data and found the following items which compare with the statements made in the application for the ASR Grant.

Application Item III – 1

"… One possible solution is to find and develop an underground Aquifer that would allow us to Store water during the Oct-June "rainy" period when the North Spring has robust water production and store this water for use in the dry months of July, Aug, Sept."

1) The District already drilled and has access to a very good ground water well capable of producing 50 gal/min or 72,000 gal/day. The water rights application may be found here:

Oregon Water Resources Department Application G 18905 Form M
https://apps.wrd.state.or.us/apps/wr/wrinfo/wr_details.aspx?snp_id=202293

2) A $125,000 Safe Drinking Water Revolving Loan Fund (SDWRL) has been approved as of January 22, 2020 and includes all the funds to tie-back this well to the distribution system. However, the District has communicated several times that it will not use the funds until the water rights permit is obtained. The District also has failed to recognize that it can use 15,000 gal/day as an Exempt Domestic Group. We hope that your office may help encourage or expedite either process.

Application Item V - 9:

"*… Over the past 5 "Drought" years…*"

Figure 1 - 2018 the year the Moratorium was enacted, was close to an average year for rainfall as recorded by a high-frequency station in Manzanita OR, 4.5 miles away from Cove Beach (providing close to daily precipitation recordings). There was no drought in 2018 and therefore the Moratorium was not warranted.

"… we have seen the North Spring water production fall to as low as 30GPM or 43,000 Gallons/Day."

Figure 2 – The 30 gpm datapoints in 2018 cited in the application are data outliers and do not represent the summer baselines. Summer baselines have increased over the last 3 years and therefore the Moratorium was not warranted.

Figure 3 – We were able to show that the 30 gpm points in 2018 followed large precipitation events recorded by the Manzanita weather station, and most likely represent measurement errors. In other words, they should not have been used as evidence of low spring output, and therefore the Moratorium was not warranted.

" … The peak historical demand in our District during the summer months is 51,000 Gallons/Day. If we were to experience more than 3 or 4 days off Spring water production at or below 30GPM, we would not have sufficient water to meet demand"

Figure 4 – The peak demand comment was traced to July 2002, 18 years ago. To put that in perspective, the 2019 peak demand was 15% of that number or 8,300 gal/day. Therefore, the Moratorium was not warranted.

Application Item V - 11:

"Since we have declared a Moratorium on New Water Connections and have implemented a Water Use Curtailment plan for all of the Customers in our Water District there is very high interest and support within the Community for a Solution to our water supply problems."

The community has indeed been very active, but the District has consistently limited the ability of the community to participate and provide feedback. Furthermore, in May 2019 the District failed to elect to the Board a community member who is a well-recognized Hydrogeologist in Oregon and Washington (David Livermore). That opportunity was passed again in April of 2020, when two Commissioners resigned, and David Livermore was not offered the position. Why not elect an expert? This has created deep doubts in the community about the reasons for the Moratorium, and all further activities past completing Well #1, in particular since water connections are essential to filing for development permits.

Application Item V - 12:

"If we could identify that there is a high probability of finding a suitable confined Aquifer for a ASR project then we could move forward with a test drilling to verify the suitability of the Aquifer and then obtain all of the necessary permits and approvals to actually implement an ASR system for our Water District. This would then allow us to lift the existing Moratorium"

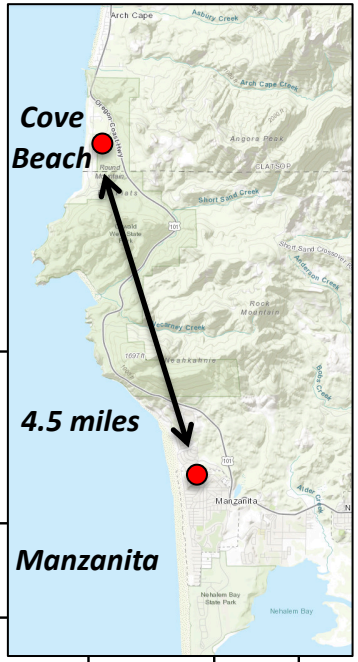
As explained above, the District already has access and funding to a good ground water well capable of producing 72,000 gal/day and should make accessing that water its top priority.

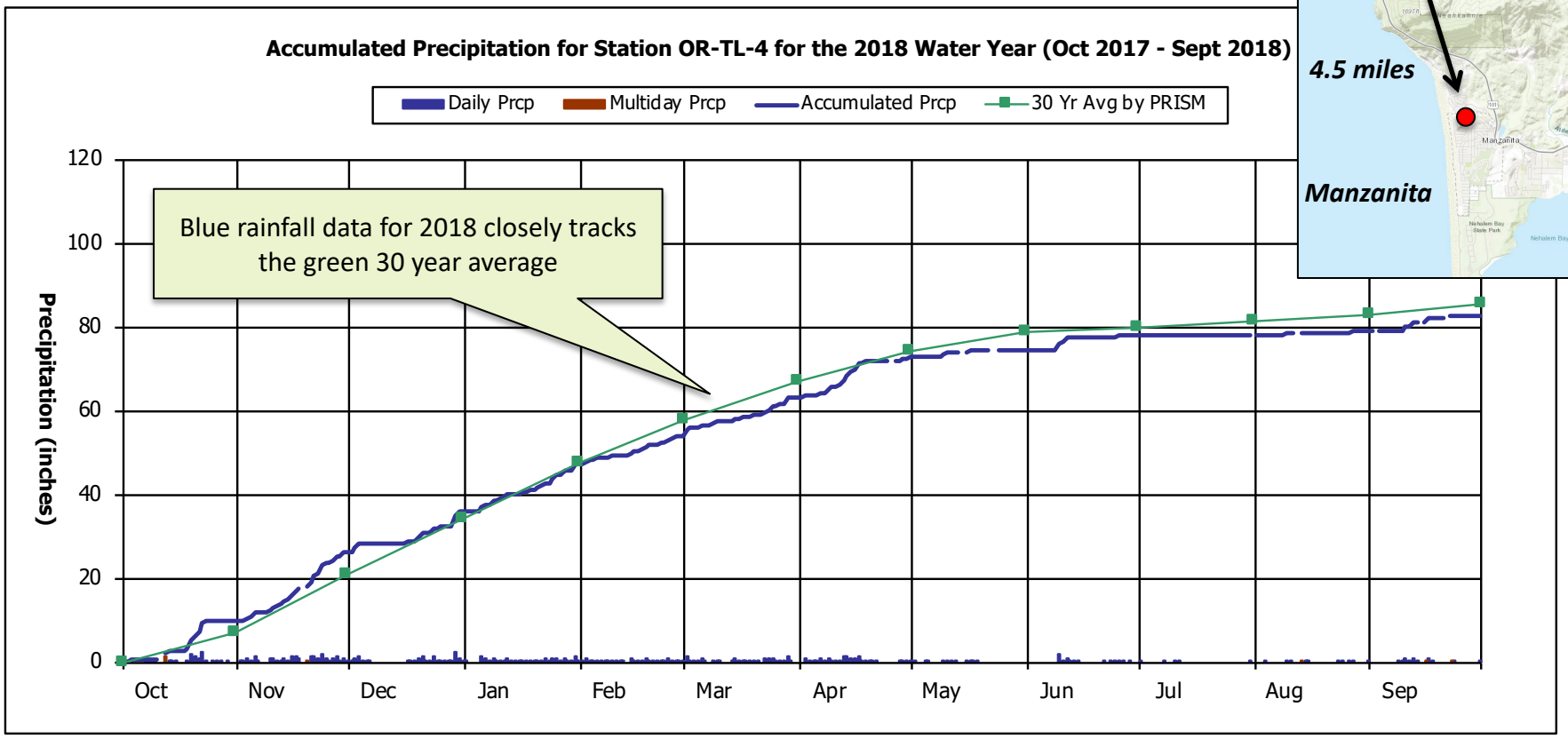
Application Item V - 19:

Figure 5 - The District neglected to mention that the location for Well #2, as per a previous GSI Water Solutions Study is located in an environmentally sensitive area. On the 2020-2021 Budget, the District has reserved $9,000 to conduct this study. Why the District is considering drilling a second ASR well in an environmentally sensitive area, when it already has access to a very good well (Well #1 above), is not clear at this point.

Figure 1. 2018 was close to an average year for rainfall
There was no drought in Cove Beach

The observed rainfall data closely matched the 30 year average, therefore <u>there was no drought the year the Moratorium was enacted</u>



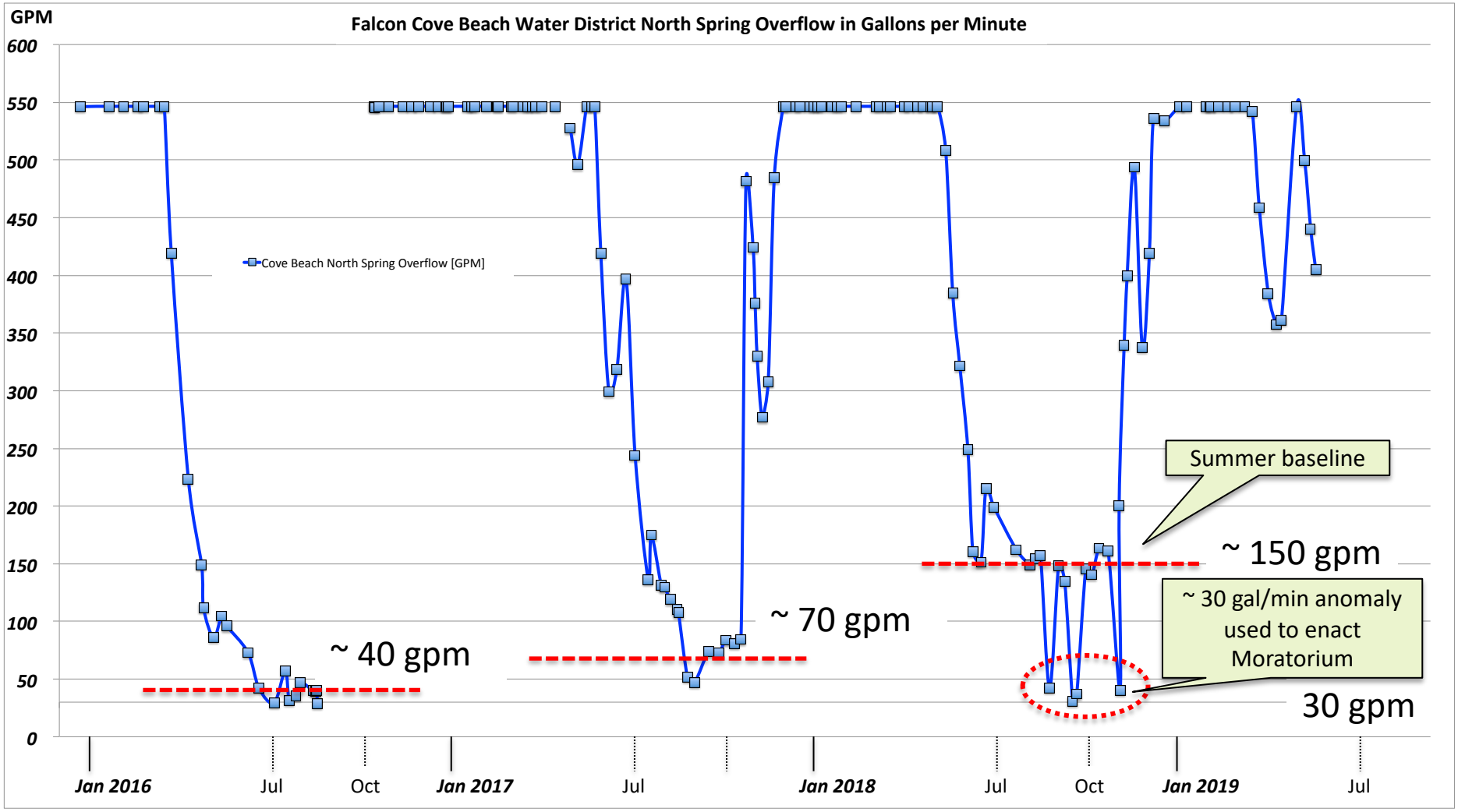


Source: https://www.cocorahs.org/WaterYearSummary/State.aspx?state=OR&year=2018

The closest high-frequency rain station is in Manzanita. It receives 88 inches vs. 95 for Cove Beach – therefore Cove Beach receives <u>an additional 7 inches of rain</u>

Figure 2. North Spring overflow steadily increased from 2016, 2017 to 2018

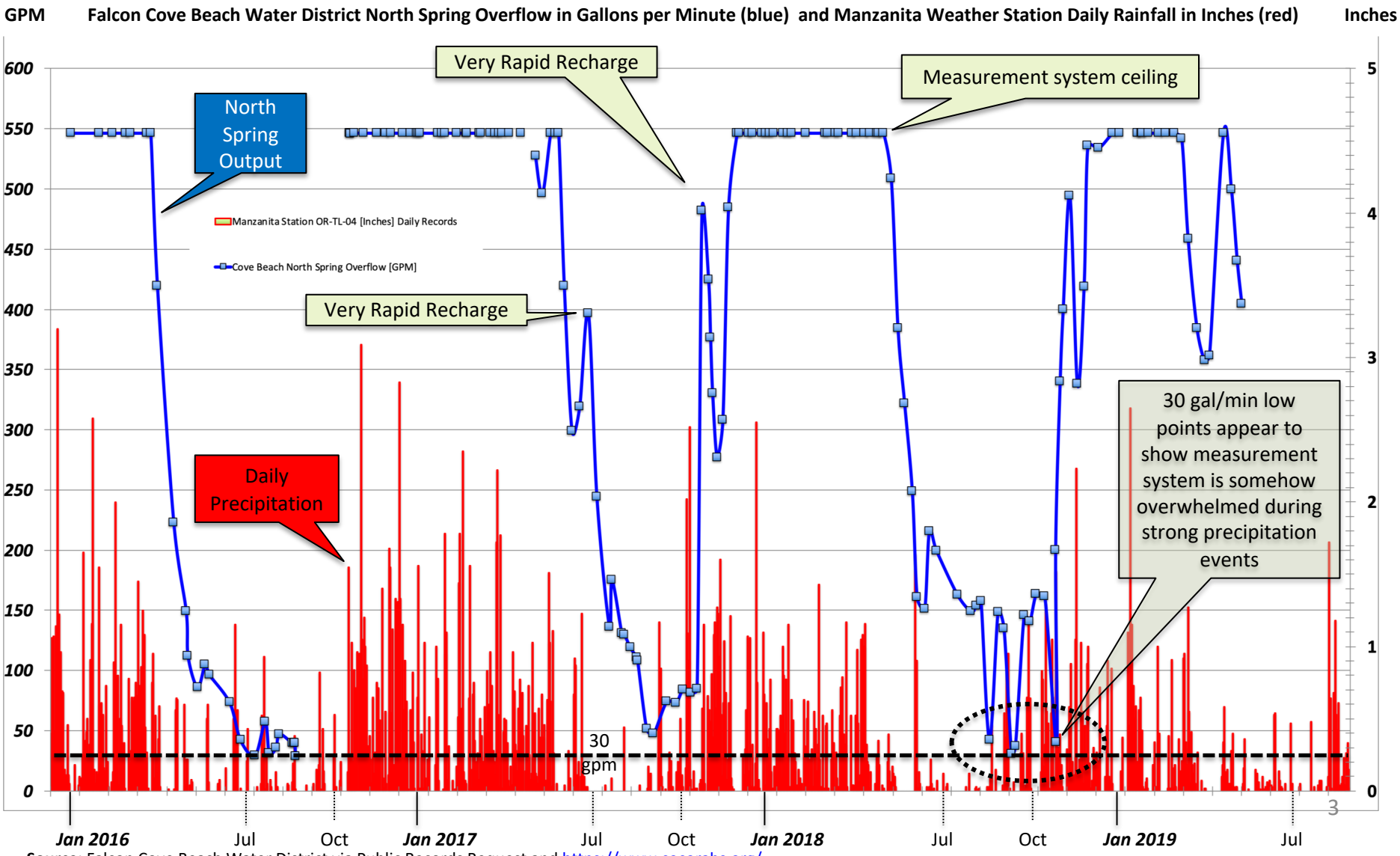
The summer baseline steadily increased above the 45 gpm pumping capacity to 150 gpm



Source: Falcon Cove Beach Water District via Public Records Request

Figure 3. North Spring 30 gal/min measurement artifacts

Precipitation and Cove Beach North Spring output show excellent correlation – quick recharge. 30 gal/min values appear to be measurement problems since they coincide with strong precipitation events. There was no drought in 2018



Source: Falcon Cove Beach Water District via Public Records Request and https://www.cocorahs.org/

Figure 4. 50,000 gal/ day reference traced to Oregon Water Resource Department FCBWD Fax 11/10/2003 – 5 to 6.5 x 2019 consumption

11/10/2003 15:03 FAX 5034360146 Hello File #s-38934 001

Falcon-Cove Beach Domestic Water Supply District
P.O. Box 1
Arch Cape, OR 97102
10 November 2003

Oregon Water Resources Department
Commerce Building
158 12th Street NE
Salem, OR 97301-4172 Fax = 503-378-8130

Reference: Application File #S-38934 (Permit #S-28972) – "North Spring" and Application #S-52592 (Permit #S-37930) – "South Spring"

Dear Ms. Juul:

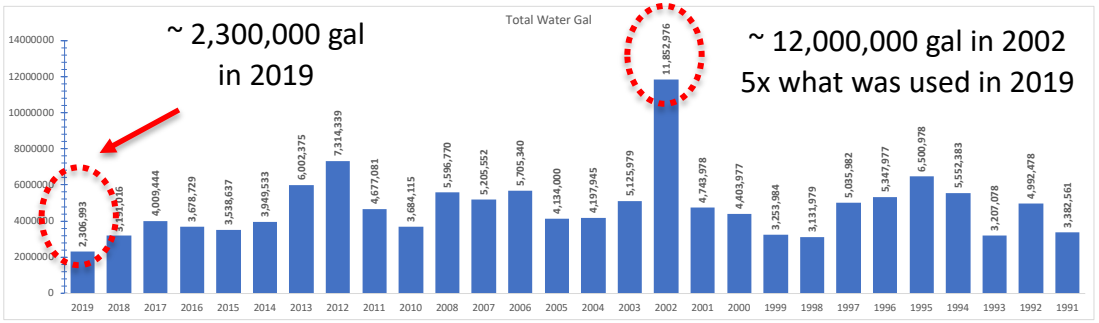
The following is in response to your letter of 10 October 2003 in which you requested an estimate of the amount of money necessary to complete development of the water use project under the two permits noted above. Please note that this our best guess as to the investment required to our Water Supply system in order to supply the approximately 180 homes that we are currently estimating that our community might have once it is fully "built out". We are currently at approximately 84 connections for our water system and have seen between 2 and 4 new houses added each year for the past 30 years – thus it could take 24-48 years to reach our "built out" state. The following estimate is in today's dollars and is based on today's regulations and requirements. We have listed the major projects that we are sure we will need to complete as we start adding significantly more new connections to our system (some of these projects will need to be started once we pass the 100 total connections mark). Also, please note that these investments apply to both the North Spring as well as the South Spring. Each of these springs feed our primary reservoir that, in turn, feeds one unified distribution system.

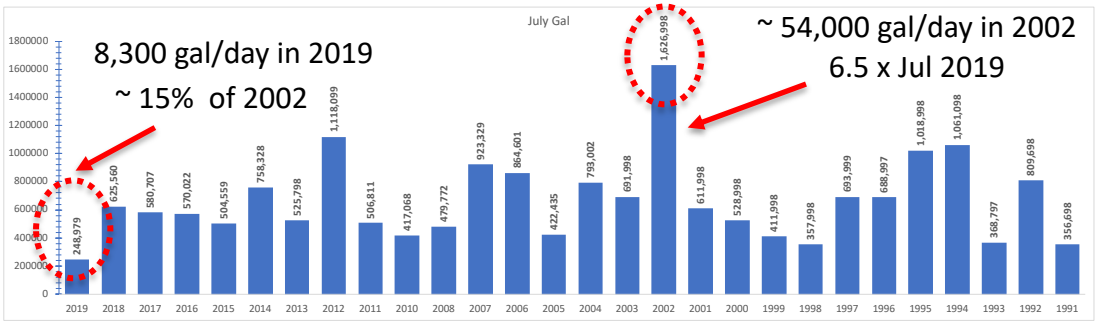
During the peak usage period for our community (July-August), daily usage can run around 50k gals/day – this is based on historical data for the summer of 2002. Assuming growth of the community to approximately 180 connections at full "build out", we could expect a peak usage of approximately 100k gals/day. Based on a current recommended "safe reserve" of 3 days of water usage, this would imply that we would need a total water storage capacity of approximately 300kgal. In addition, Cannon Beach Fire District has told us that they have estimated that we would need approx 75kgal for a "worst case fire estimate". The estimate we are providing herewith is primarily focused on the investments required to put this storage capacity in place, to upgrade specific distribution lines to handle the increased demand, and to add additional fire hydrants for safety.

1. Add a 200kgal reservoir at the existing reservoir site (for a total of 279k gal storage in 2 tanks)	= $150k
2. Install 6" water line on Tide Ave. from Columbia to Falcon Lane (approx. 1000 feet)	= $ 25k
3. Install 6" water line on First Ave. from Columbia to Ocean (approx. 2000 feet)	= $ 50k
4. Install 8" water line on Ray Brown from Ocean to Clatsop (approx. 1750 feet)	= $ 48k
5. Install 3 fire hydrants ($3k/hydrant)	= $ 9k
6. Valves, couplings for all of above	= $ 60k
7. Fencing for North spring, South Spring, and Reservoir sites	= $ 70k
8. Wiring and electronics for Telemetry and Security Plan	= $ 30k
Total Estimated investment (in 2003 dollars)	= $442k

Charles A. Dice, Secretary, Falcon-Cove Beach Domestic Water District Date: 11/10/2003

"During the peak usage period for our community (July-August), daily usage can run 50k gals/day – this is based on historical data for the summer of 2002(1)" or ~ 5 times the yearly consumption for 2019, or 6.5 times the July consumption for 2019 as recorded by water meters (2 and 3)





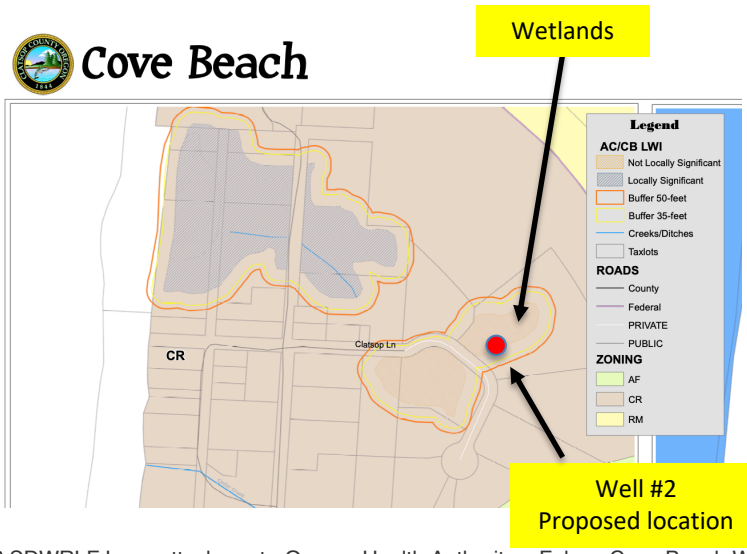
Conclusion – 50,000 gal a day divided by 97 connections = **515 gal/day**, the number used in the CIP report. That number was based on an anomalous year, 17 years ago, and does not reflect our more recent historical consumption

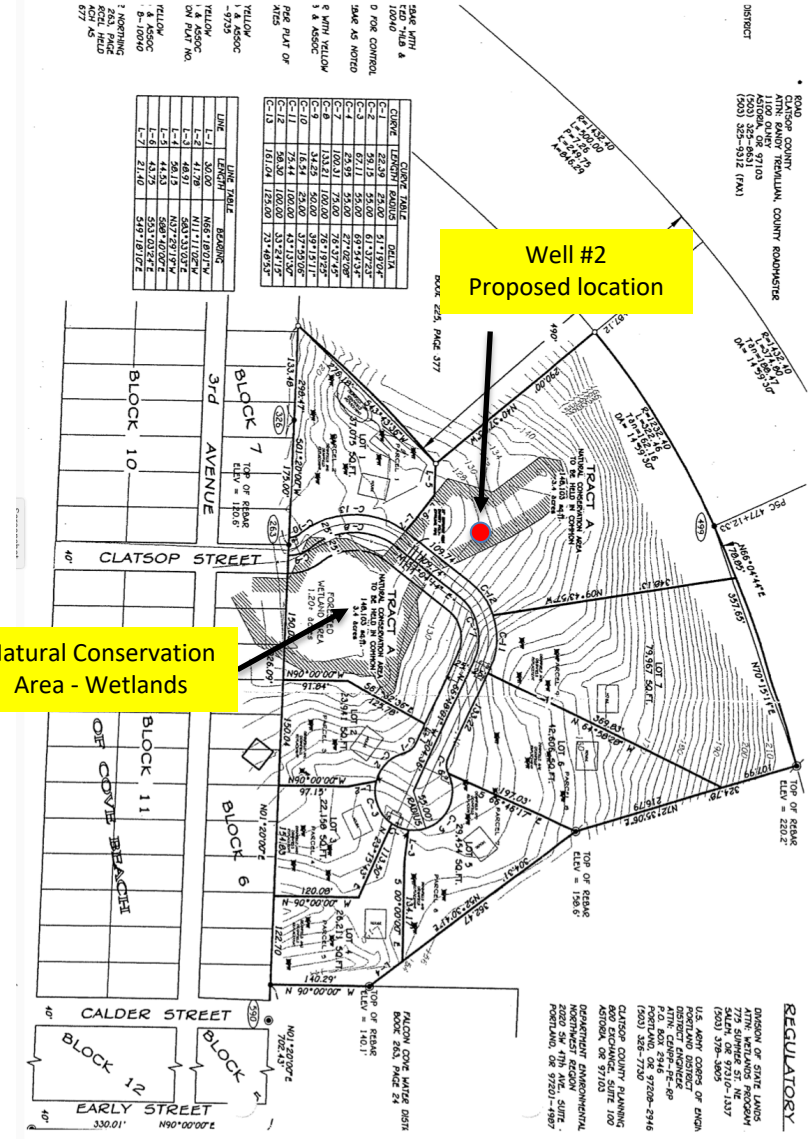
Sources: (1) Public Records Request – Oregon Water Resources Department
(2) https://apps.wrd.state.or.us/apps/wr/wateruse_query/wr_wur_wris_report.aspx?snp_id=43608
(3) Falcon Cove Beach Water District Water Meter Data via Public Records Request – 2019 consumption
August 2002 consumption was 731, 999 vs August 2018 at 311,080

Figure 5. Well #2 – Well is Not Needed, Would Drill in a Sensitive Environmental Area and Add Unnecessary Debt to the Community

- **Well #1 is capable of producing 50 gal/min**
  - In December, the District communicated that is was seeking 40 gal/min to suspend the Moratorium. That goal has been exceeded with Well #1

- **The *Safe Drinking Water Revolving Loan includes $8,000 for an environmental study for Well #2***
  - The well is scheduled to drill on a Natural Conservation area which includes wetlands
  - There is potential for surface runoff contamination from septic systems in the area
  - In 2019, the District applied for $300,000 to purchase Track A, and this would be in addition of drilling, completing and tie-in of the well to the distribution system. It also assumes the well is successful in finding water
  - There is no need to further burden the community with another loan that is not needed





Sources: (1) SDWRLF Loan attachment - Oregon Health Authority – Falcon Cove Beach Water District (PWS #00045) – New Well L132105 Curran-MacLeod Project # 1530 Site Plan Approval (PR #77-2019) (2) https://apps.co.clatsop.or.us/property/septic/41031B000403.pdf (3) http://www.archcape.com/maps/LWI/CB_Map_2.pdf (4) GSI Water Solutions - Preliminary Water Supply Source Expansion Assessment for Falcon Cove Beach Water District – Technical Memorandum

From:	Jeri Janowsky
To:	WRD_DL_feasibility study grants
Cc:	John Crabbe
Subject:	Public Comment Cove Beach ASR study application
Date:	Tuesday, April 28, 2020 9:44:12 AM
Attachments:	janowsky-crabbe public comment grant app Cove Beach.pdf

See attached comment (and copied below) regarding Cove Beach grant application for an ASR study. Thank you. Jeri

4/27/2020

Grant Program Coordinator
725 Summer Street NE, Suite A
Salem, Oregon 97301

Re: Public Comment in support for not recommending funding for the Feasibility Study Grant "Falcon Cove Beach Water District ASR Study / Falcon Cove Beach Water District"

Dear Sir/Madam,

We are property owners in Cove Beach Oregon. We agree with the current recommendation of the Oregon Water Resources Department to not fund the feasibility study by the Falcon Cove Water District. The feasibility study is not needed because there is little evidence that an ASR is needed. In addition, we have serious concerns about the transparency and process by which the water district has proceeded and suggest that until this is resolved, no further support of new endeavors should occur. As just one example: Despite the governor's order that public meetings occur using virtual technology during COVID-19, the Cove Beach water district refused to do so and thus the community could not attend its most recent "public" meeting.

All of this suggests it is time to slow down and get it right. It would be appropriate at this point to reverse the moratorium on new water connections until the process for review and acceptance of clear and correct data on water usage and water availability in Cove Beach is in place. Thank you.

Sincerely,

Jeri Janowsky
503-367-0908 (Jeri's cell)
jjanowskj@gmail.com
And co-owner John Crabbe

4/27/2020

Grant Program Coordinator
725 Summer Street NE, Suite A
Salem, Oregon 97301

Re: Public Comment in support for not recommending funding for the Feasibility Study Grant "Falcon Cove Beach Water District ASR Study / Falcon Cove Beach Water District"

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Sincerely,

Jeri Janowsky
503-367-0908 (Jeri's cell)
jjanowskj@gmail.com
And co-owner John Crabbe

From: nchase34 .
To: WRD_DL_feasibility study grants
Subject: ASR Grant for Falcon Cove Beach Domestic Water District
Date: Wednesday, April 29, 2020 4:59:28 PM

Grant Program Coordinator
725 Summer Street NE, Suite A
Salem, Oregon 97301
Re: Public Comment **in support** for **not recommending** the Feasibility Study Grant "Falcon Cove Beach Water District ASR Study / Falcon Cove Beach Water District"

Dear Sir/Madam,

I am in support of your recommendation not to fund the grant application request for an ASR study..
I am the owner of a home and 3 building lots in Cove Beach.
I believe that the study is an unnecessary expense and not warranted as the existing water supply and Well #1, recently installed, are sufficient for current and future growth.
In addition, the location proposed for well #2 is controlled by a Home Owners Association who have not agreed to a well in that location .
Sincerely,
Nancy Chase
503-347-5083

From: Dave Rumker
To: WRD_DL_feasibility study grants
Subject: Falcon Cove Beach Water District ASR Study
Date: Wednesday, April 29, 2020 1:59:36 PM

To Whom It May Concern,

I am writing in response to the Falcon Cove Beach ASR study submitted for funding support. As an introduction, I am a homeowner in the Water District and also own additional lots in our little community, a community heavily reliant on the tremendous volunteer efforts of our Water Board. Financially, the District has very limited funds, but is willing to commit the matching funds to pursue the ASR. That very Board made a very difficult decision to impose a building moratorium some 18 months ago, out of genuine concern and commitment to provide water for existing homes as well as for owners who want to build here in the coming years. It has been a very divisive environment since the moratorium was imposed because of the animosity of a handful of self-interested parties in the community. Despite it all, the Water Board has continued to do the right thing, trying in numerous ways to secure solutions so that as the community is built out, all continue to have water. The Board has been very conscientious about equity, being good fiduciaries and acting as public servants on their own time, relying on their skills, ingenuity and time. Unfortunately with the distraction of the moratorium, those efforts toward providing a more comprehensive application for funds for the ASR seem to have fallen short of what you have desired. I would ask, if it's possible, that you reconsider the application for funds and approve the application.

The community is responsibly seeking solutions. The Water Board doesn't have all the answers, but are diligently and judiciously seeking those answers. The study will provide some of those answers. Simultaneously, the District is pursuing the development of a Water Management Plan that will help address some of the deficiencies you've noted in the application, but they don't have them at this time. Some estimates could have been made, but without engaging grant writing and technical experts to help facilitate that, the application reflects the best knowledge at this time. The application wasn't completed by professional grant writers, and therefore may not be as polished as others you may have received, but the Board did the best that they could.

Once again, I respectfully ask that you reconsider the application. It's quite disappointing to have been denied, so I hope my appeal resonates with you, and you'll respond in the affirmative regarding the application.

Respectfully,

Dave Rumker
79170 Cove Beach Road
Arch Cape, Oregon

From: Clea Caldwell
To: WILLIAMS Becky S * WRD
Subject: Re:
Date: Wednesday, April 29, 2020 1:01:25 PM

4/29/2020

Grant Program Coordinator
725 Summer Street NE, Suite A
Salem, Oregon 97301

Re: Public Comment in support for NOT recommending funding for the Feasibility Study Grant. "Falcon Cove Beach Water District ASR Study / Falcon Cove Beach Water District"

To Whom it may concern:
I am a property owner in Cove Beach Oregon. I agree with the current recommendation of the Oregon Water Resources Department to NOT fund the feasibility study by the Falcon Cove Water District. I agree that the feasibility study is not needed because there is little evidence that an ASR is needed.

In addition, I and several neighbors have serious concerns about the process by which the water district has proceeded and suggest that until this is resolved, no further support of new studies or projects be granted.

Also, I support reversal of the moratorium on new water connections. It seems there has been misinformation and incorrect data used to support the moratorium.

Thank you.
Sincerely,

Clea Caldwell

On Wed, Apr 29, 2020 at 12:59 PM WILLIAMS Becky S * WRD <Becky.S.Williams@oregon.gov> wrote:

> Dear M. Caldwell,
>
> Please be advised that no text or attachment accompanied your email. Please resend any information you would like considered.
>
> Regards,
>
> Becky

Rebecca Williams

GRANT PROGRAM COORDINATOR

503-986-0869

From: Clea Caldwell <cleacaldwell@gmail.com>
Sent: Wednesday, April 29, 2020 12:56 PM
To: WRD_DL_feasibility study grants <WRD_DL_feasibilitystudygrants@oregon.gov>
Subject:

From:	James Caldwell
To:	WILLIAMS Becky S * WRD
Subject:	Public comment: Please DENY grant proposal “Falcon Cove Beach Water District ASR Study / Falcon Cove Beach Water District”
Date:	Wednesday, April 29, 2020 4:16:02 PM
Attachments:	FCBWD Data Review finalText(3).pdf FCBWD Data Reviewfinal Figures.pdf

Dear Ms. Williams,

My wife and I are home owners in Cove Beach OR (31971 Clatsop Lane, Arch Cape, OR) and we urge you to DENY the grant proposal (“Falcon Cove Beach Water District ASR Study / Falcon Cove Beach Water District”) currently under consideration in your office.

Frankly, we do not understand why the Falcon Cove Beach Water Board (FCBWB) is pursuing this grant at all. Evidence from a independent study [See attachments] has cast very serious doubt on the claims that there is a water shortage in Cove Beach. The report shows that there is an ample supply for the entire community (and more.) We are strongly in favor of water conservation efforts, but can not understand the discrepancies between the claims of the FCBWB and the externally produced report.

Following the antics of the local water board has me convinced this would make a truly wonderful documentary film.

As I understand it, FCBWB has never directly addressed the results of the study, having passed it on to their engineers who, the board has explained, have other priorities. Here is the claim by Guido Paperoni Ph.D. regarding the reception of his report by the FCBWB.

> For those of you who may not know, I travelled from Dallas to Cove Beach to present these materials, but the Board did not let me present. Instead my appearance was limited to 3 minutes, the original sign-in order was randomized, while also not allowing other attendees to cede their time to me so we could have a discussion with the Board concerning the Moratorium.

I can make no other conclusion but that the FCBWB attempted to suppress the attached report. I can not understand why it has not been addressed, instead the board continues to move forward with their plans, including the proposal in their grant regarding well #2.

The most recent meeting "public" of the FCBWB meeting took place April 18, 2020. At that point, because of the Covid virus, Oregon was under a public gathering restriction to 10 persons. The board itself is composed of 5 member + 5 "lay" members. If the law was followed, there would be room for NO public participation in this "public" meeting. As I understand it, at the last minute, some board members were allowed to dial in. The offer of remote attendance was never extended to the public. What can an unbiased observer conclude? Again, the FCBWB has raised my suspicion.

The water district board has currently put the entire community of Cove Beach under a water hook-up moratorium and has instituted water conservation rules. Our house already exists, so it has had little direct effect on us as homeowners; however, it is affecting the entire Falcon Cove Beach community in rather drastic ways. Property owners, well down the path to building homes, on the verge of hammering their first nails, have been stopped in their tracks.

If there was no doubt about the water boards claim of a serious shortage, I'd have to agree with them. There is significant doubt.

I would urge you to DENY the grant the FCBWB has applied for until the questions surrounding these issues have been resolved. As for me, I am not used to writing letters in favor of, or against, this kind of proposal. I can think of no less satisfying way to spend my afternoon, and yet I have been moved to do so because of the apparently grossly unfair way the FCBWB has treated their constituents. The questions that have been raised could easily be addressed by the FCBWB yet, so far, they have refused to.

Best Regards,
James and Penelope Caldwell

September 29, 2019

A Review of the Data and Documents used to Enact the Falcon Cove Beach Water District Moratorium on New Water Connections, and a Review of Additional Data in Support of Suspending the Moratorium

The findings and conclusions stated in this document show that there exists current and ample capacity to serve existing water connections in the District, while also supporting additional water connections to undeveloped lots that could not be developed or sold in 2019. The Moratorium on new water connections is therefore without technical basis, and should be suspended at once.

Summary

A review of data and documents pertaining to the enactment of the Falcon Cove Beach Water District Moratorium on New Water Connections Ordinance 2018O2, supports the following findings:

1. There is no technical basis for a declaration of emergency leading to a moratorium of new water connections by the Falcon Cove Beach Water District

2. The Capital Improvement Plan cited by the District to enact the Moratorium, grossly overestimated the need for 515 gal/day/connection, which also translated in overestimating a potential source of additional water at 80 gal/min. The District had in its possession several sets of data to better estimate household usage rates, and should have done so before enacting the Moratorium

3. The 30 gpm instantaneous North Spring output cited by the District in 2018 to support enacting the moratorium is not representative of longer-term historical trends evident from the data acquired by the District. While the North Spring data shows single points in time at about 30 gpm, these are not representative of the multiple week trends which are a more appropriate measure of a summer baseline which averages out scatter inherent in the data. The summer baseline for the North Spring has steadily increased from ~ 40 to ~ 70 to ~ 150 gpm during the 2016, 2017, and 2018 summer months, respectively. Incidentally, the Moratorium was enacted during the year with the highest summer baseline of ~ 150 gpm, which is well above the 45 gal/min installed pumping capacity for the North Spring

4. The North Spring output was independently compared with rainfall data provided by two weather stations in the Falcon Cove area, and one weather station in Manzanita. This comparison shows that the North Spring recovers quickly after localized rainfall events. The rainfall data also allows for estimating key missing North Spring data not collected by the Falcon Cove Beach Water District (e.g. September 2016 and June/July 2019). Finally, rainfall data from three independent weather stations also confirm that 2018 had the highest recharge rate since 2016, agreeing with the elevated summer baseline observations for the year in which the Moratorium was declared. In other words, there was no water shortage in 2018 as declared by the District.

5. Water meter readings for 2016, 2017, 2018 and 2019 taken by the Falcon Cove Beach Water District were compared with those reported by the Falcon Cove Beach Water District to the State of Oregon at the point of diversion for the North Spring (Permit S 28972), revealing several errors in the data recorded by reading water meters. Such errors, if not properly identified, would understandably lead to an artificially high consumption for the District. For example, in 2018, one water meter is reported to have recorded ~ 2,200,000 gal, while another water meter is reported to have recorded ~ 1,600,000 gal. These two readings alone effectively doubled the apparent consumption as compared to the ~ 3,600,000 gal reported to the State of Oregon. The District should have reconciled water meter data with the data reported to the State before enacting the Moratorium

6. Regarding securing additional sources of water, a well drilled on behalf of the Falcon Cove Beach Water District was tested over the summer of 2019, and interpreted to have already produced half of the total yearly water consumption for the District in the span of two months (~ 1,600,000 gal). Test data also indicate that the well and/or reservoir are capable of flow rates above 20 gal/min, and a second well is therefore not needed. The District is in the process of requesting a US $400,000 loan as part of the approved 2019/2020 budget to purchase land, and drill and complete a second water well. This loan should be scaled back to avoid unnecessary capital expenditures, which would ultimately be carried by Falcon Cove Beach property owners

The findings stated above show that there exists ample capacity to serve current connections in the District, while also supporting additional connections to undeveloped lots that could not be developed or sold in 2019 due to the Moratorium. The Moratorium is without technical basis, and therefore should be suspended at once.

Background

This report was created to inform Falcon Cove Beach property owners of the data and documents used by the Falcon Cove Beach Water District (FCBWD) to declare an emergency and enact a moratorium on new water connections (Moratorium). The data has been integrated with additional sources of publicly available data, resulting in multiple lines of evidence that do not support the Moratorium. The report includes:

- A timeline and review of key events before and after the Moratorium was enacted and extended by the FCBWD
- A review of water meter data collected by the FCBWD before and after the Moratorium was implemented (obtained by public records request)
- A comparison of water meter data with publicly available water use data as reported by the FCBWD to the State of Oregon
- A review of the North Spring water productivity as recorded by the FCBWD (obtained by public records request)
- A review of additional publicly available rain water data to understand how the North Spring behaves
- A review of the water well test data to date (obtained by public records request)
- A series of comparisons between the data which support immediately suspending the Moratorium

Timeline

On December 29th 2018, the FCBWD enacted a six-month moratorium via ordinance 2018O2 (Ref-1), suspending all new water connections, and effectively halting the development and sale of undeveloped land parcels in the Falcon Cove and Cove Beach Area, Oregon, for the entire year of 2019.

The FCBWD Board cited the following key points in ordinance 2018O2:

- Water production of the North Spring had been at record low levels during the late summer months (August and September) with production as low as 30 gpm as compared to winter flow rates over 540 gpm
- A Capital Improvement Report commissioned by the FCBWD (Ref-2), listed the need for 515 gallon of water per day per service, which when applied to 220 services, resulted in needing

an additional 80 gpm from a new water source to adequately address the anticipated shortage

- Conservation measures would be unlikely to resolve the shortage completely, leading to the enactment of a water conservation ordinance and commissioning of a rate study to explore a tiered rate structure that would discourage excessive water use.

Prior to declaring the Moratorium, a well feasibility study commissioned by the FCBWD in 2018 (Ref-3), identified two areas to drill water wells, and was subsequently followed by the drilling of a well in a third area adjacent to the water storage tanks. During the month of December 2018, the FCBWD enlisted the services of Dickerson Well Drilling, Inc. to drill a water supply well (Ref-4). The well was drilled between December 27th 2018 and January 2nd, 2019 and was listed on the Oregon Water Resources Department Well Report Query on February 8th, 2019. Results for the well are discussed in a separate section below.

On June 15th 2019, the FCWD enacted ordinance 2019O3 (Ref-5), adopting a tiered rate structure and associated water rates. The ordinance stated a declaration of emergency, due to an anticipated water shortage during the summer of 2019.

On June 29th 2019, the FCWD approved resolution 2019R5 adopting the 2019/2020 budget (Ref-6). The budget includes a $ 400,000 SDWRLF loan to purchase property, permit, plan, and design a second water well (Ref-7)

In July 2019, a Public Records Request and a fee of $525 was submitted to the FCBWD, in order to receive data files and reports cited by the FCBWD in the 2019 Annual President's Letter **(Ref-8)**

A - Review of North Spring Overflow Production data

The GSI study (Ref-3) states that the North Spring permit S-28972 authorizes the District's year-round diversion of 58.3 gallons per minute (gpm). It also states that the current pumping capacity of the North Spring system is limited to 45 gpm.

North Spring output data spanning Jan. 2, 2016 to May 11, 2019 was received as part of the Public Records Request. Production data in gallons per minute (gpm) was plotted against time to understand behavior of the North Spring (Figure 1).

The seasonal character of the North Spring is evident in the data, and corresponds to what is expected from an unconfined aquifer recharged by rain. During the rain-rich winter months, the measurement is "pegged" at 546.5 gpm, and recharge events (1) and dry spells (2) are reflected in the flow output. The data also shows a number of low measurement points at ~ 30 gpm. In 2016 data for the month of September is missing (3), and the baseline prior to the data gap is at ~ 40 gpm. In 2017, all measurements are above ~ 50 gpm, and the baseline increases to ~ 70 gpm (5). In 2018, the year the moratorium was enacted, there are a number of points at ~ 30 gpm, but the actual baseline is even higher that the previous years at ~ 150 gpm (6). North Spring Data for 2019 was only furnished by the District up to May 11th (7). For completeness, it is important to mention that while the maximum reading of the North Spring flow meter is apparently 546.5 gpm; the actual winter spring flow is assumed to be much greater than this.

B - Review of Publicly Available Weather Station Data for Cove Beach and Comparison with North Spring Output

Publicly available rainfall data for Cove Beach are found in [(Ref-10)], under Oregon and Clatsop County. Data for station OR-CT-12 is available for the period 2016-2019, and data for station OR-CT-24 is available for Jan-17-2018 to May-5-2019.

Figure 2 shows rainfall amounts in inches as extracted from this dataset and plotted as monthly cumulative totals using the right scale, together with the North Spring output data in gallons per minute as shown with left scale. As a general observation, the weather station data in Cove Beach mirrors the behavior of the North Spring, confirming that it is being recharged by rain. A zero precipitation line is shown at (0); data points that fall on this line indicate no rain, but may also indicate no data collected by the weather stations. The data gap indicated by (3) on Figure 1 is covered by an increase in precipitation as shown by (1) in Figure 2. This would suggest that the North Spring would have recovered quickly in September. The rain data before the gap appears relatively constant explaining the flat baseline for 2016. In 2017, the precipitation picks up in August, and at a higher rate than 2016, and that is reflected as well in a higher North Spring output as compared to 2016. In 2018, there are two weather stations active in the Cove Beach area recording similar patterns. As seen in 2017, precipitation picks up in August and the overall values are larger than in 2016 and 2017, supporting the higher baseline observed in 2018. In other words, 2018, the year that the Moratorium was enacted, was a high productivity year for rain during the key August and September summer months. In 2019 there are two points in July and August of 2019 (4), which would indicate a recharge of the reservoir during the key summer months.

C - Review of Publicly Available Weather Station Data for Manzanita and Comparison with North Spring Output

Publicly available rainfall data for Manzanita is found in (Ref-10), under Oregon and Tillamook County. Data for station OR-TL-4 is of very high frequency, and available for the period 2016 to Sept 15th, 2019. Given the density of the data recorded by this station (almost every day), and its proximity to Cove Beach, it was used to further test the points discussed above.

Rainfall amounts were extracted from this dataset and plotted as monthly cumulative totals, and juxtaposed with the North Spring output data as shown using the left scale in Figure 3. Total precipitation in inches per month may be read by using the right scale. As a general observation, there is very good correlation between this high-definition rainfall dataset and the North Spring output dataset.

Point (0) shows the zero precipitation line; only one month in 2017 had no recorded precipitation. Point (1) illustrates that the lowest output for the North Spring was in 2016. That year was anomalous given that the dry season started two months earlier in May. While the dry season started earlier, precipitation was above 1.5 inches for the entire summer. The data also supports the observation that the missing data for the North Spring coincides with the start of a recharge event in September.

Point (2) underscores the baseline concept for 2017. A recharge event started in September and October, and given that only one “dry month” is present in July, the North Spring supported a baseline of ~ 70 gpm. The speed of recharge is also well illustrated by the sawtooth pattern observed in November and December of that year.

Point (3) illustrates that 2018, the year that the Moratorium was enacted, was the wettest year since 2016. Here the 30 gal/min “chatter” experienced by the North Spring between August and November is not supported by the elevated baseline of ~ 150 gpm, which was also observed in the Cove Beach rainfall data (Figure 2). In other words, there are three weather stations in the area that report the same increase in rain during the period of 30 gal/min data points cited by the FCBWD as evidence to enact the Moratorium. This is the strongest independent evidence that the 30 gal/min number may represent scatter inherent in the flow data acquisition of the North Spring System and not a reflection of sustained drought.

Point (4) confirms the previous observation using Cove Beach weather station OR-CT-12, where by September 24th, 6.5 inches of rain were recorded, confirming the start of the recharge process for the North Spring.

Conclusion 1 - The historical summer output baseline for the North Spring is above the 30 gal/min used as a key data point to enact the Moratorium and may also be used as a trigger Level 3 Curtailment plan. Points at 30 gal/min are not representative of average summer North Spring output, and instead represent "chatter" in the data. Summer baselines have steadily increased from 40, to 70, to 150 gpm over the 2016/2017/2018 period, and these values are in excess of the 45 gpm installed pumping capacity, and therefore do not support the enactment of a Moratorium. Furthermore, by combining the precipitation data information acquired by weather stations in Cove Beach and Manzanita, the water reservoir that feeds the North Spring appears to recharge starting in the month of August, shortening the period of relative low output, which is contrary to the language used in Ordinance 2018O2.

D - Review of Water Consumption data – Water Meters and Water Use Report Based on Water Right

Water consumption data derived from water meters for 2016, 2017, 2018 and 2019 YTD (up to July) was received as part of the Public Records Request. Prior to August 2018, water data from household water meters was not recorded by the FCBWD on a monthly basis.

A second set of independent data was also collected by the FCBWD at the point of diversion of the North Spring, and reported to the State of Oregon at monthly intervals (Ref-11). The original data is formatted per "Water Year", i.e. for 2018 the year begins October 1st 2017, and ends September 30th, 2018. Therefore, the data was parsed as to be comparable with the water meter data, which was received as per calendar year (Jan to Dec). The State data was also converted from acre-feet to gallons by multiplying by 325,850.

Table 1 shows yearly totals for 2015, 2016, 2017, 2018 and 2019 inclusive of July. The State database shows a steady yearly consumption baseline of ~ 3,600,000 gal served by the North Spring. On the other hand, the water meter data ranges from ~ 3,600,000 gal to about double at ~ 7,440,000 gal in 2018. This inconsistency was largely addressed by eliminating a small number of data points, referred to in this text as "outliers", that most likely correspond to either reading errors or misplacement of decimal points (see third column). The largest errors are seen in 2018 with three accounts totaling 4,354,000 gal, which equates to 120% of the yearly production as per the State database.

Year	State Database consumption [gal]	FCBWD water meter consumption [gal] all water meters	FCBWD water meter consumption w/o outliers [gal]
2019 up to July	-	2,306,993	2,306,993
2018	3,603,901	7,440,699	3,070,699
2017	3,665,813	4,695,248	2,526,145
2016	3,776,602	3,647,309	3,259,789
2015	3,336,704	-	-

Table 1. Water use for the North Spring (State of Oregon database) as compared with FCBWD reported water consumption derived from water meters.

Closer inspection of the water meter data also shows 102 accounts listed by the District, with 92 to 94 being active and only ~81 experiencing appreciable consumption (see discussion below).

To determine the average use per connection, and given the inconsistencies in the FCBWD water meter data prior to 2019, the State database was selected to derive a better estimate of actual consumption per connection.

Table 2 shows that the average yearly consumption is ~110 gal/day. This number is about 1/5 of the rate quoted in the Capital Improvement Report (Ref-2).

Year	2016	2017	2018
Average use per connection [gal/year]	40,609	39,846	38,752
Average use per connection [gal/day]	110.95	108.87	105.88

Table 2. Consumption as per State database. The number of active connections per year are 93, 92 and 93 respectively.

To quantify the storage component of the water supply equation, we used the GSI study (Ref-3) that states a storage capacity of 185,000 gallons for the North Spring. This equates to 1,968 gallons per 94 active connections, which at an average rate of 110 gpd/service would provide about 18 days (two and a half weeks) of service if supply were to be completely interrupted.

We then used the information for the individual connections present in the water meter data, ignoring the outlier points, to understand the impact of high-volume users. There are 22 to 30 users in the District that consume 40,000 gal or more per year.

Table 3 shows that on average heavy users consume ~ 214 gal per day or 42% of the 515 gal/day shown by the Capital Improvement Report [(Ref-1)].

Year	2,016	2,017	2,018	2,019
Consumption per Year	2,238,904	1,494,690	2,244,280	1,291,884
Users	30	22	29	24
Days in Year	366	365	365	212
Consumption per day	204	186	212	254

Table 3. Yearly consumption for users at or above 40,000 gal as per FCBWD water meter data with outliers removed.

We then re-examined the storage component of the water supply equation by using the water meter data, ignoring the outlier points, and filtering the data by looking at users that consumed between 1,000 gal and 4,000 gal per year (i.e. 10% or less of the volume used by heavy users).

Table 4 shows that between 6 and 13 users fall in this category, while the average consumption is ~ 9 gal/day or 1.7% of the 515 gal/day shown by the Capital Improvement Report ***(Ref-1).***

Year	2,016	2,017	2,018	2,019
Consumption per Year	15,090	27,935	33,185	34,359
Users	6	10	11	13
Days in Year	366	365	365	365
Consumption per day	7	8	8	12

Table 4. Yearly consumption for users between 1,000 and 4,000 gal as per FCBWD water meter data with outliers removed.

We also identified “vacant” connections, by taking the water meter data, ignoring the outlier points, and counting only users that consumed 1,000 gal or less per year (less than 0.3 gal per day).

Table 5 shows that up to 4 connections fall into that category.

Year	2,016	2,017	2,018	2,019
SUM	90	115	845	183
Count	1	1	3	4
Days in Year	366	365	365	212
Consumption per day	0	0	1	0

Table 5. Yearly consumption for users at or below 1,000 gal as per FCBWD water meter data with outliers removed.

The last two tables may be taken together to show that the actual number of effective users ranges between 83 and 77. Taking 80 users as an average, and using the storage capacity of 185,000 gallons as per GSI study [(Ref-3)], results in 2,312 gallons per connection, which at an average rate of 110 gpd/service provides about 21 days (3 weeks) of service if supply were to be interrupted.

Conclusion 2 - The Capital Improvement Plan estimate of 515 gpd/connection that was used in support to enact the Moratorium is grossly overstated, and should be closer to 110 gpd/connection. In other words, the District is only using 1/5 of the water requirement. Therefore, the 80 gal/min needed from a new water well should be scaled back to 16 gal/min, if at all. In addition, current storage would supply water for 2 to 3 weeks if there were to be a true lack of supply.

E - Review of Water Well #1 data

Several documents and the test data for the Water Well #1 were received as per the Public Records Request.

As previously discussed in the Timeline section, a well feasibility study commissioned by the FCBWD in 2018 (Ref-3), identified two areas to drill water wells, and the study was subsequently followed by the drilling of a test well in a third area adjacent to the water storage tanks.

Information for the water well is found in (Ref-4). The well was drilled to a total depth of 173 ft, and found two water bearing zones at 91 to 94 ft and 151 to 162 ft. The water-bearing zones may be interpreted as basalt with sandstone inclusions. Water flow rates for the upper zone were estimated at 7 gal/min, and at 20 gal/min for the lower zone. The lower zone was subsequently completed for water production and tested at 21 gal/min for 4 hours at a depth of 160 ft. After the flow period, the water level increased to 141 ft (+ 10 ft from the top of the lower zone).

The well information was subsequently reviewed by a Geologist working for the Oregon Health Authority on June 9th, 2019, and found to be draining from below a confining layer (Ref-9). This is a key observation since from the discussion above, the North Spring drains a separate unconfined reservoir, so the District would have access to two independent sources of water.

As part of the Public Records Request, the FCBWD submitted water flow, surface temperature and water level data for the well. The flow data for the well was acquired in 2019 during four separate time intervals: May 24th, June 26th to June 27th, July 22nd to July 23rd, and July 31st to August 1st as shown by four separate numbers in Figure 4.

The flow rate for the well is shown in Figure 5, where the numbers reflect the time periods shown in Figure 4. A sustained water flow between 20.3 and 18.9 gpm was observed over a period of 2+ months. The data appears step-wise in nature, suggesting that the well continued to flow between testing periods, which is contrary to what the District has communicated. This may be explained because the interface between the well and the formation changes its ability to flow over time (i.e. change in skin); or the flow in the well was constrained; or both. If the first statement reflects how the well was operated, then at an average rate of 19 gal/min flowing for two months, the well produced over 1,642,000 gallons of water. Stated in another way, this represents half of the yearly water consumption for the District in a given year.

Another key observation for the well is the step change for water level in the well as shown in Figure 6, where the numbers reflect the time periods shown in Figure 4. The water level in the well increased from 141 ft below ground surface (bgs) after completion in early 2019, to 122 ft bgs in May, to 114 ft bgs in June, and stabilized at 106 ft bgs sometime in July, holding constant for the last two periods (3 and 4). From this, there are three key observations stated below.

First, and since the water level continued to increase from the 141 ft bgs recorded in January after the well was initially flowed by the driller, the free water level (i.e. the level of the aquifer where air is replaced by water) was not reached until sometime in July, and before point 3 on the graph. If the well was indeed flowed continuously since May 24th (point 1), then this is an indication that the reservoir is capable of additional flow (i.e. there is more water available than is being withdrawn from the well).

The second observation is that no depression of the water level is observed at the beginning of flow period 4. If flow in the well was stopped between measurements, as communicated by the District, then a drop in water level should have been recorded at the start of point 4. This observation once again suggests that the well continued to flow between testing periods, producing over 1,642,000 gallons of water.

The third observation is that the recorded data does not reflect a shut-in test, where the well flow is stopped, and the rate of change of the water level is measured and recorded against time. This is a standard test employed by capable operators of water wells, which involves no additional hardware. An extended shut-in test would determine completion skin, permeability of the rock, potential reservoir extent, and also validate the initial design of the well. Such a test would allow for potentially increasing the output from the well by rising pumping capacity or redesigning the completion to reduce the skin. So far, no indication exists that such tests have been performed by the FCBWD, nor does it appear that the District has the necessary expertise on hand to design and conduct such a test.

Conclusion 3 - Well #1, as drilled and completed on behalf of the District, is more than capable of producing half the yearly water consumption for the District in two months, thus making up any potential extended shortages during the summer months, if any. By integrating the information from the average historical consumption rate, and scaling back the Capital Improvement Plan rate of 80 gal/min to 16 gal/min, the well as currently completed could more than support current and future development for the District. This is especially relevant, since the District is the process of requesting a $400,000 loan as part of the approved 2019-2020 budget, to purchase land and drill and complete a second water well. This loan should be scaled back to avoid unnecessary capital expenditures, which would ultimately be carried by Falcon Cove Beach property owners. Additionally, the District has demonstrated that it lacks the necessary expertise to properly design and conduct a comprehensive well test.

Report prepared by:

Guido Paparoni, Ph.D. Earth and Environmental Sciences – Economic Geology
Margaret Rozendaal, Ph.D. Earth and Environmental Sciences – Climate Sciences

Documents and data received from the public records request may be downloaded at the link below

https://sites.google.com/view/david-livermore-cove-beach/home

References

(Ref-1) Falcon Cove Beach Domestic Water Supply District. Ordinance No. 2018O2. An ordinance making findings justifying the need for a Moratorium on new water connections, enacting such moratorium, and declaring an emergency [ORS 197.505 – 197.540]. December 29th, 2018. 2p.

(Ref-2) Falcon Cove Beach Domestic Water Supply District. Water System Development Charge (SDC) Update & Capital Improvement Plan. September 2018. Curran-McLeod, Inc., Consulting Engineers. 6655 SW Hampton Street, Suite 21. Portland, Oregon 9722. 9p.

(Ref-3) Preliminary Water Supply Source Expansion Assessment for Falcon Cove Beach Water District – Technical Memorandum. GSI Water Solutions, Inc. April 2018, 12 p.

(Ref-4) State of Oregon Water Supply Well Report. Well I.D. #L132105, Start Card # 1041604. January 30, 2019. https://apps.wrd.state.or.us/apps/gw/well_log/wl_details.aspx?wl_id=544219

(Ref-5) Falcon Cove Beach Domestic Water Supply District. Ordinance No. 2019O3. An ordinance adopting a tiered rate structure and associated water rates. June 15th, 2019. 3p.

(Ref-6) Falcon Cove Beach Domestic Water Supply District – Minutes for Saturday 29 June, 2019

(Ref-7) Safe Drinking Water Revolving Loan Fund Application and Attachments

(Ref-8) Falcon Cove Beach Water District – Annual President's Message for 2019

(Ref-9) Oregon Health Authority. Re: Falcon Cove Beach Water District (PWS #00045) – New Well L132105. Curran-MacLeod Project #1530. Site Plan Approval (PR #77-2019). 6p.

(Ref-10) Publicly Available Rainfall Data. https://www.cocorahs.org/WaterYearSummary/

(Ref-11) Publicly available water use report based on water right. Permit S28972 – Falcon Cove Beach Water District. 79387 Ray Brown Rd Arch Cape, OR 97102 https://apps.wrd.state.or.us/apps/wr/wateruse_query/wr_wur_wris_report.aspx?snp_id=43608

(Ref-12) File FCBWDSDWRLFAppAttachE22019_20AppBudget063019Exp.pdf detailing budget for the period 6/30/19 to 6/30/20.

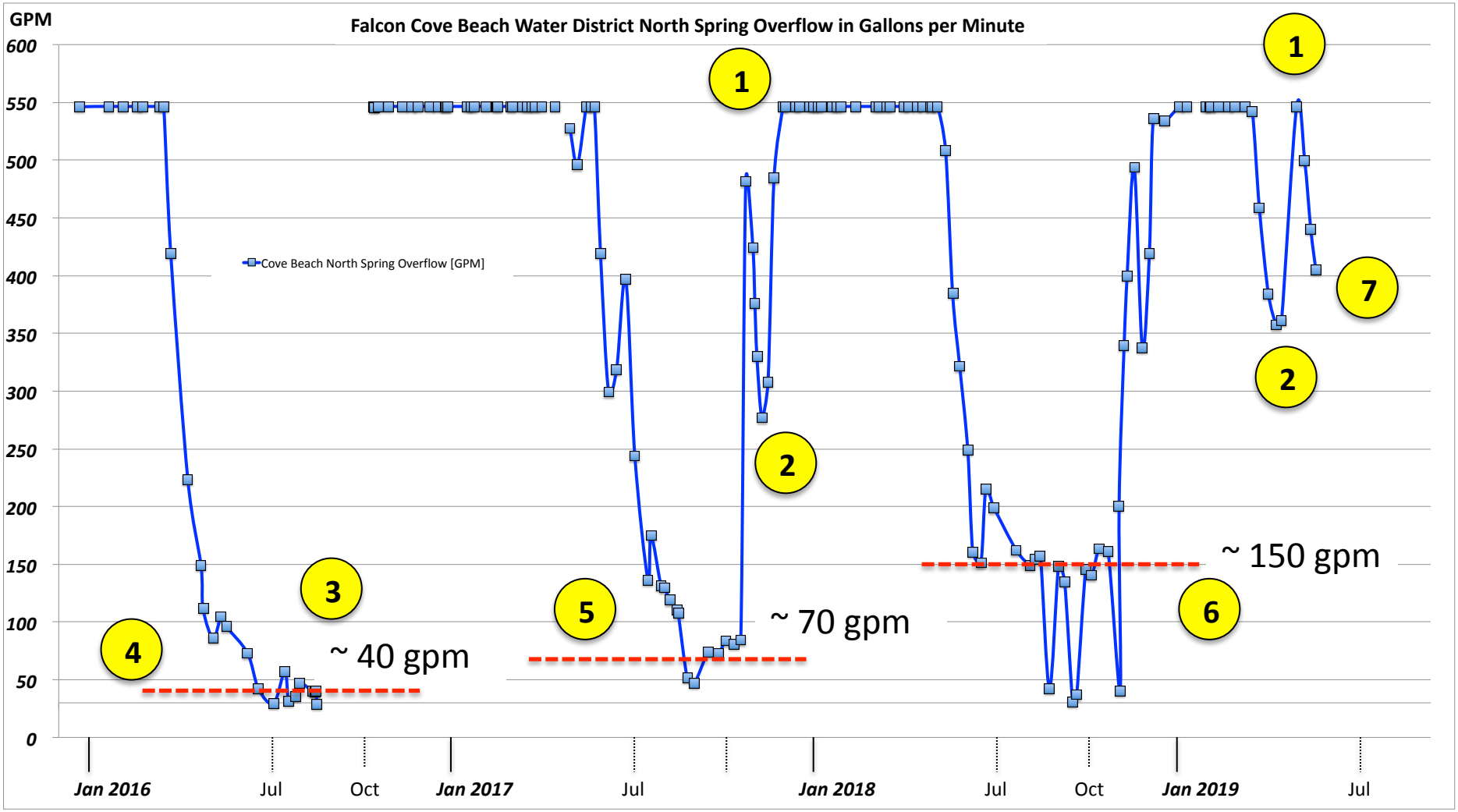

Figure 1 - Cove Beach North Spring Overflow in Gallons per Minute (GPM) . Numbers are discussed in the main text

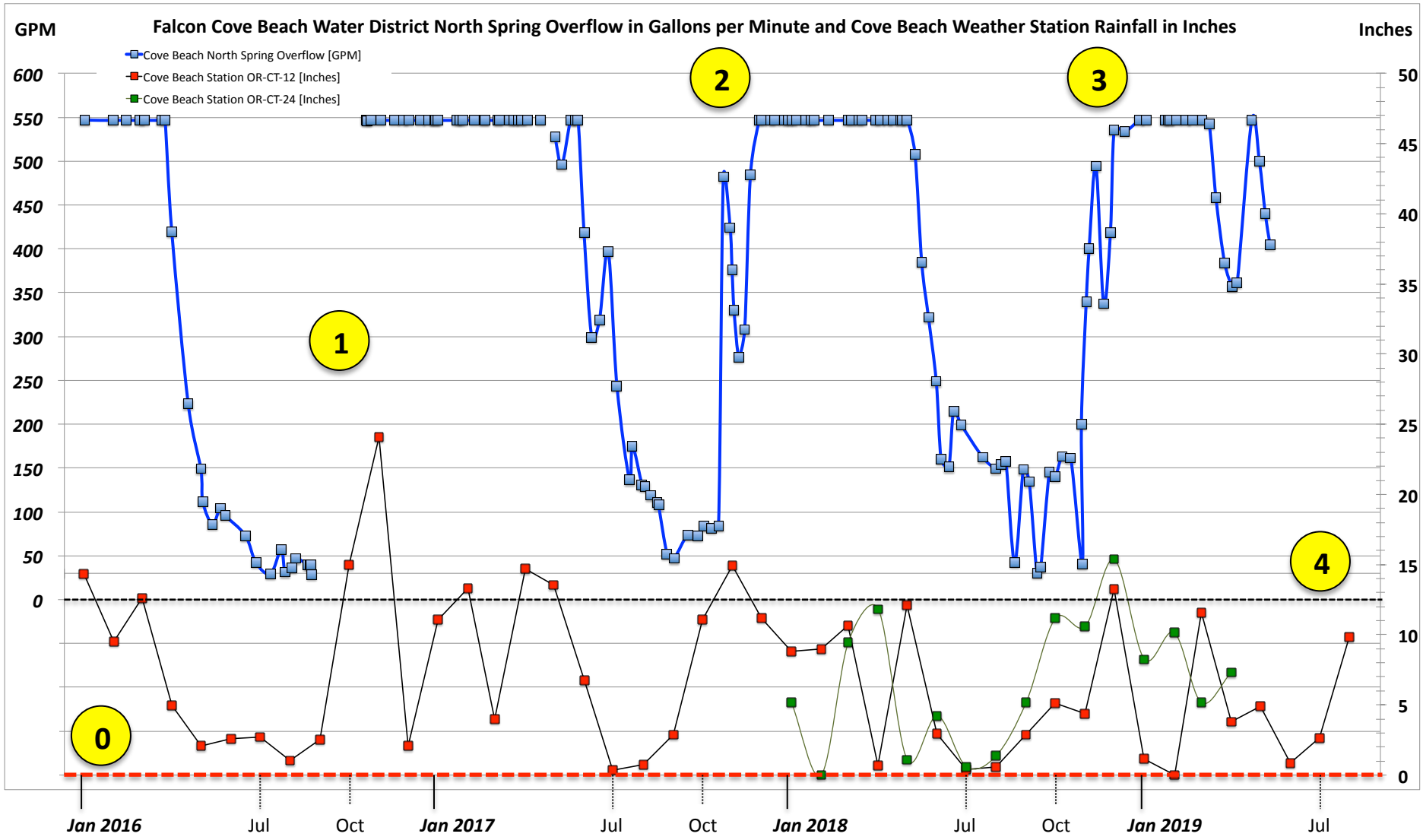

Figure 2 - Publicly available rain data collected from weather stations in Cove Beach OR, as compared with North Spring Output.

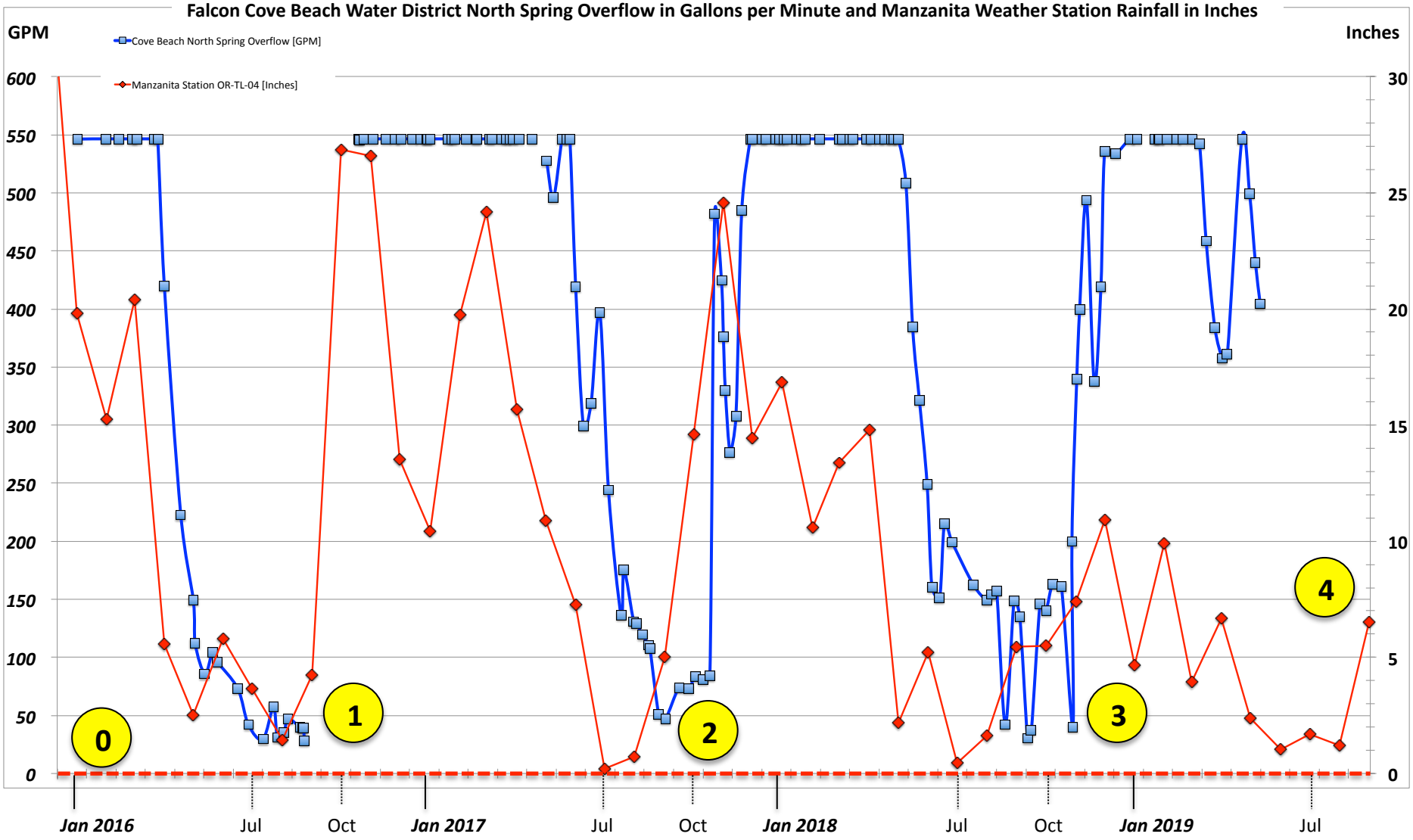

Figure 3 - Publicly available rain data collected from a high-resolution weather station in Manzanita OR, as compared with North Spring Output.

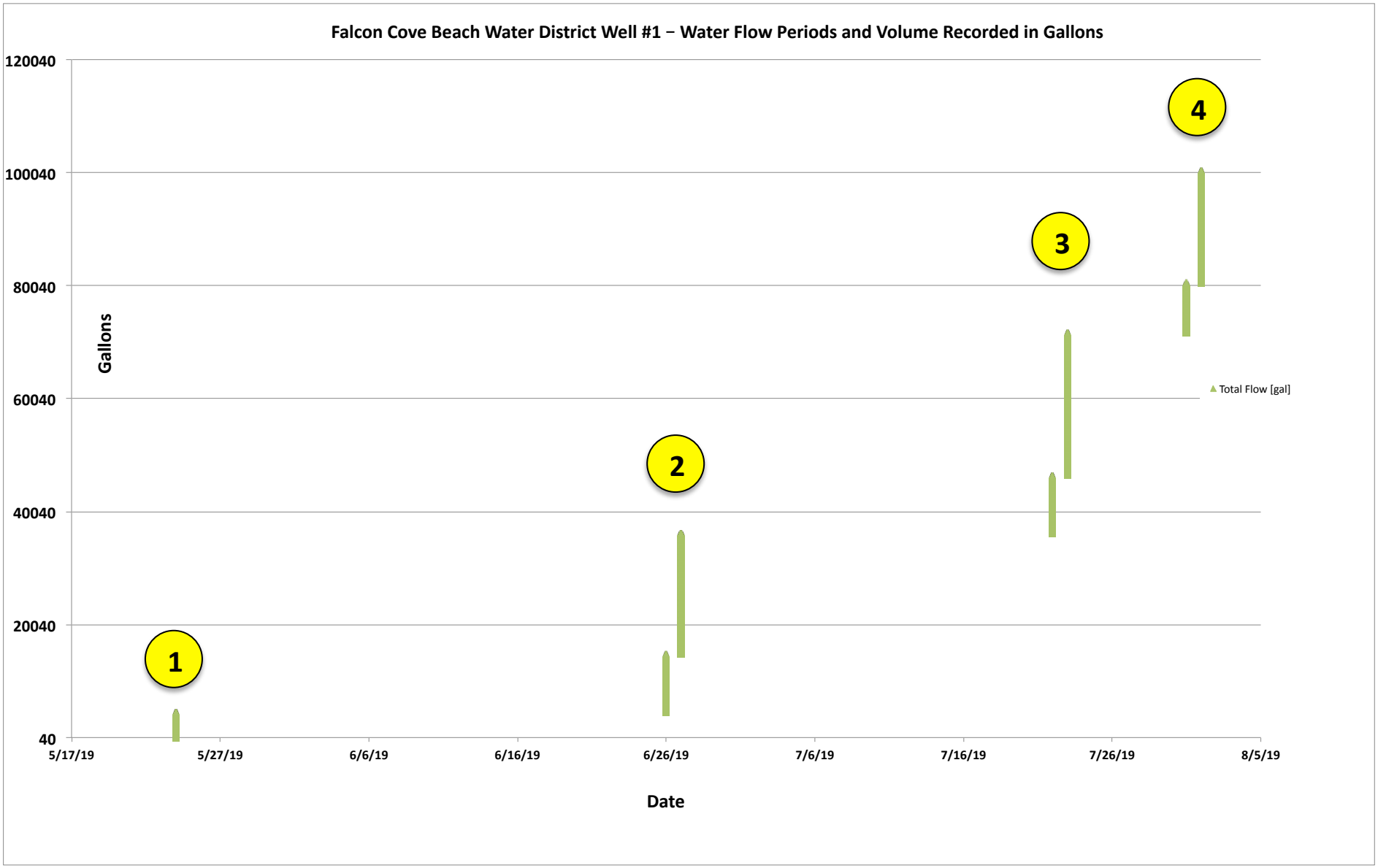

Figure 4 - Flow periods for FCBWD Well #1 taken on 4 separate occasions.

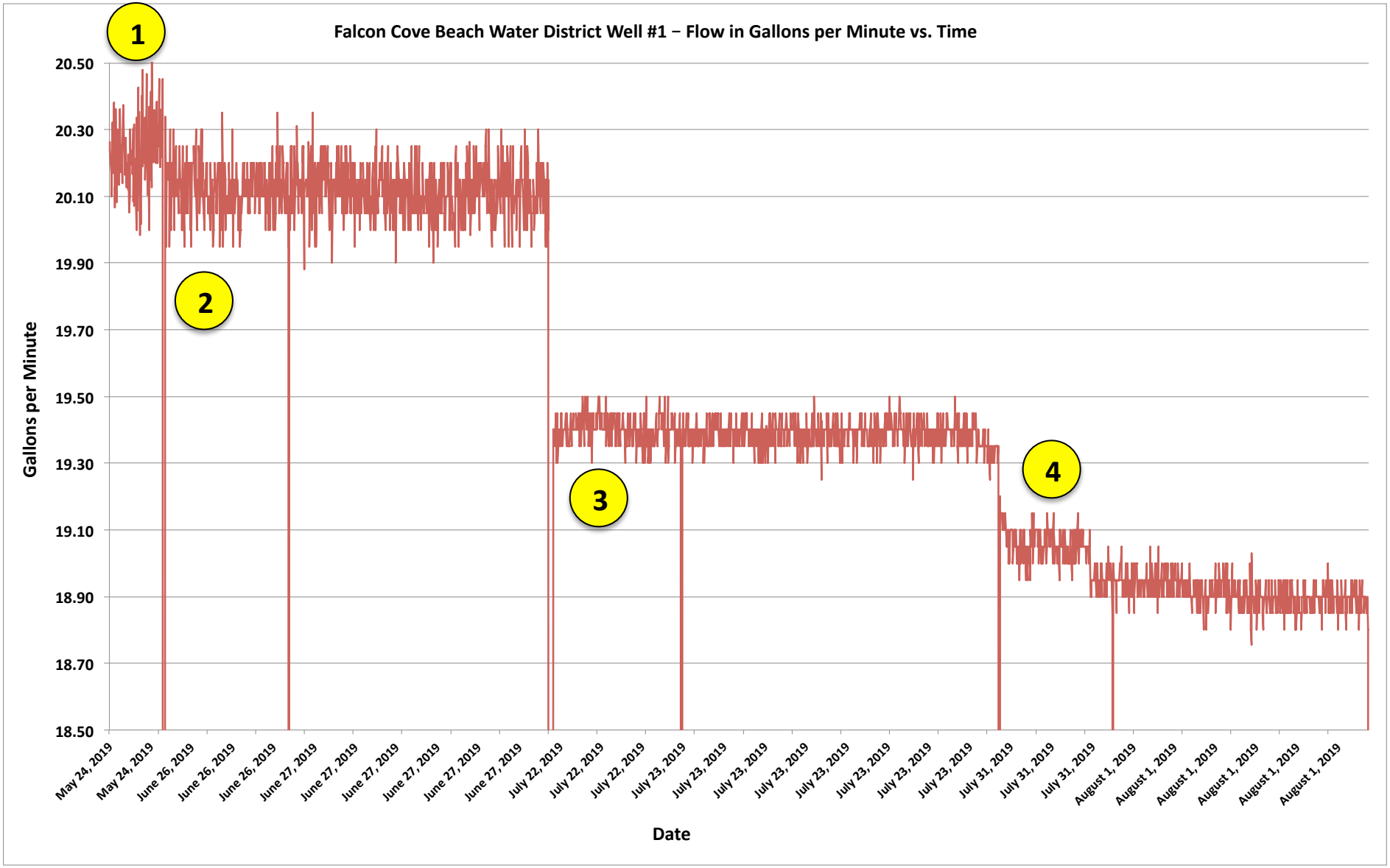

Figure 5 - Flow rates for FCBWD Well #1. The time between flow periods has been condensed to better show the step rate in the flow.

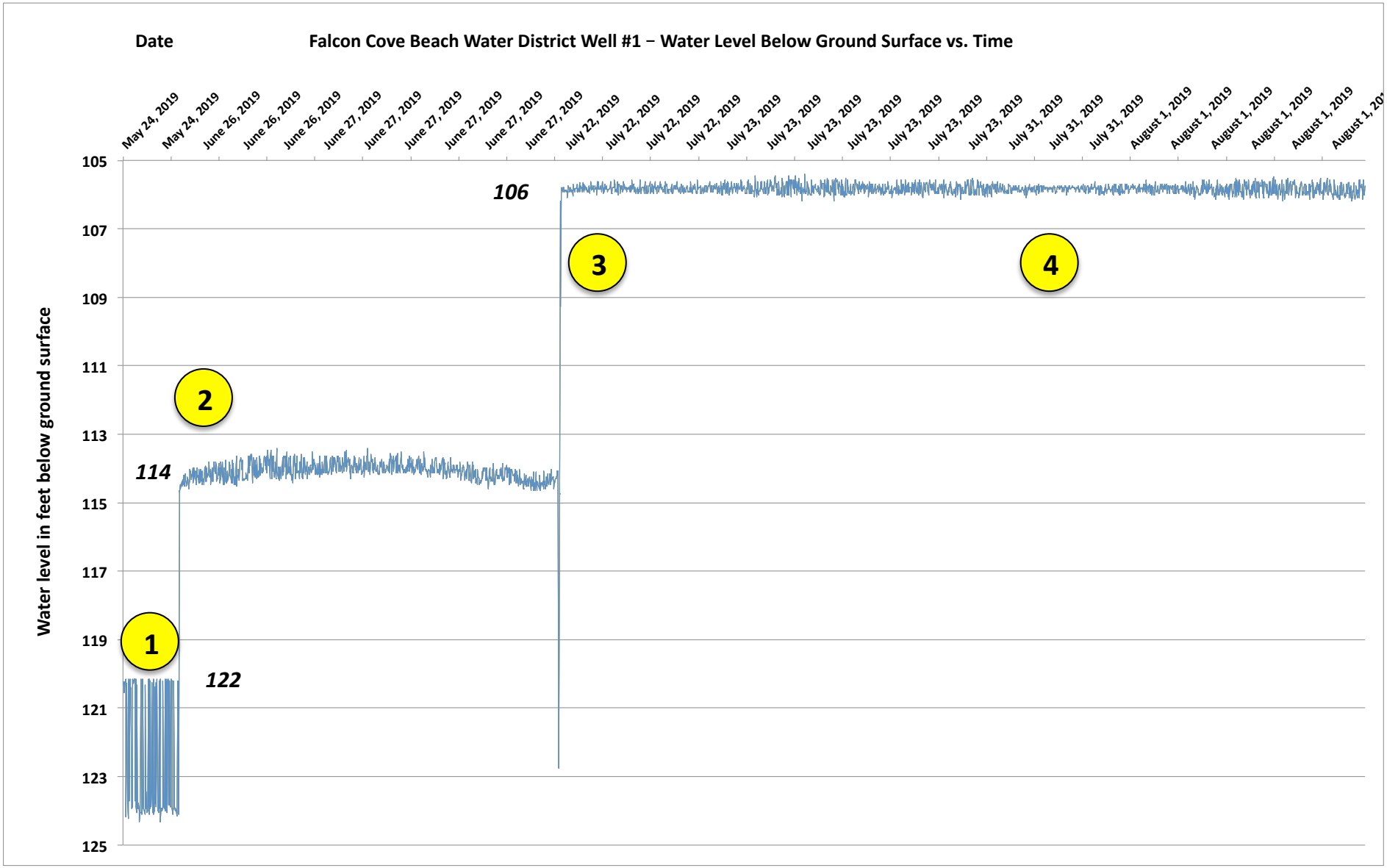

Figure 6 - Water level for FCBWD Well #1. The time between flow periods has been condensed to better show changes in water level. Note step-wise character of the water level, and lack of change in the water level between actual measurement periods suggesting the well was flowed continuously.

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From: Jennine Varhola
To: WRD_DL_feasibility study grants
Subject: Public Comment NOT recommending funding for Feasibility Study in Falcon Cove
Date: Wednesday, April 29, 2020 12:49:37 PM

4/28/2020

Grant Program Coordinator
725 Summer Street NE, Suite A
Salem, Oregon 97301

Re: Public Comment in support for NOT recommending funding for the Feasibility Study Grant. "Falcon Cove Beach Water District ASR Study / Falcon Cove Beach Water District"

To Whom it may concern:
I am a property owner in Cove Beach Oregon. I agree with the current recommendation of the Oregon Water Resources Department to NOT fund the feasibility study by the Falcon Cove Water District. I agree that the feasibility study is not needed because there is little evidence that an ASR is needed.

In addition, I and several neighbors have serious concerns about the process by which the water district has proceeded and suggest that until this is resolved, no further support of new studies or projects be granted.

Also, I support reversal of the moratorium on new water connections. It seems there has been misinformation and incorrect data used to support the moratorium.

Thank you.
Sincerely,

Jennine Varhola
503-880-8770
jvarhola5@gmail.com