RH2 ENGINEERING
Bothell
22722 29th Drive SE, Suite 210
Bothell, WA 98021
1.800.720.8052 / rh2.com

July XX, 2023

Mr. Richard Rodriguez
Regional Planner
Northwest Drinking Water Operations
20425 72nd Avenue South, Suite 310
Kent, WA 98032-2388

Sent via: *Email*

Subject: **Submittal #21-1013 – City of Snoqualmie Water System Plan Response to Comments**

Dear Mr. Rodriguez:

On behalf of the City of Snoqualmie (City), RH2 Engineering, Inc., (RH2) is submitting one updated electronic copy of the City's Water System Plan (WSP). The review comments from the Washington State Department of Health's (DOH) letter dated February 10, 2022 are addressed below. DOH comments are provided below in bold text, with RH2 responses in normal text.

Water System Description

1. **Please provide a WSP adoption ordinance from King County.**

   This will be included in Appendix D when received from King County.

Basic Planning Data

2. **The WSP contains actual water use data up to 2017. Please explain the absence of 2018 and 2019 data.**

   Development of the WSP update began in 2018; 2017 was the most recent full calendar year of data available at the time.

3. **Actual water use efficiency total annual consumption figures for 2018 and 2019 are greater than forecasted consumption for those years. Please discuss.**

RH2 compared the reported total production (TP) in the City's 2018 – 2021 Water Use Efficiency (WUE) Annual Performance Reports to the average day demand projections shown in Table 4-13. The City's actual demands are consistently approximately 10 to 20 percent less than the projected demands. This demonstrates that the projected demands presented in the WSP have so far been somewhat conservative.

4. **Distribution System Leakage (DSL) in 2015 was reported as 0% and has been acknowledged as a metering error. However, this value was still used to calculate the 3-year Rolling Average DSL Percentage (Table 4-6). Would using a more conservative DSL estimate, rather than 0%, provide a more accurate 3-Year Rolling Average DSL Percentage?**

   Comment acknowledged. It would be ideal if better information was available to estimate the DSL for this year, but RH2 and the City have been unable to confirm the reason for the negative DSL calculation, so the table has not been changed. The City is committed to monitoring DSL accurately and ensuring that DSL remains below 10 percent of total water use. The City's 2018 – 2021 WUE forms show that DSL has been maintained at 10 percent or less for each of these years.

5. **Table 4-9 only displays three years of peaking factor data. Have peaking factors stayed relatively stable since 2011, or are they decreasing/increasing?**

   Unfortunately, SCADA data prior to 2015 was not available for calculation of peaking factors. As shown in Table 4-9, the 2015-2017 MDD/ADD peaking factor had an upward trend, while the PHD/MDD peaking factor has decreased each year. The City will continue to monitor peaking factors and evaluate trends. The City has a WUE goal to reduce the MDD/ADD peaking factor to 2.5 by 2030.

6. **What would account for the sudden increase in forecasted employment figures for 2031 to 2032?**

   This employment growth is associated primarily with the currently-anticipated timing of Phase 3 of the Snoqualmie Mill Site development.

System Analysis

7. **It is acknowledged that the plan demonstrates adequate capacity up to the year 2030 provided the capital storage projects are built as planned. The source capacity deficiency will have to be resolved in a subsequent water system plan that is reviewed and approved prior to 2030.**

   Comment acknowledged.

Water Use Efficiency Program (WUE) and Water Rights Assessment

8. **Respond to any review comments from the Department of Ecology.**

   Responses to Ecology's comments are included in Appendix P.

Source Protections

No Comment.

Water Quality

Coliform Monitoring Plan; Include five additional sample locations to Table 8 in Appendix J to align with increased monthly requirements.

The City received concurrence for a WFI form update from Brian Wilson (Operating Permits and WFI Program Coordinator, DOH Office of Drinking Water) in April 2022. The updated WFI form results in 15 sample locations which are shown in Table 8. If needed, the City can provide associated e-mail correspondence.

Operations & Maintenance

9. **Thank you for keeping the water facilities inventory updated. Is the City currently working with our operator certification team to ensure meeting the system requirements for Water Distribution Manager 3 and cross-connection control specialist certification?**

   The City currently employs one Water Distribution Manager (WDM) 3 staff and one additional staff is preparing to take the exam. The City also employs one cross-control specialist and one Water Treatment Plant Operator 2.

10. **Consider adding annual or quarterly inspection of reservoir seals and screens (access hatch gasket, vent screen etc.) to the preventative maintenance schedule.**

    Quarterly reservoir seal and screen inspection has been added to the preventive maintenance schedules in Chapter 8.

11. **Does your valve maintenance program include inspection and testing of the air/vacuum valves? If not, please consider incorporating.**

    Air/vacuum valve inspection, cleaning, and maintenance has been added to the preventive maintenance schedules in Chapter 8.

Distribution Facilities Design and Construction Standards

12. **Consider updating distribution construction standards from the 2004 version provided.**

    a. **Please provide design standards for all types of backflow prevention assemblies found in the system (RPBA for example).**

    b. **The combination air valve assembly standard drawings show a drain in the vent line. The Department considers this a potential cross-connection. Think about eliminating the drain line from the air vacuum assemble design.**

    c. **Please include more detail on the disinfection procedure and bacteriological testing of new water main projects in the construction specifications.**

    The City is in the process of updating distribution system construction standards in conjunction with utility system capital improvement projects. These updates are expected to be completed later this year.

Improvement Program

13. Does the City have plans to build a two-way intertie with the City of North Bend? If so, please consider incorporating the project, project feasibility study, or both in the improvement schedule.

Due to the proximity of these systems, an intertie is potentially feasible. It is anticipated that water supply alternatives such as this will be evaluated as part of CIP M1 (Source of Supply Improvements – Study), which seeks to procure an additional source(s) of water supply for the City or to increase the capacity of existing sources.

Financial Planning

No comment.

Other Documentation

14. The water system must meet the consumer input process outlined in WAC 246-290-100(8). Please include documentation of a consumer meeting discussing the WSP, prior to DOH approval of the WSP.

The draft WSP was presented at the July 26, 2021 City Council roundtable meeting; minutes are included in Appendix P. Resolution 1593, Approving the Submittal of the Draft Water System Plan for review to the Department of Health, was adopted at the September 27, 2021 City Council regular meeting (minutes included in Appendix P).

15. Prior to DOH approval, the District's governing body must approve and adopt the WSP.

Documentation is included in Appendix P of the City's adoption of the plan at the July 10, 2023 City Council meeting.

16. Provide a signed SEPA Checklist and SEPA threshold determination with the final WSP submittal.

These are included in Appendix E.

17. Include any comments from adjacent purveyors, the Snoqualmie Tribe, and the District's response to those comments.

These are included in Appendix P.

RH2 has enclosed one electronic copy of the final WSP. If this submittal of information meets your needs for WSP approval, RH2 requests, on behalf of the City, that the WSP be approved. If you have any questions, please contact me at (425) 951-5319 or via email at zschrempp@rh2.com.

Sincerely,

Zach Schrempp, PE
Project Engineer
ZS/mrc

Enclosures: City of Snoqualmie Water System Plan (one electronic copy)

RH2 ENGINEERING
Bothell
22722 29th Drive SE, Suite 210
Bothell, WA 98021
1.800.720.8052 / rh2.com

July XX, 2023

Mr. Jay Cook
Hydrogeologist
Department of Ecology
Northwest Regional Office
PO Box 330316
Shoreline, WA 98133-9716

Sent via: *Email*

Subject: **City of Snoqualmie Water System ID 81080 Water System Plan Response to Comments**

Dear Mr. Cook,

On behalf of the City of Snoqualmie (City), RH2 Engineering, Inc., (RH2) is submitting the following responses to the Washington State Department of Ecology's (Ecology) review comments on the City's Water System Plan (WSP). The review comments from Ecology's letter dated March 1, 2022 are addressed below. Excerpts of Ecology comments are provided below in bold text, with RH2 responses in normal text.

While current use appears to be well below the City's total authorized quantities, projected future demand is expected to increase by approximately 32 percent by the end of the 20-year planning period. Chapter 7 of the WSP estimate the City of Snoqualmie will have a source capacity deficiency of approximately 41 gpm by 2030 and 537 gpm at the end of the 20-year planning period. *These estimates do not track with the City of Snoqualmie's Water Rights Self-Assessment, as provided in Appendix I of the WSP.* Estimates provided in the Self-Assessment indicate no deficiency for the 10-year planning period and a 470 gpm deficiency at the end of the 20-year planning period. No deficiency in annual quantity (ac-ft/yr) was identified in the WSP.

Based on the information provided in the City of Snoqualmie WSP, dated August 2021, future source capacity, as limited by legal availability under state- issued water rights, appears to be an issue. According to the WSP, the City of Snoqualmie is considering an aquifer storage and recovery project as well as other improvements to resolve the projected deficiency in instantaneous quantity. Ecology understands that City of Snoqualmie has active water right applications, G1-27589 and S1-28833 on file, and that the City is actively evaluating the technical and regulatory considerations associated with these pending applications.

RH2 acknowledges this comment; Table 7-2 shows the water source capacity including physical (pumping/treatment) limitations, so the reported capacities for the North and South Wellfields are less than the water rights limitations reported on the Water Right Self-Assessment form in Appendix I.

The City is working to determine the best path forward to resolve the projected water rights deficiency; multiple capital improvement projects have been identified in Chapter 9 to address the deficiency, including exploration of aquifer storage and recovery. The City recently received a Water Resources Streamflow Restoration grant from the Department of Ecology that will fund part of the costs of model development and a feasibility analysis of Aquifer Storage and Recovery.

If you have any questions, please contact me at (425) 951-5319 or via email at zschrempp@rh2.com.

Sincerely,

Zach Schrempp, PE
Project Engineer
ZS/mrc

RH2 ENGINEERING
Bothell
22722 29th Drive SE, Suite 210
Bothell, WA 98021
1.800.720.8052 / rh2.com

July XX, 2023

Mr. Dan Cardwell
Chair of the King County Utilities Technical Review Committee
King County Department of Local Services
201 S Jackson Street
KSC-LS-0815
Seattle, WA 98104

Sent via: *Email*

Subject: **City of Snoqualmie Water System Plan**
Response to Comments

Dear Mr. Cardwell,

On behalf of the City of Snoqualmie (City), RH2 Engineering, Inc., (RH2) is submitting one updated electronic copy of the City's Water System Plan (WSP). The review comments from the King County Utilities Technical Review Committee's (UTRC) open meeting on April 20, 2022 are addressed below. UTRC comments are provided below in bold text, with RH2 responses in normal text.

Table 3-3: The City's population shows zero population growth from 2021-2025. There are only 1000 new residents in the next twenty years? At the same time, 4000 new jobs? Table 4-13 shows the City growing by only nine residents per year from 2025-2029. These numbers all seem ultraconservative. There's no mention of a moratorium anywhere in the document, if that's any part of the rationale.

The population and employment projections reported in the WSP are consistent with the projections provided by the City's Community Development Department, which do not depend upon enactment of a moratorium. The City assumes zero net population growth from 2023 – 2025, and relatively low growth from 2026 - 2029. The majority of the City's current population primarily resides in two master planned developments, Snoqualmie Ridge I and II, which are nearly fully built-out. The three remaining undeveloped parcels are slated for non-residential commercial, a school, and a 46-unit duplex/townhome project for which occupancy is not likely until 2025.

The total City population growth from 2017 to 2040 is projected to be approximately 2,300 people and the total City employment growth from 2017 to 2040 is projected to be approximately 4,600 jobs. Approximately 2,900 of the projected 4,600 jobs are associated with Mill Site Phase 2 and 3, which do not have a residential component. Opportunities for infill residential growth outside of Snoqualmie Ridge I and II, i.e., in historic downtown are severely limited by the presence of regulated floodplain/floodway designations.

Population and employment projections and the their role in the WSP, were explained in some detail by Michele Campbell of RH2, during testimony on a SEPA Environmental Impact Statement appeal in April, 2022, at which the UTRC's Jae Hill attended and also testified.

Page 3-8: "It was assumed that the customers in the UGA outside the City limits would all be annexed to the City by 2040." Are these annexations part of the extremely limited growth in Tables 3-3 and 4-13?

The water system population and employment projections presented in Table 3-3 and Table 4-13 carefully consider that projected City population/employment growth may include annexation of existing water system customers and endeavor not to "double count" these customers when projecting water system growth.

Page 4-2: Priority for extension. City maintains a duty to serve within its retail service area, but specifically deprioritizes properties outside of the corporate limits of the city. This mentions the order of priority for applications, but not how that priority is allocated. Is it done annually? As applications are made?

The City maintains priorities for the extension of water service and acknowledges its duty to serve as noted on pages 4-1 and 4-2. Similar priorities for extension of service were adopted in the City's 2013 Water System Plan, in Appendix E. These priorities are evaluated at the time of determination of water availability based on information available, including development vested by an approved development agreement and related master plan approval, other applications and water demand projections outlined in the water system plan.

Table 4-14: Assuming that no ERUs are added, due to no population increase during the period from 2022-2025, what causes the additional ERUs to begin specifically at 2025?

Table 4-14 shows ERU growth after 2025, commensurate with the water system growth projected in Table 3-3.

Page 10-11 mentions non-rate revenues, and are shown in Table 10-5 to measure 4% of total projected revenue. What do these revenues include? If connection charges, there are probably zero new connections if there is zero population growth.

Per FCS Group, the non-rate revenues include the following: Fire hydrant use permits, water hookup charges, water finance charge/late fees, sales of scrap & junk, miscellaneous revenue, interest on investments, and irrigation finance charge/late fees.

There's not a single mention of "climate change" in the document, much less an analysis of the potential impacts on climate change with regards to instream flows. The document does

mention that minimum instream flows are not met on 66% of days currently (Page 6-8), but doesn't say what will happen in the future.

A new section has been added at the end of Chapter 4 describing potential climate change impacts to the City's water system.

The discussion on potential sources doesn't identify any specific sources. Is the Tolt River pipeline concept being revived?

It is not known whether it is feasible for the City to purchase drinking water directly from Seattle Public Utilities (SPU) due to the distance between the City's distribution system and any existing SPU transmission mains. It is anticipated that water supply alternatives such as this will be evaluated as part of CIP M1 (Source of Supply Improvements – Study), which seeks to procure an additional source(s) of water supply for the City or to increase the capacity of existing sources. Other potential supply alternatives include Aquifer Storage and Recovery (ASR), as well as development of two pending water right applications currently on file with the Department of Ecology, G1-27589 and S1-28833, for which the City is actively evaluating the associated technical and regulatory considerations.

Is there potential for an intertie with North Bend, for either potable water or mitigation supply?

Due to the proximity of these systems, an intertie is potentially feasible. It is anticipated that water supply alternatives such as this will be evaluated as part of CIP M1 (Source of Supply Improvements – Study), which seeks to procure an additional source(s) of water supply for the City or to increase the capacity of existing sources.

Page 13 of the Water Quality Monitoring Plan has the box checked "Yes" for "We can activate an emergency intertie with an adjacent water system in an emergency", but no emergency intertie source is indicated anywhere else in the document.

This portion of the Water Quality Monitoring Plan has been revised, as the City does not have an emergency intertie with an adjacent system that can be used as a source of supply.

There's no reference in the document to the proposed Snoqualmie Mill project. Is this water already allocated? Is it accounted for in the planning documents? Are all three phases considered?

The population and employment growth projected for the Mill Site are included in Table 3-3, which is the basis for the water system demand projections utilized for the WSP capacity analysis and CIP.

RH2 has enclosed one electronic copy of the final WSP. If this submittal of information meets your needs for WSP approval, RH2 requests, on behalf of the City, that the WSP be forwarded to the King County Council for review and approval. If you have any questions, please contact me at (425) 951-5319 or via email at zschrempp@rh2.com.

Sincerely,

Zach Schrempp, PE
Project Engineer
ZS/mrc

Enclosures: City of Snoqualmie Water System Plan (one electronic copy)

RH2 ENGINEERING
Bothell
22722 29th Drive SE, Suite 210
Bothell, WA 98021
1.800.720.8052 / rh2.com

July XX, 2023

Mr. Matt Baerwalde
Environmental Policy Analyst
Snoqualmie Indian Tribe
PO Box 969
Snoqualmie, WA 98065

Sent via: *Email*

Subject: **City of Snoqualmie Water System Plan**
Response to Comments

Dear Mr. Baerwalde:

Thank you for your review comments on the City of Snoqualmie's (City) Water System Plan (WSP). In coordination with the City, RH2 Engineering, Inc. (RH2) has prepared the following responses to the review comments from the Snoqualmie Indian Tribe's e-mailed letter (received on September 20, 2021). Snoqualmie Indian Tribe comments are provided below in bold text, with RH2 responses in normal text.

Snoqualmie Indian Tribe Comment:

Regarding Irrigation

***Concern*: With irrigation representing 1.4% of the City's 2017 connections, but 22% of its 2017 consumption, there is clearly a responsibility for the City to reduce this over-representation for a largely optional consumptive connection class. According to Chart 4-4 of the WSP, irrigation demand has been continually increasing as well. What is not clear from the WSP is if the Class A reclaimed water discussed in Appendix F is a part of the reported irrigation demand in Chart 4-4, and/or the 22.4% of 2017 irrigation consumption. Overall, the WSP should be very careful and deliberate to distinguish "demand" from "consumption."**

***Recommendation*: The Water System Plan update should describe how the City will vigorously pursue options to reduce irrigation demand. This may include installing more resilient landscaping, identifying appropriate measures for droughts, and investigating expansion of using reclaimed water for irrigation. A schedule for feasibility and implementation with associated benchmarks should be included as a component of this work.**

City/RH2 Response:

Thank you for your comments regarding irrigation use.

The City's WSP only addresses the potable water system; Class A reclaimed water production and use is evaluated in the City's Reclaimed Water Reuse Plan.

While the potable water system's peak monthly irrigation consumption occurred in August 2017 (as shown on Chart 4-4), Table 4-1 shows that annual irrigation consumption peaked in 2015 and was lower in 2016 and 2017, even as the number of irrigation connections increased.

As described in the City's Water Use Efficiency (WUE) Program (WSP Appendix F), the City is committed to use of reclaimed water for irrigation. The WUE Program also describes the extensive efforts the City has undertaken to analyze and audit irrigation use in the Snoqualmie Ridge area, including ongoing monthly monitoring. The City is also committed to providing customer education regarding efficient outdoor water use, as described in the WUE Program.

The City has also included a capital improvement program project to assist with achieving these goals. CIP M4, Water Use Efficiency Audit and Programming, as described in Chapter 9, includes plans to hire a consultant to develop and implement a robust city-wide water/irrigation conservation program.

The terms "consumption" and "demand", as utilized in the WSP, are defined in Chapter 1.

Snoqualmie Indian Tribe Comment:

Regarding Residential Use

***Concern*: With single-family residential connections representing 91.7% of the number of connections, and 56.1% of the City's consumption, this is another obvious area where targeted improvements are badly needed. Table ES-6 of the WSSP draft states that per capita residential demand is 86 gallons per day (gpd).**

***Recommendation*: Relative to data reported from other locales within the Puget Sound region, this is an extremely high per capita rate, and should be improved through outreach, education, and potentially code revisions*. Recognizing the precious nature of water resources in the Snoqualmie Valley, the City of North Bend recently passed water conservation code, effective during times of drought. The City of Snoqualmie should consider such common-sense measures and plan for them in the WSP. Regrettably, the WSP does not account for changing future conditions as a result of climate change. Since our region is already suffering from the effects of climate change, including changes in environmental water supply and delivery patterns, the WSP should immediately begin resiliency and adaptation measures aimed toward reducing per capita consumption. At a minimum, this should be a newly adopted goal, and a detailed implementation outline which includes benchmarks and dates should be included for the next 10-year planning period, if not for a longer time horizon.**

City/RH2 Response:

Thank you for your comments regarding residential use.

In evaluating the City's per-capita water use data versus other water systems, it is important to verify that the data is of the same format. While RH2 was unable to confirm the data presented by the Snoqualmie Indian Tribe from Mason PUD (approximately 50 gpd) and SPU (36.7 gpd), it appears that this may be per capita *single-family metered consumption*, whereas the City's residential per capita *demand* of 86 gpd reported in WSP Table 4-7 includes consumption and estimated distribution system leakage (DSL) for several customer classes (including residential, schools, hydrants, outside City connections [not including Snoqualmie Casino], as well as associated irrigation). Accordingly, it is not reasonable to directly compare these numbers. RH2 maintains an extensive database of system-wide per-capita demand data for Washington state water systems, and the City's system-wide per-capita demand appears to be below-average when compared to this dataset.

In response to Snoqualmie Indian Tribe and King County comments, a new section has been added at the end of Chapter 4 describing potential climate change impacts to the City's water system.

Snoqualmie Indian Tribe Comment:

Regarding Water Use Efficiency

***Concern*: The Water Use Efficiency measures described in Appendix F could be strongly improved. While reducing the maximum day demand/average day demand (MDD/ADD) peaking factor (which is likely abnormally high due to the City's overly high seasonal irrigation-related demands) will be important, the WSP does not explain how this will be accomplished. The City is missing opportunities here, as the Selected Supplemental Measures comprise a short list that seems unlikely to produce the stated desired results.**

***Recommendation*: As mentioned above, the City should vigorously pursue resilient landscaping strategies across the City, including new and additional improvements at local golf courses, parks, and private residences. This should be backed up by a modern and well-supported multi-dimensional outreach program, which should go so far beyond the minimal and likely ineffective outreach measures stated in Appendix F.**

City/RH2 Response:

Thank you for your comments regarding water use efficiency.

The City is committed to achieving its stated WUE goals through the measures described in the WUE Program and through CIP M4, Water Use Efficiency Audit and Programming. Reclaimed water use, customer education, and irrigation use analysis (including follow-up conservation measures if needed, as described in the WUE program), are examples of measures that will directly support achieving the City's goal of reducing the MDD/ADD peaking factor. As described in Chapter 9, CIP M4 includes plans to hire a consultant to develop and implement a robust city-wide water/irrigation conservation program. The Snoqualmie Indian Tribe's comments are valued and will be considered as the City continues to work towards more efficient use of water.

Snoqualmie Indian Tribe Comment:

SEPA Checklist Additions Needed:

(1) The SEPA Checklist in Appendix E, Question 5b should be revised to include Endangered Species Act Threatened Status Puget Sound Chinook, Puget Sound Steelhead, and Bull Trout. The City's WSP directly affects water resources in the Snoqualmie River, which will affect these species.

(2) Section 13 of the Checklist should be revised to include, at a minimum, Snoqualmie Falls, a Traditional Cultural Property of the Snoqualmie Tribe as listed on the National Register of Historic Places, and the flows over which have been federally-protected as part of the religious practices of the Snoqualmie Tribe.

City/RH2 Response:

Thank you for your comments on the SEPA checklist. The checklist has been revised to include references to threatened species present in the Snoqualmie River, a description of the Falls Traditional Cultural Property's National Register Status, and FERC hydropower license minimum flow limitations.

Once again, thank you for your review and comments on the City's WSP. If you have any questions, please contact me at (425) 951-5319 or via email at zschrempp@rh2.com.

Sincerely,

Zach Schrempp, PE
Project Engineer
ZS/mrc