Groundwater Management Plan - First Draft Comments -May 16, 2025					
Comment #	**Commentor**	**Document**	**Page/Sect.**	**Comment**	**Final Response**
1-86	COBI Staff			stored in separate document	
87	Ted Jones	Plan	TOC	Revise the outline	Addressed
88	Ted Jones	Plan	Sect 3;4;5	Too much repetition in introductory statements	Addressed
89	Ted Jones	Plan	Gen	Add more of the conclusions and information from the modeling memo into the actual Plan	Addressed
90	Ted Jones	Plan	Gen	Separate existing actions and programs from new or recommended	Addressed
91	Ted Jones	Plan	1	Teds Note to reader. I started underlining things I thought were interesting or quotable in green. Later I found that the authors also had highlighted some things in green. Yellow highlighting is the authors. My notes have yellow tags.	No further response
92	Ted Jones	Plan	14	Suggested edit: must plan to accommodate 1977 new housing units by 2044 while preserving groundwater sustainability per the quotas imposed by the Washington Growth Managment Act.	Addressed
93	Ted Jones	Plan	16	I think EWL should not be on 1/2 foot year across the board. It should be related to the "thickness" of the aquifer and possibly to the rate the level rebounds when a well in the aquifer is shut off.	Addressed
94	Ted Jones	Plan	17	Briefly define groups A and B	Done. Page ER-6.
95	Ted Jones	Plan	17	Breifly define ERU for exec summary	Done. Page ER-6.
96	Ted Jones	Plan	17	This is not clear. The reader at this point does not know that North and South BI systems are KPUDs. And what about the increasing demand on the COBI system?	Addressed
97	Ted Jones	Plan	19	There may be historical reason these are in this order, but I would put the last of these first. Establishing public engagement happened first and the rest flows from it.	Addressed
98	Ted Jones	Plan	20	I think Aspect in particular should be named here.	Addressed
99	Ted Jones	Plan	27	If this applies only to unincorporated Kitsap County we should say that. Nonetheless it is worth noting.	Not addressed - unclear what this was referencing.
100	Ted Jones	Plan	27	Need to see this on a map. How much of the island has Cat I or Cat II restrictions?	The entire island is a critical recharge area basde on city code. EA added context about Kitsap County's Cat 1 and Cat 2 aquifer recharge codes.
101	Ted Jones	Plan	28	This should be defined the first time the Group A and Group B are mentioned. See note in exec summary.	Addressed

102	Ted Jones	Plan	28	This section needs an comprehensive conclusion? The sum of the parts adds up to what? Are the granted quantifiable rights up to the 100 year projection in all cases? We say foreseable future, thats vague. Given rights, claims and unpermitted wells, are the rights realistic or enforcable?	Addressed
103	Ted Jones	Plan	29	Shouldn't these be numbered 1, 2, and 3?	Addressed
104	Ted Jones	Plan	29	Please list some big users in this catergory. Are the golf course irrigation systems in here? Folks are asking who if anyone grants these large water extractions.	Addressed
105	Ted Jones	Plan	31	Is this pertinent?	No further response
106	Ted Jones	Plan	67	Is it evaluated yet?	Not addressed - unclear what this was referencing.
107	Ted Jones	Plan	69	I want to know more about meadowmeer well chloride levels	This information will be collected as part of early management discussions with Meadowmeer
108	Ted Jones	Plan	70	The following map color codes by cleanup status in dot color. Can we do the same in the coding in the table?.	Addressed
109	Ted Jones	Plan	81	We need to focus on this. Is this Surface Water source even in our model?? Where is it?	Addressed
110	Ted Jones	Plan	89	In my view sections 3 and 4 should be entirely rewritten. The outline is not very logical and the details is just way to much restating of the same stuff. You've set the physical and historical stage in sections 1 and 2. Now you need explain the model, how it works and most importantly what the carefully combined scenarios tell us about possible futures. Given those futures what can we do to prevent or lessen disaster. So much in sections 3 and 4 does not take us there.	In progress - major
111	Ted Jones	Plan	89	I find section 3 confusing and redundant. For each identified knowledged/data gap I want to know why it is important that we know more and how big a deal is it to fill the gap in cost, time effort? And who would do it?	Addressed
112	Ted Jones	Plan	89	I don't see a current gap described here. The program is filling an historic need. If its not a current gap it should be included in section 1 or 2. Its the source of our knowledge not the hole in our knowledge.	Addressed

113	Ted Jones	Plan	90	This section as it is written is about the success of the existing program, not the holes in it. Tell me what to fix and how here and give me the rest once in an earlier section.	Gaps are noted
114	Ted Jones	Plan	91	This is the million dollar question. What does the new updated model and all its meticulously defined scenarios tell us? I agree with starting with how it was recalibrated. That goes to its validity.	Addressed
115	Ted Jones	Plan	92	3.4 is not a data or knowledge gap. Its a summary of a current management practice already in place. There deserves to be a discussion of ALL the current management practices that are in place that protect ground water and it should be before you suggest new stratgies.	Addressed
116	Ted Jones	Plan	92	This is the 11th of 19 times the sole source aquifer is mentioned.	No further response
117	Ted Jones	Plan	93	That we are planning to take until 2027 to adopt a 2024 guidance document is worth noting, but a link to it is sufficient. No need to justify or explain LID BMPs that are thoroughly documented elsewere.	No further response
118	Ted Jones	Plan	93	This is all true, but why is it discussed this way here? Are you suggesting the city further promote these things and help homeowners do them? Is this stuff the City should do on their property? When, how urgent, how expensive?	In progress - minor
119	Ted Jones	Plan	94	This is a positive recommendation. Need to see it listed with other actions the city may want to take with costs and other implementation factors so it can be ranked and acted on.	In progress - minor
120	Ted Jones	Plan	94	This seems to be an intro paragraph on why are we considering climate change. Said that already,	Addressed
121	Ted Jones	Plan	94	This discussion on whether more frequent and severe storms increases infiltration is not a data gap either. We are not going to solve it here. we/you selected scenarios that included the more pessimistic case that infiltration does not increase or might go down. This discussion belongs breifly in the section on new model results.	In progress - minor
122	Ted Jones	Plan	95	This sentence does not help anybody's aguement even if the referenced researcher said it. I hear it as "we're all just guessing".	Addressed

123	Ted Jones	Plan	96	Almost everything written here up to this point is about quantity of water spatially and temporally. It would be far more effective to only focus on Quality in this section.	Addressed
124	Ted Jones	Plan	96	the discussion below notes at the end that land use governs where water and sewer systems are placed and what they must do. But this section is better titled Current Water and Sewer Systems.	Addressed
125	Ted Jones	Plan	96	I was told many times in our committee discussions that the GWMP was concerned with how much the systems take out and where they take it out. We did not need to go into how the extraction, and disributions systems work. Yet here we you are descrbing the high and low pressure zones and the resevoirs! I tend to agree now that such system details belong in the water system plan but not the GWMP.	Addressed
126	Ted Jones	Plan	98	Lose this para. I don't want to talk about KPUDs committment to consolidating systems when we're not talking about COBIs committment (i.e. Casey Street).	In progress - minor
127	Ted Jones	Plan	98	DId not expect to see this much detail on the wastewater treatment systems that outfall to the Sound. How is the system detail relevant to GW quality and quanity ?	Addressed
128	Ted Jones	Plan	98	Should be on not yet developed priority list of actions.	Addressed
129	Ted Jones	Plan	99	What does this have to do with Wykoff site? I'd mention the EPA left COBI on the hook for never ending pump and treat costs and all future help from EPA is ow in doubt.	Addressed
130	Ted Jones	Plan	99	So will there be a GWMP recommendation for COBI to fill this service gap?	In progress - minor
131	Ted Jones	Plan	99	See comment above and put all your discussion of Wyckoff together.	Addressed
132	Ted Jones	Plan	100	This is so big. I want to see that map in here.	Addressed
133	Ted Jones	Plan	100	All this has been said before. What the new message here?	Addressed
134	Ted Jones	Plan	101	I would hope see a ban on toxic lawn chemicals outright by schools and parks on BI as a possible strategy. Encouragement is too week. When stream flow is reduced by climate change and increased population the quality of runnoff becomes even more important for salmon.	No further response

135	Ted Jones	Plan	104	All this discussion belongs in a rewritten model results section. The way it is wrtten I want to go back half of the document to see if you said these things or something else.	In progress - minor
136	Ted Jones	Plan	142	Finally this is what I want to read about. You just spent >20 pages on what reads like a scope of work for future work orders.	No further response
137	Ted Jones	Plan	142	These para numbers are out of alligmnet with the sections they are in.	Addressed
138	Ted Jones	Plan	143	Please state this as a strategy. Are you saying that well drilling should be limited in other areas? Where and when?	Addressed
139	Ted Jones	Plan	143	We should have distinct lists of strategies that are in place and working and ones that we are to consider in the future. It should be mentioned as one that is working.	In progress - minor
140	Ted Jones	Plan	144	If the city is doing this, is it working, could it be better?	No further response
141	Ted Jones	Plan	147	This is the stuff the water utility needs to include in a longer range 20 year CIP. It does not matter that we don't know how many, how deep and where, but we need to be planning for more wells in general.	Addressed
142	Ted Jones	Plan	147	Maybe its way out of scope but I hoped recommendations in this area would more inform us more about how long it takes and how much it costs. Saying that we have time does not get the ball rolling.	Addressed
143	Ted Jones	Plan	147	specicially mention increasing island wide fire fighting capability. One house fire nearly drained the South Island system last year.	In progress - minor
144	Ted Jones	Plan	148	tHis is what the UAC already aimed for in our 2020 memo on water systems. Its good to see it reiterated. The city can do more. Meadowmeer?	No further response
145	Ted Jones	Plan	148	I think this is not useful here. We have no surface water to spare unless we can dramatcally impound storm water somewhere. I think the fish already need that water.	Addressed
146	Ted Jones	Plan	152	I hope water utilities are doing that now	No further response
147	Ted Jones	Plan	153	Drought and emergency restrictions need to be designed and authorized ASAP. Each summer is hotter than the last. Are we going to wash our cars, water our lawns and golf courses like nothing is the matter?	In progress - minor

148	Joel Purdy	Model Memo	3	•The Puget Lowland wasn't formed by glacial advances and retreats. The depression itself is a forearc basin situated between the Cascadia trench and volcanic arc. It is a tectonic feature that has been modified by glaciation. •I would suggest changing "Pre-European American settlement" to "Prior to European-American settlement". •KPUD monitors streamflow in Manzanita Creek and water levels in Gazzam Lake. Does COBI still monitor streamflow in the creek draining into Fletcher Bay? •I know that a few streams have local names, but there are not 59 names for the creeks. In Water Supply Bulletin 18 (Garling and others, 1965), there are 38 NUMBERED streams (427 through 464. Only one was named, Port Madison Creek. The numbers established in WSB18 were used in WAC 173-515 for Kitsap WRIA 15. None of the streams on BI mentioned in WAC 173-515 are named.	No further response
149	Joel Purdy	Model Memo	4	•What is meant by "finely packed"?	In progress - minor
150	Joel Purdy	Model Memo	4	•The discussion on why the Qva does not connect from the peninsula to Bainbridge Island could be improved. The primary reason is that the Qva is found above sea level, thus, there is no physical connection between Qva occurrences on BI and the peninsula	In progress - minor
151	Joel Purdy	Model Memo	4	•The average and maximum thicknesses are helpful. Consider adding to other unit descriptions. •The statement that QC1 "is present across all of the study area" is not true. There are portions of the island where it is not present. See Figure 11 of (Frans et al. 2011).	In progress - minor
152	Joel Purdy	Model Memo	5	•Add KPUD's Island Utility Well 2 •Add KPUD's North Bainbridge Well 9 (described in detail on page 8 as a FBA well). •Add KPUD's North Bainbridge Well 10 •I suggest you revise the "(except where bedrock outcrops)" to (except where bedrock exists at shallow depths). Also, outcrops is a noun not a verb. Bedrock crops out.	In progress - minor

153	Joel Purdy	Model Memo	5	•Consider revising the statement “the bedrock is present everywhere”. Are you saying it underlies the entire model area? •There are no volcanic rocks on Bainbridge Island. •Consider revising “on the southern extent of Bainbridge Island” to “on Bainbridge Island generally south of Eagle Harbor. •The KPUD South Bainbridge wells near Lynwood Center are in unconsolidated materials, not bedrock, as are several small water system supply wells and many domestic wells south of Eagle Harbor. Consider revising the statement “This means the southern area of the Island has no named aquifer or aquitard, only bedrock.” oPage 8 (indicating SB8 is in the sea level aquifer) directly contradicts the explanation on page 5.	In progress - minor
154	Joel Purdy	Model Memo	9	•Combining aquifers and confining units seems problematic. How were parameters chosen? Consider adding more explanation on why this was chosen and the advantages/disadvantages. It looks like variable hydraulic conductivity values were used (based on the map). How were these chosen? Consider adding an explanation. •Does combining layers 1-3 render the surface water/ground water interaction of these layers moot? The Qva is the most significant contributor to streamflow.	Addressed in the revised memo.
155	Joel Purdy	Model Memo	5H	•The previous comments are insignificant compared to this comment: The model appears to represent the FBA occurring in the SW corner of the island. What is the basis for this? This is a major departure from previous studies. See the screenshots below from previous studies of Kato and Warren 2000, USGS 2011, and EA 2025. I do not have the Aspect model document readily available.	Addressed in the revised memo.
156	Joel Purdy	Model Memo	Fig 6,7,8,9	•They should be labeled as Groundwater Elevations, not Groundwater Levels	In progress - minor

157	Joel Purdy	Model Memo	Fig 7	•There appears to be two somewhat severe “mounds” of groundwater in the SLA aquifer water level elevation maps, one in the middle of the island and one in the SW. The one in the center of the island initially did not appear realistic to me. However, upon review of previous studies, these appear to be correct, and the severity of the mound is a function of the small contour intervals (10 feet) in these plots compared to previous studies (50 feet).	No further response
158	Joel Purdy	Model Memo	Fig 9	•What is the basis of the GW elevation contours in the SW corner of the island? There are no FBA wells in that area.	Addressed
159	Joel Purdy	Model Memo	31	•The last year in the paragraph is cut off. Is it 2080?	In progress - major
160	Joel Purdy	Model Memo	32	•I think it is telling that given that the prediction that total precipitation is expected to increase between 6 and 9 percent, yet three of the four scenarios are for a decrease in recharge. This is the influence of public involvement. I predict that the scenario of 20% decrease in recharge is going to be the only scenario quoted by the public. This is just an observation/opinion that does not require a response.	No further response

161	Joel Purdy	Model Memo	34	•5.1.3 first paragraph, 100 years should not be hyphenated (see second paragraph). •Peninsula is inconsistently capitalized throughout the document, even within the second paragraph of 5.1.3. e.g. “Peninsula production” should not be capitalized. Same goes for “Island”. •The concept that production on the peninsula is going to capture water and somehow reduce the volume available in the GMA and FBA on Bainbridge is problematic. For that to happen, the pumping on the peninsula would have to either dewater the aquifer (impossible) or severely reduce the heads in the GMA and FBA at the western boundary of Bainbridge (highly unlikely). Production from the peninsula aquifers will not limit the water availability on Bainbridge. These aquifers are not rivers where diversions limit downstream availability. It’s more complex than that. Lowering of the heads in the GMA and FBA will actually induce greater leakage from above. This discussion is flawed and could present serious issues if read by and misinterpreted by individuals outside the science.	simulate flow from the peninsula towards the island in the lower aquifers under recent conditions. The production scenario FBA groundwater elevation figures show that the cone of depression around island extraction centers expands with time, and extends past the footprint of the island. This will increase groundwater flow from the peninsula towards the island. Applying an estimated production increase under both the peninsula and under the island should produce a more reasonable simulated gradient across the entire extent of the lower aquifers preventing a gross over estimation of flow from west to east. The discussion here has been modified to refer to gradients instead of volumes of water, but groundwater under the peninsula does eventually flow from west to east and is captured by island extraction centers. Agree that drawdown will increase leakage from the aquifers above, but this is limited by the low conductivity and thickness (>100ft) of the overlying aquitards. The rate of leakage is less than the rate of extraction or baseflow, thus the continuously expanding and deepening cone of depression around island extraction. This concept is not flawed and does not suggests rivers of groundwater in the lower aquifers. The USGS predevelopment model shows a natural flow direction from west to east (peninsula to island) in the
162	Joel Purdy	Model Memo	35	•Another aspect of Group B systems is that there is little growth potential. Production of Group B wells are limited either to a small water right Qa or the 5,000 gallons per day water-right exemption. Thus, nearly all Group B systems are at full buildout. Most small non-public Group A water systems are also at full buildout. Thus, growth potential is essentially limited to expanding Group A systems and exempt well use.	No further response

163	Joel Purdy	Model Memo	42	I have to admit that I skimmed this population projection section, and my comments may reflect this. •Growth projections in Group A water systems could be evaluated using DOH Sentry data by comparing the active connections with the DOH approved connections values. For example, Meadowmeer WS has 311 active connections and a total approved connections of 335. Thus, the system has the growth potential of 24 connections or a population of 60. If I understand it right on Table 10 Low-Rate Scenario, Meadowmeer has the growth potential of 2 persons per year or 200 people in 100 years (growth of 166 according to Table 13). Another example is Bucklin. It has 113 active connections and is approved for 121 connections, or a total growth of 8 connections or 20 people. Table 10 says 1 person per year or 100 people, Table 13 says 62 people. Rose Avenue WS is at full buildout at 20 connections (active and approved), yet on Table 13 it shows a population increase of 9 people. I'm sure the rounding of the numbers in Table 10 is part of the explanation.	Yes, rounding is the explanation for inconsistencies between the two tables. Table 13 list the actual growth applied in scenario development. This approach is reasonable but would assume that current buildout plans are set in stone (maybe they are?) which would be similar to assuming current water rights limits are set in stone (which these scenarios did not assume). This method could be applied in future modifications to scenarios but it seems unlikely that increasing population growth by plus or minus a few hundred people over 100 years will have any significant impact of the model results. Is this approach too practical?
164	Joel Purdy	Model Memo	50	•KPUD's Deer Path well has no production capacity (Table 15). •KPUD's Island Utility wells 1-3 have a current capacity of about 100 gpm each. The wellfields water right is limited to 300 gpm for all three wells combined, Qa=336 acre-feet per year or an equivalent of 208 gpm continuously. Not sure where the capacities of 200, 250 and 250 gpm came from. They are listed as having capacities of 125, 115, and 70 gpm on the DOH Sentry database. •Port Madison and Seabold Heights' wells have capacities of about half of what is listed in Table 15. •Ferncliff has been consolidated with COBI. •NBWC's capacity is about right on Table 16. We hope that the discussion of North Bainbridge system's capacity includes the system's water right limitation of 507 acre-feet and that this limitation is considered in any pumping scenarios.	In progress - minor

165	Joel Purdy	Model Memo	55	•I am not sure how the production amounts from Manchester Water District, McCormick Woods (now consolidated with City of Port Orchard), and Navy Yard Park have anything to do with Bainbridge Island. These systems are located far south of the bedrock high, with no physical way to influence water on Bainbridge Island. I guess because they are within the model boundary, they must be included in the model runs. •The wells that produce water for our Vinland system are located outside of the model boundary. •The production amounts for KPUD's North Peninsula, Vinland, Suquamish, Indianola, Eldorado Hills, Miller Bay, Indian Hills and Navy Yard Park in Table 20 appear accurate.	No further response
166	Joel Purdy	Plan	General	•The editorial notes by Dawn Lawler are visible in the document view of Adobe. Even though this professional reviewer has gone through the document, there are abundant style, grammar and spelling errors. These inconsistencies, as well as font and text formatting inconsistencies, exist in both EA documents that I have reviewed, and these should be resolved in both. See below for specific occurrences. •Several figure numbers in the text do not match the figure titles. •I think that you should note when the figure that you have copied directly from another source has been modified or if it is an unaltered copy. •The entity of the City of Bainbridge Island is referred to as the City, COBI, Bainbridge Island, etc. Pick one and stay consistent. •Non-water system wells are called "homeowner wells", "permit exempt wells", "private wells", etc. Pick one and stay consistent. •Fonts change throughout the document (see p. 4-7 for one such incident). Pick one and stay consistent. •The use of contractions such as "it's", "don't", "doesn't" are unprofessional and should be eliminated from the document. •Inconsistencies of the writing style such as capitalization, hyphenation use, units of measure, abbreviations, acronyms, etc. are blatant and cumbersome.	Addressed

167	Joel Purdy	Plan	ES-5	•Second paragraph. North Bainbridge system seeing 61 to 115% increased water demand and South Bainbridge system seeing 194-373 % increase. KPUD does not have the excess pumping capacity or water rights to meet those demands. This will require new wells, more water rights and the expansion of the infrastructure…and conservation and use of recycled water.	Addressed
168	Joel Purdy	Plan	S2.4.1	•In bullet 3 is the first use of the acronym COBI. The acronym has not been introduced except in the acronym list. In the executive summary the City of Bainbridge Island was designated as the "City", City and COBI seem to be used interchangeably. I suggest that you consistently use COBI throughout the document. Also, the City of Bainbridge Island is spelled out several times after the acronym has been introduced. •The acronym KPUD is introduced on p. 1-2, p. 1-3, p. 2-52, p. 4-2, and p. 5-1. Once is enough and stay consistent, e.g. "Kitsap PUD".	Addressed
169	Joel Purdy	Plan	S2.4.4	•Group A and B water systems are defined here, but the terms have been used in section 2.4, and 2.4.3. The terms are defined again in 2.4.9, 2.8.2	Addressed
170	Joel Purdy	Plan	2-6	•Renumber bullets to start at 1. •The third paragraph mentions the Kato & Warren work on water rights, but there is no reference in the text to the figure (4-3) copied directly from the report. In other words, there is no "(Figure xxx)" in the text. Also, the figure is essentially illegible in the PDF. •In the fourth paragraph there is a reference to "(Figure XX)", but I would expect that figure to show the watersheds closed to further appropriations. There is no such figure.	Addressed

171	Joel Purdy	Plan	2-11	•The current water rights total for KPUD's North Bainbridge system is a Qa of 507 acre-feet and a Qi of 1,646 gpm. •The current water rights total for KPUD's South Bainbridge system is a Qa of 523.9 acre-feet and a Qi of 806.4 gpm. •Manzanita Heights and Sunset Hills water systems and their rights were consolidated with North Bainbridge. Their combined rights are included in the water right totals given above for North Bainbridge. •If you add up the Qa for KPUD's systems as listed on p. 2-11, the total is 3,591 AFY. We have 1,466.1 AFY of water rights for those systems.	Addressed
172	Joel Purdy	Plan	S2.5.2	•The figure labeled Bainbridge Island Surface Geology is not a map of surface geology, but of the surface expression of the aquifers. The key shows hydrostratigraphic units not geologic units. •I see no reference to the USGS detailed mapping of Bainbridge Island Open-File Report 2005-1387 (Haugerud 2005). I would consider this the definitive surface geology map of the island.	Addressed
173	Joel Purdy	Plan	S2.5.3	•There is no mention of the predicted rainfall increases, only the mention of the prediction of more intense rainfall events. I think you should mention that rainfall is predicted to increase 6-9% (something like that), which equates to almost 4 inches more rain each year. •I would rewrite this sentence: "Climate change impacts are projected to result in more extreme precipitation events except for summer that is expected to see a decline in precipitation." To: The current climate models predict an increase in annual precipitation of 6 to 9 percent, resulting in shorter, wetter winters with more extreme precipitation events and longer, drier summers.	Addressed
174	Joel Purdy	Plan	2-19	•Keep the use of "," for thousands. For example, 1400 water supply wells should be 1,400 as later in the same paragraph it is "1,000 feet deep".	Addressed

175	Joel Purdy	Plan	2-22	•I would change the last sentence that starts “These on-site septic systems…” by removing the words “a small amount of”. The contribution of 3 inches of recharge equates to 4,400 acre-feet a year. This is over twice the amount of groundwater withdrawals each year (2,000 acre-ft/yr, Frans and others, 2011).	Addressed
176	Joel Purdy	Plan	2-24	•Do not use “&” in a sentence. Spell it out. •Remove the word “likely” from the second paragraph. There is no physical way that the shallow deposits are hydraulically connected between the island and peninsula. There is only air between them.	Addressed
177	Joel Purdy	Plan	S2.6.3	•I don’t believe that Gazzam Lake has an outlet. At least lake water does not discharge overland from the lake. Water levels decline in the summer due to evaporation and leakage. It should be noted that the lake is perched at an elevation of about 320 feet MSL and not hydraulically connected to deeper aquifers (Qva, SLA and FBA)	Addressed
178	Joel Purdy	Plan	2-44	•Level II is misspelled.	Addressed

179	Joel Purdy	Plan	2-52	•Why is the following sentence cited from the UAC and not KPUD or DOH? Our estimate of the current population served is 9,254 for our owned systems, so I am not saying it is wrong, just an indirect source. This total does not include Port Madison, Seabold Heights, Onorato, Ferncliff, Blakely, Bainbridge Island Child Care Center, and Agatewood that are no longer managed by KPUD since 2023, nor does it include the population served by Meadowmeer, which is still managed by KPUD. Bill Point and Island Utility were consolidated with South Bainbridge in 2023 and are included in the total population given above. •I think a discussion paragraph on the difference between primary and secondary contaminants, and state action levels is warranted. The phrase "secondary contaminant level set for protect aesthetic qualities of water and are not heath-based" is repeated four times (and should be reread and edited, i.e. "set for protect"?). All MCL exceedances except arsenic and coliform listed in the bullets are secondary MCLs. •The MCL for arsenic is 10 ppb (0.010 mg/L)!!! •This whole discussion is poorly presented. Singling out systems with mostly spurious results is not productive. A general discussion of iron, manganese, arsenic, etc. would be more valuable. For example, you report North Bainbridge has low concentrations of arsenic and sodium is 29.4 mg/L. Why even mention these? You should also mention that sodium has no MCL, only a state action level.	Addressed
180	Joel Purdy	Plan	S2.8.1	•Can't you show the historical water use for COBI? KPUD has good data for systems from 2015-present for South Bainbridge and from the late 1980s for North Bainbridge from time periods after KPUD acquired these systems.	Addressed

181	Joel Purdy	Plan	S2.8.1	•The second paragraph makes no sense to me. You say that in 1973 KPUD obtained 1,359 acre-feet of water rights. Later you say that the dates are the priority dates. My records show no water rights associated with any of our Bainbridge systems that have priority dates of 1973. Also, we do not have a single water right of 1,168 AFY as implied by Figure 4-16. Further, our water-right annual totals and priority dates for all our owned systems are as follows: SystemWater Rights Qa (acre-feet)Priority Dates Harbor Crest351983 Island Utility (now consolidated with S. Bainbridge)3361988 North Bainbridge5071964, 1969, 1970, 1971, 1972, 1982, 1985 South Bainbridge523.91962, 1972, 1979, 1980, 1983, Bill Point (now consolidated with S. Bainbridge)64.21972 Totals1,466.1 •I question whether the total water rights are 7,282.67 AFY (I found the actual total three pages later) as shown on Figure 4-16. This disagrees with the total of 5,118 AFY that is presented on p. 2-8. Also, KPUD has 1,466.1 AFY of water rights on Bainbridge. However, you say in the text on p 2-11 that we have a total of 3,591 AFY for our systems. Is that extra 2,124.9 AFY (3,591-1,466.1) included in the 7,282.67 AFY total? Did you differentiate between primary from secondary water rights?	Cert G1-20706C is identified in Ecology's water rights database as a KPUD No. 1 Water right. This right is for the Fletcher Bay Wells and is now owned by COBI. It has a priority date of 6-14-1973 and was issued for 1,168 AFY. The text was revised to reflect this information. All data for water rights was obtained from Ecology's database.
182	Joel Purdy	Plan	2-56	•It should be noted that records of wells, i.e. water well reports, were not required before 1971 and recordkeeping and tracking have dramatically improved since the late 1990s and early 2000s. This is a factor in the comparison of the 1960s and 1980s. This is thoroughly discussed on p. 5-25. Some excerpts of that should be here too.	Addressed

183	Joel Purdy	Plan	2-58	•Explain why it is stated that there are 80 wells serving Group A systems, 135 wells serving Group B systems, and an estimated 1,350 domestic wells, totaling 1,565 wells, yet on p. 2-56 it is stated that there are records for 2,060+ (1,800 + 260 plus) wells, and on p. 5-24 it is stated that there are 2,000 water supply records. Please explain the discrepancy between the numbers. My suspicion is that your 2,060 plus records include duplicates and numerous records of well decommissions that are included as water wells based on my experience working with that database. There is a detailed and well-written section about Ecology's well log database that starts on p. 5-24. That text should be referenced here.	The text was revised to address this comment and note the limitations to Ecology's database/records and why the number of wells is uncertain.
184	Joel Purdy	Plan	2-60	Figure 4-179" on p. 2-60 •Check the figure number •You have two different colors for KPUD. •Port Madison and KPUD appear to have the same colors. Same with Ferncliff and Meadowmeer. •Bill Point Water System is now part of South Bainbridge WS. •Ferncliff is part of COBI Table 4-6 Use what you see fit of this information: •Bill Pt water (now part of South Bainbridge water system) technically has 4 wells, but one of the wells hasn't been active for decades. •Ferncliff has two wells. None are now in use since being consolidated with COBI. •Meadowmeer had four wells drilled. Two wells are actively serving the water system, one was decommissioned, and another is emergency backup and hasn't been used for decades. •North Bainbridge has 10 wells, but only five are actively used. •Port Madison only has two water supply wells. The other is capped and has not been used for decades. •South Bainbridge only has four water supply wells (Wells 7-10). The first 6 wells were decommissioned long ago.	Addressed
185	Joel Purdy	Plan	2-64	•What are the predicted precipitation totals? You only mention the stressors without mentioning that total precipitation is expected to be about 5 to 9% more. This is significant and should not be left out.	Addressed

186	Joel Purdy	Plan	S3.1	•A decline in aquifer level does not necessarily equate to exceeding natural recharge rates. A decline in aquifer levels (potentiometric surface) could be a response to continual pumping withdrawals from the aquifer and not the exceedance of the recharge rate. Once the pumping rate stabilizes, the potentiometric surface of the aquifer will stabilize. •Wells should not be referred to as "Large production wells", which makes me think of large-diameter wells, but should be referred to as high-capacity wells or wells with high pumping capacities.	Addressed
187	Joel Purdy	Plan	S3.3	•First, I know that a few streams have local names, but there are not 59 names for the creeks on the island. In Water Supply Bulletin 18 (Garling and others, 1965), there are 38 NUMBERED streams (427 through 464. Only one was named, Port Madison Creek. The numbers established in WSB18 were used in WAC 173-515 for Kitsap WRIA 15. None of the streams on BI mentioned in WAC 173-515 are named. •Second, KPUD has monitored Manzanita Creek continuously since 10/12/17. We have stage and streamflow data available on our website. I also believe that COBI monitors streams (Springbrook Creek for one), but I do not know the details or have I reviewed the data. KPUD would be happy to join, or even lead, the effort in obtaining streamflow data from more streams on Bainbridge. •Third, it is easy to say monitor more streams on the island. We have run into obstacles in our numerous attempts to monitor the streams including: oMost streams on Bainbridge have flows that are often too small to accurately measure. Measurements of narrow and shallow streams are highly susceptible to measurement error. oMajor precipitation events rearrange the steep steam channels such that the rating curves must be adjusted often. oAccess to stream channels at locations that are conducive for measurements may be difficult to obtain.	The text was revised to address this comment.

188	Joel Purdy	Plan	S3.3	•Don't use contractions such as "wasn't" in formal documents. It doesn't look professional. •Up until now we have had discussions of the state of things, stats and data. In this section and the next, there are numerous recommendations that may be lost in the text. Hopefully, there is a summary of these recommendations.	The text was revised to address this comment.
189	Joel Purdy	Plan	S3.4	•I agree with the emphasis of bioretention, rain gardens, stormwater infiltration, etc. to increase groundwater recharge. •I also agree with preservation of natural systems over engineered ones.	No further response
190	Joel Purdy	Plan	S4.1.1	•Here it is stated that Group A systems provide 95% of the "connected population", but on p. 2-58 it is stated that Group A systems supply water to about 71% of the "island's residents" and Group B serve about 5%. Maybe this is a function of semantics, but it is confusing. Are you saying that 95% of the people served by Group A and B water systems are served by Group A systems? How could it be that 5% of the residents are served by Group B system on p. 2-58 and 5% of the "connected population" is served by Group B systems? •South Bainbridge also consolidated the Bill Point water system in 2023.	Addressed

191	Joel Purdy	Plan	S4.2	It is stated that the: groundwater system faces multiple stressors, including: •A 50% increase in demand to accommodate population growth. Who said this? Where is it in this document? This is a model scenario chosen to SIMULATE population growth of 84% to 178% (p. 3-4). •A 20% reduction in recharge rates due to climate change. Who said this? Give me a citation that there is a predicted reduction in recharge rate of 20% because of climate change. In fact, there is a predicted increase in the annual precipitation of about 6 to 9%. That would lead most people to a predicted INCREASE in recharge. The 20% reduction of recharge is a random scenario that the was selected by advisory groups to run for the model. No one at the Climate Group predicts a 20% reduction in recharge rate. This is extremely frustrating to see the 20% reduction in recharge presented as fact. •A 4-foot rise in sea level from climate change. The prediction is for a 28-inch rise in 75 years and 46 inches (almost 4 feet) in 125 years. I thought the model runs were 100 years, not 125 years. Thus, the paragraph that starts with "These declines are particularly concerning…" should be revised to something like this: These predicted declines are concerning when considering potential future demands. Model scenarios were chosen with input from advisory groups to simulate what if other potential future stressors were added. These scenarios include: •A 50% increase in demand to accommodate population growth as estimated(?) by the consultant. •A 20% reduction in recharge rate suggested by advisory groups. •A 4-foot rise in sea level from climate change predicted by UW Climate Group by 2150.	The text was revised to address this comment to correctly represent the modeling scenarios.
192	Joel Purdy	Plan	4-10	•Again, contractions such as "it's" and "don't" aren't professional (pun intended).	Addressed
193	Joel Purdy	Plan	S4.4	•It is stated that deeper aquifers are interconnected with Kitsap Peninsula, but earlier it is stated that there is no evidence of the interconnection (Section 2.6.1). There is a lot of inconsistency when discussing the relationships between peninsula and island aquifers. •The statement that "When production rates increase in these aquifers on-island, there is less water available to flow from off-island extraction wells (EA 2025)." This statement is confusing at best. As a hydrogeologist, it makes no sense to me.	The text was revised to address this comment.

194	Joel Purdy	Plan	S4.4.4	The North Bainbridge system has a current water right limitation of 507 AFY, or 165.2 MGY. Yet the scenarios have usage of 237 to 317.4 MGY from the system. Are these scenarios realistic? Same goes for South Bainbridge, our water rights limitation is 924.1 AFY, or 301.1 MGY. The modeled increase of 194% and 373% over the current rate of 169.5 MGY increases equate to an increase of production to 327.4 to 631.5 MGY. These suggest a dramatic need to increase in well capacity and water right permits at these systems. Again, is this realistic? This amount of increase for South Bainbridge MUST come from areas north of Eagle harbor where bedrock is not encountered at shallow depths. Also, I thought there was a 50% increase in demand to simulate growth (see Section 4.2).	Text was added to clarify that the modeling scenarios are independent of the water rights limitations, and to explain the challenges of changing existing or obtaining new water rights.
195	Joel Purdy	Plan	S4.4.8	I think this section overstates the importance of the sole source aquifer designation. It is only effective on federally funded projects. Also, note the lack of capitalization of sole source aquifer, which is inconsistent throughout the document, there is even a hyphen in some of the uses in the document.	Addressed
196	Joel Purdy	Plan	S5.1	•A few sentences in the second paragraph should be rewritten because of missing or misspelled words.	Addressed

197	Joel Purdy	Plan	S5.2.1	•The phrase “in collaboration with Kitsap PUD (KPUD)” is a stretch. First, just use the acronym KPUD that you defined several times already. Second, KPUD shares its water level and production data with COBI every year. KPUD has had no input on which wells they monitor, and we do not receive their data…The “collaboration” is in essence a one-way street. Third, KPUD has wells that have data for much more than 20 years. For example, KPUD has over 45 years of monitoring data for the Fletcher Bay Observation Well and over 48 years of data for the Bloedel Farm Well. •GWMP is misspelled on p. 5-4. •The paragraph formatting is different within the Groundwater Monitoring section. •The Hydrogeologic Cross-Section of Bainbridge Island is presented three paragraphs before the discussion of it. •There is a paragraph break within the last paragraph of the Groundwater Monitoring section.	Addressed
198	Joel Purdy	Plan	5-12	•The sentence “As such, these streams have no water legally available for new water rights and are protected from proposed future groundwater or surface water withdrawals that require water rights.” is poorly written and could lead to the interpretation that no water rights could be obtained within the basin. That is incorrect. New groundwater rights can be obtained if estimated impacts to streamflow from groundwater is mitigated in full as is stated in the GWMP at the top of p. 5-22. •It is written sea-level aquifer and Sea Level Aquifer in the same paragraph. Pick one and stay consistent.	Addressed
199	Joel Purdy	Plan	5-15	•The text states that there are four wells monitored for water levels by COBI and one by KPUD, for a total of five wells. There are only four wells shown on the water level figure. •You should not capitalize directionals of east, west, north and south. Yet, they are here even though in some paragraphs they are not.	Addressed

200	Joel Purdy	Plan	5-18	•The figure referenced in the text for data gaps show area #2 for a potential location of new monitoring wells. There are no FBA wells in that area that is underlain by bedrock.	Addressed
201	Joel Purdy	Plan	5-22	•I believe that the limit for permit-exempt well withdrawals is now 950 gpd in Kitsap County. It might not be official yet. Check with Kitsap Health District. •Suddenly, all numbers are spelled out (third paragraph), inconsistent with previous text. •Are the streamflow locations monitored by COBI continuous? If so, that is contrary to the statement that no continuous streamflow data is collected on Bainbridge (see Section 3.3). KPUD has been monitoring Manzanita Creek continuously since late 2017. Data is available on our website. •Note that KPUD has an in-house database of wells within Kitsap County. The County has been sending us well logs for each new well they inspect.	Addressed
202	Joel Purdy	Plan	S5.2.3	•Text is in a different format. Paragraph heading numbers are off and in blue font. •Restricting drilling to confined aquifers south of Eagle Harbor would effectively result in a moratorium on new wells in that area because there are very few areas where there are confined aquifers because of the underlying bedrock.	Addressed
203	Joel Purdy	Plan	5-30	•If this is implemented, which I do not think is necessary, I would recommend that mapping of seawater intrusion risk categories be done by a licensed hydrogeologist experienced in this type of analysis. Also, the precipitation/recharge rate in Island County is much lower than on Bainbridge, and they have known areas of seawater intrusion. However, Island County's ordinance is definitely the gold standard in Washington state.	Addressed

204	Charlie Kratzer	Plan	General	(1)Why are we doing yet another modeling exercise? As I mentioned on Wednesday, every model incorporates new information and revised scenarios for the future. The amount of money spent on careful planning (by revising models and planning scenarios) pales in comparison to expenditures on development and infrastructure changes that will take place over the next 20-50 years.	Done. No further Action.
205	Charlie Kratzer	Plan	General	(2)Why did I get so adamant about the interconnectedness of the aquifers on BI? I have been analyzing the USGS models for several years now and was certain that there is more connectedness than was being portrayed by EA. If all the replenishment of the deep aquifer came from the Kitsap Peninsula, then USGS would not have concluded that recharge from the Kitsap Peninsula is only about 5% of the total. I am also attaching the relevant water budget analysis in the 2011 USGS report. I highlighted the following “For the QA3 aquifer (FBA) under predevelopment conditions, lateral groundwater flow into the aquifer (641 AF/yr) was about equal to the downward groundwater flow into the aquifer (642 AF/yr) or 50 percent from each source. By 2008, lateral groundwater inflow was 364 AF/yr, or 25% of the total and downward groundwater flow into the aquifer increased to 1,057 AF/yr, or 75% of the total. The increased groundwater flow into the QA3 aquifer (FBA) from the unit above can be attributed to pumping from the aquifer drawing more water into the unit.” Knowing of this statement is why I got carried away and mentioned that the confining layers are not made of concrete, which appeared to upset everyone. Anyway, this water budget analysis in the 2011 USGS report really struck me as very significant. So much so that we included a slightly revised/simplified version of it in the GW Fact Sheet as figure 6.	In progress - minor

206	Charlie Kratzer	Plan	General	(3)What's the big deal about the recharge scenarios included in the low, med, and high scenarios? Isn't 7.5% pretty close to 10%? How about if we don't label any of the scenarios as the "most likely"? Well, as I pointed out, recharge is the most important parameter (although the most difficult to quantify). Thus, 7.5% versus 10% is definitely significant. Also, whether EA does it or not, someone (Council, COBI, etc.) will try to put the label of "most likely" on the 3 scenarios.	In progress - minor
207	Charlie Kratzer	Plan	General	(4)Why are the recent number of water connections in Winslow last year relevant to a planning analysis for the next 20-50 years, especially when COBI has some pretty big population increases (11,000) on the table for the next 20 years? This comment seemed to get nearly unanimous agreement from the rest of you during the meeting. If COBI is not planning for growth in the future, then why is there the big discussion about the DEIS and Comp Plan numbers? Why are we trying to figure out the potential impacts of growth on the future of our aquifers, streams, and wetlands? I did not understand the relevance of the statement about last year's water connections and also applications for water rights to this whole GWMP process.	In progress - minor

208	Charlie Kratzer	Plan	General	(5)What are the actual climate change projections from UW CIG? I will have much more about this coming up. As I mentioned yesterday, I am looking at the next 20-50 (or 30-60) years, not 100 years. If you read the UW CIG (2015) "gold standard" report, you will notice the oft-mentioned increase in annual precipitation of 6-9% is for 60 years from now, not 20-30 years. There is also a caveat on the seasonal and annual precipitation numbers – only the summer decrease has complete agreement between the various CC models. There is not complete agreement on the precipitation projections for fall, winter, spring, and annual. On the other hand, there is complete agreement amongst the models on – temperature and an increase of intense storms.	Addressed
209	Charlie Kratzer	Plan	General	(6)The draft GWMP document is hard to review in its current state. Like I said, the draft GWMP is not (in my opinion) ready for review. It is an organizational disaster. The numbering system (sections, figures, tables) is all over the place and there are many passages that are repeated verbatim throughout the report. It's obviously a last-minute cut-and-paste job. On the bright side, I found the Tech Memo very readable and well organized.	No further response
210	Charlie Kratzer	Plan	General	(7)Last point (for now) – the timing of TAC input is too late in the process! I sensed that much of the pushback I was getting from EA had to do with their opinion that they are in the home stretch and are very resistant to significant changes (i.e., more model runs) at this point. Although I understand their feeling on this, it is really on COBI to make the TAC review process relevant, and not just a "rubber stamp". I am not a reviewer who is comfortable with providing a "rubber stamp".	No further response

211	Charlie Kratzer	Plan	General	As promised, I am attaching my revised recharge analysis for your consideration. I preface this with a statement of my intention here. I am going through this effort because the science is of great interest to me, not because I am a Bainbridge NIMBY on this. I have been involved in many studies looking at predictions from models combined with climate change projections, especially during my time with the California Department of Water Resources (DWR). I was part of a team of scientists revising the California Water Plan, a major planning document that DWR puts out every 5-7 years as a roadmap for future water planning. While much of my time on the TAC is being charged to the Suquamish Tribe, many of my hours are basically being volunteered to this effort, as I am a part-time employee (62% time) with the Tribe with many other water-resources-related responsibilities. The primary revision I have made to my attached recharge analysis is to include the results from the UW CIG "gold standard" report (Mauger and others, 2015) along with the results from two downscaled UW CIG on-line tools.	EA reviewed this comment and the associated materials. A separate response document was prepared and provided.

212	Gander 1	Plan	General	of such use within the area. The following table is a compilation of annual production over the twenty year period 2001 – 2021 from the main water supply wells managed by the City of Bainbridge Island (COBI) and Kitsap Public Utility District (KPUD). The information was received via routine public records requests. This information clearly reveals to an interested and non-technical reader that over this period, there was a 20% increase in population (about 4,200 people) and a 67% increase in extraction. Interestingly, this population increase of ~4,200 people reasonably matches the 4,524 population increase recommended by the State of Washington Department of Commerce, and is somewhat close to the Alternative 1 (~5,600 population increase) of the in-progress Draft Environmental Impact Statement and serves as a useful benchmark for the next twenty years. Importantly, it is also real information to be used to assess the twenty-year scenarios in the companion Groundwater Model. This is simply useful information for people like planners and City Council members. It is not as cryptic and interpretive as the discussions of water production that addresses concepts such as Equivalent Residential Units (ERUs) or Water Rights or per capita consumption, which are of course important. The authors of the GWMP need to consider their audience and include simple tables and clear discussions of basic conclusions from such data sets. Ultimately, present and future City Council members may or may not vote to issue bonds to support more water supply wells and attendant infrastructure as we grow. The commenter simply is urging the authors to include this clear and important information, which is routinely presented in other GWMPs. It is useful to City Staff, City Council, the Planning Commission, Utility Advisory Committee, Environmental Technical Advisory Committee and of course the public. Also included in this table is production information from ten other BI production	Comment is noted. All files will be provided for the GW Model and GWMP.
213	Gander 1	Plan	S2.6.1	Comment #4: This 60-65 gals/per capita/per day requires a reference),	Addressed

214	Gander 1	Plan	S2.6.2	Comment #5: This discussion is disjointed with statements about water rights and well construction and population, etc. The authors need to first lay out some basic historic to current water production information along the lines of the table I presented in the General Comment at the beginning of the document. DATA IS AVAILABLE FOR THE MAIN PRODUCING WELLS FROM 2001 THROUGH 2024. And it is a simple matter to get production data from KPUD and COBI through 2024 (because I have it through 2023 – it was acquired through routine public records requests. I believe you have this data too but you have chosen not to include it and prefer to discuss historical and current use in the context of water rights. Including facts about water rights is certainly part of the story but I know that Mr. Nazy is well aware that actual production is of course a key element as well. And by the way I see Mr. Nazy is still contributing to this effort as he made comments embedded in this document dated April 13, 2025. Personally, it does not bother me that he is working on this document because he is well-qualified to do it. What is concerning is the fact that he and his cohorts are purposefully leaving out basic production data. Please do the assignment as agreed and follow the outline per Chapter 173-100-100 WAC and include the production data along with the water rights data.	In progress - major

215	Gander 1	Plan	2-58	Comment #6: This paragraph is a reasonable start but as the commenter noted in the General Comment, it is appropriate to include a 20 year data set on the biggest producers to give the reader some real-world information, instead of the more abstract factoids about the water rights. Mr. Nazy, the commenter freely admit that you are much more knowledgeable about water rights than the commenter. The water rights are of course important. However, we also know they are dated information and in virtually all cases based on limited pump test/step-drawdown tests at the time of well installation, many times 30-40 years ago. It is great to have the legal right to produce a certain amount of water annually, but being able to actually produce the maximum allowed - year over year - is an unknown. It is certainly more of an unknown than providing the reader with actual historic production data from 20 years ago through at least 2021 and 2023, and 2024 data are available as well. Additionally, there is very accurate production data from throughout the 90s on the older production wells in the Fletcher Bay Aquifer such as COBI's Fletcher Bay PW, and Sands #1 and Sands #2. KPUD's North Bainbridge #3, #7 and #9 also have data back into the 90s (two of these are in the Sea Level Aquifer and the other is in the Fletcher Bay Aquifer).	In progress - major
216				Duplicate of above	
217	Mike Cox	Plan	ES-2	Could provide a few sentences about what a sole source aquifer is. This is an important concept	Addressed
218	Mike Cox	Plan	ES-2	For the first goal could you say more generally Develop management strategies (eg, water conservation and recharge strategies) to ensure an adequate quality and quantity of ground water in to the future. I think there are multiple managment strategies.	No further response
219	Mike Cox	Plan	ES-2	Maybe a sentence or two on why we need to accommodate these new housing units. This is a crucial assummption and I think important to discuss why in the ES.	Addressed
220	Mike Cox	Plan	ES-3	I would suggest making this into a sidebar. To me this is the problem statement. The goals and objectives are imporant but this is the first time that it states what is the problem we are trying to solve.	No further response

221	Mike Cox	Plan	ES-3	I thnk this section needs to provide more conclusions in regards to what you found in terms of the impact on groundwater quantity and quality. The information provided is important but and needed but to me it is characterizing the system and not providing findings.	The text was revised to address this comment.
222	Mike Cox	Plan	ES-3	Editorial but could you bullet the discussion on the different aquifers. For me it is hard to follow.	No further response
223	Mike Cox	Plan	ES-4	Again editorialbut make these points intobullets points. This is important context	No further response
224	Mike Cox	Plan	ES-4	You need to provide the year that you are compating the SLR with. I assume 2025 but do not know the date the CIG study was completed...	The EA GW Model starts in 2022.
225	Mike Cox	Plan	ES-4	I think you need a footnote or a sentence that explains EWLs. Most people will not know what those are.	In progress - minor
226	Mike Cox	Plan	ES-4	Some context. A sentence on why chloride levels are important to measure.	In progress - minor
227	Mike Cox	Plan	ES-4	Somewhere in the ES I think you need a table that provides summaries of the findings from the different scenarios by aquifer. I think the ES is what the majority of people will read. I do not see a summary of the findings in the ES	The findings by different scenarios have been added.
228	Mike Cox	Plan	ES-4	This is important but gets one sentence. I think the conclusions need to more explicit and highlighted.	The Table of Management Strategies has been added.
229	Mike Cox	Plan	ES-5	Define ERUs	Addressed
230	Mike Cox	Plan	ES-5	This is the first time the increases are mentioned. As I said above I would suggest a simple side bar or table summarizing the changes.	In progress - minor
231	Mike Cox	Plan	1-1	I think this statement should be the introduction to the ES. I think it succiently summarizes the issue.	No further response
232	Mike Cox	Plan	1-3	Has there been a project that the EPA has reviewed and evaluated? The exemptions identified seem to cover a very broad network of entities.	EPA has not reviewed a project on Bainbridge Island based on SSA regulations.
233	Mike Cox	Plan	1-4	Editorial. Take it or leave it. The long paragraphs make it very hard to read. Could you have a bulleted list for the different programs that govern the regulation.	No further response
234	Mike Cox	Plan	1-4	What role, if any, does the Growth Management Act have. If I understand we need to accommodate a specific number of additional people I know the GMA requires less total people in combination what is the impact.	No further response

235	Mike Cox	Plan	2-5	Some context would be helpful in terms of how water rights play into the issues of groundwater management. It is important or not something that needs to be worried about	The water rights text was revised to address this comment.
236	Mike Cox	Plan	2-28	This is an important point to highlight. I would suggest making it a side table	No further response
237	Mike Cox	Plan	2-28	Can you provide some context for these values? Most people will not understand the significance or lack of significance	Addressed
238	Mike Cox	Plan	2-38	In my mind this is another really important finding that gets buried in the report. Maybe you need a table of something that provides the important findings and facts	In progress - minor
239	Mike Cox	Plan	2-38	I think it is important to provide the information from the past studies but is it possible to summarize the different findings so someone coule compare the results. Or is it just background information to show what was done?	In progress - minor
240	Mike Cox	Plan	2-44	I am not sure the relevancy of water quality data from 25 years ago. Great o have the history but if it is not compared to current information not sure its relevance	Additonal text was added on the EWL reports and will be added as an appendix.
241	Mike Cox	Plan	2-45	Again great to have this information but in my mind it needs to be compared to current monitoring. Maybe it is later but it would be easier I think if you talk about the past and the present monitoring together to provide some perspective	No further response
242	Mike Cox	Plan	2-46	I did not know we had all these sites. I was waiting for some kind of conclusion about if this is a problem or not or we do not know.	No further response
243	Mike Cox	Plan	2-54	Is there a reason no new water rights have been issued?	Addressed
244	Mike Cox	Plan	2-60	I think this is very important data to show. Do we have data from KPUD and Winslow broken out by area? Seems like important data to try and understand where water conservation is needed. I know the type of usage is probably not available (e.g., irrigation, golf course etc.) but it would be valuable if it was.	Data to be added as an appendix if available. Table 2-9 was added which includes the water use per ERU for all the water systems available. Water system data is only available by system, not broken down by area.
245	Mike Cox	Plan	2-62	This is a very important number and I am not clear. So are you assuming BI will need to accommodate 4,524 more residents by 2044 given the GMA and HB 1220? Also, what is the projected number further out that I think is also important.	Addressed

246	Mike Cox	Plan	2-62	I am not clear what the future projections are and what implications that has. I see the current but the map is very hard to decipher. Again an important assumption for the future that I am not clear about.	In progress - minor
247	Mike Cox	Plan	2-64	I would put this baseline information on comparison years in the ES.	No further response
248	Mike Cox	Plan	3-1	These are important statements but there is no date or tables wo show the trends over time. Maybe it comes later but it seems when these important statements are made it would be good to show the data	No further response
249	Mike Cox	Plan	3-2	Again some very important findings that need to be discussed more and data provided.	Addressed
250	Mike Cox	Plan	3-3	In the ES it is indicated the recharge is -20 to +15. Also I think it is important to provide information on how the 122% to 167% production increases were calculated. I have not seen that analysis	No further response
251	Mike Cox	Plan	3-3	I think it would be important to provide a table or other way to protray the findings. This is really important findings but no information to support the conclusions	In progress - major
252	Mike Cox	Plan	3-4	It is stated that aquifers can sustain increased withdrawals but above it is indicate there are draw down issues with specific areas. I think again this information needs to be put into a table for show the range of possible outcomes.	In progress - major
253	Mike Cox	Plan	3-4	Not sure why you include the management options here. I think you can reference management options later but not sure this is the location to stated them	In progress - major
254	Mike Cox	Plan	3-4	This seems like it should be in the management options section and not here. Important information but not sure appropriate to have here	In progress - minor
255	Mike Cox	Plan	4-1	Much of this information seems redundant with information presetned above. Maybe it is more appropriate in an appendix.	In progress - minor
256	Mike Cox	Plan	4-9	This is a different conclusion than presented above that indicated isloated problems. Also could yo refer to the tables of figures that show these declines and what level of concern do you have	A new section on the EA modeling results was added.
257	Mike Cox	Plan	4-9	I thought all of these had ranges of change and not specific values. Is this referring to a specific time?	A new section on the EA modeling results was added.

258	Mike Cox	Plan	4-11	I would suggest some type of graph or table to show this data	In progress - minor
259	Mike Cox	Plan	4-11	Seems like you have already discussed all of these above and you are repeating the information.	The text was revised to reduce redundancy.
260	Mike Cox	Plan	4-11	I thought there was minlmal interconnection with off island aquifers?	In progress - minor
261	Mike Cox	Plan	4-20	These have been talked about several times above.	In progress - minor
262	Mike Cox	Plan	4-20	Compare to what date?	In progress - minor
263	Mike Cox	Plan	4-20	Sorry to repeat myself but this finding is very important along with others but it can be lost if not highlighted.	In progress - minor
264	Mike Cox	Plan	5-1	Per our discussion last week I think it would be great if we identify the priority management actions. To do this we will need some sort of criteria for evaluating. I think the table that was developed is a good start.	In progress - minor
265	Mike Cox	Plan	5-1	EWLs have been discussed several times above. Maybe important to retain here since some folks may just read thsi section.	In progress - major
266	Mike Cox	Plan	5-2	I cannot find a table of chart that shows each aquifer and the projected changes over time for different scenarios. I think this is really important to have. It is very difficult to read through all the information for each aquifer and trying to decipher that conclusions.	In progress - minor
267	Mike Cox	Plan	5-4	This is an important conclusion but is buried. I wouls suggest stating this at the beginning of this section or maybe better have a sidebar.	The text was expanded on EWLs, and reports will be added as an Appendix.
268	Mike Cox	Plan	5-4	The text after provides a number of different stratgies. It would be good if you could put those into a summary table.	Addressed
269	Mike Cox	Plan	5-21	As I said before I think you need a summary table to indicates the number of wells, what is monitoried. and the recommendations for monitoring	Addressed
270	Mike Cox	Plan	5-26	I know I am repeating myself but there is so much information I think you need to have summary tables to make it easier to understand what addtional information or actions are needed.	In progress - minor
271	Mike Cox	Plan	5-32	I assume you will include the table that was being developed that provides the costs/beneifts of each strategy,	Addressed
272	Mike Cox	Plan	5-36	Would it be possible to create any water storage areas or reservoirs	No further response

273	Mike Cox	Plan	5-37	Also encourage more impervious services maybe in the code if not already, pricing, rainwater harvesting for new building construction, and landscaping changes	No further response
274	Keenan 1 of 2	Model Memo	01	Reminder to include 2009 Aspect GW Monitoring Program updated Aquifer Hydrographs from 2008 to 2023, please include reporting in GWMP. Also include an updated cumulative rainfall departure graph to compare water level changes. Updated monitoring well list. All Water Well Reports, Updated Groundwater Level Graphs	Data can be included as an appendix.
274	Keenan 1 of 2	Model Memo	01	Should be using best available science. Please reference Charlie Kratzer, PhD 2024 whitepaper on Recharge. Peer review should evaluate EAs assumptions. Numerous requests for documentation to verify EA was denied by EA and COBI	EA reviewed this comment and the associated materials. A separate response document was prepared and provided.
274	Keenan 1 of 2	Model Memo	1	Provide a pumping table for all wells for a 20 year period as an appendix, this raw data is valuable for understanding increase in pumping with increase in population and jobs and business over time.	In progress - major
274	Keenan 1 of 2	Model Memo	10	List the number of wells in each aquifer unit on BI provide a table	In progress - minor
274	Keenan 1 of 2	Model Memo	10	Need to appropriately provide for 3 different scenarios with 3 different sets of parameters, as opposed to low-med and medium-high with another medium-high with only changing recharge see technical memo, as opposed to repeating parameters in EA 3 draft scenarios. Follow 2011 USGS model (referenced below) standards which this project is updating, having solid low, medium and high scenarios, knowing the medium based on best available science will provide the most likely impacts. High is not as likely to occur. Plus, the further out in years you go beyond 50 the less statistically accurate the model is)	Modeling phase is complete. Additional modeling is recommended in 3-5 years.

274	Keenan 1 of 2	Model Memo	10	MEDIUM SCENARIO should reflect ½ between 0 and 20% decrease in recharge =10% reduction in recharge not 7.5%. Medium population and pumping estimates, and medium sea level change. Otherwise, the model inappropriately settles the reader on the lower parameter impacts because the high is less statistically likely than a true medium scenario and artificially low ball expected impacts..	No further response
274	Keenan 1 of 2	Model Memo	12	Different from USGS 2011 or 2016?	No further response
274	Keenan 1 of 2	Model Memo	2	How does this effect model runs?	No further response
274	Keenan 1 of 2	Model Memo	3	Peer reviewers please evaluate EA changes to the model.	In peer review scope
274	Keenan 1 of 2	Model Memo	5	Bainbridge Island is a 30-square-mile island (27.5) within Kitsap County, Washington. The island is located within Puget Sound. The City of Seattle is to the east of the Island and the Kitsap Peninsula is to the west, separated by the 2-mile wide (list the shortest distance and longest distance between Kitsap and BI)P	No further response
274	Keenan 1 of 2	Model Memo	5	(indicate Water System COBI, loation on BI above Eagle Harbor).	No further response
274	Keenan 1 of 2	Model Memo	6	.(list what water system)	No further response
274	Keenan 1 of 2	Model Memo	7	how does it vary from USGS 2011 aad 2016?.	In progress - minor
274	Keenan 1 of 2	Model Memo	8	Include water well logs from Aspect 2009 report in appendix of GWMP and reference them here.	In progress - major
274	Keenan 1 of 2	Model Memo	9	(Peer Review - does this present any modeling issues?	In peer review scope
274	Keenan 1 of 2	Model Memo	9	Do these changes present any problems with modeling?	In peer review scope
274	Keenan 1 of 2	Model Memo	9	Does eliminating the Clay Basal Unit reduce understanding of the thickness of FBA in locations on the Island?	In peer review scope

274	Gander 2	Plan	General	potential inclusion will require some amendments to the wording and location in this section in in some way: 1) Increase the number of wells monitored in all aquifers. Begin this process by taking the current 87 wells being monitoried and expand that number to the same 103 wells that were being monitored in 2009 (see pages 6-7, Aspect 2009). 2) Implement regular monitoring of the fourteen perennial streams and begin watershed rehabilitation to restore stream levels and variably degraded water quality. 3) Preserve and protect critical recharge areas by enforcement of existing regulations. 4) Pass a simple ordinance requiring reporting to aid the management of the drinking water resources on BI. It would be beneficial for all new construction – whether residential or commercial – to estimate, before initiating construction, the project's annual water consumption, and identify which existing well and which aquifer will supply water to that construction. Ongoing water supply and use calculations could then be made and help decision makers plan for increasing use and the decreasing aquifer recharge that is now taking place. San Juan County in Washington State is a jurisdiction with a series of islands similar to BI. They have adopted a straightforward ordinance that follows these guidelines and notes consistency to their Comprehensive Plan. Here are excerpts from Chapter 18.60 Development Standards; 18.60.020 Water Supplies: 27 "A. All development must conform to the standards set by SJCC Title 8, Health and Safety, and must satisfy the policies of Element 4 of the Comprehensive Plan (Water	In progress - minor
275	Keenan 1 of 2	Model Memo	14	Peer review please verify these numbers.	In progress - major
276	Keenan 1 of 2	Model Memo	16	Add column for MGL for USGS 2011 model same or different?	No further response
277	Keenan 1 of 2	Model Memo	Fig 9	Draw arrows on general direction of groundwater flow	In progress - minor
278	Keenan 1 of 2	Model Memo	30	Please refer to Charlie Kratzer PhD white paper on Recharge.	EA reviewed this comment and the associated materials. A separate response document was prepared and provided.
279	Keenan 1 of 2	Model Memo	30	(Höök and Tang 2010). Vuuren et al. (2011) old data? provides a detailed overview of RCPs, their physical representation, and climate models in general. ?????	No further response

280	Keenan 1 of 2	Model Memo	32	What stakeholders were involved in this draft GWMP? Please list. Previously, the draft GWMP August 2022 (40% complete) assembled by Maureen Whalen, former COBI hydrogeologist compiled a list of stakeholders. Please publish that list in the GWMP and denote who was involved, and to what extent, to justify stakeholders. A robust stakeholder process is part of a successful GWMP. See section 1.4 EA COBI Draft GWMP p.22. See references. COBI has held only one public meeting on Zoom years ago during COVID, with very little ability for public input and questions. COBI and KPUD are stakeholders representing the largest water system businesses on the Island, together they comprise 2/3 of water supply to the Island. The remaining 1/3 comprises smaller water systems and private wells. However, the large water system business (COBI and KPUD) represents a conflict of interest as lead involvement in the GWMP and Model and Comp Plan Update and directing EA Consultant objectives. The development of the GWMP directed by COBI has provided opportunities for business development, to set goals and policies to increase water system boundaries, assimilate smaller water systems and water rights, ban private wells, and generate more revenue.	In progress - major
281	Keenan 1 of 2	Model Memo	34	These assumptions need to be peer reviewed. Reference Charlie Kratzer 2024 Recharge white paper	EA reviewed this comment and the associated materials. A separate response document was prepared and provided.

282	Keenan 1 of 2	Model Memo	35	Also account for increased impervious surfaces with increase in population and resulting development, increases runoff and reduces recharge. Even if growth is concentrated in Winslow Subarea and the Neighborhood Centers, there are still new jobs, businesses and industrial development outside Winslow and the Neighborhood Centers to support growth increase impervious areas. In the GW Management Plan include photos of Lynwood Center 20 plus years ago and today, to see how growth reduces recharge areas. Use Google Earth maps. Lynwood is a poster child for the effects of growth. How KPUD S. Bainbridge Water Utility is now working to develop a new well at the north end of Bainbridge to wheel water to the South end of Bainbridge Island in the near future, as the well capacity is not sufficient, and two attempts to drill new production wells in the area to meet increased water demands failed.	In progress - minor
283	Keenan 1 of 2	Model Memo	36	Evaluating future changes in recharge is more than just projected annual precipitation accumulation. This analysis requires peer review. Scenario parameters should consist of Low=0% change in recharge, Medium= 10% loss of recharge, and High 20% loss of recharge. Medium being the most statistically accurate. Table 6. Predicted Changes In Precipitation Between October And March (2010-	In progress - minor
284	Keenan 1 of 2	Model Memo	37	Future recharge estimates need to be reviewed, based on years (2019-2036 and 2040-2069) from Table 6 above? as over 50+ to 100-year predictions are statistically less accurate.	In progress - minor
285	Keenan 1 of 2	Model Memo	38	This needs review.	No further response
286	Keenan 1 of 2	Model Memo	38	According to the 2011 USGS Conceptual Model and Numerical Simulation fo the GW-Flow System of BI, approximately a little more than 5% of deep aquifer recharge comes from the Kitsap Peninsula, p. 68. “Groundwater inflow to the Island accounts for about 1,000 acre-ft/yr or slightly more than 5 percent of the recharge amount.”	No further response

287	Keenan 1 of 2	Model Memo	39	For reference or Appendix, please provide a table of known annual pumping for main production wells for the last 20 years. Enclosed is a draft table for EA and COBI to complete. As noted in the footnotes, in 2001 they extracted ~ 353M gals. in 2021 they extracted ~ 591M gall (an increase of 67%) Between 2001 - 2021, the population increased 20% (~4.200 more people) Between 2015 - 2021, the population increased 7% and the extraction from the 19 increased 27%. Also included in this table is production information from ten other BI production wells owned by KPUD with data for various timespans from 2018 – 2021 (Bill Point #2, #3 and #4, and South Bainbridge #9); 2005 – 2021 (North Bainbridge #6 and #10); and Island Utilities #1, #2 and #3. Whereas it is true that most of these wells' annual production has modestly increased, the commenter would rather stress his main objective: Include the relevant data in the Plan so future practitioners/planners/interested parties can have the data at their fingertips	In progress - major
288	Keenan 1 of 2	Model Memo	42	better define the columns, is water system total include nonresidential?	In progress - minor
289	Keenan 2 of 2	Model Memo	61	For the entire model domain	No further response
290	Keenen 2 of 2	Model Memo	61	Low, Medium and High impact not low mid and mid high. with high representing only a change in recharage.	In progress - minor
291	Keenan 2 of 2	Model Memo	61	Seems like EA low impact planning scenario actually represents mid impact parameters (medium population). This is confusing and does not sync well with updating the USGS model which used separate parameters to represent low mid and high impact scenarios.	No further response
292	Keenan 2 of 2	Model Memo	62	Usually in a model the mid scenario is the most statistically accurate, but EA uses mid population parameter in their low scenario. This is confusing and it makes it hard for readers to interpret the results. Same with EA mid and high scenarios.	No further response

293	Keenen 2 of 2	Model Memo	62	Increasing risks for seawater intrusion? Will sealevel rise in the predicted areas result in higher chloride readings along the coast? Within the deeper aquifers (GMA and FBA) extraction-induced drawdowns ar	No further response
294	Keenan 2 of 2	Model Memo	63	Information for decreases in GW levels at 50 years is probably the most statistically accurate and would be useful information to determine impacts. The jump between 20 and 100 years knowing going out to 100 is the least statistically accurate. Table 24	No further response
295	Keenan 2 of 2	Model Memo	64	Include parameter values in table recharge, population, sea level rise	No further response
296	Keenen 2 of 2	Model Memo	64	How does SLR correlate with increase in chloride levels in wells? Explain.	In progress - minor
297	Keenan 2 of 2	Model Memo	Fig 14	please list parameters for reference for scenarios Recharge, Population, SL Rise Also consider adding a figure for current groundwater levels to show changes for all figures. Helps readers to understand the technical information. Use arrows to indicate GW flow direction. Figure 14	In progress - minor
298	Keenan 2 of 2	Model Memo	Fig 18	These figures are helpful to understand the impacts for 20, 50 and 100 years,	No further response
299	Keenan 2 of 2	Model Memo	Fig 19	add a current GW level figure for comparison	In progress - minor
300	Keenan 2 of 2	Model Memo	Fig 23	These figures are helpful to see the impacts of increased growth/pumping. Recharge reduction and SL Rise, Having 50 year figures help to see the more statistically accurate mpacts.	No further response
301	Keenan 2 of 2	Model Memo	Fig 24	add a current GW level figure for comparison	In progress - minor
302	Keenan 2 of 2	Model Memo	80	This sentence is not accurate, CIG data models do not predict recharge, just precipitation and temp changes. Recharge estimates are are calculations based on additional factors. Include earlier write up earlier first look	In progress - minor
303	Keenan 2 of 2	Model Memo	80	Need to verify and list some historic testing showing past increases in chloride levels in FB PW, and increased chloride levels in one of the Sands Wells 8-12 mg, possibly KPUD N BI well and check other FBA wells, indicates the thick aquitards may not inhibit sea water intrusion as suggested. This needs to be reviewed.	Addressed

304	Keenan 2 of 2	Model Memo	80	? Needs review	No further response
305	Keenan 2 of 2	Model Memo	82	much policy and planning, conservation, wastewater reuse, and better stormwater management can accomplish. It will not be enough to mitigate the significant drawdown and mining of the deep aquifers seen in the model runs for EA low and mid impact scenarios with less aquifer recharge than the Aspect 2023 Model. Decision makers need to carefully consider the carrying capacity of the glacial SSA Island. There is no equilibrium, with the existing population with time you will continue to see declines in the deep aquifers, which serve most of the residents on the Island. If you were to model no growth with climate change and loss of recharge, most likely you will continue to see concerning drawdown on the aquifers. Especially if COBI and KPUD water systems continue to pursue increased water system boundaries and assimilate smaller water systems and private wells. The increased reliance on the deep aquifers will accelerate decline. Currently, most private wells are located in shallow aquifers, this helps to distributes pumping between shallow and deep aquifers and offset deep aquifer mining.	No further response
306	Jon Quitslund	Plan	ES-3	“Protection measures” in the BIMC are referenced in the first sentence of the third paragraph; most of the paragraph is devoted to the Plan’s scope. This could be two paragraphs. In this executive summary, I would refer to the very strict environmental protections in Title 16 of the Municipal Code, and the development standards in Title 17 and 18. They operate together to place limits on residential development, especially in the 90% of the Island that is designated a “Conservation Area.”	No further response

307	Jon Quitslund	Plan	ES-3,4	Here and in the description of the “water budget” in pp. 2-36 to 38, it puzzles me that the uptake of water by trees and other vegetation is not mentioned. Also, when I see that “28% discharges to surface waters,” does this mean that wetlands and streams are fed by groundwater to that extent? It has finally become clear to me that “groundwater” is not limited to aquifers; much of it is close to the surface, with the water table, fluctuating with seasonal rainfall.	No further response
308	Jon Quitslund	Plan	ES-5	Some details in the “Problem definition” may need attention. Are there “28,914 residents” supported by the Group A and Group B systems? I suppose this is a total inferred from the water rights and/or ERUs. The second paragraph refers properly to “mounting pressures from multiple directions.” The population growth that we are required to plan for is based on a reasonable assumption that growth will continue at the rate of approximately 1% per year, so this is not a “pressure” that we ought to resist. I think it’s a mistake to describe population growth in terms of housing units. I don’t understand the percentages used to describe “projected increases in water demand.” They seem out of line with the population growth anticipated in twenty years, so let’s be clear about the time frame for projected increases.	In progress - minor
309	Jon Quitslund	Plan	2-4	The two paragraphs devoted to the BIMC don’t say as much as could be said about how the City manages land and water. The authority of the Comprehensive Plan is different from that of the Municipal Code, but specific elements (Land Use, Housing, Environmental, and Water Resources) pertain to the forms that development takes and its cumulative impacts. Also, we now have a Stormwater Management Plan, which ought to be referenced at several points in this Plan. The Critical Areas chapter (BIMC 16.20) is the principal repository for aquifer protections. This chapter stipulates generous buffers for streams and wetlands as well as designating areas for aquifer protection. As mentioned elsewhere, BIMC 15.19 & 20 are also important.	Addressed

310	Jon Quitslund	Plan	2-18	In the paragraph devoted to Vegetation, I would refer to "logging that began in the 1850's." Large-scale clearing and sawmilling continued into the 1920's. The second-growth forests that have flourished since the end of clear-cutting contain, still today, a great variety of tree species, both evergreen and deciduous, and a varied understory. The last sentence in this paragraph gives the wrong impression. The 1970's were not such a turning point. Clearing has continued to this day and some of it has been irresponsible, but the forested areas that remain (including large tracts owned by the B I Land Trust and others in private ownership) are more impressive than they were in the old days. In the paragraph on population, I don't know why it's said that "Most residents live in Winslow." Even if the other designated centers are included, the total number of residents in higher-density zones would be much less than a majority. This is a problem that we're trying to address. The so-called "Conservation Area" of lower-density zoning amounts to 90% of the land area, and it's estimated that under current zoning that area could accommodate approximately 4,000 more residents. But at what cost, ecologically and economically?	Addressed
311	Jon Quitslund	Plan	2-36-38	This discussion of the Water Budget is reassuring, up to a point, but it seems at odds with information elsewhere in the Plan. If this is a "simplified" water budget, would a more complicated water budget tell a more reliable story? The Figure on p. 2-37 shows "Estimated withdrawal by pumping" at 19%, and is that percentage measurably on the rise today? What is the limit for "safe yield" or "sustainable" withdrawal? With my uncertain understanding of hydrology, I would like to think that pumping from (let's say) the sea-level aquifer would alter pressure in such a way that the rate of recharge increases – to some extent. If so, there might be less discharge to surface waters, I suppose.	No further response

312	Jon Quitslund	Plan	2-62	The paragraphs devoted to Population Projections strike me as pretty good. In the second paragraph I see that projected population growth for Bainbridge Island is provided for two zones. What is the percentage for Winslow (zone 9913)? Is the projected growth rate the same for both zones? (It ought to be higher for Winslow.) Also, I think the total projected growth for 2040 would be relevant here.	Addressed
313	Jon Quitslund	Plan	3-4,7	This segment should take advantage of the existence now of a completed Stormwater Management Plan, which includes a number of recommended actions.	Addressed
314	Jon Quitslund	Plan	4-9	"Streams on Bainbridge Island naturally drain from shallower aquifers." There are lots of streams here, and many of them are seasonal, more or less 100% sensitive to rainfall. How many are significantly dependent on shallow aquifers? (Anecdotally, my 1-acre property contains a seasonal stream, wetland conditions, and a large pond fed by the stream and by rainfall. Water infiltrates from the pond, apparently hits an impervious layer, travels laterally, and seeps into a low-lying portion of the stream bed.) Bullet points on this page refer to "A 50% increase in groundwater withdrawal rates." This may be misleading. An increase in the rate is not the same as an increase in withdrawal. (I'm not sure what the withdrawal rate is measuring; I suppose it's relative to a quantity of water and a unit of time.) And this is an increase over what period of time? 20 years? 50 or 100 years? And what is the assumed population growth?	Stream section was revised and a new section on the EA modeling scenarios/results was added.
315	Jon Quitslund	Plan	4-11	I take it that the green-tinted paragraph has been marked for revision. If I were revising, I would begin, "75% of Bainbridge Island's acreage is dedicated to residential use." All but 10% of that acreage lies outside of Winslow. How much of the resident population on that acreage draws upon the deeper aquifers?	Text was revised.

316	Jon Quitslund	Plan	4-14	The last paragraph on this page seemed out of place when I first read it. Looking now, it seems redundant. I can live with "This plan will be crucial . . ." but the sentence makes an assertion that I don't agree with. (When we plan for housing and population growth, several factors other than our predicted water resources are no less "crucial.")	No further response
317	Jon Quitslund	Plan	4-16	In the first paragraph on this page, the last sentence puzzles me. "Net consumptive withdrawal" isn't a self-explanatory phrase, and I don't understand well enough how withdrawal and recharge are connected. Does "only about 1%" imply that sustainability is not at risk? In the second paragraph, the reference to "particularly notable responses to withdrawals" leads me to expect information that the rest of the paragraph doesn't deliver, although the reference to "distinct withdrawal impacts" in another aquifer raises concern about sustainability. The last paragraph in this section contains some "projected increases in withdrawal rates" that I suppose are alarming. But what is the time frame? How do withdrawal rates correlate with increases in the customer base?	Per capita water usage is included in the plan by ERU in Table 2-9. If the City has additional data, it could be included as an appendix.

				careful scrutiny. “Proactive measures” are called for, and what will they be? Reference forward to the Management Strategies in Chapter 5 would be helpful here. The comprehensive community planning required by the Growth Management Act proceeds at ten-year intervals with reference to twenty-year projections, including but not limited to anticipated population growth. This is why we have been monitoring and modeling. Goals and policies that turn out to be either inadequate or mistaken can be corrected by amending the Comprehensive Plan. All goals and policies are subject to review in the next update. Like it or not, Bainbridge Island is part of Kitsap County; Kitsap is one of four counties in the central Puget Sound region – the least urbanized, with the lowest population. For many reasons, our local culture and its governance have resisted regional and county-level guidance and imperatives. That resistance has been consequential, and we have problems that must be addressed. To be relevant to the cycles of comprehensive planning, the Groundwater Management Plan ought to include, in its forecasting, a sharp focus on changes that are anticipated in the next twenty or thirty years. In my opinion, predictions of the increase in water extraction rates over a century are useless – maybe worse than useless. It is not surprising that the deeper aquifers are “expected to experience notable drawdowns,” but with no indication of a time-frame, this statement carries little weight. In the second paragraph of subsection 4.4.6, I would suggest adding references to BIMC 17.12 (Subdivision Design Standards), and to the environmental protections in BIMC 16.18 and 16.20.	
318	Jon Quitslund	Plan	4-16,17	I didn’t see any description of the Groundwater Flow Model within the Plan. I’ve found some information in the Technical Memorandum. I assume that the Model	No further response
319	Kratzer	Plan	General	(1)In general, the Tech Memo is well-written and concise.	No further response
320	Kratzer	Plan	General	(2)The Draft GWMP needs significant re-organizing and editing.	In progress - major
321	Kratzer	Plan	General	(3)If COBI and EA are unwilling to make significant changes at this point in time, then the TAC and the Public Engagement has occurred too late in the process to be effective.	No further response
322	Kratzer	Plan	General	(4)The timeframes in the documents are confusing throughout. The UW Climate Impacts Group (CIG) projections for precipitation and temperature changes only go as far as the 2050s (30 years) and the 2080s (60 years). Only projections for sea level rise (SLR) go as far as 100 years. Thus, it is unclear how EA was able to make climate projections out to 100 years. Plus, it would seem that for the purposes of the Comp Plan and planning efforts, 30 years and 60 years is plenty.	Addressed

323	Kratzer	Plan	General	(5)The three scenarios should be re-phrased to represent distinct High, Medium, and Low impacts. The way it is now with the Medium and High having the same SLR (6.9') and pumping (167% increase) is not distinct. I sensed a lot of pushback from COBI and EA during our call on 4/23/25 to making these changes, as it would require additional model runs and significant revisions. The reasoning was that they added either 7.5 or 20% recharge scenarios last minute after deciding to add a third scenario. Well, when we look back on this document in a few years this reasoning will not stand up well to scrutiny.	Addressed
324	Kratzer	Plan	General	(6)Sea Level Rise – the increase of 6.9' is way too high. This is based on something like a 1% probability. In keeping with the reasoning for the precipitation and temperature scenarios, it would make more sense to go with the "most likely" scenarios of 17-83%.	Modeling phase is complete. Additional modeling is recommended in 3-5 years.
325	Kratzer	Plan	General	(7)Pumping – why is a 167% increase used for both the Medium and High Impact scenarios?	Addressed
326	Kratzer	Plan	General	(8)Recharge – based on my analysis, changes in recharge for the 2050s (30 years) should be 0 to -20%; for the 2080s it should be 0 to -30%.	Addressed
327	Doug Wood	Plan	2.4.6	change permitted to authorized; Water rights are managed by the Water Resources Program, one of several programs operated under the Department of Ecology.	In progress - minor
328	Doug Wood	Plan	2-6	There are two types of forms used to register a claim filed in the early 1970s as part of the original RCW 90.14 claims registry. The first, called a long form claim has information on the quantities used and claims in addition to a date of first use. Short form claims do not have quantities or priority date and were intended to allow people to file a claim for what is usually considered a permit exempt water right per RCW 90.44.050.	No further response
329	Doug Wood	Plan	2-6	Wells drilled since the 1990s are likely to have been recorded and with the driller submitting a well log to Ecology after completion of the well. From the early 1970s to 1990s there is an incomplete record. Prior to 1970 few wells have Ecology maintained records.	Addressed

330	Doug Wood	Plan	2.4.7	I believe all of Kitsap County lies entirely within WRIA 15, which also includes parts of Pierce, Mason and King Counties.	Addressed
331	Doug Wood	Plan	2.4.7	Chapter 90.94 RCW is the codified version of the SB 6091. This text implies that the two are separate laws.	In progress - minor
332	Doug Wood	Plan	2.4.7	These restrictions apply to single and group domestic use under the exemption.	In progress - minor
333	Doug Wood	Plan	2-12	The wording here implies single and group domestic uses post 2018 are not restricted. The 950 gpd per connection restriction applies to single and group domestic uses of the permit exempt groundwater withdrawals where exempt groundwater use was established post 2018.	Addressed
334	Doug Wood	Plan	2.5.2	The Seattle Fault is a thrust fault, which by definition is a compressional fault.	In progress - minor
335	Doug Wood	Plan	2.5.2	The lower permeability of tills is due also to clay content which is missing in the parethetical list.	In progress - minor
336	Doug Wood	Plan	2.6.2	This is applicable for wells completed in the same aquifer, but would not apply when dealing with wells completed in different aquifers.	Addressed
337	Kratzer	Plan	ES-3	Is there a reference for this 7% increase?	Addressed
338	Kratzer	Plan	ES-4	Why is a SLR of 6.9' being considered if the projected increase for 2120 is more like 3'?	Addressed
339	Kratzer	Plan	ES-4	EWLs need to be evaluated as a tool. It has been used to define "sustainability" when, in fact, a steady decline is not. It is fine as a "red flag" for evaluating monitoring data, but not as an analysis tool.	In progress - major
340	Kratzer	Plan	ES-4	What are you considering to be the 100 year period? 1990-2090; 2000-2100; 2010-2110; 2020-2120? The UW CIG only has projections for temperature and precipitation going to 2050s and 2080s (30 and 60 years from now). Please clear up the 100-year timeframe you are discussing. It causes lots of confusion throughout the GWMP.	Addressed

341	Kratzer	Plan	ES-4	I do not believe there is any justification for an increase in recharge. I point this out in my 10-page analysis of potential changes in recharge. While an increase in annual precipitation increases recharge, it is more than counteracted by the effect of more high-intensity storms (from 2 to 7 per year), SLR, and increased temperatures (and the resulting increase in ET). I thought you had gotten rid of the +ve changes?	EA reviewed this comment and the associated materials. A separate response document was prepared and provided.
342	Kratzer	Plan	ES-4	These values seem unjustifiably high. Why are you so willing to use an unjustifiably high SLR projection but not reasonable reductions in recharge?	Addressed
343	Kratzer	Plan	ES-5	There is some explanation missing here. The 28,914 is based on ERUs which include non-residential uses. The COBI system has been left out of this sentence	In progress - major
344	Kratzer	Plan	ES-5	Again, why are you using 6.9'?	Addressed
345	Kratzer	Plan	1-1	The development of the GWMP started way before 2023. COBI hired Maureen Whalen to develop the plan back in 2020.	In progress - minor
346	Kratzer	Plan	1-2	I thought Maureen was hired in 2020.	Addressed
347	Kratzer	Plan	1-3	The TAC and public input should have been started back in 2021. At this point, the GWMP and EA are so far along that there is understandably a great amount of pushback to comments from the TAC (and probably will be to the public outreach scheduled for 6/9/25) that would require more than a minimal amount of work on the part of EA and COBI. This is a problem that could have been avoided if COBI had listened to input from its own advisory committee ETAC.	In progress - minor
348	Kratzer	Plan	1-3	Ahem.....what about the Suquamish Tribe?	Addressed
349	Kratzer	Plan	2.4.10	EWL is fine for use as a "red flag" for monitoring data, but not as an analysis tool for the "sustainability" of the groundwater system. A steady decline is by definition not "sustainable".	In progress - major
350	Kratzer	Plan	2.5.3	This is the amount that should be used in the climate change analysis, instead of 44.4" that was used.	In progress - minor

351	Kratzer	Plan	2.5.3	Why not use the "gold standard" report from UW CIG? That is Mauger and others, 2015. Plus, somewhere there should be a mention of the level of confidence in the various UW CIG projections, For all projections discussed in this report there was agreement amongst all CC models except for: annual, fall, winter, and spring precipitation.	In progress - minor
352	Kratzer	Plan	2.5.4	Somewhere there should be a mention about how the increased temperatures with CC will impact the ET from BI vegetation and what impact that will have on BI's water supply.	Addressed
353	Kratzer	Plan	2.5.6	Should mention that BI is 75% residential based on zoning only. Driving around BI one does not get the impression that the land area is 75% residential. It seems more like forest land in reality.	In progress - minor
354	Kratzer	Plan	2.5.7	This is awkwardly written. The language in the Tech Memo is much better on this.	In progress - minor
355	Kratzer	Plan	Fig 4-2	4-2? The numbering system is very confusing for text, tables, and figures.	In progress - minor
356	Kratzer	Plan	2.5.8	The treatment below Messenger House appears to be a small wastewater treatment package plant and not a septic system. There is an aeration pond and everything.	Addressed
357	Kratzer	Plan	2.5.8	I believe that the septic contribution in the 2011 USGS report was phrased as 5-10% of the total recharge. IN the 2011 report, USGS used a total recharge of 20.45 inches/year. In the 2014 USGS report they changed methodology and used a total recharge of 11.31 inches/yr. Thus, 3"/yr from septic return is definitely high based on the 11.31" recharge number.	No further response
358	Kratzer	Plan	2.6.3	Again, there is a better description in the Tech Memo. Much of the GWMP Draft seems disjointed compared to the Tech Memo. Why?	In progress - minor
359	Kratzer	Plan	2.6.5	Awkward description of water budget. Again, use the Tech Memo.	In progress - minor

360	Kratzer	Plan	2.6.5	Several parts of this description are repeated over and over. The Tech Memo is much clearer because it primarily stuck with just the USGS numbers. It seems like the authors are trying to do a literature review here and it gets repetitive and confusing. If you take a look at the GW Fact Sheet, figure 6 summarizes the water budget from the 2011 USGS report as: Inflows: recharge from precipitation 85-90%; recharge from septic systems 5-10%; off-island aquifer flow to BI from Kitsap Peninsula 5% Outflows: pumping 5-10%; discharge to BI surface waters 50-60%; Discharge to Puget Sound 30-40% It is not clear why the water budget results from Aspect (2016) are being quoted here and in the Executive Summary.	The text was revised here for clarity. A chart showing the outflows was added as indicated.
361	Kratzer	Plan	2.6.6	What does this mean?	Addressed
362	Kratzer	Plan	2.6.6	This information seems out-of-place here. I would suggest putting it and some of this other information in an earlier section on "Past Studies" or "Literature Review". This gets confusing and convoluted mixed in with the current study here.	In progress - minor
363	Kratzer	Plan	2.6.6	Plus, 5% from the Kitsap Peninsula.	Addressed
364	Kratzer	Plan	2-42	Terminology and discussion of model progressions are better in Tech Memo. Stick with 2011 USGS, 2016 USGS, 2021 Aspect, 2024 EA.	Addressed
365	Kratzer	Plan	2-44	This is over a year ago now. Is this data available?	In progress - minor
366	Kratzer	Plan	2.7.2	assessed for EC/chloride....	In progress - minor
367	Kratzer	Plan	2-49	Site of the current transfer station?	In progress - minor
368	Kratzer	Plan	2-58	Aren't these numbers different in the Tech Memo?	In progress - minor
369	Kratzer	Plan	2-64	If these are the most likely SLR values, why do scenarios 2 and 3 use a SLR of 6.9'?	Addressed
370	Kratzer	Plan	3-1	Recognize?? Don't you mean something like estimate or define or project.....?	Addressed
371	Kratzer	Plan	3.3	am glad to see the range of recharge change as 0 to -20%. The Tech Memo still mentions a scenario of increased recharge. Where is the pumping increases from 122 to 167% explained? Why is there not an intermediate value between 122 and 167? The 6.9' SLR seems totally unjustified. It is way too high. Stick with "most likely" scenarios 17-83% instead of using a 1% probability or whatever the 6.9' is.	Addressed

372	Kratzer	Plan	3.3	Offsetting effect of return water -- pipe leakage and septic? What about the direct impact of reduced recharge due to climate change? I don't believe the pipe leakage and septic offsetting the reduced recharge.	No further response
373	Kratzer	Plan	3-4	This doesn't address impacts on streams and wetlands, only public water supply.	In progress - minor
374	Kratzer	Plan	4.1.3	What happened here? All of a sudden streams and wetlands and ecological health don't matter and there is a proclamation that there is plenty of water!!	In progress - major
375	Kratzer	Plan	4.2	This is like a literature review of the results from Aspect. I am not sure why this is here instead of EA's results.	Noted.
376	Kratzer	Plan	4-10	Those are contradictory terms -- a consistent slow decline in water levels and safe yield.	In progress - minor
377	Kratzer	Plan	4-20	Maybe, but the timeframe for this report is 30 years and 60 years. In 30 years precipitation is projected to increase by 4.2% to 5.0% (1.8" to 2.1"). In 60 years the increase is projected to be 6.4% to 6.9% (2.7" to 2.9").	In progress - minor
378	Kratzer	Plan	4-20	Huh? Isn't that what I'm reading right now? This is confusing.	Addressed
379	Kratzer	Plan	5.2.3	What about all the existing domestic wells in the shallow aquifers? Also, how will the deep aquifers get replenished since it is generally old water with low recharging rates.	In progress - major
380	Kratzer	Plan	5-28	This doesn't address the sustainability of relying more heavily on the deep aquifers which have declining potentiometric surfaces.	In progress - major
381	Kratzer	Plan	7-1	I don't see reference to any of the UW CIG reports. How did you get the 100-year predictions for precipitation and temperature, especially for BI and eastern Kitsap County as mentioned in this report?	Addressed
382	Kratzer	Model Memo	3	Here and elsewhere -- change to Port Orchard Bay	In progress - major
383	Kratzer	Model Memo	3	underlying	In progress - minor
384	Kratzer	Model Memo	3.1	KPUD currently gages Manzanita Creek. In the management strategies table, there is mention of four other creeks currently being monitored. It is not clear if "monitored" means "gaged" however.	In progress - major
385	Kratzer	Model Memo	5	f GMA is not used very much, why does the management scenarios table suggest drilling two new monitoring wells into the GMA?	In progress - minor
386	Kratzer	Model Memo	16	Is this for 2021? Is 2021 the same as "current"?	In progress - minor

387	Kratzer	Model Memo	Fig 6	For what year? 2021? Same time as "current"?	In progress - minor
388	Kratzer	Model Memo	30	But the third scenario only changes the recharge, not the other two factors.	No further response
389	Kratzer	Model Memo	30	climate change models provide predictions for changes in factors that will influence recharge -- annual precipitation; high-intensity precipitation; and temperature. However, the evaluation of recharge change requires looking at all three of these, not just the annual precipitation as was done in this report. Please take a look at my 10-page evaluation of potential changes in recharge due to climate change.	EA reviewed this comment and the associated materials. A separate response document was prepared and provided.
390	Kratzer	Model Memo	30	This is a pretty old reference, especially considering the rapid change in climate change/political dynamics. As I recall, most real changes since 2010 have exceeded all projections. I don't think in 2010 we could have forseen the havic that the Trump administrations have reeked on climate change policies! Here is a better reference for what has been happening on the global scale from the IPCC: IPCC, 2023, Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II, and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, pp. 35-115, doi: 10.59327/IPCC/AR6-9789291691647 See figure 2.5 from this IPCC, 2023 reference inserted at the bottom of the next page. It shows that actual 2020 GHG emissions were above all projections.	In progress - minor
391	Kratzer	Model Memo	30	Is this what's called the 100-year projections? How did you get projections for climate change impacts (other than SLR), since the UW CIG projections only go to the 2080s?	No further response
392	Kratzer	Model Memo	31	2080	No further response
393	Kratzer	Model Memo	32	This is the 20-year projected SLR.	No further response
394	Kratzer	Model Memo	32	For 2050s use the average of 2050 and 2060 with range of low to high emissions with 50% probability. Thus, for 2050s it would be 0.8 -- 0.9'	No further response
395	Kratzer	Model Memo	32	This is the 50-year projected SLR.	No further response

396	Kratzer	Model Memo	32	Likewise, for the 2080s the range would be 1.5 -- 1.75'	No further response
397	Kratzer	Model Memo	32	Is this the 100-year SLR?	Addressed
398	Kratzer	Model Memo	32	For 2120s the range would be 2.4 -- 2.95'. NOT 6.9'	No further response
399	Kratzer	Model Memo	32	What stakeholders? I would suggest the 50% for RCP4.5 (2.3') to the 50% for the RCP8.5 (2.8'). OR better yet, how about presenting the most likely (17 - 83%) range for both?	Modeling phase is complete. Additional modeling is recommended in 3-5 years.
400	Kratzer	Model Memo	32	What is the reference for BI-specific climate change projections? I don't believe that CIG provides that. They have an on-line tool that provides values for west of the Cascades and also an on-line tribal tool that gives results for Suquamish Tribe (Port Madison Indian Reservation). Since you are showing values for Oct-Mar and Apr-Sep, you must have used the on-line tribal tool. Using this for the Port Madison Indian Reservation, I found slightly different numbers. For the 2050s (2040-2069) the range for Oct-Mar was +2.4" -- +2.3" (+7.3% -- +7.0%); for 2080s this range was +2.9" -- +4.3" (+8.8% -- +13.1%). For Apr-Sep, the 2050s range was -0.3" -- -0.3" (-3.1% -- -3.1%); the 2080s range was -0.4" -- -0.6" (-4.2% -- -6.3%) For annual, the 2050s range was +2.1" -- +2.1" (+5.0% -- +5.0%); the 2080s range was +2.5" -- +3.8" (+5.9% -- 9.0%)	No further response
401	Kratzer	Model Memo	32	What is your reference for these climate change projections? I do not see any 100-year projections from CIG, just for 2050s and 2080s. I view these as projections for 30 years and 60 years, not 100 years. So, I see the problem with your 100-year projections. For SLR you are using 2120s as the 100-year projection, while for the other CC projections you are using 1990 to 2080s. However, it is not 1990 and a lot of the change assigned to 100 years actually occurred from 1990 to 2025. This is apples and oranges compared to SLR projections.	No further response

402	Kratzer	Model Memo	33	Where did you get this? Did you calculate based on the 75% factor? Where are the base numbers coming from? CIG does not show this! For the next 80 years, based on the numbers you are showing: (1) Low Emissions 44.4 +3.1 - 0.5 = 47.0 [(47.0 - 44.4)/44.4] x 100 = 5.9% (2) High Emissions 44.4 +4.6 - 0.6 = 48.4 [(48.4 - 44.4)/44.4] x 100 = 9.0% OK, I see how you got this. My analysis of changes in recharge did not go out 80 years. I looked at 30 years (change in recharge from 0 to -20%) and 60 years (change in recharge from 0 to -30%).	No further response
403	Kratzer	Model Memo	Table 6	What is the reference for this table?	Addressed
404	Kratzer	Model Memo	Table 6	This time projection progression is: 2010-39 = 2020s (current) 2040-69 = 2050s (30 years from current) 2070-99 = 2080s (60 years from now) 100-year projections = don't exist	No further response
405	Kratzer	Model Memo	Table 7	What is the reference for this table?	Addressed
406	Kratzer	Model Memo	33	This should read "an increase from two to seven intense storms per year" according to the CIG	Addressed
407	Kratzer	Model Memo	33	This leaves out the biggest factor -- how higher temperatures will increase ET by 15 -- 57% according to my recharge analysis for the months of May through September only. Another factor is the increase in impervious surfaces.	EA reviewed this comment and the associated materials. A separate response document was prepared and provided.
408	Kratzer	Model Memo	34	Based on my analysis of potential changes to recharge as a result of climate change, considering annual precipitation, high-intensity storms, and higher temperatures (and thus, ET), this range should be 0% to a decrease of 20% in the next 30 years and 0% to a decrease of 30% in the next 60 years. I did not run it out 100 years, as the CIG does not predict past 60 years. An increase in recharge is not warranted. This conflicts with the Tech Memo. Where is the justification for these percentage changes in recharge? I don't see them anywhere.	EA reviewed this comment and the associated materials. A separate response document was prepared and provided.

409	Kratzer	Model Memo	5.2	Based on my recharge analysis, the mid-impact scenario should have a 10% decrease in recharge. I understand that EA would rather not have to do anymore model runs, but the way this "after-the-fact" set of scenarios looks now doesn't make sense and should be cleaned up. As a member of the TAC, I would recommend the following scenarios: Low Impact -- +2.8' SLR; 0% recharge change; 122% increase in pumping Medium Impact -- +4.9' SLR; -15% recharge change; 145% increase in pumping High Impact -- +6.9' SLR; -30% recharge change; 167% increase in pumping If this were for 30 years, the recharge change would be -20%; for 60 years -30%, for 100 years??? I would not bother showing results beyond 60 years (2080s) since that corresponds with the extent of CC predictions except for SLR.	Modeling phase is complete. Additional modeling is recommended in 3-5 years.
410	Kratzer	Model Memo	Table 23	Table 23 is very problematic. We do not have CC projections for 100 years. We have projections for 30 years and 60 years. My recommendations for the 3 scenarios for 30 years is: Low -- +2.8' SLR; 0% rech; +122% pump Med -- +xx' SLR; -10% rech; +yy% pump High -- +zz' SLR; -20% rech; +aa% pump For 60 years I would propose: Low -- +bb' SLR; 0% rech; +cc% pump Med -- +dd' SLR; -15% rech; +ee% pump High -- +ff' SLR; -30% rech; +gg% pump	In progress - minor
411	Kratzer	Model Memo	Table 23	Since UW CIG predictions do not go past the 2080s (60 years) except for SLR; it makes more sense to show projections for 30 and 60 years, instead of 100.	In progress - minor
412	Kratzer	Model Memo	Table 23	Why are the SLR and Pumping changes the same for the mid and high-impact scenarios? It would make more sense for the low to high scenarios to have changes in all three, i.e., a high, medium, and low impact.	In progress - minor

413	Kratzer	Model Memo	62	It is really hard to tell the changes from current contours, as the reader would need to constantly flip back and forth between figures 14-17 and figures 6-9. It would be more illustrative if the results from figure 14 were combined with figure 6 to show contours of changes from current. This should be done for the following combinations as well: figs 7/15; 8/16; 9/17; 6/19; 7/20; 8/21; 9/22; 6/24; 7/25; 8/26; 9/27. I understand that this would require considerable work, but ti would make these series of figures much more valuable in telling the story.	The figures were updated.
414	Kratzer	Model Memo	63	It seems as though the water level in Qva should drop as a function of reduced recharge, regardless of the effect of increased pumping from deeper aquifers.	No further response
415	Kratzer	Model Memo	64	Exactly. Why doesn't the Mid-Impact show this as well?	Comment unclear
416	Kratzer	Model Memo	80	Based on my analysis on recharge the most likely is a decrease of 10% over the next 30 years (2050s). The medium impact scenario should always be the "most likely" scenario. This is the confusion brought about by only looking at two scenarios and adding a third at the last minute to satisfy reviewers. However, after-the-fact (i.e., right now) the justifications don't make sense. There will need to be addition model runs and a change in time periods. Only show projections for 30 years and 60 years, NOT 100 YEARS.	EA reviewed this comment and the associated materials. A separate response document was prepared and provided.
417	Kratzer	Model Memo	80	CIG does not predict changes in recharge! CIG predicts changes in precipitation, high-intensity storms, SLR, and changes in temperature. Recharge is positively related to increases in precipitation; but is negatively related to increases in high-intensity storms; increases in SLR; and increases in temperature (due to subsequent increase in ET). Based on my recharge analysis, the range of changes in 30 years should be 0 to -20% (-10% most likely); in 60 years the range should be 0 to -30% (-15% most likely).	EA reviewed this comment and the associated materials. A separate response document was prepared and provided.
418	Kratzer	Model Memo	82	Need a revised reference for this topic. This is way too old. Use the IPCC 2023 reference I show in my in-place comments.	In progress - minor

419	Kratzer	Model Memo	82	don't see the UW CIG, 2015 report. This report only has SLR, not precipitation and temperature predictions.	In progress - minor
420	Peltier	Gen	N/A	GWMP's purpose. It should read: The groundwater management plan's overriding purpose is to help guide responsible land use planning to ensure clean and sufficient groundwater for the natural environment and for the Island's residents into the foreseeable future. To this end the groundwater management plan employs the precautionary principle by erring on the side of conserving groundwater resources as opposed to maximizing their use. Missing data: The GWMP needs to include the following currently missing data: 1) Annual production records from the main production wells on the Island over the last twenty years; 2) Data and/or information regarding decreased streamflows and/or degraded water quality in eleven of the fourteen BI perennial streams. Clarity around groundwater availability and use: Water use needs to be described in simple terms, such as gallons per capita, rather than in ERUs (equivalent residential units) and water rights. Additional monitoring needed, including: 1) An increase in the number of wells monitored in all aquifers by taking the current 87 wells being monitored and expanding that number to the same 103 wells that were being monitored in 2009; Also, the GWMP needs to call for regular monitoring of the fourteen perennial streams to help inform planning for watershed rehabilitation and restoration of stream levels and water quality. Protection for critical recharge areas: While the entire Island is classified as a critical aquifer recharge area, CARA, the GWMP needs to require special protections for	Addressed If the City has additional data, it could be included as an appendix.

421	Pat Irle	Gen	N/A	The GWMP provides information critical for use in city planning, including for the City's Growth Management Plan which plans for increased populations in the Winslow area. It would be nice to have a summary in the GWMP of the impacts on the deep (Fletcher Bay) aquifer caused by pumping of city wells over 100 years for different populations in the Winslow area (e.g., current, 10%, 20% increase, etc.) based on current usage rates. Is there a population that the aquifer could support (steady state; no decrease in groundwater elevation) over the long term? (A more in-depth study could include the impacts of changes in groundwater usage and recharge, like using reclaimed water on the golf course.)	A summary table of model results was added to the plan.
422	Subramanian	Gen	N/A	Alternative EWL Using Chloride Trends: The GWMP's 0.5 ft/yr EWL (Page ES-5) ignores early seawater intrusion risks in SLA (Page 80). Why not adopt Vashon-Maury's chloride trend analysis (0.1 mg/L/yr increase as trigger, 1998 GWMP) instead of water-level declines, to detect intrusion before FBA/SLA levels drop below sea level by 2072 (Page 64)? Rationale: Vashon-Maury's chloride monitoring prevented intrusion (USGS 2010), while Skagit's reliance on water levels missed contamination (Cascade PBS 2016). Challenge: How will the GWMP fund quarterly chloride sampling at 87 wells (Page ES-5) and integrate data into a public dashboard (Kitsap, 1991 GWMP)?	No further response

423	Subramanian	Gen	N/A	Safe Yield Caps Aligned with GMA: With 167% production increases by 2121 (Page 61), why not cap withdrawals at safe yield, as in Vashon-Maury's 1998 GWMP, to meet GMA's CARA protection (RCW 36.70A.170), avoiding Skagit's aquifer depletion (Cascade PBS 2016)? Rationale: Vashon-Maury's caps sustained aquifers (USGS 2010); Skagit's lack of limits harmed streams. Challenge: What ordinance will enforce caps, and how will the 2025 EA Model (Page 10) quantify small development impacts?	No further response
424	Subramanian	Gen	N/A	Proactive Saltwater Intrusion Barriers: SLA risks intrusion by 2072 (Page 62). Why not adopt Kitsap's monitoring wells and setback zones (1991 GWMP) to prevent intrusion, unlike Whidbey's reactive response (Whidbey News-Times 2018)? Rationale: Kitsap's monitoring protected aquifers (USGS 2015); Whidbey's delays led to well closures. Challenge: How will the GWMP fund $5M for monitoring wells by 2030 (Comprehensive Plan)?	No further response
425	Subramanian	Gen	N/A	Conservative Recharge Buffers: The GWMP's -20% recharge scenario (Page ES-5) is optimistic compared to the EA Model's -7.5% to -20% (Page 61). Why not use Kitsap's -25% buffers (1991 GWMP) to ensure GMA-compliant resilience (RCW 36.70A.070), avoiding Skagit's recharge losses? Rationale: Kitsap's buffers mitigated drought (USGS 2015); Skagit's underestimation harmed agriculture. Challenge: How will the GWMP adjust allocations if recharge falls below -20% and model PDO impacts (Columbia 2014)?	No further response

426	Subramanian	Gen	N/A	Prioritized Managed Aquifer Recharge (MAR): MAR is proposed (Page 5-36) but unfunded, despite FBA risks (Page 63). Why not prioritize Shallow Aquifer Recharge (SAR) at Winslow WWTP, as in Vashon-Maury (1998 GWMP), over ASR, unlike Skagit's failed surface water reliance? Rationale: Vashon-Maury's SAR boosted recharge (USGS 2010); Skagit's dams failed. Challenge: How will the GWMP secure $3M by 2030 and meet EPA standards (EPA 2024)?	No further response
427	Subramanian	Gen	N/A	Stricter Development Standards: BIMC 18.15/18.18 exemptions risk recharge loss (Page ES-3). Why not adopt Kitsap's 500-ft wetland buffers (1991 GWMP) to meet GMA's CARA rules, unlike Whidbey's paving-driven decline (Whidbey News-Times 2018)? Rationale: Kitsap's buffers enhanced recharge (USGS 2015); Whidbey's lax standards reduced it. Challenge: What penalties will enforce buffers, and how will community reporting align with GMA (RCW 36.70A.140)?	No further response
428	Subramanian	Gen	N/A	Mandatory Conservation Targets: The GWMP's conservation lacks targets (Page 5-37), despite 373% demand rises (Page ES-5). Why not mandate 15% per capita cuts by 2035, as in Vashon-Maury (1998 GWMP), to avoid Skagit's depletion? Rationale: Vashon-Maury cut demand 20% (USGS 2010); Skagit's lack of controls strained aquifers. Challenge: How will the GWMP fund low-income retrofits and enforce landscaping limits (USGS 2018)?	No further response

429	Subramanian	Gen	N/A	Equitable Community and Tribal Engagement: Engagement (Appendix B) excludes Suquamish Tribe and low-income groups. Why not adopt Kitsap's tribal consultation model (1991 GWMP) to meet GMA's inclusivity (RCW 36.70A.140), unlike Skagit's exclusion? Rationale: Kitsap ensured equity (USGS 2015); Skagit's oversight harmed tribal waters. Challenge: How will the GWMP fund $0.5M for training and prioritize tribal water uses?	No further response
430	Subramanian	Gen	N/A	Binding Cross-Jurisdictional Agreements: KPUD coordination lacks agreements (Page 5-32), risking FBA overuse (Page 5). Why not adopt Kitsap's inter-agency pacts (1991 GWMP) per GMA coordination (RCW 36.70A.100), unlike Whidbey's fragmented pumping? Rationale: Kitsap balanced withdrawals (USGS 2015); Whidbey's lack of coordination depleted wells. Challenge: What legal framework will resolve KPUD disputes and address Port Orchard's growth?	No further response
431	Subramanian	Gen	N/A	Contamination Risk Management: Wyckoff/landfill risks (Page ES-5) lack no-build zones. Why not adopt Kitsap's 500-ft contamination buffers (1991 GWMP) per GMA's BAS, unlike Skagit's polluted wells? Rationale: Kitsap prevented runoff (USGS 2015); Skagit's lax oversight allowed nitrates. Challenge: How will the GWMP enforce buffers and fund quarterly monitoring (USGS 2024)?	No further response
432	Subramanian	Gen	N/A	Surface-Groundwater Monitoring: No gauging for 59 streams (Page ES-5) limits baseflow data (Page 10). Why not adopt Vashon-Maury's stream monitoring (1998 GWMP) per GMA's BAS, unlike Whidbey's streamflow losses? Rationale: Vashon-Maury's gauges protected ecosystems (USGS 2010); Whidbey's neglect harmed streams. Challenge: What funding will install gauges by 2028 and restrict withdrawals in sensitive watersheds?	5 streams on the Island are gauged. More sites are recommended in the management strategies.

433	Subramanian	Gen	N/A	Sustainable Funding via Fees: MAR and monitoring lack funding (Page 5-32). Why not adopt Kitsap's water bill fees (1991 GWMP) to meet GMA's infrastructure goals (RCW 36.70A.070), unlike Skagit's underfunded efforts? Rationale: Kitsap's fees supported monitoring (USGS 2015); Skagit's budget gaps exacerbated pollution. Challenge: How will the GWMP secure voter approval for fees and prioritize aquifer protection?	No further response
434	Subramanian	Gen	N/A	Adaptive Management Triggers: Adaptive management lacks triggers (Page ES-3). Why not adopt Vashon-Maury's 5-year reviews (1998 GWMP) per GMA's periodic updates (RCW 36.70A.130), unlike Skagit's delayed response? Rationale: Vashon-Maury adjusted policies (USGS 2010); Skagit's inaction worsened depletion. Challenge: What metrics will prompt revisions, and how will community input shape updates?	Addressed City consider adding more review periods.
435	Subramanian	Gen	N/A	Ecosystem Buffers for Recharge: Wetlands lack buffers (Page ES-1). Why not adopt Kitsap's wetland preservation (1991 GWMP) per GMA's critical area rules, unlike Whidbey's wetland loss? Rationale: Kitsap's buffers boosted recharge (USGS 2015); Whidbey's paving reduced it. Challenge: How will the GWMP enforce no-build zones and monitor ecosystem impacts?	No further response
436	Subramanian	Gen	N/A	Tourism and Second-Home Restrictions: Tourism demand is omitted (Page 61). Why not limit second-home water use, as in Vashon-Maury (1998 GWMP), per GMA's resource protection (RCW 36.70A.170), unlike Skagit's unchecked growth? Rationale: Vashon-Maury's limits protected aquifers (USGS 2010); Skagit's growth strained supplies. Challenge: How will the GWMP enforce limits using 2025 EA Model data (Page 10)?	No further response

437	Subramanian	Gen	N/A	(USGS 2010), while Skagit's weak monitoring and Whidbey's reactive policies failed (Cascade PBS 2016; Whidbey News-Times 2018). 2. Model-Related Feedback (2025 EA Groundwater Flow Model) The 2025 EA Model predicts FBA drawdowns (40–60 ft by 2072, Page 62), SLA intrusion (Page 80), and recharge declines (-7.5% to -20%, Page 61). Below are the most sensitive parameters and critical assumptions that could drastically alter outputs, with hydrological and financial impacts: • Recharge Rates: Assumes 13,673 acre-ft/yr with -20% declines (Page ES-4). A 1% error alters water levels by 0.5–1 ft (USGS 2011), risking 100+ ft FBA drawdowns or $5–10M in emergency MAR (TNC 2022). Vashon-Maury's -20% buffers succeeded (USGS 2010). • Hydraulic Conductivity (K): Calibrated K for 11 units (Page 10). A 10% error doubles drawdowns (60 ft to 120 ft), requiring $5M in wells or $10M desalination (USGS 2018). Kitsap's field tests refined K (USGS 2015). • Demand Growth: Assumes 61–373% demand rises by 2121 (Page ES-5). A 10% error increases drawdowns by 10–20 ft, costing $3–10M in conservation/MAR. Vashon-Maury's caps worked (USGS 2010); Skagit's growth failed (Cascade PBS 2016). Sea-Level Rise: Assumes 6.9 ft by 2100 (Page 64). A 1 ft error advances intrusion by 5–10 years, requiring $10–15M barriers (TNC 2022). Kitsap planned conservatively (USGS 2015).	No further response

438	Subramanian	Gen	N/A	3. 10 Strategy Recommendations for Water Management (builds on above) To manage growth (1,977 units by 2044, Page ES-3) while protecting aquifers, COBI should consider adopting these strategies, inspired by Vashon-Maury and Kitsap successes and avoiding Skagit/Whidbey failures: 1. Chloride-Based EWL: Use 0.1 mg/L/yr trigger (Vashon-Maury, 1998 GWMP) for SLA intrusion (Page 80). Fund $2M for sampling/dashboard (USGS 2010). 2. Safe Yield Caps: Cap withdrawals to limit 167% production (Page 61), with $1.5M for audits (Vashon-Maury, USGS 2010). Avoid Skagit's depletion (Cascade PBS 2016). 3. Intrusion Barriers: Install wells and 500-ft setbacks ($5M by 2030, Kitsap, 1991 GWMP) to prevent 2072 intrusion (Page 62), unlike Whidbey (Whidbey News-Times 2018). 4. Recharge Buffers: Adopt -25% buffers (Kitsap, 1991 GWMP) for -20% declines (Page 61), with $1M modeling (USGS 2015). Avoid Skagit's losses (Cascade PBS 2016). 5. Shallow Aquifer Recharge (SAR): Prioritize SAR at Winslow WWTP ($3M, Vashon-Maury, 1998 GWMP) to offset drawdowns (Page 63), unlike Skagit's dams (Cascade PBS 2016). 6. Stricter Standards: Enforce 500-ft wetland buffers ($1.2M, Kitsap, 1991 GWMP) to protect recharge (Page ES-3), avoiding Whidbey's losses (Whidbey News-Times 2018).	No further response

439	Subramanian	Gen	N/A	7. Conservation Targets: Mandate 15% demand cuts by 2035 ($3M, Vashon-Maury, 1998 GWMP) for 373% rises (Page ES-5), unlike Skagit (Cascade PBS 2016). 8. Tribal/Community Engagement: Include Suquamish/low-income groups ($0.5M, Kitsap, 1991 GWMP), addressing exclusion (Appendix B), unlike Skagit (Cascade PBS 2016). 9. Cross-Jurisdictional Agreements: Formalize KPUD pacts ($0.8M, Kitsap, 1991 GWMP) to balance FBA use (Page 5), avoiding Whidbey's fragmentation (Whidbey News-Times 2018). 10. Funding via Fees: Use water bill fees (Kitsap, 1991 GWMP) for MAR ($3M), gauges ($0.8M), and monitoring ($1.5M), unlike Skagit's underfunding (Cascade PBS 2016). Implementation: Update BIMC codes (2025–2026), fund via fees/bonds (2027–2030), and enforce via ordinances and 5-year reviews. Ensure GMA compliance (RCW 36.70A.170, .100) and COBI's sustainability goals. Conclusion COBI must act proactively to protect its aquifers under growth and climate pressures. The 15 questions and table highlight GWMP gaps (e.g., weak EWL, unfunded MAR), model feedback identifies risks (e.g., recharge errors costing $5–15M), and strategies provide a roadmap inspired by Vashon-Maury/Kitsap successes. These align with GMA's BAS and COBI's Comprehensive Plan, ensuring sustainable, equitable water management.	No further response
440	Subramanian	Gen	N/A		
441	Subramanian	Gen	N/A		
442	Subramanian	Gen	N/A		
443	Subramanian	Gen	N/A		
444	Online	Gen	N/A	The use of the term Port Orchard is confusing. The term as presented represents what a geomorphic feature , a water body or the city of Port Orchard	Addressed

445	Online	Gen	N/A	Demand. •Water reuse. Using treated wastewater for irrigation is something that has been done for years. The use for golf courses could be a very useful, given significant water requirements •Impervious services hopefully the building code supports the use of more impervious services •Landscaping education about how yards can be converted to rely on less water- less lawn, drought tolerant plants, etc and linking education to the challenges arising from groundwater. •Pricing having pricing that discourages overconsumption at household level •Education - Water use/consumption linked to the challenges facing the Island as we face population growth and changes in the climate Supply. •Rainwater Harvesting. Are there techniques that could be used, especially on public and private conservation lands to manage flows during higher rainfall periods. Are there techniques that could be applied in forested watersheds to capture more water for recharge? Are there nature-based applications that could be applied in watersheds? This could be done with the Parks Land Trust, for example. •Rainwater harvesting for new construction. There may be possibilities for multi-family building to include roof based rainwater harvesting to collect rainwater in cisterns that could be pumped from for irrigation of landscaping at those building sites. •Pumping of treated wastewater into some of the public lands to allow recharge to happen. Is that feasible from a cost perspective?	In progress - major
446	Online	Gen	N/A	Seems quite thorough and professionally done. I remain skeptical that population growth can easily be addressed with no major changes. I look forward to the recommendations and implementation plans. One area that is not being fully addressed is intentional damage to water system components or water quality from vandalism or terrorism	No further response

447	Online	Gen	N/A	COBI is myopic in their thinking that we are required to increase housing. We are not if there will be water issues in the future. The reports as read indicate there is a lot of uncertainty with population growth and climate change. Please open your eyes. Listen to Bainbridge constituents for a change. Please read between the lines of the report.....water levels are uncertain. The tech report is just about unreadable. Full of jargon and goes beyond the scope of BI to include the Pennisula, Bremerton etc. There is no comparison.....here on the island water is uncertain. Development needs to slow.	No further response
448	Online	Gen	N/A	I agree with the all of the recommendations by Ron Peltier, with the exception that data collection over the past 20 years should be required if and only if data for those years are reasonably available.	In progress - minor
449	Online	Gen	N/A	There needs to be a more clear and explicit commitment to sustainability in the GWMP's purpose. It should read: The groundwater management plan's overriding purpose is to help guide responsible land use planning to ensure clean and sufficient groundwater for the natural environment and for the Island's residents into the foreseeable future. To this end the groundwater management plan employs the precautionary principle by erring on the side of conserving groundwater resources as opposed to maximizing their use.	No further response
450	Online	Gen	N/A	I haven’t reviewed the plan but did read comments submitted from Ron Pelletier and his comments make sense. I encourage careful consideration of Ron’s comments.	No further response

451	Online	Gen	N/A	a more clear and explicit commitment to sustainability in the GWMP's purpose. include the following currently missing data: 1) Annual production records from the main production wells on the Island over the last twenty years; 2) Data and/or information regarding decreased streamflows and/or degraded water quality in eleven of the fourteen BI perennial streams. Water use needs to be described in simple terms, such as gallons per capita, rather than in ERUs (equivalent residential units) and water rights. An increase in the number of wells monitored in all aquifers by taking the current 87 wells being monitored and expanding that number to the same 103 wells that were being monitored in 2009; Also, the GWMP needs to call for regular monitoring of the fourteen perennial streams to help inform planning for watershed rehabilitation and restoration of stream levels and water quality. Protection for critical recharge areas. Code requirements for new construction to identify its source of water	In progress - minor
452	Online	Gen	N/A	100 year sustainability in water supplies should be a requirement for island citizens. Even before new home construction is approved, be sure the homes here will not have to be abandoned for lack of water and/or cost of getting water. A new home purchaser may be paying 1 million dollars, and in 20 years there may be no water for their home. This should be unacceptable to responsible leaders.	No further response

453	Online	Gen	N/A	Code requirements for new construction to identify its source of water: The GWMP needs to call for all new construction on the Island to be required to estimate, before initiating construction, the project's annual water consumption and the existing well and which aquifer that will supply water to the completed project. Commit to sustainability in the GWMP's purpose. It needs to state explicitly that conserving groundwater is the goal – not maximizing groundwater usage. Missing data: 1) Annual production records from the main production wells for the last twenty years; 2) Data demonstrating decreased stream flows and/or degraded water quality in perennial streams. Water use needs to be described in simple terms, such as gallons per capita. Increase in the number of wells monitored in all aquifers to the same 103 wells that were being monitored in 2009. Call for regular monitoring of perennial streams to inform planning for watershed rehab and restoration. Protection for critical recharge areas. Thank you for your attention to my comments.	In progress - minor

454	Online	Gen	N/A	The GWMP needs to include, evaluate, and address the following: (1) production and water level data from the main production wells on the Island for the entire period that such data is available; this critical data is not discussed in the current draft; it is needed to show the cumulative decline in water levels in all aquifers using all available historical data; (2) all available information on decreased streamflow and degraded water quality in all BI watersheds; we have a responsibility to maintain adequate surface water for flora, fauna, wetlands, natural systems, etc., in addition to maintaining sustainable water supply for human needs. (3) get independent, high-quality peer review input on the questionable Scenario parameters used, e.g., the "Low Impact Scenario" (which the Draft deems "the most likely") uses a 0% change in aquifer recharge across the entire 100 year period, despite likely increases in temperatures and evapo-transpiration, and the increase in impervious surfaces and run-off due to increased development. Seems like a flawed parameter calculated to understate potentially adverse impacts on water supply. Same with 122% increase in pumping input. On Recommendations: (1) increase number of wells monitored in all aquifers, including near shoreline for seawater intrusion; (2) increase monitoring of streamflow and begin watershed rehabilitation in all watersheds; (3) require all new construction to estimate water use and identify adequate available source.	No further response
455	Online	Gen	N/A	I would like to see a hard copy. I do not own a printer or a functioning computer.	Hard copies of the drafts can be available upon request. The final plan will be available in City Hall in hard copy.

456	Online	Gen	N/A	The consequences of over drawing from island aquifers are dire for island residents (current and future) and for the island's environment. The GWMP should, above all else, recognize ground water as a critical and fragile resource. There are near countless variables that factor into tracking aquifer health and capacity. Many are not fully understood, others difficult to measure, and it could be years, perhaps a decade before it becomes apparent that aquifier health is in danger. Consequently, it is critical that any GWMP for a sole source aquifer island must err on the side of caution, and must make every effort to preserve and protect the fragile resource that is the island's groundwater. In addition, the GWMP needs to call for further monitoring, particularly of the island's streams as these are not only critical indicators of shallow aquifer health, but these streams and shallow aquifers have a dramatic impact on the island's environment. Thank you, Mike Kushler Bainbridge Island	No further response
457	Kratzer	Gen	N/A	This image shows where COBI/EA came up with the SLR of 6.9' for 100 years from now. It is a very low probability (1%), worst case (high emissions) and 100 years projection. However, the same probability was not applied to the other two factors — recharge or pumping. As I mentioned in my in-place comments, the CIG only has projections for 60 years (2080s) for temperatures and precipitation, not the 100 years (2120) shown for SLR. Plus for recharge and pumping the "most likely; 50th percentile" results are used not the 1% probability. Using this same criteria for SLR from the Miller and others (2018) tool provides the following projections: 2050s (30 years): 0.8 — 0.9' SLR 2080s (60 years): 1.5 — 1.75' SLR This is hugely different from the 6.9' SLR used in the draft GWMP!	Noted.

458	Kratzer	Model Memo	34	Using the term "conservatively...." in the next sentence is making a value judgment on the potential for decrease in recharge. Please, please, please take a look at my 10-page analysis of recharge. I don't understand how you can so eagerly put the most extreme SLR (6.9') into the scenarios, yet are so unwilling to consider that a 5 degree F change in year-round temperatures will have a major effect on ET and thus on recharge. Plus, in my 10-page analysis, you will notice that there is not only an increase from 2 to 7 intense storms per year, but the size of these "intense" storms also increases from 1.5 inches per 24 hours to about 1.83 inches per 24 hours. This is a very significant change and is explained in the Mauger and others (2015) CIG report that is considered the "gold standard" for the Puget Sound region, yet is somehow not in your list of references. If I sound snarky here, it is because I feel as though my work on my 10-page recharge analysis has been ignored for weeks now.	EA reviewed this comment and the associated materials. A separate response document was prepared and provided.
459	Kratzer	Model Memo	34	Remember though that according to the water budget in the 2011 USGS report on BI, only 5% of the total water input to BI GW is from off-island.	No further response
460	Kratzer	Model Memo	46	I recall elsewhere in this document where the 3 scenarios describe pumping changes of 122%, 167%, and 167% for the 3 scenarios. Please make this change elsewhere -- this makes more sense now!	In progress - minor
461	Kratzer	Model Memo	48	Why are these projections different from the 83, 122, and 167% in the previous table?	In progress - minor
462	Kratzer	Model Memo	56	So, what is your bottom line on pumping increases on the Kitsap Peninsula compared to on BI?	In progress - minor

463	Kratzer	Model Memo	61	projections for 30 years and 60 years. My recommendations for the 3 scenarios for 30 years is: Low -- +0.55' SLR; 0% rech; +122% pump Med -- +0.85' SLR; -10% rech; +xx% pump High -- +1.2' SLR; -20% rech; +yy% pump For 60 years I would propose: Low -- +1.08' SLR; 0% rech; +zz% pump Med -- +1.63' SLR; -15% rech; +aa% pump High -- +2.23' SLR; -30% rech; +bb% pump My SLR ranges are from the Miller et al (2018) interactive tool for BI, using the average of the Low and High Emissions 83% projection for Low; Average of Low and High Emissions 50% projection for Med; and Average of Low and High Emissions 17% projection for High. There are many ways the Low, Med, and High could be portrayed but this gives a good spread of projections. The 17 -- 83% projections give the central 2/3's of the data. Thus, the "most likely" (medium) scenarios for 30 years (2050s) would be +0.85' SLR; -10% recharge; +xx% pumping	No further response
464	Kratzer	Model Memo	80	When you look at the water budget in the GW Fact Sheet and also in the pre- and post-development water budgets in the 2011 USGS report, the deep city wells have started to pull (suck) more water across this confining layer. Assuming a continued increase in pumping from the deep aquifers, the movement across the confining layers should increase more in the future and this protection from seawater intrusion will be reduced.	No further response

465	Rudnick	Plan	Gen	This is not, as of yet, a management plan. This document is a fairly comprehensive assessment of groundwater resources; water resource infrastructure; and monitoring and modeling e9orts that have been taken to date to better understand and evaluate Bainbridge's groundwater resource. But Chapter 6, where presumably the suite of management alternatives that is described in Chapter 5 would actually get prioritized and a plan would be developed for implementation, is entirely missing. The public engagement plan for this document is also entirely missing. I do not understand how you can expect to take public and expert comment on a plan that has no plan, or how you expect in the next few months for this to be a ?nalized and adopted plan that can actually guide groundwater management. As an example, the stormwater system plan you adopted last fall is a plan, complete with tables of recommendations, funding and sta9ing considerations, and implementation processes. That is the type of planning I would expect to see here in order to make this an actionable plan.	In progress - major
466	Rudnick	Plan	Gen	This document is missing a statement of management goals that is actionable and estimable. Currently it has neither. The goals and objectives need statements that speci?cally articulate the need for the continued management of groundwater resources for present and future residents and for the present and future ecosystems of this Island. In association with this, I'd recommend something similar to what Vashon has created with their non-degradation policy. Nowhere in this document is "sustainable groundwater management" de?ned. It's used as a term, but never de?ned. Yet, it is implicit that such management is needed. I have more detail on this point below.	Addressed

467	Rudnick	Plan	Gen	This plan needs signi?cant reorganization and updating. There are many points in this document where information is too generalized to be useful; the information being provided needs to be updated; and there are many subsections where the same information is being repeated and interspersed in ways that are both redundant and confusing. I provide several examples of this in the speci?c comments that follow.	In progress - major

CITY OF
BAINBRIDGE ISLAND

DEPARTMENT OF PUBLIC WORKS MEMORANDUM

Date: July 21, 2025

To: File

From: Christopher Wierzbicki, Public Works Director

Subject: Consultant Response to Groundwater Management Plan Recharge Comments

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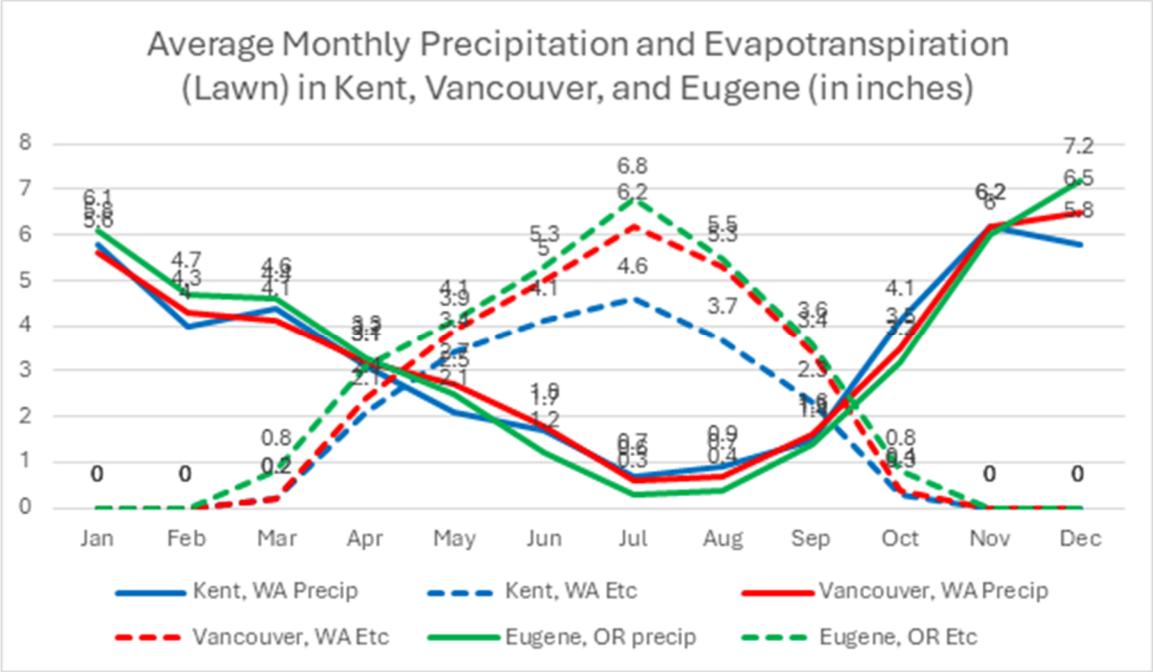
Purpose

The purpose of this memo is to document EA Engineering's (city's consultant) response to comments on the first draft Groundwater Management Plan related to the groundwater recharge assumptions. Specifically, this response relates to a white paper on the topic that was submitted by Charlie Kratzer, a member of the Technical Advisory Committee.

The consultant's response is as follows:

> The methodology outlined in Dr. Kratzer's groundwater recharge white paper (Kratzer 2025) was used to provide estimates of change to groundwater recharge based on expected climatic changes. There are at least two issues identified in the analysis that should be addressed.
>
> The analysis aims to estimate annual evapotranspiration (ET) from Figure 2 Kratzer 2025 (reproduced below) by summing up the monthly ET rates seen in the graph below (the dashed lines). However, there is a flaw in this approach because the dashed line represents *potential* ET, not *actual* ET. It is inferred that the graph below shows potential ET and not actual ET because actual ET *cannot be greater than precipitation*. The data can be used to estimate actual ET if the monthly potential ET is summed only when it is greater than precipitation. If monthly precipitation exceeds potential ET, then actual ET can be estimated to be equal to precipitation. This means the dashed line should be used in January, February, March, April, September, October, November, and December. The solid line should be used in May, June, July, and August. With this correction, we estimate that 10 inches/yr of actual ET occurs and not 21 inches/yr, as stated in Kratzer 2025.



When this correction is made, the following annual water budget is obtained showing that under these annual average conditions, groundwater recharge is predicted to decrease (as stated in Kratzer 2025) by up to 32%, from 11 inches to 7.5 inches.

Table 1. Annual Water Budget

		Annual			
		P (in)	R (in)	ET (in)	RO (in)
	Current	42.4	11	10	21.4
Low Estimate	2050	43.7	10.2	11.9	21.6
High Estimate		43.7	8.1	13.8	21.8
Low Estimate	2080	44.7	10.2	12.7	21.8
High Estimate		45.1	7.5	15.4	22.2

However, there are subsequent issues with this analysis. Of the average 42.4 inches of annual precipitation that falls on Bainbridge Island, approximately 78% (or 32.8 inches) falls between October and March with the remaining 22% (or 9.6 inches) falling from April to September (see Table 2 of Kratzer 2025). Moreover, based on the above ET figure from Kratzer 2025, no groundwater recharge occurs from April to September because potential ET exceeds precipitation over these months. This necessarily implies that the 11 inches of annual groundwater recharge occurs from October through March. In addition, based on the above ET figure, it is apparent that very little ET occurs in the winter (0.5 inches in Kent, WA from October through March).

Based on these refinements to the same analysis, two seasonal water budgets are developed (Table 2 and Table 3 below).

Table 2. Wet Season Water Budget

Oct-Mar		P (in)	R (in)	ET (in)	RO (in)
	Current	32.8	11	0.5	21.4
Low Estimate	2050	35.2	13.06	0.53	21.6
High Estimate		35.1	12.71	0.58	21.8
Low Estimate	2080	35.7	13.35	0.54	21.8
High Estimate		37.1	14.26	0.64	22.2

Table 3. Dry Season Water Budget

Apr-Sept		P (in)	R (in)	ET (in)	RO (in)
	Current	9.6	0	9.6	0
Low Estimate	2050	9.3	0	9.3	0
High Estimate		9.3	0	9.3	0
Low Estimate	2080	9.2	0	9.2	0
High Estimate		9	0	9	0

We note that the sum of the values in Table 2 and Table 3 equal the annual values developed by corrected Table 1 from Kratzer 2025, showing that mass is being conserved annually as well as seasonally. It becomes apparent that based on the same exact analysis performed in Kratzer 2025 that for the same 2-4% change in ET per change in degree and increase in runoff depths that groundwater recharge is predicted to increase in the winter by as much as 3.25 inches (+23%) and no change in the summer months (because no recharge occurs in the summer months under baseline conditions).

Therefore, the following conclusions can be made:

1. The original analysis performed in Kratzer 2025 incorrectly assigns potential ET as actual ET. This was corrected to show that annual actual ET on Bainbridge Island is more likely closer to 10 inches and not 21 inches. Dr. Kratzer's analysis was re-preformed based on this correction and (based on annual conditions), groundwater recharge is predicted to decrease by as much as 32%.

2. Based on the data provided in Kratzer 2025, the majority (78%) of precipitation on Bainbridge Island falls between October and March and no groundwater recharge occurs in the summer months (because potential ET exceeds precipitation).

3. When the analysis is performed on a seasonal basis, groundwater recharge is shown to increase by as much as 23%. This is due to precipitation being expected to increase in winter months.

4. **The purpose of this analysis is not to support a conclusion that groundwater recharge is going to increase on Bainbridge Island.** This analysis was performed to show that there is a flaw in the analysis used in Kratzer 2025, and there is no evidence to conclude that groundwater recharge could decrease by up to 30% on Bainbridge Island. In fact, there is no evidence to show that there will be any decrease in groundwater recharge using this analysis.