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March, 29, 2021

To: City of Mt. Shasta Planning Commission and City Planner & Staff
From: W.A.T.E.R. (We Advocate Thorough Environmental Review)
Subject: Comments on Water Element Update 2045

Thank you for the opportunity to make comments on the Water Element Update 2045. W.A.T.E.R. (We Advocate Thorough Environmental Review) is a local, grassroots 501(c)(3) organization located in Siskiyou County dedicated to:

- protecting Mount Shasta's water and other natural resources from privatization and depletion by extraction for corporate profit
- protecting groundwater from contamination by industrial activity, and
- protecting the environment from other ill-advised and polluting industrial or commercial activities

We appreciate the City of Mt. Shasta undertaking the General Plan 2045 update. It has long term effects on where we go during a time of dramatic change. Following this cover letter you will find specific comments about the Draft Water Element document (WE), including a listing of things that inappropriately were left out. Here we want to make a general point about the WE's lack of foundational principles.

The WE acknowledges a future that is very unpredictable with little solid research to inform policies and procedures regarding water resources. Clearly many of the policies and programs proposed in the Draft WE will require research efforts taking many years, if not decades, to complete as data must be collected, models developed and validated, etc. However there is no guidance as to how decisions will be made before the "hoped for" studies are complete: Current standards remain inadequate. Second, looking at the General Plan Update inclusive of the next 25 years, what the City chooses to do in these next 25 years will have significant impacts well beyond 2045.

In a future that is clearly changing and given the reality that the status quo will not suffice, it is crucial for this WE document to 1**) adopt the Precautionary Principle in order to protect water resources for the community and downstream uses and 2) utilize anti-degradation policies to set the standard for water quality.**

Below are the specific comments on the "Draft Water Element" plan for 2045. Please reach out with any clarifying questions.

Yours truly,

Raven Stevens
W.A.T.E.R.

Geneva Omann
W.A.T.E.R.

Specific Comments on Draft Water Element Update 2045

Page 2, paragraph 2:
"These resources are some of the most abundant but most vulnerable to human activity and climate change. City actions in the next 25 years will need to address increased water demand, increasingly severe rain events and flash flooding, uncertain groundwater supplies, and failing water infrastructure. The choices the City makes will not only impact the residents and visitors to the region but create positive benefits to downstream users like the City of Dunsmuir, City of Redding, and Central Valley Region."

Comment: Add Spring water sources to the list and also add "predicted raising of snow levels," and "extended periods of drought"

Page 2, paragraph 3:
"The City of Mt. Shasta is located at the headwaters of California's largest river system, the Sacramento River. Local water and land use decisions affect millions of downstream users and billions of dollars of economic activity. Understanding, preserving, and developing these resources will be key to adapting to climate change and encouraging future growth Collaboration with regional water agencies, down-stream jurisdictions, the United States National Forest Service, and Siskiyou County will be essential for accomplishing regional water resource goals outside the City's legal jurisdiction. "

Comment: adding a period after "growth." And adding NGO's in the list of who to collaborate with.

Page 3, paragraph 4:
"Hydrology is the scientific discipline concerned with the earth's water and its movement in relation to land.2 When thinking about water resource management, watersheds are the "where" and hydrology is the "what" and "how." It is important to understand the hydrology of our watershed area to effectively manage the water resources of the Mt. Shasta Planning Area."

Comment: What is meant by Mt. Shasta Planning Area? Never heard this term. Could you be more specific here? Where is it? Use a map?

Page 4, paragraph 1:
"The City of Mt Shasta is located at the headwaters of the Upper Sacramento River watershed, which is a sub-watershed of the larger Sacramento River basin. However, for the purposes of this General Plan update, the City is interested in the land area up-hill from the City itself. Known as Cascade Gulch, this sub-watershed of the Upper Sacramento River system is understood to be the source of the City's water supply (Map WRE-1). The Cascade Gulch watershed covers roughly 30 square miles (19,200 acres) of the land bordered by the Klamath Mountains to the west, Highway 89 to the south, Mount Shasta to the East, and Black Butte to the north. The highest point within Cascade Gulch Watershed is 13,654 feet above sea level (just short of the Mount Shasta summit proper), and its low-point is 3,203 feet, which is the elevation of the watershed's outlet point at Lake Siskiyou."

Comment: The hydrology of our area is very poorly understood. Can you reference who refers to Cascade Gulch as the "understood source" of our water? Topography suggests that, but Cold Springs water and the City groundwater wells don't use surface water. Does the Visser Study have any implications as to the source of the water? It does imply elevation of snowfall. Secondly, this General Plan should also be concerned with the quality of surface water and groundwater that is downhill from the City, to ensure the City is not polluting water sources for downstream users (in fact, later parts of this document address this issue to some extent).

Page 4, paragraph 2
"The watershed is located within Region 5 of the Forest Service, straddling the border of the North Coast Regional Water Quality Control Board, under the U.S. Army Corps of Engineers 'San Francisco District, within the northernmost subwatershed in the U.S. Geological Survey Region 18. The hydrology of Mount Shasta, especially at high elevations, is dominated by groundwater flow. The active aquifer system is responsible for transporting significant amounts of groundwater from high elevation recharge areas to the springs and wells lower on the mountain.3"

Comment: Cascade Gulch drains into the Sacramento River and thus is under jurisdiction of the Central Valley Regional Water Quality Control Board, it does not straddle the border of the North Coast Regional Water Quality Control Board.

Page 4, paragraph 3
"The City receives all municipal water from Cold Springs. The City supplements this with two wells to meet seasonal peaks in water demand. The City has enjoyed high-quality, robust supply of water that more than satisfies residential, commercial, industrial, and agricultural needs. But these groundwater supplies are not immune to drought conditions, mismanagement, contamination, and long-term impacts of climate change. The City has been fortunate in that it has not needed to implement the strict water conservation measures that have become a way of life for more water-stressed cities."

Comment: You may want to reference the drought of 2012-2016. We did have water restrictions with even and odd addresses for outdoor watering and the City could not keep up with demand as Cold Springs production was at an all-time low and City wells were used to supplement but water rationing was in place. May have been a state mandate in place too. This was just before the water meters were installed.

To help reduce confusion later in the document, it would be appropriate here to state that the City owns the adjudicated water rights for Cold Springs.

Page 5: "City" on the map needs a lowercase "i".

Page 6, paragraph 3:
"Climate change, if not addressed, will result in an increase in average annual precipitation. In the scenario that no local or state action is taken to mitigate or reverse greenhouse gas emission levels, Mt. Shasta City is expected to see an increase of 0.9 inches in average precipitation from 2020 to 2045 (Figure WRE-1). Although this is not a significant average increase, the type of precipitation will shift from snow toward more rain and will occur in short, intense events. These two changes will significantly change the watersheds ability to store water and infrastructure's existing ability to handle heavy rain/ snow events."

Comment: As snow elevations rise, precipitation, when it does fall will come as rain rather than snow. With the snow elevation level predicted to be at 9,500 ft by 2070. (I will look for that study.)

It is important to note here that drought will also be an issue, given that those short, intense rain events will punctate periods of drought and warming temperatures. We may even be experiencing the beginning of a two-hundred-year Megadrought. https://www.newscientist.com/article/dn26964-mega-droughts-predicted-in-the-us-will-last-decades/

Page 8, paragraph 2:
"The soil diversity of the Cascade Gulch watershed is dominated by volcanic rock outcrops from the top of the watershed to Everitt Memorial Drive and turns east toward Black Butte."

Comment: This sentence does not make sense; what "turns east toward Black Butte"? soil diversity? Volcanic outcrop?? Please clarify.

Page 8, paragraph 2, continued:
"…The next three largest soil types are the Washougal family, Ponto-Neer complex, and Andic cryorthents. Approximately, 25 unique soil types exist at smaller percentages. For each soil type, there are various characteristics like corrosivity, sanitary facility feasibility, and hydrologic nature. Corrosivity levels and sanitary facility feasibility are two important factors for properties with septic systems that may impact the City's municipal water system."

Comment: Discuss the prevalence of Deetz 125 soil in the area and it's incompatibility for septic systems. See attachment.

Page 8, paragraph 3: drop the comma after "removing" in the third line.

Page 8, paragraph 4, line 4: the sentence here starts, "Current research suggests…" Please cite references for this research.

Page 9, paragraph 1, last line: "improve streamflow slaters into the summer months." Correct to say "…stream flows later…"

Page 9, last paragraph, fourth sentence: "When these two nutrients are concentrated there can be increases in harmful algae and poisons fish and aquatic plants species." Correct the grammar. Is it the two nutrients or harmful algae that poison fish? This is not clear. Change the "and" to 'that.'

Page 11, paragraph 1, line 3: "with" should be "will"

Page 11, paragraph 2, last sentence: "Thus, the city subdivides management strategies on watershed and city limit scales." Not clear what this means.

Page 13, paragraph 1:
"More importantly, the City is a member of the group with the aim of promoting support, collaboration, and cooperation between the numerous other agencies involved in IRWM. The overarching goal being the continued stewardship of the Upper Sacramento River Watershed."

Comment: Correction: …other agencies, "Tribes and NGO's" involved in IRWM….

Page 13, paragraph 2, first sentence: "The U.S. Forest Service identified the mountain in its entirety to be a single, large watershed which Cascade Gulch Watershed is a part of." Please correct grammar; "…large watershed of which Cascade Gulch Watershed is a part."

Page 13, paragraph 3:
"Based off federal and local input, the City developed management practices to address these issues equitably. Management strategies encourage collaboration between various stakeholder groups. These interactions would allow a chance for groups to vocalize their goals and develop comprehensive solutions to complex situations that occur within city limits. The situations addressed would be in reference to the local watershed, though it is important to note the connections between local and regional watersheds. "

Comment: What management practices? Can you say more here? Also at "city limits" perhaps you could add 'and sphere of influence. '

Page 14, WRE-2.1.2:
"Cultivate relationships between the City of Mt Shasta and nearby educational and research institutions, including: University of California, Davis; Cal State University Chico; College of the Siskiyous; Southern Oregon University; Sacramento State University, etc._

Comment: Please state the purpose of cultivating relationships.

Page 14, WRE-2.2: in first line, delete "on"

Page 15, Blue box: add "legislation" to the very end of the last sentence.

Page 15, paragraph 1: "The City of Mt. Shasta enjoys abundant, high quality groundwater supplies for municipal water service, residential use, and commercial extraction."

Comment: Replace "extraction" with "use."

Page 15, paragraph 2:
"As climate changes, wetter winters are expected in the Pacific Northwest accompanied by changes in ***snowlines.***9 Although wetter winters may indicate a positive change to the system, the type of precipitation that will occur poses issues with current infrastructure and the environment's ability to handle more frequent and severe rain events. The impact to groundwater recharge is uncertain until further investigation is completed."

Comment:

Is the word "snowlines" actually snow levels?

The Visser Study from Lawrence Livermore Lab showed that the City water comes from snowfall at specific elevations. So as snow levels rise, Cold Springs water source likely will dry up and it is unclear how the City wells/groundwater will recharge.

The City must prepare for the rising snow levels. The following two studies show that our snow levels are predicted to rise and that melt will come at least a month earlier. See studies referenced earlier in this comment letter.

a] **New Study Identifies Mountain Snowpack Most "At-Risk" from Climate Change**
Scripps scientists theorize why snowpack in coastal regions, the Arctic, and the Western U.S. may be among the most at-risk for premature melt from rising temperatures

https://ucsdnews.ucsd.edu/pressrelease/new-study-identifies-mountain-snowpack-most-at-risk-from-climate-change

"Our theory tells us why that's happening, and it's basically showing that spring is coming a lot earlier in the year if you're in Oregon, California, Washington, and down south, but not if you're in Colorado or Utah."

"Using an approach based on physics and mathematics, the model simulates the timing of snowpack accumulation and snowpack melting as a function of temperature. The scientists could then use the model to solve for the key factor that was causing the differences in snowpack warming: time. Specifically, they looked at the amount of time snow can accumulate and the amount of time the surface is covered with snow."

"However, in a coastal region like the Pacific Northwest, the influence of the ocean and thermal regulation helps keep the winter temperatures a bit warmer, meaning there are fewer days below 0°C in which snow can accumulate. The researchers hypothesize that in the region's Cascade Mountains, a 1°C increase in temperature could result in the snow melting about a month earlier in the season—a dramatic difference."

"This study builds upon previous work done by Scripps scientists since the mid-1990s to map out changes in snowmelt timing and snowpacks across the Western U.S. The authors said that a "shrinking" winter—one that is shorter, warmer, and with less overall precipitation—has adverse societal effects because it contributes to a longer fire season. This could have devastating impacts on already fire-prone regions. In California, faster snowpack melt rates have already made forest management more difficult and provided prime conditions for invasive species like the bark beetle to thrive."

b] DECLINING MOUNTAIN SNOWPACK IN WESTERN NORTH AMERICA*

Philip W. Mote, Alan F. Hamlet, Martyn P. Clark, andDennis P. Lettenmaier

https://journals.ametsoc.org/view/journals/bams/86/1/bams-86-1-39.xml

Abstract: In western North America, snow provides crucial storage of winter precipitation, effectively transferring water from the relatively wet winter season to the typically dry summers. Manual and telemetered measurements of spring snowpack, corroborated by a physically based hydrologic model, are examined here for climate-driven fluctuations and trends during the period of 1916–2002. Much of the mountain West has experienced declines in spring snowpack, especially since midcentury, despite increases in winter precipitation in many places. Analysis and modeling show that climatic trends are the dominant factor, not changes in land use, forest canopy, or other factors. The largest decreases have occurred where winter temperatures are mild, especially in the Cascade Mountains and northern California. In most mountain ranges, relative declines grow from minimal at ridgetop to substantial at snow line. Taken together, these results emphasize that the West's snow resources are already declining as earth's climate warms.

Page 15, paragraph 3:
"The City's groundwater supply is essential for City growth and sustainability because 100% of the City municipal water is derived from groundwater. There are no alternative sources of water identified in the City's Water Master Plan nor is there a pressing need to develop new supplies in the next 25 years. Alternative sources of water supply would be need if the City anticipates dramatic changes in groundwater supply or quality."

Comment: Technically, Spring water (Cold Springs) is "groundwater collected" but it seems more correct to name Cold Springs and Howard Springs, spring water. Currently Cold Springs produces almost 100% of the City water source with City groundwater wells as back up sources. And it is important to note that, unlike groundwater, the City has adjudicated rights to Cold Springs as a surface water.

Please correct the last sentence: "…water supply would be needed…"

Page 15, paragraph 5:
"There remains scientific uncertainty regarding key characteristics of local groundwater resources, like the specific recharge locations, internal structure of volcanic rock fractures, total storage capacity, and the age of water emerging at the City springs and local wells. The horizontal boundaries of the groundwater aquifer are not well mapped, but certainly extend well beyond City Limits and will be impacted by activities where the City does not have primary jurisdiction. A primary goal of the Water Resource Element is to improve data benchmarks and research related to the volcanic rock aquifer. There is no research available to accurately predict the impact of a multi-year drought, increased residential and commercial consumption, and climate change."

Comment/Correction: The Visser Study does give you age analysis of Cold Springs and a City well, also a few local domestic wells in the area. You might want to include this info or reference it here as you do later on in the document.

Page 16, paragraph 2:
"Researchers at the University of California Davis has prepared a groundwater model for the Shasta Valley Groundwater basin which is a protected and specially regulated groundwater basin under Bulletin 118. The groundwater model is not an exact match to the City of Mt. Shasta but could contribute to the base model. Without an efficient, accurate model it will be difficult for the City to determine exact groundwater levels and consumption parameters."

Comments: The model used for the Shasta Valley Groundwater basin, which is an alluvial type basin, is not at all likely to provide a useful starting point to model the complex volcanic aquifer that underlies Mt. Shasta.

You might note that SGMA removed a groundwater basin in a past Bulletin 118 update. The Mt. Shasta area therefore has no protections in our immediate area from SGMA laws.

Please also correct the grammar in the first sentence; "Researchers at the University of California Davis have…"

Given the many unknowns about the groundwater sources under and around Mt. Shasta City, it seems imperative to write into policies prioritizing the precautionary principal when it comes to protecting all water resources.

Page 16, paragraph 3, line 6:
"Evidence suggests that most of the snowmelt does not evaporate directly into the atmosphere."

Comment*:* Please provide references for this evidence.

Page 16, paragraph 4:
"The time that groundwater spends in the aquifer before being discharged is a topic of ongoing scientific investigation. By studying the age of groundwater, scientists and planners can better anticipate how aquifers respond to drought. Older groundwater is generally thought to be less vulnerable to drought than younger water, although groundwater age alone is not the sole predictor of drought resilience. ***A 2017 study by Lawrence Livermore Labs suggests most springs and wells near the City of Mt. Shasta discharge water that is between 10 and 50 years old.*** There is evidence that water of younger and older ages is mixing, which makes narrowing the exact age range difficult. Higher elevation springs on Mount Shasta, such as Panther Meadows, discharge water that is younger (0-5 years) and spring from shallow, short groundwater paths. ***Lower elevation springs such as Big Springs in City Park discharge older water (10- 50 years). All water sampled in the study recharged at elevations higher than the City of Mt. Shasta (6,500 to 9,500 feet) but the absence of samples outside this range could indicate that the City's municipal springs and wells produce water with a mixture of recharge elevations.*** Table WRE-1 highlights the age of springs and wells in the City Planning Area that highlights the approximate age of water throughout the system."

Comment/Correction*:*

The majority of the water tested at Big Springs Mt. Shasta was older than 12 years. One 'small' spring gave out older water but the majority of outflow is >12years. For accuracy it should read 5-25 years like the chart on page 17 or add "One 'small' spring produced older water (>60) but the majority of outflow is >12years.

The City water sources were sampled and showed that the water source is likely from below tree-line. In the "Key Points" of the study it says "Exclusive recharge above the tree line (2500 m) is therefore not a likely scenario for sampled groundwater."

You may want to comment that City Well #1 and the High School Well (Also called City Well 02) Page 30 of the study produces water that is 15-20 years old. "Water supply wells of the City of Mt Shasta (Well 01 and Well 02 or High School Well) produce water with an age of 15-20 years…"

Page 17,WRE Table 1:
"Area Springs and Well of Importance"

Comments:

1) should say 'wells' of importance

2) third column, third row: "Estimated range form greater than 5 years…" should say "from" greater than…

Page 17, paragraph 1, third sentence:
"The study monitored 21 wells between July 2016 through April of 2017; of which were in the City of Mt. Shasta Planning Area."

Comment: Please correct the grammar: "…April of 2017 that were in the City of…" or put in the # of wells that were monitored that were within the Planning area.

Page 17, second paragraph:
"The results indicated that City groundwater flows from south or southwest through the City, following the same general slope as the ground surface."

Comment: The figure on page 19 clearly shows the groundwater flowing from the north or northeast southward through the city.

Also note, the figures are not consistently numbered throughout the document.

Page 18, paragraph 2:
"The horizontal boundaries of the groundwater aquifer underlying the City of Mt. Shasta Planning Area are not well-defined, but are thought to extend regionally throughout the mountain and surrounding volcanic rocks. There are ongoing efforts by researchers at the University of California Davis to map the extent of Mount Shasta's groundwater system. Their research suggests that the groundwater aquifer extends past the Cascade Gulch watershed divide into the neighboring Shasta River watershed north of Black Butte. Groundwater samples from springs and wells on both sides of this drainage divide were nearly identical in oxygen levels and other chemical indicators, which suggests the samples come from similar water sources. The prevalence of faults and fractures in the volcanic rock also supports the likelihood that water is interconnected through the mountain. If Mount Shasta's groundwater aquifer is indeed regional in extent and hydrologically connected to the Shasta Valley groundwater basin to the north, it may qualify the City of Mt Shasta for additional protections, obligations and resources through California's DWR. Such a regional system would also highlight the need for increased coordination and cooperation across jurisdictional lines to successfully and sustainably manage Mount Shasta's groundwater."

Comment*:* State that work is being done to reinstate the Mt. Shasta area back into Bulletin 118 as a groundwater basin so that SGMA protections might be put in place. The basin was located in the Mt. Shasta area. Also state that Water Recharge/Volcanic Recharge area deserve their own protections. Please also provide references for the data.

Page 18, paragraph 3:
"Information gathered also suggests that the groundwater area extends past the Cascade Gulch watershed into the neighboring Shasta River watershed north of the City's watershed. This watershed includes Sphere of Influence areas from City Park to Black Butte. The groundwater tested in the area is nearly identical in oxygen levels and other indicators as the Cascade Gulch ***waster shed***; which suggest they come from similar water sources.12 The prevalence of faults and fractures int eh volcanic rock also supports the likelihood that water is interconnected through the mountain.13 The importance of this information is that if the groundwater area of the City of Mt. Shasta is in fact connected to the Shasta Valley groundwater basin to the north there may be additional protections and resources available to the City."

Comment/Typo: …and fractures 'in the 'volcanic rock…; "…Cascade Gulch **water**shed…"

Page 20, paragraph 3: It should be noted that "reasonable and beneficial use" does not allow groundwater extraction that negatively impacts other users of the same groundwater source. There is a legal "hook" here that must be acknowledged and can be utilized by the City to protect groundwater resources.

Page 20, paragraph 4, mid-paragraph:
"…By contrast, non-alluvial geologic formations, such as the fractured volcanic rocks of Mt Shasta, often do not have well defined boundaries or well-studied internal structure. As a result of this geologic complexity, groundwater found in volcanic rocks is usually not considered by DWR to lie within a "groundwater basin". Instead, significant quantities of groundwater found in volcanic rocks, such as the aquifer underlying the City, are referred to by DWR as "groundwater source areas." This distinction is legally binding and defined by DWR Bulletin 118, last updated in 2016. The next full update of Bulletin 118 is expected to be published in 2020.15"

Comment: Perhaps comment that Mt. Shasta was a designated GW Basin but for some unknown reason, that designation was removed in 1980. And local NGO's have been working to reinstate the area as a protected GW Basin in Bulletin 118.

Page 21; paragraph 3:
"One implication of this legal framework is that relative to most other parts of California, the Mt Shasta region has more abundant high quality groundwater and laxer regulation of its extraction. This may make the region even more attractive to water-intensive industries seeking to extract groundwater, especially as other SGMA-regulated groundwater basins begin to implement
pumping restrictions. In the absence of more hands-on regulation, extraction of groundwater in Mt Shasta is limited at a state level only by California's doctrines of overlying rights and reasonable use. Currently, any property owner can legally extract as much groundwater from below their property as they can reasonably and beneficially use."

Comment: The popularity of this region for water-intensive industries along with the lax regulations is reason for the City to do all it can to regulate and protect water resources. The City could develop

policies to prevent unreasonable and unbeneficial uses. Also a property owner may extract groundwater but it should be noted that when other well users are effected, that is over-use or over extraction. So the sentence should clearly state…" Currently, any property owner can legally extract as much groundwater from below their property as they can reasonably and beneficially use, without negatively affecting the other wells users in the area.

Page 21, paragraph 4:
"Siskiyou County
Siskiyou County (hereafter, "the County") has jurisdiction on non-federal lands outside Mt Shasta City Limits. The County has the authority to regulate land use, including the extraction of groundwater, and has developed ordinances to protect its quality and control its extraction, but the County requires a review and permitting process only for the extraction of groundwater for use outside the basin it was extracted from. ***Furthermore, County Ordinances specifically exempt commercial bottling operations from the permit process. The County does not have any ordinances that limit groundwater extraction if it is extracted outside a Bulletin 118 designated basin, for domestic use, or for the commercial bottling of water."***

Comment: From end of year 2020, see attached Ordinance 20-20. We have some emails with Kirk Skierski at Siskiyou County about whether or not the exemption for water bottling is removed from this new ordinance (in name only) where permitting is now required for water extraction for bottling within 118 Basins but not the rest of the county. So permitting is still not required outside the B118 Basins but the "exemption" for Water Bottling companies is no longer plainly stated.

Page 22, paragraph 2:
"For the installation of septic systems, the County has a more involved regulatory framework codified in Title 5, Chapter 2 of the Siskiyou County Code of Ordinances. The County requires every "premises where an individual(s) permanently or temporarily resides: to be equipped with sanitary facilities or connect to services16 A property owner must connect to a public sewer if it is available; if one is not, the County allows for the installation of private sewer systems subject to requirements for the location, design, construction materials, size, maintenance schedule, health inspections, minimum lot size, and soil characteristics. The County has not identified any soil conditions that impose limitations on septic installation in the City of Mt Shasta's SOI. "

Comment: Deetz 125 soil is said to be incompatible with septic and leach fields so that last sentence is out of line with the soil type. (The county continues to allow these against state recommendations). ***See attached document "Soil Report Ski Village Drive Area—B.pdf***

Page 22, paragraph 3:
"On all policy matters involving unincorporated land in the City's SOI, the County has primary jurisdiction but the City of Mt Shasta still has some influence. The County's General Plan states that "Policy conflict with a city or special district General Plan – in areas within a city's or special district's sphere of influence, the adopted General Plan of the applicable city or special district shall be considered in relation to the County's General Plan Policies, except in cases where the applicable city's General Plan clearly does away with the intent of any applicable resource map." Therefore, even while the City lacks primary regulatory authority on County controlled land, it is still in the interest of the City of Mt Shasta to codify policy for areas outside City Limits in its General Plan. Two policy areas where consideration of the City's General Plan by the County may be important is septic tank installation and commercial bottling of water."

Comment: A third policy is to remove the City's own exemption of permitting for water bottling.

Page 22, paragraph 4:
"Upper Sacramento River Regional Water Action Group (USR RWAG) One of the City's closest partners on matters of local water governance is the Upper Sacramento River Regional Water Action Group (USR RWAG). The City of Mt Shasta is a signatory to the Integrated Regional Water Management (IRWM) Plan which coordinates, through voluntary participation of local governments and nonprofit organizations, the collaborative governance of water resources in the USR watershed."

Correction: Don't forget Tribes here. "The City of Mt Shasta is a signatory to the Integrated Regional Water Management (IRWM) Plan which coordinates, through voluntary participation of local governments, Tribes and nonprofit organizations, the collaborative governance of water resources in the USR watershed."

Page 22, paragraph 4, continued:
"…The RWAG does not have regulatory regulatory or taxing authority, but it can be used as an apparatus for pursuing grant funding for research and infrastructure projects. Between 2011 and 2019, the USR RWAG has successfully attracted over $8 million to the region for Mt. Shasta 23 grey and green infrastructural improvements, including water meter installation and groundwater monitoring in the City of Mt Shasta."17 One of the primary objectives for the USR IRWM going forward is to improve monitoring of local groundwater conditions, specifically "(1) Mapping all groundwater basins by 2018, and (2) Understanding the dynamics of groundwater in the Medicine Lake Highlands as well as on, and around, Mount Shasta by 2025." Given the incompleteness necessary data on many policy-relevant matters regarding the City's groundwater, the USR RWAG is an important mechanism to acquire new research and project funding."

Comment:

"Regulatory" is written twice

Might want to add the RWAG projects and $ just approved in 2020. One of the projects is groundwater quality monitoring.

Page 23, paragraph 1, line 7: "…incompleteness <u>of</u> necessary…"

Page 23, paragraph 3
"City Authority
The City of Mt Shasta has jurisdiction over groundwater management only on the 4 sq miles inside City Limits. While this severely limits the City's ability to regulate the aquifer as a whole it does give the City authority to control land use and development within City Limits. The City's current regulatory framework is summarized in Chapter 13.95 of the City's municipal code, entitled "Extraction and Exportation of Groundwater from the City of Mt. Shasta". The City "Council recognizes the principle developed in the case law of California that water may be appropriated from a groundwater basin if the groundwater supply is surplus and exceeds the reasonable and beneficial needs of overlying users." The City lacks the authority to prevent private well owners from extracting groundwater for reasonable and beneficial local use. The City also provides an exemption from permitting requirements for commercial bottling of water as long as the bottling occurs in the City or County, although as of 2019 no permits had ever been issued.18"

Comment: You really should give serious consideration to the implications of that last line of the paragraph and require a discretionary permit for commercial bottling of water. Otherwise, a water bottler

could come in and propose a project with the City. Given the right make up of Staff and City Council members, this would mean a project and the City would have no legal obligation to do an Environmental Impact Report. Given the growing awareness of the dangers of water privatization and extraction for profit, the issue of plastic in the environment and climate change, the existing policy must be removed. A permitting process allows the City to follow the intent of CEQA, by gathering information and public participation in the project.

Page 24, paragraph 3:
"Supply
The City receives 100% of its municipal supply from groundwater: Cold Springs is the primary source during normal operations, and can be supplemented by two municipal supply wells to meet peaks in water demand."

Comment: Spring water is not classified the same as groundwater in the State of CA, so we think distinguishing is appropriate. Also you could mention that there now is groundwater monitoring available by transducer, at City Well #2. (Put in by our DWR grant via Trout Unlimited)

Page 24, paragraph 3 continued: "The City's water resources have historically been more than sufficient to satisfy residential, commercial, and industrial uses."

Comment: It is worth mentioning in this document that, during the 2012-2016 drought, the lower production levels of Cold Springs and then the State mandated water use reductions (of 20%) made use of the City groundwater wells.

Page 24, paragraph 4:
"…Even if forecasts of future climate conditions were available, the relationship between precipitation and spring output has not yet been accurately quantified. While the City should pursue more robust and sophisticated scenario planning and climate forecasting methodologies as they become available, at this time they are beyond the capacity of City staff to pursue. In the absence of reliable forecasts of groundwater availability in the future, the next best option is a thorough examination of historic spring and well productivity. "

Comment: In 2014 or 2015 W.A.T.E.R. gave a presentation to the City Council of the correlation between drought and production at Cold Springs. It was a computerized program designed by Dan Axelrod, to interpret the data and know what to expect in water production at Cold Springs. This was before the Visser Study confirmed that the water coming from Cold Springs was young in age and therefore susceptible to drought. If you would like that information, and the program for analyzing the data, W.A.T.E.R. can give it to you.

Page 25, paragraph 1:

"In the absence of reliable forecasts of groundwater availability in the future, the next best option is a thorough examination of historic spring and well productivity."

Comment: In the absence of reliable forecasts of groundwater availability in the future, in conjunction with historic data, it is essential to invoke the precautionary principle and maximally protect the available water sources.

Page 25, Goal WRE-3:
"Goal WRE-3 Improve monitoring of precipitation and groundwater conditions in the City's vicinity in partnership with other local stakeholders outside City Limits Policy

WRE-3.1 Pursue watershed management in partnership with Shasta-Trinity National Forest (STNF) to ensure that watershed management and groundwater recharge are priorities.

Program WRE-3.1.1 Develop and maintain groundwater monitoring programs."

Comment: You could coordinate with the Gateway Neighborhood Association who monitors 20+ wells in the surrounding area within the City's northern sphere of influence.

"**Program WRE-3.1.2** Using City watershed data, develop and maintain a groundwater model to anticipate changes in groundwater supplies."

Comment: Work with W.A.T.E.R. to use the program Dan Axelrod created.

"Program WRE-3.1.3 Install pressure transducers to measure groundwater levels on a constant basis."

Comment: There is groundwater monitoring available by transducer in City Well #2(High School Well). (Put in by the RWAG/DWR grant via Trout Unlimited) Rod Bryan has access to the data and shares it with our Trout Unlimited program and public.

Page 25: Policy WRE-5.2
"The City shall not transfer water rights to any private entity for commercial or other purposes."

Comment: Is this written in law or ordinance? If not, it should be put on the agenda for the City Council to definitely codify.

Page 26: Section 8.3 WATER QUALITY
"Water in the Cascade Gulch Watershed is generally considered to be of excellent quality. Primary threats to water quality stem from runoff from transportation infrastructure such as paved and unpaved roads and rail."

Comment:

> As discussed elsewhere but worth a mention here, another primary threat to WQ is antiquated or poor planning just outside city limits where locations are zoned "heavy industrial north of City water sources; City Well #1 (City Well) and City Well #2 (High School Well.) An industrial leach field, permitted by the RWQCB allows for industrial process and bottle rinse water to be put directly into the ground at "72,000 gpd and an additional 36,000 gpd from a proposed expansion." See Order 05-01-233. It would allow disposal of this type of water into "high quality waters of the State," and in W.A.T.E.R.'s opinion, it would be in violation of state and federal anti-degradation policies.
>
> Also recommend naming the two wells as they appear in the DWR CASGEM Data. That is City Well #1 and City Well #2. That way the sites are consistently named for the future.

Page 27, paragraph 3:
"In addition to these known sources of potential contamination, the City is concerned that septic tank failure could lead to groundwater contamination by releasing excess nitrates and dissolved solids. Almost all development outside City Limits is served by private wells and septic systems. Of greatest concern are those east of the City in the vicinity of McCloud Ave, because those septic systems are hydrologically up-gradient from the City's supply wells, although septic tanks west of the City are at risk of failure as well."

Comment: I would mention the homes east of the City on Shasta, Butte, Ski Village and the Crystal Geyser Plant, with its leach field.

The City is planning to install another well in the Spring Hill area to serve the northern part of town, this well will be threatened if not protected.

Page 27, paragraph 4:
"The soil report analyzed the effectiveness of soil layers to absorb and naturally treat effluent from septic systems within the first 2 to 5 feet in depth. Soil properties included were saturated hydraulic conductivity, depth of water table, ponding, depth to bedrock or a cemented pan, and flooding potential.23 Specific properties such as stones, boulders, ice, bedrock, or cemented pans interfere with installation of septic systems. Slopes also play a major factor as excessive slope gradients can cause lateral seepage and surfacing of effluent downslope of the source area."

Comment: Include Deetz 125 soil report. See attached.

Page 27, paragraph 5, last sentence: "These factors and the prevalence of septic systems up-gradient of the City's municipals wells is cause for concern."

Comment: Please correct grammar: "…wells <u>are</u> cause for concern."

Page 29:
"Goal WRE-6: Maintain healthy Drinking Water standards as per State and Federal regulations
Policy WRE-6.1 City will maintain municipal water quality at or above healthy drinking water standards"

Comment: Since we are at the top of the Watershed and we have the highest quality waters in the State, this should be more strongly stated "Policy WRE-6.1 City will maintain municipal water quality, which are considered "High Quality Waters of the State," above the State's 'healthy drinking water standards;' consistent with the state and federal anti-degradation policies." This way every decision we make as a City puts maintaining these high-quality waters as first and foremost in all we do as a community.

"Program WRE-6.1.2 Prioritize infrastructure projects which improve and maintain healthy drinking water standards."

Comment: To match the more strongly stated protection suggested above, this might read 'Prioritize infrastructure projects which protect the high-quality waters of the state that is our source of drinking water.' Or something like that.

Page 29, last paragraph:
"Policy WRE-6.2 The City shall cooperate with State and county agencies in

efforts to identify and eliminate or minimize all sources of existing and potential point and non-point sources of pollution to ground and surface waters, including leaking fuel tanks, discharges from storm drains, auto dismantling, dump sites, sanitary waste systems, parking lots, roadways and logging and mining operations"

Comment: Add "leach fields" to the last sentence and end it with a period.

Page 30: Policy WRE-6.3 Support conversion of septic systems to municipal sewer service; with higher priority given to septic systems up-gradient from the City's water sources.

Comment: Tell us here how many septic tanks we are talking about? Sphere of influence area or City too? Show them in a map format.

Program WRE-6.3.1 Require all properties with septic systems 25 years or older to convert to City sewer service

Comment: Is this within City limits? If so a map of those locations and #'s we are talking about.

"**Program WRE-6.3.3** Work cooperatively with Environment Health to assess the need for land use controls in areas where septic discharge threatens public health or beneficial uses."

Comment: To do what? What outcome do you want? To find funding to extend sewer infrastructure to those areas? More specifics would be great. Gives City a focus to work towards…Please clarify who/what Environmental Health is—county, state agencies??

Program WRE-6.4.3: "Ministerial land use development proposed within Critical Water Supply areas shall comply with performance standards adopted by ordinance. Discretionary development shall comply with performance standards and supplemental permit conditions. Standards and permit conditions shall require: 1) demonstrating that no risk of contamination to the water supply would occur due to the development activity; and 2) avoiding degradation of municipal water supplies by reducing cumulative impacts to surface water quality and water quantity during low flow periods to below levels of significance."

Comment: In addition to protecting the City's water supply, the permit conditions must also protect domestic wells in the SOI and the level of significance should be consistent with anti-degradation policies. For example, the City is in the process right now of allowing the Cypress project on the north side of town. Allowing a leach field there may degrade the high-quality waters of the State for neighbors down gradient of the project, all of whom are on domestic wells. By allowing this type of project, it goes against what we need to do to protect the water. If this project was upgradient from a City water source, it would not be allowed. And it is short-sighted for the City to allow this given it could negatively impact the new City well that is proposed for that area. We need the same standards/protections for all community members. Work with the project to get the infrastructure out there no matter what. That entire area would benefit. But by piecemealing it, project by project that is poor planning for the future. There needs to be a comprehensive plan for areas like the north side of town where there are not yet City services.

"**Program WRE-6.4.4** Where appropriate, new development shall be Low Impact Development (LID) that minimizes impervious area, minimizes runoff and pollution and incorporates best management practices."

Comment: same comment as above. Also, "best management practices" needs to be defined—who decides what are BMPs? What authority do they have?

Page 33, second paragraph: This section would benefit from a discussion of how wetlands can sequester carbon and therefore help mitigate climate change.

Page 38.MAP WRE-4 Depth of Cascade Gulch Water Table:

Comment: There is no reference to MAP WRE-4 in the text and the legend is insufficient; therefore it is difficult to interpret. What do the #'s represent? Ie: >200. 200 what? Inches? Feet? Should say in the legend. Or is this referring to soil type like Deetz 125 soil mentioned in comments above? So that is inches per hour of percolation? Just generally unclear for general reader. If it doesn't work to have it in the legend, perhaps a brief discussion of inches per hour in the text because it comes up again in MAP WRE-5 and has been an issue in comments previously about septic systems and Deetz 125 soil, in our comments.

Page 39, paragraph 2:
"Water Budgets In order to understand and quantify the amount of water flowing in and out of a wetland, scientists will commonly calculate a water budget. These numerical models track total inflows and outflows of a wetland system. After identifying possible water inputs and outputs, it is necessary to identify the timescale of interest. The timescale will directly affect the monitoring methods necessary. Other variables such as climate and streamflow data, precipitation, evapotranspiration, and groundwater levels must be measured to characterize regional hydrology. The end product of this scientific investigation is a better understanding of a wetland's hydropattern, which is the typical or average behavior of a wetland's water levels. A wetland water budget can be more finely or coarsely developed depending on the project scope.39 The City of Mt Shasta currently lacks this type of detailed data regarding the behavior of wetlands inside its jurisdiction, but would benefit from such research, especially because wetlands are so extensively interconnected to the City's storm drain system. Partnerships with nearby academic institutions and/or state agencies could potentially be a cost-effective way to generate more information about Mt Shasta's wetlands' water budgets."

Comment: You could add NGO's, RWAG or even Citizen Science as avenues to do these studies. Siskiyou Land Trust could sponsor a study at Sission Meadow.

Page 40
MAP WRE-5 Hydrologic Soil Groups for Cascade Gulch Watershed:

Comments:
MAP WRE-5 is not discussed in the text and is therefore difficult to interpret. Please discuss in the text the significance of this map. The legend is insufficient:

"Hydorlogic soil ratings are based on the estimated run-off potential. The ratings take into account the rate of water inflitration if there was no vegetation protection, soil is thoroughly wet, and there is a long-duration of precipitation."

Two typos: “hydrologic” and “infiltration”. And again “soil rating” doesn’t tell us anything. Drainage of water in inches per hour is standard. Maybe a chart of soil rating that shows drainage in inches per hour.

Page 44, first line: Should read “…risk due to less snowpack,”

Page 44:
“Goal WRE-7 Protect, maintain, and increase wetland areas in the City’s Sphere of Influence”

Comment: In “Goal WRE-7 Protect, maintain, and increase wetland areas in the City’s Sphere of Influence” Can we stop any more taking of wetland areas by ordinance? Make it unlawful to destroy any more designated wetland areas in MS. When we take, piece by piece, over the years there is less and less left and then that policy or non-policy goes against WRE-7. The recent loss of wetland area to a local charter school project is an example.

“**Program WRE-7.2.1** Develop incentive programs for creation and conservation of wetlands on private property.”

Comment: Can’t we make it illegal by code to destroy wetland on private property within the City Limits?

Page 46, Section “Existing Resilience”, fourth point:
„…The local volcanic aquifer may prove more resilient to the disruptive effects of Climate Change than water supplies elsewhere in California. A warmer climate may also shift the seasonal timing of peak snowmelt earlier into the spring or late winter, but the groundwater-dominated hydrology of Mt Shasta is expected to lessen this effect and help maintain the productivity of Cold Springs in the late-summer and fall. Compared to cities whose water supply is provided primarily by surface flow, Mt Shasta reliance on groundwater makes it less vulnerable to potential reductions in dry season water availability.”

Comment: Please see the two Snow pack studies earlier in the letter.

Page 46, Section “Existing Resilience,” point six:
“Because the City has pursued far fewer demand-side water restrictions to date when compared to most other California cities, the City of Mt Shasta may still have relatively “low-hanging fruit” when it comes to available water conservation actions.”

Comment: can you be more specific. What does ‘low-hanging fruit’ mean? Add specifics of what else we can do.

Page 47, section “Vulnerabilities”, point five:
“In general, the City lacks a precise understanding of the hydrologic processes of Mount Shasta’s volcanic aquifer. Furthermore, the City lies outside of a groundwater basin recognized by the State of California and is therefore ineligible for the snowpack and groundwater monitoring assistance DWR has provided for the nearby Shasta Valley Groundwater Basin. In the absence of State assistance, the City may be unable to accurately quantify changes in snowpack and groundwater levels over time.”

Comment: There is current GW monitoring in the sphere of influence of the City and the City has a transducer in City Well #2 (High School Well) so monitoring is happening and can continue w/o

assistance from DWR. It just takes collaboration to share the info and work together to continue the programs established by Citizen Scientists and NGO's.

Page 48, bullet point four:
This point starts with a long quote—please reference the source.

Page 49, first point: Here again is a reference to the legal doctrine of "reasonable and beneficial use". Along with anti-degradation policies and the precautionary principle, this does give the City some ability to regulate activities that would deplete/degrade water resources.

Page 50:
"Defining Drought The City's springs and wells are fed by relatively young groundwater, winter precipitation is believed to be a key factor that affects spring output. Therefore, drought can be anticipated in advance whenever high elevation areas of Mount Shasta experiences an unusually dry winter. The City determine measurements to identify Moderate, Severe, and End of Drought conditions. For example, If total snowfall accumulation as measured at less than X at a given location by a certain date, the City can reasonably assume that Cold Springs output will be below average in the coming year. Such a determination will trigger a City designation of Moderate Drought. If Cold Springs output falls below 70% of its long term average output for a given month, this condition will trigger a City designation of Severe Drought."

Comment: You can work with Dan Axelrod to determine this. He would be happy to support the City in figuring out a simple determination based on the presentation we gave to the City.
Also note in the third sentence: "The City determine measurements to identify Moderate, Severe, and End of Drought conditions." Should it say "The City must…

Page 50, last paragraph:
"The City of Mt. Shasta due to its abundant water supplies is not one of the communities that has effectively implemented water conservation practices. The only meaningful practice worth noting was the installation of water meters in 2015. The lack of water conservation practices in the City means that there are many areas to improve and reduce the amount of water usage. The major benefits the City could see in employing water conservation practices is reduced impact on existing water facilities and lower long-term impact on groundwater supplies. This would lead to long-term cost savings and increased water supply."

Comment:

Here it would be good to say "due to its perceived abundant water supplies…" because as we know from the 2012-2016 water year, Cold Springs produced at its lowest levels ever.

Also because there doesn't seem to be an impact on conservation practices, an increase in rates could stimulate those measures in people's homes and bring money into the City for project funding like water storage tanks. (add to Policy WRE-8.2)

3) You say "2013-2016 drought but in other areas you put 2012-2016 so you want to be consistent. And just heard some acknowledgement that we may actually still be in that drought cycle minus the one good precipitation year we have had since.

Page 51:
"Program WRE-8.3.2 Provide incentives or requirements for xeriscaping, drought tolerant landscaping, water efficient appliances, and water conscious building design"

Comment: would this include mandatory low flow toilets, washers, and irrigation? Where is this placed in the General Plan update? Building codes?

Page 51:
"Goal WRE-9Promote water capture systems and gray water reuse" and t 52 Program WRE-9.1.1

Comment: In regards to 'policy' is it specifically legal in the City to capture water and grey water? In some areas of the State it is illegal. How can/does City policy promote this? Workshops promoted. Discussions about City ordinances regarding this topic. Perhaps an agenda item at City Council meetings can bring this info to the public?

Page 52:
"Program WRE-10.1.2 Develop repair schedule for City-wide infrastructure leaks and improve overall efficiency"

Comment: Is there a policy at public works to monitor or even look for City-wide infrastructure leaks? Match policy with job description changes within the City/Public Works.

Page 53, second paragraph:
"As the City developed, much of the original wetland was altered or filled, and runoff from impermeable surfaces was increasingly directed through gray infrastructure drainage features to tributaries of the Upper Sacramento River."

Comment: Does this grey water still drain directly to creeks and into Lake Siskiyou without filtration?

Page 54, blue box:
Does this definition of "illicit connection" preclude the use of greywater for watering lawns, for example if there is run-off from the watered lawn? If so, is there a contradiction with the proposed use of greywater in the previous section?

Page 54, third paragraph:
"Not all MS4s are regulated under the CWA; the MS4s of small cities with populations of less than 10,000 like the City of Mt. Shasta are usually exempt from permitting requirements.62 However, the USEPA and State Water Board retain the discretion to force small municipalities to undergo NPDES permitting for a number of reasons, including if the municipality's MS4 discharges to sensitive waters as defined by §303(d). The only §303(d) listed water body near the City of Mt. Shasta is Lake Siskiyou, which was recently listed for excess mercury (Hg). No Total Minimum Daily Load (TMDL) has been established yet, nor has the source of the excess mercury been identified. While the City of Mt. Shasta is currently not required to obtain a NPDES permit for its MS4, it could conceivably be forced to in the future if water quality downstream of the City deteriorates."

Comment: Connect with Bob Blankenship from Trout Unlimited to get WQ tests to establish baseline mercury levels. His WQ testing project got funded in Prop 68 DWR via RWAG.

Page 54, paragraph 4:
"Additionally, there are no non-traditional small MS4 permit holders in SOI, but they are required for construction projects disturbing more than 5 acres of land. Currently, the only NPDES permit in the City's SOI is for its Waste Water Treatment Plant (NPDES Permit No. CA0078051)."

Comment: Missing the Crystal Geyser permit for leach field, although it may not be considered an MS4 permit. (Order 05-01-233) The plant does have a retention pond as well. What will be the classification for industries in areas that do not have access to City utilities, for example along Spring Hill Drive (like the new Cypress business, that might need to install significant water processing facilities, and includes a leachfields?

Page 55-57: Figure numbering is inconsistent with the rest of the document, for example there are two figures labeled as figure 3 (pages 19 and 57).

Page 57, Figure 2 and 3:

Comment: Might be good to do another figure that overlaps those two so we can see how the predictions fall with what we already have observed.

Page 58, paragraph 1:
"The City of Mt Shasta has had a long, and at times extremely controversial history with the beverage industry. The region's abundant high quality water supplies originally attracted Native Americans to the area, and later EuroAmerican settlers began commercial use of water soon after their arrival."

Comment:

Was it abundance of water that attracted Tribes or the sacredness of a site or the mountain itself? Do you have references here to quote?

Please consult the Tribes before finalizing. We believe the term "Native American" is not the appropriate name Tribes would like to use. Adding "American" to the description of Native Peoples is not something that is appropriate. Consider substituting 'Native American" with Native Peoples.

Page 58, last paragraph:
"Concerned residents for the communities surrounding the bottling plant began organizing opposition to the bottling plant. They began groundwater monitoring as a baseline. CASGEM baseline established under 2014 historic drought conditions but prior to CG plant beginning operations. In June, 2015 We Advocate Through Environmental Review (WATER) threatened to sue Siskiyou County, in August they did file suit related to potential negative environmental impacts. In September 2015, CG announced it would do a comprehensive EIR after being asked to apply for permits from Siskiyou County. Ultimately, after litigation and delays, the County approved EIR for bottling plant in Dec 2017. The County decision has since been taken to court with no anticipated opening date for the bottling plant."

Comment: Good overview.

CASGEM baseline testing began Nov. 2013.
Also there were domestic well users during the Dannon operation and then later Dannon CocaCola, that experienced loss of access to groundwater and/or serious water quality issues. This was the reason the local homeowners surrounding the operation objected to no EIR done by

the county and later to the FEIR because of lack of ANY mitigations regarding monitoring groundwater and protections for local domestic wells.

Page 59, paragraph 1:
"Scientifically, the City of Mt. Shasta has not explored the cumulative impacts of commercial water exporting enough. The majority of scientific study on groundwater impacts in relation to groundwater exporting has been funded and promoted by partisan groups that are strongly in fair or against the industry. These studies may be considered accurate for the purposes in which they were developed, but for the City to support and set groundwater extraction limits, there must be more robust, repeated scientific study and modeling."

Comments:

The City has not studied the cumulative impacts of commercial water exporting "at all." It should read like that. (No blame just accuracy.)

This sentence might more accurately read: "The majority of scientific study on groundwater impacts in relation to groundwater exporting has been funded and promoted by the company (Dannon) when it was developing its Spring water rights. It was not designed to test groundwater levels or impacts on neighboring domestic wells. Theoretical models were used instead. The other testing done was a pump test done by Crystal Geyser Water Company on their "domestic well." These studies may be considered adequate for the purposes in which they were developed, (to obtain a Spring Water License) but for the City to support and set groundwater extraction limits, there must be more robust, repeated scientific study and modeling."

In line 4, change "fair" to "favor".

Page 59: "Goal WRE-13 Develop and promote groundwater extraction limits for commercial and municipal consumption. Policy WRE-13.1 The City shall advocate for scientifically supported groundwater water extraction limits to ensure sustainable water levels for current and future growth."

Comment: Add to the end of this policy …"before any water export is allowable within City limits." Here again, until solid scientific data is obtained, the precautionary principle must be invoked.

Page 59: "Program WRE-13.2.1 Update groundwater extraction local regulations to ensure that all new export proposals and renewal of licenses for existing water exports shall include a full assessment of impacts on the environment, economy, and water supply needs of the city"

Comment: Is this saying the same thing as "remove the exemption in City code that allows for water bottling without a permit"? Might be clearer but less politically correct to state: "Every project must require a discretionary permit, thereby requiring a full review (including CEQA) rather than simply granting ministerial permits which allow projects to move forward without environmental review or public input."

Page 60: "Program WRE-13.2.2 The City shall require that exports not damage the City's environmental and economic setting by ensuring that no unreasonable effect occurs in the transfer and withdrawal of water resources pursuant to Section 1810 of the State Water Code. City standards for defining no unreasonable effect include actions that will not: A. Contribute to a decline in the population of any sensitive or protected plant, fish, or wildlife species. B. Reduce water levels in any existing

public or private groundwater wells to levels that preclude withdrawal by existing users or would substantially increase the costs of such withdrawal. C. Contribute to any impacts on water quality that reduces water quality below health standards or federal or state water quality standards. D. Contribute to effects on water quality that would result in a deficiency to the water treatment agency's ability to treat water to appropriate standards. E. Reduce available groundwater or surface water resources to levels that would make access and/or use of these waters uneconomical for development planned in accordance with this General Plan. F. Directly or indirectly discharge contaminants into surface or groundwater resources"

Comments:

Point B: To insure "no unreasonable effect" please add that you will

monitor domestic wells up and down gradient to ensure that groundwater extraction from City wells for export will not affect those domestic wells within the sphere of influence. (We have no idea how the aquifer is connected. Direct testing is reasonable and protective of the community. To use theoretic modeling will create the same dynamic as we have now with Crystal Geyser Water Company.)

Monitor and protect groundwater dependent ecosystems (GDE'S) from this type of export and increase in water usage.

Point C: Change to, "Contribute to any impacts on water quality that reduces water quality in violation of federal and/or state anti-degradation policies.

Add a point G. Insure there are no impacts to the Traditional Cultural Resources (TCR's) of the Tribes who claim this area as their traditional cultural territory.

Add a point H: No water from City sources will be sold for commercial water bottling or bulk export out of the City.

Note in line nine: "…increase the costs <u>of</u> such withdrawal."

Page 61, paragraph 3 second line: add a period after "Peoples".

Page 61, paragraph 5: "The 1980's saw a in the decline of the timber industry due to changes in timber pricing and increasing environmental concern over timber management practices. The decline of industry in the City and the nation have shifted the economy to a tourism-based economy. The tourism economy is especially vulnerable to climate change and unpredictable weather patters."

Comment: In another spot in the Element you said 1990's. Also correct in line one, "…saw a decline of the …" and the last word of the paragraph should be "patterns."

Page 62, Goal WRE-14:

Comment: All of the initiatives in this section related to educating the public about the value of water as a Tribal Cultural Resource will ring hollow if this entire document and its policies do not expressly protect Indigenous Peoples' rights, especially protection of water consistent with their beliefs. Please don't try and fool yourselves.

Page 62: "Policy WRE-14.2 Respect and support tribal agencies in communicating and developing programs to identify and promote tribal value of water resources."

Comment: Many Tribes in California have lost their designation of being a Tribe. Many are now considered "historic" Tribes, even while they are still here! Most do not have the designation with the State of CA that make them 'agencies.' There is a better description. But Tribes should comment and tell you what that is.

"**Program WRE-14.1.3":**

Comment: add a WRE-14.1.4 or add to WRE-14.1.3 to read something like "Promote the City's attitude/care of water by having signs up for water refill stations and drinking fountains."

Policy WRE-14.2 Respect and support tribal agencies in communicating and developing programs to identify and promote tribal value of water resources

Comment: again the word 'agencies.' Please consult with local tribes for a better term.

What topics are missing from Water Element?

All ordinances on the books must be reviewed as to how the Water Element is affected. For example, the Water Bottling exemption is still on the books, that must be removed as soon as possible. Every project must be permitted and able to be reviewed rather than ministerial permits which allow projects to move forward without public input.

We do not know what the potential change from snow pack to rain will do to our water sources and their replenishment. Groundwater recharge has never been studied and climate change effects are new and happening now. We need to acknowledge that rather than continuing with the belief that we are water rich. This may change by 2045. We must invoke the precautionary principle in protecting water quantity and quality.

Cold Springs is most vulnerable due to the age of the water and comments made earlier in this letter. (see Axelrod report.)

City water resources (Cold Springs & City Wells #1 & 2) should be used for domestic users and small industrial users only. No water bottling and no bulk export.

Like the "Water Talks" idea. Expand from just conservation to other topics like State law, water protection laws, gaps in protective laws from State and how we are at risk for water mining and extractive industry, what NGO's are doing in our area and across the State…etc. I have plenty of topics if you would like them.

Promote the City's care for water by having signs up for water refill stations and drinking fountains.

Collaborate with NGO's and Citizen science as suggested in your Mt. Shasta RD Synthesis Report, July 2017: "Consider enlisting a volunteer(s) to collect freely available data and analyze it to discover trends in snowpack and precipitation. Target at least 30 years of data to meaningfully capture and mitigate interannual variability. Looking at the trends and the pattern of departure from an average can show how these elements are changing over time. Such trends

help understand not only what is happening to snowpack and surface water availability but why they are changing.

Standards for water quality must meet anti-degradation policies, not simply drinking water standards, since the latter would allow unacceptable levels of pollution inconsistent with anti-degradation policies. In addition, water is a Traditional Cultural Resource for local Indigenous Peoples and City policies must not violate TCR standards.

We want to reiterate that the Water Element acknowledges a future that is very unpredictable with little solid research to inform policies and procedures regarding water resources. Clearly many of the policies and programs proposed in the Draft WE will research efforts taking many years, if not decades to complete as data must be collected, models developed and validated. However, there is no guidance as to how decisions will be made before the "hoped for" studies are complete. Current standards remain inadequate. Looking at the General Plan Update inclusive of the next 25 years and what the City choses to do in that time-frame, will have significant impacts well beyond 2045.

In a future that is clearly changing and the reality that the status quo will not suffice, it is crucial for this WE document to 1**) adopt the Precautionary Principle in order to protect water resources for the community and downstream uses and 2) utilize anti-degradation policies to set the standard for water quality.**

This Water Element talks about the abundance of the City's water supply and yet another well is needed on the north end of town that is not discussed in this document. Given that so little is known about the underlying aquifer/s it seems prudent to worry about the potential groundwater impacts of the residential areas in the Gateway Neighborhood as well as the CGWC leach field.