



Longview Drinking Water Improvement Study

Project overview

The City of Longview and the Beacon Hill Water & Sewer District (BHWSD) supply drinking water to 45,000 customers in the region. In 2013, due to various upgrades needed to the aging system that was in place, the water supply was switched from a surface water source treated at the Fishers Lane Water Treatment Plant to a groundwater source treated at the Mint Farm Water Treatment Plant. While the new system provides water that meets all water safety and quality standards, a recent customer survey found that a large majority of water users (82%) are dissatisfied with their water.

In response, the City of Longview and BHWSD initiated a study to evaluate options for improving water quality. This included establishing a Customer Advisory Committee (CAC). The CAC's objective is to **provide recommendations for a sustainable, safe, and satisfactory water supply for Longview/BHWSD water customers.**

Common concerns

The most common issues expressed by water customers include:

- Spots and residue
- Taste
- Color and staining
- Smell
- Indirect costs to customers, including damage to appliances and buying bottled water
- Fear of health impacts

The new groundwater supply has higher dissolved silica and hardness, which can cause spotting and mineral buildup on appliances and fixtures. The study is considering options to remove dissolved silica and reduce the hardness of the water.

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Updated June 18, 2015



Fishers Lane Water Treatment Plant (left) provided treated water from the Cowlitz River until 2013; the Mint Farm Water Treatment Plant (right) currently supplies treated groundwater



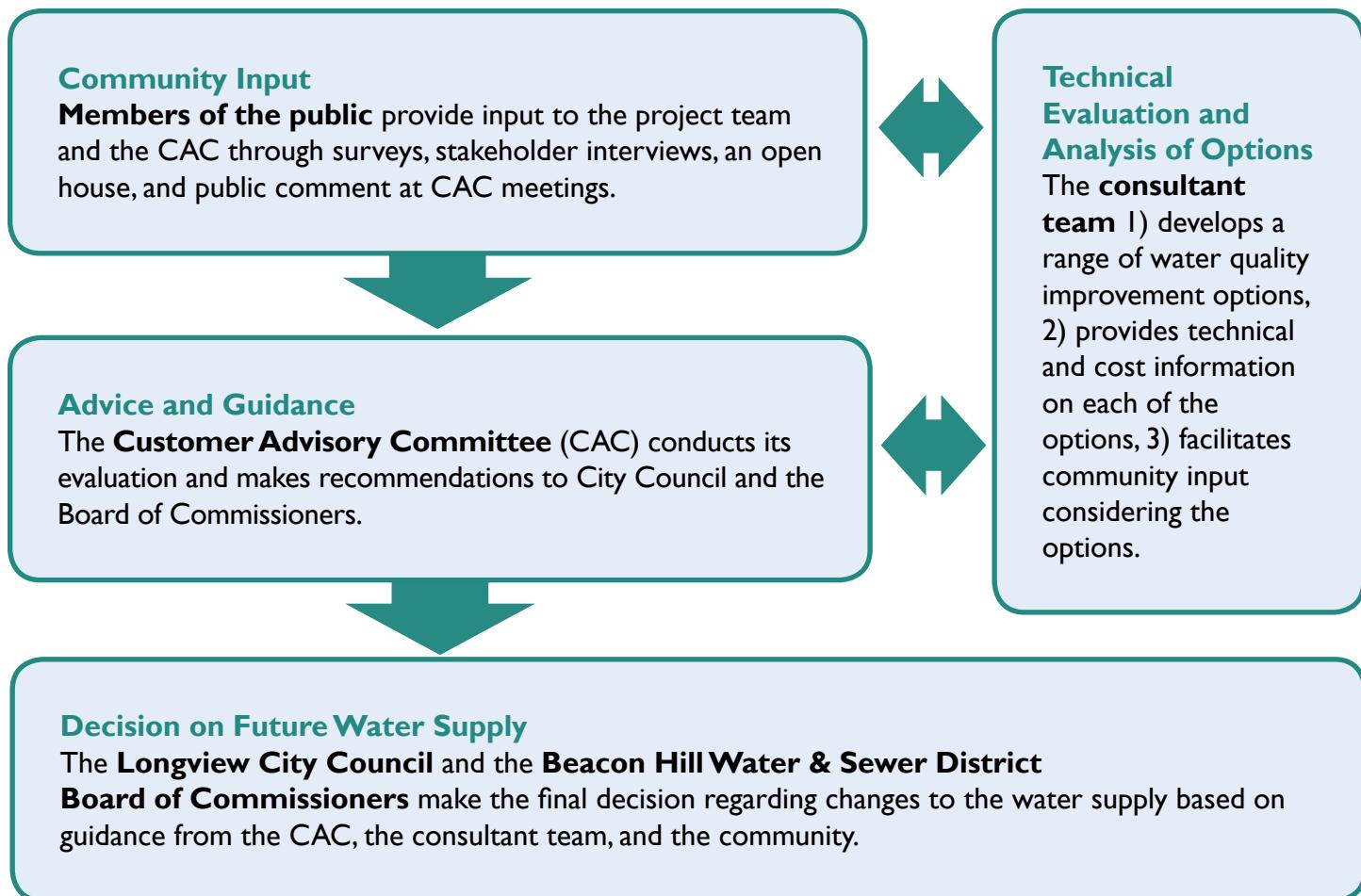
Illustration from the Customer Advisory Committee kick-off meeting identifying background on the issues and outlook for the study process

Iron, manganese and chlorine levels contribute to the issues of taste, odor, and color of the water. Levels continue to be monitored in order to ensure safety and quality; however, changing the taste, odor and color characteristics of the drinking water have been a major focus of the study.

While heard less frequently than other issues, there have been reports of the water affecting customers' health. Reports of skin rashes, upset stomachs and other ailments have been attributed to the change in drinking water. The water is regularly monitored and tested and it meets all water safety and quality standards; however, customer complaints are taken seriously and are being considered during the study.

CAC recommendation process

The Longview City Council and the BHWSD Board of Commissioners are responsible for making the final decision regarding changes to the water supply. However, the CAC plays a key role in recommending the best course of action. All parts of the process will be informed by technical information from the project team and feedback from the community.



Evaluation criteria

To help sort through the options, the CAC adopted an evaluation framework that includes community values, customer perspectives, technical considerations and cost. The criteria are grouped under three key values:

- Key Value #1: Improve **customer perception** about the water supply with respect to it being high quality and having no toxic risk. This category includes criteria such as taste, smell, spotting and health concerns.
 - Key Value #2: The recommendation should be **technically feasible** and **have long-term viability**. This category includes criteria such as long-term capacity, reliability, operability and permitting considerations.
 - Key Value #3: Consider the **cost and affordability** of water, both in terms of rates paid and indirect costs to customers for bottled water, appliance repair, in-home treatment or other similar costs.

Illustration of the vision created by the CAC during their first meeting; this vision is reflected in the CAC's objectives and evaluation criteria



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Options considered

The range of possible options came from research by the technical consultant, as well as input from city staff, CAC members and the community. The initial list included more than 50 possible courses of action, which were grouped to make it manageable to consider benefits and drawbacks.

Group of options	Type of change	Source
Stay the course	No change; status quo	Mint Farm wellfield
Modified well source	Change in treatment of the well water or changes in the distribution/transmission system	Mint Farm wellfield
Change to a surface water source	Surface water may be sourced above ground or via a Ranney collector well; and could include Aquifer Storage and Recovery (ASR) or blending surface water with well water	Cowlitz River, Columbia River or other surface water source
Buy water from or collaborate with another entity	Regional/intergovernmental agreement	Cowlitz River, Columbia River or Kalama River
End user treatment	Treatment at the individual home/business level	Mint Farm wellfield
Non-infrastructure	Products and education to deal with water issues	Mint Farm wellfield

Project timeline

The CAC and technical team activities that will lead to recommendations are shown below, along with opportunities for input from the community.

	2014	2015	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.
CAC activities										
	Applications for Community Advisory Committee (CAC)		CAC Meeting 1, Jan. 13: Background and charge, community discussion, goals and expectations		CAC Meeting 3, Feb. 24: Develop values and criteria; review complete set of options and option groups					Aug. 20: CAC workshop with Council and District Board
				CAC Meeting 2, Jan. 31: Finalize chartering, water treatment plant tours		CAC Meeting 4, Mar. 17: Finalize and prioritize values and criteria				
Public input opportunities	Customer phone survey				Public comment period at CAC meetings throughout project					
					Stakeholder interviews & community survey			Open house, online survey & video		Comment period on preferred alternative
Technical evaluation	Develop options & confirm water needs	Assess Fishers Lane water treatment plant		Evaluate options		Develop top rated options			Document process, results report	

Contact Us

Adrienne DeDona, Public Involvement Project Lead, (360) 993-0025, info@longviewwater.org

Go online for more information

The project website and city website contain additional information on Longview's water supply, including:

- Fact sheets on hard water, iron, manganese and silica
- Customer Advisory Committee meeting dates and information
- Answers to frequently asked questions

www.LongviewWater.org

Longview Water Supply Alternatives

From an initial list of more than 50 options, the Customer Advisory Committee (CAC) selected the most promising alternatives based on the key values of **customer perception; technical feasibility and long-term viability**; and **cost to rate payers**. The alternatives have been grouped into 14 clusters to make them easier to compare.

The table on the reverse lists the clusters and how they compare against the three key values. The two clusters that are currently preferred by the CAC are indicated in the table.

Cost Estimations

Costs provided in the table are rough estimates. While it is difficult to estimate costs at these very preliminary stages, these estimates are intended to allow for comparison among the various options. Cost ranges represent the variations among specific options within each cluster.

Information About the Options

Groundwater (well) source – Groundwater comes from underground aquifers tapped by wells.

Groundwater is generally safer than surface water and requires less treatment but often has higher levels of dissolved minerals, silica and hardness, which cause many of the current complaints about taste, smell, color and spotting with Longview's drinking water. The public has also expressed concern regarding the proximity of the Mint Farm wells to former and current industrial sites.

- Several options to modify the Mint Farm wells and treatment process have been considered, each of which would address concerns differently (see reverse).
- Switching to a new groundwater source at a different location has also been considered, but requires more study to determine if the new water quality would be better than existing.

Surface water source – Surface water would be drawn directly from one of the region's rivers, such as the Cowlitz, Columbia or Kalama. These options generally have lower levels of minerals, silica and hardness, but can present technical challenges, such as high levels of silt, more expensive treatment, and environmental permitting requirements.

- It is assumed these options would address taste, odor, color, spotting, purity and general health concerns because surface water generally has lower levels of minerals, silica and hardness.



Example of a surface water intake structure

Ranney collector well – A Ranney collector is a well used to extract water from an aquifer with connection to a surface water source, such as a river. The purpose of a Ranney collector would be to obtain water quality similar to surface water, but without the regulations and technical difficulties associated with directly withdrawing water from the river.

- It is assumed these options would provide water quality similar to surface water and would address concerns related to taste, odor, color, spotting, purity and general health.

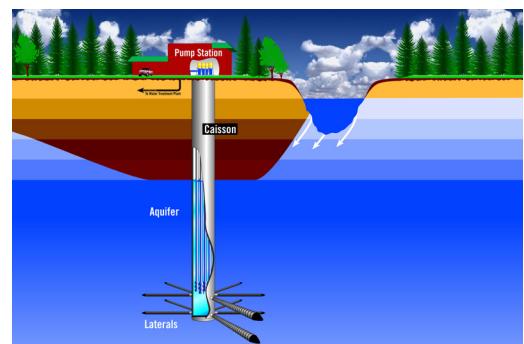


Diagram of a Ranney collector well

Aquifer Storage and Recovery (ASR) – ASR is the injection of potable water into an aquifer for later recovery and use (for example, surface water may be injected into an aquifer during the winter and withdrawn during the summer in periods high demand). The purpose of this option would be to obtain surface water quality but avoid complications such as regulations affecting when surface water can be withdrawn from the river.

- These options would likely improve issues related to taste, smell, color and spotting; however, this option may not fully address water quality concerns because ASR water would be stored in the aquifers currently in use and may absorb some of the minerals.

Blending – Blending options would involve mixing water from a new water source with groundwater from the Mint Farm wellfield. These options would improve water quality at a lower cost to rate payers compared to completely replacing the Mint Farm wellfield source.

- These options would likely improve issues related to taste, smell, color and spotting; however, these options may not fully address water quality concerns because the current groundwater would continue to be used.

Water Supply Option Cluster	Customer Perception (spotting, taste, smell, color, purity & general health concerns)	Technical Feasibility and Long-term Viability	Approx. Additional Cost to Rate Payers
Mint Farm Well Source			
Status Quo – No Additional Treatment / Optimize Existing Treatment Process	Would not address concerns related to spotting, taste, smell, purity or general health.	Meets long-term capacity, reliability, permitting and operating requirements.	No additional increase in rates; however, there are indirect costs to customers.
Modify Existing Treatment Processes	Some treatment technologies could address spotting, purity, taste, color, and odor issues; however, it's unclear whether this option would address health concerns.	Most technologies would meet the capacity, reliability, permitting and operating requirements. Complete within 3 years.	\$1 to \$25 per month increase
Modify Distribution System	May improve taste, color, and odor issues. Would not address concerns related to spotting (from silica), purity, or general health.	Meets long-term capacity, reliability, permitting and operating requirements. Treatment modifications could be completed within 3 years; distribution system replacement would be phased over 20 years.	\$1 to \$70 per month increase
Cowlitz River Source			
► Surface Water Source CAC Preferred Option	Addresses concerns related to taste, odor, color, spotting, purity and general health.	Meets long-term capacity, reliability and operating requirements. Permitting will be difficult. Approximately 5 years to complete.	\$15 to \$47 per month increase
► Ranney Collector CAC Preferred Option	Addresses concerns related to taste, odor, color, spotting, purity and general health.	More analysis is needed to determine if this would meet long-term capacity and reliability requirements. Up to 3 years to complete.	\$10 to \$24 per month increase
Aquifer Storage and Recovery (ASR)	Would improve issues related to taste, odor, color, and spotting. Would not address purity and general health concerns because ASR water would be stored in the aquifers currently in use.	More analysis is needed to determine if this would meet long-term capacity and reliability requirements. Permitting a surface withdrawal will be difficult. Up to 5 years to complete.	\$8 to \$15 per month increase
Blending Surface or Ranney Collector Water with Groundwater	Would improve issues related to taste, odor, color, and spotting. Would not address purity and general health concerns related to current groundwater.	More analysis is needed to determine if this option would meet long-term capacity and reliability requirements. Permitting will be difficult. Up to 5 years to complete.	\$21 per month increase
Columbia River Source			
New Surface Water Source	Addresses concerns related to taste, odor, color and spotting. Members of the CAC have expressed concern regarding purity and general health issues.	Meets long-term capacity, reliability and operating requirements. Permitting will be difficult. Approximately 5 years to complete.	\$15 to \$37 per month increase
Ranney Collector	Addresses concerns related to taste, odor, color, and spotting. CAC members have expressed concern regarding purity and general health issues.	More analysis is needed to determine if this option would meet long-term capacity and reliability requirements. Up to 3 years to complete.	\$10 to \$27 per month increase
Aquifer Storage and Recovery (ASR)	Would improve issues related to taste, odor, color, and spotting. Would not address general health concerns because ASR water would be stored in the aquifers currently in use and because CAC members have expressed concern regarding purity and general health issues.	More analysis is needed to determine if this option would meet long-term capacity and reliability requirements. Permitting surface withdrawal will be difficult. Up to 5 years to complete.	\$8 to \$24 per month increase
Blending Surface or Ranney Collector Water with Groundwater	Would improve issues related to taste, odor, color, and spotting. Would not address purity and general health concerns related to current groundwater. CAC members have expressed concern regarding purity and general health issues.	More analysis is needed to determine if this option would meet long-term capacity and reliability requirements. Permitting will be difficult. Up to 5 years to complete.	\$20 per month increase
Other Sources			
New Wellfield Source – Other Groundwater Sources	More analysis is needed to determine whether this option would address concerns related to spotting, taste, smell, purity or general health concerns.	More analysis is needed to know whether this would be technically viable and to determine the time required to complete.	\$7 per month increase
New Surface Water Source – New Upland Water Source with Surface Dam and Treatment / Convey Surface Water to Treatment Plant in Open Channel	More analysis is needed to determine if this option would address concerns related to taste, odor, color, spotting, purity and general health.	More analysis is needed to determine if this option would meet long-term capacity and reliability requirements and to determine the time required to complete.	\$55 to \$64 per month increase
Kalama River Source – Ranney Collector	Addresses concerns related to taste, odor, color, spotting, purity and general health.	More analysis is needed to determine if this option would meet long-term capacity and reliability requirements. Up to 3 years to complete.	\$14 per month increase