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# Executive Summary

Cascade Water Alliance is a public, non-profit corporation comprised of eight Member cities and special districts in King County, Washington. Cascade's primary role is to contract, plan and develop regional water supplies on behalf of its Members.

This Transmission and Supply Plan (TSP) fulfills Cascade's responsibility to submit a water system plan to the Washington State Department of Health. In addition, it supplements information on regional supply presented in each Member's individual water system plan.

## Part I: Current Water Supplies, Facilities and Operations

Cascade contracts with Seattle Public Utilities (SPU) for delivery of water to seven of the eight Cascade Members<sup>1</sup>. The SPU supply contract provides for a "declining block" of supply that will be reduced in five-year increments beginning in 2024. Under the Block Contract, SPU is responsible for maintaining and operating source, treatment, transmission and storage facilities needed to deliver the contracted supply, as well as regulatory compliance for those facilities.

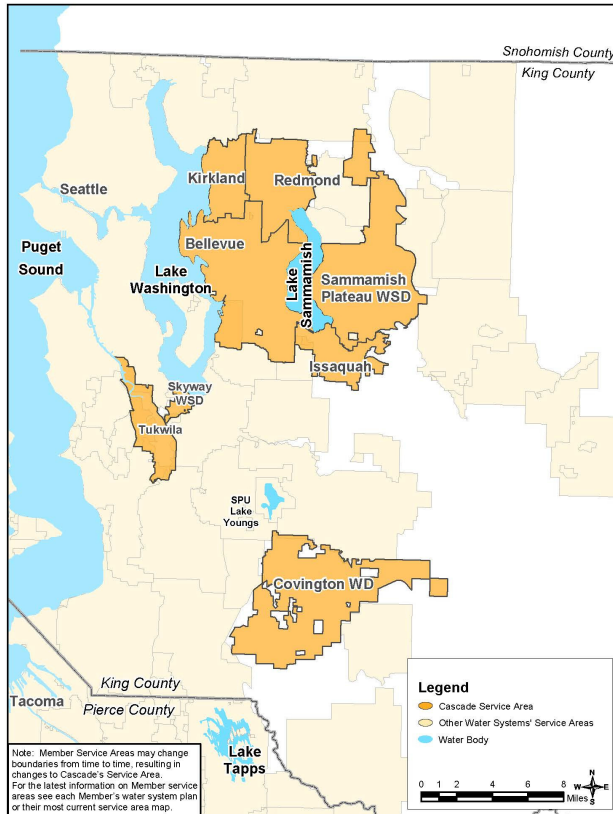
At this time Cascade's existing capital facilities for delivery of municipal water supplies consist solely of the Bellevue-Issaquah Pipeline (BIP). No capital improvements have been identified for the pipeline, nor does Cascade have other capital projects coming up in relation to its current supplies (for future supplies, see Part II, below).

Individual Members of Cascade own, operate and maintain their own water distribution systems. This includes, as applicable, water treatment for their independent water sources; maintenance of water quality within their reservoirs and distribution piping systems; and local monitoring of water quality conditions (some monitoring is shared with SPU or other water systems). Five of the eight Cascade Members have their own independent supplies.

Cascade's regional water service area coincides with the individual service areas of the Members, as shown in Figure ES.1. In addition, Cascade may deliver contracted supplies to other water purveyors in King and Pierce Counties for use in their water service areas, as described in this Plan.

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<sup>1</sup> Covington Water District meets all of its own needs from its own wells and from the Regional Water Supply System involving Tacoma, the District and two other partners.



**ES.1: Cascade Service Area**

Cascade anticipates that the current mix of SPU and independent supplies will meet all Member needs through 2023. Beginning in 2024 when the SPU block begins to decline, additional supplies will be needed.

Cascade also administers regional water conservation services on behalf of its Members. The 2008-2014 Conservation Program has a goal of achieving water savings of 1 million gallons per day (mgd) in terms of annual average consumption and 1.45 mgd during the peak season. By the end of 2010 the annual average goal had already been attained. From 2014 through at least 2020 Cascade anticipates continued conservation activities, with water savings continuing to increase at a rate similar to that achieved since 2008. This assumption has been built into the water demand forecast used in the TSP.

## Part II: Long-Term Water Supplies and Infrastructure

### Forecast of Water Needs

In recent years the downturn in housing and economic activity has affected demands for water throughout the Puget Sound region, and this effect is expected to persist for the next several years. This is a change from past planning efforts when rapid growth was occurring. Coupled with the conservation program, this means that demand for water in Cascade's service area is forecast to remain close to 40 mgd through approximately 2020. After 2020 demands are forecast to rise to begin rising again. Cascade is responsible only for a portion of this demand; as Member independent supplies meet part of the water supply need.

### Water Supply Portfolio

For this TSP Cascade evaluated a wide range of water supply options to meet long-term needs. These included additional or expanded contracted supplies from existing sources within the Central Puget Sound region; new surface water supplies, new ground water supplies, reclaimed water and enhanced water conservation. From an initial list of 27 possible sources, a preferred supply "portfolio" was selected. The preferred supply portfolio includes the following sources:

- Continued production from Member supplies serving their respective service areas.
- Continued use of water from Seattle Public Utilities (SPU) under the Block Contract.

- Beginning in 2024, delivery of Green River supply contracted from Tacoma Public Utilities (TPU).
- Beginning in 2024, delivery of additional Green River supply from Covington Water District's share in the Regional Water Supply System (RWSS)<sup>2</sup> over and above water used within the District's own service area.
- Beginning in 2030 (or as needed), water from Cascade's White River - Lake Tapps Reservoir Project (Lake Tapps Project).

This sequence of supplies is shown in Figures ES.2 and ES.3. Conditions shown in Figure ES.2 are for "maximum week" which typically occurs in July or August of each year. Conditions shown in Figure ES.3 represent average conditions over the entire year. A range of projected demands is shown in the charts, for comparison with available supplies. Under the preferred portfolio, available supplies are expected to exceed Cascade's water demand throughout the 50-year planning period.

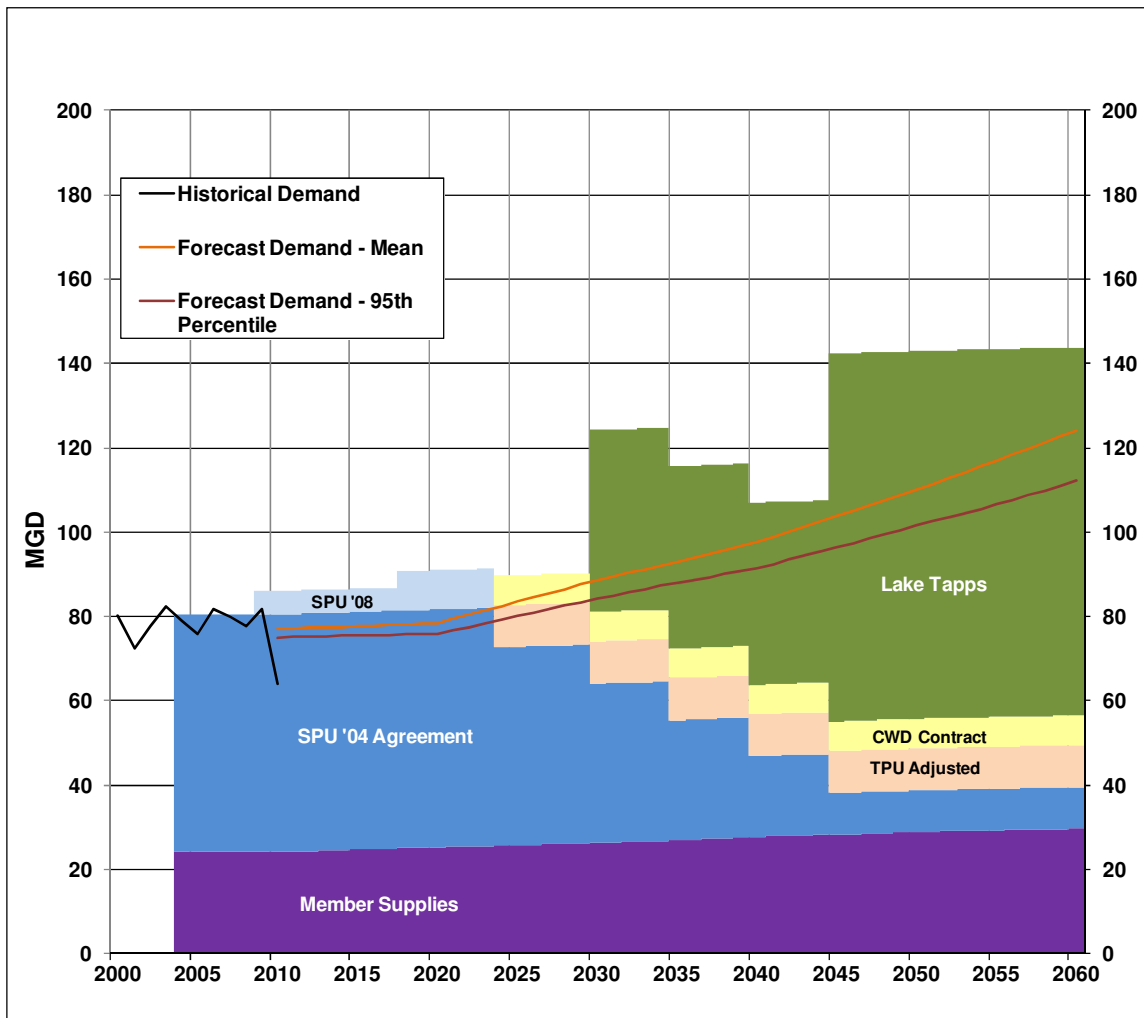
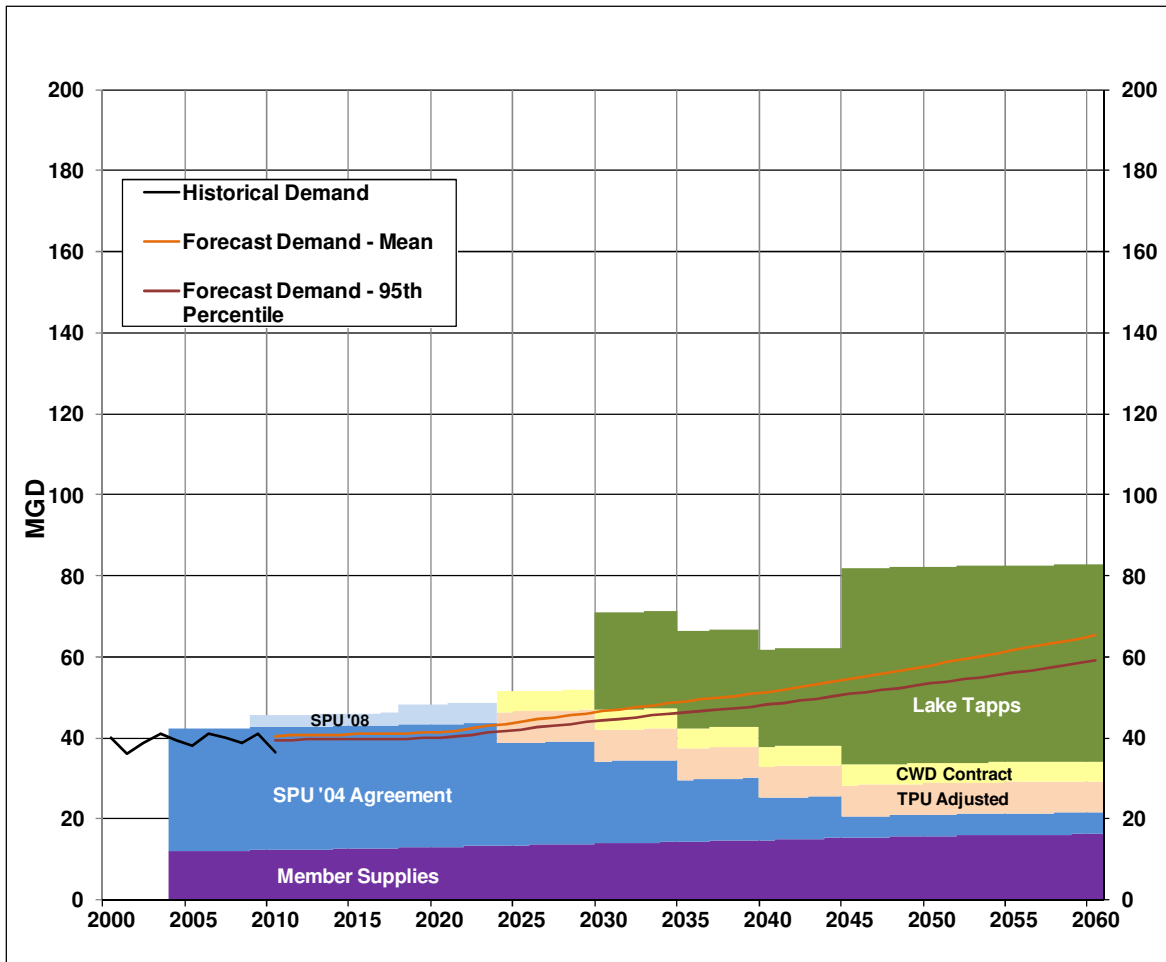


Figure ES.2: Cascade Supply Portfolio (Maximum Week)

<sup>2</sup> The RWSS was formerly known as the Tacoma Second Supply Project, or TSSP.



**Figure ES.3: Cascade Supply Portfolio (Average Day)**

Cascade’s supply planning principles call for maintaining a high degree of flexibility to match available supplies with water needs as economically as possible. Investments in new water supplies will be made in stages based on actual growth in Cascade Member water demands over the coming decades. Therefore the exact quantities and timing of each new supply may change. In addition, Cascade anticipates renewed discussions with SPU and TPU from time to time regarding possible expansion of contracted supplies in the future. This could enable Cascade to delay construction of the Tacoma-Cascade Pipeline and/or the Lake Tapps Project. At a minimum Cascade will review and optimize the supply portfolio each time the TSP is updated at six-year intervals.

### Lake Tapps Project

Lake Tapps is an off-channel reservoir in Pierce County that was created in 1911 to produce hydropower. In 2009 Cascade completed purchase of the lake and associated water rights and infrastructure from Puget Sound Energy with the intent of converting it to a municipal water supply project. In 2010 final water rights needed for this conversion were issued by the State of Washington. The water rights also provide for managing recreational water levels within the lake and for protection of flows in the White River.

Cascade plans to develop the necessary water treatment and delivery infrastructure in phases over time. The portfolio chart in Figure ES.2 reflects these assumptions. It shows Phase 1 of the Lake Tapps Project completed at year 2030 and Phase 2 at 2045. Phasing will respond to the timing of Cascade needs as well as any increases in other supplies over time. While Lake Tapps provides a critical resource for the long term, Cascade will seek opportunities to delay construction of both phases in order to spread the costs of infrastructure development over a longer period of time.

### Infrastructure Needs and Costs

Cascade has developed a long-term Capital Improvement Plan (CIP) for development of the supply portfolio. Major projects include construction of the Tacoma-Cascade Pipeline by 2024 and construction of the Lake Tapps Project in two phases at 2030 and 2045. In addition, Cascade anticipates completion of a contract with Covington Water District to use a portion of the District’s surplus supply from the RWSS. Improvements to the regional distribution system to serve Cascade Members located east of Lake Washington will also be needed eventually. These projects and their estimated costs are summarized in Table ES-1.

**Table ES.1: Capital Costs of Supply Portfolio**

Major Sources and Project Components	Capital Cost (\$M) (2011 dollars)
Tacoma-Cascade Pipeline and Associated Costs (in service 2024)	89
Contracted Supply from Covington Water District (up front fee in 2012; in service 2024)	16
Lake Tapps Impoundment Improvements (2012-2023)	24
Lake Tapps Project, Phase 1 (in service 2030)	586
Lake Tapps Project, Phase 2 (in service 2045)	108
Regional Distribution in Cascade Service Area (in service 2040’s)	119
<b>Total 50-Year CIP (\$M)</b>	<b>942</b>

Anticipated sources of funding for infrastructure construction include revenue bonds and capital reserves, including income from Cascade’s Regional Capital Facilities Charges (RCFCs) collected from Members over time. Cascade will also seek lower-cost sources of funding, such as grants and loans from State and federal sources. As discussed above, Cascade will continually seek opportunities to balance the costs of developing water supply infrastructure with ongoing growth in water needs; and will periodically review opportunities for the most economical mix of supply sources prior to building new infrastructure.

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