

APPENDIX A

Changes in Population and Flow Estimates

The strategies presented in the 1997 draft RWSP were developed using wastewater flows estimated out to the year 2050. These flows were based on two different methods of population and employment forecasts. The first method, used for the period 1997 to 2020, relied on population projections from the Puget Sound Regional Council (PSRC). Because PSRC projections were not available past 2020, King County used a second method to forecast population from 2020 through 2050. This method used an “exponential growth function” that estimated population growth at the high end of the spectrum. This method is considered conservative because it prepares a utility to meet the challenges posed by the demands from a rapidly-increasing population, although these demands may not materialize as quickly as the forecasts predict.

Following the release of the draft RWSP, King County received comments that the forecasting methodology should be reviewed because the rate of growth and projected population from 2020 to 2050 appeared very high. In response, the County evaluated other alternatives and selected a less conservative method to estimate wastewater flows for the *Executive’s Preferred Plan*. The method selected was a “linear trend function” and this straight-line approximation had the effect of lowering population projections after 2020. Figure 13 shows the differences in sewer population estimates between the draft RWSP and the *Executive’s Preferred Plan*.

This revised method yielded a seven percent decrease in estimated sewer population for the wastewater service area in 2030. The effect of this change was to reduce the total projected number of gallons of additional treatment capacity required over the planning period. As a result, some of the major conveyance improvements originally proposed in the draft RWSP were downsized, delayed, or eliminated in the *Executive’s Preferred Plan*. Table 4 shows the differences in the size and phasing of capital improvements for each service strategy between May 1997 (using the exponential growth function) and April 1998 (using the linear trend function).

The corresponding capital facility costs for each of the four strategies are shown in Table 5.

Another minor change in flow estimates resulted from updating the King County Wastewater Service Area boundaries to match Snohomish County’s current urban growth boundary. This change lowers the projected wastewater flow to King County facilities by 1 percent in 2030.

Population forecasting is a planning tool that is revised periodically. King County will continue to revisit population growth assumptions when designing wastewater facilities to ensure that wastewater facilities are available to serve growth, but are not built too soon or too large. During the planning process, King County examined a number of different population and growth scenarios to assess our ability to adjust to different population forecasts.

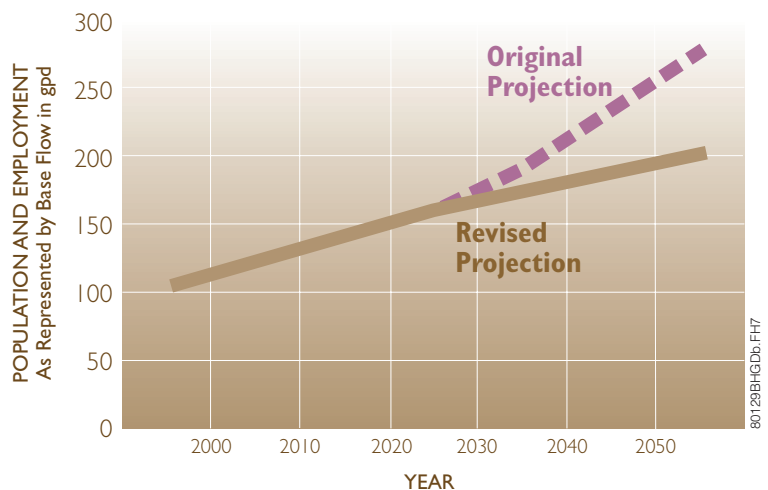


FIGURE 13 – Revised Sewered Population Projections

TABLE 4**Changes in Capital Facility Size and Phasing for Each RWSP Strategy
Between May 1997 and April 1998**

MAY 1997 (Draft Plan)

APRIL 1998

SERVICE STRATEGY 1 (Two Plants)

West Treatment Plant upgrade by 2020 to 159 mgd	West Treatment Plant upgrade by 2029 to 159 mgd
East Treatment Plant upgrades in 2010, 2030, and 154 mgd	East Treatment Plant upgrades in 2013 and 2021 to 2040 to 235 mgd
Kenmore Pump Station upgrade by 2010	Kenmore Pump Station upgrade by 2010
Eastside Interceptor parallel by 2035	Limited Eastside Interceptor sections paralleled

SERVICE STRATEGY 2 (Three Plants)

West Treatment Plant upgrade by 2010 to 159 mgd	West Treatment Plant upgrade by 2013 to 159 mgd
East Treatment Plant upgrades by 2023 and 2042 to 172 mgd	East Treatment Plant upgrades by 2029 to 127 mgd
North Treatment Plant upgrades by 2018 and 2032 to 65 mgd	North Treatment Plant built by 2024 at 27 mgd
Kenmore Interceptor parallel upgrade by 2003	Kenmore Pump Station upgrade by 2010

**SERVICE STRATEGY 3 – EXECUTIVE’S PREFERRED PLAN
(Three Plants/No West Treatment Plant Expansion)**

East Treatment Plant upgrades by 2020 and 2040 to 172 mgd	East Treatment Plant upgrade by 2020 to 135 mgd
North Treatment Plant upgrades by 2010, 2020, and 2030 to 89 mgd	North Treatment Plant built by 2010, and upgraded in 2030 and 2040 to 54 mgd

SERVICE STRATEGY 4 (Two Plants with Tunnel)

West Treatment Plant upgrade by 2010 to 159 mgd	West Treatment Plant upgrade by 2013 to 159 mgd
East Treatment Plant upgrades by 2020, 2030, and 2040 to 235 mgd	East Treatment Plant upgrade by 2024 and 2037 to 154 mgd
Deep tunnel upgrades in 2005, 2010 and 2020	Deep tunnel upgrades in 2005, 2013 and 2025

This analysis is summarized in the *Regional Wastewater Services Plan Draft Financing Plan* (May 1997).

Additional information on population estimate methodology and changes in population growth can be found in two technical memoranda. The first is titled *Population Forecasts, Flow and Loading Projections Methodology Comparison*, King County Department of Natural Resources, Brown & Caldwell Consultants, March 1998; the second is titled *QA/QC of Revised Service Strategies*, King County Department of Natural Resources, Brown and Caldwell Consultants, 1998.

TABLE 5		
Changes in Costs for Each RWSP Strategy Between May 1997 and April 1998 (\$ millions)		
STRATEGY	COSTS PRESENTED IN 1997 DRAFT RWSP	COSTS BASED ON REVISED POPULATION ESTIMATES^a
Strategy 1	876	789
Strategy 2	1,128	1,027
Strategy 3 (Executive's Plan)	1,235	1,086
Strategy 4	1,398	1,218

^aFor purposes of comparison, service strategy costs for 1, 2, and 4 were also adjusted according to other recommendations proposed by the Executive, including accelerating completion of the CSO program to 2030, adding \$20 million (net present value) for water reuse, and eliminating the third outfall for the East Treatment Plant's Effluent Transfer System.