Discussion Guide

**Growth Projections**

**WRIA 7 Watershed Restoration and Enhancement**

**Committee Meeting**

May 9, 2019

# Purpose of Discussion

The purpose of the initial discussion is to educate the Committee on how growth projections will be used in this planning process, review three possible methodologies, and discuss what direction the committee would like to give to the technical staff and consultants on how to proceed.

# Background and Context

## Why we need growth projections:

RCW 90.94.030(3) says plans must include actions to offset new consumptive use impacts associated with permit-exempt domestic water use (emphasis added):

*(c) Prior to adoption of the watershed restoration and enhancement plan, the department must determine that actions identified in the plan, after* ***accounting for new projected uses of water over the subsequent twenty years****, will result in a net ecological benefit to instream resources within the water resource inventory area.*

*(d) The watershed restoration and enhancement plan must include an evaluation or estimation of the cost of offsetting new domestic water uses over the* ***subsequent twenty years****, including withdrawals exempt from permitting under RCW* [*90.44.050*](http://app.leg.wa.gov/RCW/default.aspx?cite=90.44.050)*.*

*(e) The watershed restoration and enhancement plan must include estimates of the cumulative consumptive water use impacts over the* ***subsequent twenty years****, including withdrawals exempt from permitting under RCW* [*90.44.050*](http://app.leg.wa.gov/RCW/default.aspx?cite=90.44.050)*.*

The WRIA 7 plan must estimate growth projections for the watershed for January 2018 through January 2038 (at a minimum). Based on the projected growth, the plan will estimate the amount of rural growth and associated new permit exempt wells

# Options for Committee Consideration

There are numerous ways to make such projections for WRIAs or subbasins. The first two methods described below rely on building permit data and population data, and both tend to provide fairly robust results. Ideally, committees will consider applying both methods or some hybrid of the two, and the results compared. The third method mentioned is an analysis of Ecology’s well log data, however, results relying on those data tend to be less reliable as discussed at previous meetings.

## GIS Analysis

One method for predicting future permit-exempt domestic wells involves conducting a Geographic Information System (GIS) analysis of county building permits, zoning, and parcel information. Once these data have been segregated into WRIAs or subbasins, single-family building permit data can be evaluated to determine the number of building permits issued over some previous time period (e.g. the past 10 years). Those results can then be used to project permit-exempt domestic wells over the subsequent 20- year period, based on assumptions regarding how many of those building permits translate into permit- exempt domestic wells, zoning restrictions, information on undeveloped parcels, etc.

## Population Data

Another method of predicting future permit-exempt domestic wells relies on population data. The Washington State Office of Financial Management (OFM) website provides estimates of past and current populations by WRIA, and projected future household populations on a county basis[[1]](#footnote-2). One way to predict future populations is to look at populations for two different years (e.g. 2007 and 2017), then use that rate of increase to predict future populations. Upon request, OFM can also prepare 2000-2017 small area estimates. Therefore, the committee could provide OFM GIS shapefiles for their subbasins, then a similar method can be used to predict future populations for individual subbasins. An alternate method of using the OFM data is to use current populations for a given subbasin or WRIA as a base, then increase that number based on county population projections. This latter method requires subjectivity, however, since the WRIA spans two counties, and varying assumptions would need to be made for each subbasin.

Once future WRIA populations have been estimated, those populations that will be served by community water systems and municipalities must be removed. This can be done relying on available information on the distribution/growth rate patterns of populations served by water systems.

Finally, future populations that will be served by permit-exempt domestic wells can be divided by the average number of people per household currently (U.S. Census Bureau Quick Facts) to estimate the number of future permit-exempt domestic wells.

## Well Log Data

A third potential method relies on spatial data for well reports (logs) available from Ecology[[2]](#footnote-3). Wells in this data set with a “W” in the Well type field correspond with water supply wells. Those data can be analyzed using GIS to determine the number of recorded water supply wells for two past years (e.g. 2007 and 2017), then those data can be used to predict the rate of well increase into the future. However, the reliability of estimates for future wells using this method will likely be less reliable.

# Questions for Committee Discussion

* What questions do you have about the methods discussed above?
* What do you think are the pros and cons of each method?
* What guidance should be given to the technical consultants as they: 1) reach out to committee members for information; and 2) begin to assess growth projections? Should they: work on one option? compare two options? prepare a hybrid of two options? or something else?

1. [OFM population by WRIA 2000 through 2017](https://www.ofm.wa.gov/washington-data-research/population-demographics/populationestimates/small-area-estimates-program) is available online.

   [OFM projected growth rate by county 2010–2050 by one-year](https://ofm.wa.gov/sites/default/files/public/dataresearch/pop/GMA/projections17/gma%20_2017_1yr_2050.xlsx) intervals is available online. [↑](#footnote-ref-2)
2. <https://ecology.wa.gov/Research-Data/Data-resources/Geographic-Information-Systems-GIS/GISdata> [↑](#footnote-ref-3)