September 18, 2013

Proposed Method for Assessing Impacts of Climate Change WRIA 9 Retrofit Study

Background

Available for use are twenty (plus one historic) Global Climate Model outputs downscaled to four locations in or near the WRIA 9 Study area. While the impacts from climate change on air temperature is well documented, the impacts to precipitation in the Pacific Northwest is far less certain with forecasts projected among the models span from large increases to decreases in precipitation. Since most of the development in the Puget Sound is in the lowlands, it is below the elevations that temperature significantly effects snow pack in the region. This does not preclude a potential greater frequency of Rain-on-Snow in the lowlands, but that is not part of this scope.

The time span of the data available include:

- Historical: 1/1/1915 – 12/31/2006
- Future: 1/1/2001 – 12/31/2098 (start date is slightly variable among the GCMs)

The premise for this effort is more rain translates into more runoff, and likely more mitigation required for the same amount of development. How much more might one expect? And how much more mitigation will be a result of it?

Method

Summary statistics will be provided characterizing daily, monthly, and annual precipitation volumes for the GCMs for each of the four geographic locations. Time series plots will be constructed to visualize annual variability over time and any trends that may be present.

Application

Using the assumption that in our region about half of the rainfall translates into runoff, the relative changes in volumes (daily, maybe monthly) between historic and future can provide guidance to possible increases in facility storage volumes (possibly conveyance capacities too?) as a result of climate change.

Schedule

- Preliminary results mid November 2013
- Draft Technical Memorandum End of November 2013
- Final Technical memorandum mid December 2013