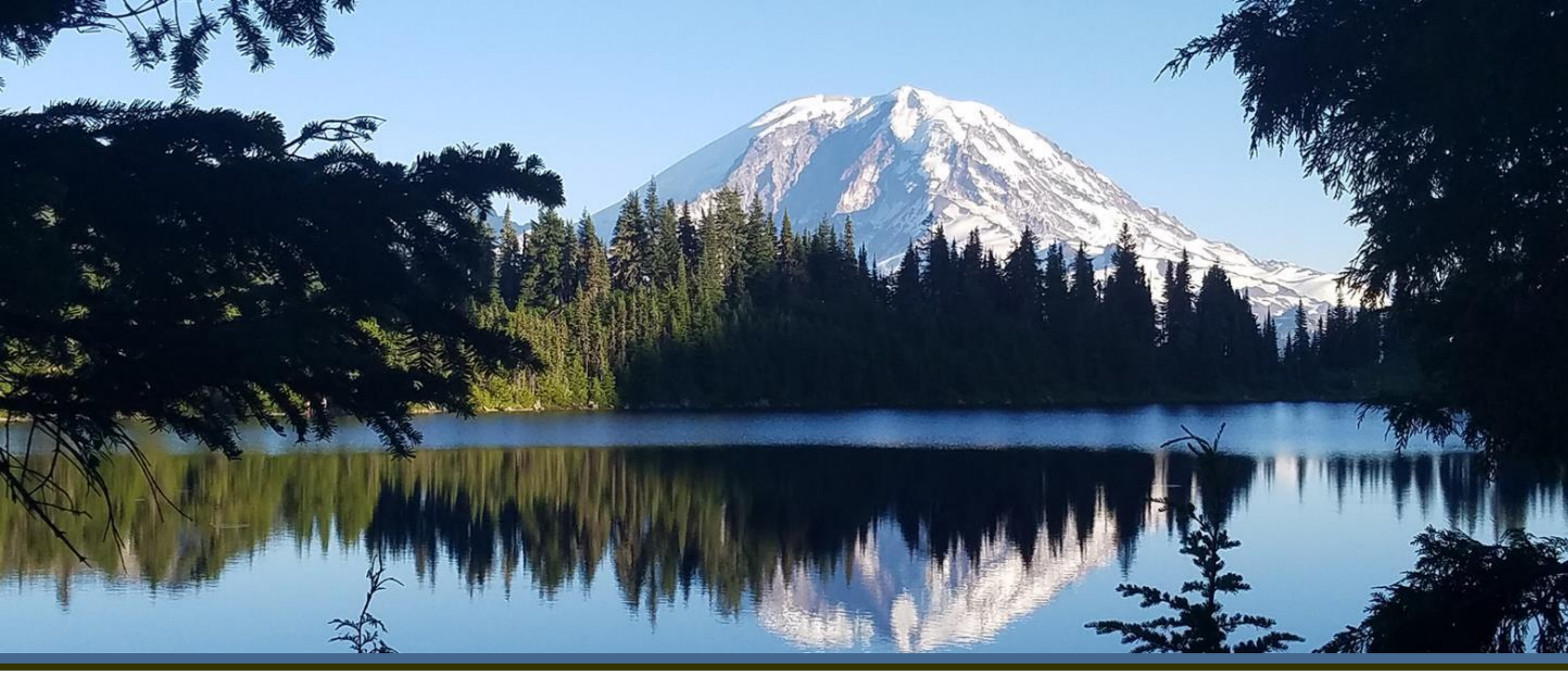


Updated Consumptive Use Work Plan

Snohomish (WRIA 7) Watershed Restoration and Enhancement Committee
10/10/19

DEPARTMENT OF ECOLOGY
State of Washington

Overview of plan for WRIA 7

Indoor Consumptive Use

- Brief overview and example calculator

Outdoor Consumptive Use

- Brief overview, refined approach, and example calculator

Indoor Consumptive Use – Part 1

- Estimate indoor portion
  - Calculate estimated population growth (completed)
  - People per household
    - 2.73 King County
    - 2.9 Snohomish County
  - 60 gpd per person (Ecology guidance)
  - Calculate percentage that is consumptive: 10% (Ecology guidance)

Example

Sub-Basin ID	Per Capita Water Use (gpd)	Average People Per Home	Calculated Per Home Water Use (gpd)	Indoor Consumptive Use (%)	Per Home Indoor Consumptive Use (gpd)	Per Home Indoor Consumptive Use (af/yr)
Subbasin 1	60	2.73	163.8000	10%	16.38	0.0183
Subbasin 2	60	2.73	163.8000	10%	16.38	0.0183
Subbasin 3	60	2.73	163.8000	10%	16.38	0.0183

Estimate Outdoor Consumptive Use – Part 1

- Select parcels for irrigated footprint analysis
  - Use permit locations/data for 2006-2018 and associated tax parcels
  - Select permits for homes believed to be using PE wells
  - Determine the number of sites to measure
  - Apply random selection to determine which sites to analyze

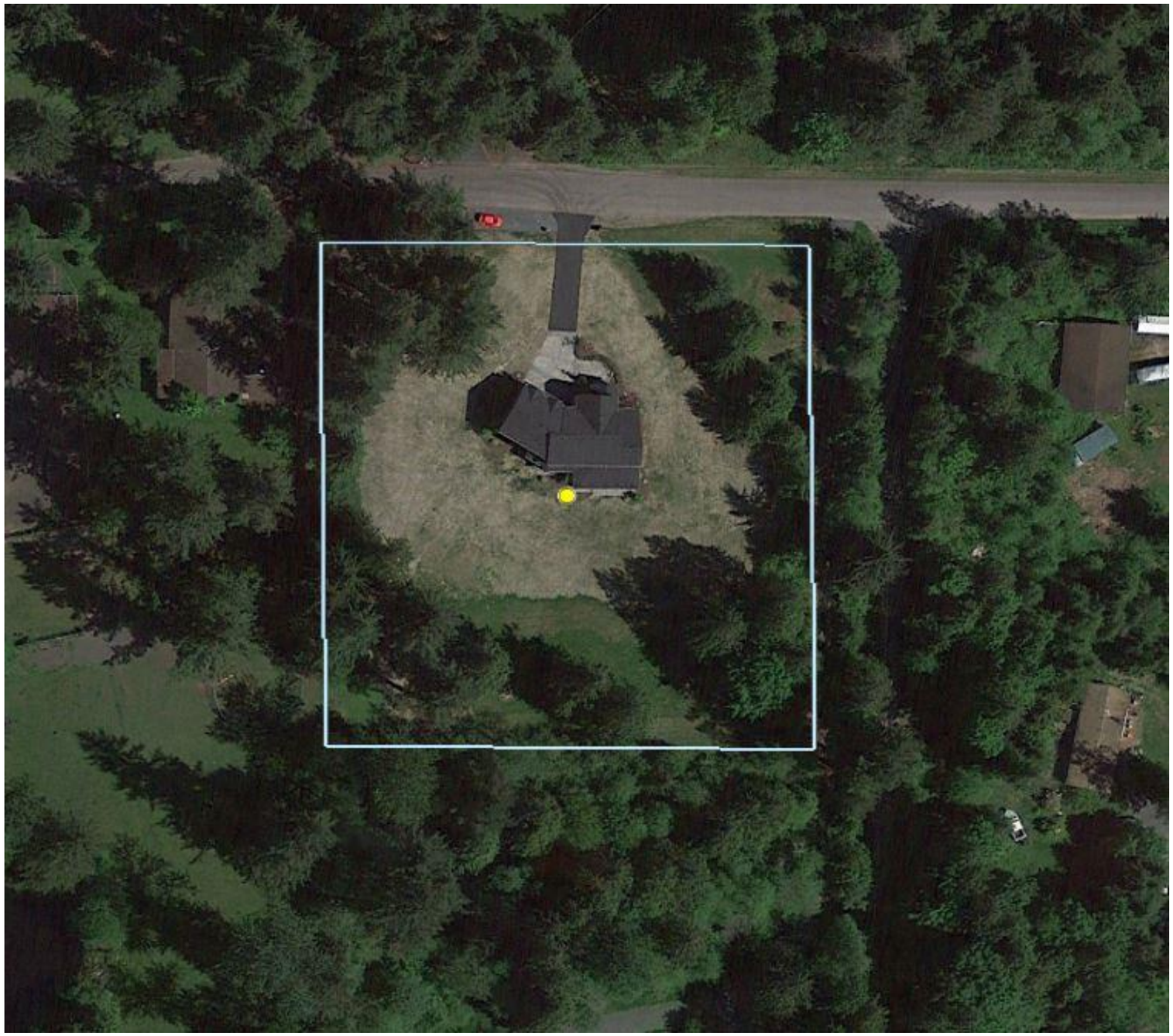
- Calculate parcels average irrigated footprint
  - Evaluate tax parcel areas in Google Earth for irrigated lawn areas.
  - Calculate average irrigated areas were calculated.

Irrigated Footprint Analysis Methods

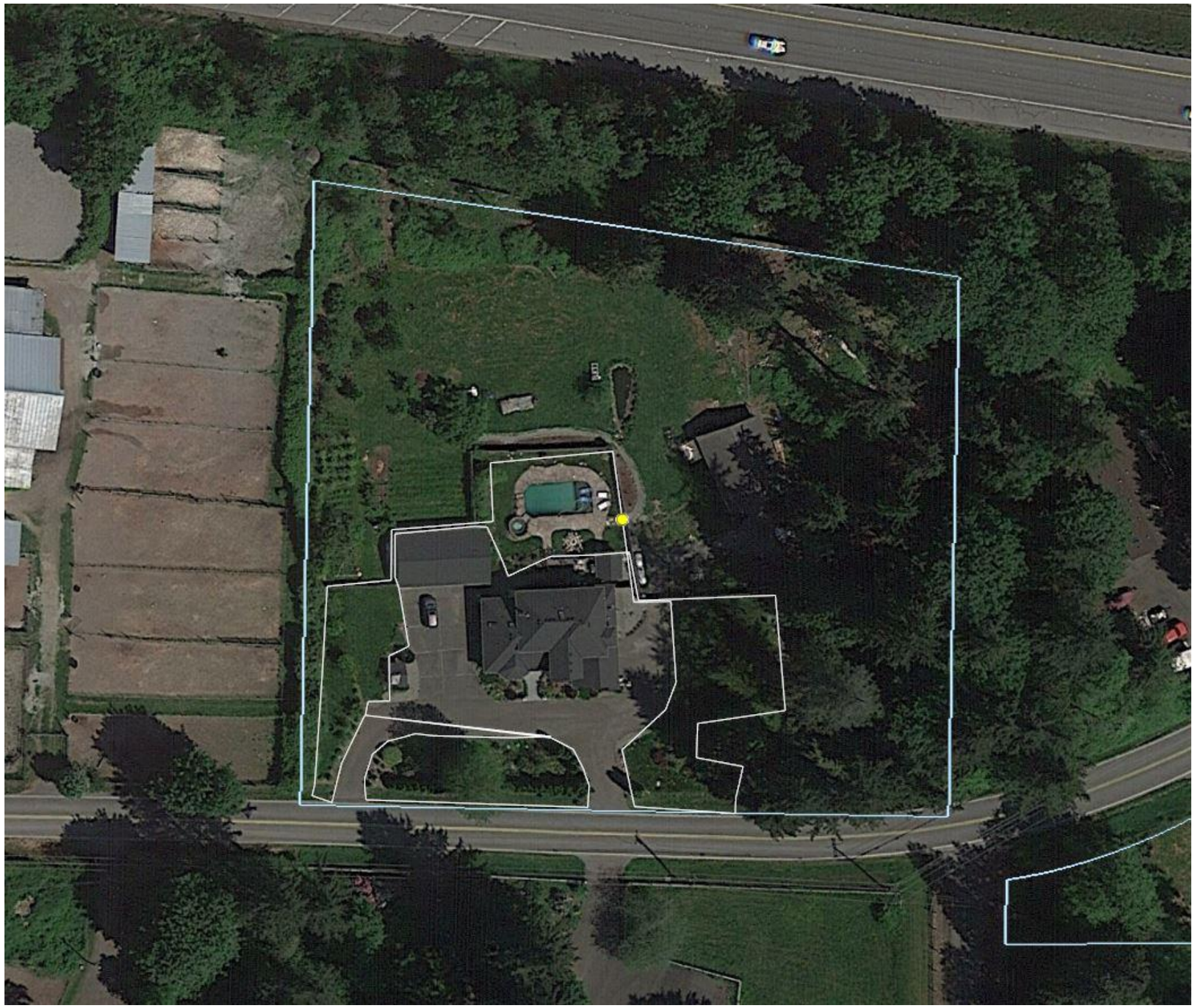
- Include landscaped shrub/flower bed areas (not just lawn areas).
- Include irrigated area if it extends beyond the parcel boundary.
- Track homes with no visible signs of irrigation as zero irrigated footprint.
- Exclude areas that appeared to be native forest or unmaintained grass.
- Exclude homes still under construction in the most recent Google Earth imagery.

Irrigated Footprint Example 1

Irrigated Footprint Example 1



Irrigated Footprint Example 3



Estimate Outdoor Consumptive Use – Part 2

- Calculate crop irrigation requirement for each subbasin
  (Use WAIG per Ecology guidance)
- Application Efficiency 75% (Ecology guidance)
- Consumptive Use 80% (Ecology guidance)

Example

Sub-Basin ID	Annual Irrigation Water Requirement (IWR) (in)	Application Efficiency (%)	Total Annual IWR (in/yr)	Outdoor Consumptive Use (%)	Total Irrigation Consumptive Use by Subbasin (in/yr)	Average Irrigation Consumptive Use by Subbasin (ft/yr)
Subbasin 1	14.13	75%	18.8400	80%	15.0720	1.2560
Subbasin 2	15.36	75%	20.4800	80%	16.3840	1.3653
Subbasin 3	16.88	75%	22.5067	80%	18.0053	1.5004

Add indoor and outdoor use

Example

		Active Scenario			
	M	*N*	*O*	*P*	*Q*
Sub-Basin ID	**# PE Wells Anticipated in Subbasin**	**Indoor Consumptive Water Use (af/yr)**	**Irrigated Area per Well (ac)**	**Outdoor Consumptive Use (af/yr)**	**Total Consumptive Water Use (af/yr)**
Subbasin 1	62	1.1377	0.17	13.2382	14.3759
Subbasin 2	45	0.8257	0.34	21.8144	22.6401
Subbasin 3	4	0.0734	0.34	2.0406	2.1140

WRIA 7 Next Steps

- Reallocate growth by subbasin
- Select parcels for analysis in each subbasin
- Begin irrigated footprint analysis
- Develop calculator with local data
  - Input growth projections by subbasin
  - Use local precipitation data to determine irrigation requirements by subbasin
  - Input average irrigated footprint by subbasin
- Develop scenarios based on local data
  - Calculate consumptive use using Snohomish PUD water use data

Thank you for your time!

Any questions?

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