

# Irrigation Water Budgeting Requirements

The following Irrigation Water Budgeting Requirements shall apply to all landscaping required under [Issaquah Municipal Code \(IMC\) 18.606.140 – Irrigation Water Budgeting Requirements](#), or other requirements of City ordinance. Irrigation systems shall conform to Landscape Standards and Specifications as outlined in [IMC 18.606.110](#). The Planning Manager is authorized to adjust these standards on a case-by-case basis using best professional judgment.

## Section A: Irrigation Water Budget

A landscape design’s Irrigation Water Budget (IWB) shall be calculated based on the total square footage of the proposed landscape area and including landscape water features (such as decorative ponds, pools, or fountains) and excluding impervious surfaces, sensitive areas, and their buffers. The irrigation water budget shall be calculated as follows:

$$\text{IWB} = \text{ET} \times \text{AF} \times \text{LA} \times \text{CF}$$

Where:

- IWB = Irrigation Water Budget in gallons per year
- ET = Evapotranspiration reference rate for the Puget Sound lowland region = 14.49 inches per irrigation season.
- AF = Adjustment factor = Irrigation system efficiency coefficient = 0.64
- LA = Landscape area in square feet
- CF = Conversion factor = 0.62 (inches to gallons per square foot)

## Section B: Irrigation Design Estimated Water Use

A landscape design’s Estimated Water Use (EWU) shall be calculated by determining the Estimated Water Use for each hydrozone and adding the EWU for all hydrozones together. Hydrozoning is the practice of clustering together plants with similar water requirements. The sum of the EWU for all hydrozones is the landscape’s total EWU. The following formula shall be used to determine the Estimated Water Use for each hydrozone:

$$\text{EWU} = (\text{ET} \times \text{PF} \times \text{HA} \times \text{CF}) / \text{IE}$$

Where:

- EWU = Estimated Water Use
- ET = Evapotranspiration reference rate for the Puget Sound lowlands region = 14.49 inches per irrigation season.
- PF = Plant factor value for the hydrozone (see Section C below)
- HA = Hydrozone area in square feet
- CF = Conversion factor = 0.62 (inches to gallons per square foot)
- IE = Irrigation system efficiency value for the hydrozone (see Section D below)

Evapotranspiration for the Puget Sound Lowlands Region

The IWB and EWU shall be based upon the following evapotranspiration (ET) data. This data represents historical monthly net irrigation requirements for turf-grass. The ET data is in inches per month for the Puget Sound Lowlands Region.

Reference ET for the Puget Sound Lowlands Region – Historical Data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Monthly irrigation required (net inches)	0.00	0.00	0.00	0.00	1.59	3.13	4.46	3.51	1.77	0.03	0.00	0.00	14.49

**Section C: Plant Factor Values**

Plant Factor values (PF) represent the ratio of Evapotranspiration demand a particular plant species, or hydrozone, has in comparison to reference turf-grass. The Plant Factor Values below shall be used for all plant species selected for use in a landscape. The landscape designer shall, based upon professional experience, assign a Plant Factor Value to each plant species designed within a hydrozone. The Plant Factor Value for the hydrozone shall be that of the plant species with the highest Plant Factor Value within the hydrozone.

Consideration of a particular plant species shall account for:

- Each plant species’ typical water needs in an appropriate planting area.
- Conditions which may decrease or increase a plant’s water needs, such as improper exposure, soil conditions, density of planting, adaptability to an area’s climate or microclimate, etc.

Plant Factor Values assigned shall reflect the plant species’ actual water demand as planted according to the final landscape design.

<b>Basic Plant Factor Class</b>	<b>PF Range</b>
Low water use plants	0.0 to 0.3
Medium water use plants	0.4 to 0.6
High water use plants	0.7 to 1.0
All irrigated turf grass	0.8 to 1.0

**Section D: Irrigation System Efficiency Values**

Irrigation System Efficiency Values (IE) shall be assigned as follows in calculating the Estimated Water Use for each hydrozone of a landscape:

<b>Type of Irrigation System Used in a Hydrozone</b>	<b>Minimum Efficiency Value</b>
Conventional above-ground spray system (i.e.: rotors and pop-up spray systems; systems commonly used to irrigate turf, but also used in plant beds)	0.625
Low volume or drip irrigation system (i.e.: micro-spray, bubbler, drip, or other low volume systems which deliver water below the ground surface or directly to the plant root zone only; most used in plant beds)	0.925

**Section E: Irrigation Schedule**

An irrigation schedule shall be submitted with the irrigation and landscape plans. The irrigation schedule shall, at a minimum, include:

- a. Run times for each hydrozone (station) in minutes per cycle and cycles per week for each month or week of the irrigation season (May through October) reflecting changes in evapotranspiration rates.
- b. The total weekly and annual amount of water to be applied to each hydrozone (station) and the total landscape in gallons and hundreds of cubic feet (CCF).
- c. Additional operating criteria such as avoiding irrigation at times of high temperature or winds.