

When it comes to irrigation in your landscape, it is important to understand your landscape's watering needs and how different irrigation devices can be used to meet those needs.

Your landscape's watering needs can vary from zone to zone. Here are the factors to consider:



Plant Species: Different plants have different watering needs.

- High water use plants: traditional lawns, edible garden annuals
- Medium water use plants: trees, shrubs, and perennials
- Low water use plants: climate adapted trees, shrubs, and perennials that are drought tolerant



Microclimate: Exposure influences how much water evaporates from both plants and the soil.

- Sunny zones require far more water than shaded zones
- Heat islands, such as boulevards and areas adjacent to artificial turfgrass, reach extra high temperatures and require more water than typical full sun landscapes



Soil Texture: Soil type influences soil moisture and likelihood for runoff on your landscape.

- Clay soils retain substantial moisture, but water infiltrates slowly
- Silty soils offer the highest water availability for plants, water infiltrates the soil at a medium rate
- Sandy soils allow water to infiltrate quickly, but also allow water to quickly drain through it



Irrigation Type: Different types of irrigation vary in water efficiency.

- Low volume drip irrigation: 90-100% efficient
- Overhead spray irrigation: 40-70% efficient

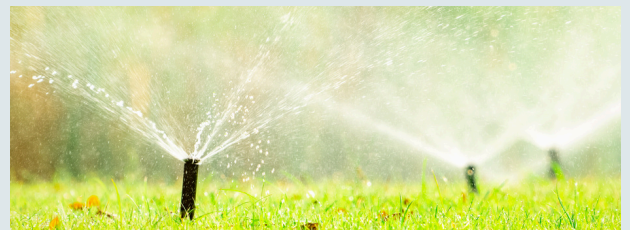
Common types of irrigation:

Drip



- Used to directly water plant roots of trees, shrubs, and perennials
- 90-100% water efficient
- Slow form of delivery is less susceptible to wind drift, evaporation, and runoff
- Requires seasonal maintenance

Overhead Spray



- Used for lawn irrigation
- 40-70% water efficient
- Prone to landscape runoff
- Spray is susceptible to wind drift and evaporation
- Requires seasonal maintenance

A Quick Guide to Overhead Spray Irrigation

Anatomy of a sprinkler head



- **Nozzle**- Usually removable with a few quick twists, the nozzle emits sprinkler water from a small opening, and sprays water on the landscape.
- **Riser**- When the zone is OFF, the riser sits inside the sprinkler body. When the zone is ON, water pressure forces the riser up, allowing the spray to reach its intended target on the landscape.
- **Wiper seal**- This keeps a water-tight seal between the sprinkler body and riser when it rises and descends. When the wiper seal becomes damaged, water may seep out from it.
- **Body**- The underground housing for the riser while the zone is OFF.
- **Inlet**- The attachment point between the sprinkler and the underground irrigation line. Over time, the connection between the line and the body can loosen, causing water to seep out underground.

Common overhead spray nozzle types



Rotor Heads	Fixed/VAN Spray Nozzles	Rotating MSMT Nozzles
<ul style="list-style-type: none"> • Delivers water in a rotating jet. • Best suited to irrigate large areas (16'-40' wide). • Tends to reduce runoff and evaporation, compared to fixed/VAN spray nozzles. • Requires a flathead screwdriver or hex wrench to make adjustments to throw distance and arc. 	<ul style="list-style-type: none"> • Most common nozzle type. • Most commonly used in smaller areas, like boulevards or side yards (4'-15' wide). • Specialty variable arc nozzles (VANs) are available for tricky spaces (narrow strips, corners, short radius), but can use up to 3X the water of fixed nozzles. • The rapid delivery of water- 1.5 to 3 inches of water per hour- can lead to runoff. 	<ul style="list-style-type: none"> • Highly efficient for Bozeman's clay-rich soil. • Hybrid design of multi-stream, multi-trajectory (MSMT) nozzles and rotating pop up nozzles offer precise control. • Replaces fixed/VAN nozzles on spray zones for more controlled watering. • Ideal for medium spaces 8'-30' wide. • Slow water delivery, at about 0.4 inches per hour, maximizes absorption. • Rotating/MSMT pop up nozzles qualify for a rebate with the City of Bozeman.