Idaho/Washington Aquifer Collaborative

Irrigation and Landscape Design – 2021 Service Truck Rodeo

For more information, please contact us at
iwacinfo4@gmail.com

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Presenters:

- Terry Pickel, IWAC President and Water Department Director for City of Coeur d'Alene.
- BiJay Adams, IWAC Vice President and General Manager of Liberty Lake Sewer and Water District

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Course Objectives:

- Educate Purveyors and Operators on goals and projects of IWAC
- Provide Informational Resources for Public Water/Wastewater systems
- Propose a region wide water use reduction goal through irrigation efficiencies
- Provide detailed information about mechanics of irrigation efficiency

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What is IWAC's purpose and who is involved?

- Purpose is to promote Bi-State protection of our sole source aquifer through education
- 19 current Water & Wastewater members
- Board Members from Idaho and Washington

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IWAC Projects Overview:

- Overall Goal of Water Quality and Quantity Preservation
- Source Water Protection Videos
- Efficient Irrigation and Landscape Design Guidelines
- The adventures of Drippy the Water Drop

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Water Quality and Quantity Preservation

- Identify Large Scale Points of Pollution
- Promote Educational Outreach
- Identify Target Audience
- Produce and promote conservation measures

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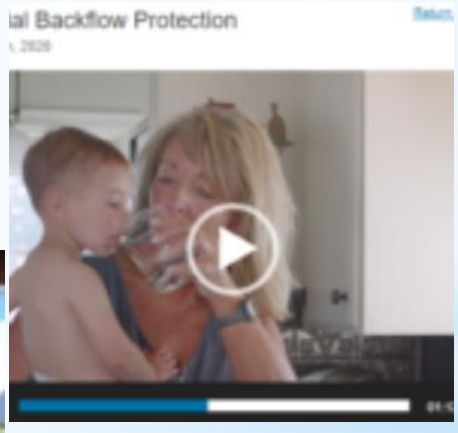
Source Water Protection Videos:

Aquifer Challenge

Aquifer Info



Backflow

Available on our website.

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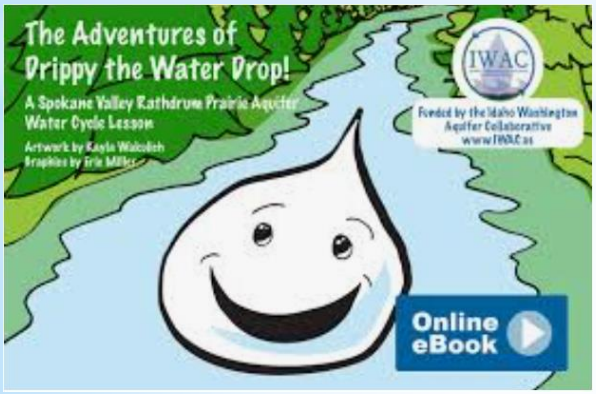
IWAC MODEL EFFICIENT IRRIGATION AND LANDSCAPE DESIGN GUIDELINES



Drippy

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EFFICIENT IRRIGATION AND LANDSCAPE DESIGN GUIDELINES

- WHO IS OUR TARGET AUDIENCE?
- WHAT IS THE OBJECTIVE?
- HOW CAN THIS HELP?
- POTENTIAL COSTS?
- REDUCTION GOAL?

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* BiJays presentation here:

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WHO IS OUR TARGET AUDIENCE?

- Elected and appointed officials.
- Irrigation and landscape designers.
- Water purveyors and operators.
- Irrigation and landscape contractors.

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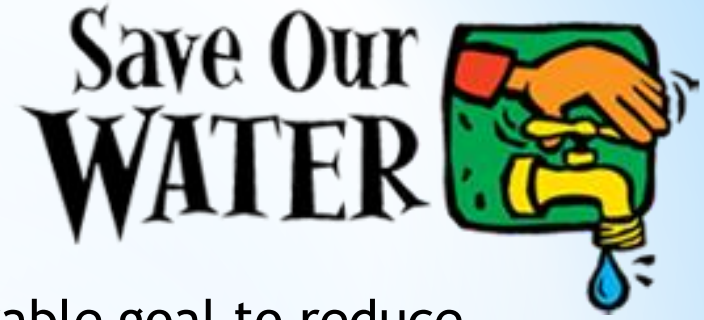

REDUCTION GOAL?

- IWAC has established a desirable goal to reduce consumption over the SVRP.
- IWAC has recently mailed out nearly 400 guides to public utilities, elected and appointed officials, City Councils, Boards, Planning Groups, etc.
- A letter was included suggesting an initial goal for a region wide (SVRP) 30% reduction in peak use.

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WHAT SHOULD YOU BE USING?

Here is a little simple math!

- 1 acre foot of water = 326,000 gallons (now divide by 12”)
- 1 acre inch of water (per week for turf) = 27,166 gallons
- Many irrigation systems are only 30% to 40% efficient.
- This means you are likely using 3 times as much water.
- To achieve 1” per week, you are applying 82,000 gallons just to meet the 27,166 gallons needed.

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BUT WE HAVE PLENTY OF WATER!

IT'S A MATTER OF CONSERVATION!

- Water rates are inexpensive so no incentive to conserve. May need progressive rate structure.
- As the region continues to grow, the increased demand will drive additional infrastructure, further increasing demand on the aquifer.
- It's simply not sustainable to waste now what will be needed for the future. Look at California, Arizona and Florida as examples!
- Efforts for significant reduction now will ensure adequate supplies for the foreseeable future.

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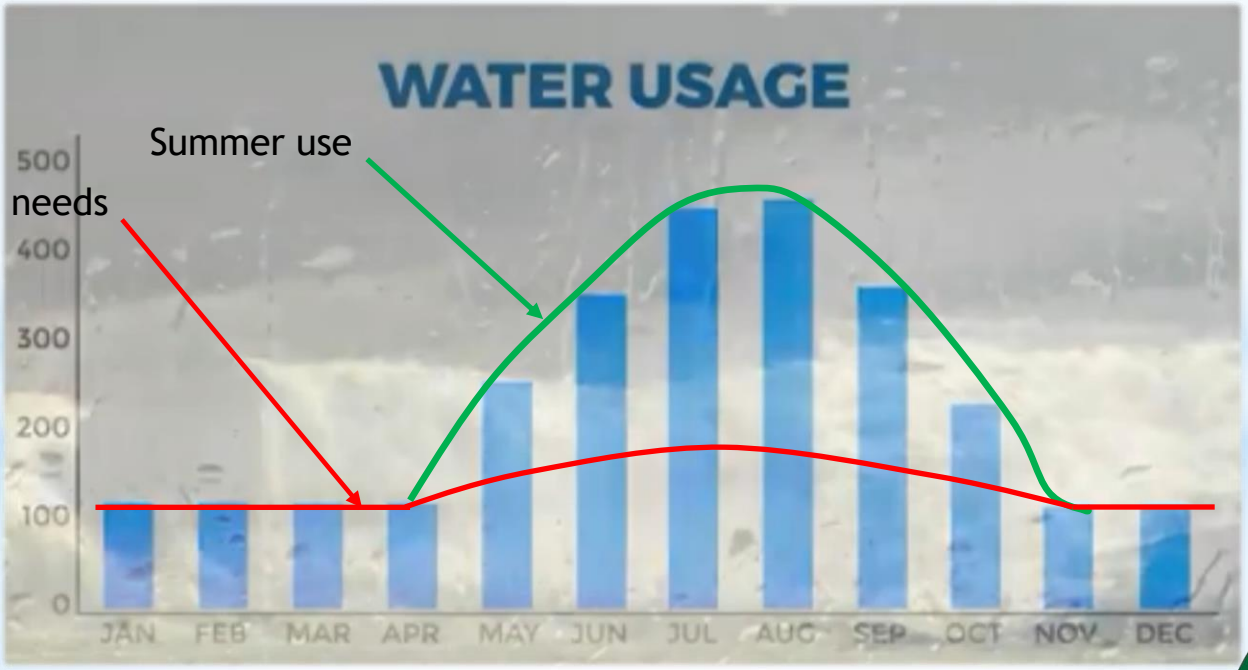
WATER USAGE ACROSS THE SVRP AQUIFER TRIPLES DURING THE SUMMER (2015)



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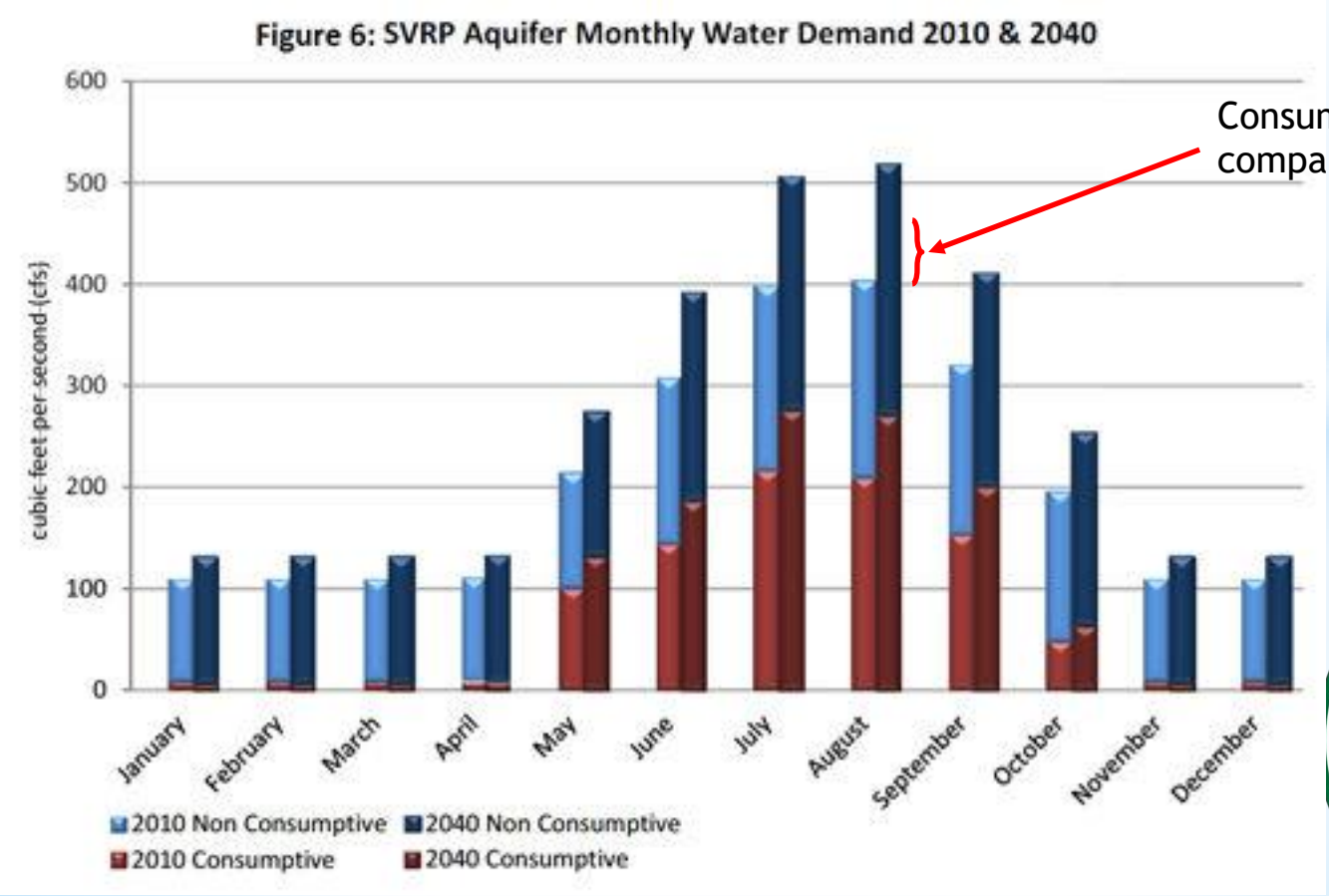
PROJECTED GROWTH ACROSS THE SVRP AQUIFER (2010 TO 2040)



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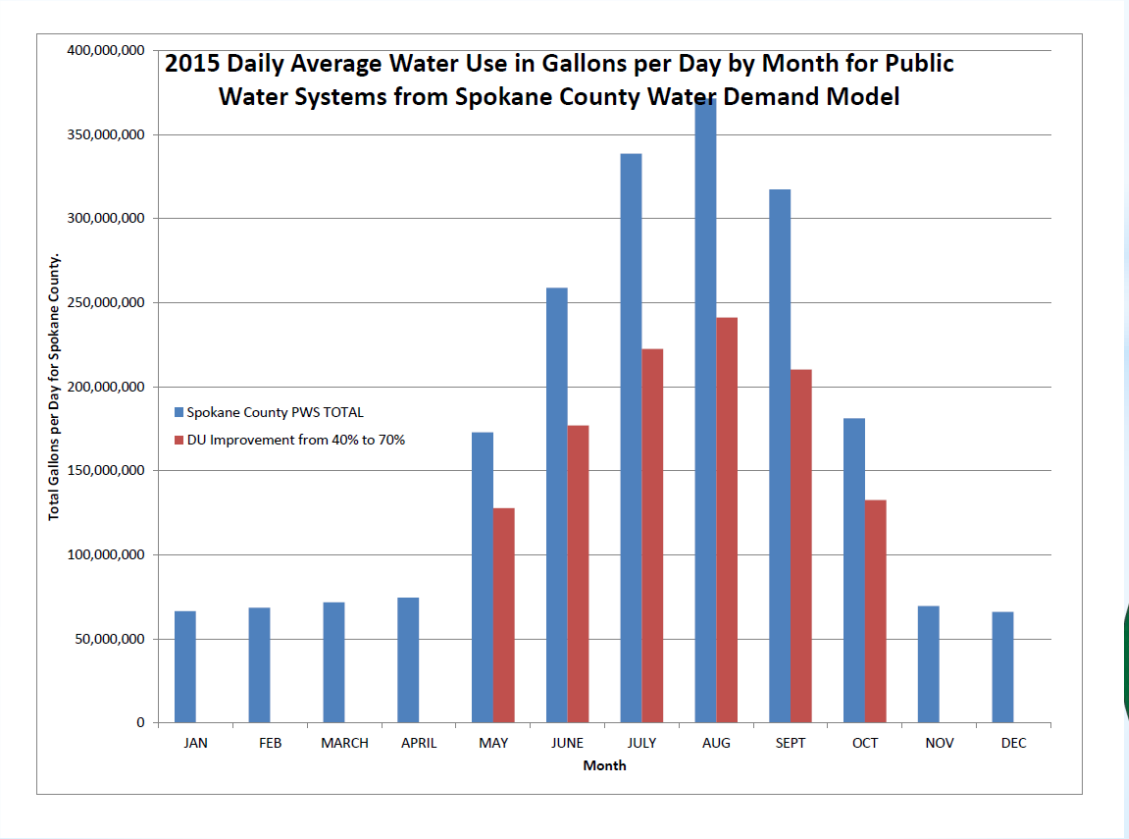
REDUCTION?

- WHAT IF WE COULD DOUBLE IRRIGATION SYSTEM EFFICIENCY?
- WE COULD CUT OUR PEAK USE BY A THIRD AT THE VERY LEAST!



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DEVELOPMENT PLANNING REQUIREMENTS

Abundant greenspace is a typical planning and development requirement. This can significantly affect public water systems. What can be done to alleviate the problem?

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GREENSPACE DEVELOPMENT STANDARDS

How many jurisdictions actually require detailed irrigation and landscape design plans, especially for residential?

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WHAT ARE THE EXPECTATIONS?

So, what are we asking for? What do the water systems expect you to do?

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THINK EFFICIENCY & SUSTAINABILITY

We as a community need to change our philosophy about water use. We need to protect quantity and quality for the future.

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DESIGN CONSIDERATIONS

- Establishment and adoption of a standard, code or ordinance setting minimum efficiency requirements.
- Minimum 70% efficiency requirement for irrigation systems.
- Consider establishing a minimum percentage for low water use landscaping for developments.
- Require certifications for design, installation and maintenance.

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REPAIRS AND UPGRADES

- Upgrades do not have to cost a fortune.
- They can be relatively quick, easy and inexpensive.

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PROPER ANNUAL MAINTENANCE

Even simple adjustments can have a significant effect on irrigation performance.

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MAINTENANCE TIPS

- Repair leaks immediately
- Routinely check heads for clogging, wear or damage
- Check for correct pressure
- Adjust cycles for seasonal conditions
- Use same type replacement heads
- Ensure head to head spray patterns

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MAINTENANCE TIPS

- Taller grass height
- Prune shrubs and trees to allow better spray patterns
- Frequent, shorter duration cycles on slopes
- Match heads to local conditions
- Test backflow assembly annually
- Perform proper spring start up and fall winterization procedures

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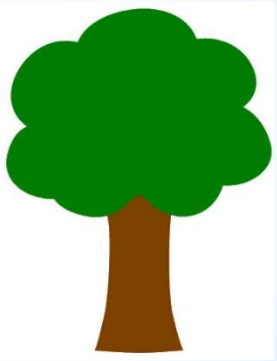
WETTED DEPTH REQUIREMENTS

- Turf generally requires a wetted depth of 12” to remain healthy.
- Plants and shrubs generally require a wetted depth of 18”.
- And trees generally require a wetted depth of at least 24”.

The difficulty is that these are usually incorporated into the entire landscape design without benefit of separate irrigation.



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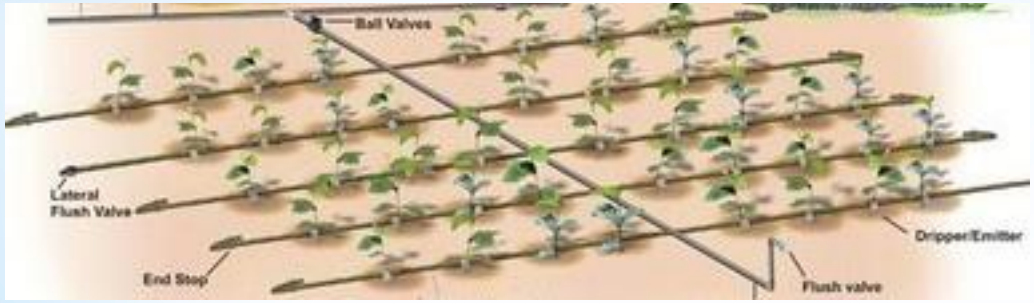
ALTERNATIVE DRIP IRRIGATION SYSTEMS

This system is good for a small yard or for watering individual plants. Drip **irrigation** is highly effective at supplying one to four gallons of water per hour directly to the soil. The advantage of drip **irrigation** over sprinklers is that there is little water loss due to evaporation or runoff.

wateruseitwisely.com › landscape-care › principles-of-xeriscape-design

Efficient Irrigation | Water Saving Irrigation Methods



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XERISCAPE LANDSCAPE DESIGNS

Xeriscaping

Xeriscaping is the process of landscaping or gardening that reduces or eliminates the need for supplemental water from irrigation.
Wikipedia

Consider alternatives to water hungry turf. There are an abundance of attractive, low water use landscaping methods.

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XERISCAPE GARDENS

Xeriscape can reduce water use by 50% to 75%. Average cost of installation is approximately $1.50 to $2.50 per square foot.

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ROCK GARDENS

Rock gardens can provide an attractive alternative with little to no water use and low maintenance.

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NATURAL LANDSCAPE METHODS

Natural landscaping may be another attractive alternative to turf by using native species specific to your location.

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DROUGHT TOLERANT NATIVE PLANT SPECIES

There is a plethora of information on drought tolerant plant species native to the region.

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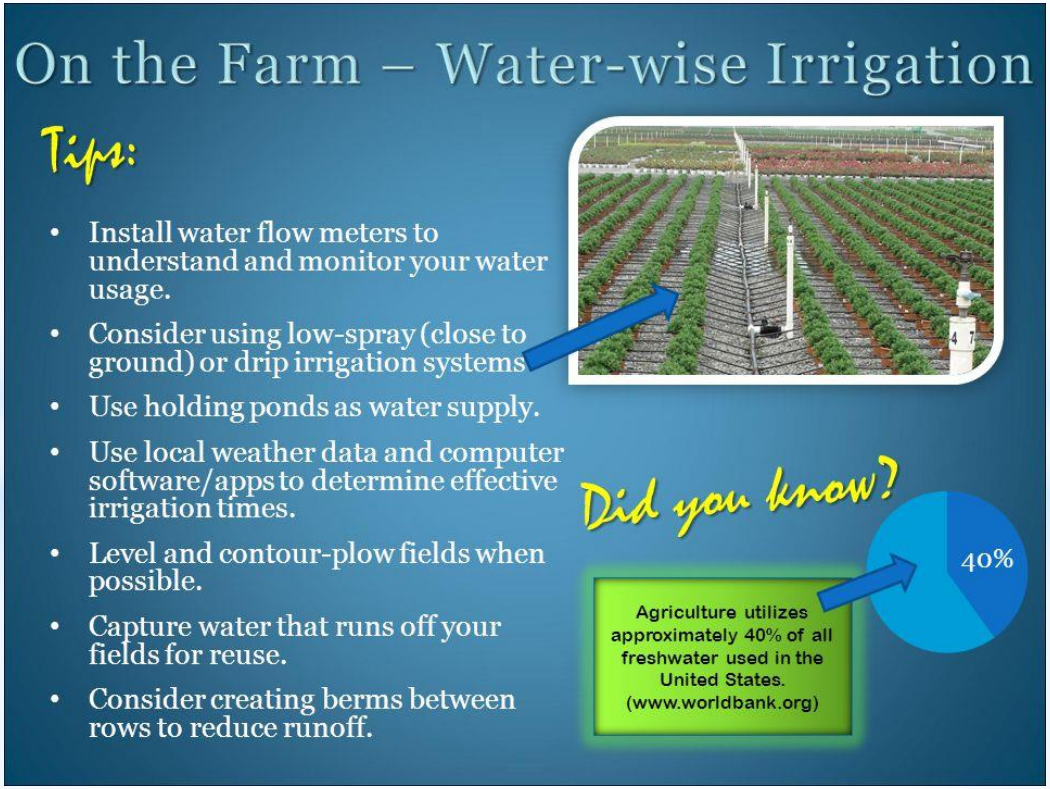
AGRICULTURAL USE



The SVRP supports considerable agricultural use. How do you think this affects our regional water supply?

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PROGRAMS OUR NEIGHBORS ARE WORKING ON

WATER EFFICIENT LANDSCAPE DESIGN

- Traditional turf landscapes require extensive watering, fertilization, and pesticide application.
- Drought-tolerant and water-smart landscaping can be designed to be aesthetically pleasing, save water, and protect the environment.

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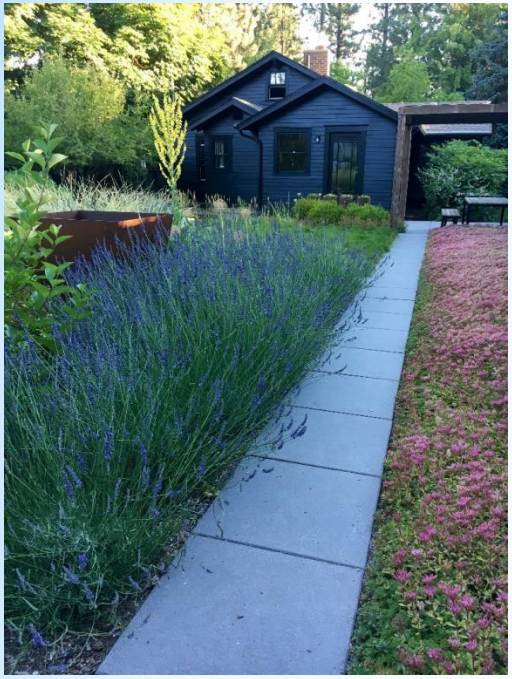

Case Study: SpokaneScape

- The City of Spokane established a turf replacement rebate program for water customers in 2018
  - Incentivizes customers to replace turf with drought tolerant plantings, efficient irrigation and mulch.
  - Offers $0.50/square foot for converted space, up to $500

SPOKANE scape

SpokaneScape is water-efficient landscape that has been designed specifically for the **unique climate of the Inland Northwest**- it's a landscape that **works for where you live**.

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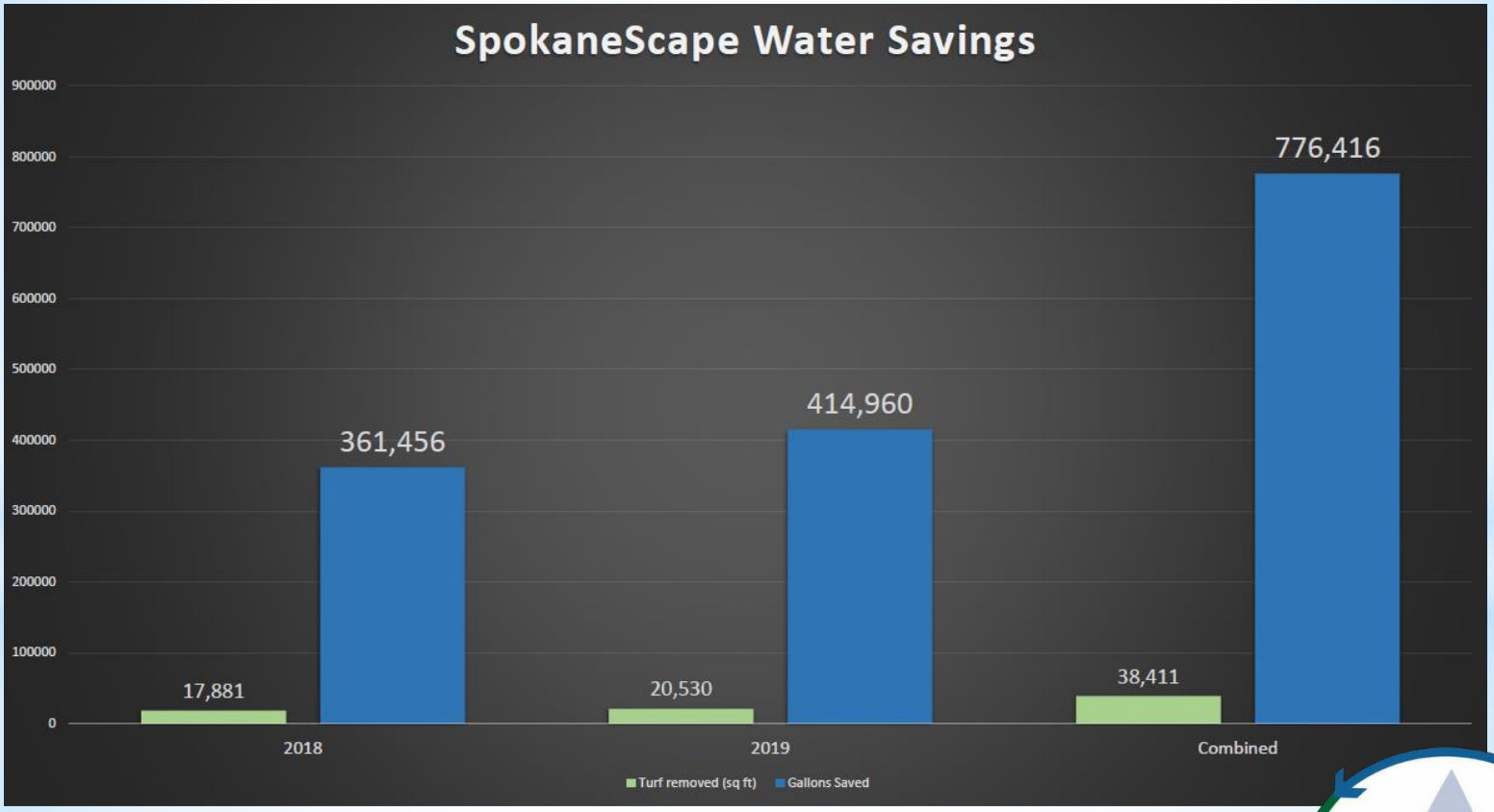

*SpokaneScape Saves: 133 gpd/1,000sf

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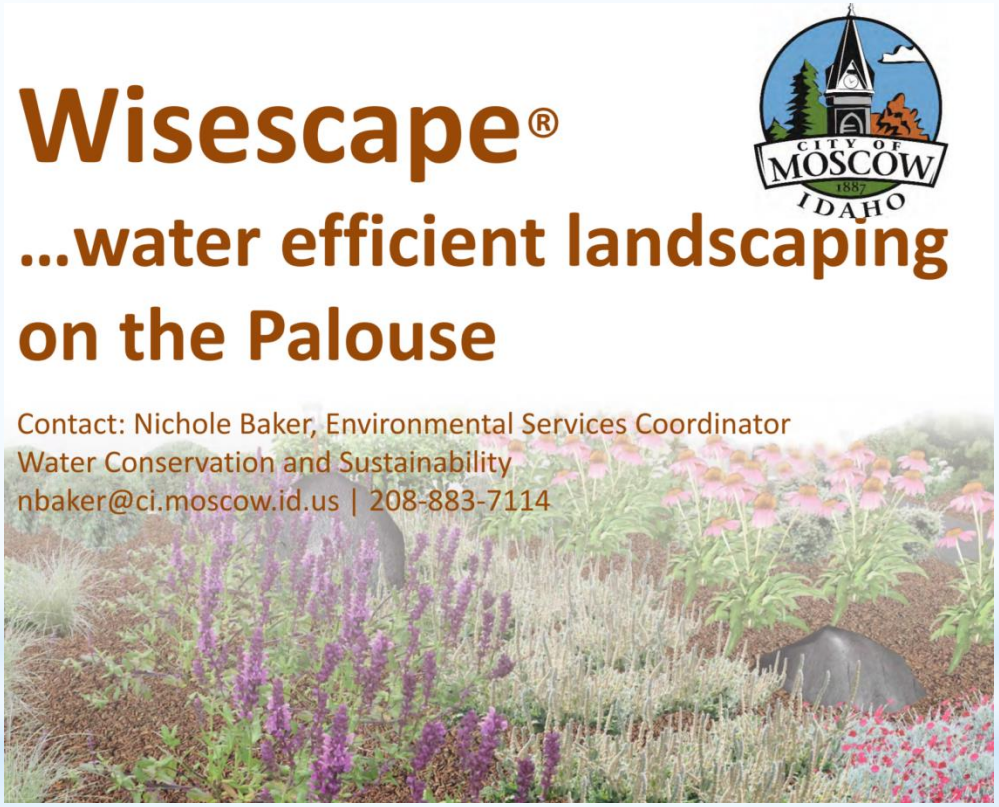
*PROGRAMS OUR NEIGHBORS ARE WORKING ON



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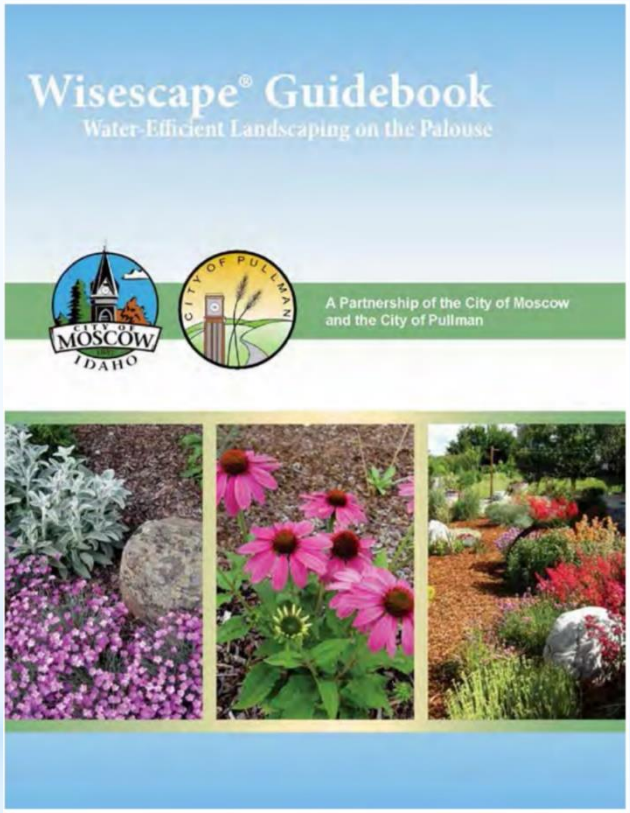
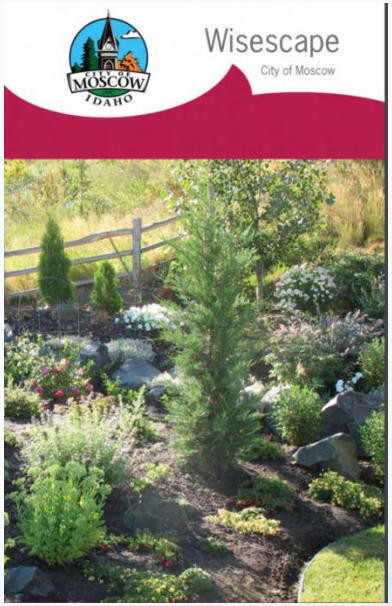
* Case Study: Moscow/Pullman Wisescape Program





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* Moscow/Pullman Wisescape Program

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* Moscow/Pullman Wisescape Program

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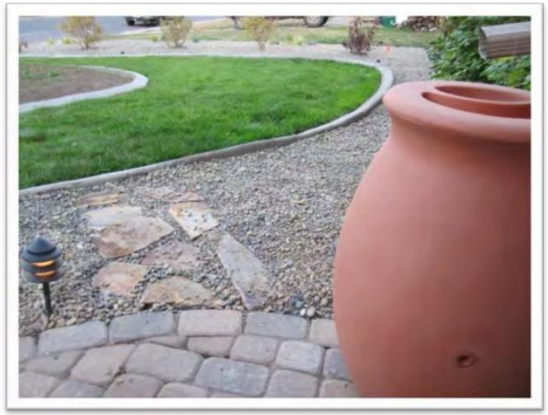
Moscow/Pullman Wisescape Program

Lawn to Wisescape® Rebate Savings

Traditional Lawn = 0.623 gal per ft^2/wk

Wisescape = 0.263 gal per ft^2/wk



Annual household water savings for transitioned 1200 ft^2 = 9,300 gallons

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Other challenges water systems and developers still face

Parking Strips and Buffers

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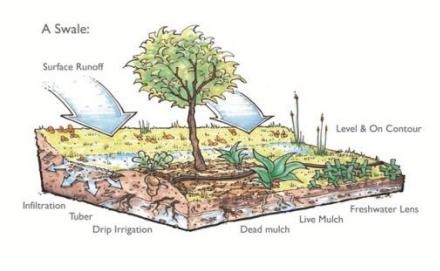

Roadside Swales

Ideas on methods and materials to reduce water consumption for swales?

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Roadside Swales

A never ending source of amusement. We certainly don't want them to look like this, an eye sore for any community!

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Roadside Swales

So we water them to death
to keep them green!

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Roadside Swales

How do we reduce water consumption and yet keep them attractive without making more work of it?

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Lawn and yard checklist:

- Efficient irrigation upgrades
- Proper installation and repairs
- Effective pruning methods
- Proper seasonal yard care and clean up

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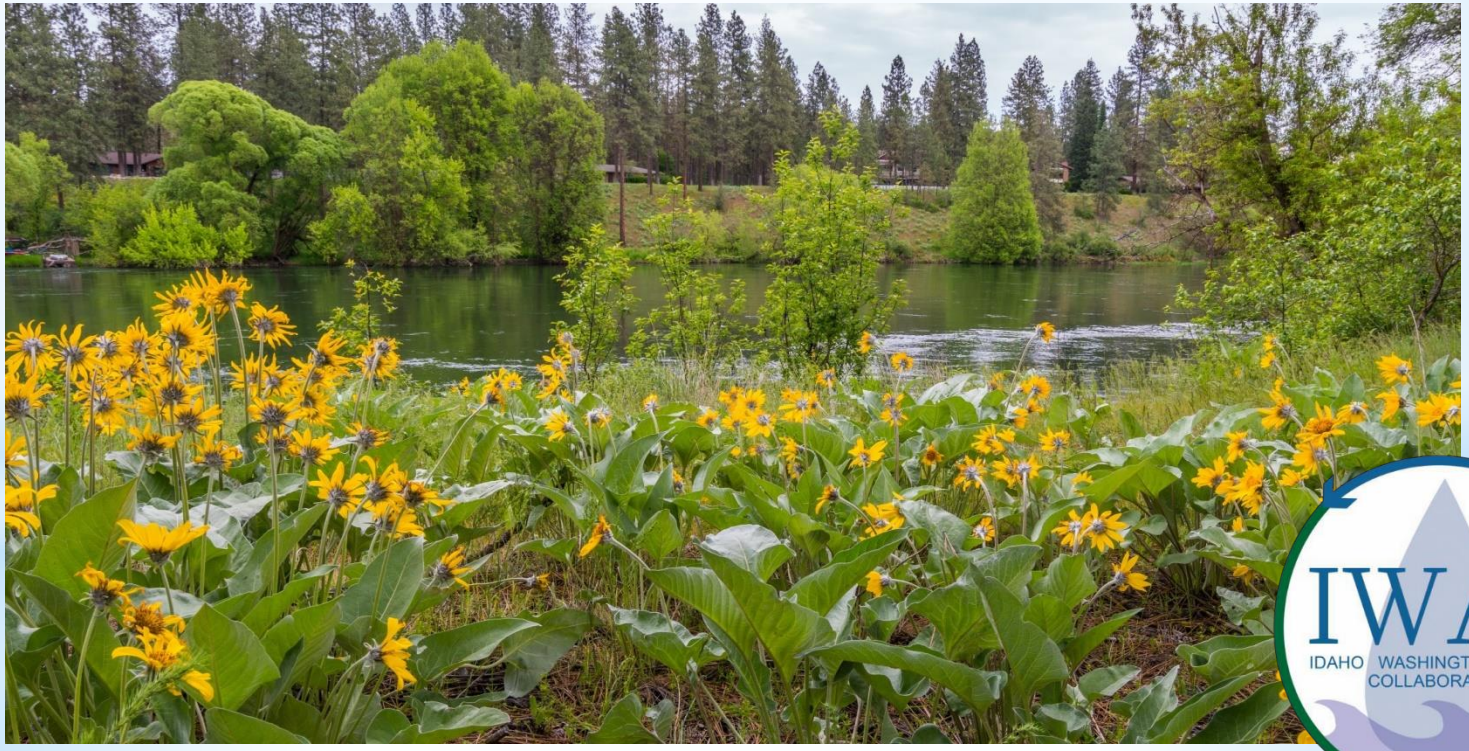
The **Inland Northwest is different**—our weather, precipitation, climate, and even culture are unique from other parts of the country. So, it only makes sense that to grow right, **our landscapes need to be different too**.



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Efficient Irrigation Systems

Thank you!

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How does this affect me as an operator or a purveyor?

- Should I or do I need to establish an ordinance, code or standard?
- What would be my responsibility?
- How does this relate to plumbing code?
- Isn't this private plumbing under the plumbing inspector?

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Potential Water Purveyor Responsibilities:

- Typically, a water purveyor can readily enact standards and policies.
- You could recommend adoption of ordinances, codes or standards by Councils, Boards or commissioners.
- You could include some method of established enforcement authority.

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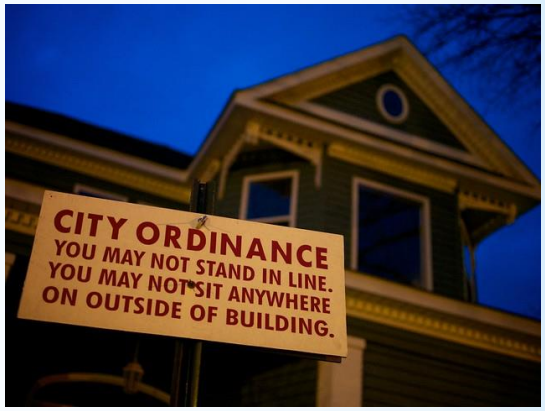
What would an ordinance, code or standard look like?



- The guidelines have some recommended language.
- The available appendices include ordinances from other states.
- Some communities in Washington have enacted ordinances you could research.

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Who would be responsible to enforce?

- Enforcement authority would likely be established by ordinance, policy or rule.
- The local authority having jurisdiction would have enforcement authority.
- May be delegated to the operators as needed.

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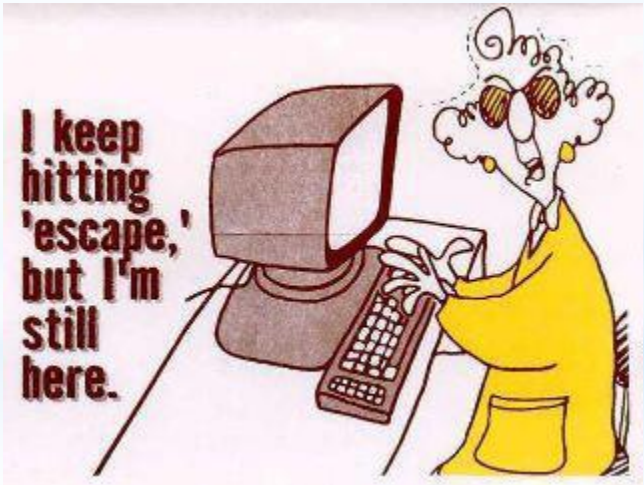
How does this affect me as an operator?

- Basically, it depends on your level of responsibility.
- And it depends on what course the purveyor chooses to follow.



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What can I do to promote conservation?

- Think about your water systems average and peak use.
- Where can conservation begin?
- Where would it be most cost effective?
- How will it affect your bottom line?

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Thank you and enjoy the rest of the Service Truck Rodeo!

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