

WHAT VALUES DRIVE OUR LANDSCAPE CHOICES?



Rocky Mountain Land Use Institute Conference, March 2019

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Outline for Today

- How do landscapes and water use intersect?
- How do our values shape the landscapes we live in?
- How do we at Denver Water track the way these values shift?
- What issues are we really trying to address with landscapes?



Municipalities and counties served

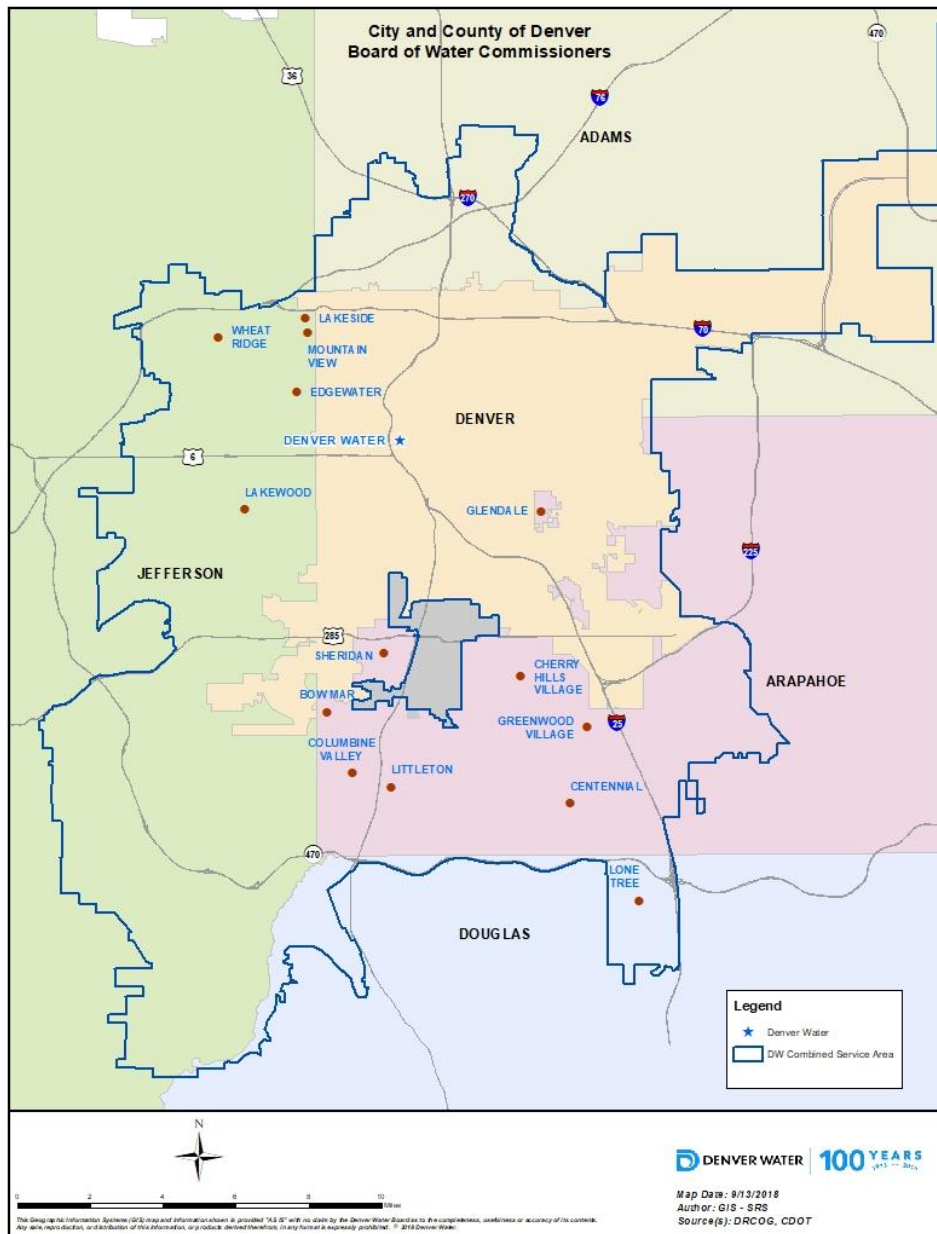
Within our service district:

Denver Population: 750,000

Outside City Population: 750,000

Outside City Distributors: 65

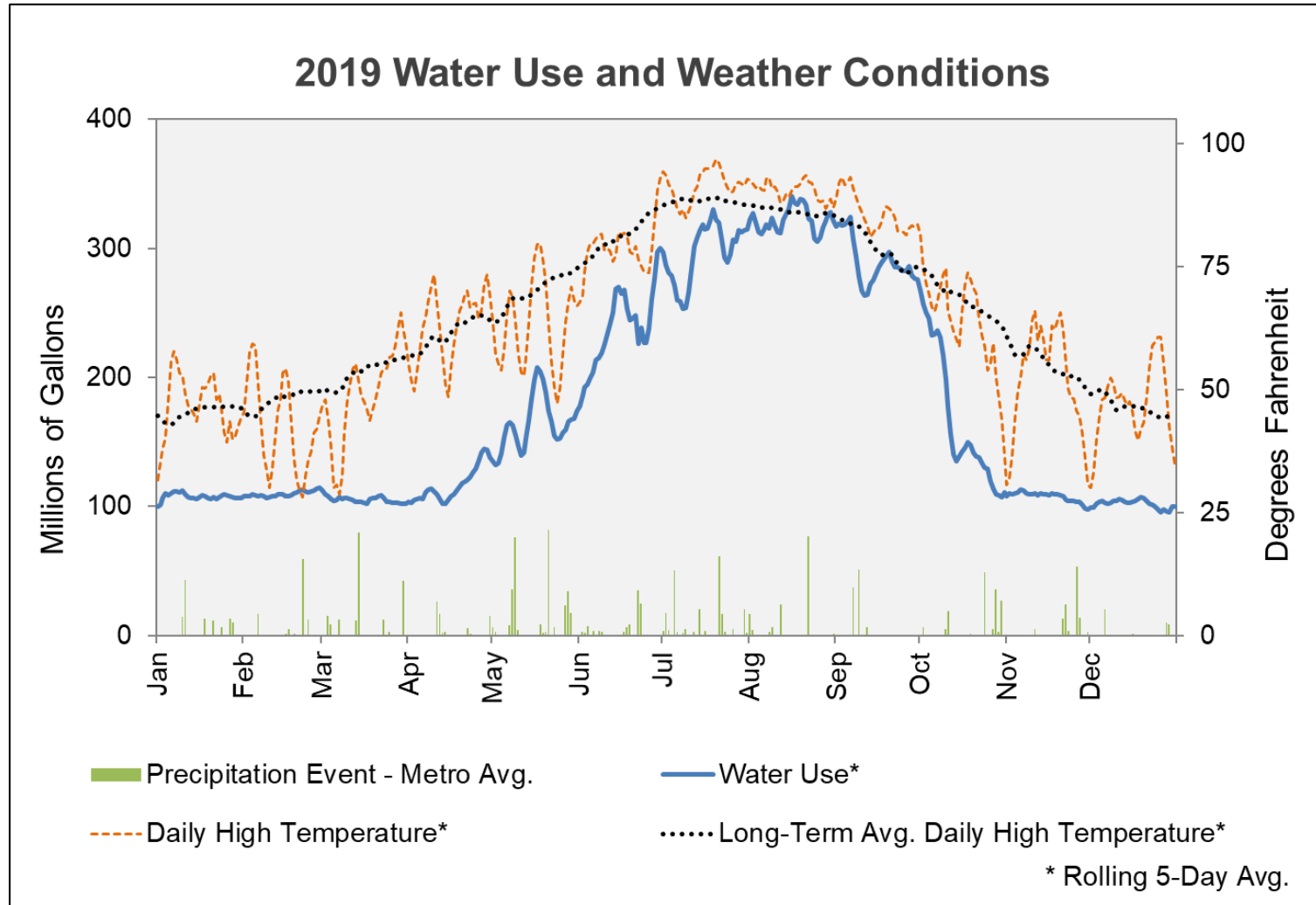
- ✓ Diverse growth patterns/preferences
- ✓ Varied politics
- ✓ Range of development guidelines



Municipalities

Bow Mar	Lakewood
Centennial	Lakewood
Cherry Hills Village	Littleton
Columbine Valley	Lone Tree
Denver	Mountain View
Edgewater	Sheridan
Glendale	Wheat Ridge
Greenwood Village	

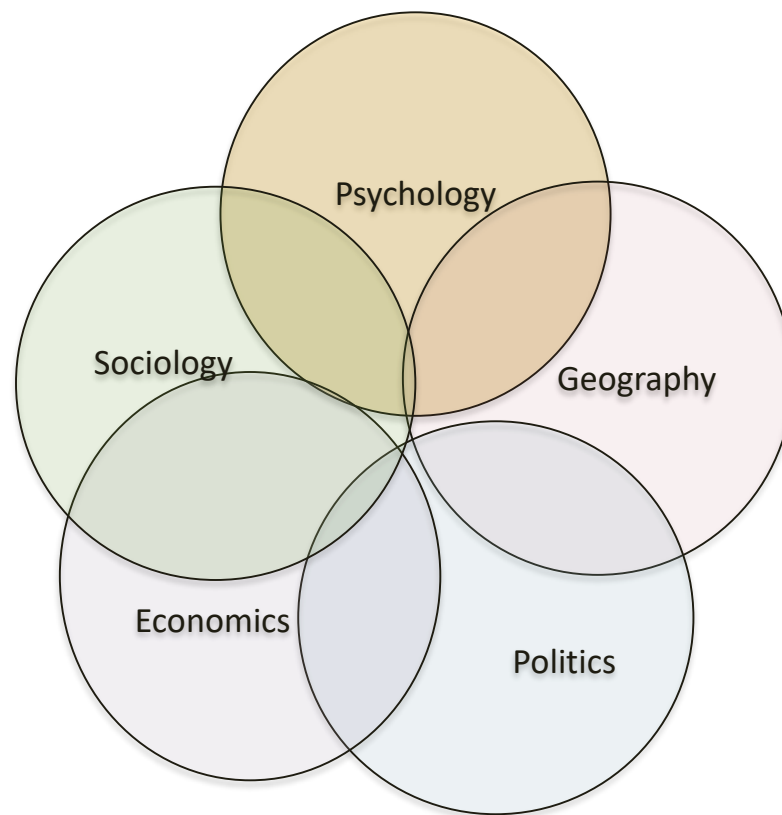
Landscape Irrigation Drives Bulk of Summer Water Use



Water Use is About Behavior

Water use depends largely on socially-driven variables:

- Growth
- Price
- Technology
- Climate
- **Values and perspectives**

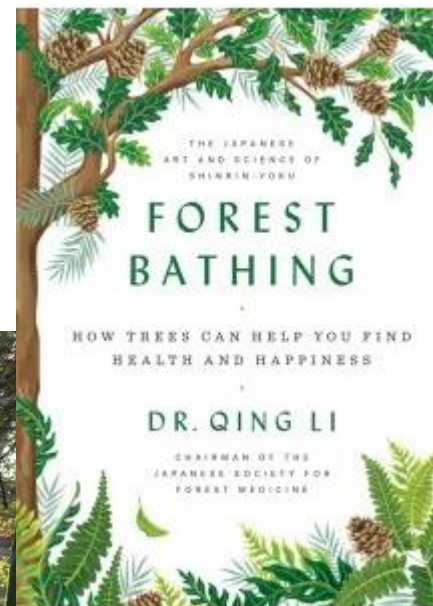


Social Sciences

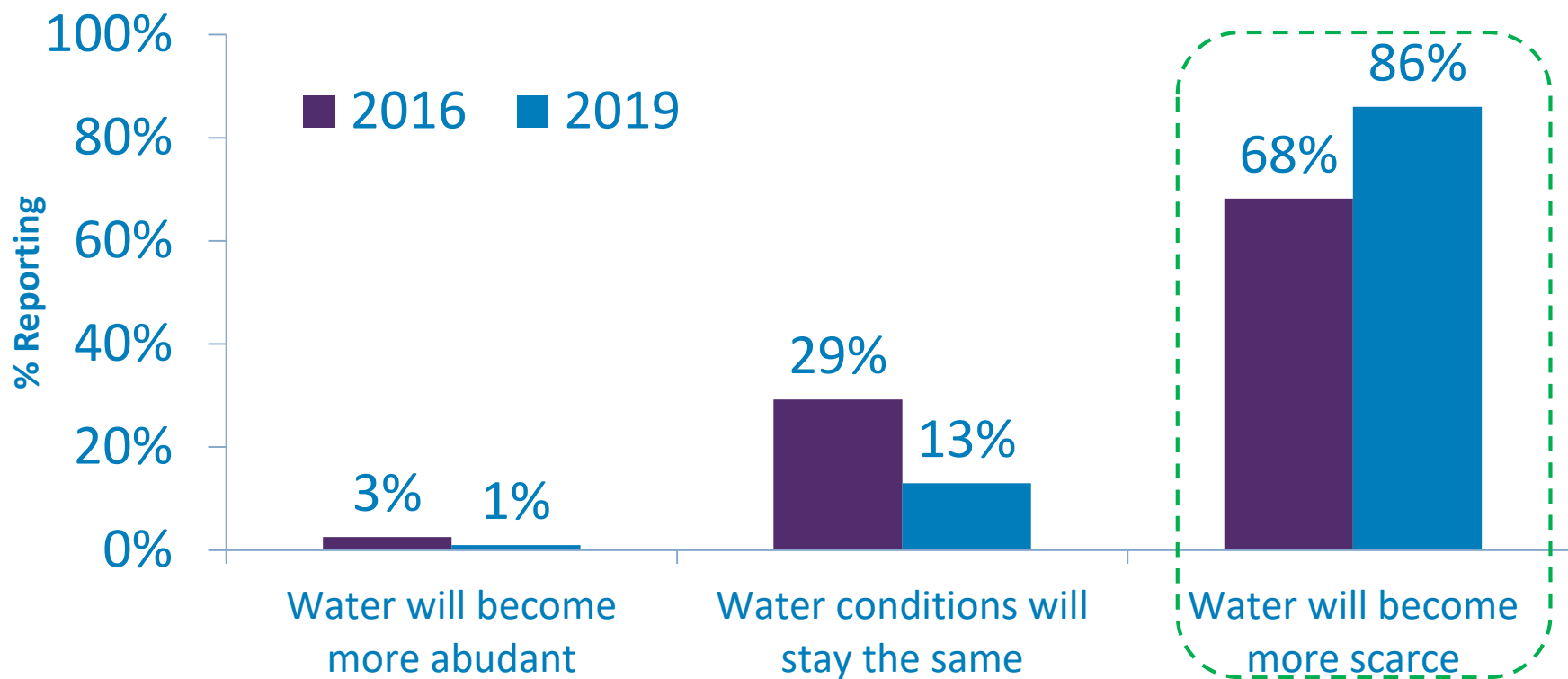
Benefits of Green Space

Time spent in and around tree-lined streets, gardens, parks, and forested and agricultural lands is linked to objective, long-term health outcomes – both physical and psychological.

Neighborhood greenness has been consistently tied to life expectancy!

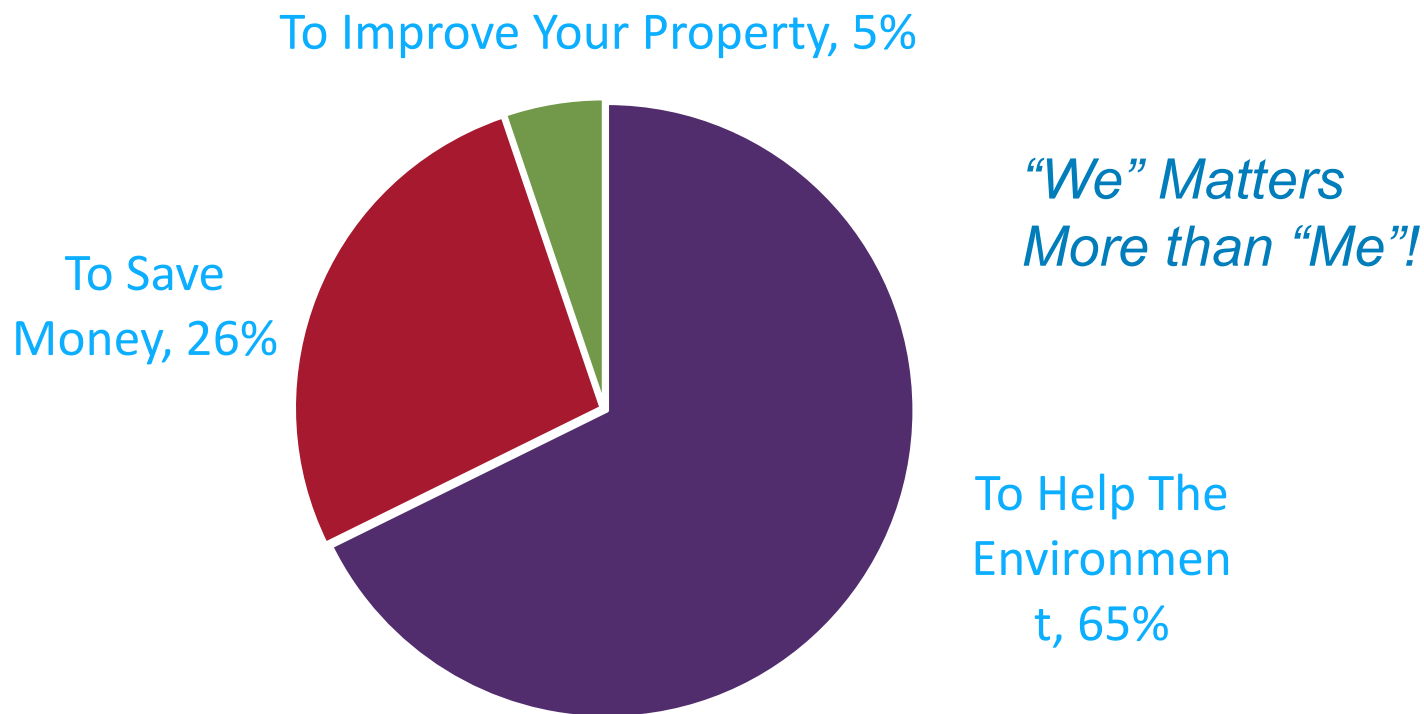


Water Scarcity Perception



Which ONE of the following best describes how you expect water supply conditions in the Denver area to change over the next 5-10 years?

Values Driving Water Conservation



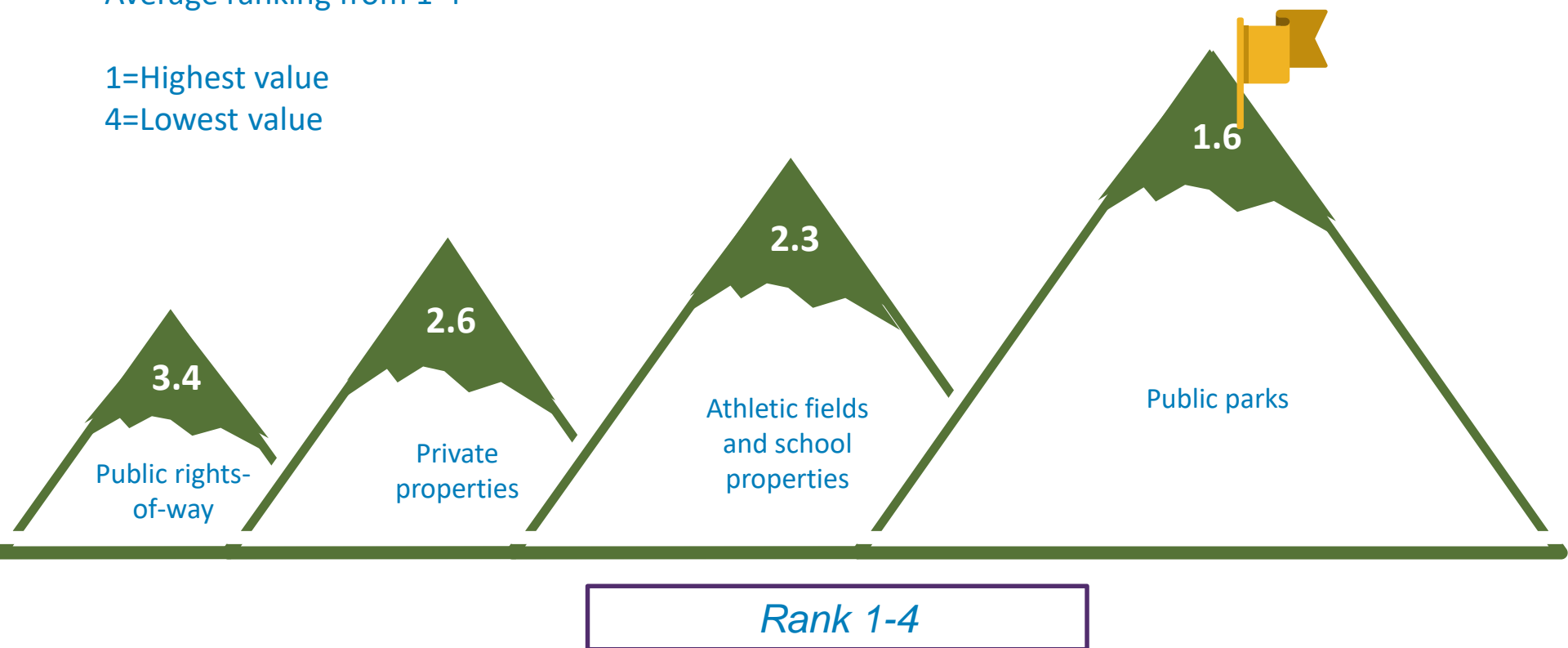
Which ONE of the following best describes your PRIMARY motivation for taking the action(s) to reduce the amount of water your household uses?

Where is Bluegrass Most Valuable?

Average ranking from 1-4

1=Highest value

4=Lowest value



Key Survey Findings

Water Supply Perceptions & Concerns



- Our customers get it
- Growing concern about future scarcity
- Growth and environmental factors are driving concern

Water Use & Influencing Factors



- Customers are increasingly willing to make changes to their water use
- Greater good is a strong motivator

Bluegrass & Lawn Opinions



- Aesthetics are the primary use for residential bluegrass
- Willingness to reduce bluegrass
- Bluegrass is most valued in parks and public spaces

Our customers are primed to remove a significant amount of bluegrass in the next drought

Landscape Classification Project

Monitoring how customer values are manifested in the physical landscape over time.

- Rate of change
- Type of change
- Impacts



Multi-year Survey Trends

Denver Water 2018 Water Use Perceptions Survey

1. How concerned are you about the following issues? Please select one box for each item. But at all times, select at least one box.

	Extremely Concerned	Somewhat Concerned	Not at all Concerned	Don't know/Unsure
• Safety of your drinking water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• How much indoor water your household uses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• How much outdoor water your household uses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Whether the cost of water will impact your ability to use it the way you would like	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Where your water comes from in the state	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• The impact of water levels on outdoor recreation or river health in Colorado	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• The impact of the metro area's growth on your water availability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Whether climate change will affect your water availability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Which of the following factors would most likely influence you to use less water than you already do? Please select all that apply, or the "Nothing" option.

☐ Nothing, I already use water as efficiently as possible

☐ Increased cost of water/water rates

☐ Drought conditions

☐ Increased personal commitment to water conservation

☐ Peer pressure from friends, family or neighbors

☐ Drought-related recommendations and information from my water utility (i.e., Denver Water) about how to reduce my water use

☐ None of the above. These factors would not influence me to use less water than I already do

3. Which ONE of the following best characterizes your view of the **current** water supply conditions in the Denver area?

☐ Water is not scarce (i.e., there is always enough water available)

☐ Water is somewhat scarce (i.e., there is usually enough water available in most years)

☐ Water is very scarce (i.e., there is not enough water available)

☐ Don't Know/Unsure

4. Which ONE of the following best describes how you expect water supply conditions in the Denver area to **change** over the next 5–10 years?

☐ Water will become more abundant

☐ Water conditions will stay the same

☐ Water will become more scarce

☐ Don't Know/Unsure

5. For each of the following scenarios, please rate the impact that scenario would have on your quality of life. Please select one box for each item.

	Extremely Positive Impact	Possible Positive Impact	No Impact	Somewhat Negative Impact	Extremely Negative Impact	Don't know/Unsure
• No interruption in water service (i.e., water outages of 4 hours or less)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Mandatory watering restrictions (i.e., during drought or other water shortage conditions)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Voluntary summer watering schedule (i.e., to avoid high demands on the water system)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Low water pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Only being allowed to water your lawn once per week	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. Since moving into your current home, which of the following actions have you taken to reduce the amount of water your household uses? Please check all that apply.

☐ Installed or maintained a low water landscape (e.g., xeriscape, decking, etc.) to conserve water

☐ Installed a rain barrel at my home

☐ Installed a weather-based or smart sprinkler controller or other more efficient irrigation equipment to conserve water in your yard

☐ Fixed a leaking faucet or toilet, or reported a leaking faucet or toilet to your landlord

☐ Installed high-efficiency fixtures (e.g., toilets, shower heads, etc.)

☐ Replaced older home appliances with newer, more water-efficient ones (e.g., dish or clothes washer, etc.)

☐ Chilled or melted water use on a bill

☐ Replaced a valve for a water conservation product

☐ Started taking shorter or fewer showers to conserve water

☐ Other (Please specify): _____

☐ None of the above. I have not taken any action to reduce the amount of water my household uses (Skip to Q10)

7. Which ONE of the following best describes your **PRIMARY** motivation for taking action(s) to reduce the amount of water your household uses?

☐ To save money

☐ To help the environment

☐ To improve your property

☐ Other (Please specify): _____

The following questions aim to understand how you feel about bluegrass and lawns. Bluegrass is the type of grass typically found on private lawns and athletic fields. It is sometimes called fairgrass.

8. Which THREE of the following functions do you believe are the MOST IMPORTANT functions of outdoor space where you live? Please select only three.

☐ Adds resale value to your home or apartment

☐ Reflects who you are

☐ Provides recreational or utility workspace for your household including kids, pets, and guests

☐ Links attractive and inviting

☐ Provides a secluded outdoor space

☐ Offers storage for equipment, cars, or other gear

☐ Provides garden space

☐ Other (Please specify): _____

9. Which ONE of the following best describes your preferred landscape?

☐ All turf or bluegrass, no plants or other features

☐ Mostly plants or other features with some turf or bluegrass

☐ All plants or other features, no turf or bluegrass

☐ Don't Know/Unsure

10. Is there turf or bluegrass on the property where you live?

☐ Don't Know/Unsure (Skip to Q12)

Please check all that apply.

☐ Enjoyment

☐ Feature for design or function (e.g., dust suppression, or drainage)

☐ Other (Please specify): _____

11. In a situation where water for irrigation was limited, how would you prioritize each of the following types of grass? Please rank the items below from 1–4, where 1 is the highest priority grass and should be preserved through drought, and where 4 is the lowest priority grass, where irrigation could be reduced or cut off in times of water scarcity.

Ranking From 1–4

☐ Grass should be preserved in public parks

☐ Grass should be preserved in public rights-of-way (e.g., medians, boulevards, tree lawns)

☐ Grass should be preserved on athletic fields and school properties

☐ Grass should be preserved on private properties

12. Which of the following might cause you to reduce the amount of turf or bluegrass on your property? Please select all that apply.

☐ Extended drought

☐ Increasing cost of outdoor water use

☐ Maintenance requirements

☐ Environmental concerns

☐ None of these

13. Do you have any additional comments about water use or water supply conditions you want to share with Denver Water?

Finally, we would like to ask some demographic questions to better understand your responses.

14. Does your home have an in-ground sprinkler system? If you do not have a yard (e.g., live in an apartment or condominium), please skip to Question 15.

☐ Yes

☐ No

☐ Don't Know/Unsure

15. Do you have a washing machine located in your home, apartment or condominium?

☐ Yes

☐ No

☐ Don't Know/Unsure

16. Do you own or rent your home?

☐ Own

☐ Rent

☐ Prefer Not To Answer

17. Including yourself, how many people currently live in your household?

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

☐ 6 or more

18. What is your household's total annual income before taxes?

☐ Less than \$20,000

☐ \$20,000 – \$24,999

☐ \$25,000 – \$29,999

☐ \$30,000 – \$34,999

☐ \$35,000 – \$49,999

☐ \$50,000 – \$74,999

☐ \$75,000 – \$99,999

☐ \$100,000 or more

☐ Don't Know/Unsure

☐ Prefer Not To Answer

19. Which of the following best describes your gender?

☐ Male

☐ Female

☐ Non-binary/third gender

☐ Prefer Not To Answer

☐ Prefer to self-identify

20. What is your age?

☐ 18 – 24

☐ 25 – 34

☐ 35 – 44

☐ 45 – 54

☐ 55 – 64

☐ 65 – 74

☐ 75 or older

☐ Prefer Not To Answer

21. How long have you lived in Colorado?

☐ Less than 1 year

☐ 1 – 5 years

☐ 6 – 10 years

☐ More than 10 years

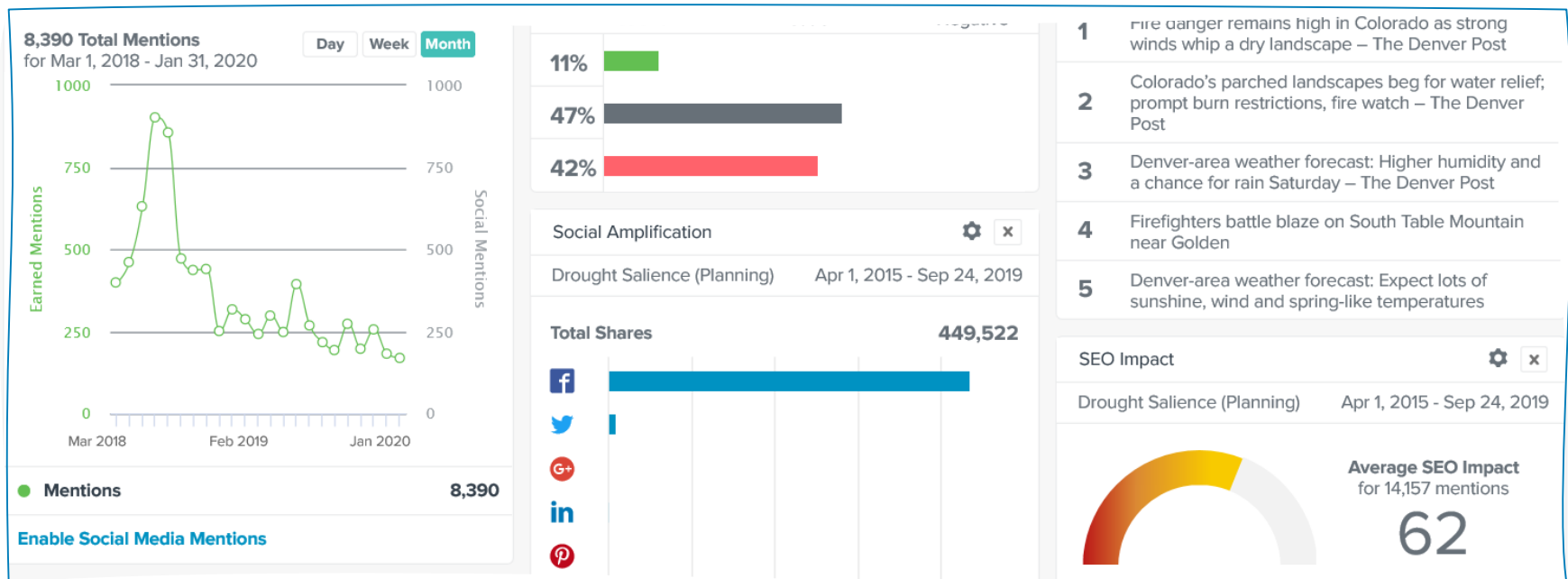
22. Denver Water is interested in collecting e-mail addresses to enhance our communication with our customers. Would you please provide your e-mail address for our records? Please know your personal information will never be shared or sold to outside sources or third parties.

Thank you for participating in this important survey!

- Longitudinal study
- Tracks attitudes over time
- Helps understand customer attitudes and views on:
 - Scarcity
 - Bluegrass
 - Drought
 - Conservation

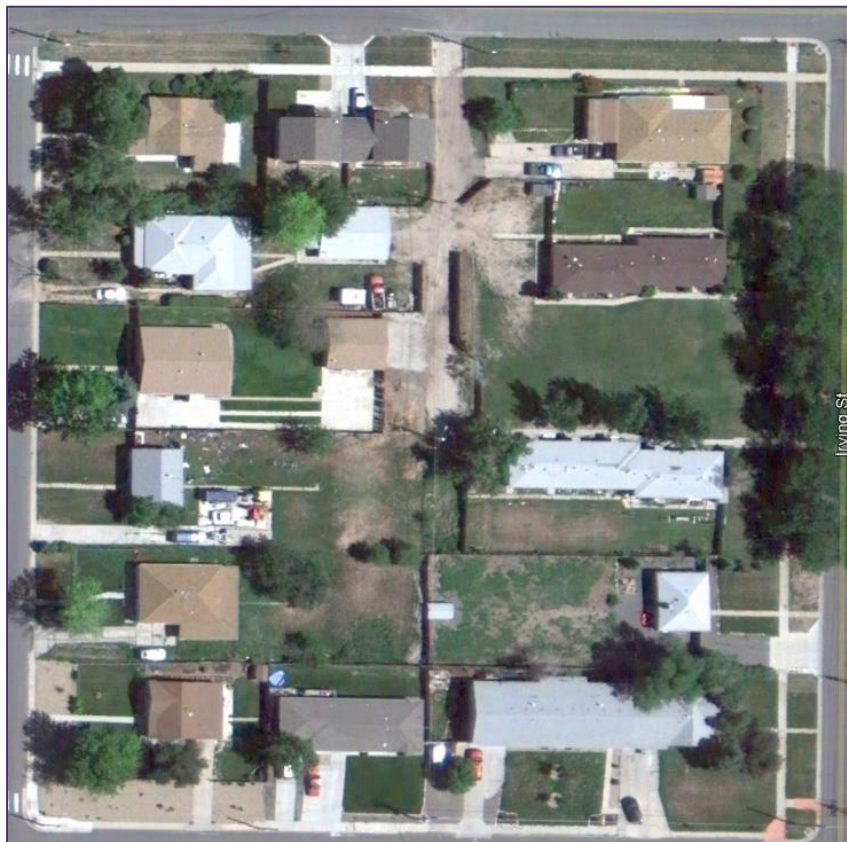
Water Scarcity in the Media

Denver Water monitors mentions of drought in Colorado media and searches on Google Trends for drought, to better understand how our customers are receiving and understanding scarcity messaging in the media.

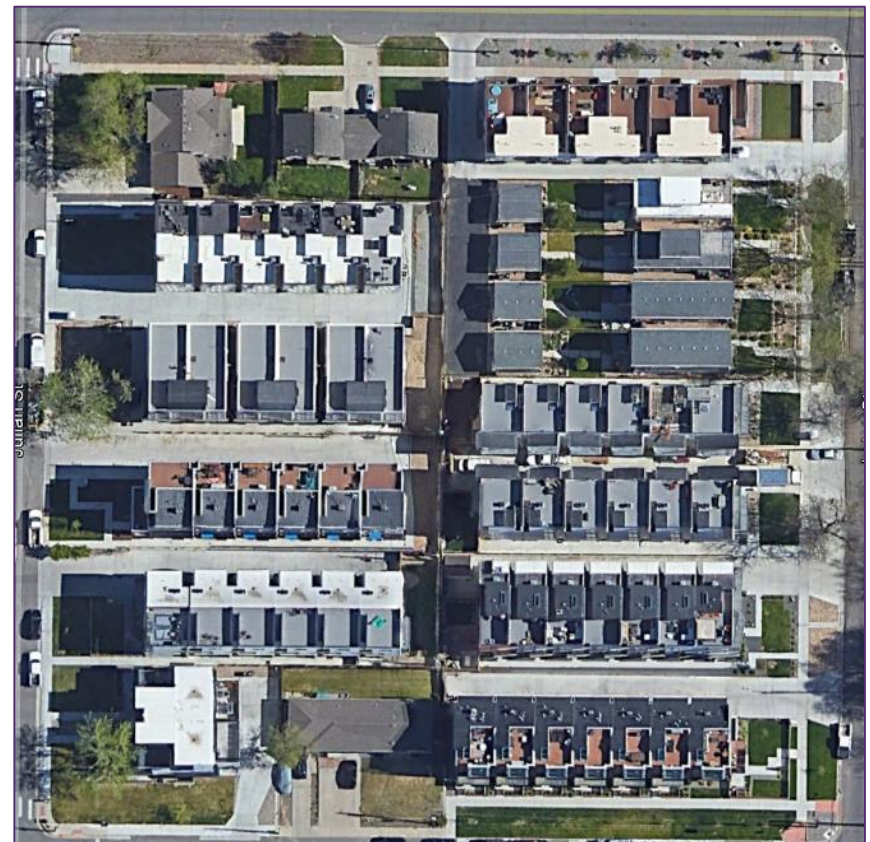


Rapid land-use change

Before



Current



What Role Should Landscapes Play?

- Psychological and physical benefits
- Stormwater Management
- Cooling / Shade
- Aesthetic benefits
- Restorative space
- Reflection of self
- Habitat

