CITY OF DALLAS WATER CONSERVATION MANAGEMENT:
THE SOCIAL AND ECONOMIC DRIVERS BEHIND WATER USAGE

Holly R. Holt-Torres
Water Conservation Manager, City of Dallas
Office of Environmental Quality & Sustainability
Ecoregions & Weather

- Texas Black land Prairie
- Underlying geology of chalks, marls, limestone and shales which gives the characteristics black, alkaline heavy fertile clay soil
- Trinity River and its tributaries
- Rainfall: 36 inch annual average
- Summer Temperature average 92 degree and higher
- Most recent drought: 2010 (71 days) with 45 days over 100 degree
City of Dallas Water Utilities Overview

- Founded in 1881
- Enterprise Fund - funded from water and wastewater revenues, receives no tax dollars
- Approximately 1,650 employees
- Population served – 2.4 million
  - 1.3 million - Dallas
  - 1.2 million in 27 wholesale customer cities
- 699 square mile service area
- 300,000+ retail customer accounts
- FY19 Operating Budget of $665M
- FY19 Capital Budget of $300M
Dallas residents continue to rate DWU highly year over year, with little change since 2014

PERFORMANCE OF DWU
How would you rate the performance of Dallas Water Utilities?
Showing % All, not showing “Don’t know”

61% of respondents rate DWU as above average

PSB
More than half of residents continue to rate their water and sewer services as above average

QUALITY OF WATER AND SEWER SERVICE
How would you rate the overall quality of city water and sewer service to your home?
Showing % All, not showing “Don’t know”

- 2014
- 2015
- 2016
- 2017
- 2018

![Bar chart showing ratings for water and sewer services over years (2014-2018)]
Water supply continues to be less important compared to other issues facing Dallas

- Public school education and crime/drugs continue to be the most important issues facing the community.

**MOST IMPORTANT ISSUE FACING DALLAS**

*Which of the following do you feel is the single most important issue facing the City of Dallas today? Showing % All*

- 2014
- 2015
- 2016
- 2017
- 2018
Water Savings From Water Conservation Activities in Dallas Water Utilities

- Time-of-day watering restrictions adopted
- Initial conservation goal: 1% per year
- Conservation Goal (FY10 - FY15): 1.5% per year
- New Conservation Goal (FY16 - FY20): 1% Per Year

Actual Water Use
Projected Water Use Without Conservation
Conservation Goals
Water Consumption Trend in DWU 1996-2018

- Residential
- Commercial
- Industrial
- Linear (Residential)
- Linear (Commercial)
Economic drivers of water use: Dallas is a thriving city with more residents and new businesses than ever before.
Economic Drivers of Water Use in Dallas

- Population Growth
- Cost of Living
- Unemployment & Labor
- Business Climate
- Development Projects
- Commercial Shipping
### Demographics:
Total population - 1,286,380  
Median Age - 32.4

<table>
<thead>
<tr>
<th>Race &amp; Ethnicity</th>
<th>#</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Hispanic White</td>
<td>373,759</td>
<td>29.2%</td>
</tr>
<tr>
<td>Non-Hispanic Black</td>
<td>307,913</td>
<td>24.0%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>530,798</td>
<td>41.4%</td>
</tr>
<tr>
<td>Non-Hispanic Other Race</td>
<td>68,561</td>
<td>5.4%</td>
</tr>
<tr>
<td>Foreign Born</td>
<td>311,168</td>
<td>24.3%</td>
</tr>
</tbody>
</table>

### English as a Second Language:
Primary Language - Spanish       | 455,484 | 38.7% |
Primary Language - Other          | 63,581  | 5.4%  |
Factors: Workforce & Business Climate

**The Workforce.** Dallas businesses have access to an almost 3.5 million strong workforce, where 33% of regional workers have at least a college degree. There are over 860,000 professionals in management, finance, computing, architecture, engineering and the sciences and over 430,000 professionals in education and health services. A diverse economy offers many opportunities for dual profession families and assures a strong pool of talent for area businesses.

**The Business Climate.** The Dallas area is home to 22 Fortune 500 companies. The city is home to over 250 corporate headquarters that each employ more than 1,000 people globally. Of Forbes’ largest privately held companies, eight are located in the Dallas area including Advance PCS, Dean Foods, ExxonMobil, Kimberly-Clark, Neiman Marcus, Southwest Airlines, and Texas Instruments. Dallas boasts a broadly diverse business climate, with technological industries in the lead. Major industries include defense, financial services, information technology and data, life sciences, semiconductors, telecommunications, transportation, and processing. According to the Greater Dallas Chamber of Commerce, the Dallas-Fort Worth Metroplex holds about 43 percent of the state's high-tech workers. Further, 13 privately-held companies with at least $1 billion in annual revenues are headquartered in the area.
Factors: Continued Growth

The Space for Growth. The city is home to 131.9 million sq. ft. of office space, along with thousands of acres of vacant developable land for distribution, office, and retail use.

The Access. DFW International Airport and Dallas Love Field put the city less than 3.5 hours from major North American business centers: New York, Los Angeles, Mexico City, Toronto, Chicago and Atlanta. Five interstate highways put over 35% of the U.S. population within 48 hours of Dallas by truck, and three class I railroads put 98% within 48 hours by rail.

The Support. Dallas government is pro-development, maintaining a comprehensive plan and economic development strategy to encourage growth.
Factors: Growth & Expansion

The Lifestyle. With the cost of living equal to the national average and no personal income tax, Dallas offers a wonderful quality of life. A growing transit system includes 64 light rail stations. Area colleges and universities enroll 298,000 students, and Dallas has the largest arts district in the U.S. Thousands of restaurants, 28 libraries, 82.1 million sq. ft. of shopping, 23,000 park acres, 154 miles of trails, plus franchises for all the major professional sports leagues provide endless entertainment.

The Future. Dallas is a growing city with a rising population. The current population of Dallas is 1,286,380, up 1.3% from 2017.

Between 2010 and 2015, The Dallas MSA had the 6th fastest economic growth among the nation’s 100 largest metros, according to the Brookings Institute.
Social drivers of water use:
Water conservation is seen as highly important, and behaviors surrounding conservation remain stable.
Water conservation is seen by most to be very important – and residents are either more concerned, or as concerned, as they were last year.
Similar to last year, consumers are generally positive about the availability of water.

AVAILABILITY OF DALLAS’ WATER SUPPLY....

How would you describe the availability of water for the City of Dallas? Showing % All

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than enough water</td>
<td>14</td>
<td>20</td>
<td>19</td>
<td>26</td>
<td>24</td>
</tr>
<tr>
<td>About the right amount of water</td>
<td>49</td>
<td>59</td>
<td>62</td>
<td>54</td>
<td>60</td>
</tr>
<tr>
<td>Not enough water to meet Dallas’ needs</td>
<td>28</td>
<td>13</td>
<td>15</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>Don’t know</td>
<td>10</td>
<td>8</td>
<td>5</td>
<td>11</td>
<td>7</td>
</tr>
</tbody>
</table>

...NOW?

Since 2015 there has been a stable belief that there will be enough water in 5 years.

...IN 5 YEARS?

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than enough water</td>
<td>4</td>
<td>6</td>
<td>11</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>About the right amount of water</td>
<td>65</td>
<td>40</td>
<td>40</td>
<td>43</td>
<td>65</td>
</tr>
<tr>
<td>Not enough water to meet Dallas’ needs</td>
<td>39</td>
<td>38</td>
<td>35</td>
<td>39</td>
<td>38</td>
</tr>
<tr>
<td>Don’t know</td>
<td>10</td>
<td>12</td>
<td>9</td>
<td>13</td>
<td>11</td>
</tr>
</tbody>
</table>
While concerns about the future water supply continue to diminish, concerns about water quality show signs of growth.
The percentage of people engaging in water conservation tactics in Dallas remains largely unchanged

FOLLOWING WATER CONSERVATION ACTIONS
How often do you do any of the following water conservation actions? Showing % All
- Often
- Sometimes
- Never
- Don’t know

<table>
<thead>
<tr>
<th>Year</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Only run appliances like your dishwasher or washing machine when they are full</td>
<td>71</td>
<td>67</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td></td>
<td>18</td>
<td>21</td>
<td>18</td>
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<tr>
<td></td>
<td></td>
<td>9</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>2.</td>
<td>Check the local weather forecast and not water your lawn when it is supposed to rain</td>
<td>62</td>
<td>65</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td></td>
<td>16</td>
<td>17</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3.</td>
<td>Water your lawn only before 10 am or after 6 pm</td>
<td>63</td>
<td>60</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td></td>
<td>17</td>
<td>20</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>4.</td>
<td>Observe the maximum twice per week water schedule</td>
<td>62</td>
<td>65</td>
<td>61</td>
</tr>
<tr>
<td></td>
<td></td>
<td>18</td>
<td>17</td>
<td>14</td>
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<tr>
<td></td>
<td></td>
<td>5</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>5.</td>
<td>Use drought-tolerant or native plants in your landscape</td>
<td>23</td>
<td>29</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30</td>
<td>29</td>
<td>29</td>
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<td></td>
<td>36</td>
<td>32</td>
<td>36</td>
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<td></td>
<td></td>
<td>11</td>
<td>10</td>
<td>12</td>
</tr>
</tbody>
</table>
Just under 1 in 5 still violate the Water Conservation Ordinance, though most continue to water their lawns according to rule.
The “Water is Awesome Campaign” is informative and effective, while awareness of DWU’s conservation efforts remains largely stable.
Awareness of water conservation initiatives remains steady compared to last year

**AWARENESS OF WATER CONSERVATION INITIATIVES**

Have you seen, read or heard any advertisements or public service messages recently related to saving water or water conservation? Showing %

Dallas residents are just as likely to notice ads about water or water conservation as they were last year.

<table>
<thead>
<tr>
<th>Year</th>
<th>Aware</th>
<th>Unaware</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>59</td>
<td>39</td>
</tr>
<tr>
<td>2015</td>
<td>59</td>
<td>39</td>
</tr>
<tr>
<td>2016</td>
<td>52</td>
<td>45</td>
</tr>
<tr>
<td>2017</td>
<td>41</td>
<td>59</td>
</tr>
<tr>
<td>2018</td>
<td>42</td>
<td>54</td>
</tr>
</tbody>
</table>
A majority of those aware of the “Water is Awesome” campaign continue to find it effective

**WATER IS AWESOME AWARENESS**
Have you seen, read or heard anything about the public service campaign called “Water is Awesome,” encouraging North Texas residents to be more efficient with their water use? Showing % All

- Aware of Water is Awesome campaign: 58%
- Not aware of Water is Awesome campaign: 6%
- Don’t know: 36%

**WATER IS AWESOME EFFECTIVENESS**
[If Aware of Water is Awesome Campaign] How effective would you say the “Water is Awesome” ads have been in communicating a water conservation/water efficiency message? Showing % All, n=172

- Very effective: 53%
- Somewhat effective: 33%
- Not very effective: 11%
- Not effective: 6%
- Don’t know: 6%

**Awareness of the “Water is Awesome” campaign is up 6 percentage points compared to last year.**

**86% of those aware of “Water is Awesome” ads say they are effective at communicating the water conservation message, up 6 percentage points from last wave.**
The “Water is Awesome” campaign is seen as informative and introspective – but some say it doesn’t have a lasting impact

**Informative & Introspective**
*Of those who say the ad is effective, n=139*

- “I believe it is a **good campaign to raise awareness** about the need and importance of preserving water.” – Male, Age 30-34
- “I still don't think that people are understanding the importance of water conservation but it is **good that more people are aware because of the campaign.**” – Female, Age 18-24
- “It was effective because it made me start thinking of **how much water I use** on a daily basis.” – Female, Age 25-29
- “Clever way to show why households should limit water usage to necessary and not over use.” – Male, Age 45-54
- “It clearly communicates the need for conservation and strategies to achieve it” – Female, Age 45-54
- “It shows many ways to conserve water and explains the importance of water to the community.” - Female, Age 18-24
- “It just brings the need to save water to your attention.” – Male, Age 35-44
- “It made me look at my water usage.” – Female, Age 30-34
- “It got me to spread awareness about the water problem in Dallas.” – Male, Age 25-29

**No Lasting Impact**
*Of those who say the ad is NOT effective, n=26*

- “I'm not sure it reaches audience that needs to reach. I don't think it provides enough urgency to get anybody to change their water usage.” – Male, Age 30-34
- “I have only seen the campaign when specifically looking something up about the Dallas water utilities but don’t see it advertised elsewhere, so not sure how many people it is reaching.” – Female, Age 30-34
- “Not enough marketing power to get the masses on board.” – Male, Age 25-29
- “People don't pay attention to the warnings. Most of the time it goes unread.” – Female, Age 35-44
Awareness of conservation requirements and potential fines remains consistent with past years

AWARENESS OF MAXIMUM TWICE WEEKLY WATERING SCHEDULE
Before taking this survey, were you aware of any of the following? Showing All; % Yes

- The "Maximum Twice Weekly Watering Schedule" is a permanent requirement for residents and businesses, and part of the Water Conservation Ordinance in Dallas.

- If you violate the Water Conservation Ordinance, you can be fined between $250 and $2,000 per violation.

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aware of schedule</td>
<td>68</td>
<td>63</td>
<td>66</td>
<td>65</td>
<td>63</td>
</tr>
<tr>
<td>Aware of fines</td>
<td>61</td>
<td>55</td>
<td>60</td>
<td>52</td>
<td>51</td>
</tr>
</tbody>
</table>
Residents remain generally aware of Dallas Water’s efforts in the community, but could benefit from learning more about watering times and mandates.

**Awareness of Dallas’ Water Conservation Efforts**

Have you heard, seen or read anything lately about the City of Dallas doing any of the following? Showing % All

<table>
<thead>
<tr>
<th>Year</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>76</td>
<td>21</td>
</tr>
<tr>
<td>2015</td>
<td>71</td>
<td>27</td>
</tr>
<tr>
<td>2016</td>
<td>69</td>
<td>29</td>
</tr>
<tr>
<td>2017</td>
<td>62</td>
<td>34</td>
</tr>
<tr>
<td>2018</td>
<td>64</td>
<td>35</td>
</tr>
</tbody>
</table>

- Prohibiting the watering of lawns between the hours of 10 a.m. and 6 p.m. from the months of April to October.

<table>
<thead>
<tr>
<th>Year</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>65</td>
<td>31</td>
</tr>
<tr>
<td>2015</td>
<td>60</td>
<td>35</td>
</tr>
<tr>
<td>2016</td>
<td>60</td>
<td>36</td>
</tr>
<tr>
<td>2017</td>
<td>55</td>
<td>40</td>
</tr>
<tr>
<td>2018</td>
<td>58</td>
<td>36</td>
</tr>
</tbody>
</table>

- Mandating a watering schedule of "No More Than Twice Per Week."

<table>
<thead>
<tr>
<th>Year</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>44</td>
<td>52</td>
</tr>
<tr>
<td>2015</td>
<td>42</td>
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<tr>
<td>2016</td>
<td>42</td>
<td>54</td>
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<tr>
<td>2017</td>
<td>44</td>
<td>51</td>
</tr>
<tr>
<td>2018</td>
<td>40</td>
<td>53</td>
</tr>
</tbody>
</table>

- Offering free toilets to qualified households under the Toilet Replacement Program.
Awareness of landscape seminars and free sprinkler system checkups has increased somewhat from last year.

AWARENESS OF DALLAS’ WATER CONSERVATION EFFORTS
Have you heard, seen or read anything lately about the City of Dallas doing any of the following? Showing % All

<table>
<thead>
<tr>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
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</thead>
<tbody>
<tr>
<td>Yes</td>
<td>41</td>
<td>40</td>
<td>42</td>
<td>34</td>
</tr>
<tr>
<td>No</td>
<td>54</td>
<td>55</td>
<td>54</td>
<td>60</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>21</td>
<td>20</td>
<td>24</td>
<td>18</td>
</tr>
<tr>
<td>No</td>
<td>72</td>
<td>75</td>
<td>72</td>
<td>75</td>
</tr>
</tbody>
</table>

- Offering "Water-Wise" landscape seminars.
- Offering free checkups for automatic sprinkler systems.
- Offering weekly watering advice by text and email.
The percentage of Dallas residents who have changed their behavior after ad exposure has continued to decline since 2016

CHANGE IN WATER USE BEHAVIOR
Over the past few years, have you changed your behavior as it relates to water use as a result of what you have read, heard or seen from public service watering guideline messages and educational tips? Showing % All

2014 2015 2016 2017 2018
Yes 71 71 64 63 60
No 27 28 33 34 36
Dallas residents are most likely to see and hear information regarding water conservation in their water bills and on TV.

**SOURCE OF WATER CONSERVATION INFORMATION**

If you have seen, heard, or read advertisements or public service messages recently related to saving water or water conservation

Have you seen, read or heard ads or messages relating to water conservation and saving water from the following sources?

Showing % All, “Yes”

- **TV**: 2014: 76%, 2015: 70%, 2016: 63%, 2017: 70%, 2018: 75%
- **Internet, excluding Facebook**: 2014: 35%, 2015: 45%, 2016: 46%, 2017: 46%, 2018: 45%
- **Newspaper**: 2014: 30%, 2015: 32%, 2016: 36%, 2017: 39%, 2018: 37%
- **Billboard**: 2014: 21%, 2015: 26%, 2016: 30%, 2017: 31%, 2018: 37%
- **Something else**: 2014: 12%, 2015: 18%, 2016: 12%, 2017: 18%, 2018: 12%

Dallas residents prefer to receive news and information through the mail or via email; TV remains their preferred secondary source.

**PREFERRED WAY TO HEAR NEWS**

*How would you prefer to receive news and information from Dallas Water Utilities and on local events in the Dallas area? Please select all that apply. Showing % All*

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email</td>
<td>42</td>
<td>46</td>
</tr>
<tr>
<td>Mail</td>
<td>51</td>
<td>45</td>
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<tr>
<td>Television</td>
<td>42</td>
<td>43</td>
</tr>
<tr>
<td>Social media</td>
<td>24</td>
<td>27</td>
</tr>
<tr>
<td>Newspaper</td>
<td>19</td>
<td>21</td>
</tr>
<tr>
<td>Radio</td>
<td>21</td>
<td>20</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Dallas residents who prefer to receive information on Conservation through social media prefer get it via Facebook over any other platform.

**PREFERRED SOCIAL MEDIA PLATFORMS**

[If prefer social media] Through which social media platforms would you prefer to receive news and information from Dallas Water Utilities and on local events in the Dallas area? Coded Open-End, n=135

- Facebook: 74 (2017) vs 83 (2018)
- Instagram: 30 (2017) vs 30 (2018)
Executive Summary

Residents continue to rate Dallas Water Utilities’ performance — and the quality of their water and sewer services — highly.

Water conservation is seen as highly important, and behaviors surrounding conservation remain stable.
  • Water conservation is seen by most to be very important — residents are either more concerned, or as concerned, as they were last year, and are generally positive about the availability of water.

Awareness of the “Water is Awesome” campaign is higher this year, and ads remain effective among those who have seen them.
  • Awareness of Water Conservation Ordinance fines, watering times, and mandates have remained largely stable, with some increased awareness of offers available to the community.

Increased promotion of water conservation efforts can raise overall awareness and effectiveness.
  • We must continue to engage our customers with fresh, new messaging using a variety of platforms
  • Focus on areas of greatest potential water loss including outdoor irrigation and ICI customers
Holly R. Holt-Torres
City of Dallas Water Conservation Management
Office of Environmental Quality & Sustainability
Holly.holt@dallascityhall.com

www.SaveDallasWater.com