

# Memorandum



Date: January 2, 2015

To: Honorable Mayor and Members of the City Council

Subject: Dallas Water Utilities Drought Status Update Briefing

Attached is a briefing that will be presented to the City Council on Wednesday, January 7, 2015. The briefing will provide an update on the current water supply status, an overview of the Drought Contingency Plan and recommended changes to watering restriction enforcement. The briefing includes a recommendation to enter Stage 1 of the drought contingency plan effective April 1, 2015 coincidental with the annual time of day watering restrictions.

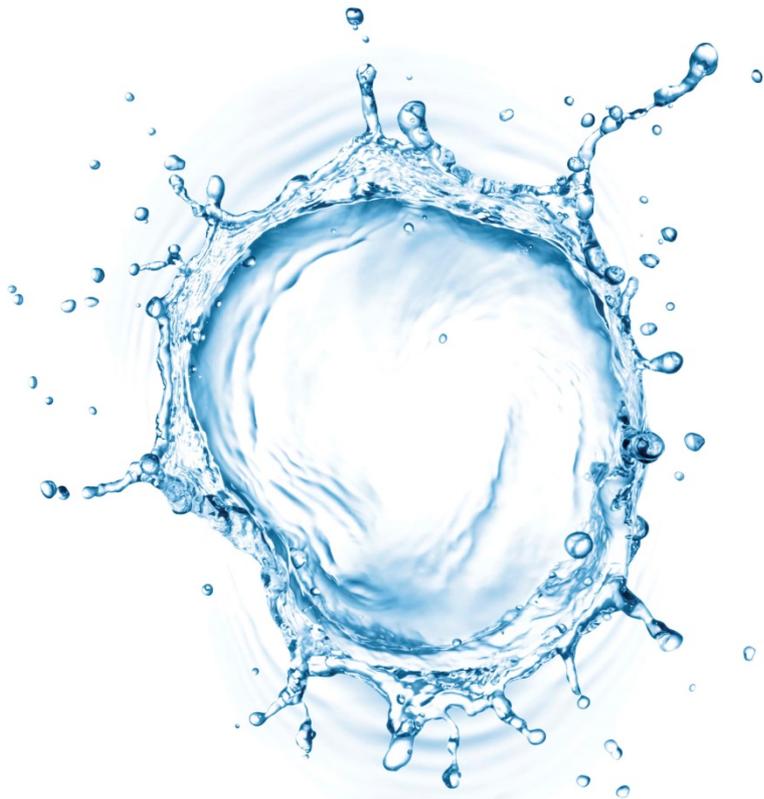
Please let me know if you should need additional information.



Mark McDaniel  
Assistant City Manager

c: A.C. Gonzalez, City Manager  
Warren M.S. Ernst, City Attorney  
Craig D. Kinton, City Auditor  
Rosa A. Rios, City Secretary  
Daniel F. Solis, Administrative Judge  
Ryan S. Evans First Assistant City Manager  
Eric D. Campbell, Assistant City Manager  
Jill A. Jordan, P.E., Assistant City Manager  
Joey Zapata, Assistant City Manager  
Jeanne Chipperfield, Chief Financial Officer  
Sana Syed, Public Information Officer  
Elsa Cantu, Assistant to the City Manager – Mayor & Council  
Jo M. (Jody) Puckett, P.E., Director

# Dallas Water Utilities Drought Status Update



**Dallas City Council  
January 7, 2015**



# Briefing Purpose



- Provide an overview and update on:
  - Current Water Supply Status and Outlook
  - Drought Contingency Plan Overview
  - Watering Restriction Enforcement

# Outline

- Current Water Supply Status and Outlook
- Drought Plan Overview
- Watering Restriction Enforcement
- Summary and Next Steps
- Appendix



# Current Water Supply Status and Outlook



# Current Lake Conditions



Lake Tawakoni 2014

- Current hydrologic drought began 2010
  - Lakes haven't been full since May 2010
  - 2011 worst one-year drought on record
  - Dallas had the lowest one month precipitation on record September 2014
  - 2014 13<sup>th</sup> driest year on record
  
- Dallas' water supplies are currently 35.36% depleted (January 2, 2015)
  - One month ago **35.15%** depleted
  - One year ago **27.7%** depleted

# Water Conservation Measures

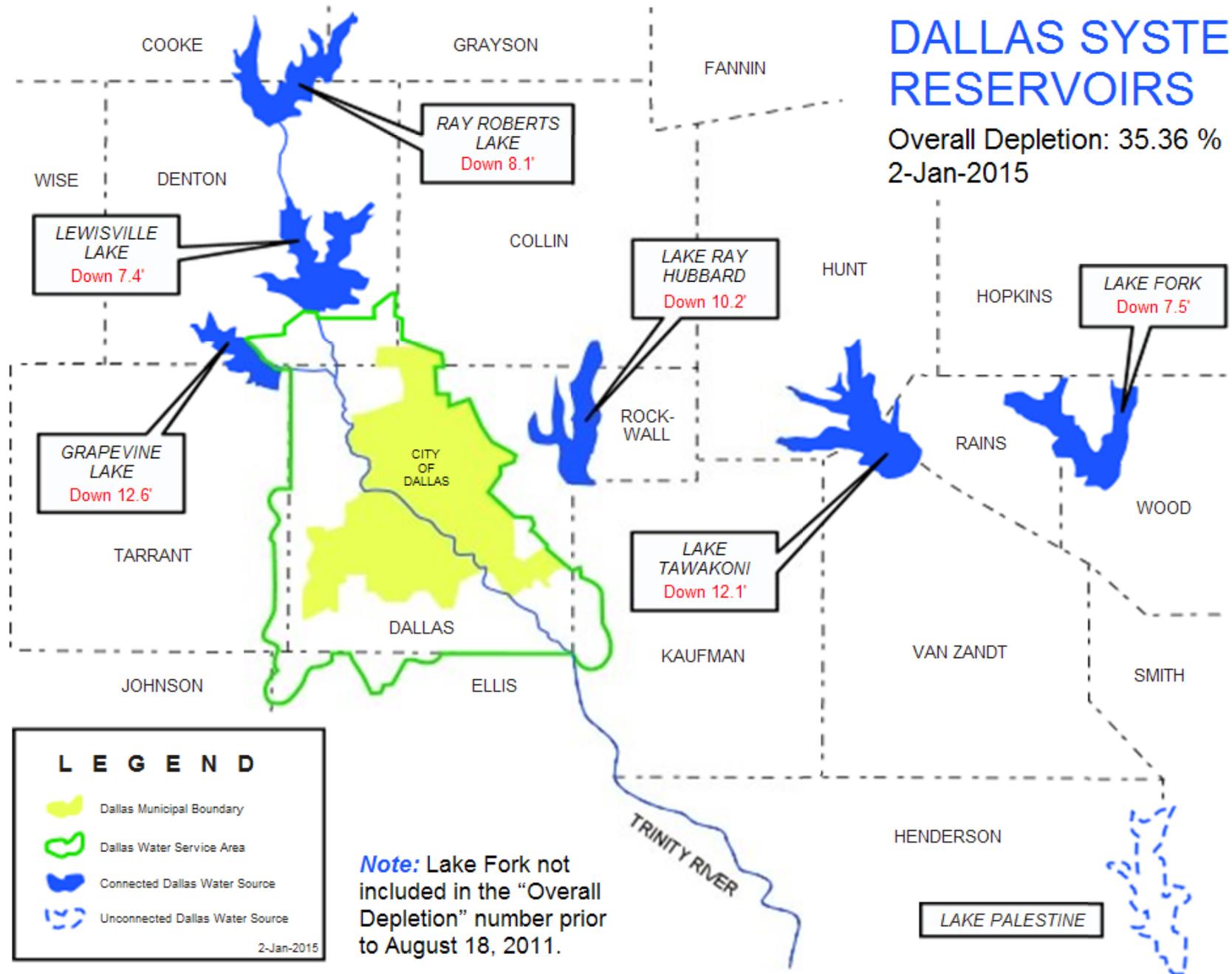


- Water conservation programs currently in effect have mitigated drought impact on water supply
  - Maximum Twice Weekly Watering Schedule
  - Time of day watering restrictions from April 1 through October 31
  - Residential toilet replacement program
  - Irrigation system check-ups for City of Dallas customers
  
- Drought measures currently in Drought Contingency Plan are restrictions used to ensure that water is available to meet public health, welfare and safety needs during times of shortage



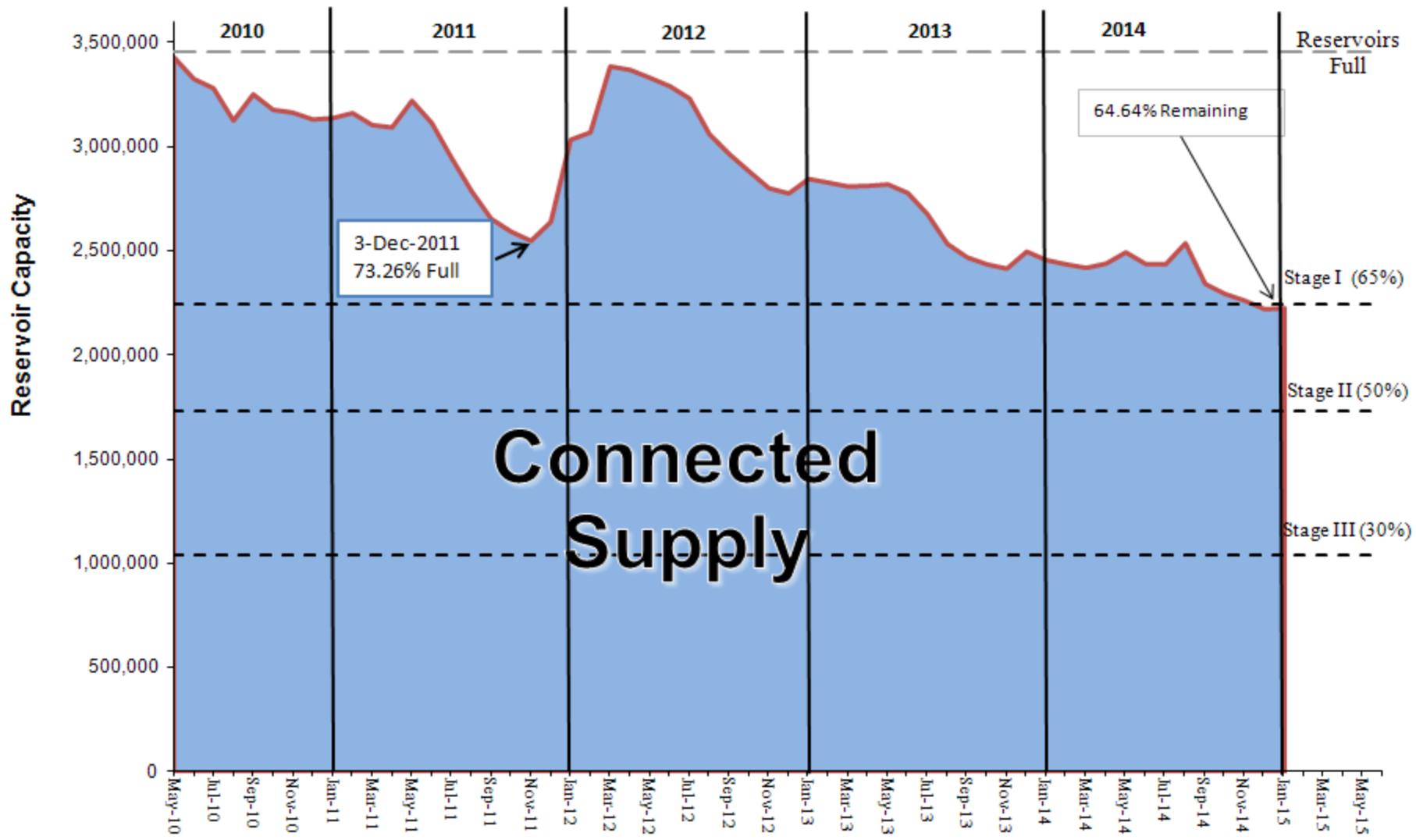
# DALLAS SYSTEM RESERVOIRS

Overall Depletion: 35.36 %  
2-Jan-2015



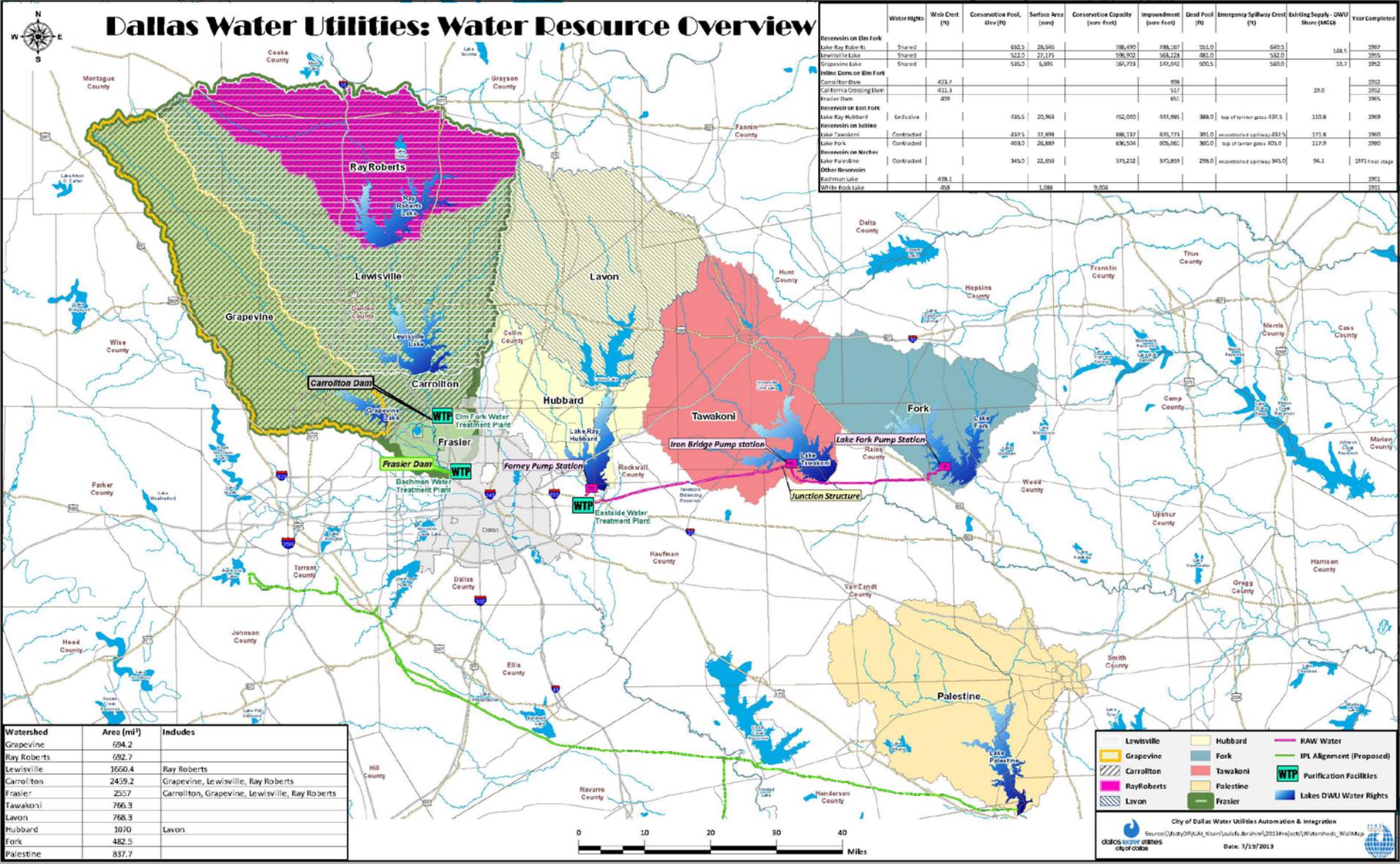
# Total Reservoir System Condition Analysis

(Lakes Ray Roberts, Lewisville, Grapevine, Ray Hubbard, Tawakoni and Fork)  
As of January 2, 2015



# Dallas Water Utilities: Water Resource Overview

Water Rights	Walt Cost (\$)	Conservation Pool Size (ft)	Surface Area (acres)	Conservation Capacity (acre feet)	Impoundment (acre feet)	Dead Pool (ft)	Emergency Spillway Crest (ft)	Existing Supply - DWU Share (MGD)	Year Completed	
Reservoirs on Elm Fork										
Lake Ray Roberts	Shared		632.5	28,545	788,490	788,167	551.0	640.5	18.4	2007
Lewisville Lake	Shared		522.0	27,175	596,902	568,128	481.0	532.0		2015
Grapevine Lake	Shared		535.0	9,899	161,738	147,642	500.5	540.0	13.7	2012
Indian Dams on Elm Fork										
Carrollton Dam		473.7				908				2012
Carl Eberta Crossing Dam		411.3				517			20.0	2012
Fraser Dam		490				651				2005
Reservoirs on Elm Fork										
Lake Ray Hubbard	Exclusive		435.5	20,363	452,010	547,885	388.0	top of tailwater gate 437.5	110.8	2009
Reservoirs on Sabies										
Lake Tawakoni	Contracted		437.5	37,494	886,137	935,773	391.0	reconstructed spillway 437.5	171.8	2010
Lake Fork	Contracted		403.0	26,889	636,524	675,061	360.0	top of tailwater gate 426.0	117.9	2000
Reservoirs on Neches										
Lake Palestine	Contracted		345.0	22,055	375,232	375,859	298.0	reconstructed spillway 345.0	94.1	2011 final stage
Other Reservoirs										
Bachman Lake		438.1								2011
White Rock Lake		429		1,088	9,504					2011



Watershed	Area (mi <sup>2</sup> )	Includes
Grapevine	694.2	
Ray Roberts	692.7	
Lewisville	1650.4	Ray Roberts
Carrollton	2439.2	Grapevine, Lewisville, Ray Roberts
Frasier	257	Carrollton, Grapevine, Lewisville, Ray Roberts
Tawakoni	766.3	
Lavon	768.3	
Hubbard	1070	Lavon
Fork	482.5	
Palestine	837.7	



- Lewisville
- Grapevine
- Carrollton
- Ray Roberts
- Lavon
- Hubbard
- Fork
- Tawakoni
- Palestine
- Frasier

- RAW Water
- IPL Alignment (Proposed)
- WTP Purification Facilities
- Lakes DWU Water Rights

City of Dallas Water Utilities Automation & Integration

Source: \\cityofDallas\Users\julia.f.berghm\2013\Projects\Watersheds\_Maps

**dallas water utilities** city of dallas

Date: 3/19/2013



# **Drought Contingency Plan Overview**

# Dallas' Drought Contingency Plan

DWU Stages and Triggers	
Stage	Trigger
Stage 1	65% full (35% depleted)
Stage 2	50% full (50% depleted)
Stage 3	30% full (70% depleted)

- Current Drought Contingency Plan adopted by City Council on February 26, 2014
- Plan is based on a regional model developed to reduce customer confusion and simplify enforcement
- Three Stages and Responses
  - Stage 1 – Twice per week outdoor watering
  - Stage 2 – Once per week outdoor watering
  - Stage 3 – No Outdoor Watering
    - (Except Foundations and Trees)
- Temporary rate surcharge for highest residential and commercial rate tiers in Stages 2 (25% increase) and Stage 3 (50% increase)
- Stage 1 mandatory restrictions:
  - Existing mandatory maximum twice-weekly schedule
  - Enhanced enforcement
  - Vehicle washing restricted to hose with auto shut-off nozzle or commercial car washes
  - Recreational water use resulting in run-off prohibited

# Drought Plan Initiation Process

- Director recommends drought stage to City Manager
- City Manager notifies City Council, implementation process for drought stage starts with public announcement
  - Drought stage is effective for 60 days
  - Council resolution required to extend drought stage beyond 60 days
  - Council may authorize extensions in 120 day increments
- Stage 1 order officially begins when published in newspaper within 24 hours after public announcement
- DWU submits Stage 1 notification to Executive Director of TCEQ within required five (5) business days
- DWU submits Stage 1 notification to other area agencies, hospitals, hotels, commercial businesses, etc.

# Drought Plan Stage 1



Lake Ray Hubbard 2014

- Although current lake levels meet the Dallas Drought Plan criteria to enter Stage 1 (35% depleted) outdoor water use is very low during winter months
- Recommend delay entering Stage 1 until April 1, 2015
  - Time-of-day water requirement begins
  - Outdoor water use increases
- Will continue to monitor:
  - Future precipitation amounts
  - Water supply demands



# **Watering Restriction Enforcement**

# Watering Restriction Enforcement

- Enforcement by Code Compliance
  - DWU funds two FTEs in Code Compliance
- Any person who violates this Plan is guilty of a misdemeanor and could be fined not less than \$250 and not more than \$2,000
- In 2013 Senate Bill 654 amended the Local Government Code authorizing the use of civil adjudication for violations of watering restrictions
  - Allows an alternative to the current City of Dallas criminal citation enforcement process
- Administrative enforcement for watering restriction violations will require changes to Chapters 27 and 49 of the Dallas City Code

# Gains from Civil Citation Enforcement

- Criminal citations
  - Code Officers must serve citation in-person to the responsible party
    - Very difficult – most water violations occur in the pre-dawn or late evening
    - Frequently requires multiple visits by Code Officer to directly contact the responsible party, obtain party's identification and write citation
  - Code Officers must make court appearances for all cases
- Civil citations
  - Code Officers may serve citation by posting citation on property where violation occurred and mailing citation to service address
  - Code Officers only required to make court appearance if specifically requested by defendant, if citation is appealed

# Enhanced Communication of Drought Plan

- Provide education at neighborhood meetings
- Water bill insert/onsert
- Apply signage on Code vehicles with ordinance reminder message
- Include water conservation violations in Code Compliance “dirty dozen” handout
- Place inserts in notice of violation mailings

# Drought Plan Enhanced Outreach and Proactive Enforcement

- Code inspectors to provide periodic enforcement coverage from 4am – 8am and from 8pm – midnight, including weekends
- Night/early morning patrols and area sweeps to focus on areas with high 311 water violation reports
- May issue citations without initial warning during drought plan since mandatory schedule has been in place since April 2012

# Examples of Code Vehicle Signage



**Water.  
Don't waste it!**

**Avoid a citation.**

**SaveDallasWater.com**

**City of Dallas now in**

**Stage 1 Drought  
Mandatory Restrictions**

**Observe the watering schedule. It's the law.**

**SaveDallasWater.com**



**Overwatered  
lawns breed  
West Nile.**

**Observe the watering schedule. It's the law.**

**SaveDallasWater.com**



# Summary and Next Steps

# Summary

- Current hydrologic drought began 2010
  - Dallas' water supplies are 35.36% depleted as of January 2, 2015
  - Precipitation throughout North Texas is approximately 27% below normal
- Water Conservation Programs have mitigated drought impact on water supply
  - Maximum 2X weekly watering schedule has reduced consumption 5 - 6%
  - Demand on non-watering days has decreased 25 to 40 MGD or an average of 8% less than watering days
- Total water use including outdoor water use is very low during the winter months

# Next Steps

## Drought Actions

- January 28, 2015 Agenda will include item amending Chapters 27 and 49 to allow for a civil enforcement process
- Recommend Stage 1 initiated April 1, 2015
- Staff will implement increased proactive code enforcement specifically targeting water use compliance

## Water Conservation Actions

- January 26, 2015 brief Quality of Life & Environment on Water Conservation Program Update
- Summer 2015 complete 2015 Water Conservation Five-Year Strategic Plan Update



# Appendix

- Drought in Texas
- Dallas Drought Plan Triggers and Responses
- Regional Drought Responses

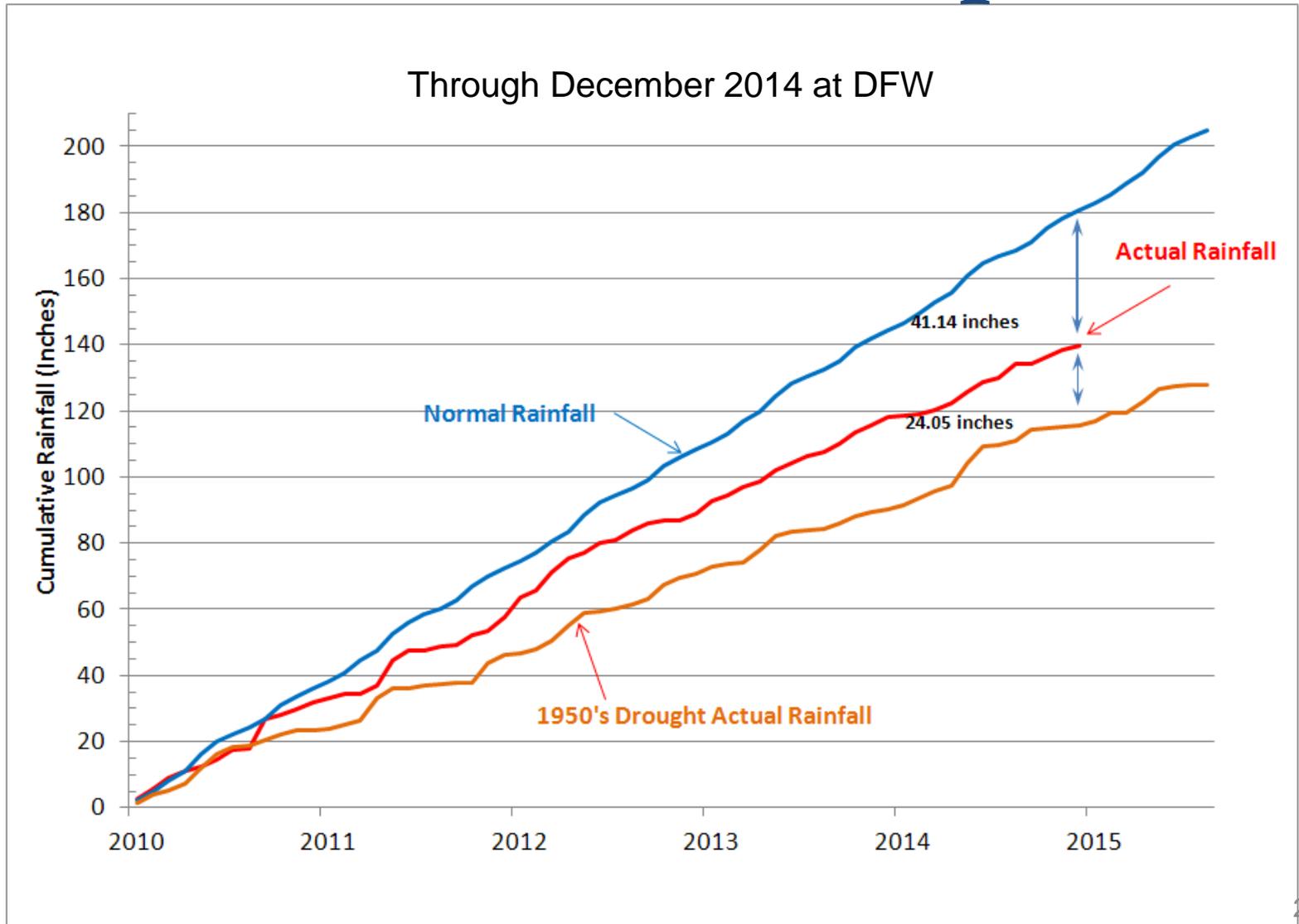
# Droughts in Texas



- Since 1822, at least one drought has hit somewhere in Texas every decade
- A severe drought from 1951 – 57 was a seven year drought and is considered the “drought of record”
  - Salty water diverted from Red River
  - City leaders vowed "never again"
- Drought conditions were experienced in the Dallas area in 1996, 2000, 2006
- The current drought in North Texas is in it’s fourth year. Area lakes have not been full since May 2010.

# Current Drought Conditions

## Dallas' Cumulative Precipitation

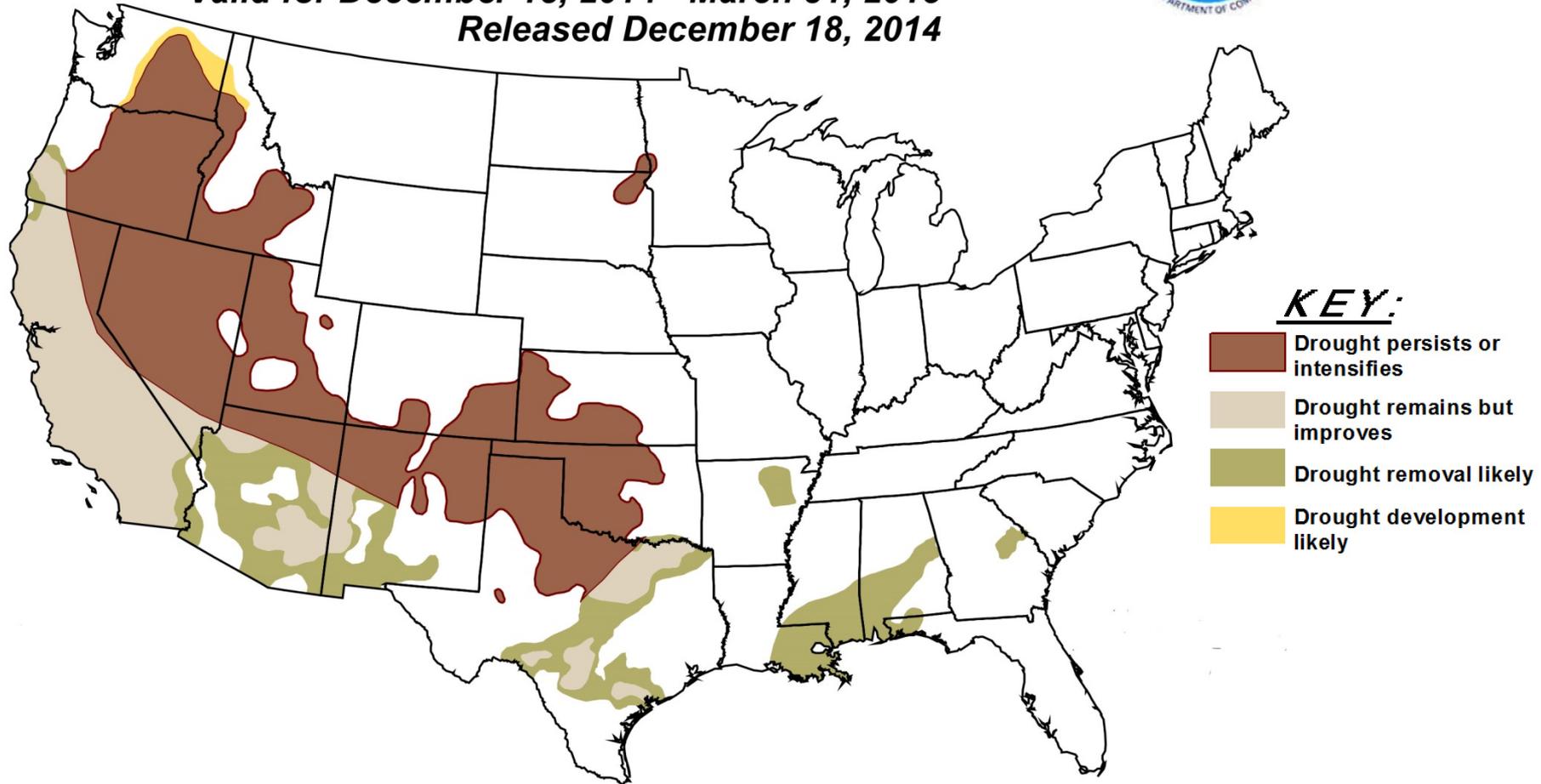


# U.S. Seasonal Drought Outlook

## Drought Tendency During the Valid Period

Valid for December 18, 2014 - March 31, 2015

Released December 18, 2014



- The NWS Climate Prediction Center estimates the outlook for winter months will favor above normal precipitation

# Dallas' Water Rights and Supply

- All surface water is owned by the State of Texas
- Dallas' water rights are based on an agreement to provide service to a defined area, including wholesale customer cities
  - Agreement approved by Council and included in the State water plan
- Safe and sufficient water supply is critical to the economic success of Dallas and its service area
- Existing reservoirs were constructed as a result of planning actions from the 1950s
- Dallas initiated long range water supply plans in 1959, 1975, 1989, 2000, 2005 and 2014
- Goal of long range planning is to ensure sufficient water supply to meet demands through the drought of record

# Stage 1 Drought Triggers and Responses

**Trigger:** 65% Supply Remaining in Reservoirs (35% Depleted)

**Target Reduction Goal:** 5% reduction in total GPCD

## **Mandatory Actions**

- ❑ 1. Mandatory maximum 2-days-per-week landscape irrigation. Drip irrigation, soaker hoses and hand watering is allowed at anytime, on any day
- ❑ 2. Foundations may be watered at any time, on any day with soaker or hand-held hoses or drip irrigation
- ❑ 3. Washing vehicles restricted to hand-held bucket and hose with positive shut-off nozzle. Commercial car washes exempt.
- ❑ 4. Recreational use of water resulting in run-off prohibited
- ❑ 5. Enforcement efforts will increase in all stages through proactive code enforcement

## **Voluntary Actions**

- ❑ 1. Encourage voluntary 1-day- per-week irrigation
- ❑ 2. Discourage planting new landscapes
- ❑ 3. Encourage reduction in frequency of draining or refilling swimming pools
- ❑ 4. Encourage restaurants to serve water by request only
- ❑ 5. Encourage hotels/motels to request multiple day patrons reuse linens instead of changing every day

# Stage 2 Drought Triggers and Responses

**Trigger:** 50% Remaining or 50% Depleted

**Target Reduction Goal:** 15% reduction in total GPCD

## **Mandatory Actions**

- ❑ 1. Mandatory maximum 1 day a week landscape irrigation, residential schedule based on trash pick-up days and commercial customers may water on Wednesdays only. Drip irrigation, soaker hoses and hand watering allowed at anytime on any day.
- ❑ 2. 25% rate increase for high water demand users to discourage consumption and help offset enhanced enforcement costs. Rate applied only to residential customers using more than 15,000 gallons per month, per account; or commercial customers using more than 10,000 gallons and 1.4 times annual average monthly usage per month, per account.

## **Voluntary Actions**

- ❑ 1. Strongly discourage planting new landscapes
- ❑ 3. Encourage further reduction in frequency of draining or refilling swimming pools
- ❑ 4. Encourage restaurants to serve water by request only
- ❑ 5. Encourage hotels/motels to request multiple day patrons reuse linens instead of changing every day

# Stage 3 Drought Triggers and Responses

**Trigger:** 30% Remaining or 70% depleted

**Target Reduction Goal:** 20% reduction in total GPCD

## **Mandatory Actions**

1. Landscape irrigation prohibited, except for trees with hand-held hoses, soaker hoses or drip irrigation only on the 1 day a week Stage 2 schedule
2. Foundations may be watered one day per week on Stage 2 schedule with drip irrigation, soaker hose or hand-held hose
3. Washing of vehicles restricted to commercial car washes
4. Operation of ornamental fountains prohibited except where necessary to support aquatic life
5. No permitting of new pools, spas or fountains. Existing pools may add water to replace evaporation. Draining and refilling of swimming pools allowed only to maintain proper operation and water quality
6. Hosing off paved areas, buildings, windows or other surfaces prohibited.
7. No approval for new or increased water service
8. 50% rate increase for high water demand users. Rate applied only to residential customers using more than 15,000 gallons per month, per account; or commercial customers using more than 10,000 gallons and 1.4 times annual average monthly usage per month, per account.

# Granting of Temporary Variances

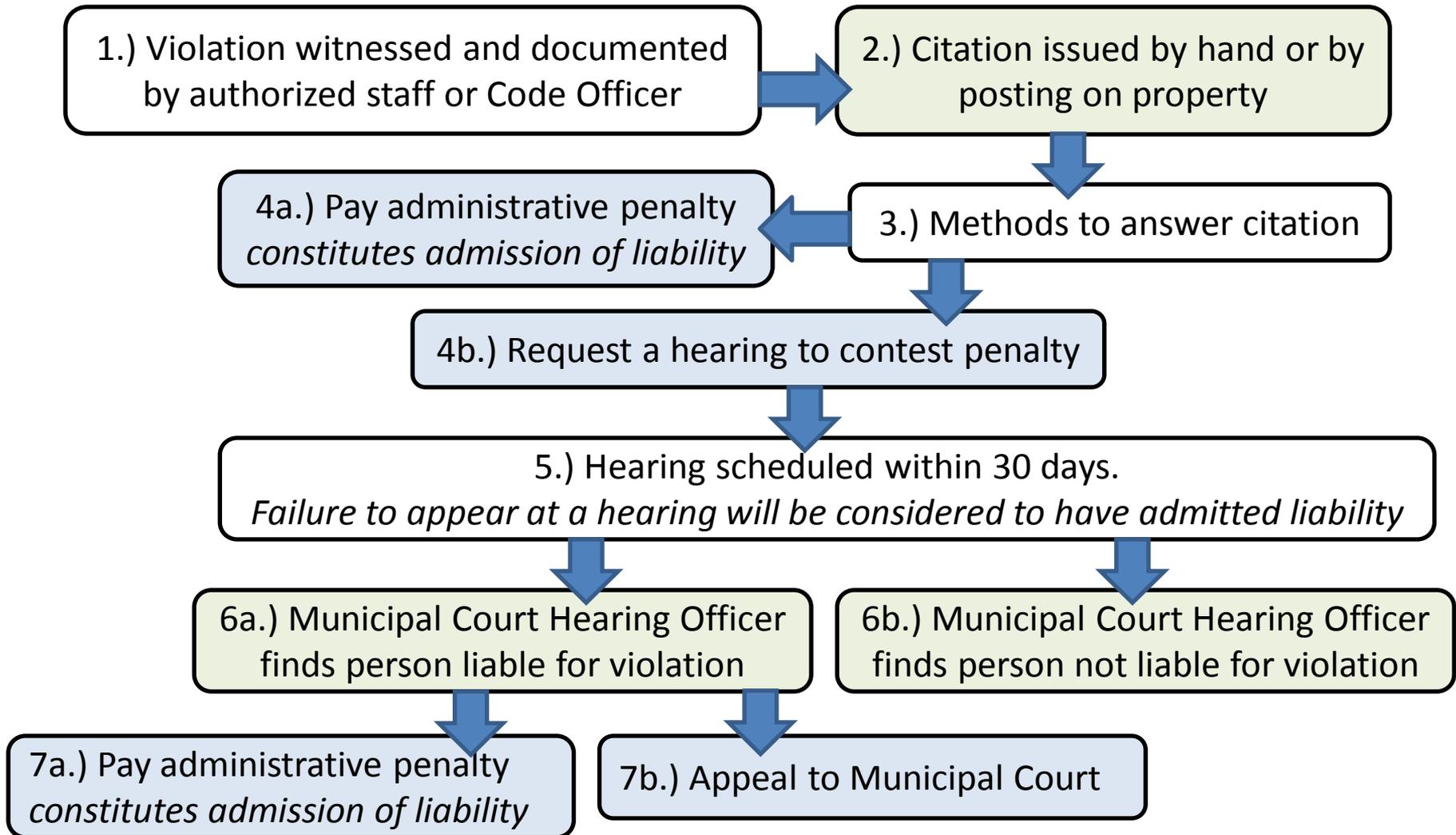
- Under Chapter 49.20 and 49.21 of the Dallas City Code and the Drought Contingency Plan, the Director may grant variances in special cases to persons demonstrating extreme hardship and need
- Variances may be granted only under the following circumstances:
  - Applicant must sign a compliance agreement on approved forms agreeing to use water only in the amount and manner permitted in the variance
  - Granting the variance must not cause an immediate significant reduction in the city's water supply
  - The extreme hardship or need must relate to the health, safety or welfare of the person requesting it, and
  - The health, safety and welfare of other persons must not be adversely affected by granting the variance
- A granted variance may be revoked when the director determines the conditions of the variance are no longer applicable, the terms of compliance are being violated or the health, safety or welfare of other persons required revocation

# Enforcement Process Comparison

Current Criminal Process	Proposed Civil Process
Enforced by City of Dallas Code Compliance	Same
Violation must be witnessed by enforcement staff	Same, will include photography or video for watering violations
Notice of Criminal Violation must be served in person	Violations may be served in person, posted on door or in yard, or by mail
Court appearances commonplace	Court appearances only if requested on appeal
Payment of penalties and fees made to court	Same

# Administrative Adjudication Procedure

(Dallas City Code 27-16.13)



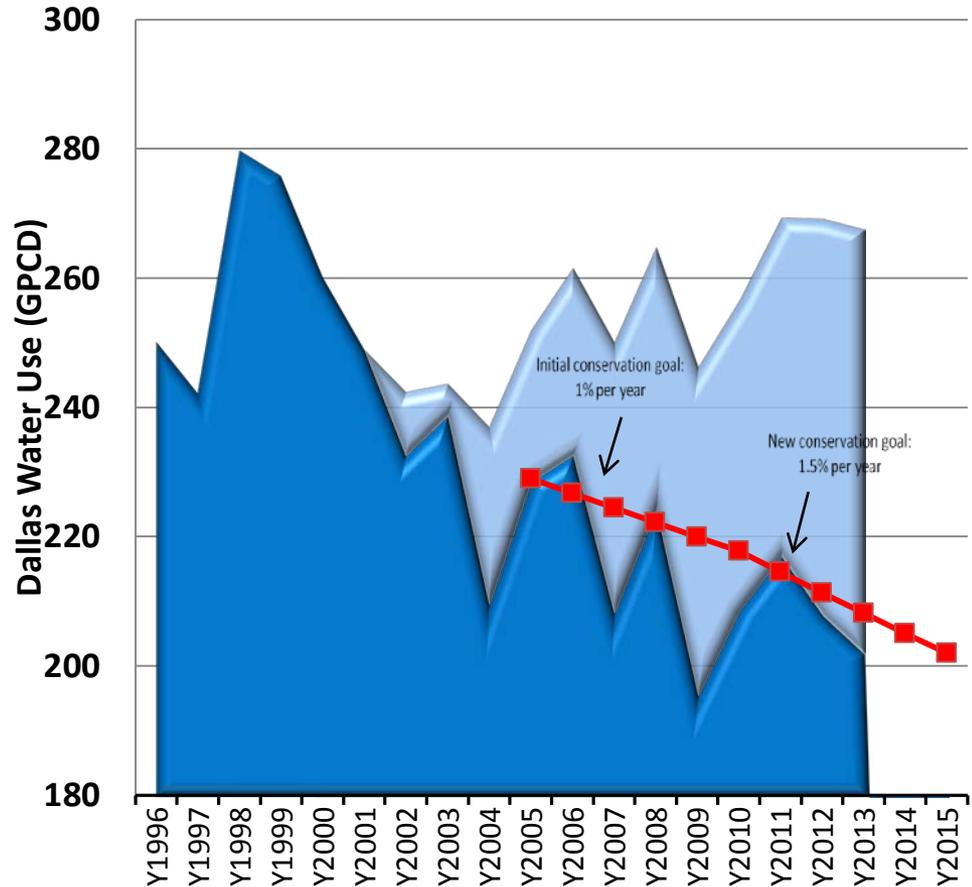
# Dallas Water Conservation Accomplishments

Measures adopted by Council have had positive impacts:

- Estimated 212 billion gallons of water saved since 2001 ( extends supply by almost 1.5 years)
- GPCD has reduced approximately 27% from FY01 to FY14
- Reduced consumption has mitigated the impact of drought conditions on water supply

Dallas continues to pursue additional conservation strategies:

- 48% of future water supply will be met through conservation and reuse based on the Long Range Water Supply Plan's recommended strategies



# 2015 Water Conservation Five-Year Strategic Plan

## Key Initiatives for Additional Conservation

- Water loss control and system efficiencies
  - Including Water Treatment Plant Efficiencies
- New rebate and incentive programs
- Increased education and outreach to DWU Wholesale Customers
- Targeted focus on high-use customer segments
- Increased use of mobile technologies to impact consumer behavior

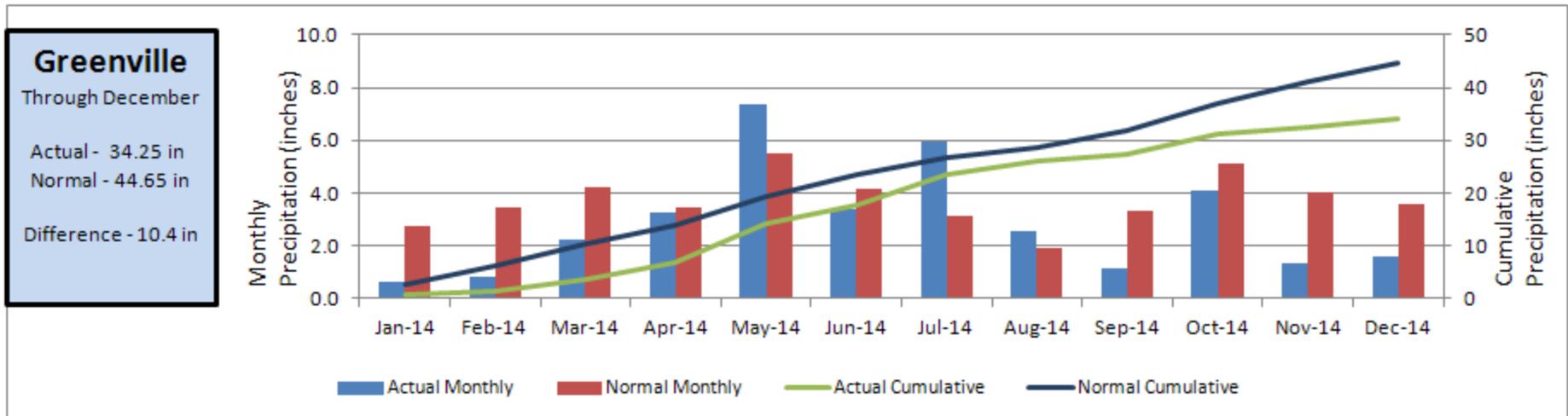
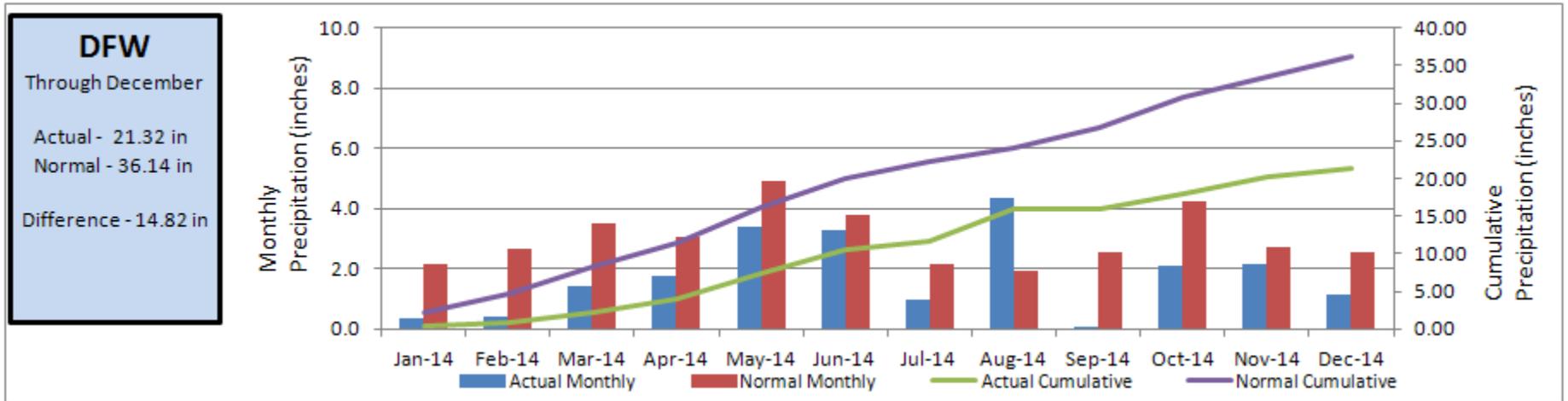


THE  
Lawn Whisperer  
Says

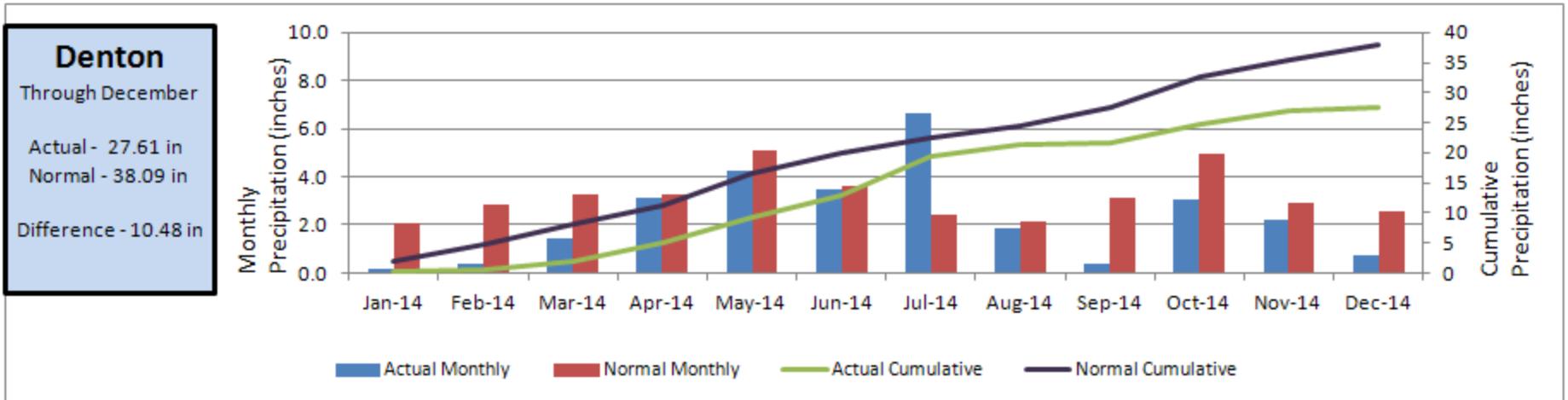
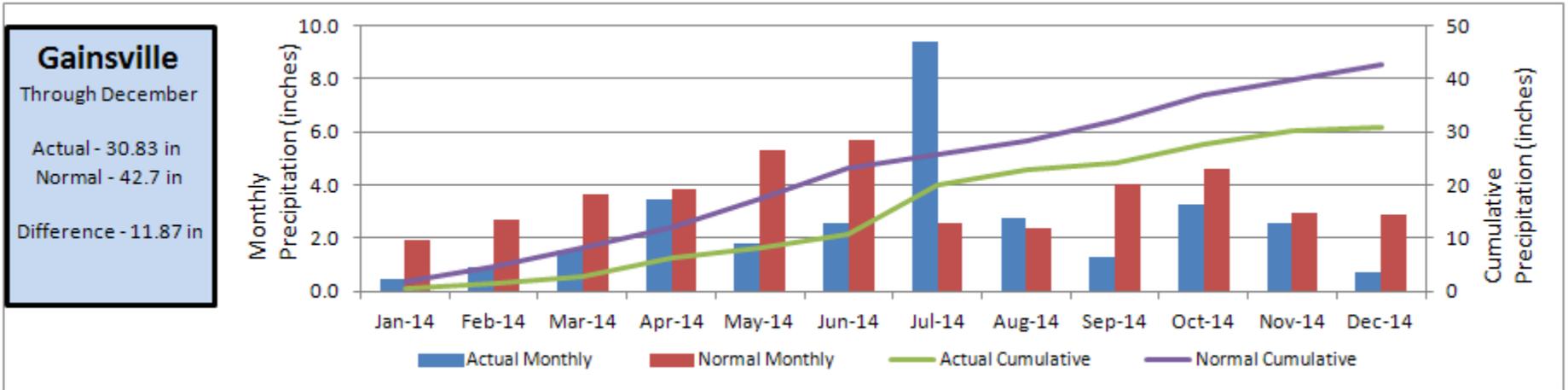
*“Water just twice a week or less.  
Your lawn says that’s plenty.”*

SaveNorthTexasWater.com

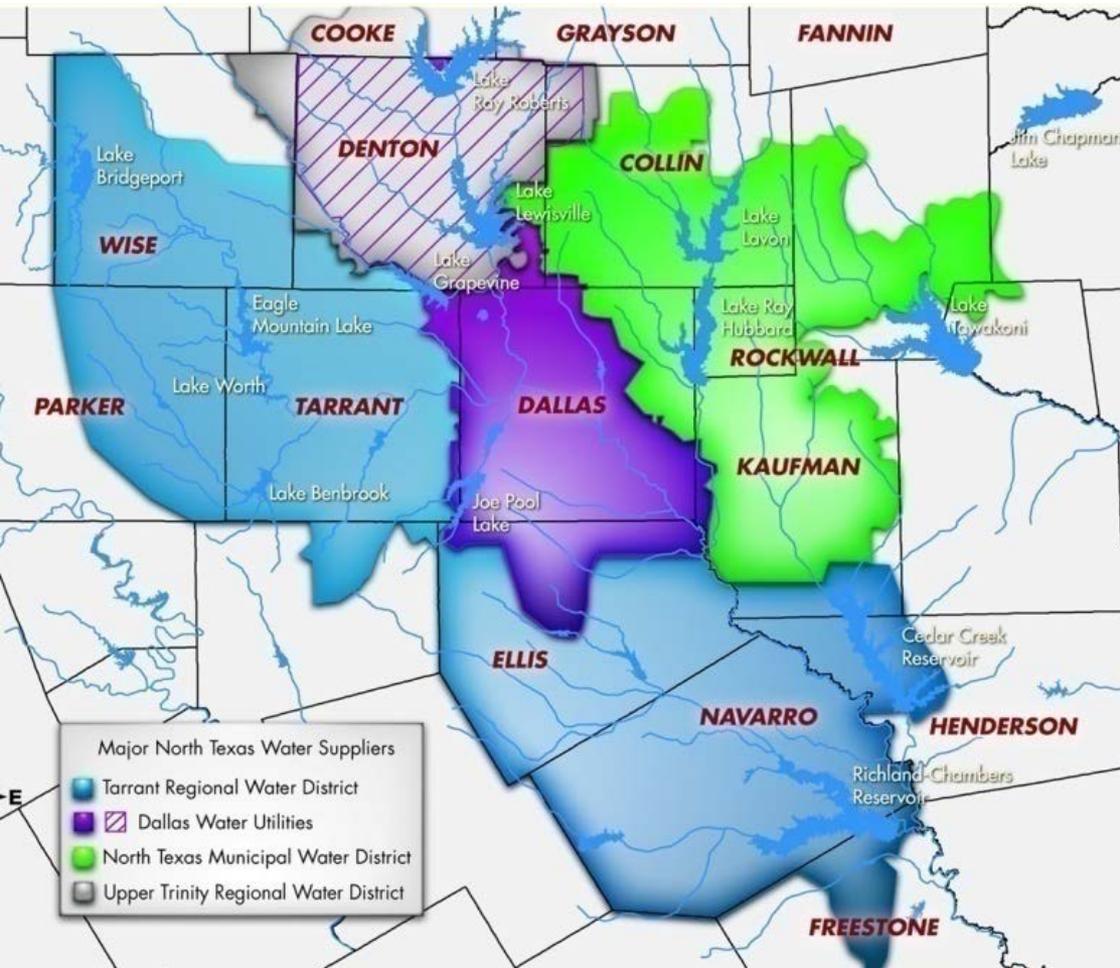
# 2014 Actual to Normal Precipitation Comparison



# 2014 Actual to Normal Precipitation Comparison



# Regional Drought Responses



- North Texas Municipal Water District (NTMWD)
  - Stage 3 “seasonal”: outdoor watering 1X every 2 weeks
  - Stage 4: 0 outdoor watering begins at 35% full in major supply lakes; currently 46% in Lake Lavin and 32% in Lake Jim Chapman
  
- Tarrant Regional Water District (TRWD)
  - Stage 1: 2X weekly watering
  - Stage 2: 1X weekly watering begins at 60% cumulatively full in supply lakes, currently 61%