

Memorandum



CITY OF DALLAS

DATE August 12, 2011

TO Honorable Mayor and Members of the City Council

SUBJECT Water Operations Management Plan Briefing – Water Utilities Department

Attached is a briefing that will be presented on Wednesday, August 17, 2011. The briefing will provide an overview of the City's Water Operations Management Plan, to include the current drought weather conditions and impact on the City's water supply, as well as possible restrictions in 2012 due to ongoing construction at the East Side Water Treatment Plant.

Please let me know if you have any questions or need additional information.

A handwritten signature in black ink, appearing to read 'Forest E. Turner'.

Forest E. Turner
Assistant City Manager

Attachment

c: Mary K. Suhm, City Manager
Thomas P. Perkins, Jr., City Attorney
Rosa Rios, Interim City Secretary
Craig Kinton, City Auditor
Judge C. Victor Lander, Administrative Judge
A.C. Gonzalez, First Assistant City Manager
Ryan S. Evans, Assistant City Manager
Jill A. Jordan, P.E., Assistant City Manager
Joey Zapata, Interim Assistant City Manager
Jeanne Chipperfield, Chief Financial Officer
Frank Libro, Public Information Officer
Helena Stevens-Thompson, Assistant to the City Manager – Council Office

Water Operations Management Plan

City of Dallas Water Utilities
Council Briefing
August 17, 2011



Briefing Purpose

- Provide an overview of the Water Operations Management Plan
- Provide an update on potential implementation of management plan associated with:
 - Restrictions in 2012 due to ongoing construction at the East Side Water Treatment Plant
 - Current drought weather conditions and impact on the City's water supply



Briefing Outline

- Water Operations Management Plan
- Impact of Ongoing Construction at the East Side Water Treatment Plant
- Current Drought Outlook and Water Supply Forecast
- Appendix

Water Operations Management Plan

- The Management Operations Plan establishes standard operating policies, procedures, methods and processes for the operation of the City's water system
- As part of this plan, the City Council adopted drought contingency and emergency water procedures on June 9, 2010
- The contingency and emergency procedures describe the conditions that require short-term water demand management and establish policies and procedures that offer strategies for a timely response

POSSIBLE TRIGGERING CRITERIA
Reduction in Available Water Supplies
Treatment or Distribution System Capacity Limitations
System Vulnerability
System Failures
Other

Process to Implement Contingency and Emergency Measures

- Utility Director responsible for ongoing monitoring of water system
- Director is responsible for recommending implementation of contingency and emergency procedures to City Manager
- City Manager may enact the measures for up to 60 days
- City Council may extend the measures beyond original 60 days for additional time periods, not to exceed 120 days each
- To be effective, measures must be published in a local newspaper within 24 hours of announcement

Water Demand Management Triggers

□ Treated Water Capacity Management Plan Triggers

- Stage 1 - Exceeds 85% of delivery capacity for 4 consecutive days
- Stage 2 - Exceeds 90% of delivery capacity for 3 consecutive days
- Stage 3 - Exceeds 95% of delivery capacity for 2 consecutive days
- Stage 4 - Exceeds 98% of delivery capacity for 1 consecutive day

□ Raw Water Supply Management Plan Triggers

- Stage 1 – 35% of supplies depleted
- Stage 2 – 45% of supplies depleted
- Stage 3 – 55% of supplies depleted
- Stage 4 – 70% of supplies depleted

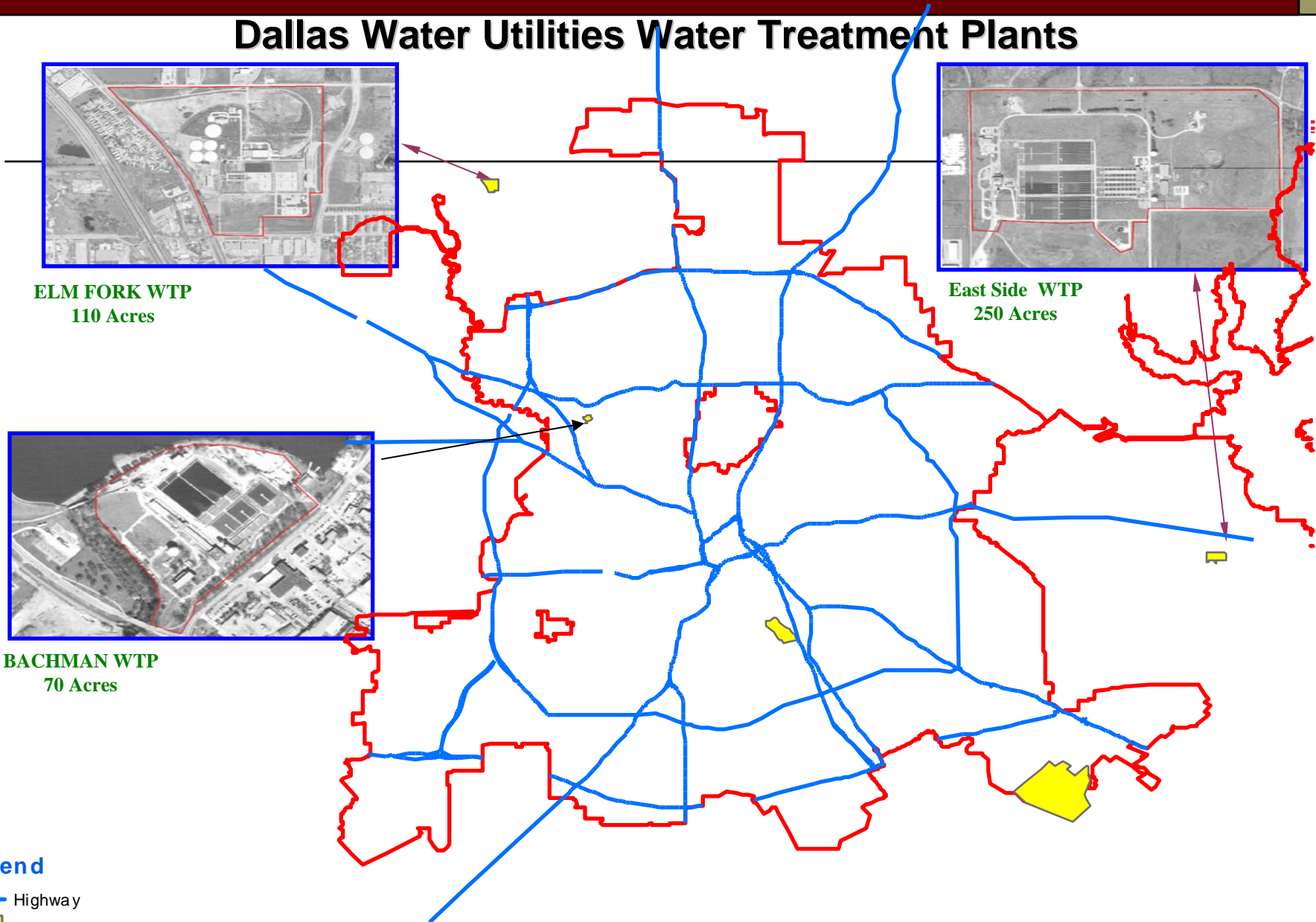


Water Delivery System

Water Treatment Plants

- The City has three water treatment plants:
 - Elm Fork and Bachman on the West side of the city
 - East Side on the East
 - Locations are shown on the next slide
- Total treatment capacity is 900 MGD
 - East Side 440 MGD
 - Elm Fork 310 MGD
 - Bachman 150 MGD

Dallas Water Utilities Water Treatment Plants



Legend

- Highway
- ⊕ Water/Wastewater Treatment Plant
- ⬭ City Limits

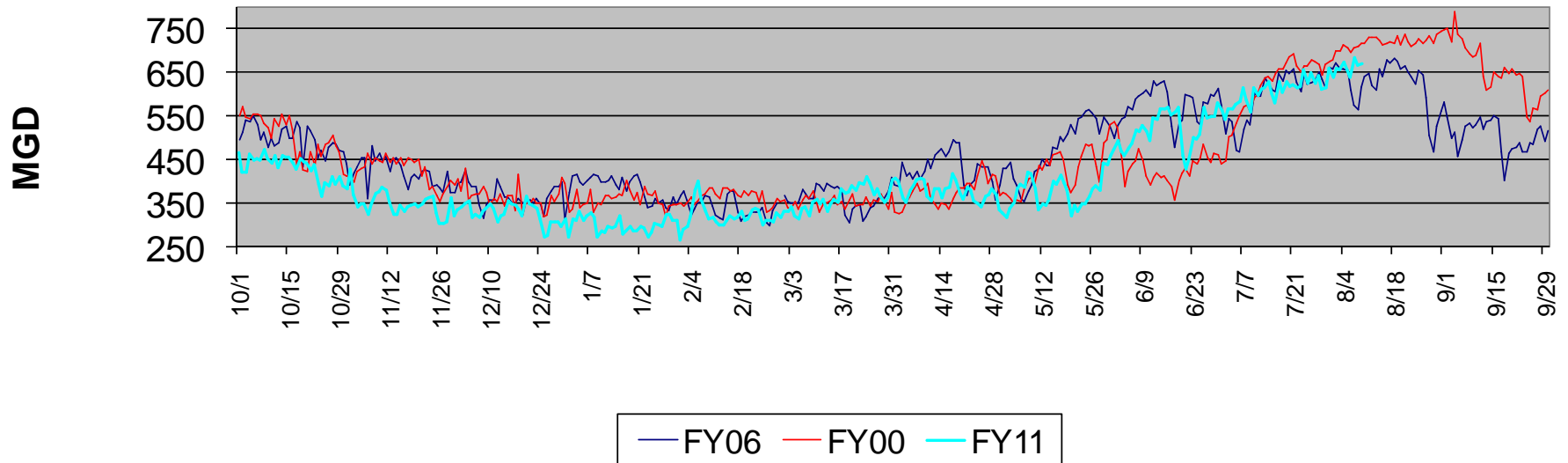
FY12 Treatment Plant Restriction

- Ongoing construction at the East Side Water Treatment Plant will result in an overall delivery capacity restriction of 650 MGD for Dallas' treated water system in 2012

- As a result, this restriction (along with drought weather conditions) may trigger the City's Emergency Water Management Plan
 - Stage 1 would likely begin in the **Spring 2012** timeframe
 - Stage 1 could be triggered at 85% of 650 MGD delivery capacity or 553 MGD for 4 consecutive days

Dallas Water Utilities System

Water Delivered FY00 and 06 vs. FY11



FY00 and FY06 were the last two severe hot and dry years, with record pumpage.



Current Drought Outlook and Water Supply Forecast

Comparison of Drought and Conservation Measures

- Conservation measures are used to achieve more efficient use of water resources
- Conservation examples include:
 - Water Wise landscaping (Xeriscape)
 - Time of Day Watering
 - Low Flow Showerheads
 - Repairing leaking faucets
 - Reducing the frequency of watering lawns
- Drought measures are restrictions used to ensure that water is available to meet public health, welfare, and safety needs
- Drought examples include
 - Restricting lawn watering
 - Prohibiting permitting or filling of swimming pools
 - Prohibiting operation of ornamental fountains
 - Prohibiting recreational water use

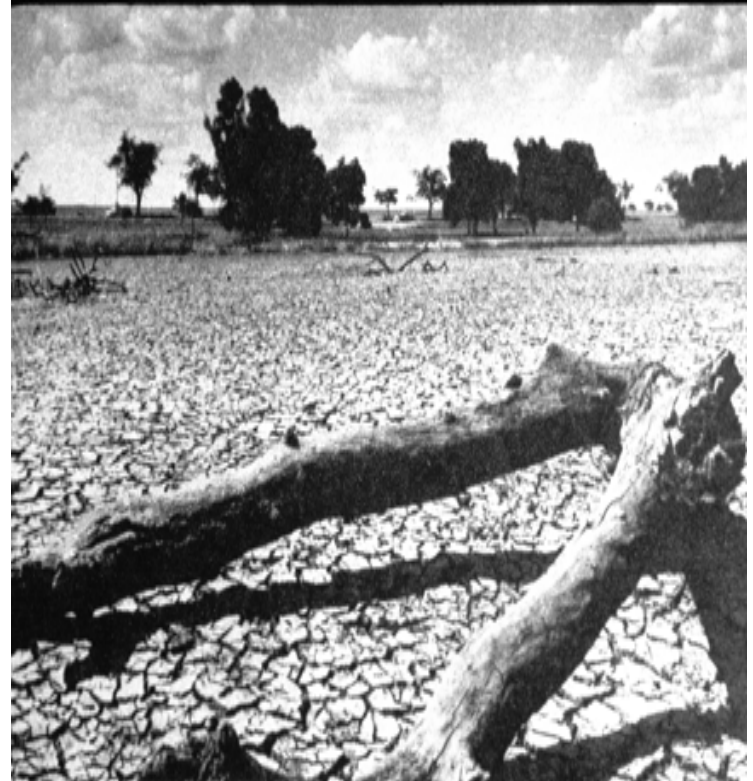
Monitoring the Drought

- Perform Drought Simulations
 - Prior to drought
 - During drought
- Water Supply and Drought Monitoring
 - Lake Levels
 - Reservoir Capacity
 - Long Range Weather forecasts
 - Palmer Drought Index
- Initiate drought plan stages as appropriate



Historical Drought & Drought-like Conditions

- Since 1822, at least one drought has hit somewhere in Texas every decade
- A drought can be generally defined as a period of relatively little or no rainfall
- Severe drought from 1951 - 57
 - Salty water diverted from Red River
 - City leaders vowed "never again"
- Dallas' water supply now planned to provide water through the drought of record
- Drought conditions experienced in the Dallas area in 1996, 2000, 2006 and **since May 2010**



White Rock Lake – 1950's

Context of Drought and Reservoir Levels Outlook

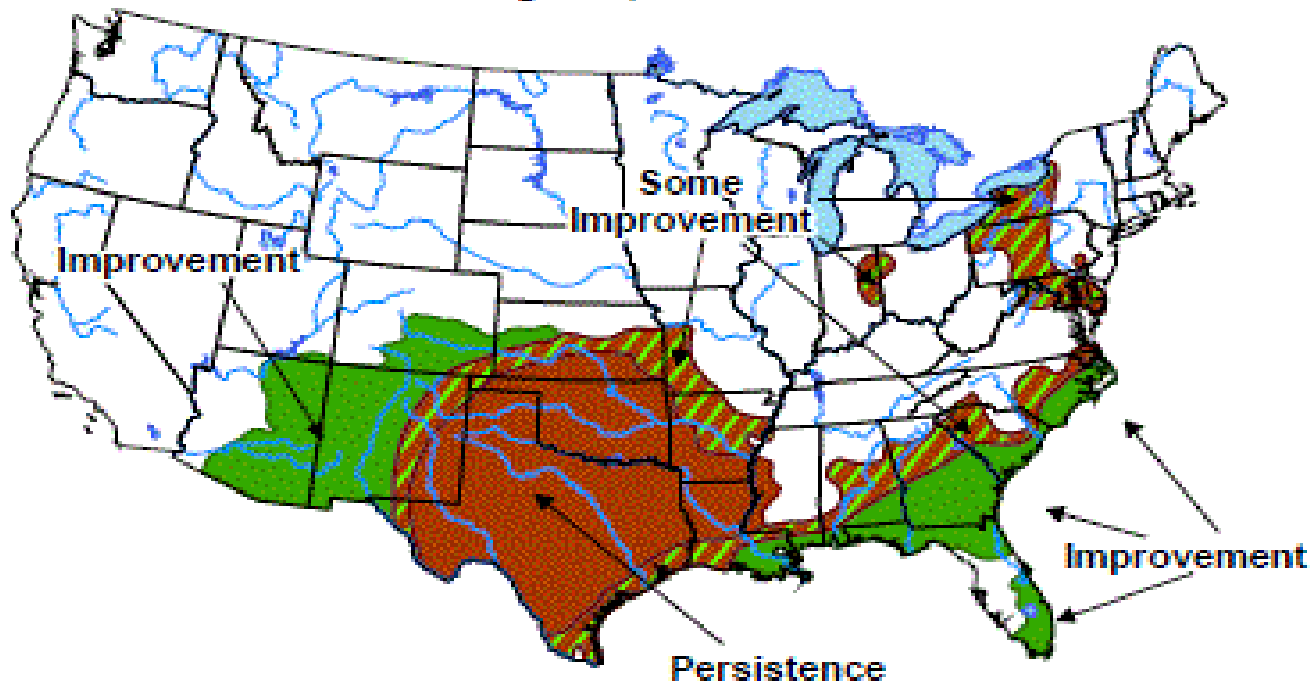
- Since May 2010, rainfall is approximately 13 inches below normal
- Our total connected water supplies are approximately **18% depleted** (16 months later)
- If conditions persist Stage 1 (i.e., 35% depleted) may occur in **Spring 2012**
- Stage 1 projections depend on:
 - Future precipitation amounts
 - Long range forecasts
 - Water supply demands, and
 - Drought vulnerability of water suppliers in the Upper Trinity Basin







U.S. Seasonal Drought Outlook


Drought Tendency During the Valid Period

Valid August 4, 2011 - October 31, 2011
Released August 4, 2011

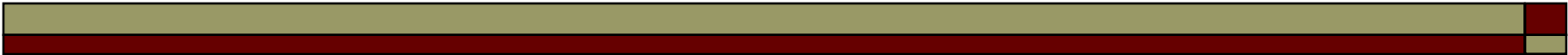


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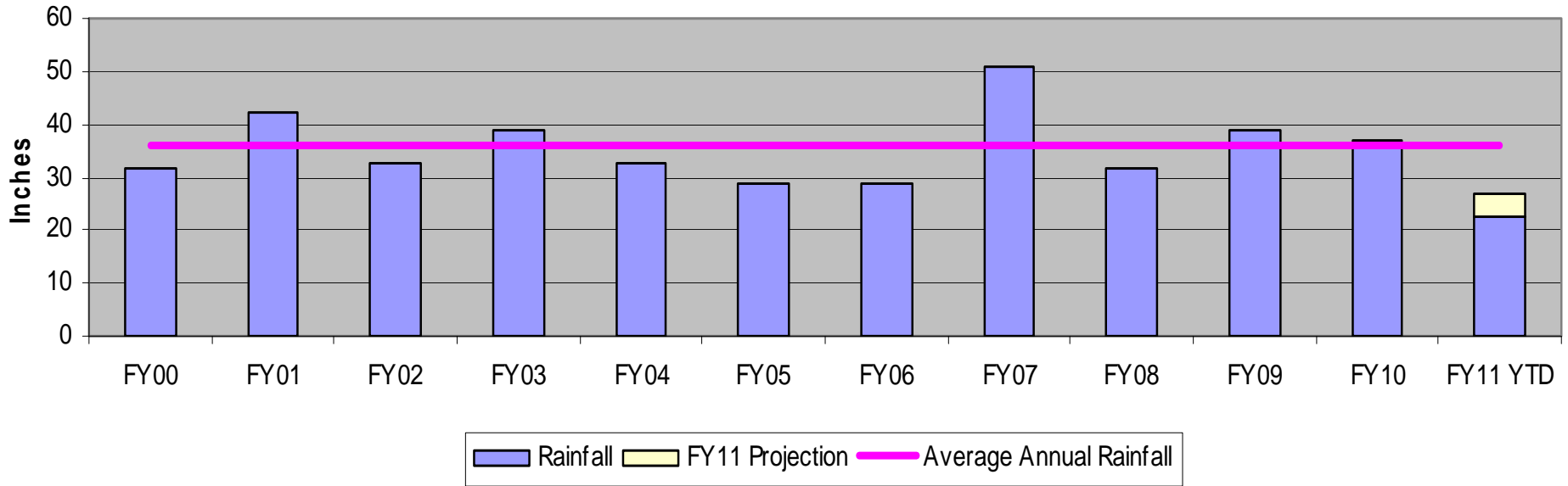
-  Drought to persist or intensify
-  Drought ongoing, some improvement
-  Drought likely to improve, impacts ease
-  Drought development likely

No Drought Posted/Predicted 

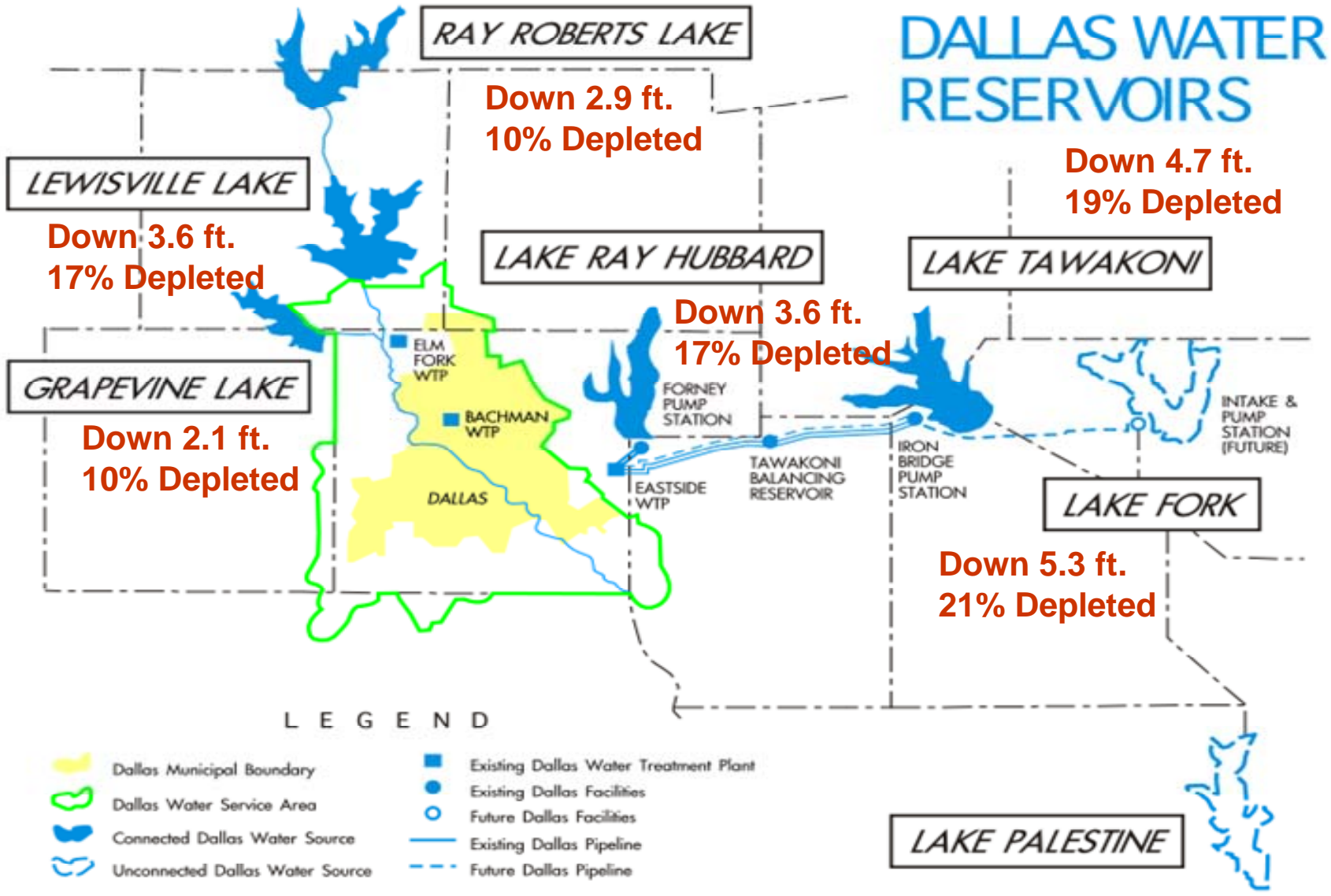
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events – such as individual storms – cannot be accurately forecast more than a few days in advance. Use caution for applications – such as crops – that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4 intensity). For weekly drought updates, see the latest U.S. Drought Monitor. NOTE: the green Improvement areas imply at least a 1-category improvement in the Drought Monitor intensity levels, but do not necessarily imply drought elimination.



Dallas Rainfall



Sources: National Oceanic and Atmospheric Administration (NOAA) data, Dallas Love Field location; and DWU staff



Drought Triggers and Action Measures

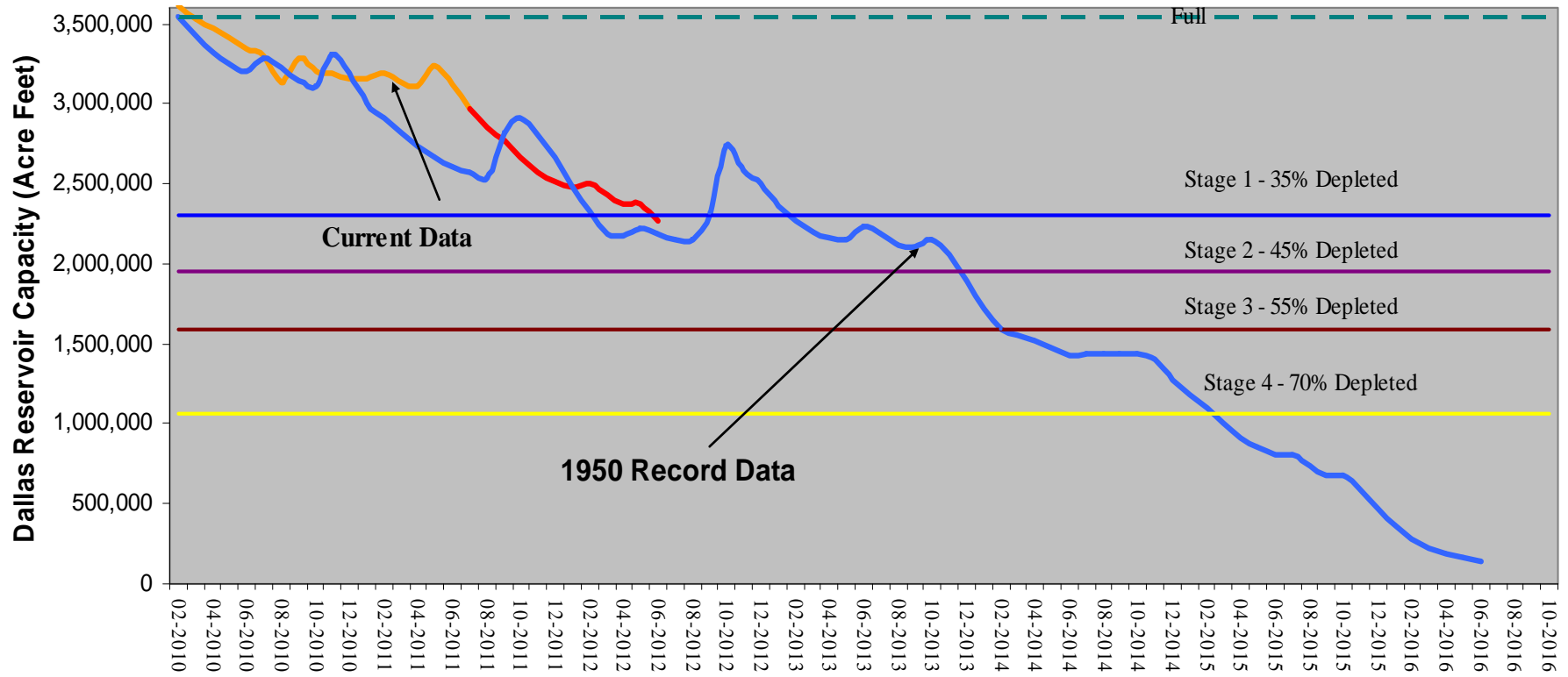
(City of Dallas Drought Contingency Plan adopted June 9, 2010)

Stage 1	Stage 2	Stage 3	Stage 4
35% Depleted	45% Depleted	55% Depleted	70% Depleted
Mandatory	Mandatory	Mandatory	Mandatory
<ul style="list-style-type: none"> ❑ Target 5% reduction in total Gallons Per Capita per Day (GPCD) ❑ Restrict operation of ornamental fountains and ponds to initial filling and to support aquatic life ❑ Encourage reduction in draining and refilling of swimming pools ❑ Prohibit recreation water use of faucets hoses and hydrants which use water in such a manner as to allow run-off ❑ Restrict washing of vehicles to hand held bucket (does not affect commercial car washes) ❑ Mandatory 2 day a week landscape irrigation 	<ul style="list-style-type: none"> ❑ Target 15% reduction in total GPCD ❑ Prohibit hosing off paved areas, buildings, windows or other surfaces ❑ Restrict op of ornamental fountains/ponds to initial filling or support aquatic life ❑ Encourage further reduction in draining and refilling of swimming pools ❑ Prohibit recreation water use of faucets hoses and hydrants which use water to allow run-off ❑ Restrict washing of vehicles to hand held bucket (but not commercial car washes) ❑ Mandatory 1 day a week landscape irrigation ❑ Foundations may be watered any day during allowed watering hours with soaker or hand held hoses 	<ul style="list-style-type: none"> ❑ Target 20% reduction in total GPCD ❑ No approval for new, additional, expanded, or increased-in-size water service connections, meters, service lines, pipeline extensions, mains, or water service facilities ❑ 10% rate increase for high water demand users (greater than 10,000 gallons per month) ❑ Prohibit the filling/refilling of swimming pools, wading pools and Jacuzzi pools, Existing pools may add water for proper operation; no permitting of new pools ❑ Prohibit washing of vehicles (does not affect commercial car washes between 6:00 a.m. and 10:00 a.m. or 6:00 p.m. to 10:00 p.m.) ❑ Mandatory 1 day a week landscape irrigation with hand held hoses and hand held buckets only ❑ Foundations may be watered for a 2 –hour period (off-peak) with soaker hose or hand held hose. 	<ul style="list-style-type: none"> ❑ Target 25% reduction in total GPCD ❑ Prohibit washing of vehicles ❑ Prohibit landscape irrigation ❑ Foundations may be watered for a 2 –hour period (off-peak) with soaker hose or hand held hose.

DALLAS WATER SUPPLY SYSTEM CONNECTED RESERVOIRS

Lewisville Ray Roberts Grapevine Ray Hubbard Tawakoni Lake Fork

Historical Dallas Drought vs. Current Drought



Next Steps

- ❑ Asking water customers to voluntarily restrict water use
- ❑ Staff will continue to actively monitor our ability to meet customer water demands based on:
 - Impact of ongoing plant construction
 - Current drought situation
- ❑ Plant related restrictions may occur in Spring 2012
- ❑ Drought related restrictions may also occur in Spring 2012
- ❑ Staff will advise Council of any recommendations regarding the drought stage implementation or triggers resulting from treatment restrictions



Appendix

Public Education & Outreach

Website Details

- Website Updates
 - www.dallascityhall.com
 - Prominent link in “Highlights” section on drought information
 - Drought contingency plan information on 1 page user-friendly flyers highlighting stages and responses
 - Current lake levels
 - Frequently asked questions
 - www.savedallaswater.com
 - Drought contingency plan information on 1 page user-friendly flyers highlighting stages and responses
 - Current lake levels
 - Water conservation indoor and outdoor tips
 - Related links for drought information/education
 - www.cod
 - Stages and responses
 - Current lake levels
 - Frequently asked questions
 - Information on training sessions
 - Used to provide prompt and current information to city employees as conditions improve or worsen

Seasonal Water Use Comparison

- Water used in winter months is mostly inside
- Large portion of water used in summer months is for irrigation and is weather dependent

<u>Customer Group</u>	Billion Gallons Sold		<u>Percent Change</u>
	<u>Jan 2011</u>	<u>Jul 2011</u>	
Dallas Residential Use	1.8	3.5	98%
Dallas Commercial Use	3.0	3.8	24%
Wholesale Customer Cities	4.2	6.2	47%

Drought Stages for Other Area Providers

- Irving - Stage 2 water restrictions in place Aug 11
 - Even-numbered addresses can water on Tuesday and Saturday, odd-numbered on Wednesday and Sunday
- North Texas Municipal Water District (NTMWD) - Stage 2 water restrictions by Aug 19
 - NTMWD provides water to: Allen, Farmersville, Forney, Frisco, Garland, McKinney, Mesquite, Plano, Princeton, Richardson, Rockwall, Royse City and Wylie, Bonham, Caddo Basin SUD, Cash SUD, College Mound WSC, Copeville SUD, Crandall, East Fork SUD, Fairview, Fate, Forney Lake WSC, Gastonia-Scurry SUD, Greater Texoma Utility Authority, Josephine, Kaufman, Lavon W.S.C., Little Elm, Lucas, Melissa, Milligan WSC, Mount Zion WSC, Murphy, Nevada WSC, North Collin WSC, Parker, Prosper, Rose, Hill SUD, Rowlett, Sachse, Seis Lagos UD, Sunnyvale, Terrell and Wylie Northeast SUD
 - Restrictions include no more than two day per week irrigation, no irrigation from 10 AM to 6 PM., no new landscaping, reduce water usage by 5%, and halt non-essential city water govt. use
- Tarrant Regional Water District (TRWD) – Stage 1 water restrictions on Sep 1
 - TRWD provides water to: Fort Worth, Arlington, Mansfield, the Trinity River Authority, Weatherford, Benbrook, Hudson Oaks, Kemp, Mabank, Malakoff, Star Harbor, Trinidad, Exelon, Payne Springs, Seven Points, Tool, Calpine/Freestone, Corsicana and Fairfield
 - Fort Worth provides water to: Aledo, Bethesda, Benbrook, Burleson, Crowley, Dalworthington Gardens, Edgecliff Village, Everman, Forest Hill, Grand Prairie, Haltom City, Haslet, Hurst, Keller, Kennedale, Lake Worth, Northlake, North Richland Hills, Richland Hills, Roanoke, Saginaw, Sansom Park Village, Southlake, Watauga, Westover Hills, Westworth Village, Westlake, White Settlement, DFW Airport and Trophy Club
 - The Trinity River Authority provides water to: Bedford, Colleyville, Euless, Grapevine, North Richland Hills, Ennis, Avalon, Ferris, Italy, Maypearl, Midlothian, Palmer, Red Oak, Ellis County Water, Nash-Forreston, Venus and Rockett Special Utility District
 - Restrictions include no more than two day per week irrigation, no irrigation from 10 AM to 6 PM., no hosing of paved areas or runoff of paved areas, and discourages new landscaping