EAST BAY MUNICIPAL UTILITY DISTRICT

# Drought Supply Lessons Learned

September 10, 2014

# Drought Supply Lessons Learned

- Supplemental Supply Delivery
- Operational Considerations
- Short-term Operational Strategy
- Long-Term Operational Strategy

# Supplemental Supply Delivery

## April 2 to July 17

- 18,640 acre-feet of CVP water
- 4,750 acre-feet of Placer County water
- Total of 23,390 acre-feet of water
- 71 MGD or 79% capacity

# Supplemental Supply Delivery

## Freeport Regional Water Project

# Supplemental Supply Delivery

## Water Quality

- Water quality was good
- Similar to local reservoir water
- No taste and odor complaints due to source change

# Initial Operation

- Successfully delivered Sacramento River water to East Bay reservoirs
- Identified strategies for added operational flexibility and reliability
- Identified improvements to maximize delivery

# Operational Considerations

- Increase Freeport water treatment capacity
- Increase raw water pumping plant range of operation
- Minimize invasive species
- Minimize Sacramento River reverse flows

# Operational Considerations

## Increase Freeport Water Treatment Capacity

Challenge

- Distribution system hydraulics limit conventional WTP production of Freeport water

Short Term

- Create space in terminal reservoirs

Long Term

- Freeport water pretreatment

# Operational Considerations

## Raw Water Pumping  Flow Range

Challenge

- Fixed motor speeds restrict ability to adjust flows and match demands

Short Term

- Draft water from Briones Reservoir

Long Term

- Variable frequency drive motors

# Operational Considerations

## Treatment to Minimize Invasive Species

Challenge

- Prevent invasive species from entering terminal reservoirs

Short Term

- Temporary chemical treatment systems

Long Term

- Permanent chemical treatment systems

# Operational Considerations

## Sacramento River Reverse Flows

### Challenge

- Reverse flows on Sacramento River trigger Freeport pumps to shutdown due to downstream wastewater discharges

Short Term

- Shutdown system for reverse flows

Long Term

- Comment on BDCP reverse flow impacts

# Short Term Operational Strategy

- Create space in terminal reservoirs to receive Freeport water
- Draft water from Briones Reservoir to match demands
- Install temporary chemical systems for invasive species
- Shutdown Freeport system for reverse flows

# Long Term Operational Strategy

- Construct pretreatment facilities for Freeport water
- Install variable frequency drives at raw water pumping plants

- Install permanent chemical systems for invasive species
- Comment on BDCP reverse flow impacts

EAST BAY MUNICIPAL UTILITY DISTRICT

# Water Year 2015
# Dry Year Plan

September 10, 2014

# Water Year 2014 Review

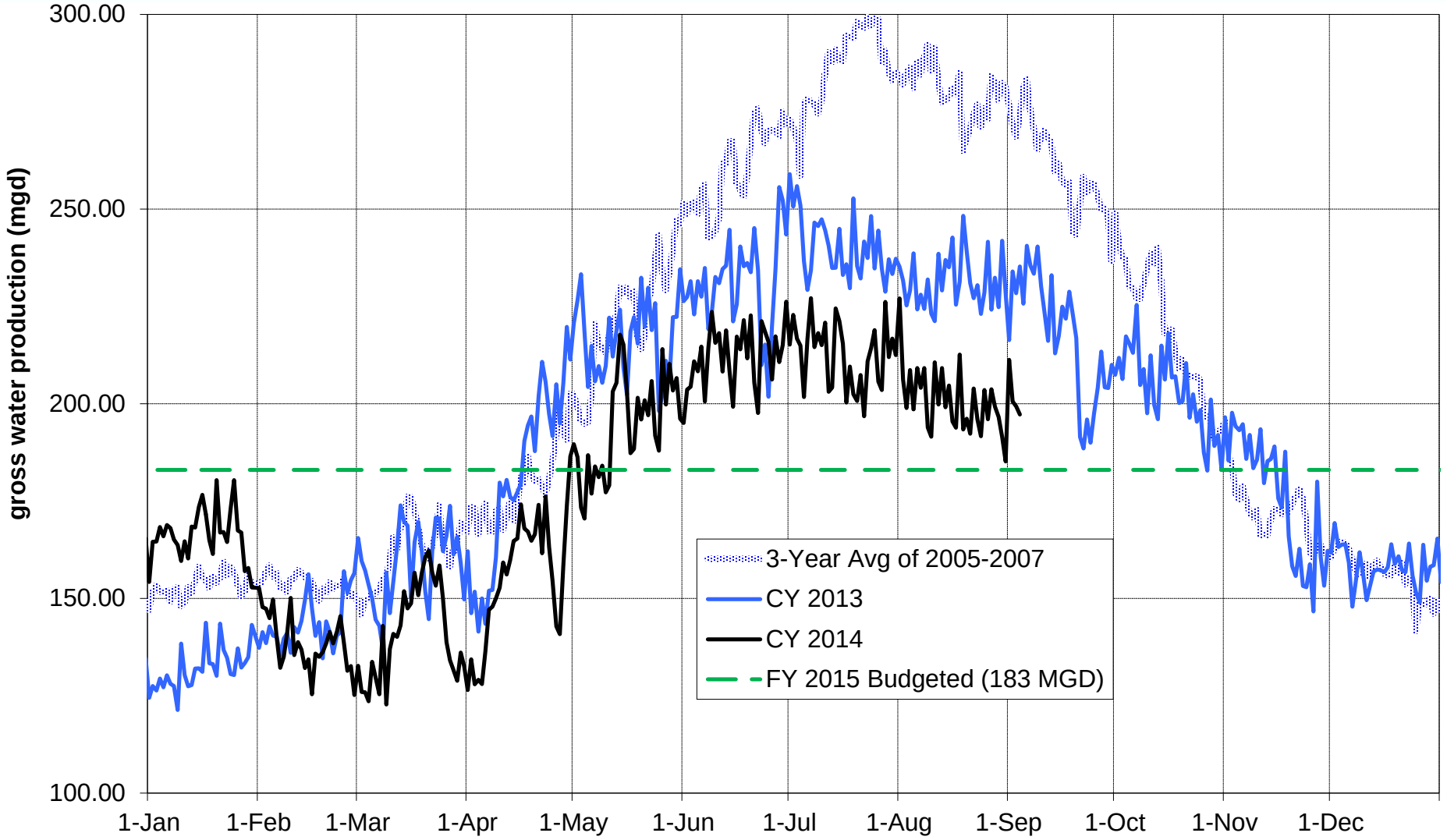
| Mokelumne River Basin Precipitation<br><br>Rainfall Year 2014<br>(Jul 2013 to Jun 2014) | Mokelumne River Basin Runoff (projected)<br><br>Water Year 2014<br>(Oct 2013 to Sep 2014) | EBMUD Total System Storage (projected)<br><br>Water Year 2014<br>(09/30/14) |
|---|---|---|
| 26.69 inches | 262,000 acre-feet | 415,000 acre-feet |
| 3rd driest on record | 95% exceedance | 86% exceedance |

# Water Year 2014 Review

- EBMUD diverted approximately 23,390 acre-feet from Sacramento River at Freeport
- USBR cut M&I allocations by 50%
- DWR cut all allocations by 95%
- Curtailment of Mokelumne River diversions

# Water Year 2014 Review

## Gross Water Production



# Water Year 2014 Review

## Drought Management

| | Feb | Mar | Apr | May | Jun | Jul | Aug |
|---|---|---|---|---|---|---|---|
| Avg Demand – 2013 | 146 | 159 | 181 | 217 | 231 | 240 | 231 |
| Avg Demand – 2014 | 136 | 141 | 155 | 194 | 212 | 213 | 201 |
| Savings Goal | 15 | 16 | 18 | 22 | 23 | 24 | 23 |
| Actual Savings | 10 | 18 | 26 | 23 | 19 | 27 | 30 |
| Actual Savings Rate | 7% | 11% | 14% | 11% | 8% | 11% | 13% |

*Values in million gallons per day

# Water Year 2015 Plan

## Demand Assumptions

| Fiscal Year | Gross Water Production |
|---|---|
| 2013 | 184 mgd |
| 2014 | 187 mgd* |
| 2015 (projected) | 165 mgd** |

*Higher demands Jul 2013-Jan 2014. Met 10% rationing goal through Jun 2014

**Assumes 10% rationing compared to FY13

# Water Year 2015 Plan

## Projections with No Supplemental Supply

| End of WY2015 TSS* | Runoff | % chance of exceeding TSS |
|---|---|---|
| 500 TAF | 510 TAF | 65% |
| 450 TAF | 405 TAF | 80% |
| 385 TAF | 310 TAF | 90% |
| 330 TAF | 262 TAF (WY14) | 95% |

*Assumes no supplemental supply

# Water Year 2015

## CVP Contract

- Central Valley Project (CVP)
- Agreement with US Bureau of Reclamation
- Annual allocation up to 133,000 acre-feet
- Three consecutive year allocation up to 165,000 acre-feet
- Allocation is subject to reductions
- Contract Year = March 1 to February 28

Folsom South Canal

# Water Year 2015 Plan

## Projections with FRWP Supplemental Supply

| Scenario | FRWP Startup | CVP Contract Delivery* | | Total System Storage (End of Water Year 2015) |
|---|---|---|---|---|
| | | **Contract Year 2014 | Contract Year 2015 | |
| Very Dry Early, Then Wet<br>• 95% exceedence through Feb 2015<br>• 10% exceedence Mar-Sept 2015 | Jan 2015 | 15 TAF | 0 TAF | 600 TAF |
| Very Dry Early, Then Median<br>• 95% exceedence through Feb 2015<br>• 50% exceedence Mar-Sept 2015 | Jan 2015 | 15 TAF | 0 - 40 TAF | 410 - 450 TAF |
| Dry throughout<br>• 90% exceedence | Jan 2015 | 15 TAF | 0 - 50 TAF | 400 - 450 TAF |
| Dry throughout<br>• 90% exceedence | May 2015 | 0 TAF | 0 - 65 TAF | 385 - 450 TAF |

*Assumes USBR allocation reduction does not exceed 50% annually

**Contract Year 2014 only includes deliveries in January and February 2015

# Water Year 2015

## Curtailment

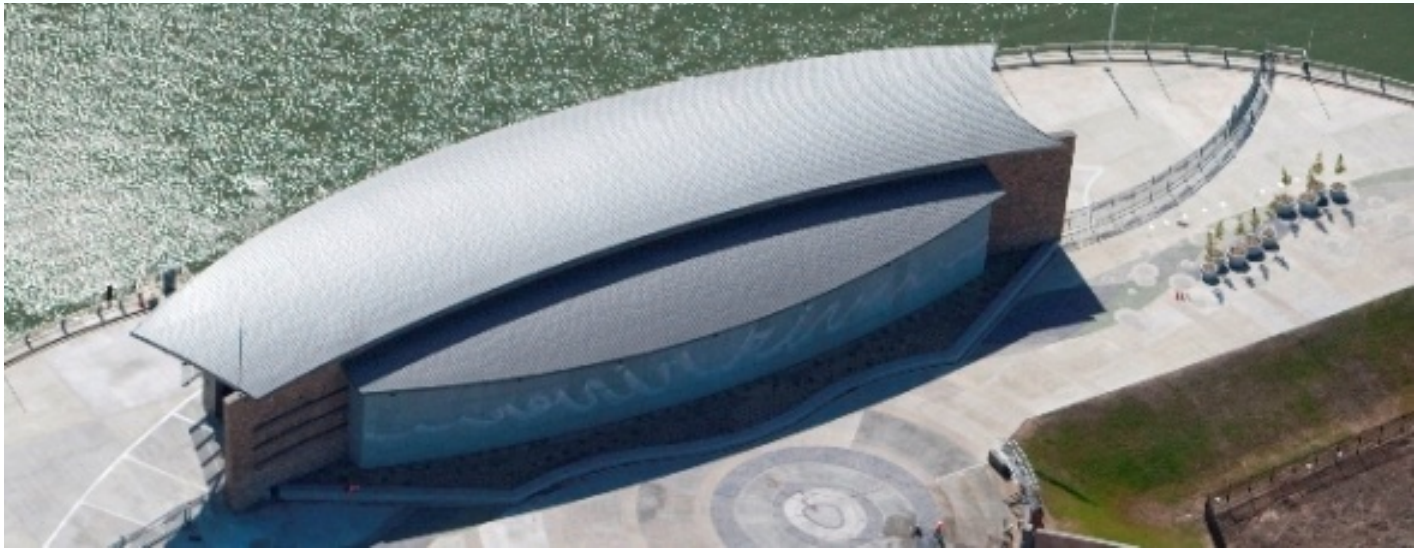
- State Water Resources Control Board letter received June 2, 2014, no diversions
- No diversions requires release of all runoff
- Curtailment last until March 1, 2015 or until conditions improve
- Water released due to curtailment could be up to 29% of runoff
- SWRCB is aware of curtailment 2015 supply implications

# Water Year 2015 Plan

## Supplemental Supply

- Continue to monitor water supply conditions
- Prepare Freeport transmission system for possible operation
- Board consideration of CVP deliveries on December 9th

# Freeport Regional Water Project (FRWP)



FRWA INTAKE

Players

- Freeport Regional Water Authority (FRWA)
- Sacramento County Water Agency (SCWA)
- East Bay Municipal Utility District (EBMUD)
- US Bureau of Reclamation (USBR)

Project

- 185 MGD Regional Facility
  - 100 MGD EBMUD
  - 85 MGD SCWA
- 3 Pumping Plants
- 36 miles of transmission pipelines
- Project complete November 2011


28

# Facilities

## Freeport Regional Water Project

- FRWA
  - FRWA Intake /Pumping Plant
  - FRWA Joint Pipeline
- FSCC
  - Clay Station PP
  - Camanche PP
  - FSCC Pipeline
- Chemical Systems
  - Chlorination & dechlorination
  - pH control

# Facilities

## Aqueduct and Conventional Treatment System

- Aqueducts reconfigured to isolate Sacramento River water
- Raw Water Pumping Plants
  - Moraga
  - Briones
  - Walnut Creek PP
- Sobrante and USL WTPs
- San Pablo and USL Reservoirs

# Operational Considerations

## Treatment for High pH Water

- pH rises in cement mortar lined pipe
- High pH treatment required to avoid NPDES violation in creeks
- Constructed a primary and backup pH treatment system (Bixler Center & Walnut Creek PP)

# Short-term Improvements

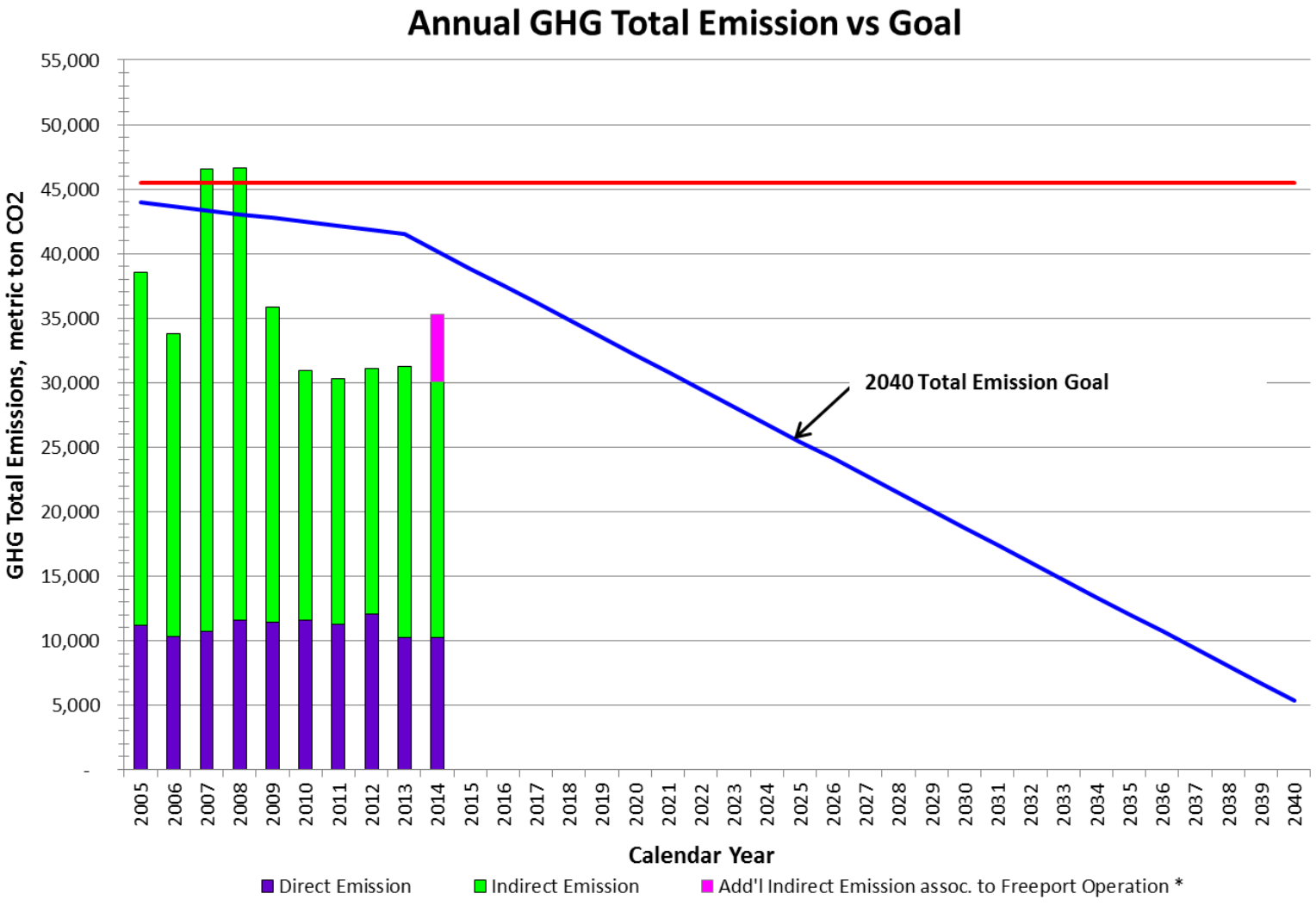
- Chlorination system at Clay Station PP will be rebuilt
- Dechlorination system at Camanche PP will be rebuilt

# Energy Use and GHGs

| Facility | Energy Use (MWh) | GHG Emissions (MT $CO_2$) |
|---|---|---|
| Clay Station PP | 6,011 | 1,423 |
| Camanche PP | 8,341 | 1,559 |
| Walnut Creek PP | 4,364 | 816 |
| Moraga PP | 2,258 | 422 |
| Briones PP | 117 | 22 |
| Sobrante WTP | 1,123 | 490 |
| USL WTP | 2,352 | 440 |
| TOTAL | 24,566 | 5,172 |

2013 District GHG Emissions: 31,244 MT $CO_2$

# GHG Emissions vs Goal



# Water Shortage Emergency Action Plan

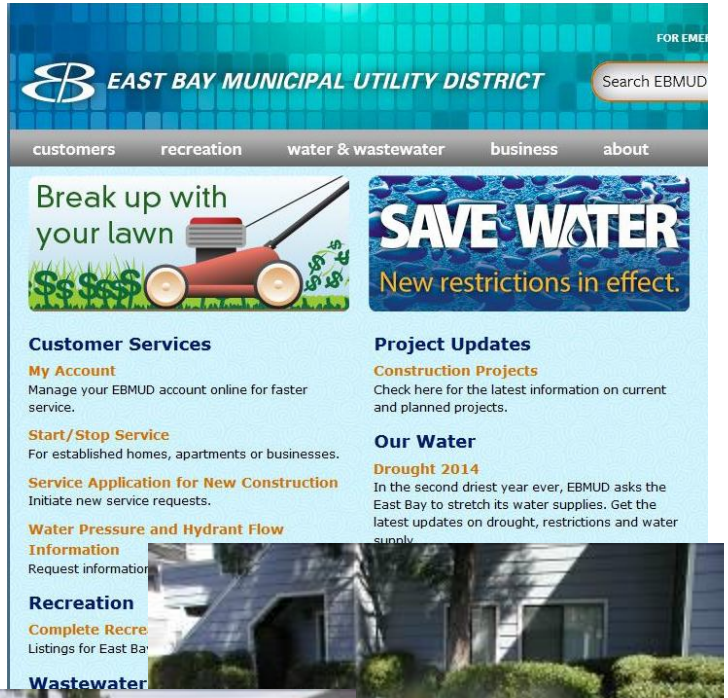
## September 10, 2014 Update

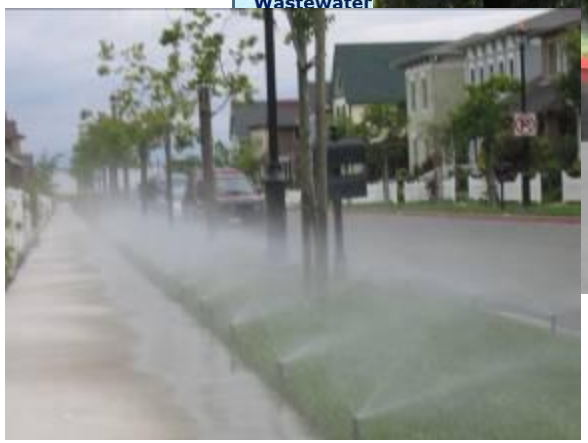
# Public Outreach Goals

- Thank routine conservers
- Support and encourage customers to continue their voluntary cutbacks
- Give specific information to customer classes about what they can do
- Offer free devices and technical assistance to help customers conserve
- Implement state water use prohibitions

# Remind Customers of the Water Shortage Emergency

- Bill messages
- Media outreach
- Stakeholder letters
- Website update
- Updated fact sheet
- Employee updates



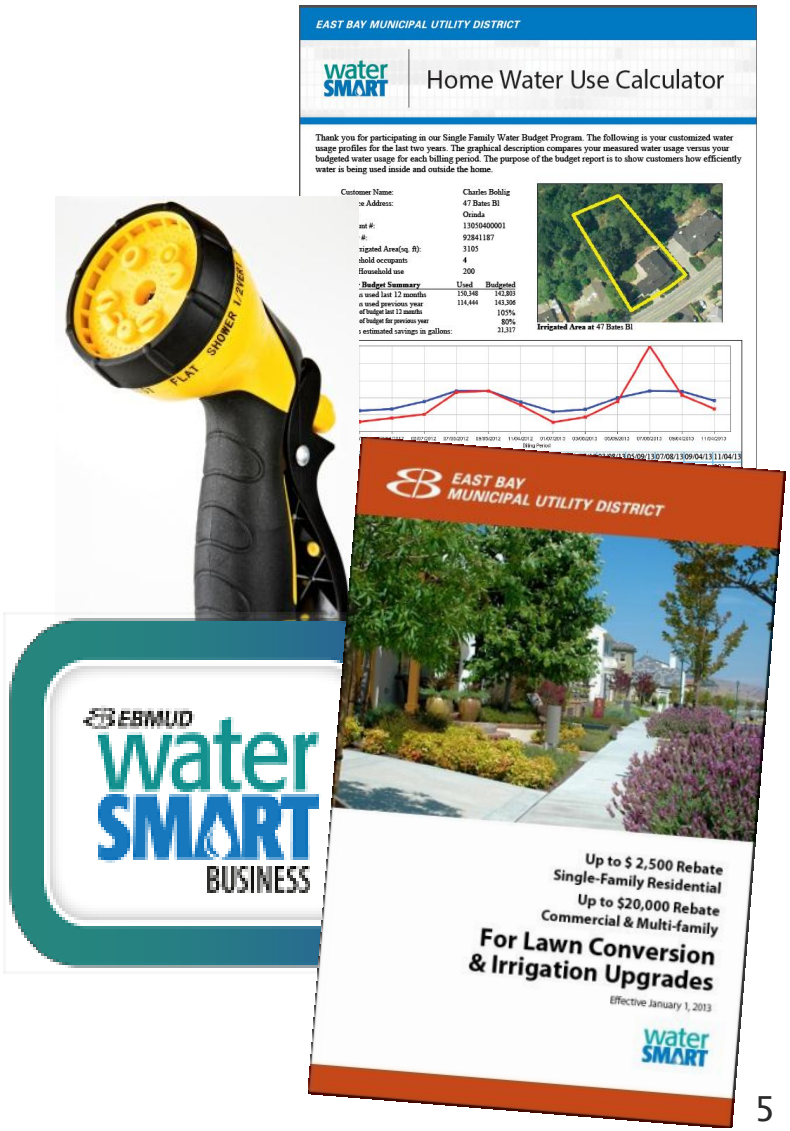



# Remind Customers of State's Outdoor Watering Prohibitions

- Top of bill notice of outdoor watering rules
- Bill insert describing the state regulations in English, Spanish and Chinese;
- Earned media
- Postcard to non-billpayers
- Web information and Save Our Water link
- E-mails and *Splashes* articles for staff;
- FAQs for staff who work with customers;

# Conservation Outreach

- Fall festival booths
- Home Water Reports
- Graywater outreach
- Leak report followup
- Rebate promotions
- WaterSmart business certificate program



# Upcoming Topics for Outreach

- **September - October**
  - End of water year supply status
  - Drought rate options being considered by Board
- **November - December**
  - Supplemental supply early '15 take decision
  - Stage 2 drought declaration, if warranted
- **January - April**
  - If Stage 2 is implemented, expand public outreach

# Proposed

# Schedule of Actions for Drought Rates

September 10, 2014

# Proposed Calendar of Drought Rate Actions

- Outlines a series of Staff and Board actions for development and implementation of a staged system of drought rates consistent with the District's existing system of rates and charges.
- Aims to be responsive to the Board's interest to be prepared to take early action in the event of a dry winter.

# 2014 Actions

- **September - October**
  - Follow-up from August 12 Drought Financial Management Workshop:
    - Affirm staged system of drought rates
    - Provide direction for Stage 3/4 rates and charges
  - Prepare cost-of-service analysis for drought rates
- **November - December**
  - Review cost of service analysis for drought rates
  - Consider adoption of staged system of drought rates
  - Review water supply status; consider declaring Stage 2 drought if warranted
  - If Stage 2 is declared and supplemental supplies are taken, authorize Supplemental Supply Surcharge if needed

# 2015 Actions

- **January - March**
  - If Stage 2 declared, expand public outreach
  - If Supplemental Supply Surcharge authorized in December, implement collection of charges
  - Board workshops on rates and charges including drought rates
  - Develop Prop 218 notice for drought rates and charges along with regular rates and charges
- **April - May**
  - Publish regular and drought Prop 218 notices
  - Review water supply status; consider declaring Stage 3 drought to begin on July 1 if warranted

# 2015 Actions cont..

- **June**
  - Hold public hearing on rates and charges including drought rates
  - Consider adopting drought rates along with regular rates and charges
- **July**
  - If Stage 3 is declared begin implementation of Stage 3 charges

# Questions