

This presentation premiered at WaterSmart Innovations

watersmartinnovations.com



Budget Based Tiered Rates – Encouraging Efficiency, Discouraging Waste

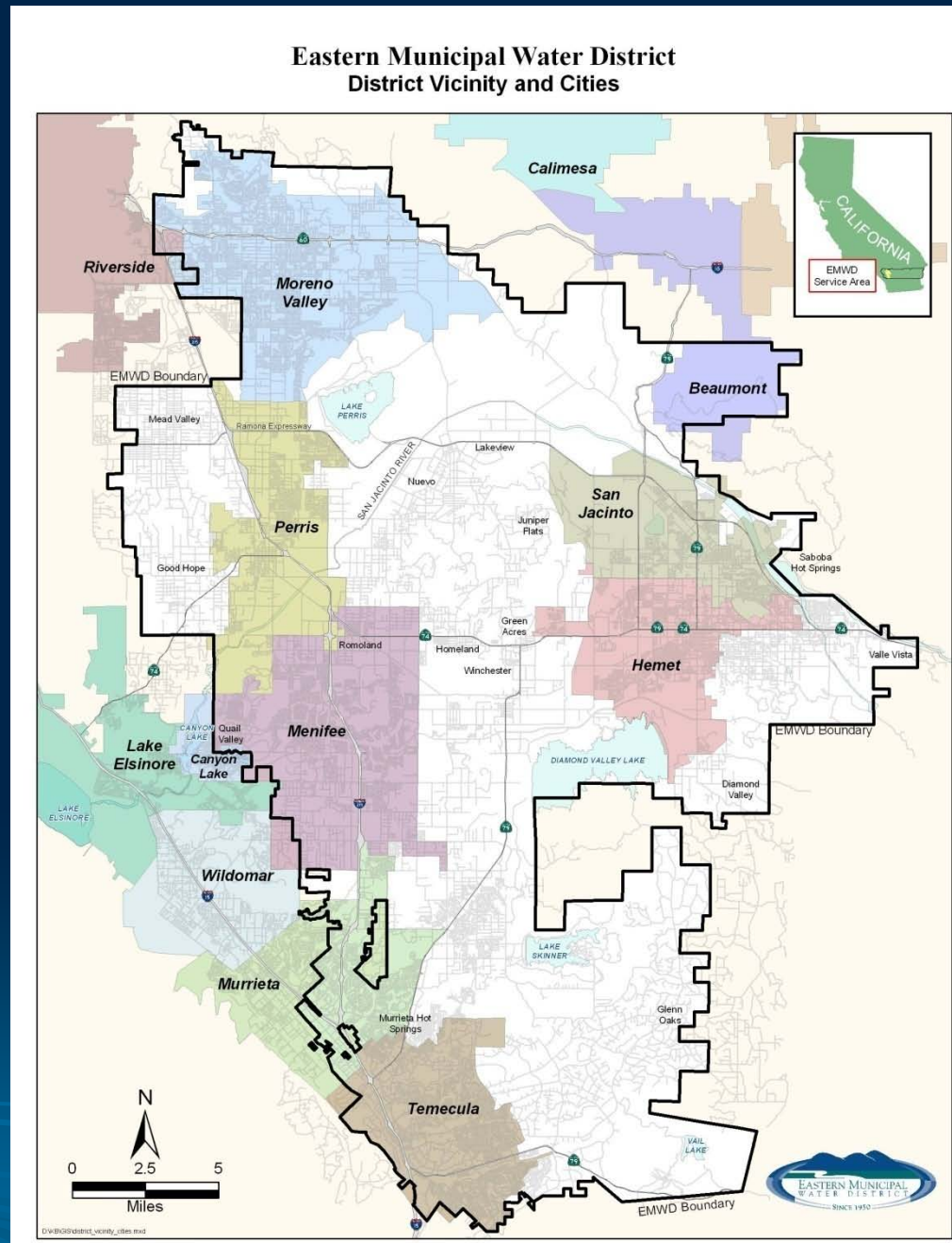


Watersmart Innovations
October 7, 2010

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Eastern Municipal Water District

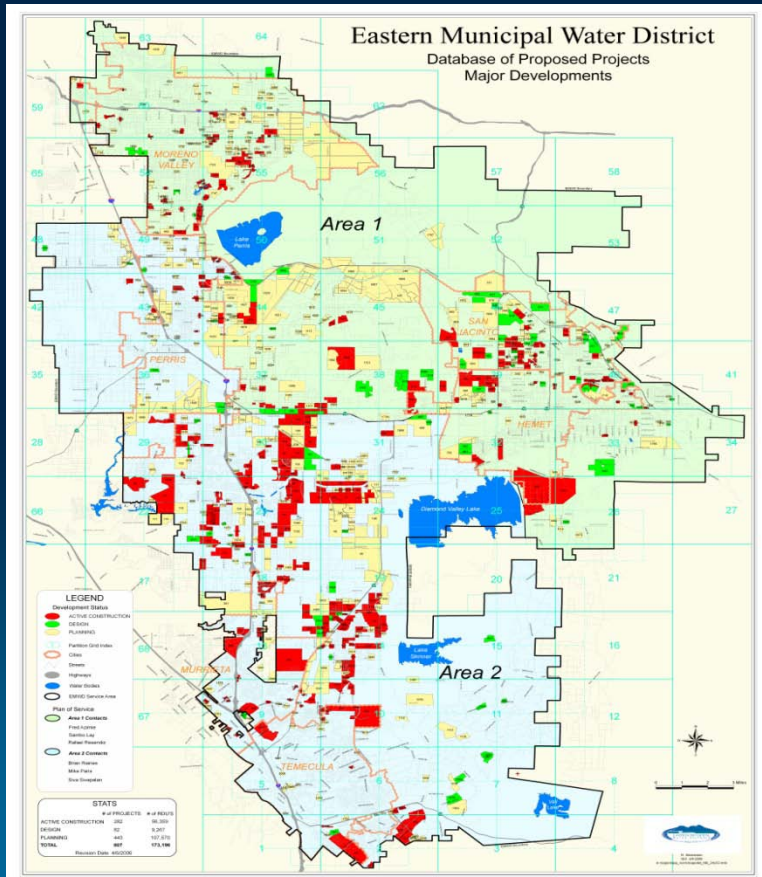
EMWD

- Water and Sewer Service
- 130,000 + retail water connections
- 540 sq miles
- Southwest Riverside
- Semi Arid climate
- Water Sources:
 - 60% Imported
 - 10% Groundwater
 - 5% Desalinated Groundwater
 - 25% Recycled



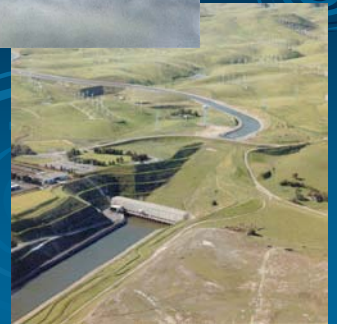
A Growing Region

- 45% of ultimate build out
- 100,000 new homes planned by 2030



Limitations on Water Supply

- Allocation from Metropolitan Water District
 - Drought Colorado River Aqueduct
 - Restriction on the State Water Project
- Local Resources Stretched
 - Aquifers in Overdraft
 - Recycled water fully subscribed



Diverse Customer Base



- 80% of retail demand is residential
- New development and old development
- Variation in irrigable area and family sizes

How Do We Achieve Water Efficiency Equitably ?

- Implement water pricing structure to:
 - provide customers adequate amount of water
 - reduce excess use of water
 - Incent customers to stop wasteful water use
- Believe that with the right pricing structure, water use & behavior will change

Integrated Team Approach

- 10+ departments involved
- Weekly/Monthly Meetings and Communication throughout organization
- Key project members included:

Board & Board Staff

Executive Management

Customer Service

Water Conservation/
Resource
Development

Information Systems

Community Affairs

Legislative Affairs

Finance



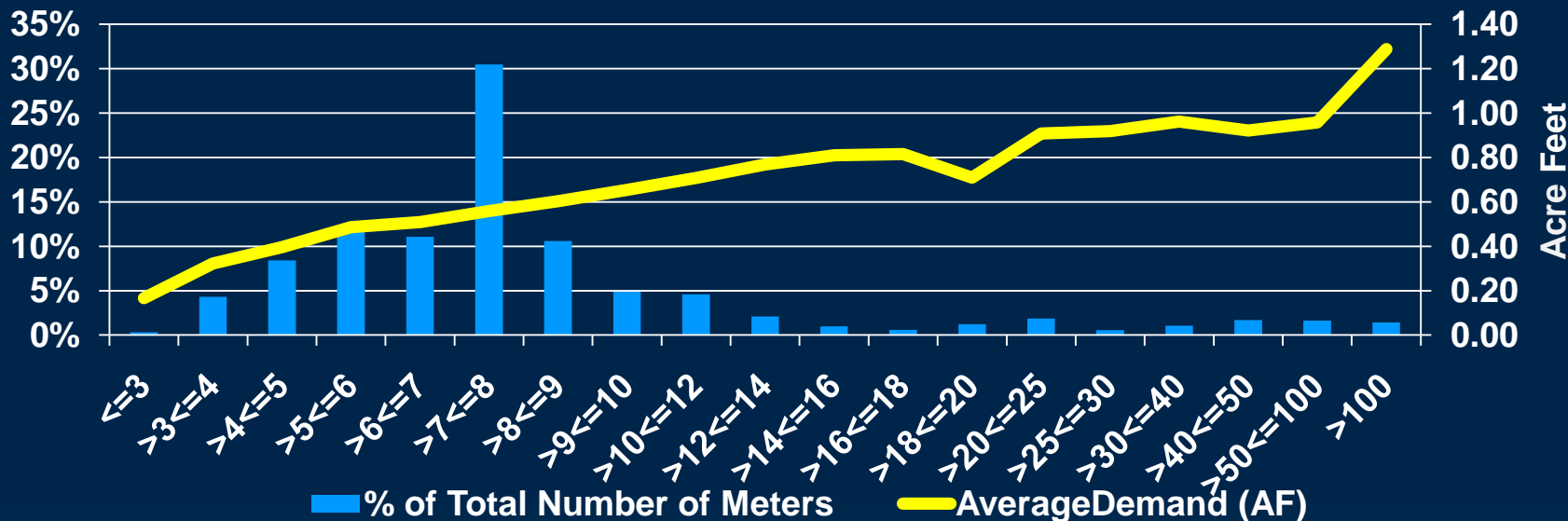
Other Resources

- Consultant created a model to assist in reaching objective (RedOak)
- Subscribed to WeatherTrak for daily ET
- Customer Information Including:
 - Billing history
 - Classifications
 - Property information



Phase 1- Customer Characteristics

- 122,000 Single Family Residential Accounts - 68,900 AF Demand CY 2007



- 4,300 Multi Family Residential Accounts – 6,600 AF Demand CY 2007
- 1,800 Dedicated Landscape Accounts – 9,900 AF Demand CY 2007

Water Budget Components

- Tier 1: Indoor Use \$1.483/billing unit
 - Indoor = (Number of Persons * GPD) * Drought Factor + Variance
- Tier 2: Outdoor Use \$2.714/billing unit
 - Outdoor = (ET * CF * Landscaped Area + Variance) * Drought Factor
- Tier 3: Excessive \$4.864/billing unit
 - 50% of blocks 1 and 2 combined
 - E.g. Block 1 width is 4, block 2 width is 6, block 3 width is 5 $((4+6)*50\%)$
- Tier 4 : Wasteful \$8.898/billing unit

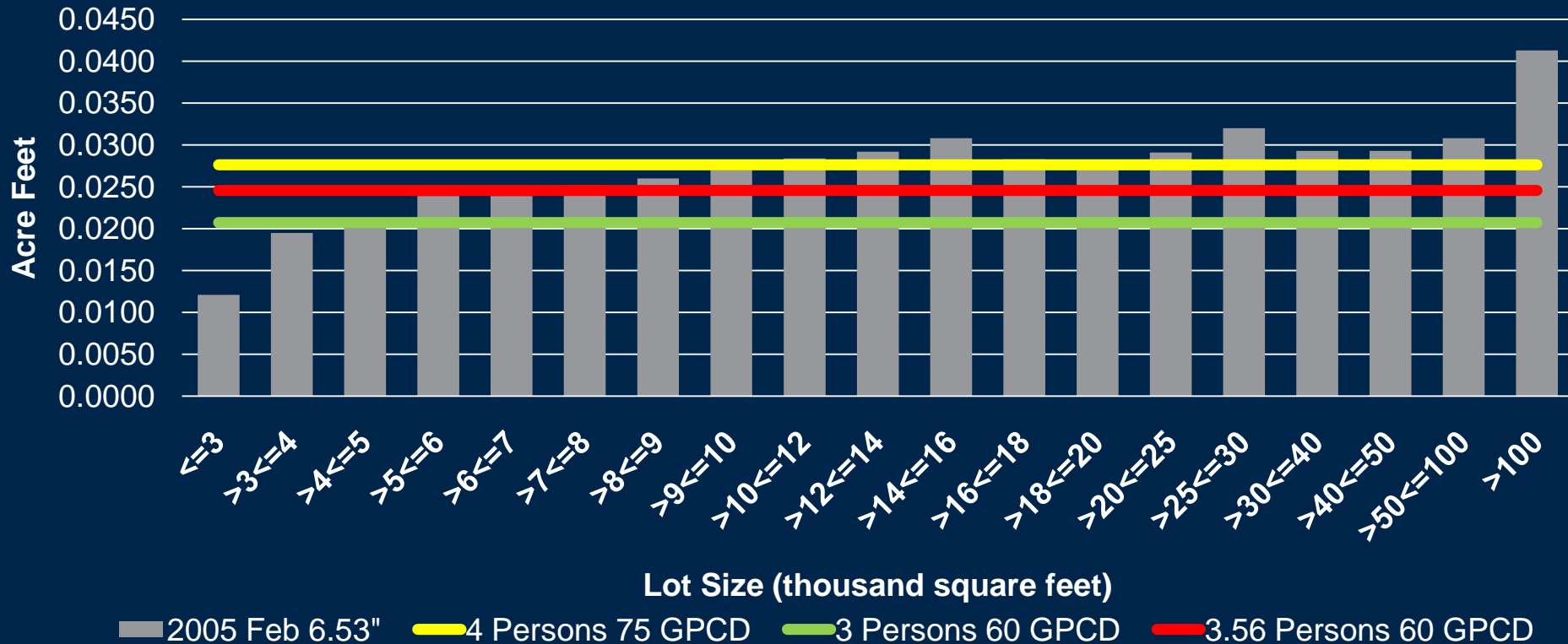
Indoor Criteria

- Used census data to set a default persons per household
 - 3 persons single family residential
 - 2 persons multi-family residential
- Allowed variances for number persons per household
 - 30,000 variances processed for household size
- GPD set at 60 gallons per capita per day
- Landscape accounts have no indoor budget

60 Gallons per Capita per Day

- Look at wet months to estimate indoor use
- Consider water efficiency

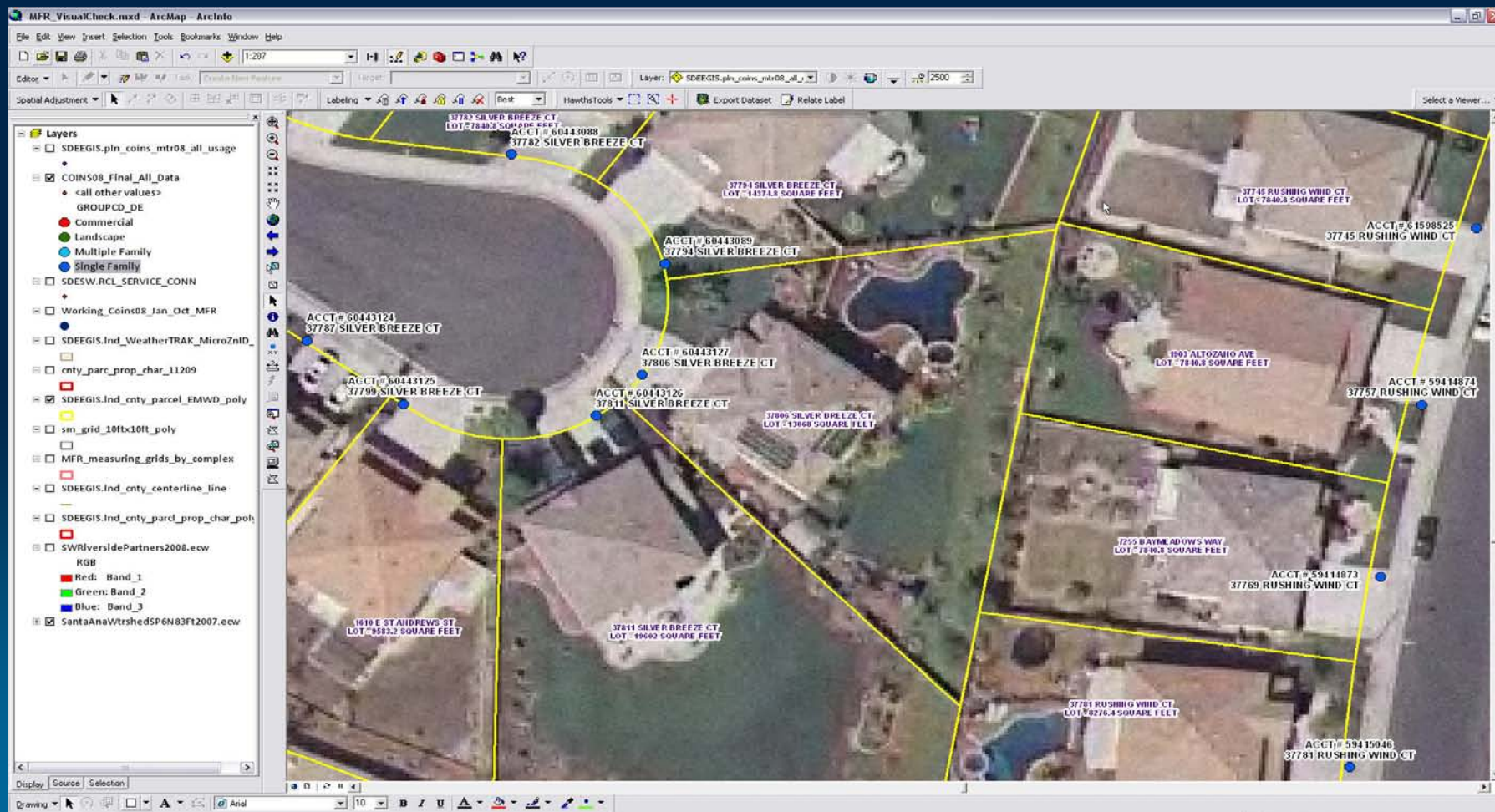
Average Demand Verses Budget Limits February 2005



Irrigated Area Estimate

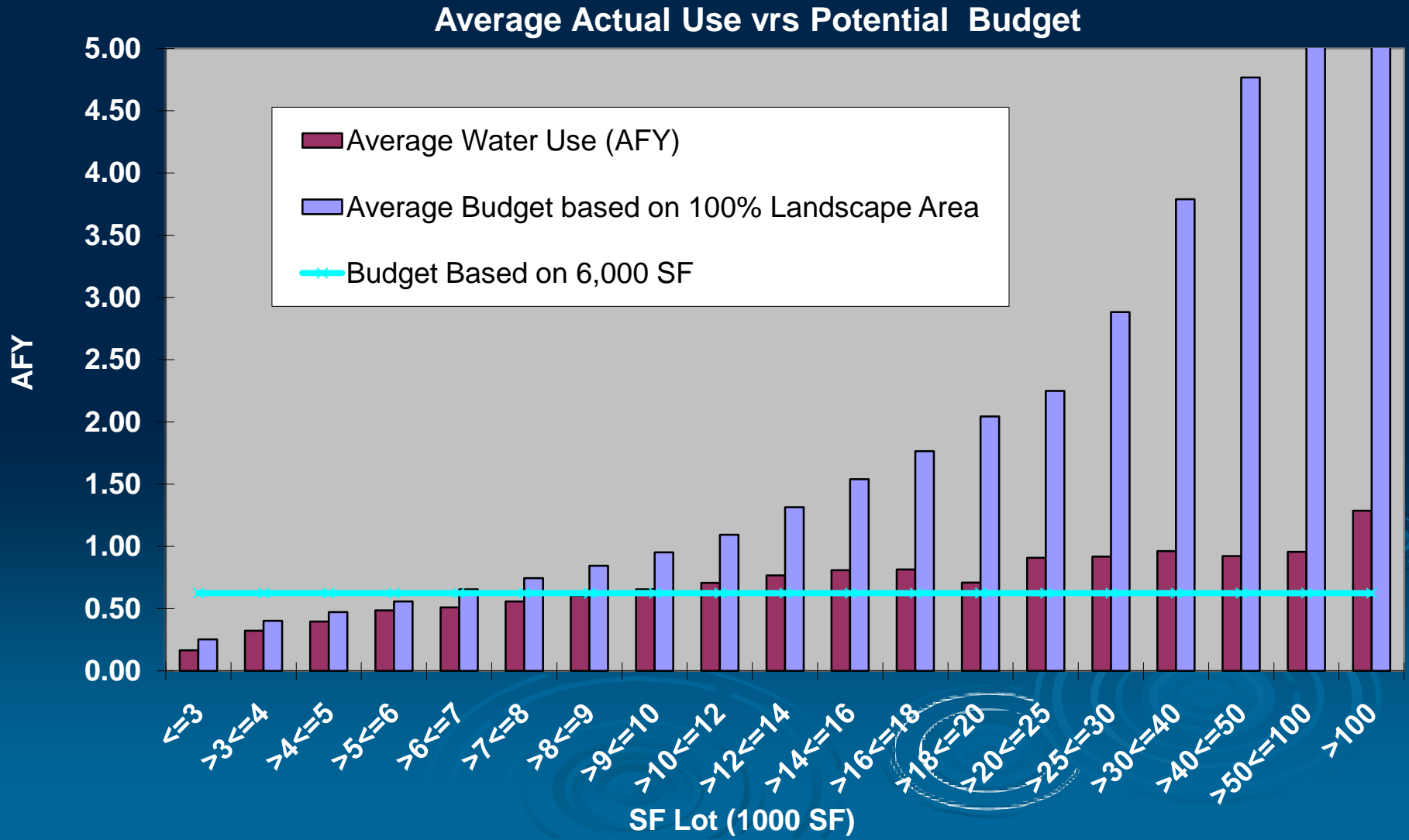
Single Family

- Used parcel data and account data to assign Irrigated Area



Upper Limit

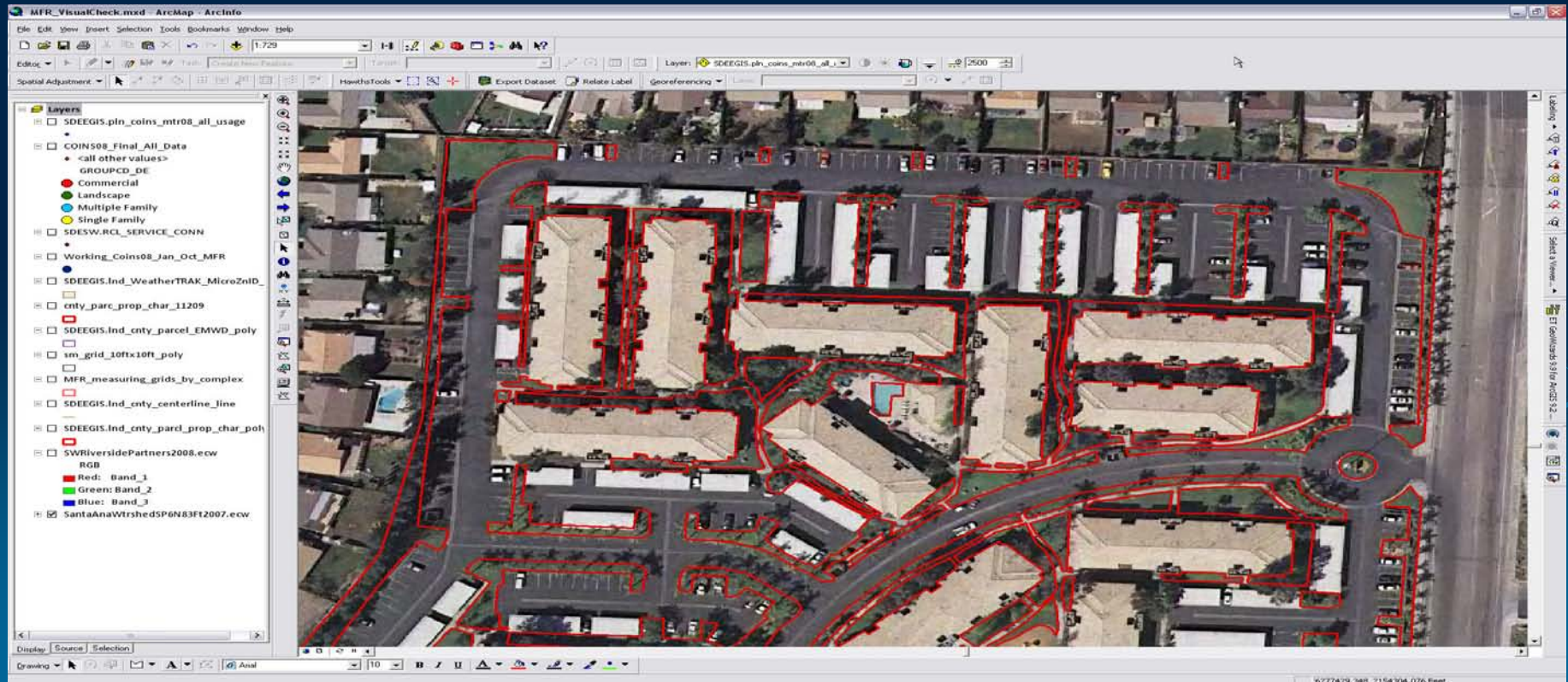
- Maximum 6,000 Square Feet



Irrigated Area Estimate

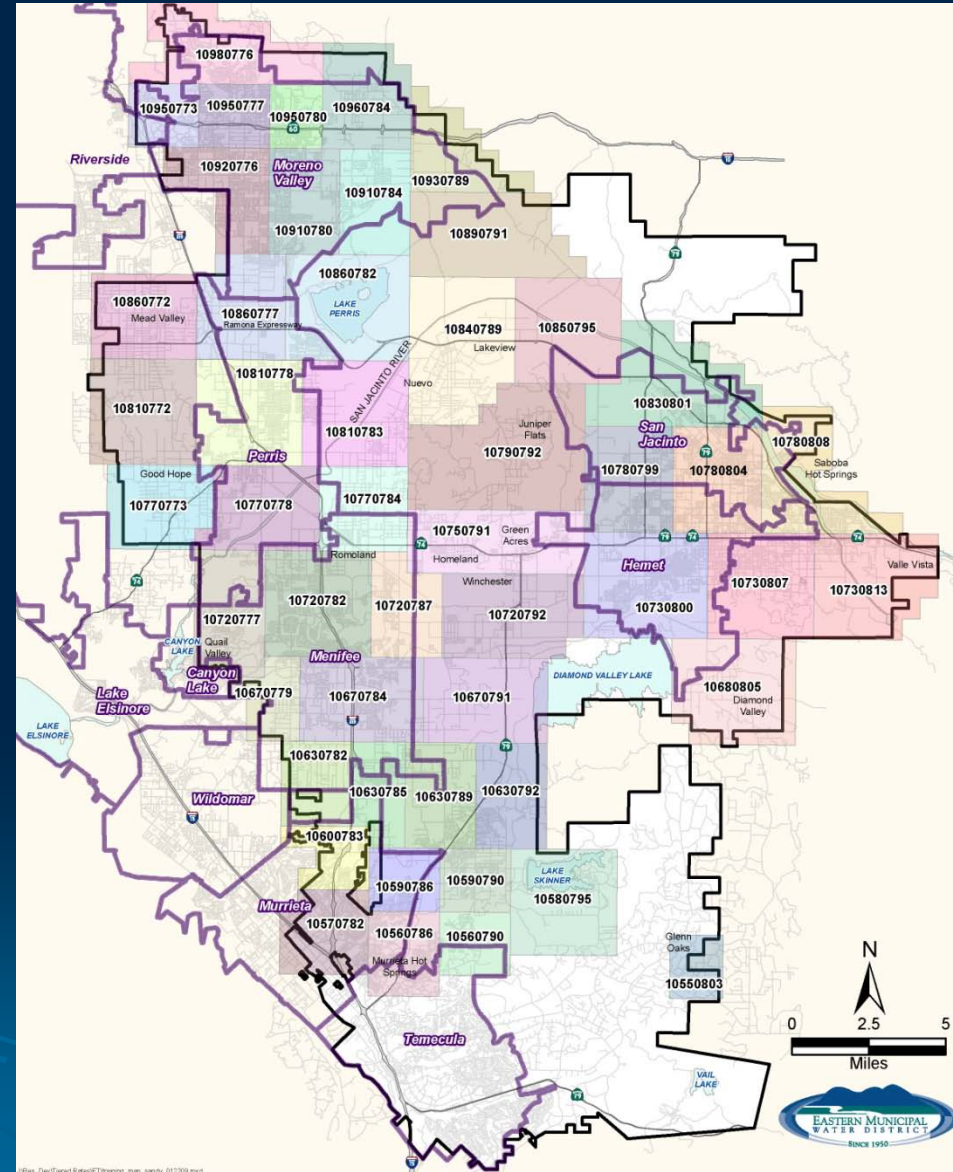
Multi-Family Residential and Landscape

- Used aerial when possible
- Customer information
- Field verification



Evapotranspiration Data

- Utilizes 50 separate zones
- Subscribed to WeatherTrak for daily ET
- Billings utilize zone within their area
- CIMIS used for estimating future only and default values



Conservation Factor

- Single/Multi Family Residential
 - 1.0 for accounts existing prior to September 1, 2008
 - 0.8 for accounts added after to September 1, 2008
- Landscape Accounts
 - 0.8 Default
 - Adjusted for functional turf



Variances

- Persons per household
- Licensed Care Facility
- Medical Needs
- Landscape area
- Landscape establishment
- Pool filling
- Large animals (100 pound +)



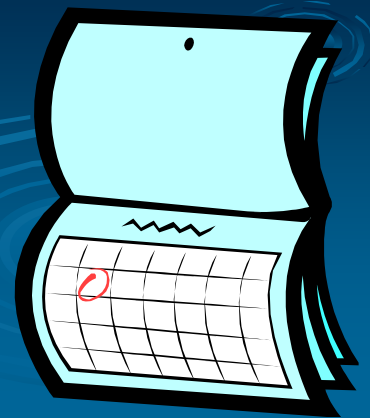
Drought Factors

- Indoor and Outdoor
 - Reduce allocation in times of water shortage
- Water Shortage Contingency Plan
 - Preserve Health and Human Safety (Indoor Use)
 - Address wasteful use before efficient



Implementation Timeline

- Phase 1 – Residential and Landscape Customers
 - 90% of retail sales
- One year implementation process
 - Included outreach
- “Shadow bills” – February & March 2009
- First “official” bill sent out April 10, 2009
- Phase 2 - TBD



Community Outreach

- One year effort:
 - Monthly calendar
 - Newsletters
 - Bill inserts
 - Bill messages
 - Envelopes
 - Websites
 - Press releases
 - Shadow bills
 - Lobby message
 - Fliers

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Visit us on the Internet at
www.emwd.org

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Editor: April Blakey

EMWD reports... is designed to keep EMWD's customers and the public informed of matters affecting them.

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Proposed

Sewer Rate Increase

Sewer service charges are *proposed* to increase approximately \$1.41 per month based on the increasing costs related to the collection, treatment and disposal of the nearly 45 million gallons per day that are processed through EMWD's four wastewater treatment plants. The cost of maintaining these facilities is also included in the *proposed* increase.



Frequently Asked Questions

How can I find out what my water budget will be?

In February and March 2009, all customers will receive customized notices with their billing statements showing exactly what their budget would be for that billing period. In April 2009, customers will see their budget for the billing period as well as an estimated budget for the next three months.

EMWD will have an online calculator on its website at www.emwd.org to assist customers in estimating their water budgets.

How is my irrigated area being determined?

Irrigated areas are estimated using County parcel data (lot size) and GIS data (house footprint, garage/carport area, and driveway space). The maximum default irrigated area will be set at 6,000 square feet.

What if I need more water than my budget gives me?

Customers must apply for a variance to their water budget to adjust the household number, landscape area, or for a special circumstance such as a home daycare facility. Variance forms will be available to download at www.emwd.org. Customers may also call Customer Service to request a form.



Why do I have to pay a higher rate for my outdoor water use?

Indoor water is essential for public health and safety. The vast majority of outdoor watering is not. Therefore, the cost of providing outdoor water is proportional to the need. However, in a tiered rate system, the averaged cost of indoor and outdoor water is usually less expensive than in a non-tiered system.

How much water is in a billing unit?

One billing unit is 748 gallons of water.

More information available at
www.emwd.org

Community Outreach

- Feedback:
 - Director's Advisory Committees
 - Customer Web-based surveys
 - Web activity
 - Customer emails
 - Calls/letter
 - Workshops
 - Board Meetings



Proposed rate information
for all service areas is available at www.emwd.org.

How will my bill change?

The sample bills on the next two pages illustrate the difference between: 1) the current rate structure; 2) the current rate structure with the *maximum proposed 2009* increases, and 3) the corresponding *proposed* water budget-based tiered rate structure. The water budgets are based on a 3-person household with 3,000 square feet of irrigated area within the Perris, Moreno Valley, Menifee/Sun City, Hemet service area. The **sample winter budget is 11 billing units** and the **sample summer budget is 19 billing units**.

In example #3 below, water use falls **UNDER** on 11 billing unit budget.

Sample Winter Bill for Water Efficient Home

1) Current, non-tiered, rate structure

Water Charges	Period/Quantity	Rate	Amount
Water Service	30 day(s)	.330/day	9.90
Water Commodity (use)	10 billing units	1.911/unit	19.11
Total Water Charges	10 billing units		29.01

2) Non-tiered rate structure WITH proposed rate increase (effective January 2009 usage/February 2009 bills)

Water Charges	Period/Quantity	Rate	Amount
Water Service	30 day(s)	.346/day	10.38
Water Commodity (use)	10 billing units	2.131/unit	21.31
Total Water Charges	10 billing units		31.69

3) PROPOSED water budget-based tiered rate structure (effective March 2009 usage/April 2009 bills)

Water Charges	Period/Quantity	Rate	Amount
Water Service	30 day(s)	.346/day	10.38
Indoor Use	Budget tiers 7 billing units	1.356/unit	9.49
Outdoor Use	3 billing units	2.482/unit	7.45
Excessive	0 billing units	4.448/unit	0.00
Wasteful	0 billing units	8.137/unit	0.00
Total Water Charges	10 billing units		27.32
Water Budget	11 billing units		

Under water budget-based tiered rates, *water-efficient customers* not only avoid higher tier charges, but **may pay LESS** than what they would have to pay with a non-tiered structure, *despite rate increases!*

Water Budget Breakdown

Tier 1: Indoor Use
7 billing units

Tier 2: Outdoor Use
Number of billing units varies depending on ET (weather) data

Tier 3: Excessive Use
Number of billing units calculated by adding indoor budget billing units to outdoor budget billing units and dividing by two.

Tier 4: Wasteful Use
All billing units in excess of Tier 3


More information available at www.emwd.org

Shadow Bill

- Shadow Bill Letters and bills were sent along with each bill for Feb and Mar 2009
- Explain the changes and new methodology

Account #: 00000000-00

UNDER Budget **SAMPLE Shadow Bill Letter**⁰⁰¹ (for all customers except CII)



EASTERN MUNICIPAL WATER DISTRICT
SINCE 1950

February 2009

IMPORTANT INFORMATION ABOUT WATER RATE CHANGES*

In April 2009, EMWD will be implementing a water budget-based tiered rate structure. Water budget-based rate structures promote fairness for customers who use water efficiently and discourage customers who waste water.

The new rate structure will be implemented in two phases. Phase I will establish generalized water budgets with tiered rates. Generalized water budgets will provide a typical household with enough water to meet indoor and outdoor needs, and will be adjusted according to weather conditions and lot size. The indoor water budget is based on three people per single family home and two people per multi-family residence, with each person using 60 gallons per day. The outdoor water budget is determined by weather information, which could vary each month, and the estimated irrigated square footage of your landscape, which we've calculated based on County parcel data and GIS data. (Please see below for your estimated area.)

Phase II will refine individualized water budgets with indoor and outdoor water allocations determined for each account based on actual household size, landscape area, and weather conditions.

Under the new rate structure, if you stay within your budgeted amount, you will pay the base rates associated with indoor and outdoor use. If you use more than your budgeted amount, you will pay higher rates for excess and wasteful usage. The chart below shows what your current bill would be under the new rate structure.

Your current water use = 4 billing units
Your current water charges = \$18.89

NEW Water Budget-Based Rate Structure
(effective March 2009 usage/April 2009 bill)

Your water budget for January 2009 = 15 billing units
Estimated irrigated area of your landscape = 3,000 square feet

Customers will see their budget and estimated irrigated area.

Water Charges	Period	Quantity	Rate/Unit	Amount (\$)
Water Service	31 day(s)		\$0.346/day	\$10.73
Indoor Use	Budget	4 billing units (BU)	\$1.301/BU	\$5.20
Outdoor Use	Tiers	0 BU	\$2.381/BU	\$0.00
Excessive		0 BU	\$4.267/BU	\$0.00
Wasteful		0 BU	\$7.806/BU	\$0.00
Total Water Charges		4 billing units		\$15.93


DO NOT PAY THIS AMOUNT

- continued on reverse side -

Mailing Address: Post Office Box 8300 Perris, CA 92572-8300 Telephone: (951) 928-3777 Fax: (951) 928-6177
Location: 2270 Trumble Road Perris, CA 92570 Internet: www.emwd.org

Shadow Bill

- Two months to compare flat rate vs. tiered rate



P.O. Box 8300
Perris, CA 92572-8300

WITHIN SOUTHERN CALIFORNIA 600-429-3693
OUTSIDE SOUTHERN CALIFORNIA 951-928-3777
WEBSITE www.emwd.org

CUSTOMER NAME: CUSTOMER NAME
ACCOUNT NUMBER: 0000000-01
SERVICE ADDRESS: STREET ADDRESS
SERVICE PERIOD: 01/01/09 to 01/31/09
BILL DATE: 02/01/09
DUE DATE: 02/16/09

NO OF DAYS: 31
NEXT READ DATE: 03/01/09

Summary of Charges		Previous Charges	
Balance Forward	0.00	Amount of Last Bill	-33.43
Water Charges	65.78	Payment Received - Thank You	12/25/08 33.43
Sewer Charges	24.77	Balance Forward	0.00
TOTAL AMOUNT DUE	90.55		

Meter Information			Water Charges		
Meter No.	Previous Read	Current Read	Period/Quantity	Rate	Amount
1	899	926	Water Service	31 Day(s) 346/day	10.73
			Indoor Use	7 billing units 2.039/unit	14.27
			Outdoor Use	8 billing units 2.039/unit	16.31
			Excessive	8 billing units 2.039/unit	16.31
			Wasteful	4 billing units 2.039/unit	8.16
			Total Water Charges		65.78

Water Usage History					Sewer Charges			
Current Year:					Period/Quantity	Rate	Amount	
Read Date	# Days	Billing Units	Usage in Gal. *	Avg. Daily Usage -Gal.	Sewer Service	31 Day(s) .799/day	24.77	
Jan 31	31	27	20196	651	Total Current Charges		90.55	
Dec 30	31	11	8228	265	TOTAL AMOUNT DUE			90.55
Nov 30	30	0	0	0				


* 1 Billing Unit = 748 Gallons

February/March SAMPLE Billing Statement

Unit costs are the same for all tiers.

Sample Bill

- Tiered Rates approved Jan 2009
- April 2009 was first real Tiered Rate bill



EASTERN MUNICIPAL WATER DISTRICT
 WITHIN THE 951 AREA CODE
 OUTSIDE THE 951 AREA CODE
 WEBSITE

P.O. Box 8300
 Ferris, CA 92572-8300
 800-426-3693
 951-928-3777
 www.emwd.org

CUSTOMER NAME: SANDY CUSTOMER
ACCOUNT NUMBER: 000000-01
SERVICE ADDRESS: 2270 TRUMBLE RD
SERVICE PERIOD: 03/01/09 to 04/06/09
BILL DATE: 04/08/09
DUE DATE: 04/23/09

NO. OF DAYS: 28
NEXT READ DATE: 05/06/09

Summary of Charges

Balance Forward	0.00
Water Charges	25.94
Sewer Charges	19.15
Utility Tax	2.62
TOTAL AMOUNT DUE	47.71

Meter Information

Meter No.	Previous Read	Current Read
65070195	708	718

Water Usage History

Current Year:

Read Date	# Days	Billing Units	Usage In Gal.*	Average GPD+
Apr 06	28	10	7480	267
Mar 09	31	7	5236	169
Feb 06	29	14	10472	361

Previous Year:

Read Date	# Days	Billing Units	Usage In Gal.*	Average GPD+
Apr 04	29	13	9724	335
Mar 06	29	4	2962	103
Feb 06	28	4	2962	107

* 1 Billing Unit = 748 Gallons
 + GPD = Gallons per Day

Previous Charges

Period/Quantity	Amount
Amount of Last Bill	106.90
Payment Received - Thank You 6/4/07/09	-106.90
Balance Forward	0.00

Water Charges

Period/Quantity	Rate	Amount
Water Service 28 Day(s)	.345/day	9.80
Indoor Use 7 billing units	1.30100/unit	9.11
Outdoor Use 3 billing units	2.38100/unit	7.14
Total Water Charges	10 billing units	25.94

Sewer Charges

Period/Quantity	Rate	Amount
Sewer Service 28 Day(s)	.684/day	19.15

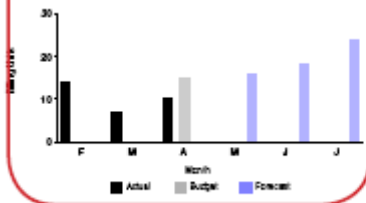
Other Charges

Period/Quantity	Rate	Amount
Utility Tax		2.62
Total Current Charges		47.71

TOTAL AMOUNT DUE 47.71

Water Budget Information

Indoor Allocation: 7 BU
 Based on Household Size: 3 people
 Outdoor Allocation: 8 BU
 Landscape Area: 2,443 sq ft



Tiers indicate amount of water use.

Rates correspond to tier level.

Water Budget information includes household size, landscape area, approved variances, and forecasted budgets.

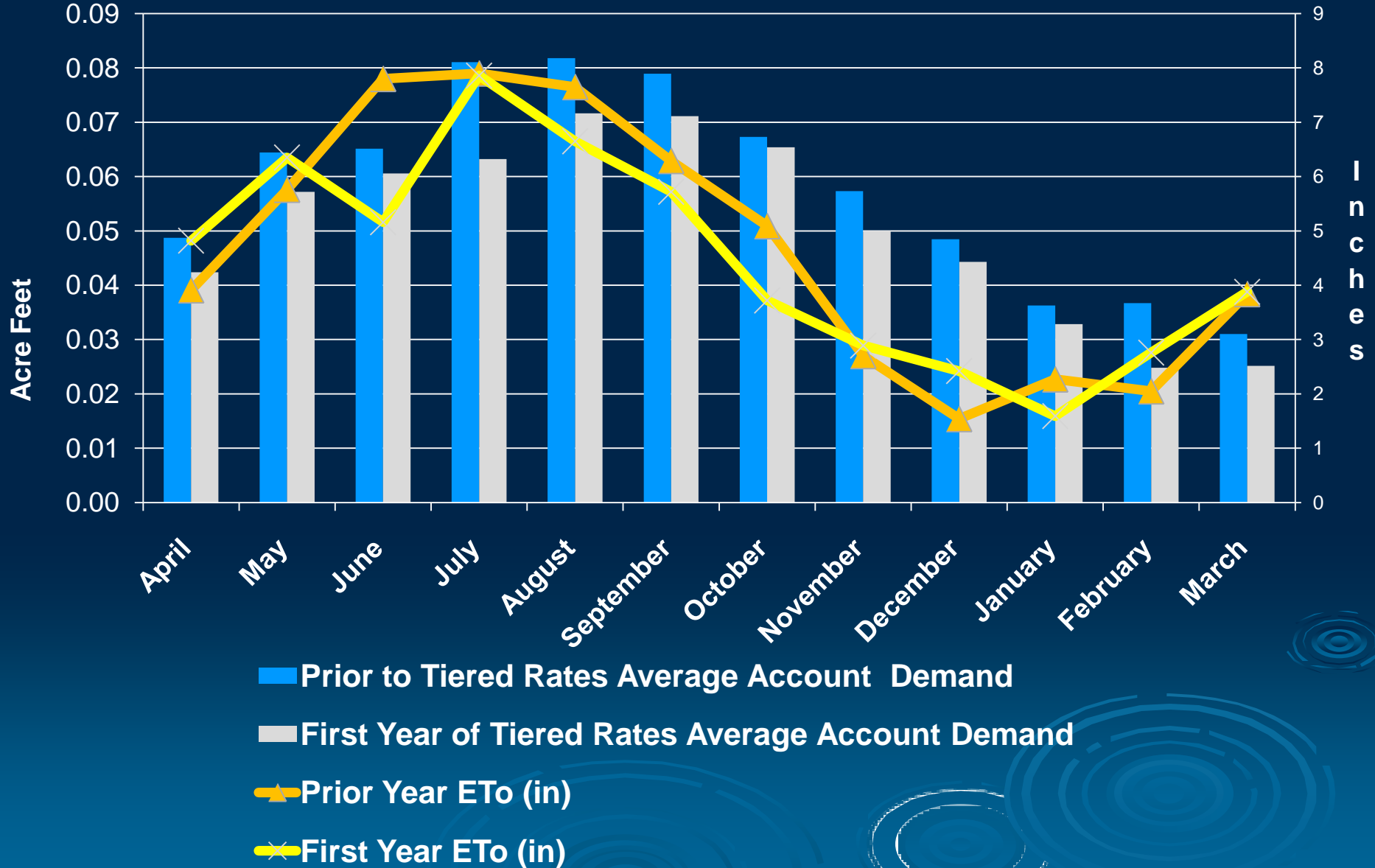
If you have more people in your household or a larger landscape area than what is listed, please submit a variance form. Forms are available at www.emwd.org or call (951) 928-3777.

Special Information:
 Please review your bill carefully! Water budgets and tiered rates are now in effect. New information is located in the left column, including household size, irrigated area, any variances, & forecasted budgets. More info at www.emwd.org.

Providing Customer Service

- 8 temporary employees in Customer Service
 - Process Variances – persons per household, large animal, care facility, pools
 - Phone Calls
- 3 full time assistants in Conservation
 - Variances – landscape, medical, other
 - Customer Audits – Tier 3 and 4
 - Measure accounts with 6,000 SF Limit

Results



Results Cont.

- Continuous decrease in demand
 - 17% decline in demand per meter from 2007
 - Other factors contributing to decline include economy and water supply shortages
- Significantly fewer customers in Tier 3 and 4 in 2010 verses 2009
- Increased demand for residential audits

Lessons Learned

- Set budget criteria early
 - Measuring or estimating landscape areas take a significant amount of time
 - There are customers who will need special attention
- Be prepared for customer response
 - Outreach extensively before implementation
 - Be ready to assist customer after implementation
 - Variances allow budgets to be customized to meet specific needs
 - Create processes to outreach to violating customers

Conclusion

- Budget Based Tiered Rates are an effective way to encourage efficient water use
 - Fairness, conservation and revenue stability are guiding principles
 - Customer outreach and support is key to successful implementation
 - Allow flexibility in budget formulas to account for water shortages and variances
 - Be prepared to help customers save water

Contact Information

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