

Panel Discussion

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EVALUATING ADDITIONAL CONSERVATION ALTERNATIVES FOR MMWD



**MARIN MUNICIPAL
WATER DISTRICT**

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AGENDA

- 1. Project Goals**
- 2. Water Conservation Potential for Program E**
- 3. Results of Conservation Evaluation**
- 4. Why are these Programs Considered Aggressive?**
- 5. Conclusions and Observations**

Project Goals



- 1. Research 4 Conservation Measures:
Enhanced Leak Repair, 2014 CA plumbing code,
Install AMS, Drought Ordinance**
- 2. Review Conservation Savings Goals in the 2007
MMWD Conservation Master Plan**
- 3. Perform a Water Savings and Benefit-Cost Evaluation
of Additional Measures**
- 4. Construct and Evaluate Alternative Programs**
 - ✓ Long-Term Water Savings
 - ✓ Cost-Effectiveness



What changed from Program D to E?

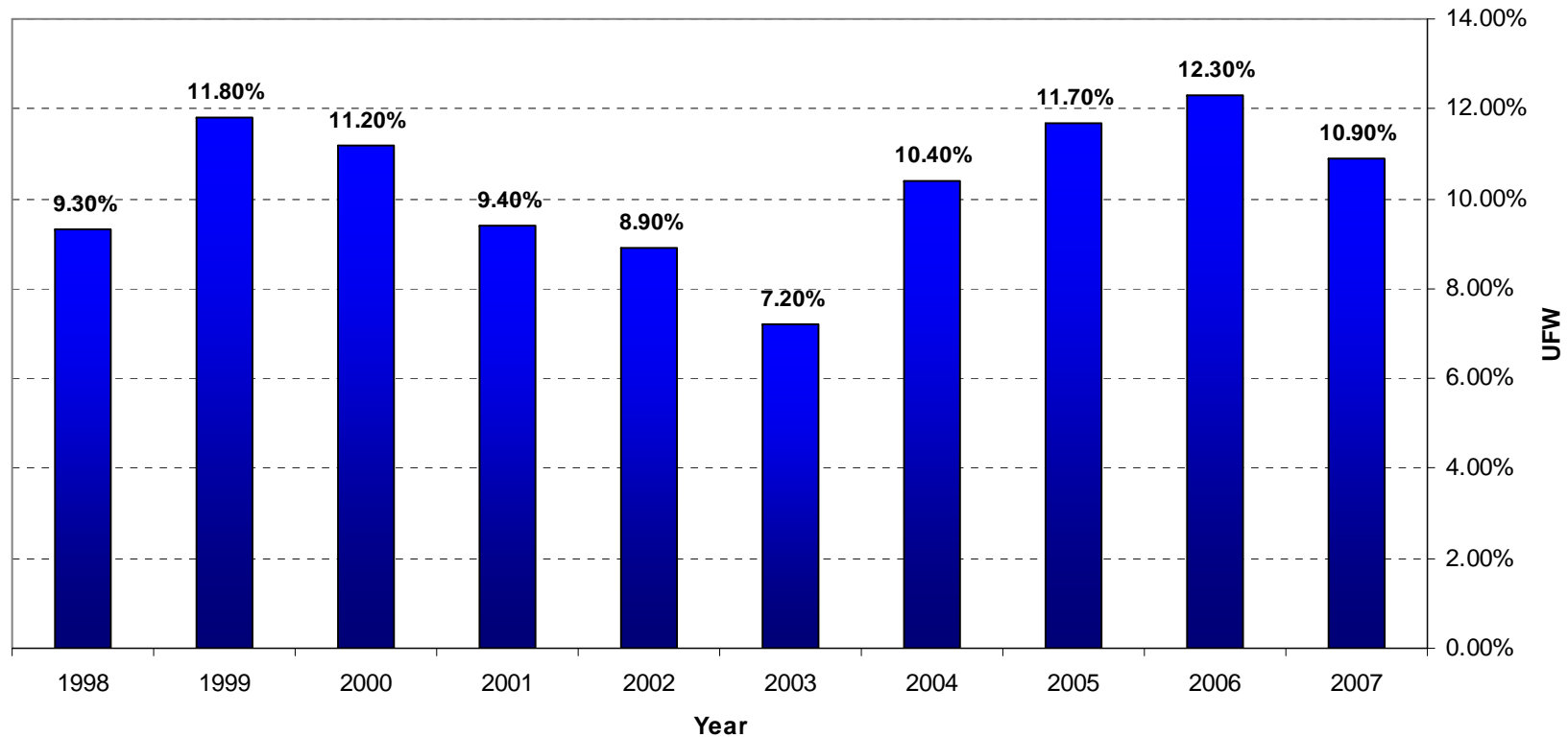


- **Programs A – D presented in 2007 MMWD Conservation Master Plan**
- **Program E = Program D + the following items**
- **Items added to Program D:**
 1. **Enhanced Leak Repair,**
 2. **Install AMS,**
 3. **Update Plumbing Code (new legislation),**
 4. **Revisions to Program D Measures (2007 Master Plan)**
 - ✓ **Change in program length**
 - ✓ **Change in market penetration goal**
 - ✓ **Change in rebate / incentive amounts**
 - ✓ **Added Leak Detection Notification with AMS**
 - ✓ **Added Direct Install for commercial HETs**
- **Program D is still a valid program, Program E is optional additional savings for additional investment**

Expand Leak Detection & Repair Program



MMWD History of UFW 1998 to 2007



- ✓ Goal of Program E would be to reduce UFW to 7.0%
- ✓ Key Finding – Additional Leak Repair (beyond Program D) would save 200 AF/yr in 2025

New California Plumbing Code – HETs and HEUs 2014



PPlumbing Fixture	RRequired by Plumbing Legislation and Regulations	PPossible Future Fixture Requirements
Urinals	0.5 gpf by 2014	1 pint per flush
Residential Lavatory Faucets	2.5 gpm	0.5 gpm
High Efficiency Toilets	1.28 gpf by 2014	Less than 1.28 gpf

gpf = gallons per flush; gpm = gallons per minute

- ✓ **Legislation signed by Governor in October 2007 and therefore was not included in the May 8, 2007 MMWD Conservation Technical Analysis.**
- ✓ **Key Finding: 2014 Plumbing Code increases savings 306 AF/yr in 2025 (367 AF/yr in 2030).**

Automated Meter System (AMS)



Benefits of AMS for MMWD Service Area:

1. Real time monthly billing
2. Reduce customer large water leaks written off / forgiven
3. Enhanced residential, commercial and landscape surveys and water budgets

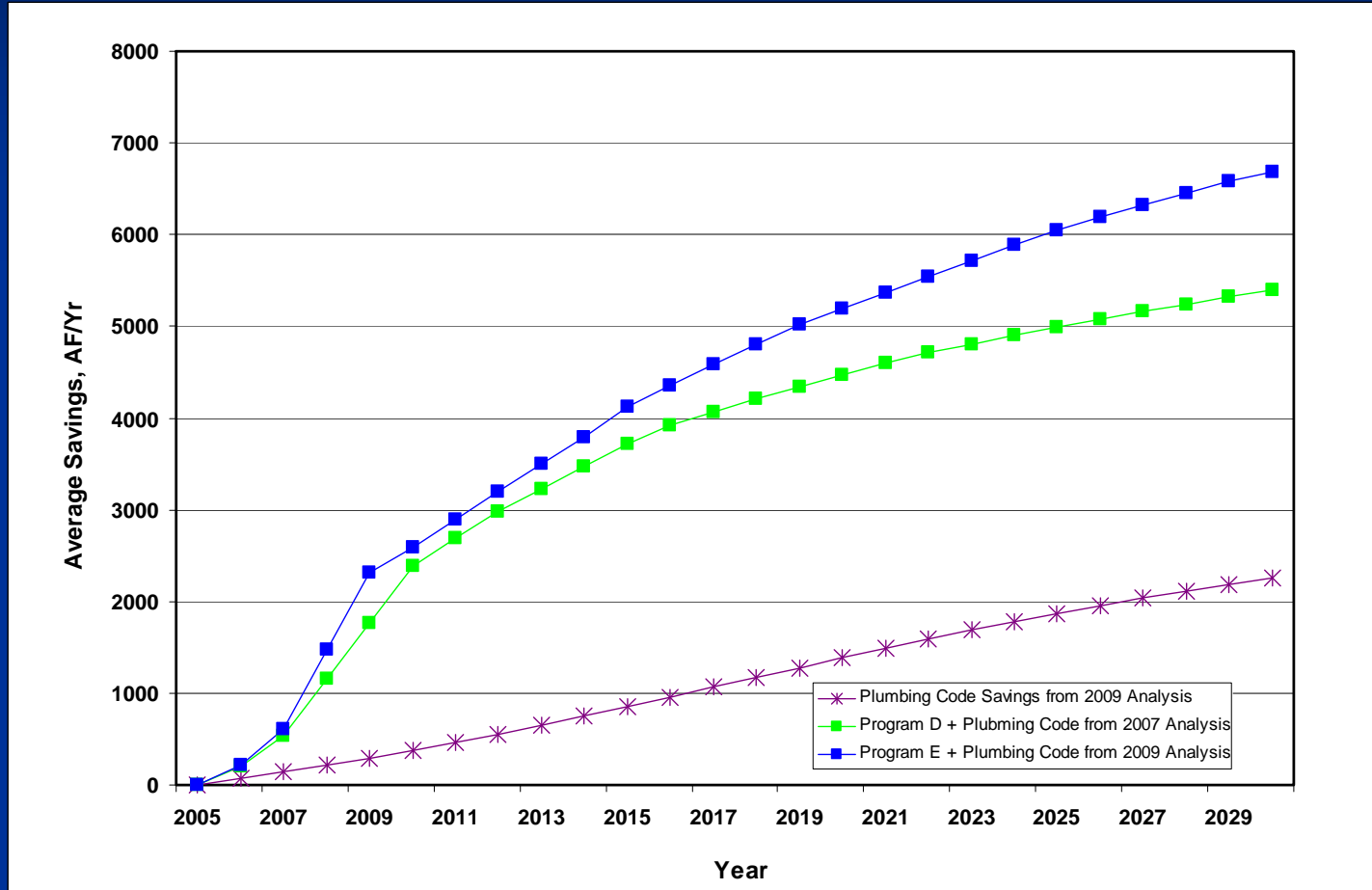
Cost of AMS for MMWD Service Area:

1. Current cost estimate for entire system (62,000 – 65,000) meters is \$19.6 Million.
2. Hypothetical analysis completed using 20 – 40% cost share by Conservation Department

Savings

1. Water savings assume installation of AMS system complete by end of the year 2014
2. Water savings from AMS and changes to Program D measures is 750 AF/yr in 2025 and 800 AF/yr in 2030

Program D vs. Program E Long Term Conservation Savings



✓ **Key Finding: Program E saves 1,057 AF/Yr more water than Program D in year 2025 (1,168 AF/Yr more in 2030).**

Conservation Program Description and Savings



Program	Description	2025 Water Savings with Plumbing Code, AF/Yr	2030 Water Savings with Plumbing Code, AF/Yr
Plumbing Code Only	No Conservation beyond Plumbing Code (Revised to include new California Legislation requiring High Efficiency Toilets and Urinals in the year 2014. Plumbing code water savings increased when compared to the May 8, 2007 Technical Analysis)	1,871	2,251
D + Plumbing Code	Program D is the same as described in May 8, 2007 Conservation Technical Analysis. The water savings for Program D + Plumbing Code remained unchanged from the May 8, 2007 Technical Analysis.	4,990	5,385
E + Plumbing Code	New Program E includes a total of 31 measures (includes AMS, Leak Repair, and revisions to 30 measures in Program D) + Plumbing Code	6,047	6,553
Difference Between Program D and E	Comparison between Program D and Program E	1,057	1,168

Conservation Measure Evaluation Criteria



- **Cost-effectiveness of Each Measure**

- **Avoided cost of water \$1,631/ac-ft based on imported SCWA water**

- **Potential Water Savings**

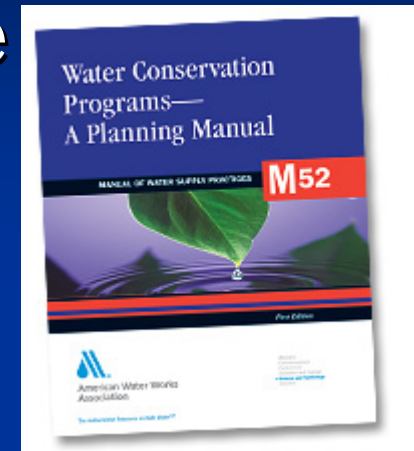
- **Ease of Implementation**

/ Potential for Success in Service Area

- **Availability of Technology**

- **Budgetary Consideration**

- **All programs cost-effective to Agency customers**
- **Agency costs are manageable**



Conservation Program Cost and Savings



Conservation Program	Water Utility Benefit-Cost Ratio	Community Benefit-Cost Ratio	Total Water Savings as a % of Total Production in 2030**	Utility Cost of Water Saved (\$/AF)
Plumbing Code	NA	NA	7%	NA
Program E (No Cost of AMS)	2.22	1.10	13%	\$ 437
Plumbing Code + Program E, (Includes a 40% Cost Share of AMS)	1.95	1.05	20%	\$ 499

Why Are These Programs Considered Aggressive?



Savings

- Program water savings targets typically 10% to 15%, Program E is in the 20% range by the year 2030.



Technology

- Program E utilizes most proven technology, and even includes new and innovative ideas (AMS, electronic notification systems, etc.)

Costs per capita

- MMWD has one of the highest per capita cost of conservation (dollars spent per person) of the national and local studies we have completed in the past 10 years.

Conclusions & Observations



- 1. Program D and E are aggressive programs on a local and national basis.**
- 2. Program E includes new innovative technologies (with fewer long term studies of actual water savings).**
- 3. All programs (A through E) are cost-effective.**
- 4. Conservation can be a significant component of meeting future water needs.**

Panel Discussion

Dan Carney, Marin Municipal Water District





Annual Activities

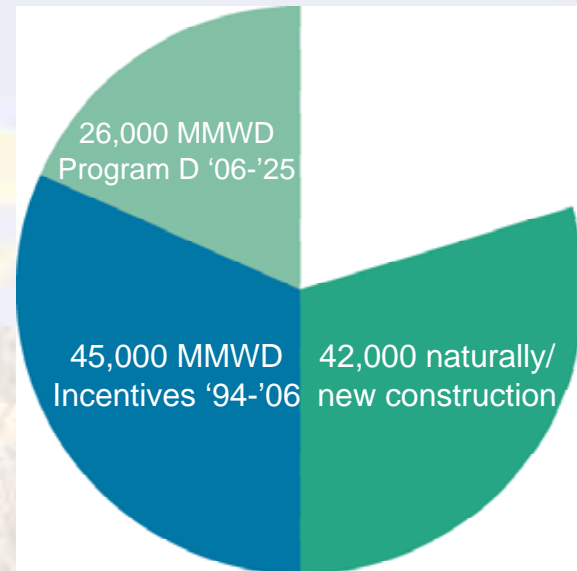
Activity Description	Current MMWD Program 3	Maddaus Program E with Automatic Metering	2006 MMWD Water Management Report
Indoor and Outdoor Residential Surveys	3800	1200	3,470
Clothes Washers Incentives	1,400 for 5 years	1,400 for 10 years	3,000
High-efficiency Toilet and Urinal Incentives	1,500	1,500	6,000
Commercial Washer Incentives	100	100	270
Landscape Incentives	1,000	1,000	3,600
Total Average Annual Activities (Not including Public Education & Outreach Impressions)	13,850	8,300	1980
Projected Water Savings (Acre-feet per year in 2025)	5,000	6,000	8,600



Example: HET Market Penetration

- 160,000 Toilets in the Service Area
 - 42,000 Toilets replaced naturally/new construction
 - 45,000 Toilets replaced w/ MMWD Incentives 1994-2006
 - 26,000 Toilets replaced w/ MMWD Program D 2006-2025
- 113,000 Toilets replaced by 2025

71% of all toilets replaced





Challenges

- Time and money
- Uncertain future
- Motivating behavioral changes
 - Rates have limited influence

Panel Q&A





Breakout Groups

Breakout Group Subject	Room/Location
Conservation Behaviors & Motivating Change	Ross
Lawns & Landscaping	Ballroom
Gray Water	Ballroom
Rainwater Catchment	Tiburon
Paying for Conservation	Ballroom
What's New in Water Legislation	Ballroom
Long-Term Conservation Planning	Sausalito



Closing Comments

- Reports from Breakout Groups
- Concluding Remarks
- Raffle



Thank You

