

MEMORANDUM

TO: Board of Directors, Marin Municipal Water District

FROM: James Fryer

DATE: July 28, 2009

SUBJECT: Response to MMWD Staff Comments on Food and Water Watch Report

Attached are my responses to the MMWD staff comments on the recent report "Sustain Our Water Future." The staff comments are from the June 24, 2009, Board packet item number 14 and are included in their entirety with no editing. My response follows each comment in bold and brackets to clearly delineate them.

It is with considerable trepidation that I provide this response. I respect and admire many present and former MMWD staff members. Throughout the development of the report, every effort was made to work cooperatively with MMWD staff. I very much wish to maintain a cooperative spirit. But I also have an obligation to provide these comments to correct the public record.

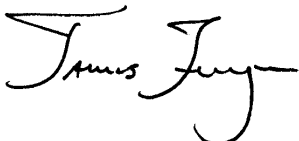
The staff comments and responses are often technical in nature and at times lengthy. It is important to note while the staff comments frequently make general claims about errors in the report, as a careful reader of the responses will recognize, there is not a single specific substantive error identified by the staff comments.

The staff comments are clearly very confrontational and defensive. Nearly every comment contains serious inaccuracies and misleading information. Often the comments egregiously misstate points in the FWW report and often quote other sources completely inaccurately or out of context. The staff comments often make statements that are completely contradictory with MMWD documents, records, and recent public presentations. The response to the staff comments points out these specific problems.

I am deeply concerned that the MMWD staff comments call into serious question the quality of information provided by MMWD staff to the public and the Board of Directors. Particularly since information provided by staff provides the basis of many serious decisions before the Board. While MMWD Board members have much personal expertise, Board members may not have the time, nor should be expected to independently research the many complex and critical issues that must be addressed in the course of responsible decision-making. Therefore, it is imperative that they receive clear, balanced, precise and accurate information from staff. The staff comments to the report, and other recent MMWD public information materials, do not provide confidence that is the case.

Given this situation, in your responsibilities to the public interest you are urged to maintain a healthy degree of critical review of the information you are receiving from MMWD staff.

Please do not hesitate to contact me if you have any questions regarding this response.



SUBMITTED BY: Dana Roxon, Assistant Manager, Environmental & Engineering Services Division
RECOMMENDED ACTION: For information and discussion only

PRESENTATION:

During the process that the District is following to assess whether San Rafael Bay water desalination should be used to address the current and future water supply needs of the District, Food and Water Watch (FWW), a Washington, DC based advocacy group, promised to produce a report showing why the District need not pursue desalination. The report has arrived. A copy is attached. The report was prepared by James Fryer. Mr. Fryer was the MMWD water conservation coordinator for about 5 years, ending in 1999.

[JF Response:

The San Francisco Bay-Delta is a water body of national significance. California and the federal government are spending billions of dollars of taxpayer money to stabilize and hopefully begin to improve rapidly declining environmental conditions in the Bay-Delta. Tampering with the Bay-Delta environment, as a large desalination facility does, is not just a local issue. Regional, state, and national level public interest groups are entirely justified in weighing in on the issue.

Furthermore, Food and Water Watch has an office and the Bay Area and has local membership. In the cover letter they clearly state desalination “should be the water supply option of last resort.” They are seriously concerned with the increased cost burden a desalination facility places on local ratepayers, the dramatic increase in energy use, and other local impacts.

Mr. Fryer has been a resident of Marin for most of his adult life. He was the MMWD Water Conservation Coordinator, the highest level MMWD conservation position at the time, from 1992 to 1999, clearly more than 5 years. He also served in top level conservation positions at MMWD from 1990 – 1992 and was promoted three times during this period.]

The report is introduced by a letter from FWW saying that they are working to counter the “...threat of desalination...” and are opposed to its consideration as a water supply option anywhere in the world In support of this opposition to desalination, the report restates the theme that has been put forth by a number of groups, a number of times, in the nearly 100 year history of MMWD. That is, we do not need additional water supply, we just need to use less water. In keeping with this theme, the report characterizes the water use habits of our customers as “careless and wasteful” and states that “MMWD also fell behind more conservation oriented water agencies in California.”

[JF Response:

This comment badly mischaracterizes statements in the report, perhaps in the hope that ratepayers will not actually read the report but will be mislead by relying only on the staff misstatements. The report is introduced with a letter stating a previous report entitled *Oceans of Problems* “outlined the growing threat of desalination to consumers and our coastal environments.” And “As desalination is expensive, polluting, energy-intensive and in most cases unnecessary, it should be the water supply option of last resort.” Desalination, as clearly demonstrated in the report, represents a much more expensive

option that is more environmentally risky compared to the less costly, well-proven recommendations in the report.

MMWD staff has a history of proposing large water supply projects that the community deems unnecessary as evidenced by the public voting down large new water supply projects in 1971 and 1991 (during a period of drought). MMWD ratepayers are justified in expressing a healthy skepticism regarding proposed new water projects. In retrospect, many turn out to be unjustified or oversized and a waste of limited public funds.]

Staff does not believe that our customers are careless and wasteful in their water use and, we are proud of our recent and ongoing water conservation efforts. Much of the information in the FWW report supporting their statements is in error or poorly substantiated. As an example, many of the new conservation measures suggested are already included in the 2007 Water Conservation Master Plan that the District has adopted. Their inclusion in the FWW report results in some significant double-counting of potential water conservation savings.

[JF Response:

The report notes that after a series of very wet years, which frequently occur in the MMWD service area, water use habits become careless and wasteful. This is well demonstrated by MMWD water production and water use records compared to rainfall records. With the public perception of a series of recent dry years, total water use has dropped from about 32,000 acre-feet in 2004 to about 27,500 acre-feet in the 2008-09 fiscal year. This is a water use reduction of over 14% despite the fact that no rationing was in place. As noted in the report this water use reduction reflects more careful water use by consumers and demonstrates the large amount of demand elasticity that results from consumer perception of supply abundance based on weather patterns. While this is an impressive reduction in water use, the recent photos at marinwaterwasters.org and the many other examples of careless and wasteful water use in the service area that are obvious to careful observers demonstrates much additional savings is possible with improved irrigation system management.

Despite the analysis of the report by many MMWD staff members, the MMWD response comments did not identify any double counting of potential water savings whatsoever. This is an entirely unsupported statement apparently intended to mislead readers.]

Staff suggests that the data and conclusions of the extensive research that the District has completed and published on our water supply opportunities are much more reliable and well supported than those included in the Food and Water Watch report.

[JF Response:

The MMWD Board of Directors and all MMWD ratepayers are encouraged to read the report and compare it to MMWD documents and other cited documents to draw their own conclusions. Careful readers will conclude the Food and Water Watch report is entirely valid in its analysis, recommendations and conclusions]

A number of staff members have reviewed the report and submitted more detailed comments. A compilation of a number of those comments and a table comparing the water conservation savings already included in MMWD proposals with the FWW proposals are attached. District

staff who have reviewed the FWW report also will be present at the Board of Directors meeting to address their comments.

DATE: June 19, 2009

TO: Paul Helliker

FROM: Dan Carney

SUBJECT: Conservation Comments on Food & Water Watch Review

Following are comments by conservation staff on the Food & WaterWatch report *Sustaining Our Water Future* (FWW).

1. **FWW**, Intro page: "*James Fryer....was the head of Marin Municipal Water District's water conservation program from 1990 – 1999*"

MMWD Comment

James Fryer started employment at MMWD in 1990 as a Water Management Inspector. He was promoted, as one of two Water Conservation Coordinators in the conservation department in 1992. From approximately 1994-1998 James Fryer was the head Conservation Coordinator.

[JF Response:

It is correct that James Fryer started employment at MMWD in April 1990 as a Water Management Inspector. His supervisor was a Water Management Specialist, at the time the highest level conservation position at MMWD. By the end of 1990, with the departure of his supervisor, Mr. Fryer was promoted into the Water Management Specialist position, still the highest level conservation position at MMWD. In 1991, Mr. Fryer was promoted for the second time into a newly created, higher level position of Water Conservation Technical Assistant. This new position was the highest level water conservation position at MMWD at the time. He was supervised by the Environmental Resources Division manager who was responsible for the management of the MMWD watershed.

In 1992, Mr. Fryer was promoted for the third time to the newly created higher level position of Water Conservation Coordinator. The Water Conservation Coordinator position was created to fulfill the requirement of the California Water Conservation Best Management Practices (BMPs) that MMWD signed in the fall of 1991. As noted in the FWW report, page 22, the BMP agreement describes the conservation coordinator requirement as follows: "Designate a water agency staff member to have the responsibility to manage the water conservation programs." Mr. Fryer served in this position as the one and only Water Conservation Coordinator at MMWD from when the position was created in 1992 until 1999. It was the highest level water conservation position during this entire time. Contrary to the MMWD statement above, there was never a second Water Conservation Coordinator at any time during this period.

During this period he was responsible for conservation program development and analysis, budgeting, department organization, staff recruitment and management (there were day-to-day supervisors of lower level conservation staff during much of this period), and conservation program liaison to the MMWD Board and Citizen's Advisory Committee.]

2. FWW, pg. viii: *"MMWD's 2007 conservation master plan uses a flawed marginal cost comparison of \$1,631 per acre-foot to screen conservation programs"*

MMWD Comment

It is not appropriate to use the cost of desalination as the avoided cost for use in evaluating long-term water conservation measures and programs. The cost of additional imported Russian River water was used \$1,631/AF, as indicated in the MMWD 2007 Master Plan, and this is an appropriate trade-off. The main goal of the desalination plant is to provide water during shortages. The long-term conservation program is not designed to cover emergency shortages and therefore is not an appropriate trade-off.

[JF Response:

One of the fundamental tenants of integrated water resources planning, the model for modern water resources planning, is the comparison of marginal costs for various demand management and new supply options. The marginal cost of new supply includes the capital, financing, and long-term operations and maintenance cost per acre-foot of a new water supply source available to the water agency. Since additional Russian River water is no longer considered a viable option at this time, the marginal cost of desalination, which is clearly under serious consideration by MMWD, should be used. As noted in the report, the marginal cost of desalination ranges from \$2,903 to \$4,400 an acre-foot, which is much higher than the Russian River marginal cost of \$1,631 per acre-foot.

Also noted in the report, this cost difference has important implications in the screening of potential conservation measures. Measures such as graywater, found to have a marginal cost of \$2,250 to \$3,211 (under the old California graywater code) would be rejected as more cost compared to \$1,631. However, graywater is cost-effective compared to the cost of desalination. (Note: changes in California graywater code expected to become effective in August, 2009 will reduce cost of code legal graywater systems)

As is always the case, the new supplies are driven by the need to provide additional water during shortages. Just as building a new reservoir to provide additional supply during a shortage, desalination would provide additional supply during a shortage. From the point of view of integrated water resources planning, they are functionally equivalent. The repeated staff use of the term "trade-off" demonstrates an apparent lack of understanding of well-established integrated water resource planning techniques. The

marginal costs are not used as a subjective ‘trade-off’ practice, but rather as an objective cost screening technique and benefit/cost measurement point.]

3. **FWW**, pg. viii: *“The package provides a combined benefit of 7,950 afy.....Also, two potential future measures noted may provide an additional 1,000 to 2,000 afy”*

MMWD Comment

MMWD stated in the 2007 Master Plan (MP) that from 8,500 to 12,000 afy are potentially available through conservation, given a 100% saturation rate of major high-efficiency appliances and consistent behavioral reductions equal to as much as 25% in an average year. FWW does not provide sufficient calculations to substantiate the claims as being reasonable to achieve and sustain. Instead these calculations rely on general references to the 1994 MMWD Baseline Study and the CALFED Bay-Delta Study which clearly states on pg. 146, “CALFED used levelized costs per acre ft. that....may mask important interregional cost differences”. These levelized cost differences include assumptions about total water saving potential, cost of utility services, and incentive amounts that are substantially different from calculations used by MMWD based on actual measured results and local conditions rather than general averages.

[JF Response:

The MMWD staff comment cites a savings estimate in the FWW report of 7,950 afy and then notes the 2007 Master Plan projects that 8,500 to 12,000 afy of conservation savings are potentially available. The MMWD comment then states that the FWW report does not provide sufficient calculations to substantiate the savings estimates. However, as noted frequently in the FWW report, the author draws from and cites MMWD savings estimates from the various MMWD documents. These include the 2006 Water Management Plan and the 2007 Conservation Master Plan as the basis for most of the 7,950 afy savings projection.

However, much more troublesome are the MMWD comments that confuse water savings estimates with cost estimates. The MMWD comments state “the CALFED Bay-Delta Study which clearly states on pg. 146 ‘CALFED used levelized cost per acre ft. that....may mask important interregional cost differences.’” Staff is using a quote regarding the COST estimates in reference to the WATER SAVINGS estimates in the FWW report. These are two different subjects and this reference is entirely off subject and out of context. Furthermore, the first half of the pieced together quote, which staff claims CALFED “clearly states on pg. 146...” is not found on page 146. Nor is it found on the few pages before or after page 146. The source of the first half of the quoted statement is unclear.

The second half of the pieced together quote, “....may mask important interregional cost differences” is found on page 146 of the CALFED document. However, page 146 is about the different marginal costs of WATER SUPPLY OPTIONS in different parts of California, not the different marginal costs of water conservation measures. This is another example of a quote that is drawn from a discussion on different subject matter and used entirely out of context. In addition, the quote in the staff comment confuses the term ‘interregional’ used in the staff comment with the term ‘intraregional’ used on page 146

of the CALFED document. These have very different meanings which might be important if the quote was actually about the subject matter in the MMWD staff comment.

Finally, the MMWD staff use of the quote from the CALFED document appears to confuse the meaning of the term “levelized.” As define on page 141 of the CALFED document, the term is referring to the levelization of program cost that vary over time, not from interregional or intraregional geographic differences. This confused use of the term “levelized” occurs in numerous other places in the staff comments on the FWW report.

This pattern of off topic quotes, out of context statements, confusion over definition of terms, and completely inaccurate statements continues throughout the MMWD staff comments on the FWW report. It is not clear whether it is just an attempt to mislead and confuse readers, or if staff members themselves are confused and have a poor understanding of these important technical issues. In either case, it raises serious questions as to the quality of information staff is providing to the Board for important decision-making processes.]

4. **FWW**, pg. 34: “An analysis of urban landscape use by the Pacific Institute estimated that landscape water use savings of 25 to 40 percent could be made with improved management practices and better application of available technology, economically and relatively quickly”...and that..“Based on this information, a goal of 40 percent, or about 4,000 afy is reasonable, viable and achievable”.

MMWD Comment

The 4,000 acre-foot per year of landscape savings (more than ½ of the overall savings) claimed in FWW is based entirely on an estimate in the Pacific Institute’s report *Waste Not, Want Not*. The latter report has limited documentation for this range of 25-40%. To our knowledge, no other community has reported this level of success to date. To assume a 40% saving for MMWD assumes that all accounts have turf that is grossly overwatered and that the majority of landscapes will be renovated to native and drought tolerant landscapes with highly efficient irrigation systems. The Conservation Master Plan anticipates about a 10% savings, on average. While staff is optimistic that MMWD will exceed 10% landscape irrigation savings, we believe even this goal will be challenging to obtain and maintain over time.

[JF Response:

As noted in the FWW report on pages 30, 32, 33, and 34, the 4,000 acre-foot per year of potential savings is based on information numerous MMWD documents and statements. The Pacific Institute report is used only to help validate the MMWD documents and statements. An example is the following MMWD quote included in the FWW report: “a 2006 MMWD report notes that ‘water savings of 25–50 percent are routinely observed after improvements are made to irrigation equipment and operational practices.’”

Contrary to the staff assertion, assuming a 40% savings does not rely on all accounts having turf grass, only on an average of accounts, whether high- or low-water-use plantings, improving irrigation efficiency by 40%. However, as noted on page 34 of the FWW report, accounts that replace unneeded turf grass areas with low water using plants would reduce the plant water need by about 60% or more. This combined with

highly efficient irrigation practices would result in savings far greater than 40% at the site. Also, as noted on page 30 and 34 of the FWW report, many native plants can thrive in this area without any irrigation. This provides an opportunity to reduce irrigation water use by 100% and still have a beautiful, environmentally friendly native plant landscape.]

5. **FWW**, pg. ix: *“Additional Key Recommendations 1-7”*

MMWD Comment

The recommendations listed in the FWW, excepting recommendation #1, are listed in the 2007 MMWD Master Plan and other district documents. The FWW fails to provide citations for these sources. In 2006, MMWD established the Citizens Action Committee to encourage open public participation and highlight community activities that encourage conservation.

[JF Response:

The recommendations in the FWW report were derived from professional experience and many sources which far precede recent MMWD documents. These include the author’s experience developing and implementing MMWD conservation program in the 1990’s his experience with the California Urban Water Conservation Council and statewide water conservation programs, and professional experience with conservation programs in other regions of the world.

As noted on page 24 of the FWW report, the Citizen’s Advisory Committee (CAC) was originally part of an agreement with local environmental groups in 1992 as part of Measure V. As noted on page ix and in numerous other places of the FWW report, a serious CAC should meet on a regular basis and include regular appointees with in-depth knowledge of water conservation measures and programs. The CAC role also should include serious evaluation and input on water supply reliability improvement decisions. This type of CAC would have no functional resemblance to the Conservation Action Committee, held for the first time in years on April 28, 2009, which has no regular membership, no MMWD Board attendance, and no real working group function.]

6. **FWW**, pg. 4: *“Census cards for the per capita rationing allotments were returned and the actual population count closely correlated with the expected population. This indicated a high degree of customer honesty....”*

MMWD Comment

This conclusion is based on conjecture, and is not consistent with similarly reported attempts to get “honest” reporting from customers at other water districts. Currently, staff is designing a drought allocation methodology that rewards water conserving customers with minimal rate increases and rationing requirements, and shifts the burden of rationing to customers with excessive use.

[JF Response:

As noted in the FWW report consensus cards were sent to and returned by customers and tabulated by MMWD staff. Since the author of the FWW was assigned the responsibility of designing MMWD's 1991 rationing program (and based it largely on the 1976-77 MMWD per capita rationing program), he was well aware of the concern at MMWD, as we awaited the return of the census cards, whether the census card population would match population estimates. He was also well aware of how impressed MMWD staff members were when the census card tabulation closely correlated with the expected population count.

The staff response does not cite any other agencies to support their comment that other agencies were not able to obtain "honest" reporting from customers. This staff statement is particularly suspect since MMWD was probably the only agency that used the per capita census card rationing allotment method at the time, and since that time there has not been another drought of sufficient seriousness to trigger a per capital rationing program in urban areas.

This comment by staff that appears to expresses the view that MMWD customers would be dishonest during a drought event does appear to seriously contradict statements made in the MMWD staff cover page.]

7. FWW, pg. 6: "Another useful indicator of demand elasticity is an evaluation of how much water MMWD customers historically used on a per capita basis. Table 3 shows that average consumption was only 74.2 gallons per capita per day in 1940."

MMWD Comment

Social and technological conditions in MMWD have changed dramatically since 1940, making this comparison irrelevant.

[JF Response:

As has been often said, it is difficult to know where you are and where you are going if you do not understand your past. The story of the development of Marin's water resources and the changing patterns of water use are important to this understanding. If this information is irrelevant as claimed in the staff comment, why is it included in MMWD's 2005 Urban Water Management Plan?

It is true that technological conditions have changed since 1940. Present day toilets, showerheads, faucets, clothes washers, and dishwashers and irrigation systems all have much higher efficiency potential compared to 1940. Therefore, it should require less water to satisfy these basic needs compared to the 1940. Also, with the increase in population, the increased extraction of water from our natural systems, and the increase in other stressors to these systems since the 1940, there is a much greater need to more carefully manage our water use.]

8. **FWW**, pg. 7-8: *“Using well-established interior water use information that is derived from MMWD documents and other relevant water use studies, Table 6 evaluates the typical average daily water use for one person.....”*

MMWD Comment

FWW references the MMWD 1994 Baseline Study. This document has been thoroughly reviewed by staff and the relevant results have been incorporated into the 2007 Master Plan. Staff does not consider the Baseline Study to be an inconsistent and unreliable reference source.

[JF Response:

As the MMWD Water Conservation Coordinator, I conceived, designed, recruited and trained a consultant team to conduct the first of its kind water conservation baseline study, then used it as the basis of the development of a comprehensive conservation master plan in 1994. We are in agreement that the baseline study is a reliable source of data. Therefore, it is referenced numerous times in the FWW report.

The MMWD staff compliment on the baseline study is appreciated, but if there is another point of the staff comment it is unclear.]

9. **FWW**, pg. 8 Tables 6-7: *“Graywater production/person/day”*

MMWD Comment

Graywater production of 28.7 and 18.1 gppd is listed at the bottom of these tables. While the FWW notes that people have “the potential to use” this graywater, it should be noted that under current plumbing code, only the portion that can be safely used in the landscape is available, and then is only beneficially used during the irrigation season.

[JF Response:

The staff comment is correct. Also, as noted in the FWW report on page 45, an MMWD funded study determined that is 10% of residential households installed and used graywater systems, an annual savings of 680 acre-feet could be achieved. This easily exceeds the modest 500 acre-feet per year estimate indicated in the FWW report for both rainwater harvesting and graywater use. Furthermore, with the pending update to California graywater plumbing code expected to become effective in August 2009, the cost of installing graywater system will be much lower than the marginal cost estimate in the MMWD study and reported in the FWW report. Also the pending new California code will make it much easier for homeowners to install their own system. As a result, there is a high likelihood of significantly increased graywater use in the MMWD service area in the next few years.]

10. **FWW**, pg. 22-23: “As is very evident from the analysis in the CALFED.....MMWD is now pursuing expensive new supply projects despite the fact that their implementation rate fell below this generally recognized minimum standard for some key BMP’s during the last decade.”

MMWD Comment

MMWD conservation program activities fell far short of both the BMP and 1994 Master Plan goals from 1994 – 99. When conservation programs at MMWD began in earnest in 1995, with the launching of the CAP surveys, staff weren’t concerned with meeting the BMPs - our program goals were driven by the Conservation Master Plan. Actually, staff considered the BMP goals completely unattainable with the number of staff we had. After three years of implementation, MMWD had conducted far fewer CAP than the 1200 – 2400 estimated by the Master Plan. From 1994 - 99, the annual number of Large Landscape CAP varied between a low of 14 and high of 29, for an average of

21 per year. The Master Plan goal was 210 – 399/year. However, the approach was to emphasize quality over quantity. MMWD water use analysis of residential customers who participated in CAP from 1995-97 showed a net drop in water use of over 11% (when compared to a control group).

	94/95	95/96	96/97	97/98	98/99	99/00
Large Landscape Site Audits Completed by MMWD	14	19	15	27	29	35
1994 Master Plan Goal	210	210	210	n/a	n/a	n/a
% of Goal Accomplished	7%	9%	7%	n/a	n/a	n/a

[JF Response:

The MMWD staff comments are entirely inaccurate. Conservation staff in the 1990’s considered the BMP goal completely attainable and MMWD in compliance with the BMP goals. Conservation staff also considered the 1994 Master Plan goal attainable and obtained.

The definition of the BMP goals have been revised numerous times since the original agreement was signed in 1991. The version of the BMP goal that applied in the 1990’s can be found in Appendix D of MMWD’s 1994 Water Efficiency and Conservation Master Plan along with a discussion of the staff plans to meet the goal. At the time, the BMP implementation goal was as follows: “Implementation methods shall be at least as effective as identifying all irrigators of large (at least 3 acres) landscapes... contacting them directly (by mail or telephone)... offering landscape audits... providing follow-up audits at least once every five years...” (WEMCP, p. D-4) Since this was a first generation offering of a structured and targeted program of this nature, the acceptance rate to expect from offering the audits was uncertain. Therefore, the BMP goal developed in the early 1990’s did not include an actual audit acceptance rate. The commitment on the part

of agencies was to make a good faith effort in offering the audits and providing the audit when accepted by the customer.

The definition of the goal in the MMWD 1994 Water Efficiency and Conservation Master Plan was to offer large landscape audits to the top 20% landscape water users. (WECMP, p. VI-53) As indicated in the FWW report on page 7, there were about 1,300 landscape accounts. This means that 20% of 1,300, or 260 accounts were targeted for audits. The acceptance rate was estimated to be 50% to 75%. (WECMP, p. VI-53) So if we consider 50% to 75% of 260 landscape sites, this equals 130 to 195 audits conducted over several years. Clearly, the goal list in the table above is entirely in error since it would require conducting more audits than this amount in a single year. Furthermore, the staff comments and table fail to take into account the 125 large landscape audits performed by MMWD staff leading up to 1994. (WECMP, p. D-4) Nonetheless, the sum of the audits performed in the table above is 139 audits. Taking into account the additional 125 audits the total performed was 264 large landscape audits, which exceeds the target of 260. It should also be noted that the trend line for the number of audits per year was clearly increasing as the program was established and refined.

It is troubling that the MMWD conservation staff, by all accounts a very expensive program compared to other agencies, have difficulty performing fairly basic and accurate analysis on program goals and implementation. It again raises serious questions as to the quality and accuracy of information provided to the Board of Directors as the basis of important program and policy decisions]

11. FWW, pg. 24: *"By the mid 1990's, with the new water conservation master plan...and the conservation site audit program was established and meeting the BMP implementation requirements."*

MMWD Comment

MMWD staff never came close to meeting BMP requirements for large landscape or residential site audits during this time. Staff goals were focused on meeting the Master Plan goals – which also were not achieved. For example, the 1995-96 BMP report for MMWD shows the annual target for residential audits as ~1,600. Staff completed just over 100. The 96-97 BMP goal was 2,000 – 2,500 and staff completed 417. The 97-98 BMP goal was 1,855 - staff completed 335.

	94/95	95/96	96/97	97/98	98/99	99/00	Total
Residential Site audits Accomplished by MMWD	75	107	351	335	305	265	1,438
1994 Master Plan Goal (low)	400	400	400	400	400	n/a	2,000
% of Goal Accomplished	19%	27%	88%	84%	76%	n/a	72%
1994 Master Plan Goal (high)	800	800	800	800	800	n/a	4,000
% of Goal Accomplished	9%	13%	44%	42%	38%	n/a	36%

[JF Response:

As noted in the response to the comment above, there was no acceptance rate assumption in the BMP requirement, just a target of good faith marketing to the top 20% water users.

The 1994 Water Efficiency and Conservation Master Plan was adopted on December 13, 1994, yet the table above indicates a goal of 400 audits, a full year goal once the implementation is ramped up, to be completed within one-half year of the plan being adopted. The tally in the table above also fails to count the 250 audits conducted as part of the baseline study and responding to customer inquiries as the 1994 master plan was being developed. (WECMP, p. D-2)

The staff comments fail to note that implementation of the structured audit program represented a first generation effort for MMWD and for other water agencies in California. Therefore, after adoption of the masterplan on December 13, 1994, a pilot study was conducted in 1995 to obtain the necessary information to most effectively structure a full program. The following are excerpts from the pilot program report to the MMWD Board:

“Based on the success of the pilot, the Water Conservation Section is requesting Board approval for implementation of CAP with the audits starting in early April of 1996. Staff recommends implementation of CAP as a cost-effective means of improving long-term water supply reliability and fulfilling the requirements of the Best Management Practices agreement.

“As noted in the original pilot program proposal, staff believes that performing fewer audits more thoroughly is more productive than performing more audits less thoroughly. We feel that, through a combination of increased attention at individual site audits and expanded emphasis on efficient water management and customer education on a program-wide basis, we can achieve water savings comparable to those estimated in the

WECMP.” (MMWD Staff Memo, Conservation Assistance Program Report, February 15, 1996. p.2)

As a result of the pilot program, the conservation staff refined the full program to focus more on a high quality site audits and additional, ongoing follow-up communication with audited customers to motivate continued implementation of recommendations. The water savings goal was forefront in the refinement of the program, and while it reduced the annual audit goal from the master plan, it did not reduce the water savings goal. With the implementation of the full audit program in 1996, as reflected in the above table, the number of audits performed nearly reached the masterplan goal. But the water savings goal was later measured at 11% for audit program participants which more than satisfied the original water saving goals and at lower program cost.

12. **FWW**, pg. 25: *“...the 2007 Water Conservation Master Plan is a document that appears to be haphazardly cobbled together from numerous previous reports and more narrowly focused analyses. As a result, it is fairly incomprehensible for readers attempting to understand the present state of conservation programs”*

MMWD Comment

MMWD staff extended an offer to provide peer review of FWW prior to its publication, but this offer was not accepted. If a peer review had been conducted, staff could have provided clarification for any sections of the 2007 Master Plan that were “incomprehensible”.

[JF Response:

The FFW report team made numerous attempts to fully engage MMWD staff and management at all levels in the development of the FWW report. Some MMWD staff members were much more cooperative than others in providing information. But none displayed a serious interest in participating in the development of the report. Most MMWD staff treated the FWW team as a very untrusted nuisance. Some MMWD staff repeatedly failed to respond to requests for follow-up information and became confrontational at times. This was unfortunate and as a result MMWD essentially forfeited an opportunity to help shape the report.

MMWD did extend a last minute offer to provide a review of the report just before the report went to press. Clearly this would not represent independent peer review. However, sources were double checked and considerable independent peer review of many sections of the report did occur by a highly respected water conservation expert in California.

Nonetheless, the FWW report team would have been happy to provide a review of the MMWD staff response comments to correct the great number of errors and inaccuracies in the comments before public release.]

13. **FWW**, pg. 25: *“For example, large landscape surveys in the 2007 Water Conservation Master Plan were found to have a marginal cost of \$2,565 per acre-foot. The cost assumptions*

in the analysis are not sufficiently documented to review the calculations. However, in the 2006 CALFED Water Use Efficiency Comprehensive Evaluation, where the cost assumptions are well documented, the marginal cost for large landscape surveys water determined to be \$210.”

MMWD Comment

The CALFED report being referred to also states that the cost methodology used was based on a “Levelized cost per acre foot” and did not account for local water costs, variable savings assumptions, or differences in the amount of incentives being provided by agencies. In fact, the \$210 number referenced in FWW was based on the levelized assumption that each landscape survey would result in 0.62 acre foot savings (15%) – the same assumption was also made for savings resulting from Water Budgets. For example, based on extensive local experience, MMWD staff uses a far lower savings estimate per survey (0.02 acre feet) and a higher savings estimate per budget (1.9 acre feet). These savings estimates recognize that surveys in and of themselves typically result in minimal savings, while water budgets have a much greater savings potential at a lower cost per acre foot (\$162 per acre foot in Maddaus). Because landscape surveys constitute only a small fraction of the savings goal in the 2007 Master Plan (1 ac ft per yr), the high cost per acre foot is insignificant overall and large landscape surveys are still justified because they provide valuable educational benefits to our customers.

[JF Response:

The staff response appears to have a poor understanding of the term “levelized” in the CALFED document, where it is used to levelize program costs that may vary over time, not between different regions in California. As shown on page 25 of the FWW report, CALFED has different savings assumption for water budgets and large landscape audits and they are \$75 and \$210 respectively.

Staff claims that minimal landscape savings typically result from a site survey (or audit under the BMP terminology above). This directly contradicts statements in MMWD documents that note irrigation controllers “are routinely set to apply 30-50 percent more water than is needed to maintain plant health, regardless of the type of plants being watered. This over-watering occurs throughout the year, often during rainy periods and in the fall.” A 2006 MMWD report also notes that “water savings of 25-50 percent are routinely observed after improvements are made to irrigation equipment and operational practices.” (FFW report on page 30)

To defend an annual landscape savings goal of 1 acre-feet per year for landscape surveys is alarming given the statements made in many MMWD documents.]

14. **FWW**, pg. 26-27: *“In order to adequately plan, communicate and implement a truly aggressive, industry leading conservation program.....The document should organize and define the following information:”*

MMWD Comment

Virtually every recommended program and action recommended in this section of the FWW is listed in multiple locations in the MMWD 2007 Master Plan and publically available Board

documents. The FWW does not provide the customary notations recognizing the source of these ideas as belonging to MMWD staff.

[JF Response:

The 2007 Master Plan is a document compiled from many separate documents. Due to the poor organization of the plan, many components of individual water conservation program are scattered throughout many places in the 2007 Master Plan. As noted in the FWW report, the plan needs to be more coherently organized so that readers can understand the past history of a conservation program, its present status and saturation rate, the future implementation goal and water savings, the marginal cost, and the fundamental assumption in the analysis without trying to piece this information together from separate parts of the overall document.

The ideas in the FWW report, with the exception of the specific reservoir reoperation project discussed on FWW report page 41 and 41, and attributed to MMWD staff, far predate the 2007 Master Plan. Furthermore, MMWD is a public municipality. The ideas do not “belong” to MMWD staff. However, this view by staff does suggest that they sometimes loose sight of the fact that MMWD is a publicly owned and funded utility and staff members are employed to work in the public interest, not a private corporation working in self interest.]

15. **FWW**, pg. 31-32: *“...the proposed new State Model Landscape Ordinance as currently drafted would allow 2.7 percent more water use in new landscape sites compared to MMWD’s existing ordinance. This is an important issue since MMWD conservation staff has indicated a desire to revise MMWD’s ordinance to be consistent with the proposed state ordinance. At a time when MMWD residents are calling for increased water conservation....this would be a step in the wrong direction.”*

MMWD Comment

These statements in the FWW misrepresent comments made by staff. In fact, MMWD is required to align it’s ordinances to be consistent with, and ‘at least as effective as’ the new State Water Efficient Landscape Ordinance (WELO) by January 1, 2010. Staff has been actively working with regional partners over the past year to draft a new landscape ordinance that will exceed the minimum requirements of the WELO and the existing MMWD Ordinance 385. All statements made in FWW attempting to persuade the reader into believing that MMWD staff would intentionally “weaken” water use allocations to allow more waste through irrigation are false and misleading.

[JF Response:

The statement in the FWW report fully reflects the MMWD staff statement on the intention to revise the MMWD landscape ordinance to be consistent with the state ordinance. When the author of the FWW report attempted to obtain information on the comparative water use allowance of the proposed new state ordinance with the existing MMWD landscape ordinance, the MMWD Conservation Manager became confrontational and refused to cooperate or provide the requested information. The MMWD Conservation Manager also did not provide any additional information demonstrating that a process or

plan existed to strengthen the MMWD ordinance to allow less water use. Nor has staff provided any details on their intended new standards and the difference in allowable water use in these comments. If staff develops a revised landscape ordinance that effectively reduces unnecessary landscape water use, it would be a step in the right direction. However, rather than simply working with regional partners, stakeholders within the MMWD service area, a valid citizen's advisory committee should be first be established and provided the opportunity to participate in the revision process.

Based on the staff statement above, it appears that contrary to statements in the cover page of this MMWD response, MMWD staff recognize some water waste is occurring in landscape irrigation.]

16. FWW, pg. 33: *"An update to the 1994 Water Conservation Baseline Study is needed and warranted given the proposed \$44 million commitment to water conservation by the MMWD Board. The update should include analysis of multi-spectral aerial orthophotos to determine landscape compositions along with ground truthing site visits..."*

MMWD Comment

The FWW fails to recognize the update to the 1994 Baseline Study was completed by MMWD in 2006 and is included as Appendix C: *MMWD 2006 Water Management Report* in the MMWD 2007 Master Plan. The FWW fails to note the fact that the idea of using "multi-spectral aerial orthophotos to determine landscape compositions" was provided by MMWD staff, verbatim, during a onehalf interview with the author of FWW on February 3, 2009. Staff have been pursuing this multi-spectral imaging project for more than three years.

[JF Response:

Comparing the 2006 Water Management Plan to the 1994 Water Conservation Baseline Study demonstrates a fundamental lack of understanding of the baseline study data collection process and analysis method. The baseline study included customer telephone interviews and site visits for a statistically representative sample of the various customer classes to achieve a low margin of error and high confidence level. This study helped determine the customer knowledge of water conservation technologies and practices. The site visits collected detailed data measurements on water use fixtures and landscape features that was unlikely to be reported accurately by customers due to lack of knowledge on fixture flow rates and irrigation systems. However, comparing what customers actually had at the site to what they thought they had was very useful information for designing effective conservation programs and marketing messages. None of this occurred with the 2006 Water Management Report.

The FWW report cites the 2006 Water Management Report, including a discussion of the report on page 24 and 25, and notes it is useful. However, the 2006 Water Management Report does not provide the detailed and verified data that MMWD lacks, but needs to effectively design a new generation of effective water conservation programs.

The interview staff cites took place on January 20, 2009, not on February 3, 2009. A 1-1/2 hour interview was scheduled in advance with the MMWD Conservation Manager who

unexpectedly left the interview after ½ hour then failed to respond to a follow-up request for information until repeated attempts were made to obtain the information.

The idea of using GIS and orthophotos for landscape analysis was briefly discussed in the interview and the MMWD Conservation Manager was informed that the author is knowledgeable about GIS techniques and supports the idea. However, the idea for this type of project dates back to the 1990's when several studies in California pioneered this technique. Furthermore, the author of the FWW report served on the MMWD GIS implementation committee in the late 1990's when this idea was originally discussed for MMWD. The project was delayed until after the MMWD GIS system was fully functional, which had not occurred when the author departed MMWD in 1999.

The author of the FWW report is a highly experienced GIS technician whose Master's thesis was developing a GIS integrated floodplain management model for the San Francisco Bay-Delta in the 1990's. The author went on to develop GIS packages and conducted analysis in the Florida Keys and the Indian River Lagoon in Florida. The author also has extensive experience using GIS software along with satellite images and aerial orthophotos for navigating in remote, poorly charted regions of island nations in the Atlantic and Pacific oceans. The need for a serious GIS analysis of ornamental landscaping in the MMWD service area as a component of an improved landscape conservation program is a very good idea that was well known to the author long before the brief interview on January 20, 2009.

Given the present day availability of abundant digital data for conducting such an analysis in the MMWD service area, and the MMWD Board support for conservation funding, it is unclear why it is taking over three years to conduct this project.]

17. **FWW**, pg. 36: *"The marginal cost identified in MMWD's 2007 Water Conservation Master Plan is \$1,118 for high-efficiency toilets and \$1,607....However, the 2006CALFED..found the marginal cost of efficient toilets to be considerably lower"*

MMWD Comment

The CALFED study uses a levelized cost basis of \$100 and \$155 per toilet for residential and restaurant toilets, respectively. MMWD provides much higher rebate amounts and assumes lower savings potentials than those in the CALFED study. The MMWD savings and cost assumptions are clearly stated in the 2007 MP, Appendix B, pg. 6-8, and state that "...the fixture savings estimate used in the California Urban Water Conservation guidelines and the CALFED Water Use Comprehensive Review for ULFT's report are **58-72%** greater than that of the District. Staff believes that District conservation estimates more accurately reflect the savings potential of these devices due to the fact that they are based primarily on measured results from data-logger pilot studies."

[JF Response:

The FWW quote is exactly the same as the quote in number 18 below, although the staff comment is somewhat different. Both number 17 and 18 are addressed with the same response below.]

18. FWW, pg. 36: *“The marginal cost identified in MMWD’s 2007 Water Conservation Master Plan is \$1,118 for high-efficiency toilets and \$1,607....However, the 2006....CALFED..found the marginal cost of efficient toilets to be considerably lower”*

MMWD Comment

The author fails to note the reasons for these differences. The CALFED study uses a Levelized cost basis of \$100 and \$155 per toilet for residential and restaurant toilets, respectively. MMWD provides a much higher rebate amounts and assumes lower savings potentials than those in the CALFED study. The MMWD savings and cost assumptions are clearly stated in the 2007 MP, Appendix B, pg. 6-8, and openly state that “...the fixture savings estimate used in the California Urban Water Conservation guidelines and the CALFED Water Use Comprehensive Review for ULFT’s report are **58-72%** greater that that of the District. Staff believes that District conservation estimates more accurately reflect the savings potential of these devices due to the fact that they are based primarily on measured results from data-logger pilot studies.”

Also, as an overall comment on customer saturation values, FWW assumes a saturation rate of 75-90% for replacing toilets, urinals and washers by 2025. Staff thinks this is much too optimistic. Eventually the plumbing code will replace them all, but that may take 50 years.

[JF Response:

The MMWD marginal cost figures far exceed the generally accepted range for toilet retrofits in California, as evidenced by the CALFED study. The MMWD 2007 Water Conservation Master Plan relies on data logger studies by Aquacraft, Inc. to determine the water savings potential from toilet retrofits. None of the data logger studies were conducted in the MMWD service area. The closest was a data logger study of 33 sites in the EBMUD service area in 2003. Not only was the study on a very limited number of sites, all of which were outside the MMWD service area, but no demographic data on the sites studied was collected. Therefore, it is not possible to correct the study results with MMWD service area demographics.

However, the much more serious problem is that as demonstrated by an independent study funded by the Metropolitan Water District of Southern California, the data logger technique for measuring toilet water savings was demonstrated to under measure toilet water savings. The data loggers and the software package that analyzes the data signatures recorded by the data loggers do not accurately identify different types of water uses. This is particularly true when different water uses occur simultaneously. Examples of this would include a toilet flushed simultaneously with a clothes washer running and/or other uses such as faucet use, irrigation use, dishwasher use, etc. Furthermore, in the EBMUD data logger study, and all three other data logger studies conducted in the US, the researchers never entered the households being studied and verified that the signatures being analyzed actually represented the types of fixtures and water uses being assigned to the signature by the analysis software. Different brands of water use fixtures have different flow rate characteristics and therefore result in different water use signatures. Yet, none of this was verified and calibrated in the analysis.

As a result, the independent study evaluating this method concluded the data logger studies underestimate the number of toilet flushing events, and overestimate the volume

of water associated with toilet flushing. Readers interested in more information on this topic are referred to the study “Effectiveness of Data Logging Residential Water Meters to Identify and Quantify Toilet Flush Volumes: A Pilot Study” by John Koeller, and funded by the Metropolitan Water District of Southern California.

However, MMWD does have other tools to evaluate potential water savings. These include a statistical analysis study that used a multi variant model to compare hundreds of retrofitted sites in California with hundreds of similar control sites. In addition, demographic data was collected which provides the means to apply the result of the study to service areas with different demographics. This study was the basis of the toilet savings analysis found in Appendix E, page III-3 of MMWD’s 1994 Water Efficiency and Conservation Master Plan (WECMP). As noted in the staff comments above, the analysis indicates considerably higher savings potential from toilet retrofits.

In addition, a toilet study was conducted by MMWD on 40 sites in the MMWD service area and released in 1990. The study recorded the frequency of flushes per person per day with old fixtures and then after retrofitting with new 1.6 gallon toilets. The study then made an engineering estimate of potential water savings from replacing all the residential toilets in the service area. The result closely agrees with the statistical method discussed in the above paragraph. Both of these studies and methods indicated considerably high savings from toilet retrofits compared to the data logger studies and both reflect MMWD service area demographics.

The staff comments do bring an important issue to light. The toilet retrofit savings estimate in the FWW report, which relied on the 2007 Water Conservation Master Plan should be increased from about 1,000 afy to about 1,500 afy to reflect inaccuracies with the data logger technique.

Regarding the retrofit rate, relying on the plumbing code to replace toilets through the natural replacement rate does not represent an aggressive conservation program. MMWD needs to implement a program that averages a minimum replacement of 4,500 toilets per year using various mechanisms such as direct install, rebates, ordinances, and the natural replacement rate to achieve 90% saturation by the year 2025. Considering the fact that some California agencies such as San Luis Obispo have already achieved an 85% saturation rate (FWW report, p. 36), this does not reflect an unrealistically ambitious goal, particularly in light of the high MMWD rebate offering noted in the staff comment.]

17. FWW, pg. 37: *“However, the new clothes washer replacement goal appears to be 1,200 washers per year”*

MMWD Comment

The Maddaus Program D annual target is 2,700 per year for 5 years (MMWD 2007 Master Plan, Appendix A, pg. 45 of 51). This aggressive target was predicated on the assumption that the new partnership with PG&E would result in a doubling of historic rebate activity levels. This increase in activity has not occurred, and Staff has revised the target goal to 1,400 per year as a more conservative and sustainable goal. The fundamental goal of MMWD conservation programs is not necessarily to fund the replacement of every clothes washer or toilet, etc., but

instead to encourage transformation to more efficient technologies and behavior through incentives and education.

[JF Response:

(Note that this is the second number 17 staff comment as it appeared after comment number 18 in the June 24, 2009 MMWD Board Packet as item 14.)

The Maddaus Program D lists two possible clothes washer goals. One is 2,700 per year and the other is 1,200 per year. The plan does not indicate which goal was adopted.

As noted in the FWW report, a minimum average of 2,100 retrofits per year will achieve the 75% saturation rate by the year 2025. MMWD staff should adjust the program incentive and marketing to achieve this minimum rate, not rely on the assumption that PG&E will do the program for them, or adjust their goal downward to meet the PG&E level of effort. This is another example of MMWD reducing the program goal rather than adjusting the program to achieve aggressive results.]

Additional MMWD Staff Comments on Food & Water Watch Report

June 21, 2009

Page 3 – Average Year Demand: The Report makes a case that the existing average year demand is 29,700 AF/year based on the 4 year period of 2005 through 2008. The Report correctly states that there was no rationing in place this period. However, statewide precipitation amounts were below average in 2007 and 2008 and drought related stories have been much in the news. Also, other water agencies in the Bay Area did request their customers to reduce water use in this period. Staff believes that the modest decline in water use is due to “spill-over” conservation and relatively mild summers during this period. Staff believes the current year after year water demand is about 31,000 AF/year and is appropriate for our planning purposes.

[JF Response:

At the MMWD Conservation Summit on July 8, 2009, MMWD staff presented a graph stating the “average year demand” is 31,700 acre-feet.

The FWW report notes on page 2 that water use is highly elastic based on customer perception of supply. The water production report in the July 1, 2009 Board packet noted that total potable production for FY 2008-09 was about 27,000 acre-feet. Combined with about 650 acre-feet of recycled production, this means that for the most recent fiscal year, total water use is more than 2,000 acre-feet below even the FWW demand estimate.

However, the staff comment does support the contention in the FWW report that MMWD staff underestimates demand elasticity during dry years. The MMWD rationing policy calls for a 10% reduction in the first year of a serious drought. Yet, MMWD customers appear to be achieving a 14% reduction in the most recent fiscal year. Furthermore, the 2009 spring and early summer evaporation transpiration records in the MMWD July 1,

2009 Water Production Report to the Board indicate increased plant water need during this period. Clearly, MMWD underestimates the ability of MMWD to achieve impressive water use reductions water use during dry year periods without enduring great hardship.]

Page 3 – Water Supply Deficit: The Report suggests that by using the 29,700 AF/year demand figure the District can reduce the water supply deficit by 2,000 AF/year. The 31,700 AF/year demand figure is the projected 2005 demand in the 2005 UWMP. The figure is well supported by the water production figures for the 5 year period of 2000 to 2004 which averaged over 31,500 AF/year. The amended 2005 UWMP (Nov 2007) projects that the District water demand will drop to 30,000 AF/year in 2010 and remain at that level through 2025 due to our water conservation efforts. The point that the Report doesn't clarify is that the 3,300 AF/year deficit is not the 2005 (current) deficit but the projected 2025 deficit.

[JF Response:

At the MMWD Conservation Summit on July 8, 2009, MMWD staff presented a graph stating the “average water demand” is 31,700 acre-feet. As noted in the FWW report on page vi and 3, the difference between the MMWD staff identified demand of 31,700 afy in demand and the operational yield of 28,400 afy is 3,300 af. The figures are frequently used in recent MMWD supply planning documents.

It is true that these figures do not always seem to fully match MMWD graphs and charts, where the exact figures are frequently not indicated. It should be noted that there is an ongoing problem with figures MMWD staff presents to the public and Board not matching their own records.

Staff needs to address, with precise numbers and documentation, what staff believes the present deficit is and what the future deficit will be and what will be the components for the projected deficit. This should be done with the oversight and review of a viable citizen's advisory committee.]

Page 5 – Drought Rationing: The current rationing plan is based on simulations of reservoir operations for the hydrologic record from 1928 to present. They are not based on the 129 year rainfall record at Lake Lagunitas as is alluded to in the Report. The current rationing plan is predicated on the following frequency and level of rationing; 10% rationing about one year in 10, and 25% rationing about one year in 50.

[JF Response:

It is not clear why staff use the period starting from 1928 rather than the longer 129 year rainfall record at Lake Lagunitas. It is possible the runoff records are more accurate starting in 1928, but staff does not indicate that is the case in their comments.

As is clear from the present customer response of a 14% demand reduction during FY 2008-09, without a call by MMWD for rationing, the plan for 10% rationing in the first year

of a severe drought under recognizes customer willingness to respond to drought conditions and the overall demand elasticity in a drought.

MMWD should carefully review the rationing plan, with the input of a viable citizen's advisory committee. The analysis should include higher levels of rationing in the first year, including 15% and 20%, and higher levels in the second year, including 30% and 35%.]

Pages 4 and 5 – The description of customer satisfaction during the droughts of the early 1990s is grossly inaccurate. Despite the reports descriptions of happy conservers, MMWD customers were irate that they had to once again face rationing and cutbacks of 50% and more. In 1992, 3 out of 5 MMWD Directors were voted out of office due mainly to dissatisfaction over cutbacks and the resulting high water rates that go hand-in-hand with water shortages. Despite the popular perception that less water use equates with monetary savings, the only expense that goes down in a water shortage is electricity and treatment chemicals while all the other fixed costs tend to increase the water rates. MMWD customers were tired of paying more and more for less and less water and most intensely disliked the severe cutbacks.

[JF Response:

This comment appears to be an attempt to rewrite history and pressure the present Board members into approving a new water supply.

The report does not state people are happy with a drought. Rather it distinguishes between the customer response to drought conditions, customer views of inequitable drought policy, and the customer perception of unrestrained MMWD fiscal management. As noted in the FWW report on page 15 and 24, during the peak of the drought in 1991, MMWD voters defeated Measure W, an \$80 million bond measure to increase the local water supply with a Russian River pipeline. Voters appeared very unhappy about the out-of-control MMWD spending habits and were highly skeptical that a new supply was really needed. In 1992, voters narrowly approved Measure V, a \$37.5 million bond measure. Part of the deal for the support of local environmental groups for Measure V was an agreement to implement water conservation and recycling programs first and only phase in new supply projects on an as-needed basis. A citizen's advisory committee was established as part of the deal and the committee provided oversight on the implementation of the conservation programs, and perhaps more importantly, monitored water use and made recommendation to the Board regarding the need for new supply projects. It should be noted that the citizen's advisory committee, composed of prominent community members, never saw the need to recommend construction of major components of the expanded Russian River pipeline.

Contrary to the staff statement above, the Historical Summary of District Directors provided by MMWD indicates only two Board seats were up for election in 1992. Both incumbents were defeated by candidates running on a platform of fiscal reform at MMWD based on the perception of out-of-control spending by MMWD staff and lack of proper oversight and restraint by incumbent Board members. It should be noted that Joe Nation

was elected in 1992 on a strong environmental platform over an incumbent known for his support of a new water supply project.

The new Board put the new water supply projects on hold, began supporting increased conservation efforts and focused on improving community relations and trust with the help of a citizen's advisory committee. It should also be noted that the new Board removed the MMWD General Manager that had so strongly pushed for the development of new water supply using numbers and analysis that the community was highly skeptical of, and appointed a new GM that would exercise stronger fiscal restraint on MMWD.

The staff comment above clearly confuses customer dissatisfaction over MMWD fiscal irresponsibility and poor rationing policy in 1989 compared to drought conditions. As noted on page 4 of the FWW report, in 1989 MMWD adopted a mandatory rationing program based on a percent cutback of the previous years use for each account. This was perceived as highly inequitable by MMWD customers – it rewarded water wasters with a higher allotment and penalized water conservers with lower allotments. MMWD had a serious public relations problem as a result of this policy. Fortunately, late May rainfall in 1989 allowed MMWD to rescind mandatory rationing for the year.

With another dry winter, the MMWD Board again adopted a mandatory rationing program in February, 1991. This time the rationing program was based on a per capita allotment for all residential services. While more difficult for MMWD to administer, the public perceived this approach as far more equitable and responded in a much more cooperative manner. The important distinction is the perception of fairness and equity in how customers respond. Staff appears to have difficulty recognizing the difference in how customers respond to fair and equitable policy compared to policy more serving of MMWD's internal interest.]

Page 9 – Demand Hardening: The Report cites a paper by Mr. Fryer to support the assertion that water conservation programs increase demand elasticity during drought period rationing. This is contradictory to the analysis and conclusions included in the Maddaus Report(s).

[JF Response:

As noted in the FWW report, well-designed, long-term conservation programs better educate water users on a broad range of conservation practices. Some water users permanently adopt some new conservation behaviors during non-drought periods, but most people do not fully employ their water saving knowledge and potential until motivated by a series of dry years. This means that long-term conservation programs create latent conservation potential that is activated by future drought conditions.

Also, as the population of an area grows, there are more people reducing their water use during a future drought. Cumulatively, and with the adoption of drought water saving behaviors, this can result in a larger overall demand reduction in future droughts.

MMWD staff and the Maddaus “demand hardening” analyses do not take these factors into account. However, the recently released Maddaus Program “E” analysis does

suggest increasing the rationing program from 25% to 30% in the second year of a severe drought. The Maddaus analysis does not suggest there will be any difficulty achieving the increased goal.]

Page 16 – “The long-term impact on marine life is unknown. As noted in the National Marine Fisheries Service and California department of Fish and Game comments, the entrainment studies do not reflect long-term operation of the facility.”

This statement is based on speculation. Entrainment study conducted as part of pilot testing showed minimal entrainment orders of magnitude below sustainable fishery criteria.

[JF Response:

MMWD received letters from both the National marine Fisheries Service and the California Department of Fish and Game disagreeing with the EIR conclusion of no significant environmental impacts in the area of the proposed desalination project. It should also be noted that the permits for the proposed Carlsbad desalination project in Southern California required a 55 acre wetland mitigation project. Also, the NPDES permit for the Tampa Bay desalination project in Florida required \$286,677 for hydrobiological monitoring in fiscal year 2007-08 (information provided by Tampa Bay Water which operates the facility).

Based on this information, concern over environmental impacts will make environmental permitting an expensive and difficult process. Ongoing monitoring and mitigation costs could be very high. These costs do not appear to be adequately considered in the project cost projections.]

Page 17 – Environmental impacts are exaggerated and do not agree with the EIR, which identifies no significant environmental impact on either San Francisco Bay or on the quality of the water produced by the desalination facility. Following that section, concern is expressed for eelgrass habitat lost to pier. The pier already exists and is not located in water depth where eel grass can grow.

[JF Response:

See the above response to the general issue of environmental impacts. Regarding the pier, the FWW report makes no mention of the existing pier or any new pier being constructed. The potential impacts to eelgrass, and the many species that use eelgrass for habitat and foraging, would be expected from changes in water quality, and issues with larvae and juvenile entrainment and impingement on the desalination intakes and discharge pipes.]

Page 18 – Much concern is expressed about the electric power used in Marin and especially for water. The fact is that Marin is mainly a residential community with virtually no industry or enterprises that use electricity. The report acts like global warming is dependent on what steps

Marin takes next. California uses the least electric power per capita in the USA. Further, Marin has the 12th lowest per capita power use out of the 58 counties in California. And this ranking does not change if a desalination facility is built.

[JF Response:

The FWW does not “act like global warming is dependent on what steps Marin takes next.” This is another staff statement apparently designed to confuse or mislead readers. The report merely provides objective analysis of the energy use impact of various size desalination facilities based on energy use figures provided by MMWD in the desalination EIR. As noted in the FWW report on page 18, MMWD is the largest energy consumer in Marin. A desalination facility would increase MMWD energy use from about 40% to nearly 300% depending on the size of the facility constructed and the operational scheme.

MMWD has publicly claimed on many occasions that it can develop a new desalination facility with entirely green power sources and no direct, or indirect, net increase in green house gas emissions. However, MMWD has not provided to the public a plan to accomplish this and according to one Board member concerned with this issue, MMWD has not developed such a plan. Many public members following this issue have expressed skepticism that would be able to develop a viable plan, and note that it would almost certainly add considerable cost to a desalination project.

The staff comment above does not recognize that green house gas emissions and their impact on climate are cumulative, not based on some arbitrary ranking. However, this statement does seem to indicate a lack of MMWD staff confidence that a viable plan to offset the desalination carbon footprint is possible, or that staff no longer intends to develop such a plan.

Many public members support the goal of MMWD reducing its carbon footprint. However, many believe MMWD should use a carbon reduction program to reduce its existing carbon foot.]

Page 19 – “Future MMWD boards will be under frequent pressure to operate an existing facility more than, in retrospect, would end up being necessary.”

This is a ridiculous statement and implies MMWD would operate the desal plant when it isn't needed.

[JF Response:

This statement is well supported with a discussion on page 19 of the FWW report. As documented by MMWD rainfall records, Marin experiences many single dry years. However, when a dry year occurs no one can be certain it is not the beginning of a rarely occurring multi-year drought. In most cases, as is well documented by MMWD rainfall records, abundant rainfall returns the following year. If a desalination facility is built, future Boards will be under pressure to run the facility when heavy rain may occur the following year. In retrospect, use of the desal facility would not have been needed. This view is supported by the numerous times in past history the MMWD Board implemented,

or nearly implemented rationing when late season rainfall, or subsequent years with heavy rainfall made the rationing unnecessary.

This unnecessary use of a desalination facility would increase MMWD operating cost and would likely result in future pressure to reduce costs and the water conservation programs.]

Page 38 – Unaccounted For Water: The Report incorrectly assumes that distribution system “leaks and losses” are the primary reasons for the UFW. The majority of the UFW is due to meter discrepancies and inaccuracy resulting in a revenue loss rather than actual water loss to the degree stated. As a result, the proposed savings of 1,200 AF/year is unsupportable.

[JF Response:

The FWW report clearly states on page 38 and 39 that the exact balance between slow reading meters and system leaks is unknown. This is because, as indicated by many senior MMWD staff, MMWD has not studied the problem adequately to make this determination. Therefore the staff assumption that most of the unaccounted water is meter discrepancies is not supported with evidence. However, the FWW report notes substantial evidence exists, including past MMWD unaccounted losses, distribution pipeline age, soil conditions in Marin, and comparison to a similar agency with old water meters suggesting a large portion of the unaccounted water may be leakage. Also, the recently released Maddaus Technical Analysis for Program E, funded by MMWD, estimates the potential to fairly easily reduce leakage by 1,150 acre-feet. This estimate closely agrees with the 1,200 acre-feet savings estimate in the FWW report.]

Page 39 – Reservoir Operations Improvements – The Report is supportive of Staff’s proposals to address operational constraints within the District’s surface water collection and distribution systems. However, the discussion of the District’s reservoir operations and the proposed operational improvements is replete with errors.

[JF Response:

The MMWD comment does not identify any specific error.

The FWW report begins the section on Reservoir Operation Improvements (p. 39) with a broad discussion of reservoir operation problems in California, then notes on page 40 that, while many of these issues affect the Russian River, the operation of MMWD’s reservoirs is less complex.

Since MMWD does not presently use or manage either Phoenix or Soulojule Reservoirs for improved system yield before the beginning of a drought, some potential for managing the system for improved water supply yield beyond the staff proposal may exist. As recommended in the FWW report on page 41, this possibility should be carefully evaluated with the assistance of independent expertise and the input of a citizen’s advisory committee.]

Page 43 – FWW recommends that MMWD conduct a GIS analysis of the potential for satellite plant recycling. FWW was provided with just such a study conducted through the North Bay Watershed Association which showed exceedingly high costs for satellite plants and (in areas like Peacock Gap and other areas) a shortage of sewage volume above the saltwater intrusion zone.

[JF Response:

A copy of the full study was not provided by MMWD; only a summary PowerPoint presentation was provided. The summary presentation states the “cost was very high \$3,420-6,000/AF (in 2004 dollars) and volume was low because of limited sewage volumes above the saltwater intrusion zone in Peacock Gap area.” (MMWD Presentation: Update and Review of Recycled Water from CMSA, slide 24) The staff comments describe the cost of satellite recycling facilities as “exceedingly high.” However, the cost stated in the study referenced by the staff overlaps the range of the marginal cost of desalination, \$2,903 - \$4,404 per acre-foot. Also, the recycled water projects are probably possible with less energy and environmental impacts. Furthermore, the actual build and operate cost of desalination may well exceed these marginal costs estimates due to increase environmental monitoring and mitigation and increased energy costs.

Recent statements by MMWD Board members indicate they recognize a desalination facility would only be needed in a severe drought event of three or more years. The Board members have suggested it may be advisable to construct the desalination facility and only use it in this type of severe drought event. However, it is important to note the marginal cost of desalinated water from a facility only operated in severe drought events would probably exceed two to three times the \$2,903 - \$4,404 marginal cost identified in the FWW report. In this case, the marginal cost of satellite recycling facilities would probably be much less expensive compared to desalination.

Furthermore, many sanitation agencies in Marin are under pressure to seriously reduce winter overflow spill problems. These spills are largely caused by rainwater infiltration into collection systems. If the collection systems are repaired, this could also reduce the saline intrusion problem. If so, this would improve the viability of increase water recycling in these areas.]

Page 43 – FWW also recommends that the District look into graywater. Not only has MMWD looked at graywater but participated in the statewide advocacy to try to improve the existing graywater code, which is archaic and impractical. It still remains to be seen what improvements will be adopted by California as it is still a work in progress. Even less certain is how Marin County and the various cities will handle permitting requirements as they have the option to make the code more stringent or prohibit it entirely. Since graywater systems require significant maintenance, many homeowners are not willing or capable of doing this work and it is prohibitively expensive to rely on plumbers. So it is still unclear what difference a new graywater code will have on annual water use.

[JF Response:

Despite much documentation in the 1994 MMWD Baseline Study, staff appear to have difficulty accepting the fact that many MMWD customers have experience using graywater and will welcome code changes that allow more practical systems. This comment may reflect some staff resistance to embracing the pending graywater code change and the opportunity to work with local jurisdictions to provide a sensible, practical process for implementing increased use of graywater in the MMWD service area.

The proposed graywater code update is scheduled to go before the California Building Standards Commission on July 30, 2009. If approved, the proposed new code may become effective on August 1, 2009, and would greatly improve the viability of widespread graywater use in Marin.

The proposed new code would allow application of graywater on the soil surface under a 2" layer of mulch and in mulch basins. Costly, subsurface application would no longer be required. The proposed code would not require permits to install a graywater system using only laundry and one additional fixture. The local enforcing authority for graywater systems has the option to either require or not require permits for graywater systems that use more than laundry and one additional fixture, but less than 250 gallons per day. However, a permit will be required for these systems unless the local enforcing agency takes action to not require a permit. Probably only about 10% of households would produce more than 250 gallons of graywater per day. MMWD should immediately begin working with the local enforcing agencies to streamline this requirement.]

Page 46 – Groundwater: The Report simultaneously rejects the District's past studies of groundwater as inadequate and postulates that 500 AF/year or more of groundwater is available without the benefit of any factual basis at all.

[JF Response:

This statement by MMWD staff appears to be an attempt to mislead MMWD ratepayers. As noted in the FWW report on page 47, in 2004 MMWD funded a groundwater study by GSi/water. Though very limited in geographic and technical scope, it only examined the watershed near the reservoirs and did not conduct soundings or test drillings, the study found the potential for as much as 3,000 acre-feet of increased groundwater use from the areas around MMWD reservoirs (FWW report, p. 47). Other studies of Marin geology cited in the FWW report indicate numerous geologic formations such as alluvial deposits in other areas that are generally known for groundwater potential. Many of these deposits have not been studied by MMWD. Ratepayers would be justified in demanding a serious, district-wide, comprehensive groundwater study that is integrated with flood management and adoption of widespread rain gardens as recommended in the FWW report. It should be noted that on page 3-203, the 2007 Marin Countywide Plan calls for a similar groundwater study.]