This meeting is not subject to
Brown Act noticing requirements.
The agenda is subject to change.

MONTEREY PENINSULA WATER MANAGEMENT DISTRICT

**Water Demand Committee Members:**
*Alvin Edwards, Chair*
*Jeanne Byrne*
*Molly Evans*

**Alternate:**
*David Potter*

**Staff Contact**
*Stephanie Locke*
*Arlene Tavani*

*After staff reports have been distributed, if additional documents are produced by the District and provided to the Committee regarding any item on the agenda, they will be made available at 5 Harris Court, Building G, Monterey, CA during normal business hours. In addition, such documents may be posted on the District website at www.mpwmd.net. Documents distributed at the meeting will be made available in the same manner.*

**AGENDA**
**Water Demand Committee**
**Of the Monterey Peninsula Water Management District**
*********
Thursday, October 31, 2019, 3:45 PM
District Conference Room, 5 Harris Court, Building G, Monterey, CA

**Call to Order**

**Comments from Public -** *The public may comment on any item within the District's jurisdiction. Please limit your comments to three minutes in length.*

**Action Items** -- *Public comment will be received.*
1. Consider Adoption of July 11, 2019 Committee Meeting Minutes

**Discussion Items** – *Public comment will be received.*
2. Discuss Proposals – Water for Affordable/Workforce Housing
3. Discuss Updates to Non-Residential Water Use Factors
4. Update on Ordinance re Residential/Commercial Grey Water Systems
5. Discuss Draft MPWMD Testimony – Laguna Seca Moratorium

**Adjournment**

**The next meeting of the committee is scheduled for December 17, 2019 at 4 pm.**

Upon request, MPWMD will make a reasonable effort to provide written agenda materials in appropriate alternative formats, or disability-related modification or accommodation, including auxiliary aids or services, to enable individuals with disabilities to participate in public meetings. MPWMD will also make a reasonable effort to provide translation services upon request. Submit requests by 5 pm on Friday, October 25, 2019, to the Board Secretary, MPWMD, P.O. Box 85, Monterey, CA, 93942. You may also fax your request to the Administrative Services Division at 831-644-9560, or call 831-658-5600.

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**WATER DEMAND COMMITTEE**

**ITEM: ACTION ITEM**

**1. CONSIDER ADOPTION OF JULY 11, 2019 COMMITTEE MEETING MINUTES**

| | | | |
|---|---|---|---|
| **Meeting Date:** | **October 31, 2019** | **Budgeted:** | **N/A** |
| **From:** | **David J. Stoldt, General Manager** | **Program/ Line Item No.:** | **N/A** |
| **Prepared By:** | **Arlene Tavani** | **Cost Estimate:** | **N/A** |

**General Counsel Review: N/A**
**Committee Recommendation: N/A**
**CEQA Compliance: This action does not constitute a project as defined by the California Environmental Quality Act Guidelines section 15301**

**SUMMARY:** Attached as **Exhibit 1-A**, are draft minutes of the July 11, 2019, committee meeting minutes.

**RECOMMENDATION:** The Water Demand Committee should review the minutes and approve them by motion.

**EXHIBITS**
**1-A** Draft minutes of July 11, 2019, committee meeting

MONTEREY PENINSULA WATER MANAGEMENT DISTRICT

# EXHIBIT 1-A

**DRAFT MINUTES**
**Water Demand Committee of the**
**Monterey Peninsula Water Management District**
*July 11, 2019*

**Call to Order**
The meeting was called to order at 3:00 pm in the MPWMD conference room.

| | |
|---|---|
| **Committee members present:** | Alvin Edwards, Chair<br>Jeanne Byrne<br>Molly Evans |
| **Committee members absent:** | None |
| **Staff members present:** | David Stoldt, General Manager<br>Stephanie Locke, Water Demand Division Manager<br>Stephanie Kister Campbell, Conservation Analyst<br>Arlene Tavani, Executive Assistant |
| **District Council present:** | No |
| **Comments from the Public:** | No comments. |

**Action Items**

1. **Consider Adoption of April 23, 2019 Committee Meeting Minutes**
   On a motion by Byrne and second of Evans, the minutes were adopted on a unanimous vote of 3 – 0 by Byrne, Evans and Edwards.

2. **Provide Direction on Proposed Requirement for Installation of Water Meters for Greywater Toilet Flushing Systems**
   The committee discussed this issue but reached no consensus on the number of water meters that should be required. The issue was referred to the full Board for consideration.

**Discussion Items**

3. **Formation of a Working Group to Review and Expand Upon District-Wide Water Conservation Strategies**
   There was consensus among the committee members that there was no need to form a working group at this time. During the discussion, a director noted that the District had not established a Non-Residential Water Use Factor for "florist." Staff responded that the District will conduct An assessment of "florist" water use.

**Adjournment:** The meeting was adjourned at 3:40 pm.



5 Harris Court, Building G, Monterey, CA 93940 • P.O. Box 85, Monterey, CA 93942-0085
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**WATER DEMAND COMMITTEE**

**DISCUSSION ITEM**

**2. DISCUSS PROPOSALS – WATER FOR AFFORDABLE/WORKFORCE HOUSING**

| | | | |
|---|---|---|---|
| **Meeting Date:** | **October 31, 2019** | **Budgeted:** | **N/A** |
| **From:** | **David J. Stoldt<br>General Manager** | **Program/<br>Line Item No.:** | **N/A** |
| **Prepared By:** | **David J. Stoldt** | **Cost Estimate:** | **N/A** |

**General Counsel Approval: N/A**
**Committee Recommendation: N/A**
**CEQA Compliance: Action does not constitute a project as defined by the California Environmental Quality Act Guidelines section 15378.**

**SUMMARY:** At its August 2019 meeting, the Board discussed actions it might take to make available water to the jurisdictions for their housing needs during the remaining years the Cease and Desist Order remains in effect, presently estimated at two to three years. Staff was instructed to bring detailed proposals to the Water Demand Committee and then to bring that Committee's recommendations to the Technical Advisory Committee (TAC).

The concepts presented at that meeting included the following:

- Create new Allocation from accumulated conservation savings (e.g. District Ordinance 87 for CHOMP in 1997)
- Reclaim recently expired Water Use Credits
- Seek voluntary forfeiture of existing Water Use Credits
- Ease transfers between Non-Residential and Residential Water Use Credit holders
- Consider allowing financial incentives for Water Use Credit transfers
- Develop a conservation offset program
- Allow Entitlements to be designated for a general place of use, freeing up potable supply elsewhere

As a result of Ordinance 168, the District currently has nine acre-feet (AF) in the District Reserve that could be allocated at the discretion of the District Board. The concepts above would result in additional water to the District Reserve, primarily targeted to housing. Before discussing the concepts in greater detail, there are a few key policy questions that should be answered:

1. How much water is needed in the next two to three year window for housing?

2. The District should not make land use decisions, so how do we allocate water to Jurisdictions for a stated purpose, without restricting a Jurisdiction's right to make its own decisions?

3. How do we address the "bang-for-the-buck" issue of water for 100% Affordable Housing, versus market-rate housing with a 20% or 25% affordable set-aside, versus moderate income housing, versus need for simply more housing in general?

4. If the District adopts rules to facilitate housing, the same rules may also facilitate additional Non-Residential development in some instances (as discussed in the descriptions below) – is that a desired outcome?

5. What, if any, might be the response of the State Water Resources Control Board as it relates to Condition 2 of the CDO?

The Committee should discuss these key questions.

**RECOMMENDATION:** Provide direction to staff on which proposals to pursue further and to convene a TAC meeting to discuss proposals and secure estimates of need.

**DISCUSSION:** Below, each proposal is discussed in greater detail and background provided.

*1) Create new Allocation from accumulated conservation savings:* Through District programs and Cal-Am rate structures the community has achieved approximately 3,000 AF of annual reductions in water demand since the CDO was enacted in 2009. The Board has the option to simply recognize these savings, in part, as a Public Water Credit allocable to the Jurisdictions for their use. There is precedent for this approach in District Ordinance 87 in 1997 (attached as **Exhibit 2-A**).

In this proposal, the District would convene the TAC, request statements of interest regarding the Jurisdictions' perceived water Allocation needs for the next 2 to 3 years, and an indication of how they may choose to use the water, if and when developed by the District. The District would develop findings that there is urgent need for the Allocation, the conservation savings are significant, the proposed Allocation is a minimal portion of the savings, that reallocation of the savings will not significantly deplete water resources or exceed legal limits on water production, and develop CEQA findings that support the determination.

*2) Reclaim recently expired water credits:* Water Use Credits documented for property owners who have made retrofits or other forms of permanent abandonment of Cal-Am water usage inure to the property, yet expire in 10 years. The District could slightly modify its Rules and Regulations to state that upon expiration the District may place the credits in the District Reserve for reallocation to the Jurisdictions within one to two years. To assist with the CEQA analysis, the District could consider permanent retirement of 15% of the credits to benefit environmental flows on the Carmel River. As an example, at the end of 2019, 13.47 AF of credit will expire from 146 different properties. In 2020, it is only 4.132 AF over 62 properties. This approach, in effect, says a homeowner or business owner did not utilize its right to use a credit for previously utilized water, so the District will do so.

*3) Seek voluntary forfeiture of existing Water Use Credits:* There are 5,092 documented Water Use Credits comprising 224.4 AF outstanding within the District that expire between 2020 and

2029. The average credit is just under 0.045 AF. Most will go unused. This concept envisions a mass mailing to credit holders with a request that they waive or forego their rights to the credit. The positively responding credits would be added to the District Reserve for reallocation.

*4) Ease transfers between Non-Residential and Residential Water Use Credit holders:* Presently District Rule 28 is relatively restrictive regarding transferring a Water Use Credit. The current rule allows:

- A transfer from one property to another for Commercial and Industrial users between each other, but not from Non-Residential users to Residential or vice versa.
- Non-Residential Water Use Credits may be transferred back into a Jurisdictional allocation (However, there was litigation that has slowed this process, see below.)
- Residential credits cannot be transferred.
- Each land use Jurisdiction shall act as the lead agency under CEQA for such transfers.
- Transfers may only occur within a single Jurisdiction.
- Transfers must have the approval of the local Jurisdiction.
- The District shall not approve any transfer where money or other valuable consideration has been given (and violation is a misdemeanor).

The District was sued twice in 2006 on Water Use Credit transfers in Seaside and Monterey (2.166 AF and 0.789 AF, respectively), and those amounts were even reduced by 15% for a set-aside for environmental flows on the Carmel River, as a mitigation. The District initially prevailed in Superior Court, but lost on appeal. Basically, the Court of Appeals found that that the California Environmental Quality Act (CEQA) findings must show that the cumulative impact of the transfer and future other transfers must not affect the environment. As a result, the District put the onus of CEQA review on the local jurisdictions.

The proposal would eliminate most of the restrictions cited above, allowing more free exchange. At this time, we may not be ready to allow a price-based transfer to happen, but it should be discussed. The District would need to modify its Rules & Regulations to take back responsibility for the CEQA findings and study the cumulative impacts, perhaps finding the likelihood of 5,092 Water Use Credit holders (at 0.045 AF per individual average credit, see above) joining together is minimal and the likely cumulative impacts have been mitigated. The District would also need to make a decision as to whether it would allow Residential and Non-Residential property-to-property transactions, property-to-Jurisdiction transactions, or instead should have all Water Use Credit transfers return back to the District Reserve.

Of note is that this approach could also facilitate commercial development through the use of transfers.

*5) Consider allowing financial incentives for Water Use Credit transfers:* See above. It is not staff's recommendation to pursue this proposal at this time. However, the District's Entitlement ordinances have created local markets for access to water at $240,000 to $250,000 per AF, hence it not a stretch to consider allowing arm's-length negotiated sale transactions of Water Use Credits.

*6) Develop a conservation offset program:* In 2018, the Water Demand Committee directed staff to begin to determine basic provisions of a water conservation offset program. An offset program would allow a developer of a proposed project in a Jurisdiction where an Allocation of water is unavailable to invest in conservation savings elsewhere and use the credit created to "offset" the required water for the proposed development. At the meeting, the Committee stated its preference for a program where actual savings will occur, rather than paying into a mitigation bank to help pay for programs by the District to occur sometime in the future.

Several communities have water conservation offset policies. In fact, the District has envisioned such a program in its Rule 24. Section E of Rule 24 covers "Special Circumstances" and subsection 6.k. states what is expected of a developer if a project fails to stay under its calculated Water Use Capacity limit: *"Water use will be reviewed annually after occupancy. If actual water use exceeds the preliminary Water Use Capacity estimate during any annual review, the District will debit the Jurisdiction's Allocation for the difference. At the end of the monitoring period, if the average annual water use exceeds the preliminary Water Use Capacity estimate, the District will determine whether the Jurisdiction shall transfer some of its Allocation to the Project, or* ***whether the Applicant shall pay the cost of District-approved water conservation projects within the District or on the Project Site to establish Water Use Credits to offset the increased increment of water needed by the Project****."* (emphasis added) To date, the District has not formalized a process for how it would approve such projects.

It is not staff's recommendation to pursue this proposal at this time.

*7) Allow Entitlements to be designated for a general place of use, freeing up Potable supply elsewhere:* Presently, all District approved Entitlement programs allow locally created water supplies to offset and "free-up" Cal-Am water to be used on new development. Examples include the Pebble Beach Reclamation Project, Sand City desalination, and the Pacific Grove Local Water Project, among others. This proposal would be to allow the District to separate the water entitlement from a particular Parcel within the Entitlement's place of use and allow the District to simply designate that the purchased Entitlement is being used to meet general customer demand within the designated place of use, with no Parcel designation. The District would also declare a like amount of water is therefore "freed-up" within the Cal-Am system and could be made available to a Jurisdiction.

This approach would likely require a developer to become a buyer of an Entitlement, which may not be economically viable for Affordable Housing, but could foster market rate housing proposals and/or downtown revitalization projects.

**EXHIBIT**

**2-A** Ordinance No. 87 (1997)

# EXHIBIT 2-A

## ORDINANCE No. 87

AN URGENCY ORDINANCE OF
THE MONTEREY PENINSULA WATER MANAGEMENT DISTRICT
ESTABLISHING A COMMUNITY BENEFIT ALLOCATION
FOR THE PLANNED EXPANSION OF THE
COMMUNITY HOSPITAL OF THE MONTEREY PENINSULA

## FINDINGS

1. On January 21, 1997, the City of Monterey granted various land use approvals to Community Hospital of the Monterey Peninsula ("CHOMP"), including a rezoning and a Planned Community Plan ("CHOMP Master Plan") for the modernization of hospital facilities at CHOMP. The CHOMP Master Plan will be implemented in two phases. The first phase involves modernization of the hospital's cancer treatment facilities and the relocation of these facilities into new and remodelled space on the north side of the existing Hospital. This will allow the replacement of existing equipment with state-of-the-art equipment and technology which requires additional space. The second phase involves the upgrading and relocation of the hospital's intensive/coronary care unit, relocation of the inpatient surgery rooms, relocation of the emergency department, and relocation of certain support facilities. The CHOMP Master Plan also includes design features, including improved backup utility systems and relocation of computer systems, which will provide for increased levels of emergency self-sufficiency and support which will enhance the ability of CHOMP to continue providing acute care services during a major disaster.

2. Implementation of the CHOMP Master Plan will result in an increase in water use of approximately 3.41 acre feet ("AF") for phase one and approximately 14.87 AF for phase two, for a combined total of approximately 18.28 AF. CHOMP and the City of Monterey have requested that the District create a special community reserve water allocation from the District for the implementation of the CHOMP Master Plan.

3. CHOMP, a non-profit public benefit corporation, is the sole provider of acute care hospital services on the Monterey Peninsula and provides important medical care services to the community and to residents of the Monterey Peninsula Water Management District ("District"). The implementation of the CHOMP Master Plan is essential to upgrade CHOMP facilities in a manner consistent with current technology and hospital standards, to improve the level of regional medical services available in the coming years, to meet the changing health care demands of the community, to enhance the efficiency of hospital operations, and to provide for additional beds in the hospital's intensive care/critical care unit. Compliance of the new facilities with current hospital construction codes and standards, including seismic standards, will enhance the ability of CHOMP to withstand earthquake damage from a major seismic event.

4. In addition to review by the City of Monterey, the CHOMP Master Plan is required to undergo review by two state agencies. Pursuant to state law applicable to construction of acute health care facilities, CHOMP has made an application to the Office of Statewide Health Planning and Development ("OSHPD"). The plans for the implementation of phase one of the CHOMP Master Plan have undergone their first review by OSHPD. In addition, the California Coastal Commission must approve issuance of a Coastal Development Permit ("CDP") before implementation of the CHOMP Master Plan can begin. Under the provisions of the California Coastal Act and the regulations promulgated thereunder, the Coastal Commission may require assurances of a water allocation before it will accept an application for a CDP. CHOMP is in the process of preparing the application for the CDP for submission to the Coastal Commission. OSHPD will not grant final approval for any phase of the CHOMP Master Plan until the availability of a water allocation is assured and may withhold approval until the Coastal Commission has issued a CDP. Because of the lengthy procedures required under state law to obtain the necessary approvals for improvements to hospital facilities such as those included in the CHOMP Master Plan, any delays in the process will postpone and possibly prevent the needed hospital improvements.

5. Timing of the phasing of the implementation of the CHOMP Master Plan is critical and must be carefully planned and carried out to avoid the interruption of daily hospital operations. Implementation of the first phase of the CHOMP Master Plan is scheduled to begin in the summer of 1997. Site preparation and foundation work for phase one must be completed in the summer to avoid problems and further delays which may occur if such work is delayed into the rainy season. In order for work to begin in the summer of 1997, CHOMP must commence the bid solicitation procedure and begin entering into construction contracts in the near future. CHOMP requires certainty of the availability of a water allocation before it begins the bid solicitation process and before further processing of the necessary permits and approvals can occur.

6. The timely implementation of the CHOMP Master Plan will provide a substantial public benefit to the community and is necessary for the protection of the public health and safety of the residents of the District. Delays in the implementation of the CHOMP Master Plan will result in the wasteful use of community health care resources by imposing additional costs on CHOMP, will postpone or prevent the modernization of hospital facilities, will postpone or prevent improvements in the level of health care service provided in the community, and will adversely affect the public health and safety of the residents of the District.

7. If this special community reserve allocation for the benefit of CHOMP is delayed, further approvals required for implementation of the CHOMP Master Plan will not occur in a timely manner and implementation of the CHOMP Master Plan would be seriously

jeopardized. Critical upgrading of hospital facilities and the resulting improvements in the level of medical care that would be available to the community in the future may never occur or may be delayed indefinitely. This would result in a substantial harm to the public health, safety and welfare. In addition, other important public benefits of the CHOMP Master Plan related to traffic circulation, habitat restoration, and open space preservation, will be lost.

8. The foregoing circumstances constitute a public urgency and an immediate allocation of water for the implementation of the CHOMP Master Plan is necessary to ensure timely implementation of the CHOMP Master Plan, to prevent the wasteful use of community health care resources, to preserve the public health, safety, and welfare, and to prevent the loss to the residents of the District of a substantial community benefit.

9. The District's enabling act gives the District the powers which are expressly granted by the act as well as such implied powers as are necessary and proper to carry out the objects and purposes of the District. The enabling act also grants additional powers to the District, including but not limited to the following powers:

   a. to do any and every lawful act necessary in order that sufficient water may be available for any present and future beneficial use or uses of the residents of the District;

   b. to establish rules and regulations to protect the public health in the operation of the works of the District;

   c. to conserve and utilize water for any purpose useful to the District.

10. The District Board has established a goal of conserving 15 percent of the water demand projected for the year 2020. This translates to a long-term conservation goal of approximately 3,900 AF based on the 2020 water demand of 26,000 AF projected at the time the goal was established, though actual 2020 demand is now anticipated to be less than 26,000 AF. Since this goal was adopted, the District has conserved approximately one-half of the long term conservation goal, or approximately 1,800 AF ("Conservation Savings"). The amount of water necessary to meet the needs of the hospital project (18.25 AF) represents one percent of the Conservation Savings.

11. The purpose of the conservation goal is to conserve the District's water resources for implementation of measures to protect the public health, safety, and welfare. An allocation to CHOMP for implementation of its CHOMP Master Plan from the Conservation Savings is consistent with this purpose in that the allocation will permit the

timely implementation of the CHOMP Master Plan for the benefit of, and to protect, the health, safety and welfare of the residents of the District.

12. As part of its voluntary water conservation program, CHOMP has implemented or is considering implementation of measures to lower water use at CHOMP. CHOMP is seeking water credits from the District for these past and future retrofit and water conservation measures. These measures include an upgrade of the pumping and filtration system on the hospital's Koi pond, an upgrade in the hospital's walk-in cooler refrigeration system, and a cooling tower retrofit. These projects are expected to result in significant water savings. These measures may enable CHOMP to offset much of the water allocated to CHOMP by this special community reserve, but the achievement of these near-term conservation savings at the hospital is not certain or guaranteed.

13. CHOMP is also implementing a program to retrofit all bathroom and rest room fixtures, including toilets, showerheads and faucets, which will result in significant water savings. CHOMP will not be eligible for water credits for this program under current District regulations. This program is anticipated to be completed in 1998. While the amount of water to be saved is not subject to precise calculation at this time, water consumption of the new fixtures will be substantially less than that of existing fixtures. For example, toilets installed under this program will use approximately 54 percent less per flush than existing toilets. Under this program, there will be further substantial reductions in water use compared to existing water use at CHOMP, which will contribute to augmenting the conservation savings.

14. The special community benefit allocation approved by this ordinance will result in water use in the District which will not exceed the limits in water use determined by the District to be available without significantly depleting groundwater resources.

15. In acting on CHOMP's request for a special community reserve allocation, the District is acting in a very limited capacity. The District does not have land use approval jurisdiction with respect to the implementation of the CHOMP Master Plan. The land use approvals have been adopted by the City of Monterey, the jurisdiction with primary land use approval authority with respect to the CHOMP Master Plan. The District is vested with the authority to make an allocation from the Conservation Savings to ensure realization of the public benefit and protection of the public health, safety and welfare to be provided by implementation of the CHOMP Master Plan. As discussed in the following findings, the special community reserve allocation created by this ordinance will ensure the availability of water for modernization, replacement and reconstruction of existing CHOMP facilities where the new and renovated structures will be located on the same site as the structures or portions of structures being replaced and where the new structures will have substantially the same purposes and capacities as the structures replaced. Therefore, the

District has determined that its action with respect to this Ordinance is categorically exempt from the California Environmental Quality Act ("CEQA") as a Class 2 exemption under CEQA Guidelines section 15302.

16. California Public Resources Code section 21084 contains a legislative mandate that certain classes of activities shall be exempt from CEQA because they have been determined not to have a significant effect on the environment. Section 21984 requires the Secretary of the Resources Agency to include in the CEQA Guidelines a list of classes of projects which have been determined not to have a significant effect on the environment and which shall therefore be exempt from CEQA. As discussed CEQA Guidelines section 15300, the Secretary for Resources has responded to the mandate contained in section 21084 by expressly finding that certain classes of projects set forth in sections 15301 et seq. of the CEQA Guidelines are categorically exempt from the requirements of CEQA.

17. Section 15302 of the CEQA guidelines sets forth a Class 2 categorical exemption for projects which involve replacement or reconstruction of existing structures and facilities where the new structure will be located on the same site as the structure replaced and will have substantially the same purpose and capacity as the structure replaced. Section 15302 includes as examples of Class 2 projects those involving replacement or reconstruction of existing schools and hospitals to provide earthquake resistant structures which do not increase capacity more than 50 percent and the replacement of a commercial structure with a new structure of substantially the same size, purpose, and capacity.

18. The CHOMP Master Plan will result in modernization, improvement, relocation, replacement and reconstruction of existing CHOMP facilities and services in new and existing structures on the CHOMP site and will result in facilities and structures with substantially the same purposes as existing CHOMP facilities. The replacement facilities will continue to provide the same health care services currently being provided by CHOMP, including cancer, heart, stroke, and emergency patient care, as well as support operations. However, the new facilities will be upgraded over existing facilities to meet the spatial demands of current health care technology and equipment and to meet current hospital construction codes and standards (including current seismic standards). The new facilities will also include improved backup utility systems which will enhance the ability of CHOMP to be self sufficient and to continue operation in a major emergency affecting public utilities. In addition, the existing hospital departments, facilities and services will be relocated and reconfigured to improve and enhance the efficiency of hospital operations and the delivery of the patient care. The cancer treatment facilities will be relocated to new and remodeled structures on the CHOMP site currently occupied by other hospital functions, including the Cardiopulmonary-Wellness Program, Payroll and Employee Health. The intensive care/coronary care unit, inpatient surgical suite and emergency department will be relocated from their current locations to the replacement structure

(South Pavilion) to be built during implementation of phase two of the CHOMP Master Plan. Diagnostic Radiology services will be consolidated from three separate locations to a single location in the space to be vacated by inpatient surgery, emergency and the intensive/coronary care unit. Existing parking spaces lost due to construction of the South Pavilion will be replaced by new parking capacity in the South Pavilion. Existing hospital functions will continue under the implemented CHOMP Master Plan without significantly increasing the number of patients to be served.

19. After implementation of the CHOMP Master Plan, the hospital will have substantially the same capacity as the existing hospital. Implementation of the CHOMP Master Plan will increase the hospital's current capacity of 174 beds by no more than 10 beds. These additional beds will result from the relocated intensive care/coronary care unit, which will contain a maximum of 10 beds more than the existing intensive care/coronary care unit. No other additional beds will result from implementation of the CHOMP Master Plan. There will be no increase in the number of surgery rooms in the relocated inpatient surgical suite. The relocated cancer treatment center will be larger to accommodate new equipment, but will still contain the same number of linear accelerators for treatment as the existing cancer facilities and will therefore not result in a substantial increase in patient capacity. The existing emergency department is undersized for efficient and comfortable accommodation of current patient flows. The relocated emergency department will be larger to allow it to better accommodate patient flow. This will improve the ability of CHOMP to serve emergency patients more comfortably, though a substantial increase in the number of patients to be served is not anticipated. This increase and the increase in beds in the intensive care/coronary care unit are the only increase in patient capacity which will result from implementation of the CHOMP Master Plan and are insignificant in comparison to existing patient flows at CHOMP. Under full implementation of the CHOMP Master Plan, an increase in staff of approximately 20 positions over existing staffing levels is anticipated, an increase of less than two percent. Implementation of the CHOMP Master Plan will result in an increase in total square footage of only 17,070 square feet for phase one and 74,360 square feet for phase two as compared to the total square footage of the existing hospital of 300,398 square feet. Only 51,000 square feet of the new space under the CHOMP Master Plan will constitute new clinical function space. Because the current medical technologies, techniques, and standards which the CHOMP Master Plan is designed to meet require greater floor area per patient than exist in the hospital's older construction, the increase in square footage does not correspond directly to an anticipated increase in capacity. For example, the area of each replacement operating room in the new surgery unit is required to be more than twice that of existing operating rooms. In addition, the replacement intensive care/coronary care unit will provide 650 square feet for each patient bed compared to 450 square feet per bed in the existing intensive care/coronary care unit.

20. As set forth in the previous findings, the improvements which this special allocation will serve involve the replacement and reconstruction of existing hospital facilities located on the same site as the facilities being replaced and the new facilities will have substantially the same purpose and capacity as the facilities being replaced. For these reasons, the District explicitly finds that approval of the special community reserve allocation for the benefit of CHOMP is exempt from CEQA as a Class 2 categorical exemption.

21. The District Board was presented with analysis and discussion of the allocation from the District's Conservation Savings. This analysis and discussion is contained in the Staff Report on this Ordinance. The District Board has reviewed and considered the information contained in the Staff Report and has concluded that this information is adequate for use by the District in considering this Ordinance.

22. The information and analysis contained in the Staff Report and the record supports the applicability of the Class 2 categorical exemption in accordance with CEQA and CEQA Guidelines.

23. Under Rule 22 of the District's meeting rules, adoption of this urgency ordinance requires the affirmative votes of five members of the Board. Rule 22 also requires the Board to review this urgency ordinance no later than one year from its effective date and to determine whether the ordinance should remain in effect without change, be amended, or be repealed. For the purpose of this ordinance, Rule 22 has been suspended and does not apply.

24. Creation of the special community reserve allocation of 18.28 AF for the benefit of CHOMP shall cause the annual production limit for the Cal-Am water system to be 17,640.81 AF per year (equivalent to metered sales of 16,405.95 AF per year). The non-Cal-Am production limit from the Monterey Peninsula Water Resource System shall remain unchanged at 3,045.71 AF per year.

NOW THEREFORE be it ordained as follows:

## URGENCY ORDINANCE

**Section One: Statement of Purpose**

This ordinance shall create a special community reserve water allocation for the benefit of Community Hospital of the Monterey Peninsula ("CHOMP").

**Section Two: Special Community Reserve Water Allocation**

A special community reserve allocation of 18.28 acre-feet ("AF") of water shall be created exclusively for the benefit of CHOMP. This allocation shall be debited from the amount of water conserved to date under the District's Conservation Plan.

**Section Three: Conservation Requirements**

The creation of this special community reserve allocation for the benefit of CHOMP shall not be deemed to relieve CHOMP of any obligation to implement water conservation measures which it may have under any requirement of law. In addition, CHOMP shall take all reasonable steps necessary to investigate the feasibility and cost effectiveness of its planned walk-in refrigeration unit and cooling tower retrofit programs, and, if feasible and cost effective, to implement these measures to further reduce water use at CHOMP. Any reductions achieved by the implementation of either or both of these measures shall not be deemed to occur by reason of a District mandated or sponsored program for purposes of Rule 25.5(A)(1) of the District's Rules and Regulations.

**Section Four: Annual Production and Sales Limit**

Cal-Am's annual production limit shall be 17,640.81 AF. Of this, 16,405.95 AF shall be available for annual water sales to customers within the Cal-Am system due to system losses and unmetered consumption.

**Section Five: Effective Date**

This ordinance shall take effect at 12:01 a.m. on February 28, 1997, as an urgency ordinance necessary for the immediate preservation of the public peace, health and safety.

**Section Six: Sunset Provision and Review Requirement**

No later than one year from its effective date, the District Board shall review this Ordinance and shall determine whether the ordinance should remain in effect without change, be amended, or be repealed.

**Section Seven: Definitions**

The definitions of the terms used in this ordinance shall be those set forth in the District's Rules and Regulations. The term "District Reserve" in Rule 11 of the District's Rules and Regulations, and as that term is used elsewhere in the District's Rules and Regulations, shall mean the special community reserve allocation created by this ordinance.

**Section Eight: Publication and Application**

This Ordinance shall be read in conjunction with and compliment those provisions of the District's Rules and Regulations; provided however, that the provisions enacted by this measure shall take precedence and supersede any contradictory provisions of those rules. Section titles and captions are provided for convenience and shall not be construed to limit the application of the text.

**Section Nine: Severability**

If any subdivision, paragraph, sentence, clause, or phrase of this Ordinance is, for any reason, held to be invalid or unenforceable by a court of competent jurisdiction, such invalidity or unenforceability shall not effect the validity or enforcement of the remaining portions of this Ordinance, or of any other provision of the Monterey Peninsula Water Management District Rules and Regulations. It is the District's express intent that each remaining portion would have been adopted irrespective of the fact that one or more subdivisions, paragraphs, sentences, clauses, or phrases be declared invalid or unenforceable.

On motion of Director Haddad, and seconded by Director Burkleo, the foregoing ordinance is adopted as an urgency ordinance this 27th day of February, 1997, by the following vote:

AYES: Directors Burkleo, Haddad, Pendergrass and Hughes

NAYS: Directors Ely and Ernst

ABSENT: Director Potter

I, Darby W. Fuerst, Secretary to the Board of Directors of the Monterey Peninsula Water Management District, hereby certify the foregoing as a full, true and correct copy of an ordinance duly adopted this 27th day of February, 1997.

Witness my hand and seal of the Board of Directors this 27th day of March, 1997.

Darby W. Fuerst, Secretary to the Board

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**WATER DEMAND COMMITTEE**

**ITEM: DISCUSSION ITEM**

**3. DISCUSS UPDATES TO NON-RESIDENTIAL WATER USE FACTORS**

| | | | |
|---|---|---|---|
| **Meeting Date:** | **October 31, 2019** | **Budgeted:** | **N/A** |
| **From:** | **David J. Stoldt, General Manager** | **Program/ Line Item No.:** | **N/A** |
| **Prepared By:** | **Stephanie Locke** | **Cost Estimate:** | **N/A** |

**General Counsel Review: N/A**
**Committee Recommendation: N/A**
**CEQA Compliance: Action does not constitute a project as defined by the California Environmental Quality Act Guidelines section 15378.**

**SUMMARY:** MPWMD Rule 24, Table 2 (**Exhibit 3-A**) lists the different factors used by the District to calculate the Water Use Capacity and Capacity Fees for Non-Residential uses. The use of factors based on square-footage or another measurement dates to the adoption of Ordinance No. 21 on March 11, 1985. The factors are determined by reviewing actual water use data for similar types of businesses and applying a common measurement (e.g., square-footage, number of rooms, restaurant seats, etc.). Staff refers to these factors as "regional averages."

As the District began to allocate water from the Paralta Well in 1993, it established a Citizen's Financial Advisory Committee that assigned a subcommittee to look at ways to simplify the permit process as one of its charges. At that time, there were more than 46 individual use factors. That number of factors presented hardships when a use changed and additional water was needed from the Jurisdiction. The subcommittee recommended that there be "grouped" factors for certain common uses that would allow tenants with similar Water Use Capacity the flexibility to change without the requirement for a Water Permit. Grouped factors were adopted with Ordinance No. 71 in early 1994.

The Non-Residential water use factors were largely updated by staff in 1988 and 1993. An attempt was made by A & N Technical Services to do a more thorough comprehensive update in 2011 using Water Permit data, statistical modeling, and using use information from Cal-Am's rate surveys. Ultimately, there were numerous difficulties with matching the District's and Cal-Am's records and consumption information, and the study was received with no action. A copy of the staff report and study are attached as **Exhibit 3-B**.

Over the past thirty years, there have been updates to specific factors, often associated with action on a Water Permit. The Water Demand Committee has recommended changes that were implemented, such as eliminating the factor for "luxury hotel" rooms. Factors that have been updated include: assisted living, skilled nursing, self-storage, hotel, restaurant outdoor seating, bars, supermarkets, schools, gas stations, meeting halls, dry cleaning and laundromats. There have

also been shifts in the types of uses that are in each "group." Often the factor is amended downward to reflect lower consumption as the result of technology.

**RECOMMENDATION:** This item is for discussion only.

**EXHIBITS**

**3-A** MPWMD Rule 24, Table 2, Non-Residential Water Use Factors

**3-B** October 11, 2011 staff report and exhibit: A & N Technical Services report

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# EXHIBIT 3-A
## TABLE 2: NON-RESIDENTIAL WATER USE FACTORS

**Group I** 0.00007 AF/SF

Users in this category are low water uses where water is primarily used for employee hygiene and minimal janitorial uses. Examples are offices, warehouses, and low water use retail businesses.

**Group II** 0.0002 AF/SF

Users in this category prepare and/or sell food/beverages that are primarily provided to customers in/on disposable tableware. Food with high moisture content and liquid food may be served on reusable tableware. Glassware may be used to serve beverages. Users in this category are not full-service restaurants.

**Group III**

| | |
|---|---|
| Assisted Living (more than 6 beds)[2] | 0.085 AF/Bed |
| Bar (limited food/not a full-service restaurant) | 0.0002 AF/SF[1] |
| Beauty Shop/Dog Grooming | 0.0567 AF/Station |
| Child/Dependent Adult Day Care | 0.0072 AF/Person |
| Dry Cleaner w/on-Site laundry | 0.0002 AF/SF |
| Dormitory[3] | 0.02 AF/Bed |
| Laundromat | 0.12 AF/Machine |
| Motel/Hotel/Bed & Breakfast | 0.064 AF/Room |
| w/Large Bathtub (Add to room factor) | 0.03 AF/Tub |
| w/Each additional Showerhead beyond one (Add to room factor) | 0.02 AF/Showerhead |
| Nail Salon | 0.00007 AF/SF |
| Irrigated Areas/Landscaping | ETWU (See Rule 142.1) |
| Plant Nursery | 0.00009 AF/SF Land Area |
| Public Toilet | 0.058 AF/Toilet |
| Public Urinal | 0.036 AF/Urinal |
| Zero Water Consumption Urinal | No Value |
| Recreational Vehicle Water Hookup | 0.1 AF |
| Restaurant - Full Service (including associated Bar Seats) | 0.02 AF/Interior Restaurant Seat |
| Exterior Restaurant Seats above the "Standard Exterior Seat Allowance"[4] | 0.01 AF/Exterior Restaurant Seat |
| Exterior Restaurant Seats within the "Standard Exterior Seat Allowance" | No Value |
| Restaurant (24-Hour and Fast Food) | 0.038 AF/Interior Restaurant Seat |
| School or Church | 0.00007 AF/SF |
| Self-Storage | 0.0008 AF/Storage Unit |
| Skilled Nursing/Alzheimer's Care | 0.12 AF/Bed |
| Spa | 0.05 AF/Spa |
| Swimming Pool | 0.02 AF/100 SF of Surface Area |
| Theater | 0.0012 AF/Seat |

[1] ABC Licensed Premises Diagram area shall be used for calculation of square-footage.

[2] Assisted living Dwelling Units shall be permitted as Residential uses per Table 1, Residential Fixture Unit Count Values.

[3] Dormitory water use at educational facilities is a Residential use, although the factor is shown on Table 2.

[4] See Rule 24-B-1 and Rule 25.5 for information about the "Standard Exterior Seat Allowance".

# EXHIBIT 3-A

## Group IV - MODIFIED NON-RESIDENTIAL USES

Users in this category have reduced water Capacity from the types of uses listed in Groups I-V and have received a Water Use Credit for modifications (Rule 25.5-F-4-d) or permanent installation of known and validated technology that results in a quantifiable reduction in Water Use Capacity. Please inquire for specific property information.

## Group V - INDUSTRIAL USES

Users in this category use water during the production process for either creating their products or cooling equipment. Industrial water may also be used for fabricating, processing, washing, diluting, cooling, or transporting a product. Water is also used by industries producing chemical products and food products. Industrial uses also include certain hospital uses. Water Use Capacity shall be determined following review of the project's construction and business plans and estimated water use and may be considered for Rule 24 Special Circumstances.

Notes: Any Non-Residential water use which cannot be characterized by one of the use categories set forth in Table 2 shall be designated as "other" and assigned a factor which has a positive correlation to the anticipated Water use Capacity for that Site. When a Non-Residential project proposes two or more of the uses set forth in Table 2, each proposed use shall be subject to a separate calculation. When the proposed use appears to fall into more than one group or use, the higher factor shall be used.

*Table amended by Ordinance No. 125 (9/29/2006); Resolution 2008-01 (1/24/2008); Resolution 2010-15 (12/13/2010); Resolution 2013-16 (9/16/2013); Resolution 2014-04 (3/17/2014); Resolution 2014-12 (7/21/2014); Ordinance No. 164 (4/20/2015); Resolution 2016-06 (3/21/2016); Ordinance No. 176 (1/25/2017); Resolution 2017-14 (7/21/2017); Resolution 2017-16 (12/11/2017); Resolution 2018-21 (11/19/2018); Ordinance No. 182 (5/20/2019); Resolution 2019-10 (7/15/2019); Resolution 2019-15 (9/16/2019)*

**EXHIBIT 3-B**

**ITEM: CONSENT CALENDAR**

**3. RECEIVE A&N TECHNICAL SERVICES ANALYSIS OF NON-RESIDENTIAL WATER USE FACTORS**

| | | | |
|---|---|---|---|
| **Meeting Date:** | **October 17, 2011** | **Budgeted:** | **N/A** |
| **From:** | **David J. Stoldt, General Manager** | **Program/ Line Item No.:** | **N/A** |
| **Prepared By:** | **Stephanie Pintar** | **Cost Estimate:** | **N/A** |

**General Counsel Review: N/A**
**Committee Recommendation: On January 29, 2011 the Water Demand Committee reviewed this item and referred the A&N Analysis for formal receipt by the Board.**
**CEQA Compliance: N/A**

**SUMMARY:** In January 2010, the District contracted with A&N Technical Services to review the District's Non-Residential Water Use Factors (NRWUF) that had not been updated since 1992. The factors are used by the District to estimate the water use capacity of a project, which determines the appropriate Connection Charge and the amount of water that must be available in a Jurisdiction's Allocation when a Water Permit is issued. The factors are based on regional averages by type of use (e.g., the water use for a full service restaurant is determined by the average water use per seat of full service restaurants on the Monterey Peninsula, and the water use of a retail business is determined by the average water use per square-foot of local retail businesses). The goal of this project was to update the Non-Residential Water Use Factors (Rule 24, Table 2) using current District Water Permit data and California American Water customer consumption data.

Attached as **Exhibit 3-A** is A&N Technical Service's *Analysis of Non-Residential Water Use Factors*. Staff is not recommending any modification to the Non-Residential Water Use Factors at this time. Using the information that was obtained through the study, there are four types of use (dental offices, dry cleaners, pizza take out/delivery and swimming pools) that need additional review to determine if the use should have a different factor. Changes to the factors, if necessary, will be done by a Resolution amending Table 2: Non-Residential Water Use Factors at a future meeting.

California American Water Use of MPWMD Factors for Billing Allotments

California American Water uses the District's Non-Residential Water Use Factors to establish baseline allotments for its customers. The District's factors have been used since the current tiered rates were implemented in 2000.

MPWMD Use of NRWUF During Rationing

MPWMD's Expanded Water Conservation and Standby Rationing Plan applies the NRWUF factors to various uses to establish Non-Residential Water Use Factors during Stages 5-7.

Report Conclusion and Recommendations

A&N Technical Services was unable to obtain enough "clean" data to make any recommendations on adjustments to the existing factors, other than to identify several factors that require additional staff review. Although there were an insufficient number of samples to gain sufficient information regarding the appropriateness of the factors, the regression models suggested that a small negative trend, reflecting ongoing efficiency improvements, was detectable in many business type categories. This result was anticipated considering that twenty years have passed since the last review and water saving technology has dramatically improved.

**EXHIBIT 3-B**

The conclusion and recommendations of the study indicate that the use of the District's NRWUF for Rationing and ratemaking are not appropriate. Three major reasons for this recommendation are cited below:

a. *The number of measurement units is missing for almost 38 percent of the active non-residential accounts.*

b. *The reliability of existing measurement units is unknown.*

c. *The use of a single measure to standardize constitutes an extremely crude form of a water budget. This estimated water budget can be expected to be an inaccurate definition of efficient water use for most customers.*

d. *The combination of inaccurate water budget and steep rate tiers will magnify the economic impact of erroneous definitions of water budgets. Customers will rightfully perceive the situation as illogical, unfair, and economically unjust.*

In addition to these issues, there were other problems with the data. A&N found that approximately 38 percent of the Non-Residential customers (1,744 out of 4,613 unique active non-residential accounts) were missing documentation to verify the allotment of water assigned to each account. The missing data was collected via mail-in surveys during the implementation phase of the original tiered rate structure in the late 1990's. When California American Water changed billing systems around that time, the survey information was lost. California American Water has been rectifying this situation during the past year by conducting site audits to verify allotments.

The second area of concern related to a lack of common fields in the District and California American Water's databases. Specifically, neither system has common identifiers such as the Assessor's Parcel Number (APN) used by the District or the water customer's account number and premise number that is assigned by California American Water. The use of property addresses is problematic due to multiple users located at a single address and the use of an APN is problematic when multiple parcels are served by a single water meter. A&N recommends that this data incompatibility be addressed to improve coordination and water conservation planning between MPWMD and California American Water.

Staff is committed to working with California American to find a mutually agreeable common data field. Finding a way to cross-reference data will be needed to expedite rationing enforcement. Staff is scheduled to renew coordination with California American Water on the Standby Rationing Plan in October.

**RECOMMENDATION:** The Board should receive the final *Analysis of Non-Residential Water Use Factors.* No further action is recommended. This action was recommended by the Water Demand Committee at its September 29, 2011, meeting. Adoption of this item on the Consent Calendar constitutes receipt.

**BACKGROUND:** The original NRWUF were established in 1985 when the District's current permit process was adopted as a means of assessing the Connection Charge. The factors were partially updated annually until 1988. The last update was approved by the Board in 1992.

**IMPACT ON STAFF/RESOURCES:** N/A

**EXHIBIT 3-B**

**EXHIBITS**

**3-A** Analysis of Non-Residential Water Use Factors

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EXHIBIT 3-B

EXHIBIT 3-A

A & N Technical Services, Inc.

# Memorandum

**To:** Stephanie Pintar, MPMWD; Joe DiMaggio, California American

**From:** Tom Chesnutt

**Date:** October 10, 2011

**Re:** **Analysis of Non-Residential Water Use Factors**

## Introduction

A & N Technical Services conducted a technical analysis of Non-Residential Water Use Factors for the Monterey Peninsula Water Management District (MPWMD). MPWMD has used Non-Residential Water Use Factors since 1985 to estimate water demand for new and expanding Commercial, Industrial, and Institutional (CII) uses prior to construction and prior to expansion or change in use to ensure that adequate water supplies exist to meet the project's needs. The factors are "regional averages" based on telephone surveys of businesses and on water consumption records from California American Water (Monterey Division), the local utility. Non-Residential Water Use Factors are based on an amount of water demand per square-foot or other measurement (i.e., hotel room, restaurant seat, commercial washer in a Laundromat, etc.). Most of the 52 individual water factors used by MPWMD to calculate water demand "capacity" were last defined in 1992. The original Non-Residential Water Use Factors were established in 1985 when the District's current Water Permit process was adopted. The factors were partially updated annually until 1988.

MPWMD and California American Water require recalibrated Non-Residential Water Use Factors for permitting and ratemaking purposes. MPWMD will use the updated Water Use Factors to estimate demand prior to issuance of a Water Permit and to calculate CII rations prior to water rationing. California American Water uses the District's Non-Residential Water Use Factors to establish baseline allotments and the base rates for its customers. The District's factors have been used to establish CII allotments since tiered rates were implemented in 2000.

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New CII rates were approved by the California Public Utilities Commission (PUC) in 2009 and were implemented in 2010.

### *Tasks*

The analysis focused on three tasks:

> Task 1. Review Practices to Water Use Factor Definition. At project conception I reviewed and collected information on the derivation of water use factors currently being employed at the District and California American. As part of the project initiation, I also participated in two Stakeholder meetings.
>
> Task 2. Collect and Analyze Water Consumption and Permit Data. To prepare for the analysis, three types of data: water consumption records from California American Water, Water Permit Data from MPWMD, and weather data from CIMIS were collected, cleaned, and merged. These data were analyzed to inform revised Non-residential Water Use Factors.
>
> Task 3: Develop and Present Recommendations on Non-Residential Water Use Factors.

## Review and Stakeholder Input

The Non-Residential Water Use Factors used to set allotments in the current water rate structure were originally developed for capacity-related calculations by MPWMD in the early 1990's.[1] Their use as a basis for Non-residential water rates bears a resemblance to recent national research on water budgets.[2] This analysis was allowed to consider weather patterns, industry fluctuations, and other factors that may be pertinent to establishing a water use factor for specific types of Non-Residential use.

The approach of this project was presented at a February 11, 2010, public meeting, held at the Seaside Community Center. MPWMD presented the history of the Non-Residential Water Use Factors which originated out of a need to estimate anticipated future water demand to calculate connection charges. These Factors were later adapted by California American for use in determining the base rate for non-residential water users. California American presented an overview of the current approved rate

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[1] See "Calculated Average Consumptions: Commercial Users," MPWMD, July 1992.

[2] See Mayer P., W. DeOreo, T.W. Chesnutt, L. Summers, "Water Budgets and Rates Structures: Innovative Management Tools," *Journal AWWA*, 100:5, pp.117-131, May 2008. 2008 Best Paper Award, AWWA Conservation Division.

structure and their approach to implementing the rate structure using MPWMD's factors Comments from the public were received.

A second focused stakeholder workshop was held on March 19, 2010, that involved the Hospitality Industry stakeholders—including representatives of hotels, restaurants, and other non-residential customers.

Two questions were initially posed by stakeholders:

- What are Non-Residential Water Use Factors?
- How are Non-Residential Water Use Factors used?

Representatives of the District explained the history of how Non-Residential Water Use Factors were developed for purpose of capacity planning and calculating connection charges. Stakeholders expressed a number of concerns with how the factors had been or could be applied in a water rate structure. A short noninclusive list of these concerns includes:

- Basing allotments on historical use will punish successful, though efficient, businesses. Why punish success?
- Businesses within a business type category can be immensely different. Standardizing by one measurement unit is not fair.
- Basing a revised Water Use Factor on consumption data from 2009 and even 2008 will capture consumption that reflects lower hotel occupancy and lower economic activity.
- Concerns that any error in classification or derived Water Use Factor would have huge economic consequences for businesses when the third rate tier is seven times higher than the first.
- Concerns about the availability and content of existing non-residential water audits.
- Concerns of the level of existing water rates and proposed and future water rates.

## Data, Methods, and Approach

**Consumption Data:** California American supplied monthly meter-read consumption data for non-residential accounts going back to 2001. A separate statistical dataset was created for each month of consumption data provided. These 108 monthly datasets were appended into a single consistent time-series for the statistical analysis.

**Weather Data:** Daily weather data were compiled from a nearby CIMIS station (California Irrigation Management Information System Station 17 in Castroville). The daily values of precipitation and maximum air temperature were averaged over 30 days. A match was made between consumption data and the weather data based on the meter-read date. Thus, a meter read that occurred on January 15

represents consumption that occurred between December 15th and January 15th and would be matched to the average precipitation and maximum air temperature for the same period. The average values of the precipitation and maximum air temperature values were calculated.

**Deterministic Functions of Calendar Time:** Additional variables were created that were deterministic functions of time—an annual trend term centered on 2005 (the center of the sample period), monthly indicator variables (mo1-mo12 where mo1 equals 1 in the month of January and is zero for all other months), and a set of 12 matched sine and cosine terms that can depict the same monthly variation as a continuous function of time.

**ECU Factors:** California American also supplied data on "Non-Residential ECU Factors" that provide a current definition of the Business Type Code attached to each customer account. Each Business Type Code has an associated water allotment expressed per measurement unit (square feet, rooms, seats, etc.). The matching of the ECU Factors that define allocations to the historical water consumption data was not straightforward for several reasons. First, this flat file of Non-Residential ECU Factors contained information on both active accounts and closed accounts. Second, as the result of a historical data conversion glitch, the basis for determining the customer allotment—the business type code and measured units—were lost for approximately 2,500 ECU Factor records. These records with data lost in the conversion list the Business Type Code as "CONV". Though these CONV records retain the historically defined water allotments, they do not retain the basis for the allotment (Business Type Code and measurement unit) and thus cannot shed light on historical consumption of specific business types. Third, more than one ECU Factor may be needed to define current allotments for non-residential California American customers. Since different businesses can be connected to the same customer meter (a "mixed meter"), there is not a one-to-one correspondence between this data and the historical time series of water consumption history. To ensure a clean one-to-one match to historical water consumption only a subset of ECU records could be used for matching:

- only ECU Factors for active accounts,
- no "CONV" or "NOALL" ECU Factors, and
- only single ECU Factors were used (no mixed meters).

Thus, readers are cautioned to note that the analysis sample can differ from the population of all nonresidential accounts, since the analysis sample contains no accounts having multiple assigned ECU Factors. It is not known how accounts included in the analysis differ from the accounts excluded due to nonexistent measurement units.

Outdoor water use. The Settlement Agreement explicitly states that: "The Parities agree that outdoor water will be viewed as discretionary use except for properties that have to have water for the business purposes. This means that outdoor water use that is not essential to the business function will be billed at block 2 or 3 rates. For example, water used by a bar or restaurant for outdoor purposes would be billed at the block 2 or 3 rates." For certain accounts, MPMWD sets a water budget for outdoor water use as a function of irrigable area—the Maximum Applied Water Allowance (MAWA). Water use of business types defined as outdoor water use—Outdoor, Drought or Drip (ODRGH), Outdoor no turf (ONTRF), Outdoor Turf (OTURF) are included in the analysis sample if they are a unique account. Businesses having allotments for both indoor and outdoor uses on the same meter are excluded from the analysis sample. Business having unknown or unmetered outdoor water uses are included in the analysis sample since it is not possible to exclude them.

New Business Types. Potential new business types for evaluation include:

| New Business Type | Code |
|---|---|
| Ice Cream | ICE |
| Massage Parlor/Studios | MASSA |
| Funeral Homes/Morturaries | MORTU |
| Airport | AIRPT |
| Cafes/Coffee House | CAFÉ |
| Tanning Salon | TAN |
| Pet store/Grooming | PETS |
| Equestrian/Ranches/Stables | RANC |
| Tailor/alterations | ALTER |
| Wholesale Grocers | GROWC |

California American was unable to identify all potential candidates of these potential business types in the time frame of this study.

**Permit Data:** Additional data were also supplied from MPWMD generated from the issuance of permits for new construction and remodeling purposes from 1990 to 2005. MPWMD provided Excel spreadsheets showing 368 Non-Residential properties that received Water Permits for New Connection between 1990 and 2005. The spreadsheets include (1) two spreadsheets of current and archived Water Permit data for Non-Residential New Construction Water Permits issued between 1990 and 2005; (2) two spreadsheets showing Non-Residential Water Permits, the factors applied to the permit (i.e. retail, restaurant, bakery, etc.) and the square-footage or other measurement associated with that use; (3) a

spreadsheet showing the variables in the Non-Residential Water Use Factors used, and (4) a description of the fields.

All properties listed on these spreadsheets were required to install ultra-low flush toilets, instant access hot water systems and low-flow showerheads and faucet aerators. All properties were required to have conservation signage and to serve water only upon request. Estimated demand includes minimal associated landscaping that was not permitted.

These Permit data were not used in the analysis for two reasons. First these data, while containing a rich set of details on planned fixtures and uses, did not provide data on the entire population of non-residential customers—only those who had applied for permits. Self-selection of the sample of customers who choose to apply for permits mean that conclusions reached on this sample of customers could not be expected to extend to the sample of customers who have not applied for permits. Second, and more importantly, matching these data to California American consumption data was not possible because the MPWMD data did not contain the California American customer account numbers and the California American consumption did not contain the Assessor's Parcel Number. This data incompatibility should be addressed to improve coordination and water conservation planning between MPWMD and California American.

**Data Cleaning:** Meter-read water consumption data can be complicated to work with. Consumption data provided by California American were stored in units of one thousand gallons to the nearest 250 gallons. These data were rexpressed using the original billing units of hundred cubic feet. Meters can be misread, or wrongly entered; corrections to these billing errors can require an offsetting accounting entry that results in a negative registered consumption. Negative water consumption, however, is both physically impossible and can confound simple statistics. Where possible, negative offsetting accounting entries were combined with preceding large entries to preserve the corrected measure of volumetric consumption. Robust statistical methods were used to assist in identifying and isolating potentially large and possibly erroneous recorded historical consumption. Data cleaning preceded at a customer level to identify about three percent of the customers whose average use per measurement unit exceeded the MPWMD Non-Residential Water Use Factor by more than three: the records for these customers will need to be examined individually for errors in recorded water use or measurement units. They are listed in a separate and nondisclosable Attachment A. Readers are cautioned to note that the analysis sample

has been separated from accounts with suspect data. The mean values of water consumption and consumption per measured unit should be considered as “trimmed” means.

**Methods:** The approach begins with a summary of statistics that describe the historical water use data to reveal broad trends and characterize variability in the distribution of water use across different business types and through time. Next, the basis for the Non-Residential Water Use Factors is examined. Non-Residential Water Use Factors were established in the early 1980’s by calculating an average of water use that was standardized for each type of business. Water use was standardized by one variable—the “Measurement Unit”—that measured the size of the business: area of the building in square feet, number of seats, number of rooms, acres of irrigated area, etc. distributions of water use per measure. Descriptive statistics of the monthly water use per unit were then created. Following the descriptive statistics, regression models were estimated for business types were sufficient data were available. These regression models allow for more formal inference testing, control for weather variations, and detection of ongoing trends in water use per unit.

## Statistical Analysis

Table 1 displays descriptive statistics from the historical water consumption data by Business Type Code over the entire analysis sample—the number of customers, the median (50ieth percentile) use, the mean (average) use in hundred cubic feet per month, and the standard deviation of use. From this table we can conclude that water use does vary greatly across different types of business and even within a type of business. We can also conclude that there are a number of Business Types that have a very limited number of customers upon which to base conclusions.

**EXHIBIT 3-B**

| Table 1: Number of Customers, Median Use, Mean Use, Std. Deviation of Use by Business Type Code, for the Years 2001-2009 | | | | | |
|---|---|---|---|---|---|
| **Business Type** | **Business Type Code** | **Number of Customers** | **Median Use (ccf/month)** | **Mean Use (ccf/month)** | **Std. Deviation Use (ccf/month)** |
| Auto Repair | AUTO1 | 39 | 3 | 6.997093 | 12.15924 |
| Auto Sales | AUTO2 | 9 | 5 | 24.54836 | 32.47775 |
| Bakery | BAKE | 12 | 8 | 15.64309 | 16.60547 |
| Bank | BANK | 19 | 1 | 6.143865 | 14.83454 |
| Bar | BAR | 4 | 11 | 16.19576 | 19.27904 |
| Beauty Shop | BEAUT | 55 | 3 | 5.2158 | 11.17648 |
| Child Care | CHILD | 4 | 16.5 | 21.68633 | 15.54965 |
| Church | CHRCH | 20 | 6 | 11.56636 | 18.09139 |
| Convenience Store | CONVS | 6 | 4 | 6.167733 | 6.705311 |
| Deli/Sandwich Shop | DELI | 20 | 7 | 9.092302 | 9.737259 |
| Dental Office | DENTL | 11 | 4 | 7.028103 | 10.73908 |
| Dorm | DORM | 3 | 15 | 18.15895 | 15.59736 |
| Dry Cleaners | DRYCL | 8 | 25.1 | 25.17129 | 19.48299 |
| Fish Market | FISH | 8 | 5 | 18.61377 | 27.95348 |
| Gas Station | GAS | 11 | 2 | 11.76803 | 23.6774 |
| Grocery - Super Market | GROC | 15 | 11.5 | 59.62933 | 82.60086 |
| Grocery-Family | GROCF | 5 | 6 | 7.265502 | 6.517499 |
| Gym | GYM | 20 | 2 | 12.81444 | 35.84253 |
| Hotel – Bed & Breakfast | HTLBB | 27 | 16 | 24.74372 | 34.52887 |
| Hotel - Luxury | HTLLX | 12 | 133.3 | 278.5747 | 371.3804 |
| Hotel - Standard | HTLST | 24 | 16 | 40.91257 | 49.95187 |
| Laundromat | LANDY | 26 | 35.1 | 211.0266 | 522.6517 |
| Medical | MEDIC | 64 | 3 | 9.954789 | 22.07247 |
| Meeting Hall | METHL | 13 | 4 | 30.91417 | 55.3079 |
| Motel | MOTEL | 20 | 60.7 | 79.48367 | 69.20462 |
| Nursing/Convalescent Home | NRSHM | 23 | 21.1 | 38.40309 | 46.86289 |
| Nursery - Plant | NUSRY | 6 | 9 | 16.05881 | 19.55052 |
| Open space – drought/drip | ODRGH | 86 | 1 | 10.58873 | 31.5531 |
| Office - general | OFFCE | 281 | 2 | 8.621582 | 26.83613 |
| Open space – non-turf | ONTRF | 163 | 3 | 23.49795 | 54.90311 |
| Open space - turf | OTURF | 72 | 8 | 99.9364 | 527.4319 |
| Pizza – take out/delivery | PIZZA | 4 | 8 | 10.92432 | 21.05514 |
| Swimming Pool | POOL | 3 | 17 | 19.02348 | 13.79893 |
| Public restroom | RESRM | 32 | 2 | 17.20976 | 77.25723 |
| Retail - general | RETAL | 293 | 2 | 6.353992 | 24.06152 |
| Restaurant – 24-hour | RST24 | 1 | 133.3 | 135.91 | 22.38662 |
| Restaurant – with bar | RSTBR | 32 | 46.1 | 93.52037 | 290.9344 |
| Restaurant – fast food | RSTFF | 33 | 19 | 28.04633 | 26.21363 |
| Restaurant – full service | RSTFS | 85 | 27.1 | 54.57888 | 82.95061 |
| School | SCHL | 50 | 7 | 34.81946 | 98.54861 |
| Self Storage | SLFST | 6 | 0 | 2.490722 | 4.338348 |
| Spa | SPA | 6 | 6 | 6.980328 | 4.022912 |
| Theater | THETR | 2 | 7 | 7.215385 | 4.104027 |
| Veterinary | VET | 9 | 7 | 7.121955 | 6.242845 |
| Wine tasting room | WINE | 4 | 1 | 1.179167 | 1.416129 |
| Warehouse | WRHSE | 74 | 1 | 3.0824 | 6.367411 |

Table 2 examines the variation of mean water use through time. The most recent two years of mean water use, 2008 and 2009, appear somewhat lower; this is consistent with Stakeholder assertions of depressed economic activity in these years. Since explicit per-customer measures of economic activity were not available for this analysis, these two years that reflect the effects of the down business cycle will be excluded from the analysis sample.

**EXHIBIT 3-B**

| Table 2: Mean and Standard Deviation of Monthly Use by Business Type Code for the Years 2001-2009 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Business Type (BT)** | **BT Code** | | **2001** | **2002** | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** |
| Auto Repair | AUTO1 | Mean | 9.32 | 6.87 | 6.47 | 6.57 | 6.25 | 7.39 | 7.05 | 6.97 | 6.54 |
| | | Std. Dev. | 17.46 | 8.93 | 9.67 | 10.49 | 10.80 | 11.85 | 12.45 | 14.22 | 11.32 |
| Auto Sales | AUTO2 | Mean | 31.12 | 24.10 | 26.57 | 27.82 | 24.25 | 26.53 | 27.40 | 19.24 | 16.00 |
| | | Std. Dev. | 48.36 | 33.32 | 32.73 | 28.67 | 29.51 | 35.42 | 32.63 | 25.02 | 24.20 |
| Bakery | BAKE | Mean | 26.35 | 24.34 | 17.50 | 17.56 | 15.39 | 12.97 | 13.12 | 10.83 | 13.74 |
| | | Std. Dev. | 18.37 | 18.69 | 15.77 | 17.55 | 15.86 | 15.36 | 15.80 | 11.84 | 17.27 |
| Bank | BANK | Mean | 10.39 | 8.89 | 6.98 | 5.17 | 6.91 | 6.53 | 5.59 | 4.75 | 5.24 |
| | | Std. Dev. | 16.99 | 17.19 | 13.91 | 11.66 | 21.53 | 18.74 | 12.27 | 11.23 | 10.79 |
| Bar | BAR | Mean | 26.18 | 20.62 | 18.95 | 17.67 | 21.34 | 13.67 | 9.75 | 12.42 | 9.14 |
| | | Std. Dev. | 48.96 | 13.24 | 14.68 | 13.29 | 16.41 | 8.75 | 2.86 | 8.28 | 4.04 |
| Beauty Shop | BEAUT | Mean | 4.94 | 4.58 | 8.70 | 6.82 | 3.91 | 4.30 | 4.87 | 4.75 | 5.17 |
| | | Std. Dev. | 4.16 | 5.68 | 29.20 | 18.73 | 3.57 | 4.09 | 4.36 | 4.38 | 5.63 |
| Child Care | CHILD | Mean | 21.43 | 18.00 | 21.85 | 24.20 | 21.67 | 21.27 | 21.38 | 20.42 | 23.68 |
| | | Std. Dev. | 10.37 | 9.15 | 18.20 | 10.95 | 13.06 | 13.68 | 12.64 | 15.82 | 25.83 |
| Church | CHRCH | Mean | 14.52 | 14.48 | 8.66 | 14.39 | 12.24 | 12.60 | 10.29 | 8.94 | 9.80 |
| | | Std. Dev. | 18.24 | 22.33 | 8.39 | 20.95 | 22.98 | 25.87 | 12.45 | 10.29 | 11.88 |
| Convenience Store | CONVS | Mean | 5.17 | 5.88 | 6.42 | 5.96 | 4.61 | 6.20 | 4.92 | 4.71 | 9.47 |
| | | Std. Dev. | 1.20 | 1.51 | 2.99 | 2.31 | 2.27 | 3.45 | 5.57 | 5.93 | 12.16 |
| Deli/Sandwich Shop | DELI | Mean | 6.78 | 5.86 | 6.96 | 10.16 | 12.12 | 8.66 | 8.78 | 9.09 | 9.07 |
| | | Std. Dev. | 4.95 | 4.18 | 4.78 | 9.22 | 19.43 | 6.51 | 7.36 | 7.79 | 6.54 |
| Dental Office | DENTL | Mean | 3.88 | 3.71 | 7.03 | 6.47 | 6.46 | 8.32 | 5.90 | 6.87 | 10.43 |
| | | Std. Dev. | 5.29 | 3.55 | 9.45 | 6.74 | 6.50 | 9.00 | 7.35 | 9.42 | 19.00 |
| Dorm | DORM | Mean | 15.03 | 13.07 | 15.68 | 20.70 | 24.33 | 19.86 | 18.18 | 18.74 | 17.61 |
| | | Std. Dev. | 8.77 | 7.01 | 12.75 | 20.20 | 25.56 | 17.23 | 12.87 | 14.68 | 10.83 |
| Dry Cleaners | DRYCL | Mean | 35.55 | 34.99 | 30.73 | 23.88 | 21.34 | 20.53 | 22.96 | 21.29 | 19.82 |
| | | Std. Dev. | 28.37 | 26.29 | 21.97 | 15.15 | 14.74 | 14.07 | 16.78 | 14.70 | 14.14 |
| Fish Market | FISH | Mean | 22.91 | 26.75 | 18.35 | 16.59 | 20.93 | 16.66 | 18.78 | 17.95 | 14.92 |
| | | Std. Dev. | 24.85 | 27.56 | 23.19 | 18.90 | 26.52 | 28.51 | 28.38 | 34.76 | 30.17 |
| Gas Station | GAS | Mean | 10.38 | 13.19 | 14.15 | 11.62 | 11.49 | 9.08 | 12.25 | 14.28 | 10.18 |
| | | Std. Dev. | 18.57 | 19.25 | 23.64 | 23.05 | 22.96 | 30.06 | 24.92 | 27.99 | 17.28 |
| Grocery - Super Market | GROC | Mean | 62.82 | 63.29 | 65.69 | 54.05 | 49.95 | 56.66 | 70.69 | 58.79 | 54.52 |
| | | Std. Dev. | 71.94 | 84.30 | 82.32 | 64.47 | 67.60 | 117.19 | 93.74 | 70.28 | 76.60 |
| Grocery-Family | GROCF | Mean | 6.71 | 6.54 | 6.87 | 7.04 | 7.63 | 7.24 | 8.01 | 7.21 | 7.89 |
| | | Std. Dev. | 5.86 | 6.29 | 6.11 | 6.29 | 7.05 | 6.06 | 7.79 | 5.61 | 7.61 |
| Gym | GYM | Mean | 5.15 | 3.70 | 5.08 | 18.24 | 14.04 | 15.35 | 16.82 | 13.63 | 12.66 |
| | | Std. Dev. | 4.12 | 2.83 | 17.80 | 46.90 | 37.86 | 39.53 | 44.59 | 36.62 | 33.49 |

**EXHIBIT 3-B**

| Business Type (BT) | BT Code | | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hotel – Bed & Breakfast | HTLBB | Mean | 51.94 | 51.54 | 22.30 | 16.96 | 18.61 | 18.90 | 19.27 | 24.37 | 23.22 |
| | | Std. Dev. | 59.75 | 78.06 | 28.52 | 18.92 | 17.55 | 20.01 | 19.17 | 29.15 | 24.72 |
| Hotel - Luxury | HTLLX | Mean | 489.34 | 497.70 | 328.12 | 267.82 | 262.25 | 219.28 | 261.06 | 203.50 | 166.97 |
| | | Std. Dev. | 505.51 | 564.63 | 417.13 | 374.71 | 328.90 | 305.13 | 356.94 | 231.31 | 175.18 |
| Hotel - Standard | HTLST | Mean | 126.31 | 139.40 | 40.13 | 33.18 | 34.80 | 32.50 | 36.20 | 35.88 | 32.31 |
| | | Std. Dev. | 68.17 | 77.71 | 45.80 | 42.56 | 39.19 | 38.07 | 39.81 | 42.72 | 41.27 |
| Laundromat | LANDY | Mean | 248.84 | 314.67 | 278.16 | 247.91 | 223.75 | 198.05 | 213.03 | 192.43 | 139.01 |
| | | Std. Dev. | 433.20 | 505.94 | 677.96 | 563.89 | 560.24 | 501.35 | 595.57 | 532.26 | 354.69 |
| Medical | MEDIC | Mean | 9.69 | 11.69 | 11.94 | 10.34 | 11.77 | 10.57 | 8.95 | 8.86 | 8.45 |
| | | Std. Dev. | 11.47 | 19.45 | 38.60 | 20.86 | 26.12 | 26.88 | 16.49 | 15.60 | 16.76 |
| Meeting Hall | METHL | Mean | 35.05 | 35.10 | 31.48 | 31.31 | 29.24 | 30.11 | 32.63 | 28.30 | 27.73 |
| | | Std. Dev. | 53.78 | 52.95 | 54.87 | 55.31 | 54.11 | 58.30 | 60.76 | 53.92 | 53.32 |
| Motel | MOTEL | Mean | 125.74 | 125.14 | 95.32 | 92.08 | 85.90 | 72.02 | 65.85 | 59.41 | 66.11 |
| | | Std. Dev. | 87.85 | 101.00 | 82.80 | 76.68 | 75.28 | 66.59 | 50.93 | 44.80 | 50.34 |
| Nursing/Convalescent Home | NRSHM | Mean | 45.42 | 46.48 | 38.11 | 35.71 | 33.62 | 31.57 | 43.12 | 38.40 | 37.85 |
| | | Std. Dev. | 49.30 | 49.40 | 46.24 | 47.02 | 45.41 | 34.57 | 55.54 | 46.77 | 45.92 |
| Nursery - Plant | NUSRY | Mean | 13.48 | 10.89 | 12.10 | 11.90 | 9.39 | 16.40 | 22.84 | 18.47 | 15.71 |
| | | Std. Dev. | 9.93 | 8.10 | 9.12 | 11.31 | 8.49 | 16.40 | 24.18 | 24.13 | 22.90 |
| Open space – drought/drip | ODRGH | Mean | 10.42 | 8.00 | 8.97 | 11.29 | 10.20 | 9.12 | 10.36 | 13.75 | 11.84 |
| | | Std. Dev. | 36.69 | 36.65 | 23.30 | 31.63 | 27.33 | 24.96 | 25.97 | 41.74 | 30.46 |
| Office - general | OFFCE | Mean | 13.04 | 12.28 | 10.53 | 9.58 | 9.45 | 8.02 | 7.53 | 7.14 | 6.74 |
| | | Std. Dev. | 37.72 | 35.58 | 33.84 | 25.76 | 30.37 | 26.58 | 21.44 | 23.18 | 19.91 |
| Open space – non-turf | ONTRF | Mean | 28.14 | 29.93 | 24.14 | 22.69 | 21.41 | 21.51 | 23.98 | 21.55 | 20.34 |
| | | Std. Dev. | 63.17 | 69.03 | 50.70 | 50.21 | 48.75 | 58.07 | 54.69 | 50.35 | 48.43 |
| Open space - turf | OTURF | Mean | 127.77 | 110.85 | 108.61 | 111.61 | 87.53 | 79.48 | 100.37 | 99.79 | 89.83 |
| | | Std. Dev. | 658.52 | 535.61 | 560.92 | 554.26 | 472.00 | 418.78 | 508.77 | 560.17 | 510.85 |
| Pizza – take out/delivery | PIZZA | Mean | 8.08 | 9.09 | 8.00 | 28.31 | 8.89 | 11.59 | 10.23 | 7.65 | 9.27 |
| | | Std. Dev. | 2.21 | 10.13 | 3.63 | 56.42 | 9.31 | 24.70 | 17.14 | 2.91 | 5.07 |
| Swimming Pool | POOL | Mean | 16.45 | 16.13 | 13.62 | 16.02 | 17.96 | 20.05 | 21.43 | 26.85 | 21.92 |
| | | Std. Dev. | 7.02 | 16.36 | 8.93 | 7.05 | 7.48 | 12.31 | 13.25 | 20.39 | 18.19 |
| Public restroom | RESRM | Mean | 44.72 | 38.98 | 15.65 | 15.20 | 10.93 | 8.19 | 9.39 | 12.36 | 9.39 |
| | | Std. Dev. | 148.97 | 170.57 | 64.78 | 41.16 | 36.30 | 13.54 | 16.38 | 28.99 | 20.59 |
| Retail - general | RETAL | Mean | 9.33 | 9.50 | 7.98 | 6.98 | 7.84 | 5.87 | 5.17 | 4.93 | 4.63 |
| | | Std. Dev. | 28.59 | 29.84 | 26.74 | 24.21 | 27.41 | 21.11 | 21.31 | 21.53 | 21.88 |
| Restaurant – 24-hour | RST24 | Mean | | | | | 162.40 | 135.66 | 135.20 | 148.12 | 122.48 |
| | | Std. Dev. | | | | | | 21.32 | 18.21 | 28.17 | 13.69 |

**EXHIBIT 3-B**

| Business Type | Code | | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Restaurant – with bar | RSTBR | Mean | 246.38 | 129.91 | 91.19 | 87.53 | 79.87 | 74.41 | 75.13 | 67.06 | 59.31 |
| | | Std. Dev. | 925.42 | 279.19 | 121.12 | 100.11 | 88.92 | 83.21 | 89.63 | 67.43 | 61.97 |
| Restaurant – fast food | RSTFF | Mean | 35.99 | 38.39 | 39.41 | 34.35 | 27.93 | 27.36 | 23.55 | 21.26 | 23.03 |
| | | Std. Dev. | 30.09 | 35.49 | 35.61 | 30.20 | 22.88 | 23.94 | 21.44 | 19.91 | 20.35 |
| Restaurant – full service | RSTFS | Mean | 69.83 | 68.54 | 56.18 | 60.66 | 61.55 | 52.52 | 53.18 | 50.57 | 42.95 |
| | | Std. Dev. | 92.17 | 92.19 | 85.82 | 88.24 | 93.54 | 73.38 | 83.02 | 89.77 | 61.60 |
| School | SCHL | Mean | 93.25 | 94.73 | 62.21 | 36.65 | 30.21 | 25.33 | 30.12 | 30.59 | 26.51 |
| | | Std. Dev. | 137.48 | 138.41 | 147.02 | 102.54 | 88.02 | 72.85 | 97.07 | 102.02 | 80.62 |
| Self Storage | SLFST | Mean | | 9.37 | 4.44 | 3.96 | 2.13 | 2.04 | 2.29 | 2.33 | 1.30 |
| | | Std. Dev. | | 10.17 | 4.54 | 9.08 | 2.23 | 2.22 | 2.42 | 2.81 | 2.36 |
| Spa | SPA | Mean | 6.42 | 7.06 | 6.96 | 5.25 | 7.70 | 7.97 | 7.20 | 6.84 | 6.78 |
| | | Std. Dev. | 1.24 | 2.24 | 1.37 | 2.92 | 4.59 | 3.91 | 3.31 | 4.75 | 5.09 |
| Theater | THETR | Mean | 6.33 | 6.33 | 6.17 | 5.00 | 9.68 | 8.00 | 5.17 | 8.00 | 9.37 |
| | | Std. Dev. | 3.39 | 2.87 | 2.33 | 3.14 | 6.94 | 2.76 | 3.33 | 4.31 | 3.96 |
| Veterinary | VET | Mean | 7.13 | 8.24 | 6.25 | 5.57 | 6.91 | 7.30 | 7.56 | 7.24 | 7.20 |
| | | Std. Dev. | 5.43 | 11.09 | 4.77 | 4.11 | 6.59 | 6.48 | 5.87 | 5.64 | 5.04 |
| Wine tasting room | WINE | Mean | 2.39 | 1.25 | 1.08 | 1.25 | 0.88 | 0.68 | 0.79 | 0.85 | 1.37 |
| | | Std. Dev. | 3.24 | 1.22 | 0.88 | 0.85 | 0.74 | 0.48 | 0.83 | 1.08 | 1.20 |
| Warehouse | WRHSE | Mean | 5.60 | 4.63 | 3.45 | 3.15 | 2.62 | 3.11 | 2.52 | 2.45 | 2.26 |
| | | Std. Dev. | 11.41 | 10.22 | 6.68 | 6.67 | 3.80 | 6.83 | 3.98 | 4.04 | 3.82 |

**EXHIBIT 3-B**

Table 3 examines Non-Residential Water Use standardized by the measurements units. Note that the mean use per unit for any business type cannot be derived by dividing the mean water use of that business type by the mean number of measurement units. This is due to a well known statistical property that the expected value of the product of two random variables does not in general equal the product of the expectation value of the first random variable times the expectation of the second random variable. This is because there can be a relationship between the two variables. To illustrate, many large landscapes are professionally managed and can have a lower use per irrigated area. The correlation between mean use and mean units would also be required to correctly infer the mean use per unit. Table 3 does not provide any direct measure of the dispersion of the distribution of mean use per unit across customers.

**EXHIBIT 3-B**

| Table 3: Number of Customers, Mean Use, Measure Units, and Mean Use per Unit by Business Type Code 2001-2007 | | | | | |
|---|---|---|---|---|---|
| **Business Type** | **Measure** | **Customers** | **Mean Use (ccf/month)** | **Mean Measurement Units** | **Mean Use per Unit (ccf/month)** |
| Auto Repair | Square-footage | 30 | 6.36268 | 6375.7 | 0.000719 |
| Auto Sales | Lot size (sq.ft.) | 7 | 25.17874 | 48162.86 | 0.000403 |
| Bakery | Square-footage | 11 | 13.1737 | 2548.545 | 0.004609 |
| Bank | Square-footage | 18 | 4.91999 | 4902.167 | 0.00062 |
| Bar | seats | 3 | 16.39019 | 38.66667 | 0.337797 |
| Beauty Shop | stations | 46 | 5.74767 | 13.43478 | 0.907793 |
| Child Care | Per child | 3 | 21.37009 | 66.33333 | 0.355089 |
| Church | Square-footage | 20 | 11.40189 | 10718.15 | 0.001215 |
| Convenience Store | Square-footage | 5 | 8.293641 | 2320 | 0.002933 |
| Deli/Sandwich Shop | Square-footage | 18 | 9.218712 | 1243.889 | 0.008184 |
| Dental Office | Square-footage | 9 | 5.945703 | 1880.444 | 0.003333 |
| Dorm | rooms | 3 | 18.15895 | 23.33333 | 0.49537 |
| Dry Cleaners | Square-footage | 8 | 24.89167 | 2615 | 0.009407 |
| Fish Market | Square-footage | 8 | 16.07599 | 17750.5 | 0.000977 |
| Gas Station | pumps | 10 | 14.12797 | 5.8 | 1.43361 |
| Grocery - Super Market | Square-footage | 14 | 59.2631 | 15751 | 0.003272 |
| Grocery-Family | Square-footage | 2 | 7.207281 | 4400 | 0.001331 |
| Gym | Square-footage | 13 | 15.45871 | 10053.85 | 0.000746 |
| Hotel – Bed & Breakfast | rooms | 24 | 24.05786 | 8.416667 | 2.667197 |
| Hotel - Luxury | rooms | 12 | 276.4509 | 288.1667 | 1.61104 |
| Hotel - Standard | rooms | 21 | 39.74463 | 100.8571 | 2.351392 |
| Laundromat | machines | 21 | 162.5437 | 27.42857 | 5.802469 |
| Medical | Square-footage | 58 | 9.250372 | 8457.276 | 0.000901 |
| Meeting Hall | Square-footage | 13 | 27.50149 | 11774.92 | 0.001834 |
| Motel | rooms | 13 | 69.14348 | 38.30769 | 1.933431 |
| Nursing/Convalescent Home | rooms | 21 | 39.62089 | 17.19048 | 2.038529 |
| Nursery - Plant | Square-footage | 5 | 21.76817 | 57782.4 | 0.000378 |
| Open space – drought/drip | acres | 82 | 13.66131 | 1.197805 | 22.3807 |
| Office - general | Square - footage | 228 | 7.667042 | 8110.592 | 0.00073 |
| Open space – non-turf | acres | 159 | 22.82046 | 1.099057 | 26.78182 |
| Open space - turf | acres | 72 | 94.37164 | 4.004306 | 46.11918 |
| Pizza – take out/delivery | Square-footage | 3 | 10.34267 | 2738.667 | 0.006733 |
| Swimming Pool | Surface area | 2 | 18.27954 | 740 | 0.031767 |
| Public restroom | Per toilet | 27 | 16.78672 | 5.740741 | 1.404167 |
| Retail - general | Square-footage | 223 | 5.268265 | 5232.816 | 0.000663 |
| Restaurant – 24-hour | seats | 1 | 135.91 | 120 | 1.132583 |
| Restaurant – with bar | seats | 26 | 86.76832 | 145.9231 | 0.417419 |
| Restaurant – fast food | seats | 26 | 24.21441 | 88.11538 | 0.325071 |
| Restaurant – full service | seats | 63 | 52.93366 | 109.5238 | 0.434065 |
| School | rooms | 49 | 29.54959 | 29025.29 | 0.000809 |
| Self Storage | Square-footage | 2 | 2.734236 | 81083.5 | 4.55E-05 |
| Spa | fixtures | 4 | 8.157802 | 7.75 | 1.448429 |
| Theater | seats | 1 | 6.92 | 499 | 0.013868 |
| Veterinary | Square-footage | 7 | 7.132926 | 2758.714 | 0.002884 |
| Wine tasting room | Square-footage | 2 | 1.138889 | 3750 | 0.000285 |
| Warehouse | Square-footage | 65 | 3.154317 | 7529.662 | 0.00033 |

**EXHIBIT 3-B**

Table 4 goes beyond the mean use per unit provided in the previous table to give the $10^{th}$, $25^{th}$, $50^{th}$, $75^{th}$, and $90^{th}$ percentiles of the entire distribution of mean customer use per unit. Thus, a mean use per unit is derived from each customer—no within customer variation is contained in Table 4. Note too that the mean customer use per unit of Table 3 is usually greater than the 50th percentile, also known as the median. This is due to the skew in the distribution of mean customer use per unit. For purposes of targeting conservation programs the top 10 percent (defined by use per unit equal to or greater than the $90^{th}$ percentile) is a common metric used to identify high water use.

**EXHIBIT 3-B**

| Table 4: Distribution of Mean Customer Use per Unit, 2001-2007: 10th, 25th, 50ieth, 75th, 90ieth Percentiles | | | | | |
|---|---|---|---|---|---|
| **Business Type Code** | **10th Percentile Use per Unit (ccf/month)** | **25th Percentile Use per Unit (ccf/month)** | **Median (50ieth Percentile) Use per Unit** | **75th Percentile Use per Unit (ccf/month)** | **90ieth Percentile Use per Unit (ccf/month)** |
| AUTO1 | 0.000286 | 0.000402 | 0.000719 | 0.00114 | 0.001739 |
| AUTO2 | 7.47E-05 | 0.000154 | 0.000403 | 0.000568 | 0.000794 |
| BAKE | 0.001129 | 0.001412 | 0.004609 | 0.008224 | 0.015551 |
| BANK | 0 | 0.000377 | 0.00062 | 0.001631 | 0.002681 |
| BAR | 0.237127 | 0.237127 | 0.337797 | 0.713287 | 0.713287 |
| BEAUT | 0.426339 | 0.586364 | 0.907793 | 1.490203 | 2.367284 |
| CHILD | 0.17845 | 0.17845 | 0.355089 | 0.689864 | 0.689864 |
| CHRCH | 0.000373 | 0.000537 | 0.001215 | 0.001791 | 0.003348 |
| CONVS | 0.001622 | 0.002227 | 0.002933 | 0.005302 | 0.005526 |
| DELI | 0.002041 | 0.003608 | 0.008184 | 0.010519 | 0.011378 |
| DENTL | 6.05E-05 | 0.00187 | 0.003333 | 0.00412 | 0.007196 |
| DORM | 0.455947 | 0.455947 | 0.49537 | 1.933704 | 1.933704 |
| DRYCL | 0.000839 | 0.006198 | 0.009407 | 0.011525 | 0.017537 |
| FISH | 0.000618 | 0.00077 | 0.000977 | 0.003064 | 0.004913 |
| GAS | 0.064815 | 0.166667 | 1.43361 | 2.003037 | 3.329817 |
| GROC | 0.000655 | 0.001774 | 0.003272 | 0.004724 | 0.008304 |
| GROCF | 0.000487 | 0.000487 | 0.001331 | 0.002175 | 0.002175 |
| GYM | 0.000494 | 0.00072 | 0.000746 | 0.001378 | 0.001827 |
| HTLBB | 0.522825 | 1.39657 | 2.667197 | 4.477022 | 5.702217 |
| HTLLX | 0.185428 | 0.730134 | 1.61104 | 2.459241 | 2.847334 |
| HTLST | 0.717546 | 1.509259 | 2.351392 | 2.584774 | 3.603292 |
| LANDY | 1.884058 | 3.348716 | 5.802469 | 6.417875 | 9.844898 |
| MEDIC | 0.000178 | 0.000329 | 0.000901 | 0.001817 | 0.003098 |
| METHL | 0.00083 | 0.00128 | 0.001834 | 0.002401 | 0.013086 |
| MOTEL | 0.699006 | 1.378985 | 1.933431 | 3.104126 | 3.780432 |
| NRSHM | 0.692644 | 1.092052 | 2.038529 | 2.821875 | 3.567181 |
| NUSRY | 4.95E-05 | 0.000373 | 0.000378 | 0.000437 | 0.000945 |
| ODRGH | 0 | 5.242165 | 22.3807 | 72.33987 | 151.0185 |
| OFFCE | 2.46E-05 | 0.000333 | 0.00073 | 0.00149 | 0.003244 |
| ONTRF | 0.148935 | 5.072464 | 26.78182 | 66.26542 | 120.1415 |
| OTURF | 0.637456 | 9.039238 | 46.11918 | 87.06117 | 120.0434 |
| PIZZA | 0.000961 | 0.000961 | 0.006733 | 0.008999 | 0.008999 |
| POOL | 0.01166 | 0.01166 | 0.031767 | 0.051873 | 0.051873 |
| RESRM | 0.240909 | 0.574383 | 1.404167 | 3.088889 | 5.302741 |
| RETAL | 0.000145 | 0.000391 | 0.000663 | 0.001452 | 0.002361 |
| RST24 | 1.132583 | 1.132583 | 1.132583 | 1.132583 | 1.132583 |
| RSTBR | 0.268349 | 0.347723 | 0.417419 | 0.668279 | 0.993686 |
| RSTFF | 0.004762 | 0.178889 | 0.325071 | 0.772012 | 0.894864 |
| RSTFS | 0.129571 | 0.214091 | 0.434065 | 0.615719 | 0.814583 |
| SCHL | 0.000365 | 0.00059 | 0.000809 | 0.001122 | 0.001718 |
| SLFST | 1.24E-07 | 1.24E-07 | 4.55E-05 | 9.09E-05 | 9.09E-05 |
| SPA | 0.472727 | 0.541563 | 1.448429 | 2.705729 | 3.125 |
| THETR | 0.013868 | 0.013868 | 0.013868 | 0.013868 | 0.013868 |
| VET | 0.001139 | 0.001438 | 0.002884 | 0.006147 | 0.006296 |
| WINE | 0.000253 | 0.000253 | 0.000285 | 0.000316 | 0.000316 |
| WRHSE | 5.13E-05 | 0.000148 | 0.00033 | 0.000898 | 0.002068 |

**EXHIBIT 3-B**

Table 5 provides additional information on the distribution of mean customer use per unit from 2001-2007—in addition to the mean of the distribution, the standard deviation (a measure of dispersion), the coefficient of variation (ratio of the mean to standard deviation), and comparisons to the existing California American and MPWMD Non-Residential Water Use Factors. The standard deviation can give the reader an idea of the spread between customers. The coefficient of variation standardizes the standard deviation by the mean, so the business types with the largest relative dispersion have a larger coefficient of variation. The standard error of the estimated mean is a measure of uncertainty attached to the estimated mean use per unit. The standard error of the estimated mean can be used when incorporating reliability into any variable defined using the estimated mean—such as an allocation factor. The 90th percentile is included as an index of high water use per unit for that business type code. Last, the overall mean water use per unit is compared to the MPWMD and California American Non-Residential Water Use Factors.

Readers are cautioned to be careful interpreting results since only 11 business type categories (in bold) have a sample size that was greater than or equal to a sample size of 30 customer accounts. Given the insufficient sample sizes, the regression modeling could not be attempted on all business type categories. The only inference derived from the regression models is that a small negative trend, reflecting ongoing efficiency improvements, was detectable in many business type categories. (Results of these fixed-effect regression models are provided separately in Attachment B.)

**EXHIBIT 3-B**

## Table 5: Distribution of Use per Unit 2001-2007Compared to Existing Cal-Am and MPWMD Allocation Factors

| Business Type | Measure | N | Mean Use per Unit (ccf/mo.) | Std. Dev. Use per Unit (ccf/mo.) | Coef. of Variation (Std.Dev. / Mean) | Std. Error of Mean (SD/√N) | 90ieth Percentile Use per Unit | MPWMD Allocation Factor (AF/yr) | MPWMD Allocation Factor (Ccf/mo) | Cal-Am Allocation Factor (AF/yr) | Cal-Am Allocation Factor (Ccf/mo) | Is 2001-2007 Trimmed Mean within MPWMD Factor? | Is 2001-2007 TrimmedMean within Cal-Am Factor? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Auto Repair** | Square-footage | **30** | 0.000981 | 0.00095 | 0.97 | 0.00021 | 0.00174 | 0.00007 | 0.002541 | 0.00006 | 0.002175 | Within | Within |
| Auto Sales | Lot size (sq.ft.) | 7 | 0.000406 | 0.00024 | 0.60 | 0.00015 | 0.00079 | 0.00007 | 0.002541 | 0.00002 | 0.000725 | Within | Within |
| Bakery | Square-footage | 11 | 0.005907 | 0.00553 | 0.94 | 0.00239 | 0.01555 | 0.0002 | 0.00726 | 0.00029 | 0.010525 | Within | Within |
| Bank | Square-footage | 18 | 0.001002 | 0.00094 | 0.94 | 0.00029 | 0.00268 | 0.00007 | 0.002541 | 0.0001 | 0.003633 | Within | Within |
| Bar | seats | 3 | 0.429404 | 0.25095 | 0.58 | 0.34280 | 0.71329 | 0.02 | 0.726 | 0.023 | 0.8349 | Within | Within |
| **Beauty Shop** | stations | **46** | 1.142022 | 0.80721 | 0.71 | 0.13960 | 2.36728 | 0.0567 | 2.05821 | 0.0567 | 2.058208 | Within | Within |
| Child Care | Per child | 3 | 0.407801 | 0.25975 | 0.64 | 0.35482 | 0.68986 | 0.0072 | 0.26136 | 0.0072 | 0.261358 | Mean>Factor | Mean>Factor |
| Church | Square-footage | 20 | 0.00151 | 0.00148 | 0.98 | 0.00043 | 0.00335 | 0.00007 | 0.002541 | 0.0001 | 0.003633 | Within | Within |
| Convenience Store | Square-footage | 5 | 0.003522 | 0.00179 | 0.51 | 0.00145 | 0.00553 | 0.0002 | 0.00726 | 0.00016 | 0.005808 | Within | Within |
| Deli/Sandwich Shop | Square-footage | 18 | 0.007378 | 0.00374 | 0.51 | 0.00115 | 0.01138 | 0.0002 | 0.00726 | 0.00024 | 0.008708 | Mean>Factor | Within |
| Dental Office | Square-footage | 9 | 0.003261 | 0.00239 | 0.73 | 0.00120 | 0.00720 | 0.00007 | 0.002541 | 0.00026 | 0.009442 | Mean>Factor | Within |
| Dorm | rooms | 3 | 0.961674 | 0.84203 | 0.88 | 1.15024 | 1.93370 | 0.04 | 1.452 | 0.04 | 1.452 | Within | Within |
| Dry Cleaners | Square-footage | 8 | 0.00908 | 0.00518 | 0.57 | 0.00283 | 0.01754 | 0.0002 | 0.00726 | 0.00038 | 0.013792 | Mean>Factor | Within |
| Fish Market | Square-footage | 8 | 0.001894 | 0.00162 | 0.86 | 0.00089 | 0.00491 | 0.00007 | 0.002541 | 0.0009 | 0.032667 | Within | Within |
| Gas Station | pumps | 10 | 1.389792 | 1.34078 | 0.96 | 0.62008 | 3.32982 | 0.0913 | 3.31419 | 0.0913 | 3.314192 | Within | Within |
| Grocery - Super Market | Square-footage | 14 | 0.004194 | 0.00388 | 0.93 | 0.00142 | 0.00830 | 0.0002 | 0.00726 | 0.00016 | 0.005808 | Within | Within |
| Grocery-Family | Square-footage | 2 | 0.001331 | 0.00119 | 0.90 | 0.00288 | 0.00218 | 0.00007 | 0.002541 | 0.00009 | 0.003267 | Within | Within |
| Gym | Square-footage | 13 | 0.000999 | 0.00051 | 0.51 | 0.00020 | 0.00183 | 0.00007 | 0.002541 | 0.00008 | 0.0029 | Within | Within |
| Hotel – Bed & Breakfast | rooms | 24 | 2.853508 | 1.99698 | 0.70 | 0.51218 | 5.70222 | 0.1 | 3.63 | 0.1123 | 4.076492 | Within | Within |
| Hotel - Luxury | rooms | 12 | 1.589179 | 1.06189 | 0.67 | 0.43095 | 2.84733 | 0.2 | 7.4 | 0.2046 | 7.426983 | Mean>Factor | Within |
| Hotel - Standard | rooms | 21 | 2.063956 | 1.13469 | 0.55 | 0.31673 | 3.60329 | 0.1 | 3.63 | 0.0844 | 3.063717 | Within | Within |
| Laundromat | machines | 21 | 5.551946 | 3.09706 | 0.56 | 0.86448 | 9.84490 | 0.2 | 7.26 | 0.2 | 7.26 | Within | Within |
| **Medical** | Square-footage | **58** | 0.001326 | 0.00142 | 1.07 | 0.00022 | 0.00310 | 0.00007 | 0.002541 | 0.00015 | 0.005442 | Within | Within |
| Meeting Hall | Square-footage | 13 | 0.00408 | 0.00527 | 1.29 | 0.00202 | 0.01309 | 0.00053 | 0.019239 | 0.00053 | 0.019242 | Within | Within |
| Motel | rooms | 13 | 2.145916 | 1.13733 | 0.53 | 0.43650 | 3.78043 | 0.1 | 3.63 | 0.0993 | 3.604592 | Within | Within |
| Nursing/Convalescent Home | rooms | 21 | 2.126036 | 1.31366 | 0.62 | 0.36668 | 3.56718 | 0.12 | 4.356 | 0.23 | 8.349 | Within | Within |
| Nursery - Plant | Square-footage | 5 | 0.000436 | 0.00032 | 0.74 | 0.00026 | 0.00094 | 0.00009 | 0.003267 | 0.00009 | 0.003267 | Within | Within |
| **Open space – drought/drip** | acres | **82** | 84.33094 | 195.81160 | 2.32 | 24.3082 | 151.0185 | MAWA | | 0.9 | 32.67 | | Mean>Factor |
| **Office - general** | Square - footage | **228** | 0.001209 | 0.00141 | 1.17 | 0.00010 | 0.00324 | 0.00007 | 0.002541 | 0.0001 | 0.003633 | Within | Within |
| **Open space – non-turf** | acres | **159** | 53.42863 | 94.10464 | 1.76 | 8.10582 | 120.14150 | MAWA | | 1.8 | 65.34 | | Within |

**EXHIBIT 3-B**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Open space - turf** | acres | **72** | 68.39855 | 107.77060 | 1.58 | 14.3976 | 120.04340 | MAWA | | 2.1 | 76.23 | | Within |
| Pizza – take out/delivery | Square-footage | 3 | 0.005564 | 0.00414 | 0.74 | 0.00566 | 0.00900 | 0.00007 | 0.002541 | 0.00022 | 0.007983 | Mean>Factor | Within |
| Swimming Pool | Surface area | 2 | 0.031767 | 0.02844 | 0.90 | 0.06865 | 0.05187 | 0.0002 | 0.00726 | 0.02 | 0.726 | Mean>Factor | Within |
| Public restroom | Per toilet | 27 | 2.12713 | 1.83200 | 0.86 | 0.43659 | 5.30274 | 0.058 | 2.1054 | 0.064 | 2.3232 | Mean>Factor | Within |
| **Retail - general** | Square-footage | **223** | 0.001081 | 0.00114 | 1.05 | 0.00008 | 0.00236 | 0.00007 | 0.002541 | 0.00004 | 0.00145 | Within | Within |
| Restaurant – 24-hour | seats | 1 | 1.132583 | | 0.00 | | 1.13258 | 0.038 | 1.3794 | 0.0412 | 1.495558 | Within | Within |
| Restaurant – with bar | seats | 26 | 0.552288 | 0.37333 | 0.68 | 0.09108 | 0.99369 | 0.02 | 0.726 | 0.019 | 0.6897 | Within | Within |
| Restaurant – fast food | seats | 26 | 0.416086 | 0.32554 | 0.78 | 0.07942 | 0.89486 | 0.038 | 1.3794 | 0.034 | 1.2342 | Within | Within |
| **Restaurant – full service** | seats | **63** | 0.451079 | 0.28598 | 0.63 | 0.04122 | 0.81458 | 0.02 | 0.726 | 0.0173 | 0.6279 | Within | Within |
| Self Storage | Square-footage | 2 | 4.55E-05 | 0.00006 | 1.41 | 0.00015 | 0.00009 | 0.0008 | 0.02904 | 0.00001 | 0.000367 | Within | Within |
| Spa | fixtures | 4 | 1.623646 | 1.29675 | 0.80 | 1.29675 | 3.12500 | 0.05 | 1.815 | 0.05 | 1.815 | Within | Within |
| Theater | seats | 1 | 0.013868 | | 0.00 | | 0.01387 | 0.0012 | 0.04356 | 0.0012 | 0.043558 | Within | Within |
| Veterinary | Square-footage | 7 | 0.003256 | 0.00215 | 0.66 | 0.00131 | 0.00630 | 0.00007 | 0.002541 | 0.00023 | 0.00835 | Mean>Factor | Within |
| Wine tasting room | Square-footage | 2 | 0.000285 | 0.00004 | 0.16 | 0.00011 | 0.00032 | 0.0002 | 0.00726 | 0.00021 | 0.007625 | Within | Within |
| **Warehouse** | Square-footage | **65** | 0.00075 | 0.00117 | 1.56 | 0.00017 | 0.00207 | 0.00007 | 0.002541 | 0.00005 | 0.001817 | Within | Within |

## Findings and Recommendations

### *Data*

1. Customer Data—The number of measurement units per customer account does not exist for about 38 percent of the active non-residential accounts (1,744 [=1616CONV+ 128NOALL] out of 4,613 unique active non-residential accounts in the provided factor data.)

2. Integrated Data needed for Integrated Planning—MPMWD does not currently have a method for matching its data to California American consumption data. Good Water Use Efficiency Programs are built on an understanding of individual customer water demand. Integrated planning requires integrated data.

### Non-Residential Water Use Factors

1. **MPMWD Water Use Factors**—Demand Load. Current MPMWD planning uses three groups of water use for assignment of future capacity requirements. These assignments are generous for some business types and potentially insufficient for others. The analysis of historical consumption suggests where each may be the case. The use of these Water Use Factors for water rationing is subject to the same caveats for their use in a water rate structure, as enumerated next.

2. **Cal-Am Water Use Factors**—Implement-ability as a Water Budget in a Tiered Rate. It is difficult to see how a non-residential rate structure can be implemented on the existing definitions of Nonresidential Water Use Factors:

    a. The number of measurement units is missing for almost 38 percent of the active non-residential accounts.
    b. The reliability of existing measurement units is unknown.
    c. The use of a single measure to standardize constitutes an extremely crude form of a water budget. This estimated water budget can be expected to be an inaccurate definition of efficient water use for most customers.
    d. The combination of inaccurate water budget and steep rate tiers will magnify the economic impact of erroneous definitions of water budgets. Customers will rightfully perceive the situation as illogical, unfair, and economically unjust.

    It is my professional opinion that the existing definitions of Non-Residential Water Use Factors are not appropriate for use in a rate structure. The heterogeneous nature of

commercial, industrial, and institutional water use is well known and precludes simple characterization through use of a single cross-sectional variable. I recommend that any block definition for use in a steep rate structure have a defensible and understandable basis as a water budget.

3. **Implementation Plan for Improving the Definition of Allocation Factors.** Improving the data used in the definition of Water Use Factors is critical. Implementing data improvements should proceed sequentially:
    a. Cross checking the number of measurement units of the 66 accounts in Attachment A whose mean use was more than three times the allotment.
    b. Measuring the number of measurement units for business missing this information is an important first step. This would include the accounts for whom this information is missing (business type codes “CONV” and “NOALL”, approximately 38 percent of active unique accounts).
    c. Cross checking the number of measurement units of the top tenth percentile by business type. Customers using more water than 90 percent of their similarly classified business are candidates for water efficiency improvements, water audits, or reclassification if misclassified.
    d. Collecting additional information on Hotels and Restaurants would assist in better defining an accurate water budget. Draft templates for collecting this information are provided in Attachment C.