



Water Rate Structure Considerations

Vallecitos Water District Board Workshop
February 1, 2017





General Considerations



- No one rate structure is best for all agencies
- One is best for each individual agency
- Determined by a study of:
 - costs incurred to provide water to customers
 - customer usage patterns.
- Types of Rate Structures
 - Flat
 - Tiered
 - By customer class
 - Budget-based



Flat Rate Structure

Pros

- Easy to budget
- No cost to implement or maintain
- Simple COSS
- Defensible

Cons

- Doesn't induce conservation
- Not fun for rate consultants and analysts



Rate Structure Tiered by Customer Type

Pros

- Strength in numbers – most San Diego County water agencies have implemented some form of tiers by customer type.
- The M1 Manual provides example calculations and design using tiers by customer type.
- Little to no cost to implement.

Cons

- Deviation from current rate structure – may draw attention/challenges.
- Not consistent (no Nexus) with allocation of Extra Capacity costs/peaking.
- Customers with larger meters (justified higher demands) will be burdened with costs they are not causing.
- A step in the other direction if budget-based is considered in the future.



Rate Structure Tiered by Meter Size

Pros

- Existing Structure – less of a change to draw scrutiny.
- Supported by M1 Manual.
- Equitable allocation of tiers for justified demands. Customers that pay a higher RTS and paid for more capacity are not penalized for using that capacity.
- Achieves same equity issues as budget-based without costs, complications, social engineering, and administration – bigger demands get bigger allotments.
- No cost to implement.

Cons

- Only two agencies in San Diego County have a meter size tier structure.
- Could be challenged without the strength in numbers.
- May be more homogeneity in peaking for the irrigation class than classes of meter size



Budget-Based Rate Structure



Pros

- Promotes long-term water efficiency.
- The District has latitude to define equity by determining which variances are allowable (people, animals).
- Takes climate (ET) into account.
- Promoted by the big consulting firms.
- Widespread use in Orange County.

Cons

- No statute allowing budget-based specifically (tried but failed).
- Cost prohibitive – consultants, billing system modifications or new billing system, additional IT staff, additional customer service staff, additional conservation staff
- Customers will call in for variance when people move in but won't report when they move out – awards dishonesty
- Cumbersome to police.
- Requires significant outreach.
- Two-year implementation window.
- Imposing a budget during a supply surplus
- No nexus to cost of variances e.g., why does water for a 49lb dog costs 50% more than water for a 50lb dog – are we going to have to send people out to weigh dogs? What about llamas?



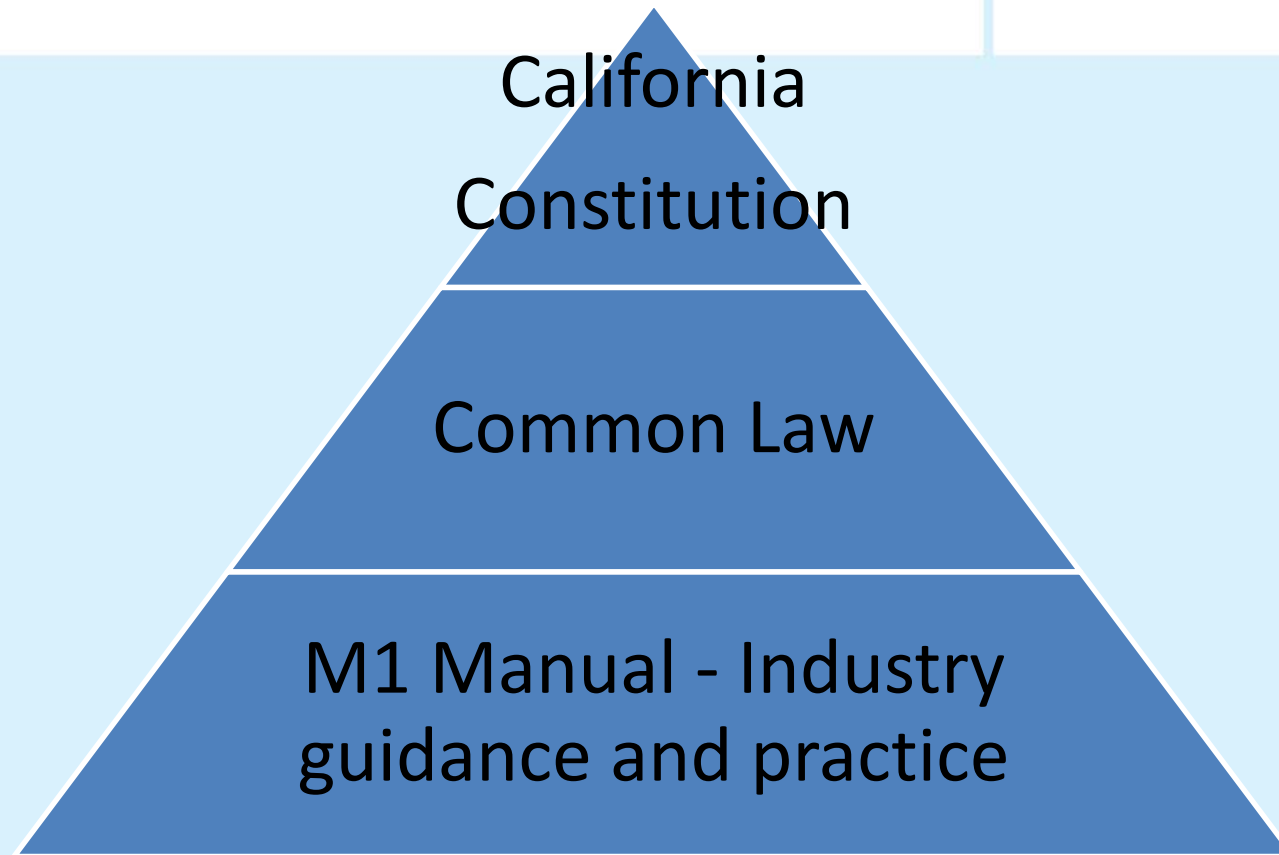
Objectives



- Provide rates and a structure to the Board for approval,
- Provide one or two alternative structures if practical,
- Keep the Board apprised of progress through Board workshops throughout the process,
- Alternatives presented are legal and defensible,
- Provide a thorough and understandable administrative record
- Alternatives presented satisfy the District's mission statement, Strategic Plan objectives, and Financial Master Plan objectives,
- Nothing arbitrary (tier levels, cost acceleration from tier to tier, etc.), and
- Establish a revenue requirement that:
 - Exhausts all efforts to cut costs,
 - Maintains or improves our current level of service and workforce engagement.



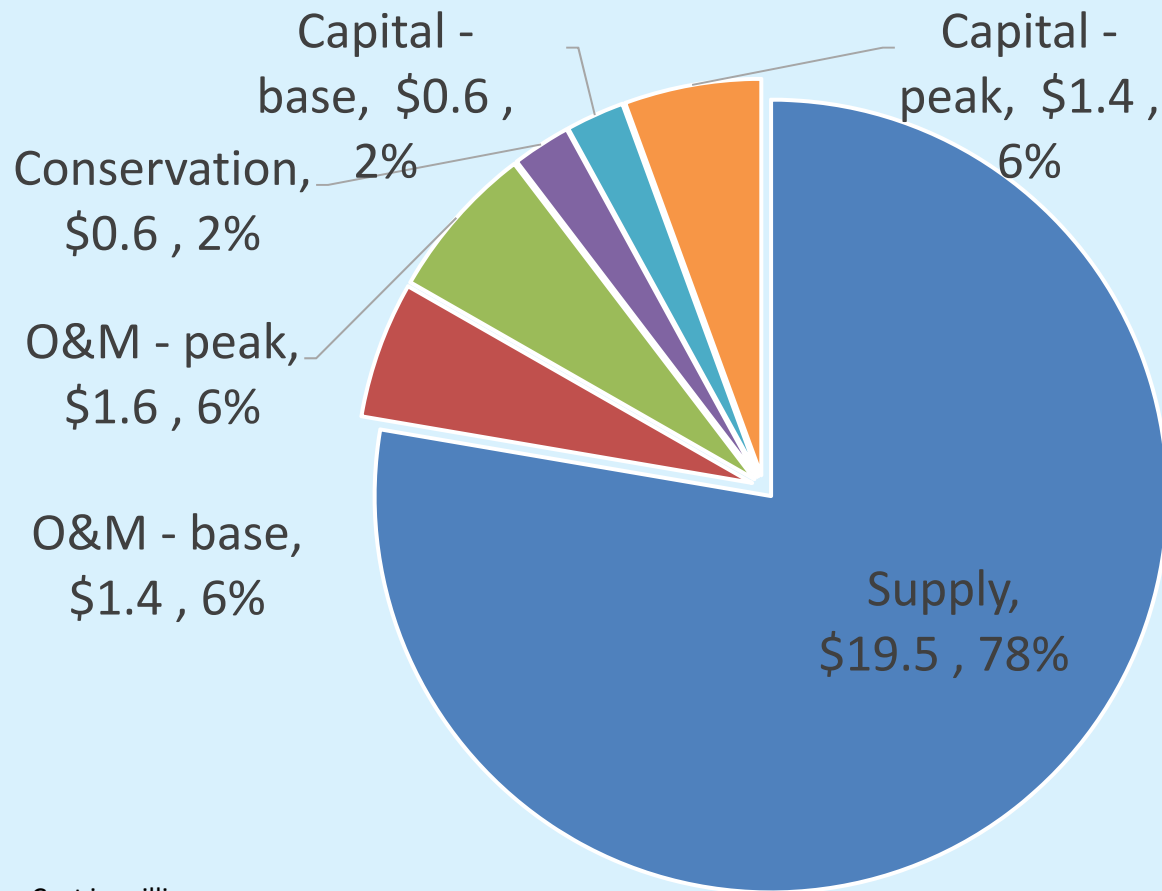
Hierarchy of Authority



- Consultants base design on M1 Manual
- M1 Manual is national – no Prop 218 consideration

Study of Commodity Costs

- What cost should be the focus of this agency?



Cost in millions



When Supply Cost is Big

- If all supply cost the same:
 - flat rate, or
 - second tier to capture conservation and peaking
- If supply cost varies, tiers are OK
- When supply is not a big cost:
 - Flat rate, or
 - Use peaking to distinguish tier limits and pricing



Defining Customer Class By Meter Size vs By Customer Type



Study use patterns to determine customer class

- If supply cost is big and varies
 - the class with the most homogeneous **average** use is best suited for distinguishing customer class
- If supply cost is not big or doesn't vary
 - the class with the most homogeneous **peak** or **maximum** use is best suited for distinguishing customer class



For VWD average use varies less within meter sizes than customer types



| Customer Type | CY 2016 | | | |
|-------------------|----------|-------------------|--------------------|----------|
| | # meters | Avg Use per Month | Standard Deviation | |
| | | | Absolute | Relative |
| Residential - SF | 19,036 | 12 | 11 | 96% |
| Residential - MF | 512 | 142 | 282 | 198% |
| Irrigation | 826 | 106 | 175 | 165% |
| Agriculture | 115 | 280 | 450 | 160% |
| Comm/Ind | 939 | 49 | 106 | 216% |
| Other | 91 | 126 | 317 | 252% |
| Construction | 36 | 144 | 682 | 475% |
| Fireline/Non Bill | 519 | 4 | 48 | 1134% |
| | 22,074 | | | |

| Meter size | CY 2016 | | | |
|-------------------|----------|-------------------|--------------------|----------|
| | # meters | Avg Use per Month | Standard Deviation | |
| | | | Absolute | Relative |
| < 1" | 19,239 | 12 | 11 | 96% |
| 1" | 1,021 | 40 | 66 | 164% |
| 1.5" | 689 | 101 | 152 | 151% |
| 2" | 505 | 188 | 236 | 126% |
| > 2" | 101 | 511 | 754 | 148% |
| Fireline/Non Bill | 519 | 4 | 48 | 1134% |
| TOTAL | 22,074 | | | 12 |

Multi-Family is currently Included in the above meter sizes

Determining Tier Amounts

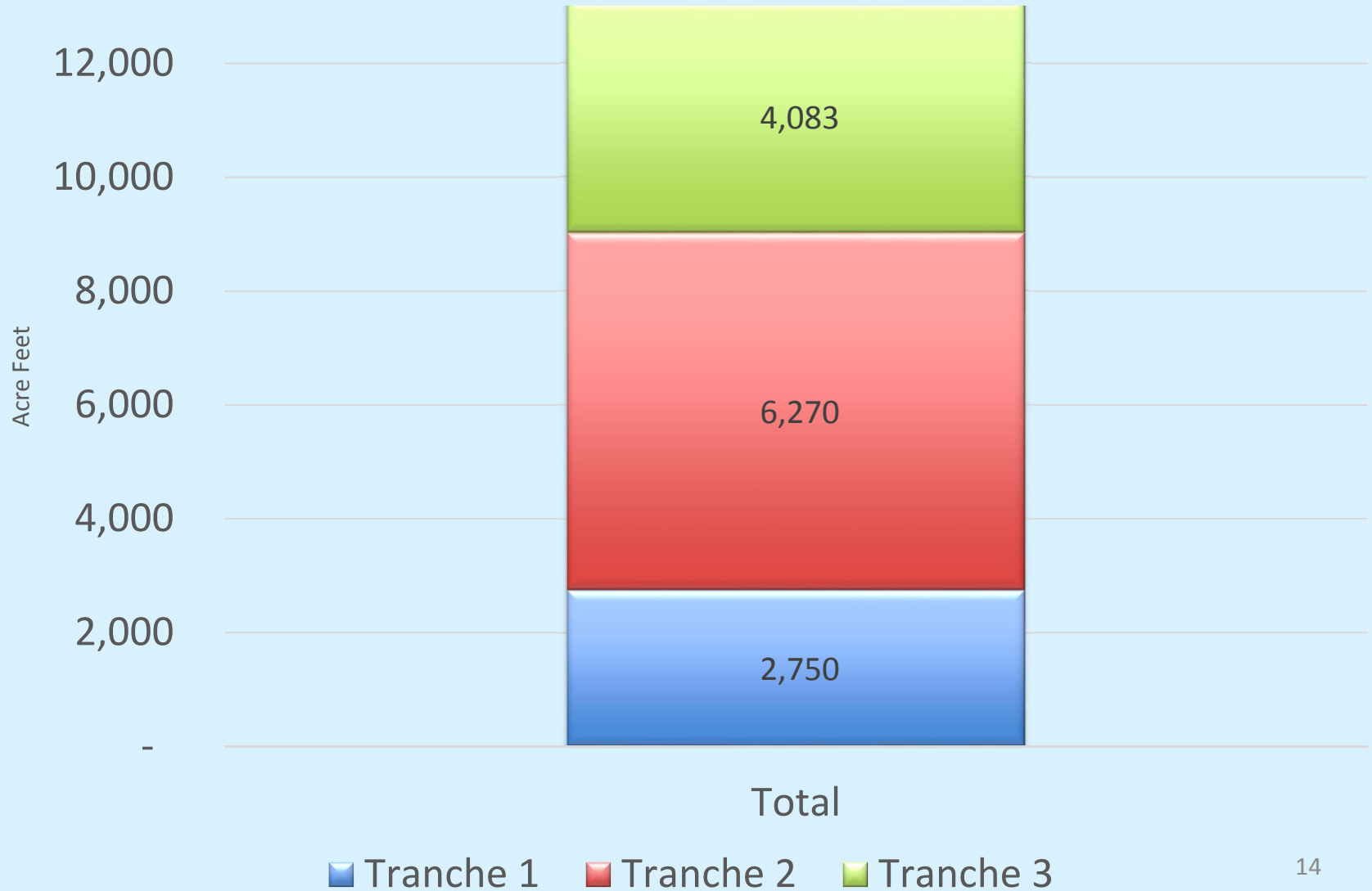


Supply is VWD's biggest cost

| | 2018 Cost | | Projected Demand | Extended Cost |
|------------------|-----------|----------|------------------|----------------------|
| | per Unit | per AF | | |
| Tranche 3 | | | | |
| Desal | \$ 5.20 | \$ 2,266 | 4,083 | \$ 9,252,005 |
| Tranche 2 | | | | |
| SDCWA | 2.95 | 1,286 | 6,270 | 8,062,822 |
| Tranche 1 | | | | |
| Treated by OMWD | 2.77 | 1,208 | 2,750 | 3,321,450 |
| TOTAL | | | 13,103 | \$ 20,636,277 |

Now how do we allocate these tranches to each customer class?

Allocating Tranches to Customer Classes

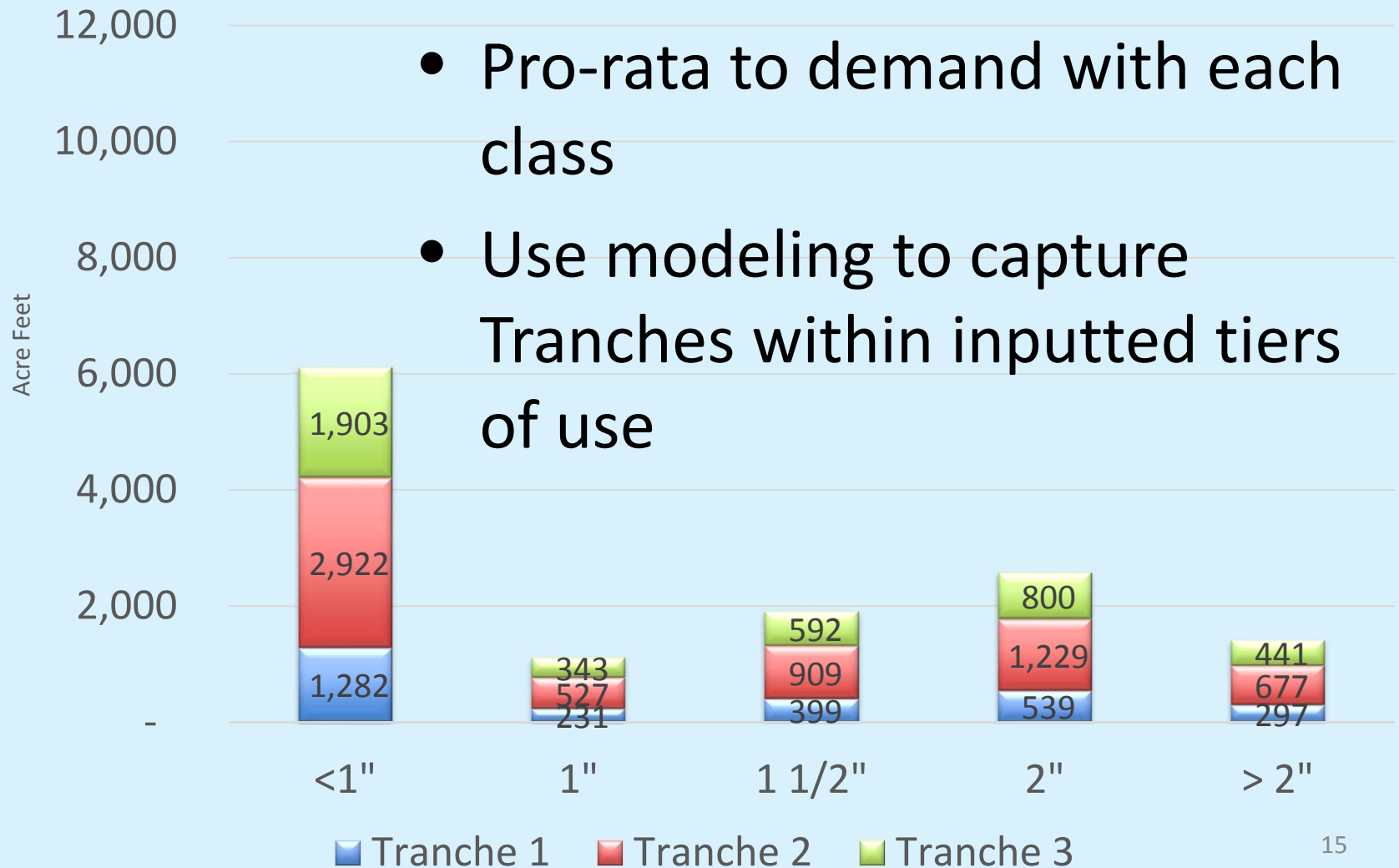




Allocating Tranches to Customer Classes

Options

- Pro-rata to demand with each class
- Use modeling to capture Tranches within inputted tiers of use





Cost Allocation to Tiers

- Tranche 1
 - OMWD water supply
 - Base costs
- Tranche 2
 - SDCWA water supply
 - Base costs
 - Peaking costs
- Tranche 3
 - Desal water supply
 - Base costs
 - Peaking costs
 - Conservation costs



Cost Allocation to Supply, Base and Peaking



Table 3-2. Allocation of O&M Expenditures (Test Year 16/17)

| Description | Total Costs (\$) | Common to All Customers | | | | | | | | |
|----------------------------------|----------------------|-------------------------|---------------------|-------------------|---------------------|--------------------|--------------------|---------------------|----------------------|-------------------|
| | | Base | Extra Capacity | | Customer | | Fire | Water Supply | | Conservation |
| | | Base (\$) | Max. Day (\$) | Max. Hour (\$) | Meters (\$) | Cust/Bill. (\$) | Protection (\$) | Fixed | Variable | |
| Operating Expenses | | | | | | | | | | |
| Water Purchases | 26,029,000 | 0 | 0 | 0 | 0 | 0 | 0 | 6,485,400 | 19,543,600 | 0 |
| Pumping | 533,000 | 253,800 | 252,500 | 0 | 0 | 0 | 26,700 | 0 | 0 | 0 |
| Water Quality | 198,000 | 198,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Water Treatment | 393,000 | 206,800 | 186,200 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Tanks & Reservoirs | 381,000 | 107,900 | 114,300 | 139,700 | 0 | 0 | 19,100 | 0 | 0 | 0 |
| Transmission & Distribution | 1,498,000 | 424,400 | 449,400 | 549,300 | 0 | 0 | 74,900 | 0 | 0 | 0 |
| Services | 189,000 | 0 | 0 | 0 | 189,000 | 0 | 0 | 0 | 0 | 0 |
| Meters | 655,000 | 0 | 0 | 0 | 655,000 | 0 | 0 | 0 | 0 | 0 |
| Backflow Prevention | 72,000 | 0 | 0 | 0 | 72,000 | 0 | 0 | 0 | 0 | 0 |
| Customer Accounts | 724,000 | 0 | 0 | 0 | 0 | 724,000 | 0 | 0 | 0 | 0 |
| Equipment & Vehicles | 325,000 | 65,000 | 0 | 0 | 260,000 | 0 | 0 | 0 | 0 | 0 |
| Building & Grounds | 320,000 | 64,000 | 0 | 0 | 256,000 | 0 | 0 | 0 | 0 | 0 |
| Engineering | 1,482,000 | 296,400 | 0 | 0 | 1,185,600 | 0 | 0 | 0 | 0 | 0 |
| Safety & Regulatory Affairs | 268,000 | 53,600 | 0 | 0 | 214,400 | 0 | 0 | 0 | 0 | 0 |
| Information Technology | 970,000 | 194,000 | 0 | 0 | 776,000 | 0 | 0 | 0 | 0 | 0 |
| General & Administrative | 2,314,000 | 462,800 | 0 | 0 | 1,851,200 | 0 | 0 | 0 | 0 | 0 |
| Conservation | 594,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 594,000 |
| Total O&M Expenses | \$ 36,945,000 | \$ 2,326,700 | \$ 1,002,400 | \$ 689,000 | \$ 5,459,200 | \$ 724,000 | \$ 120,700 | \$ 6,485,400 | \$ 19,543,600 | \$ 594,000 |
| Less Other Revenue | | | | | | | | | | |
| Pumping Charges | 300,000 | 142,900 | 142,100 | 0 | 0 | 0 | 15,000 | 0 | 0 | 0 |
| Delinquent Lock & Unlock Charges | 350,000 | 0 | 0 | 0 | 0 | 350,000 | 0 | 0 | 0 | 0 |
| Backflow Fees | 80,000 | 0 | 0 | 0 | 80,000 | 0 | 0 | 0 | 0 | 0 |
| Other Miscellaneous Charges | 155,000 | 31,000 | 0 | 0 | 124,000 | 0 | 0 | 0 | 0 | 17 |
| Net Operating Expenses | \$ 36,060,000 | \$ 2,152,800 | \$ 860,300 | \$ 689,000 | \$ 5,255,200 | \$ 374,000 | \$ 105,700 | \$ 6,485,400 | \$ 19,543,600 | \$ 594,000 |



Studies to Consider

| | B&V 2013, modified for 5-unit Tier1 (current) | B&V 2015 (completed, not adopted) | COSARSS 2017 (in progress) |
|--|---|--|--|
| Tiers by | Meter Size | Customer type | TBD - by analysis and Board direction |
| Tier limits determined by | <p>1st, 5-units for all customers at wholesale (1)</p> <p>2nd, 90% of average use (2)</p> <p>3rd, captures 90% of total demand (2)</p> <p>4th, top 10% of demand (2)</p> <p><i>(1) A carve out of tier 1, not part of the COSS, but a modification adopted by the Board.</i></p> <p><i>(2) Established for 2009 COSS based on predrought/prerecession use.</i></p> <p><i>The 2013 COSS is silent to how tier limits are calculated, but there was no change from the 2009 COSS other than the modification described in note 1.</i></p> | <p><i>Method of determining tier limits is not disclosed in the 2015 COSS, other than by "consumption patterns" as noted under Study Recommendations.</i></p> | <p>1st, OMWD cheapest water</p> <p>2nd, SDCWA next to cheapest water</p> <p>3rd, Desal most expensive water</p> <p><i>Allocated based on 2013-2016 consumption patterns.</i></p> |
| Tier Price differentials | <p>Tier 1 - wholesale cost only (3).</p> <p>Tier 2 to 3 - Ratio of maximum to average use based on 10 and 3 years of data = 1.4.</p> <p>Tier 2 to 4 - Ratio of maximum to minimum use based on 10 and 3 years of data = 2.3.</p> <p><i>(3) A carve out of tier 1, not part of the COSS, but a modification adopted by the Board.</i></p> | <p>1st, SDCWA water plus base costs</p> <p>2nd, some SDCWA water plus some desal water, base costs and max-day peaking costs.</p> <p>3rd, some SDCWA water plus some desal water, base costs and max-hour peaking costs.</p> <p><i>The 2015 COSS makes no mention of allocating peaking costs among tiers. This information was derived from the rate</i></p> <p><i>The 2015 COSS does not disclose to which tier OMWD water is allocated.</i></p> | <p>1st, Cost of OMWD water plus base costs.</p> <p>2nd, Cost of SDCWA water plus base costs and peak costs.</p> <p>3rd, cost of desal water plus base, peak, and conservation costs.</p> |
| <p><i>All 3 of the above COSSs, and most all COSSs for public water agencies, allocate costs using the M1 Manual's Base-Extra Capacity Method. Costs associated with peaking, or higher capacity requirements are allocated to higher tiers. Capacity and capacity rights are associated with meter size, not customer type.</i></p> | | | |



Staff Recommendation on Rate Development



- Proceed with internal study
 - Focus on water commodity charge
- Clear definition of tiers
 - Matching customer use with cost of supply
- Well supported customer class definition
 - Meter size or customer type
- Request proposal from attorney firms experienced in rate design and defense for review

218 Calendar

May 1 - Request address file from County for sewer only customers on tax roll

May 1 – Download addresses from billing database

May 10 – Draft staff report and notice Public Hearing (218) Notice

May 17 – Present draft 218 Notice to Board to approve messaging and format

May 22 – Complete Rate Study

May 22 – Provide mailing house with electronic address files

May 29 – Workshop: Present proposed Budget and Rate Study for recommendation

May 31 – Complete rate study with recommended budget numbers

May 31 – Draft staff reports for Budget, Rate Study, and 218 Notice

June 7 – Present Budget for Board adoption

June 7 – Present complete rate study with approved budget numbers for Board adoption

June 7 – Present complete 218 Notice with recommended rates to Board for approval

June 8 – Provide 218 Notice to copiers for duplication

June 8 – Send 218 Notice for Spanish translation

June 15 – Provide 218 Notices to mailing house for processing

June 15 – Post 218 Notice on website/social media

June 19 – Mail 218 Notices

July 19 – Publish announcement of Public Hearing

July 26 – Draft rate ordinances and staff report for Public Hearing

July 26 – Publish draft rate ordinances

August 2 – Public Hearing to consider rates

September 1 – New Ready to Serve and Sewer charges become effective

January 1 – Commodity rates become effective

