

Docket:	:	A.18-01-004
Exhibit Number	:	ORA - ____
Commissioner	:	C. Peterman
Administrative Law Judge	:	K. Bemederfer
ORA Witness	:	Z. Sarkar



## **REPORT AND RECOMMENDATIONS ON GENERAL OFFICE E-IT PROJECTS**

**Application 18-01-004**

**San Francisco, California  
May 23, 2018**

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## MEMORANDUM

1  
2       The Office of Ratepayer Advocates (ORA) examined the requests and data  
3 presented by San Jose Water Company (SJWC) in Application (A.) A.18-01-004 in order  
4 to provide the Commission with recommendations that represent the interests of  
5 ratepayers for safe and reliable service at lowest cost. Ms. Eileen Odell is ORA's project  
6 lead for the proceeding. Mr. Richard Rauschmeier is ORA's oversight supervisor. Mr.  
7 Anand Durvasula is ORA's legal counsel.

8       Although ORA made every effort to comprehensively review, analyze and provide  
9 the Commission with recommendations on each ratemaking and policy aspect presented  
10 in the application, the absence from ORA's testimony of any particular issue does not  
11 necessarily constitute ORA's endorsement or acceptance of the underlying request,  
12 methodology, or policy position related to that issue.

1 **I. GENERAL OFFICE E-IT PROJECTS**

2 **A. INTRODUCTION**

3 This chapter presents the Office of Ratepayer Advocates’ (ORA) analysis and  
4 recommendations on San Jose Water Company’s (SJWC) Application (A.) 18-01-004  
5 proposed General Office Equipment - Information Technology (E-IT) projects<sup>1</sup>, with  
6 proposed budgets totaling \$9,141,200, and other E-IT projects<sup>2</sup> proposed project budgets  
7 totaling \$4,528,200. These project budget requests total \$13,669,400 over three years  
8 (2018-2020).

9 **B. SUMMARY OF RECOMMENDATIONS**

10 The Commission should:

- 11 1. Reduce the Computer Replacements project budget from  
12 \$851,700 to \$645,870 for 2018-2020 because the requested  
13 equipment’s are available for lower prices.  
14
- 15 2. Reduce the Customer Information System Upgrade budget from  
16 \$1,169,600 to \$877,200 for 2019 because the vendor can bundle  
17 the project and reduce cost.  
18
- 19 3. Reduce the Network Switches Replacement budget from  
20 \$1,705,700 to \$1,074,009 for 2018-2020 because the requested  
21 equipment is available for lower prices.  
22
- 23 4. Reduce the Network Server Upgrades budget from \$1,167,900 to  
24 \$740,256 for 2018-2020 to reflect lower server numbers as a  
25 result of migration to cloud services.  
26
- 27 5. Reduce the Field Service System Upgrade budget from \$608,600  
28 to \$456,450 for 2020 because the vendor can bundle the project  
29 and reduce cost.  
30
- 31 6. Adopt a budget of \$2,579,300 for the Computerized Maintenance  
32 Management System replacements project for 2020-2021 and

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<sup>1</sup> SJWC Exhibit G – Capital Budget Project Justifications.

<sup>2</sup> SWJC Exhibit F – GRC Workpapers, Chapter 11, 2018-2020 GRC Capital Budgets tab. Upon data request ORA DR ZS1-001 SJWC submitted updated project estimates which are different from original Application submission, filed Jan 4, 2018.

1 none for 2019 because the software will continue to be supported  
2 from the vendor until 2020.

3

4 SJWC's E-IT investment should reflect demonstrated needs and costs and should  
5 be adequately justified. The following table summarizes ORA's adjustments to specific  
6 GO E-IT projects.

1

**Table 1-1: ORA's Adjustments to Specific E-IT Projects<sup>3</sup>**

<b>IT Projects</b>	<b>Year</b>	<b>SJWC</b>	<b>ORA</b>	<b>SJWC &gt; ORA</b>	<b>ORA as % of SJWC</b>
Computer Replacements (Index #1373)	2018	\$286,600	\$195,500	\$91,100	68%
	2019	\$278,500	\$198,400	\$80,100	71%
	2020	\$286,600	\$251,970	\$34,630	88%
<b>Subtotal</b>		<b>\$851,700</b>	<b>\$645,870</b>	<b>\$205,830</b>	<b>76%</b>
Customer Information System Upgrade (Index #5527)	2018	\$0	\$0	\$0	0%
	2019	\$1,169,600	\$877,200	\$292,400	0%
	2020	\$0	\$0	\$0	0%
<b>Subtotal</b>		<b>\$1,169,600</b>	<b>\$877,200</b>	<b>\$292,400</b>	<b>75%</b>
Network Switches Replacement (Index #5577)	2018	\$513,600	\$319,499	\$194,101	62%
	2019	\$907,000	\$626,309	\$280,691	69%
	2020	\$285,100	\$128,201	\$156,899	45%
<b>Subtotal</b>		<b>\$1,705,700</b>	<b>\$1,074,009</b>	<b>\$631,691</b>	<b>63%</b>
Network Server Upgrades (Index #1371)	2018	\$124,800	\$259,511	(\$134,711)	208%
	2019	\$470,000	\$259,511	\$210,489	55%
	2020	\$573,000	\$259,511	\$313,489	45%
<b>Subtotal</b>		<b>\$1,167,800</b>	<b>\$740,256</b>	<b>\$427,544</b>	<b>63%</b>
Field Service System Upgrade (Index #5529)	2018	\$0	\$0	\$0	0%
	2019	\$0	\$0	\$0	0%
	2020	\$608,600	\$456,450	\$152,150	75%
<b>Subtotal</b>		<b>\$608,600</b>	<b>\$456,450</b>	<b>\$152,150</b>	<b>75%</b>
CMMS Replacement (Index #5515)	2018	\$0	\$0	\$0	0%
	2019	\$2,170,600	\$0	\$0	0%
	2020	\$408,700	\$2,170,600	(\$1,761,900)	0%
<b>Subtotal</b>		<b>\$2,579,300</b>	<b>\$2,170,600</b>		<b>84%</b>
<b>TOTAL</b>		<b>\$8,082,700</b>	<b>\$5,964,385</b>		<b>74%</b>

2

3

**C. DISCUSSION**

4

**1. Computer Replacements (Index# 1373)**

5

The Commission should reduce SJWC's proposed Computer Replacements project's 2018-2020 budget from \$851,700 to \$645,870. ORA's recommended budget is sufficient to satisfy SJWC's computer replacement needs, as functional equivalents to

7

<sup>3</sup> The table is not a comprehensive list of IT projects requests; it only shows items for which ORA recommends adjustments. ORA here is using original figures as the basis for recommendations.

1 those computers requested by SJWC are available for lower prices than those cited by  
2 SJWC.

3 **a) SJWC’s request**

4 SJWC requests a total of \$900,253 for 2018-2020 to replace its personal  
5 computers. To support its request, SJWC states: “SJWC’s computer systems need to be  
6 updated with new versions of the Microsoft Windows Operating System. The new  
7 version of Microsoft Windows is Version 10 and SJWC is currently mainly utilizing  
8 Version 7. It is necessary to update PCs to newer versions in a rapid manner in order to  
9 support Windows 10.”<sup>4</sup>

10 SJWC categorized its budget request as standard, engineering and field laptops  
11 and desktop computers.<sup>5</sup> SJWC stated its current pool of PCs has a life expectancy  
12 between three and five years, after which they are usually subject to failure, depending on  
13 use (field units), or they no longer meet security requirements.<sup>6</sup> SJWC also cited the  
14 change in security requirements for PCs to meet the growing cyber threat. New PCs at  
15 SJWC now support multifactor authentication by ID badge, security tokens, etc.<sup>7</sup> SJWC  
16 cited Dell and Getac as the main sources of preferred vendors for the amount requested.<sup>8</sup>

17 **b) ORA’s analysis and recommendation**

18 The Commission should adjust SJWC’s requested Computer Replacement budget  
19 downward, as functional equivalents are available for lower costs than those cited by  
20 SJWC.

21

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<sup>4</sup> SJWC Exhibit G – Capital Budget Project Justifications, Index #1373 Computer Replacements, Page 74 of 936.

<sup>5</sup> See Attachment 2-2: SJWC Response to ORA Data Request ZS1-001, R.1.a.i EXCEL DR\_No\_A\_18-01-004\_ORA\_DR\_ZS1-001\_TABLE 1.xlsx (updated).

<sup>6</sup> Id.

<sup>7</sup> Id.

<sup>8</sup> See Attachment 2-1: SJWC Response to ORA Data Request ZS1-001, R.1.a.i.



1           ORA requested from SJWC a breakdown of how the budget was developed and  
2 the quantity of computers SJWC plans to replace per year.<sup>2</sup> ORA also requested, and  
3 SJWC provided, an Employee-to-Device count that are being actively used by the current  
4 employees of SJWC.<sup>10</sup> In response to ORA’s inquiry, SJWC responded it has 368  
5 employees as of December 2017 with a total of 465 direct assigned computers. The  
6 device-to-employee ratio is thus 1.26.<sup>11</sup>

7           SJWC provided an attachment explaining the breakdown of cost per year to  
8 replace computers.<sup>12</sup> The number of total active computer count shows 547, of which 82  
9 are shared computers which are not directly assigned to a particular employee.<sup>13</sup>  
10 SJWC plans to retire 123 computers in 2018, 127 in 2019 and 97 in 2020. It also plans to  
11 purchase 136 computers in 2018, 127 in 2019 and 97 in 2020. This equates to SJWC  
12 owning a total of 560 computers of different kinds by year 2020.

13           ORA issued a follow up request asking for the latest invoices/bids/quotes from the  
14 vendors referenced in ORA Data Request ZS1-001, R.1.a. In response, SJWC provided  
15 receipts from its vendor – Dell – for Standard Desktop, Standard Laptop, Engineering  
16 Laptop and Engineering Desktop. It also provided receipts from other vendors for  
17 MacBook, Tablets and Field Laptops.

18           ORA evaluated the costs provided in the aforementioned vendor receipts for the  
19 specific items and configurations that SJWC requested. ORA’s findings on some of these  
20 items are as follows:

- 21           1. Standard Desktop: Receipts provided show \$1,678.79 per computer  
22           which includes shipping and/or handling and sales taxes. ORA’s  
23           analysis shows a similar desktop configuration is available for  
24           \$1,249.00 per desktop computer.<sup>14</sup>

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<sup>2</sup> See Attachment 2-1: SJWC Response to ORA Data Request ZS1-001, R.1.a. and R.1.b.

<sup>10</sup> See Attachment 2-1: SJWC Response to ORA Data Request ZS1-001, R.1.d.

<sup>11</sup> Id.

<sup>12</sup> See Attachment 2-2: SJWC Response to ORA Data Request ZS1-001, R.1.a.i EXCEL DR\_No\_A\_18-01-004\_ORA\_DR\_ZS1-001\_TABLE 1.xlsx (updated).

<sup>13</sup> See Attachment 2-2: SJWC Response to ORA Data Request ZS1-001, R.1.a.i EXCEL DR\_No\_A\_18-01-004\_ORA\_DR\_ZS1-001\_TABLE 1.xlsx, Cell C3 (updated).

<sup>14</sup> <http://www.dell.com/en-us/work/shop/7000-series/7050/spd/optiplex-7050-desktop>, accessed on April 4, 2018.

- 1
- 2 2. Standard Laptop: Receipts provided show \$2,119.26 per computer
- 3 which includes shipping and/or handling and sales taxes. ORA's
- 4 analysis shows a similar laptop is available for \$1,659.00 per laptop
- 5 computer.<sup>15</sup> In absence of configurations on SJWC's vendor receipts,
- 6 ORA uses the standard configuration for such laptop to be default price
- 7 value to estimate the recommended price value.
- 8
- 9 3. Engineering Laptop: Receipts provided shows \$2,896.75 per laptop
- 10 computer which includes shipping and/or handling and sales taxes.
- 11 ORA's analysis shows a similar configuration is available for \$2,121.23
- 12 per laptop computer.<sup>16</sup>
- 13
- 14 4. MacBook Laptops: Receipts provided shows \$4,335.35 per laptop
- 15 computer which includes shipping and/or handling and sales taxes.
- 16 ORA's analysis shows a similar MacBook laptop is available for
- 17 \$3,553.04 per laptop.<sup>17</sup>
- 18

19 ORA's estimates are lower than SJWC's but are based on computer configurations

20 that provide the same core functionality as those requested by SJWC. Therefore, the

21 Commission should reduce the Computer Replacements project's 2018-2020 budget from

22 \$851,700 to \$645,870.

## 23 **2. Customer Information System Upgrade (Index# 5527)**

24 The Commission should reduce the Customer Information System Upgrade budget

25 from \$1,169,600 to \$877,200 for 2019 because SJWC has failed to substantiate its

26 proposed project budget.

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<sup>15</sup> <http://www.dell.com/en-us/work/shop/7000-series/7480/spd/latitude-14-7480-laptop>, accessed on April 16, 2018.

<sup>16</sup> [http://www.dell.com/en-us/work/shop/dell-laptops-and-notebooks/precision-7520/spd/precision-15-7520-laptop/xctop752015\\_us\\_sapp\\_2](http://www.dell.com/en-us/work/shop/dell-laptops-and-notebooks/precision-7520/spd/precision-15-7520-laptop/xctop752015_us_sapp_2) (choose Memory: 32GB, 2x16GB, 2400MHz DDR4 Non-ECC SDRAM, Hard Drive: 512GB M.2 PCIe Solid State Drive Class 40, Primary Battery: 6-cell (91 Whr) Lithium Ion Polymer Battery with ExpressCharge™ and Display: 15.6" UltraSharp™ FHD IPS(1920x1080)AG LED-backlit w/Prem Pan Grnt(72% color gamut) w/Mic, Non-touch), accessed on May 2, 2018.

<sup>17</sup> See Attachment 2-3: Apple MacBook Laptop Estimate.

1                                    **a)      SJWC’s request**

2                    SJWC requests \$1,169,600 for 2019 to upgrade the Customer Information System  
3 (CIS). CIS is an Oracle Software package called Customer Care and Billing (CCB).  
4 SJWC uses CCB to manage the utility customer lifecycle, from service connection to  
5 payment processing.<sup>18</sup>

6                    To support its request, SJWC describes the limited product level support with the  
7 current version of CCB. SJWC has been using Version 2.2 of the software since June  
8 2011. Version 2.6 of CCB was released in May 2017. Version 2.2’s premium support  
9 and its useful life is coming to an end. SJWC states that the sustaining support it is  
10 receiving from Oracle “does not provide new bug fixes, patches or updates, and critical  
11 security.”<sup>19</sup>

12                    While defining its deficiencies, SJWC states that not upgrading the CIS would  
13 “present a risk of failure, such as a critical software bug or security vulnerability, that  
14 would be costly and detrimental to recover from.”<sup>20</sup> It further asserts that the hardware  
15 and network components on which the CIS runs are beyond their useful lives; which  
16 makes the option of not upgrading an extreme disadvantage to SJWC.

17                    SJWC explored the option of replacing the current CIS with a different CIS  
18 solution, but ultimately chose not to because that option is costlier and provide no  
19 additional benefit. SJWC determined that it has yet to take full advantage of all the  
20 features provided with CCB and switching to a different CIS would require SJWC to  
21 obtain additional support resources.<sup>21</sup>

22                    SJWC stated that the upgrade of CCB from version 2.2 to version 2.6 is an  
23 acceptable balance between cost and risk and its best alternative. Version 2.6 would  
24 provide a premier product level support which was missing with version 2.2; and would

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<sup>18</sup> SJWC Exhibit G – Capital Budget Project Justifications, Index #5527 Customer Information System Upgrade, Page 452 of 936.

<sup>19</sup> Id.

<sup>20</sup> SJWC Exhibit G – Capital Budget Project Justifications, Index #5527 Customer Information System Upgrade, Page 453 of 936.

<sup>21</sup> Id.

1 enhance its system to be always up-to-date and functioning optimally. It will also allow  
2 SJWC to utilize the enhanced software features and functionality.<sup>22</sup>

3 **b) ORA’s analysis and recommendation**

4 The Commission should reduce the Customer Information System Upgrade budget  
5 from \$1,169,600 to \$877,200 for 2019 because SJWC has failed to substantiate its  
6 proposed project budget. ORA requested SJWC for a breakdown of how the budget was  
7 developed and the supporting calculations.<sup>23</sup> In response, SJWC provided an Excel  
8 spreadsheet with 4 line items and the costs involved as its basis of budget.<sup>24</sup> It did not  
9 have any further breakdown of what “Professional Services” as stated in the excel  
10 spreadsheet or “Contract Cost” as stated in Exhibit G.<sup>25</sup>

11 ORA issued a follow up request asking for a further breakdown of the cost items  
12 described in the Excel spreadsheet. In response, SJWC failed to provide any supporting  
13 documents from its one vendor – Oracle – which serves as a basis for estimation.

14 Due to the lack of any supporting documents from SJWC after ORA’s request,  
15 ORA could not find any proper basis of how the budget was calculated or a concrete way  
16 to quantify the numbers behind “Professional Services”. Because SJWC did not provide  
17 verifiable data or quantitative analysis to support the budget amounts, the Commission  
18 should reduce SJWC’s request of \$1,169,600 by one-fourth, to \$877,200. ORA’s  
19 recommendation is based on the assumption that Oracle can bundle the Customer  
20 Information System Upgrade and Field Service System upgrade projects. This should  
21 reduce common expenses on both projects such as unit testing, system integration, user  
22 acceptance, configuration, deployment and travel etc.

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<sup>22</sup> SJWC Exhibit G – Capital Budget Project Justifications, Index #5527 Customer Information System Upgrade, Page 452 of 936.

<sup>23</sup> ORA Data Request ZS1-001, Q 2.a.

<sup>24</sup> See Attachment 3-1: SJWC Response to ORA Data Request ZS1-001, Excel file Response to DR ZS1-001 Q.2a. (Updated).

<sup>25</sup> SJWC Exhibit G – Capital Budget Project Justifications, Index #5527 Customer Information System Upgrade, Page 455 of 936.

1                   **3. Network Switches Replacement (Index# 5577)**

2                   The Commission should reduce the Network Switches Replacement budget from  
3 \$1,705,700 to \$1,074,009 for 2018-2020, as functional equivalents to those switches  
4 requested by SJWC are available for lower costs than those cited by SJWC.

5                   **a) SJWC’s request**

6                   SJWC requests \$1,705,659 to replace Network Switches for 2018-2020. In  
7 support of its request to replace Network Switches, SJWC states:

8                   As data traffic increases with more advanced and complex  
9 systems being required to effectively run SJWC operations  
10 the existing switch infrastructure will become inadequate.  
11 Efficient flow of data across the network is required for all  
12 systems, internal and customer facing, to work correctly.<sup>26</sup>

13                  SJWC states that if it chooses to not change its network switches, it will  
14 experience a slowdown of response time for all systems due to data volumes and  
15 increased complexity. It will see delays in the customer service center as well as for  
16 other internal departments.<sup>27</sup>

17                  SJWC emphasized that core elements in the network are the switches, and  
18 between 5 and 7 years old, switches are at the end of their useful life due to  
19 manufacturer’s obsolescence.<sup>28</sup>

20                  **b) ORA’s analysis and recommendation**

21                  The Commission should reduce the Network Switches Replacement budget from  
22 \$1,705,700 to \$1,074,009 for 2018-2020, as functional equivalents to those switches  
23 requested by SJWC are available for lower costs than those cited by SJWC.

24                  ORA requested SJWC for a breakdown of how the budget was developed. SJWC  
25 provided a breakdown of cost per item and expenditures planned per year without any  
26 vendor quotes to support the cost estimates.<sup>29</sup>

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<sup>26</sup> SJWC Exhibit G – Capital Budget Project Justifications, Index #5577 Network Switches Replacement, Page 134 of 936.

<sup>27</sup> SJWC Exhibit G – Capital Budget Project Justifications, Index #5577 Network Switches Replacement, Page 134 of 936.

<sup>28</sup> Id.

1           ORA issued a follow up request asking for the latest invoices/bids/quotes from the  
2 vendors referenced in ORA Data Request ZS1-001, R.4.a.i. In response, SJWC provided  
3 receipts dated 7/27/2017 from its vendor Avantel Networks for Core Switches and Other  
4 Switches.

5           ORA evaluated the costs provided in the aforementioned vendor receipts for the  
6 specific items and configurations that SJWC requested for its Network Switch  
7 Replacement project. ORA's findings are as follows:

- 8           1. Core Switch: Receipts provided show \$60,360 per switch which  
9 includes sales taxes and configurations fees. ORA's analysis shows  
10 similar switch configurations are available for \$52,916 per switch.  
11 ORA analyzed each individual item in the requested switch  
12 configuration.<sup>30</sup>  
13
- 14           2. Other Switch: Receipts provided show \$21,609 per switch which  
15 includes sales taxes and configuration fees. ORA's analysis show  
16 similar switch configuration is available for \$10,683 per switch. ORA  
17 analyzed each individual items in the switch configuration.<sup>31</sup>

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<sup>29</sup> See Attachment 4-1: SJWC Response to ORA Data Request ZS1-001, R.4.a.i. and Attachment 4-2: R.4.a.i EXCEL DR\_No\_A\_18-01-004\_ORA\_DR\_ZS1-001\_TABLE 6.xls.

<sup>30</sup> Requested switch configuration:

QFX5200-32C-AFO: [http://www.provantage.com/juniper-networks-qfx5200-32c-af0~7NSCN131 .htm](http://www.provantage.com/juniper-networks-qfx5200-32c-af0~7NSCN131.htm), accessed on April 16, 2018.

CBL-EX-PWR-C13-US: No change needed.

EX-4PST-RMK: <http://www.provantage.com/juniper-networks-ex-4pst-rmk~7NSCN06U.htm>, accessed on April 16, 2018.

JPSU-850W-AC-AFO: <https://www.cdw.com/product/Juniper-Networks-power-supply-hot-plug-redundant-850-Watt/3951181>, accessed on April 16, 2018.

QFX-QSFP-DACBO-3M: <https://www.fs.com/products/36197.html>, accessed on April 16, 2018.

QFX-SFP-10GE-LR: <http://www.provantage.com/juniper-networks-qfx-sfp-10ge-lr~7JUNI058.htm>, accessed on April 16, 2018.

QFX-SFP-10GE-SR: <http://www.provantage.com/juniper-networks-qfx-sfp-10ge-sr~7JUNI059.htm>, accessed on April 16, 2018.

QFX5000-35-JAS: No change needed.

<sup>31</sup> Requested switch configuration:

EX4300-48P : <https://www.cdw.com/product/Juniper-EX-Series-EX4300-48P-switch-48-ports-managed-rack-mountable/3122418>, accessed on April 16, 2018.

CBL-PWR-C15M-HITEMP-US: No change needed.

EX-SFP-10GE-DAC-3M: <https://www.fs.com/products/36623.html>, accessed on April 16, 2018.

EX-SFP-10GE-LRM: <https://www.cdw.com/product/Proline-Juniper-EX-SFP-10GE-LRM-Compatible-SFP-TAA-Compliant-Transceiver/2993199>, accessed on April 16, 2018.

1           ORA’s estimates are lower but based on network switches configurations that  
2 provide the same core functionality. ORA utilized the best specifications and  
3 configuration for optimized functionality keeping in mind SJWC network security and  
4 safety. Therefore, the Commission should reduce the Network Switches Replacement  
5 budget from \$1,705,700 to \$1,074,009 for 2018-2020.

6                           **4. Network Server Upgrades (Index# 1371)**

7           The Commission should reduce the Network Server Upgrades budget from  
8 \$1,167,900 to \$740,256 for 2018-2020 because SJWC’s proposed reduction in server  
9 counts does not proportionally reflect its migration towards cloud services.

10                           **a) SJWC’s request**

11           SJWC requests \$1,167,900 to replace Network Server Upgrades over three years  
12 (2018-2020). SJWC operates a Microsoft Windows Network. It states that applications  
13 that SJWC uses within the network resides in a client/server infrastructure. Application  
14 data that is shared by many employees within SJWC is stored on servers as well.<sup>32</sup>

15           In support of its request to replace Network Servers, SJWC states:

16                           As data sizes increases and applications get more complex it  
17 is necessary to upgrade the existing servers. Efficient  
18 processing and storing of shared information on servers is  
19 necessary for all systems, customer facing and internal, to  
20 work correctly. Servers are usually replaced every 3-5 years  
21 due to increased demand in both processing and data  
22 storage.<sup>33</sup>

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JPSU-1100-AC-AFO: <http://www.provantage.com/juniper-networks-jpsu-1100-ac-af0~7NSCN0PT.htm>,  
accessed on April 16, 2018.

EX-UM-4X4SFP: <http://www.provantage.com/juniper-networks-ex-um-4x4sfp~7JUNI0E6.htm>, accessed  
on April 16, 2018.

<sup>32</sup> SJWC Exhibit G – Capital Budget Project Justifications, Index #1371 Network Server Upgrades, Page  
72 of 936.

<sup>33</sup> SJWC Exhibit G – Capital Budget Project Justifications, Index #1371 Network Server Upgrades, Page  
72 of 936.

1 SJWC states that all of its system would slow down in response time if it does not  
2 update the servers, and this would negatively impact customer systems as well as internal  
3 systems.<sup>34</sup>

4 **b) ORA’s analysis and recommendation**

5 The Commission should reduce the Network Server Upgrades budget from  
6 \$1,167,900 to \$740,256 for 2018-2020 because SJWC’s proposed reduction in server  
7 counts does not proportionally reflect its migration towards cloud services.

8 ORA requested SJWC for a breakdown of how the budget was developed. SJWC  
9 provided a breakdown of cost per item and expenditures planned per year without any  
10 vendor quote to support its cost estimates.<sup>35</sup>

11 ORA issued a follow up request asking for the latest invoices/bids/quotes from the  
12 vendors referenced in ORA Data Request ZS1-001, R.5.a.i. In response, SJWC provided  
13 receipts from its vendor, ZAG Technical Services, dated August 2015, February 2016  
14 and October 2016, for Power Servers, Base Servers, HP Server Chassis, Specialty Server  
15 and Server Storage.

16 SJWC additionally asserted that quantities for HP Server chassis, Base Servers,  
17 Power Servers and Server Storage are declining due to a migration to cloud services.<sup>36</sup>  
18 The table that SJWC provided shows the total number of servers as of 2017 at 116. It  
19 plans to reduce the number of servers to 90 by end of 2020. That equates to a reduction  
20 of 26 servers.

21 ORA analyzed the additional documents submitted by SJWC as part of the 45-day  
22 update of this GRC which includes Chapter-23 workpapers and also mentioned in  
23 SJWC’s response to ORA’s data request.<sup>37</sup> SJWC stated: “From 2019 to 2023,  
24 comparing costs for SJWC with a second data center to cloud computing services - for

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<sup>34</sup> Id.

<sup>35</sup> See Attachment 5-1: SJWC Response to ORA Data Request ZS1-001, R.5.a.i.

<sup>36</sup> See Attachment 5-1: SJWC Response to ORA Data Request ZS1-001, R.5.a.i.

<sup>37</sup> See Attachment 5-2: SJWC Response to ORA Data Request ZS1-003, R.3.



1 CMMS, Customer System, and Mobile Workforce Management System - cloud  
2 computing saves customers over \$8 million.”<sup>38</sup>  
3 SJWC’s reduction in server counts does not proportionally reflect its migration  
4 towards cloud services. SJWC in its Chapter 23 workpapers demonstrated the amount of  
5 dollar that would be saved for ratepayers if they choose the Cloud services over building  
6 their own data centers/recovery sites.<sup>39</sup> Opting to choose cloud services means SJWC  
7 would reduce their hardware numbers significantly on their office locations. ORA  
8 expects the numbers of Power Servers to reduce significantly as a large portion of its  
9 supported systems – CMMS, Customer Service System and MWM – are in the process of  
10 migration to cloud. SJWC currently has 54 Power Servers. SJWC estimates in their  
11 supporting document a decrease of 17Power Servers by 2020.<sup>40</sup> ORA anticipates a  
12 greater decrease in the number of Power Servers, as otherwise SJWC would not be  
13 utilizing the cloud services optimally.

14 ORA also expects Server Storage and Base Servers to reduce as well due to the  
15 migration towards cloud services. SJWC currently has 43 Base Servers which are less  
16 expensive but generally used for Domain Control, file services and low use systems. It  
17 estimates the numbers going down to only 39 Base Servers by 2020, which equates to 4  
18 servers decreased in three years. ORA anticipates more reduction in this number over  
19 three years

20 The Commission should reduce SJWC’s request of \$1,167,900 by one-third to  
21 \$740,256 for 2018-2020. For simplification, ORA averaged the \$740,256 to make it  
22 \$246,752 per year. The adjusted budget should allow SJWC to reliably migrate to cloud  
23 services and reflect the savings in reduced need for servers.

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<sup>38</sup> Id.

<sup>39</sup> See Attachment 5-2: SJWC Response to ORA Data Request ZS1-003, R.3.

<sup>40</sup> See Attachment 5-3: SJWC Response to ORA Data Request ZS1-001, R.5.a.i EXCEL DR\_No\_A\_18-01-004\_ORA\_DR\_ZS1-001\_TABLE 8.

1                   **5. Field Service System (Index# 5529)**

2   The Commission should reduce the Field Service System Upgrade budget from \$608,600  
3   to \$456,450 for 2020 because SJWC did not provide verifiable data or quantitate analysis  
4   to substantiate the proposed budget amounts.

5                   **a) SJWC’s request**

6           SJWC requests \$608,600 to upgrade Field Service System for the year 2020.

7   SJWC uses an Oracle software solution called Mobile Workforce Management (MWM)  
8   for its field service or mobile workforce. SJWC states: “MWM is used by SJWC’s  
9   Customer Field Service Department to respond to customer service requests such as  
10   start/stop service, service investigations, conservation audits, meter changes, and by the  
11   Meter Shop Department to automate the entry of records related to lager meter changes  
12   and investigations.”<sup>41</sup>

13           SJWC describes MWM as integrated with SJWC’s CCB using Oracles  
14   middleware called Field Work Process Integration pack (FWPIP), which enables the real-  
15   time updates between MWM and CCB. SJWC emphasized on this fact upon ORA’s data  
16   request.<sup>42</sup>

17           In justifying the request, SJWC states: “Oracle is replacing MWM with a solution  
18   called Oracle Field Service Cloud (FSC). SJWC’s mobile workforce system will need to  
19   be upgraded to maintain premium product level support and to improve usability by  
20   leveraging new features and functionality.”<sup>43</sup>

21           SJWC states its deficiencies:

22                   SJWC’s mobile workforce system is reaching the end of its  
23                   premier product level support. Premier support for MWM  
24                   version 2.2 will end March 2019. MWM version 2.3 was  
25                   released in March 2016 with premier support available until  
26                   March 2021. No further development of MWM is planned  
27                   beyond version 2.3 as the result of its replacement with FSC.

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<sup>41</sup> SJWC Exhibit G – Capital Budget Project Justifications, Index #5529 Field Service System Upgrade, Page 920 of 936.

<sup>42</sup> See Attachment 6-1: SJWC Response to ORA Data Request ZS1-001, R.6.b.

<sup>43</sup> SJWC Exhibit G – Capital Budget Project Justifications, Index #5529 Field Service System Upgrade, Page 920 of 936.

1 Following the end of premier support, SJWC will not be able  
2 to update its MWM system and integrate it with later versions  
3 of CCB, as products without premier support will become  
4 outdated and will no longer be certified with new third-party  
5 or Oracle product versions.

6 SJWC stated that upgrading MWM Version 2.2 to Version 2.3 is an alternative it  
7 has considered, but this alternative “severely limits SJWC’s ability to do better and do  
8 more for utility customers.”<sup>44</sup>

9 SJWC described the upgrade of MWM to FSC as enabling it to maintain product  
10 level support and to improve customer communications and experiences. SJWC  
11 described the advantages of the advanced functionality and versatility that comes with  
12 FSC.

13 **b) ORA’s analysis and recommendation**

14 Because SJWC did not provide verifiable data or quantitate analysis to accompany  
15 the budget amounts, the Commission should reduce SJWC’s request of \$608,600 by one-  
16 fourth, to \$456,450 for 2020.<sup>45</sup>

17 ORA requested SJWC for a breakdown of how the budget was developed and the  
18 supporting calculations.<sup>46</sup> In response, SJWC provided an Excel spreadsheet with 4 line  
19 items and the costs involved as its basis of budget.<sup>47</sup> It did not provide any further  
20 breakdown of the “Professional Services” listed in the Excel spreadsheet or “Contract  
21 Cost” listed in Exhibit G.<sup>48</sup>

22 ORA issued a follow up request asking for a further breakdown of the cost items  
23 described in the Excel spreadsheet. In response, SJWC only provided a narrative

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<sup>44</sup> SJWC Exhibit G – Capital Budget Project Justifications, Index #5529 Field Service System Upgrade, Page 921 of 936.

<sup>45</sup> ORA’s recommendation is based on the assumption that Oracle can bundle the Customer Information System Upgrade and Field Service System upgrade projects.

<sup>46</sup> See Attachment 6-1: ORA Data Request ZS1-001, Q 6.a.

<sup>47</sup> See Attachment 6-2: SJWC Response to ORA Data Request ZS1-001, Excel file Response to DR ZS1-001 Q.6a. (Updated).

<sup>48</sup> SJWC Exhibit G – Capital Budget Project Justifications, Index #5529 Field Service System Upgrade, Page 922 of 936.

1 describing the budget.<sup>49</sup> SJWC also provided a PDF file “2018.04.02 SJW OFSC  
2 Estimate v1.0” which gives the scope summary, project staffing and an estimated  
3 timeline of 12-16 weeks. It also provides 4 line items as its “Service Estimate”<sup>50</sup> which  
4 again does not explain the basic details of hours and hourly rates used to determine these  
5 line item costs and any justification for the costs.

6 Because SJWC did not provide verifiable data or quantitate analysis to accompany  
7 the budget amounts, the Commission should reduce SJWC’s request of \$608,600 by one-  
8 fourth, to \$456,450 for 2020. ORA’s recommendation is based on the assumption that  
9 Oracle can bundle the Customer Information System Upgrade and Field Service System  
10 upgrade projects. This should reduce common expenses on both projects such as unit  
11 testing, system integration, user acceptance, configuration, deployment and travel etc.

## 12 **6. CMMS Replacement (Index #5515)**

13 The Commission should adopt a budget of \$2,579,300 for the Computerized  
14 Maintenance Management System (CMMS) Replacements project for 2020-2021 and  
15 none for 2019, because the software will continue to be supported from vendor until  
16 2020.

### 17 **a) SJWC’s request**

18 SJWC requests \$2,579,300 to replace CMMS in 2019-2020. SJWC stated it  
19 “implemented its first, and current, CMMS in 2005; the current software version is  
20 18 years old.”<sup>51</sup> SJWC has successfully leveraged the capabilities of the system to plan,  
21 schedule and track both preventive maintenance and on-demand work activities of their  
22 assets, twenty-four hundred miles of distribution pipeline along with other important  
23 tasks in its system. It is an integrated and operationally critical part of SJWC’s  
24 organization.

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<sup>49</sup> See Attachment 6-3: Response to DR ZS1-001.6.a.pdf (Updated).

<sup>50</sup> See Attachment 6-4: 2018.04.02 SJW OFSC Estimate v1.0, page 6 (updated).

<sup>51</sup> SJWC Exhibit G – Capital Budget Project Justifications, Index #5515 CMMS Replacement, Page 441 of 936.

1 Due to platform provider Oracle announcing its discontinuation of investments to  
2 develop and provide technical support for the current software after July 2018, SJWC  
3 cited its concerns about the software’s useful life coming to an end. Oracle is offering a  
4 completely new software package, which requires a level of effort equal to an entirely  
5 new CMMS implementation. SJWC states that it is taking this opportunity to evaluate  
6 the company’s current and future needs.<sup>52</sup> SJWC identified Asset Management System  
7 (EAM) as the best enterprise level after performing a needs assessment and evaluation.

8 In identifying the deficiencies of the current software, SJWC found: “The software  
9 is no longer sold by Oracle and there is no upgrade option available. Beyond July 2018,  
10 support is only available by paying additional through an Extended Support offering and  
11 all software support will terminate in 2021.”<sup>53</sup>

12 Additionally, SJWC identified limitations of the software because of its  
13 framework. SJWC cited an Asset Management Gap Assessment done by V&A  
14 Consulting Engineers and SJWC, further identifying lack of data synchronization of  
15 assets and business integration in the current software along with data not being captured  
16 in all assets. SJWC cited as a serious concern because this hinders its “operational,  
17 maintenance and capital strategies.”<sup>54</sup>

18 SJWC decided to replace the CMMS with an EAM system “which will serve as a  
19 comprehensive tool for managing physical assets and maximizing their performance  
20 across the business.”<sup>55</sup> To address this issue, SJWC setup an evaluation committee with a  
21 process to finalize a vendor to implement a new EAM system.

#### 22 **b) ORA’s analysis and recommendation**

23 While ORA agrees with the scope and the necessity of the replacement of CMMS  
24 to a better functional EAM system to support SJWC’s infrastructure, ORA does not agree

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<sup>52</sup> Id.

<sup>53</sup> SJWC Exhibit G – Capital Budget Project Justifications, Index #5515 CMMS Replacement, Page 442 of 936.

<sup>54</sup> SJWC Exhibit G – Capital Budget Project Justifications, Index #5515 CMMS Replacement, Page 443 of 936.

<sup>55</sup> SJWC Exhibit G – Capital Budget Project Justifications, Index #5515 CMMS Replacement, Page 444 of 936.

1 with the timing of the project. SJWC did not justify any major issues with the current  
2 system that impacts its daily operations. Furthermore, Oracle can still support the  
3 CMMS software through 2020 when SJWC can start replacing it with a new EAM  
4 system.

5 Therefore, the Commission should approve a project budget of \$2,170,600 for  
6 2020 and \$408,700 for 2021 and none for 2019.

7 **D. CONCLUSION**

8 Based on ORA's review, the Commission should reduce SJWC's General Office  
9 capital budget request by \$1,709,615 for five E-IT projects.

10

## **ATTACHMENT 1: Witness Qualifications**

1 **QUALIFICATIONS AND PREPARED TESTIMONY**  
2 **OF**  
3 **ZAVED SARKAR**

4 Q.1 Please state your name and business address.  
5

6 A.1 My name is Zaved Sarkar and my business address is 505 Van Ness Avenue, San  
7 Francisco, California 94102.  
8

9 Q.2 By whom are you employed and in what capacity?  
10

11 A.2 I am employed by the California Public Utilities Commission (CPUC) in its Office  
12 of Ratepayer Advocates (ORA) as a Utilities Engineer.  
13

14 Q.3 Briefly describe your pertinent educational background.  
15

16 A.3 I received my Bachelors of Science and Masters of Science in Electrical and  
17 Electronic Engineering from American International University - Bangladesh  
18 (AIUB) and California State University Sacramento (CSUS) respectively. I have  
19 passed the Fundamentals of Engineering exam (E.I.T.) in 2010.  
20

21 Q.4 Briefly describe your professional experience.  
22

23 A.4 I joined the Office of Ratepayer Advocates - Water Branch as a Utilities Engineer  
24 in October 2017. My previous professional positions include Test Software  
25 Engineer at Eyefinity Inc. and Software Quality Assurance Analyst at California  
26 ISO.  
27

28 Q.5 What is your responsibility in this proceeding?  
29

30 A.5 I am responsible for ORA Report on E-IT Projects.  
31

32 Q.6 Does that conclude your direct testimony?  
33

34 A.6 Yes, at this time.



**ATTACHMENT 2-1: SJWC Response to ORA Data Request ZS1-001, R.1**



San Jose  
Water  
Company

110 W. Taylor St.  
San Jose, CA 95110  
Phone 408 279-7900  
Fax 408 279-7934

March 5, 2018

Eileen Odell  
Office of Ratepayer Advocates  
California Public Utilities Commission  
505 Van Ness Avenue  
San Francisco, CA 94102  
Phone: (415) 703-3026  
Email: [eileen.odell@cpuc.ca.gov](mailto:eileen.odell@cpuc.ca.gov)

**RE: Response to Data Request ZS1-001**

Dear Ms. Odell:

Enclosed you'll find San Jose Water Company's response to data request ZS1-001 dated February 21, 2018.

If you have any questions, please contact me at (408) 279-7933 or e-mail at [john.tang@sjwater.com](mailto:john.tang@sjwater.com).

Very truly yours,

A handwritten signature in blue ink, appearing to read 'John Tang', written over a light blue horizontal line.

JOHN TANG

Vice President, Regulatory Affairs

**DATA REQUEST RESPONSE**

Date: March 5, 2018

To: Eileen Odell  
Office of Ratepayer Advocates  
California Public Utilities Commission  
505 Van Ness Avenue  
San Francisco, CA 94102

From: John Tang  
Vice President, Regulatory Affairs  
Tel: (408) 279-7933  
Fax: (408) 279-7934  
E-mail: john.tang@sjwater.com

Re.: General Rate Case Data Request

SJWC ID: Response to DR No. A.18-01-004 ORA DR ZS1-001

## RESPONSES

1. Regarding the "Computer Replacements Index #1373" project discussed in *Exhibit G – Capital Budget Project Justifications*, page 74-75 of 936.
  - a. An amount of \$851,900 for the years 2018-2020 has been requested for this project.
    - i. Please provide the breakdown of how this budget was developed and include all supporting calculations in an Excel/PDF format (e.g., vendor's bid or estimates).

R.1.a.i Please see R.1.a.i EXCEL DR\_No\_A\_18-01-004\_ORA\_DR\_ZS1-001\_TABLE 1. Table 1 begins with the 2017 balance of computers and rolls forward the quantity of computers – additions and retirements from 2017 to 2020.

Costs of additions in the table are per latest vendor invoice or bid / quote. Note that the dollar amounts do not precisely match submitted amounts because the latest invoice / bid / quote are different from 6 months ago.

Please also see following notes:

**Tablets:** Tablets are either Microsoft or Apple products, sold at standard prices. Tablets are used for Microsoft productivity products, precision GPS (less expensive than Trimble dedicated GPS) and field data gathering (less expensive than a Field Laptop).

**Apple Laptops:** Software developers and Cybersecurity staff use Apple laptops. Apple laptops are industry standard for web software developers. Cybersecurity staff use Apple laptops for the UNIX command line and industry standard for Cybersecurity staff. Apple laptops are sold at standard prices.

**Field Laptops:** Customer Service – Field and Operations staff use Field Laptops to receive work, monitor and control water operations, and view customer and water system records to make decisions, speed repairs, minimize outages, and communicate outages to customers.

San Jose Water ("SJWC") uses Getac Field Laptops. Getac were among the least expensive field laptops considered, including Panasonic Toughbook and Dell ATG. **Std Desktop, Std Laptop, Engineering ("Eng") Laptop, Eng Desktop:** All other SJWC PCs are Dell. SJWC obtains discounted pricing from Dell. To date, the best pricing and service is Dell direct. Dell computers use standard power supplies and other easily replaced components that stay the same for many years, maximizing service over a five-year life. Periodically, SJWC purchases Lenovo and HP PCs. Our experience with Lenovo and HP PCs is early retirement of the PC due to limited replaceable components and failing displays.

- b. Please provide the quantity of Personal Computers (PCs) per year SJWC plans to replace per year.

R.1.b Please see R.1.a.i EXCEL DR\_No\_A\_18-01-004\_ORA\_DR\_ZS1-001\_TABLE 1. Table 1 begins with the 2017 balance of computers and rolls forward the quantity of

computers – additions and retirements from 2017 to 2020.

- c. Please provide end-of-life statements from vendors for the current pool of PCs being actively used in SJWC.

R.1.c Dell offers support contracts for PCs for five years. Once support expires, it is less practical to use the PC, because parts are less available and software support and compatibility is not guaranteed.

Field Laptops wear through use in vehicles and removal from the truck. Field Laptops are typically near failure from normal service in five years. Field Laptops failing in normal service are returned to the manufacturer for rework during their five-year life.

Most organizations expect a 3 to 6 year life from PCs.

SJWC's experience is that the end of the availability of vendor support contracts is a good expectation for useful life. When the support contract expires, there are fewer parts, and, the vendor is not required to respond to support requests.

To align with the availability of vendor support contracts, SJWC uses a five-year life for all PCs and tablets.

Please note that as of March 2018, the impact of the Meltdown and Spectre computer vulnerabilities and patching on SJWC's computer fleet is not clear. All computers older than 2015 or 2016 may be unusable due to poor performance after patching.

- d. As of December 2017, please provide the Employee-to-Device count. It can be a Personal Computer, Laptop or Tablet that are being actively used by a current employee of SJWC.

R.1.d

As of Dec 2017	Qty
Total Active Computer Count (see EXCEL DR_No_A_18-01-004_ORA_DR_ZS1-001_TABLE 1)	547
Shared computers, including	-82
-Conference room computers	
-Training computers	
-Kiosk computers for time entry	
-Loaner and spares for broken computers	
<b>Total Direct Assigned Computers</b>	<b>465</b>
Number of Employees	368
Ratio of Assigned Computers per Employee	1.26

**ATTACHMENT 2-2: R.1.a.i EXCEL DR\_No\_A\_18-01-004\_ORR\_DR\_ZS1-001\_TABLE 1**

Year Activity	Totals	Qty	Std Laptop	Qty	Eng Laptop	Qty	Eng Desk Top	Qty	Mac Laptop	Qty	Tablet	Field Laptop	
2017 Balance Forward		547	207	44	39			2		30			
2018 Retirements		-123	-75	-19	0			-1		0		0	
2018 Additions		136	81	23	0			2		0		0	
2018 Total Computers		560	213	48	39			3		30		98	
2018 Net Change		13											
2019 Retirements		-127	-44	-25	0			-1		0		-14	
2019 Additions		127	84	29	0			1		0		14	
2019 Total Computers		560											
2019 Net Change		0											
2020 Retirements		-97	0	0	0			0		0		-84	
2020 Additions		97	0	0	0			0		0		84	
2020 Total Computers		560											
2020 Net Change		0											
Cost Basis		Vendor Invoice	Vendor Invoice	Vendor Invoice	Vendor Invoice	Vendor Invoice	Vendor Invoice	Vendor Invoice	Vendor Invoice	Vendor Invoice	Vendor Invoice	Vendor Invoice	
Costs Per Year	Cost Each→	\$ 1,679	\$ 2,119	\$ 2,897	\$ 2,992	\$ 4,335	\$ 1,290	\$ 3,510	\$ 1,290	\$ 1,290	\$ 1,290	\$ 3,510	
Budgeted	Costs Per Year	\$ 1,200	\$ 1,400	\$ 1,700	\$ 1,700	\$ 3,500	\$ 1,700	\$ 2,800	\$ 3,500	\$ 1,290	\$ 1,290	\$ 3,500	
2018	Year	2018	2019	2020	2018	2019	2020	2018	2019	2020	2018	2019	2020
\$ 286,600		\$ 297,310	\$ 50,370	\$ 66,631	\$ 66,631	\$ 8,670	\$ 8,670	\$ 7,000	\$ 7,000	\$ 49,140	\$ 49,140	\$ 49,140	
	ORA		\$ 36,000	\$ 39,100	\$ 39,100	\$ 4,335	\$ 4,335	\$ 3,500	\$ 3,500	\$ 39,200	\$ 39,200	\$ 39,200	
\$ 278,900		\$ 291,353	\$ 72,197	\$ 93,236	\$ 72,425	\$ 42,500	\$ 42,500	\$ 16,770	\$ 16,770	\$ 294,840	\$ 294,840	\$ 294,840	
\$ 286,800		\$ 311,610	\$ 51,600	\$ 61,600	\$ 61,600	\$ 8,670	\$ 8,670	\$ 7,335	\$ 7,335	\$ 39,200	\$ 39,200	\$ 39,200	
	ORA		\$ 51,600	\$ 61,600	\$ 61,600	\$ 16,770	\$ 16,770	\$ 16,770	\$ 16,770	\$ 235,200	\$ 235,200	\$ 235,200	
\$ 851,900		\$ 900,253											

**ATTACHMENT 2-3: Apple MacBook Laptop Estimate**



Two-hour delivery of in-stock items in some locations for only \$9. See checkout for availability.

### Items in Your Bag



**15-inch MacBook Pro - Space Gray**

\$3,199.00

1

**\$3,199.00**

Order today, delivers: Apr 19 - Apr 23 - Free  
Pickup: Ships to Apple Union Square

[Remove](#)  
Part number: Z0UC

#### Hardware

- Touch Bar and Touch ID
- 2.9GHz quad-core 7th-generation Intel Core i7 processor, Turbo Boost up to 3.9GHz
- 16GB 2133MHz LPDDR3 memory
- 1TB SSD storage
- Radeon Pro 560 with 4GB memory
- Four Thunderbolt 3 ports
- Backlit Keyboard - US English
- Accessory Kit
- Force Touch trackpad

[Show Gift Options](#)

#### Services and Support

#### Software

- macOS
- Photos, iMovie, GarageBand
- Pages, Numbers, Keynote

1 of 4

4/10/2018 10:17 AM

Bag - Apple

https://www.apple.com/shop/bag



AppleCare+ for 15-inch MacBook Pro  
Automatically registered with your Apple Hardware.

**\$379.00**

[Remove](#)

**Recycle fee**

**\$6.00**

\* Shipping and pickup options can be selected in Checkout.

Bag Subtotal **\$3,584.00**

**Free Shipping** \$0.00

? **Estimated Tax** [Edit](#) \$304.13

**Total \$3,888.13**

[Shop Mac Accessories](#) | [Save Bag](#) | [View Saved Bags](#) | [Chat Now](#)

[Check Out](#)

### Recommended for You



**USB-C to USB Adapter**

\$19.00

[Add To Bag](#)



**USB-C to Lightning Cable (1 m)**

\$25.00

[Add To Bag](#)

2 of 4

4/10/2018 10:17 AM

**ATTACHMENT 3-1: Response to DR ZS1-001 Q.2a**

SAN JOSE WATER COMPANY  
RESPONSE TO DR NO. A.18-01-004 ORA DR ZSI-001  
QUESTION 2-a-i.

2. Regarding the "Customer Information System Upgrade Index #5527" project discussed in *Exhibit G - Capital Budget Project Justifications*, page 452-455 of 936.
- a. An amount of \$1,169,600 for the year 2019 has been requested for this project.
    - i. Please provide the breakdown of how this budget was developed and include all supporting calculations in an Excel/PDF format.

Item	Estimated Amount
Software	\$0
Professional Services	\$1,090,000
Contingencies (5%)	\$52,500
Inflation (3% cost escal)	\$67,142.25
Total	<u>\$1,169,642.25</u>

**ATTACHMENT 4-1: SJWC Response to ORA Data Request ZS1-001, R.4**



San Jose  
Water  
Company

110 W. Taylor St.  
San Jose, CA 95110  
Phone 408 279-7900  
Fax 408 279-7934

March 5, 2018

Eileen Odell  
Office of Ratepayer Advocates  
California Public Utilities Commission  
505 Van Ness Avenue  
San Francisco, CA 94102  
Phone: (415) 703-3026  
Email: [eileen.odell@cpuc.ca.gov](mailto:eileen.odell@cpuc.ca.gov)

**RE: Response to Data Request ZS1-001**

Dear Ms. Odell:

Enclosed you'll find San Jose Water Company's response to data request ZS1-001 dated February 21, 2018.

If you have any questions, please contact me at (408) 279-7933 or e-mail at [john.tang@sjwater.com](mailto:john.tang@sjwater.com).

Very truly yours,

A handwritten signature in blue ink, appearing to read 'John Tang'.

JOHN TANG

Vice President, Regulatory Affairs

**DATA REQUEST RESPONSE**

Date: March 5, 2018

To: Eileen Odell  
Office of Ratepayer Advocates  
California Public Utilities Commission  
505 Van Ness Avenue  
San Francisco, CA 94102

From: John Tang  
Vice President, Regulatory Affairs  
Tel: (408) 279-7933  
Fax: (408) 279-7934  
E-mail: john.tang@sjwater.com

Re.: General Rate Case Data Request

SJWC ID: Response to DR No. A.18-01-004 ORA DR ZS1-001

4. Regarding the “Network Switches Replacement Index #5577” project discussed in **Exhibit G – Capital Budget Project Justifications**, page 134-135 of 936.
- a. An amount of \$1,705,700 for the years 2018-2020 has been requested for this project.
    - i. Please provide the breakdown of how this budget was developed and include all supporting calculations in an Excel/PDF format (e.g., vendor’s bid or estimates).

R.4.a.i Please see R.4.a.i EXCEL DR\_No\_A\_18-01-004\_ORR\_DR\_ZS1-001\_TABLE 6. Table 6 begins with the 2017 balance of switches and rolls forward the quantity of switches – additions and retirements from 2017 to 2020.

Costs of additions in the table are per latest bid / quote. Note that the dollar amounts do not precisely match submitted amounts because the latest bid / quote is different from 6 months ago.

Please also see following notes:

**Core Switch:** Core switches connect critical cybersecurity equipment and servers. These switches minimize the impact of cybersecurity protections on customer service and operations. Core switches generally process data at 10 gigabits per second.

**Other Switch:** Personal computers, desk phones, printers, and other equipment connect to SJWC’s network through Other Switches. They are much slower and less expensive than Core Switches.

- b. Please provide the number of network switches currently used in SJWC’s network and the number of network switches SJWC plans to replace with this project.

R.4.b Please see R.4.a.i EXCEL DR\_No\_A\_18-01-004\_ORR\_DR\_ZS1-001\_TABLE 6. Table 6 begins with the 2017 balance of switches and rolls forward the quantity of switches – additions and retirements from 2017 to 2020.

- c. Please provide the “end of life” documents/statements for the network switches currently used in SJWC.

R.4.c End of life notice for Avaya 5500 switches: See attachment R.4.c DR\_No\_A\_18-01-004\_ORR\_DR\_ZS1-001\_5500 Switches End of Life

End of life notice for Avaya 5600 switches: See attachment R.4.c DR\_No\_A\_18-01-001\_ORR\_DR\_ZS1-001\_5600 Switches End of Life

SJWC’s usual policy is to replace switches at the end of a five-year life. A five-year life is a good fit unless there is prior technical or support obsolescence.

Of SJWC’s 75 switches, 15 are beyond end of life. A five-year life would have replaced all but three end of life switches. SJWC delayed switch replacement to evaluate two new vendor solutions.

SJWC experienced extremely poor support for Avaya Core Switches, affecting customer service and slowing operations in September – October 2017. Extreme Networks, Avaya's new owner, was unable to fix Avaya Core Switch performance for 2 months.

The problem was a simple setting. No Avaya / Extreme partner or Avaya / Extreme technical support knew how to fix the problem. The team that created the products fixed the problem. This team is not a support resource.

Avaya switches are obsolete due to poor technical support. SJWC must replace Avaya switches as quickly as possible. The Avaya switches, particularly Core Switches, are an unacceptable risk to customer service, water operations, employees' productive service to the customer and safety.

End of life information for each of SJWC's switches is included in R.4.c EXCEL DR\_No\_A\_18-01-004\_ORA\_DR\_ZS1-001\_TABLE 7.

- d. Please provide the dates the network switches currently used in SJWC were installed.

R.4.d Please see R.4.c EXCEL DR\_No\_A\_18-01-004\_ORA\_DR\_ZS1-001\_TABLE 7.



**ATTACHMENT 4-2: R.4.a.i EXCEL DR\_No\_A\_18-01-004\_ORA\_DR\_ZS1-001\_TABLE 6**

Year	Activity	Totals Qty	Core Switch Qty	Other Switch Qty			
2017	Balance Forward	75	7	68			
2018	Retirements	-17	-2	-15			
	Additions	22	2	20			
	<b>Total Switches</b>	<b>80</b>	<b>7</b>	<b>73</b>			
	Net Change	5					
2019	Retirements	-27	-8	-19			
	Additions	27	8	19			
	<b>Total Switches</b>	<b>80</b>	<b>7</b>	<b>73</b>			
	Net Change	0					
2020	Retirements	-4	0	-4			
	Additions	12	0	12			
	<b>Total Switches</b>	<b>88</b>	<b>7</b>	<b>81</b>			
	Net Change	8					
		<b>Cost Basis</b>	<b>Vendor Bid / Quote</b>	<b>Vendor Bid / Quote</b>			
	Costs Per Year	Cost Each-->	\$ 60,360	\$ 21,609			
<b>ORA</b>	Costs Per Year	Cost Each-->	<b>\$ 52,916</b>	<b>\$ 10,683</b>			
<b>Budgeted</b>	<b>Year</b>	<b>Totals</b>	<b>Core Switch</b>	<b>Other Switch</b>			
\$ 513,600	2018	\$ 552,900	\$ 120,720	\$ 432,180			
	<b>2018 ORA</b>		<b>\$ 105,831</b>	<b>\$ 213,668</b>	<b>\$ 319,499</b>		
\$ 907,000	2019	\$ 893,451	\$ 482,880	\$ 410,571			
	<b>2019 ORA</b>		<b>\$ 423,325</b>	<b>\$ 202,985</b>	<b>\$ 626,309</b>		
\$ 285,100	2020	\$ 259,308	\$ -	\$ 259,308			
	<b>2020 ORA</b>		<b>\$ -</b>	<b>\$ 128,201</b>	<b>\$ 128,201</b>		
\$ 1,705,700	<b>Total 3 yrs</b>	<b>\$ 1,705,659</b>			<b>\$ 1,074,009</b>		

**ATTACHMENT 5-1: SJWC Response to ORA Data  
Request ZS1-001, R.5**



San Jose  
Water  
Company

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Phone 408 279-7900  
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March 5, 2018

Eileen Odell  
Office of Ratepayer Advocates  
California Public Utilities Commission  
505 Van Ness Avenue  
San Francisco, CA 94102  
Phone: (415) 703-3026  
Email: [eileen.odell@cpuc.ca.gov](mailto:eileen.odell@cpuc.ca.gov)

**RE: Response to Data Request ZS1-001**

Dear Ms. Odell:

Enclosed you'll find San Jose Water Company's response to data request ZS1-001 dated February 21, 2018.

If you have any questions, please contact me at (408) 279-7933 or e-mail at [john.tang@sjwater.com](mailto:john.tang@sjwater.com).

Very truly yours,

A handwritten signature in blue ink, appearing to read 'John Tang'.

JOHN TANG

Vice President, Regulatory Affairs

**DATA REQUEST RESPONSE**

Date: March 5, 2018

To: Eileen Odell  
Office of Ratepayer Advocates  
California Public Utilities Commission  
505 Van Ness Avenue  
San Francisco, CA 94102

From: John Tang  
Vice President, Regulatory Affairs  
Tel: (408) 279-7933  
Fax: (408) 279-7934  
E-mail: john.tang@sjwater.com

Re.: General Rate Case Data Request

SJWC ID: Response to DR No. A.18-01-004 ORA DR ZS1-001

5. Regarding the "Network Server Upgrades Index #1371" project discussed in *Exhibit G – Capital Budget Project Justifications*, page 72-73 of 936.

a. An amount of \$1,167,800 for the years 2018-2020 has been requested for this project.

- i. Please provide the breakdown of how this budget was developed and include all supporting calculations in an Excel/PDF format (e.g., vendor's bid or estimates).

R.5.a.i Please see R.5.a.i EXCEL DR\_No\_A\_18-01-004\_ORR\_DR\_ZS1-001\_TABLE 8. Table 8 begins with the 2017 balance of servers and rolls forward the quantity of servers – additions and retirements from 2017 to 2020.

Costs of additions in the table are per latest bid / quote. Note that the dollar amounts do not precisely match submitted amounts because the latest bid / quote is different from 6 months ago.

Please also see following notes:

**Server Chassis:** Server chassis are HP, and contain up to 16 servers. Server chassis quantities are declining due to a migration to cloud services for lower risk and lower cost compared to self-operated data centers.

**Base Server:** Base servers are less expensive servers suitable for general use as a Domain Controller, file services, and low use systems. Base Servers are typically HP Servers. Base Server quantities are declining due to migration to cloud services for lower risk and lower cost compared to self-operated data centers.

**Power Servers:** Power Servers quickly provide and process information in critical Customer Service Systems, Water Control Systems (SCADA) and Financial Systems (Accounting and Capital Asset System). Power Servers have more memory and processors and are typically HP Servers. Power Servers are decreasing in numbers due to migration to cloud services for lower risk and lower cost compared to self-operated data centers.

**Specialty Servers:** Specialty servers have flash memory drives and other high performance features to speed customer and facilities information to field staff and are HP servers.

**Server Storage:** Server storage are Network Attached Storage devices. By using a shared storage device, server costs decrease and storage is more fault-tolerant. Server storage is Nimble storage or NetApp. The use of server storage is declining due to migration to cloud services for lower risk and lower cost compared to self-operated data centers.

- b. Does SJWC use their servers as disk storage for application data used in

the company?

R.5.b Where possible, SJWC uses Network Attached Storage because it is shared by many servers, uses less energy, and is less expensive, easier to encrypt and more fault tolerant than server (“discrete”) storage.

SCADA servers and Specialty Servers store application data due to the unique nature of the application or for higher performance.

- c. Please provide the “end of life” statements from the vendor, for the network servers currently used in SJWC.

R.5.c HP offers standard support contracts for servers for five years at the time of sale. It is sometimes possible to purchase additional support for servers after the initial five years, but this is not guaranteed.

Once support becomes unavailable, it is less practical to use the server, because parts are less available and software support and compatibility is not guaranteed.

Most organizations expect a 3 to 6 year life from servers.

SJWC’s experience is that the end of the availability of vendor support contracts is a good expectation for useful life. When there is no more support contract, there are fewer parts, and, the vendor is not required to respond to support requests.

To align with the guaranteed availability of vendor support contracts, SJWC uses a five-year life for all servers.

Please note that as of March 2018, the impact of the Meltdown and Spectre computer vulnerabilities and patching on SJWC’s computer fleet is not clear. All computers older than 2015 or 2016 may be unusable due to poor performance after patching.

- d. Please provide the number of network servers currently used in SJWCs network and the number of network servers SJWC plans to replace with this project.

R.5.d Please see R.5.a.i EXCEL DR\_No\_A\_18-01-004\_ORA\_DR\_ZS1-001\_TABLE 8. Table 8 begins with the 2017 balance of servers and rolls forward the quantity of servers – additions and retirements from 2017 to 2020.

**ATTACHMENT 5-2: SJWC Response to ORA Data Request ZS1-003, R.3**



3. Has SJWC started migrating to cloud services for its network server? If so, please provide SJWC's plan and description of the cloud services used/to be used.

Most of SJWC's computer systems are packaged software:

- Oracle for Customer Systems and Accounting Systems
- Infor / Oracle for Computerized Maintenance Management System / Operational Asset Management System ("CMMS")
- Oracle for Mobile Workforce Management System
- ADP for HR / Payroll (cloud)
- Powerplant for capital asset accounting and budgeting
- Microsoft for Email and office products

SJWC must replace the Customer Systems and the Computerized Maintenance Management / Operational Asset Management System because they are obsolete and unsupported for any enhancements or corrections. The Mobile Workforce Management System should be replaced with the Customer System, since they are closely integrated.

These system replacements drive SJWC's cloud strategy and plan – replacements must occur, and SJWC examined the best way to replace: cloud, or on premise. The results of SJWC's evaluation are in Chapter 23 and the Chapter 23 workpapers. A summary follows below:

**CLOUD COMPUTING LOWERS RISK TO CUSTOMERS and WATER OPERATIONS**

Cloud computing service providers have full second data centers in case the primary data center fails. Many cloud services also have a third data center with a copy of SJWC's data.

Cloud computing companies also have extensive cybersecurity resources – from tens to thousands of cyber experts – on staff to protect customer data and continuity of operations.

In the Chapter 23 analysis, to equalize the recovery risk between cloud computing and SJWC data centers, a SJWC added a second data center was added. SJWC does not have a second data center / recovery site today. SJWC does not have authorized staff to run a second data center.

Due to second and third data centers and extensive security staff, cloud providers are lower risk to customer data and continuity of water operations. The following table summarizes relative risk. Please see Chapter 23 for details.

Option 1, 2, 3	1 – Cloud @ Oracle, AT&T, AWS, MSFT	2 – SJWC with 2nd Full Data Center	3 – SJWC Current Approach
Security Risk	Low – Mod Risk, Transferred**	Moderate Risk	Moderate Risk
Recovery / Operating Risk	Very Low Risk	Moderate Risk	HIGH RISK – Moderate Risk, except SCADA - Low

\*\* In an ideal Cloud Computing agreement, risk and cost of remediating a data breach transfers to the Cloud vendor

**CLOUD COMPUTING LOWERS COST TO CUSTOMERS**

Building and staffing an SJWC second full data center is expensive – cost to build the data center (see Chapter 23 WP 23-4) is approximately \$5 million. The second SJWC data center requires six full time employees at a cost of \$248,000 / year to operate the data center. A full SJWC second data center is closer to the low recovery risk available from cloud providers.

In Chapter 23, SJWC compared the cost of cloud computing for systems replaced in 2018 – 2020 to the cost of SJWC operating the system, including a second SJWC data center. SJWC did not include a third data center in the SJWC option – although most cloud providers have a third data center.

For detailed results for each system, please see Chapter 23. Please see Chapter 23 workpapers for detailed calculations.

Comparing the cost of SJWC with a second full data center to cloud computing, cost savings to customers from Cloud are significant: \$1,790,000 in 2020 alone from

implementing the CMMS, Customer System and Mobile Workforce Management System. A table summarizing savings to customers follows:

**SAVINGS TO CUSTOMER FROM IMPLEMENTING CLOUD COMPUTING VS. IMPLEMENTING AT SJWC WITH A SECOND REDUNDANT DATA CENTER**

	2019	2020	2021	2022	2023
<b>On SJWC Premise w/ 2<sup>nd</sup> Full Data Center</b>	\$5,138,000	\$6,690,000	\$6,677,000	\$6,544,000	\$6,566,000
<b>Cloud Service</b>	\$3,697,000	\$4,900,000	\$4,876,000	\$4,902,000	\$4,931,000
<b><u>Cloud Benefit to Customer</u></b>	\$1,441,000	\$1,790,000	\$1,801,000	\$1,642,000	\$1,635,000

For these three key systems – CMMS, Customer System and Mobile Work Management System - cloud computing decreases risk of cyber breach and decreases recovery risk significantly, even if SJWC has a second data center.

From 2019 to 2023, comparing costs for SJWC with a second data center to cloud computing services - for CMMS, Customer System, and Mobile Workforce Management System - cloud computing saves customers over \$8 million.

Please see Chapter 23 and Chapter 23 workpapers for detailed risk analysis and cost / benefit calculations.

END OF RESPONSE

**ATTACHMENT 5-3: R.5.a.i EXCEL DR\_No\_A\_18-01-004\_ORR\_DR\_ZS1-001\_TABLE 8**

Attachment 5-3 - R.5.a.i EXCEL DR\_No\_A\_18-01-004\_ORA\_DR\_ZS1-001\_TABLE 8

		Totals	Server Chassis	Base Server	Power Server	Specialty	Server Storage
Year	Activity	Qty	Qty	Qty	Qty	Qty	Qty
2017	Balance Forward	116	4	43	54	4	11
2018	Retirements	-18	-2	-3	-13	0	0
	Additions	6	1	1	4	0	0
	<b>Total Servers</b>	<b>104</b>	<b>3</b>	<b>41</b>	<b>45</b>	<b>4</b>	<b>11</b>
	Net Change	-12					
2019	Retirements	-30	0	-8	-19	0	-3
	Additions	23	0	8	13	0	2
	<b>Total Servers</b>	<b>97</b>	<b>3</b>	<b>41</b>	<b>39</b>	<b>4</b>	<b>10</b>
	Net Change	-7					
2020	Retirements	-42	-1	-21	-14	-3	-3
	Additions	35	1	19	12	3	0
	<b>Total Servers</b>	<b>90</b>	<b>3</b>	<b>39</b>	<b>37</b>	<b>4</b>	<b>7</b>
	Net Change	-7					
		<b>Cost Basis</b>	<b>Vendor Bid / Quote</b>	<b>Vendor Bid / Quote</b>	<b>Vendor Bid / Quote</b>	<b>Vendor Bid / Quote</b>	<b>Vendor Bid / Quote</b>
	Costs Per Year	Cost Each-->	\$ 61,000	\$ 9,700	\$ 14,000	\$ 44,000	\$ 95,000
<b>Budgeted</b>	<b>Year</b>	<b>Totals</b>	<b>Server Chassis</b>	<b>Base Server</b>	<b>Power Server</b>	<b>Specialty</b>	<b>Server Storage</b>
\$ 124,800	2018	\$ 126,700	\$ 61,000	\$ 9,700	\$ 56,000	\$ -	\$ -
\$ 470,000	2019	\$ 449,600	\$ -	\$ 77,600	\$ 182,000	\$ -	\$ 190,000
\$ 573,000	2020	\$ 545,300	\$ 61,000	\$ 184,300	\$ 168,000	\$ 132,000	\$ -
<b>\$ 1,167,800</b>	<b>Total 3 yrs</b>	<b>\$ 1,121,600</b>					

**ATTACHMENT 6-1: SJWC Response to ORA Data Request ZS1-001, R.6**



San Jose  
Water  
Company

110 W. Taylor St.  
San Jose, CA 95110  
Phone 408 279-7900  
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March 5, 2018

Eileen Odell  
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California Public Utilities Commission  
505 Van Ness Avenue  
San Francisco, CA 94102  
Phone: (415) 703-3026  
Email: [eileen.odell@cpuc.ca.gov](mailto:eileen.odell@cpuc.ca.gov)

**RE: Response to Data Request ZS1-001**

Dear Ms. Odell:

Enclosed you'll find San Jose Water Company's response to data request ZS1-001 dated February 21, 2018.

If you have any questions, please contact me at (408) 279-7933 or e-mail at [john.tang@sjwater.com](mailto:john.tang@sjwater.com).

Very truly yours,

A handwritten signature in blue ink, appearing to read 'John Tang'.

JOHN TANG

Vice President, Regulatory Affairs

**DATA REQUEST RESPONSE**

Date: March 5, 2018

To: Eileen Odell  
Office of Ratepayer Advocates  
California Public Utilities Commission  
505 Van Ness Avenue  
San Francisco, CA 94102

From: John Tang  
Vice President, Regulatory Affairs  
Tel: (408) 279-7933  
Fax: (408) 279-7934  
E-mail: john.tang@sjwater.com

Re.: General Rate Case Data Request

SJWC ID: Response to DR No. A.18-01-004 ORA DR ZS1-001



6. Regarding the “Field Service System Upgrade Index #5529” project discussed in *Exhibit G – Capital Budget Project Justifications*, page 920-922 of 936.
  - a. An amount of \$608,600 for the year 2020 has been requested for this project.
    - i. Please provide the breakdown of how this budget was developed and include all supporting calculations in an Excel/PDF format (e.g., vendor’s bid or estimates).
  - R.6.a Please see Excel file *Response to DR ZS1-001 Q.6a*.
  - b. How does “Customer Information System Upgrade” project relate to the “Field Service System Upgrade” project?
 

R.6.b The Customer Information System and the Field Service System, or mobile workforce system, are integrated. The Customer information System is used by Customer Service and Billing Department employees primarily to initiate field activity that is sent in near real-time to the Field Service System to schedule, route, assign, and dispatch the activity to field personnel for execution. The Field Service System is used by the Field Service Department office employees and Supervisors to manage and monitor day-to-day work assignments and it is used by field personnel, or Service Inspectors, to record the data and information related to the execution of the activity, such as a meter read, meter change, rate of a leak, or customer communication. This information is then sent back to the Customer Information System in near real-time.
  - c. Please provide the supporting documents on the “premium product level support” that SJWC will get if they upgrade the Mobile Workforce Management (MWM) to Field Service Cloud (FSC).
  - R.6.c Please see file *lifetime-support-applications-069216*.
  - d. Please provide the supporting documents for the “product level support” SJWC gets from Oracle for its MWM version 2.2.
  - R.6.d Please see file *lifetime-support-applications-069216*.
  - e. How does upgrading from MWM v2.2 to v2.3 “severely limits SJWC’s ability to do better and do more for utility customers”?

R.6.e A MWM upgrade from v2.2 to v2.3 would be strictly a technical upgrade, involving an upgrade to the database and the application framework and platform. However, the upgraded software version is not supported on Windows and would require SJWC to acquire staff skilled in an alternative, certified operating system, such as Linux or Solaris. This upgrade would require a significant amount of SJWC focus and resource and without any additional features and functionality, severely limiting SJWC's ability to do better and more for our customer by pursuing an alternative option.

f. How is SJWC maintaining MWM v2.2 workloads without the necessary skilled Oracle product resource?

R.6.f SJWC is maintaining MWM with internal staff that has gained knowledge and capability in the various components of the system, and working with skilled Oracle product resource as they are available.

**ATTACHMENT 6-2: Response to DR ZS1-001 Q.6a**

SAN JOSE WATER COMPANY  
RESPONSE TO DR NO. A.18-01-004 ORA DR ZS1-001  
QUESTION 2-a-L

6. Regarding the "Field Service System Upgrade Index #5529" project discussed in *Exhibit G - Capital Budget Project Justifications*, page 920-922 of 936.
- a. An amount of \$608,600 for the year 2020 has been requested for this project.
    - i. Please provide the breakdown of how this budget was developed and include all supporting calculations in an Excel/PDF format.

Item	Estimated Amount
Software	\$0
Hardware	\$27,000
Professional Services	\$903,500
Contingencies (5%)	\$26,525
Inflation (3% cost escal)	\$51,651.26
Total	<u>\$608,676.26</u>

**ATTACHMENT 6-3: Response to DR ZS1-001.6.a.**

Response to DR No. A.18-01-004 ORA DR ZS1-001.6.a  
Field Service System Upgrade Index #5529

Project Budget Breakdown		2020				
<b>Software</b>		Units	Price Per Unit	Total	Grand Total	Source of Detail
No additional software purchase is required for this upgrade						n/a
<b>Hardware</b>		Units	Price Per Unit	Total	Grand Total	Source of Detail
Tablets		30	900	\$ 27,000.00	\$ 27,000.00	Estimate
<b>Implementation</b>		Hours	Rate	Total	Grand Total	Source of Detail
Requirements & Design		-	-	\$ 90,000.00	\$ 90,000.00	Vendor Estimate
Configuration & Unit Testing		-	-	\$ 115,000.00	\$ 115,000.00	Vendor Estimate
System Integration & User Acceptance		-	-	\$ 230,000.00	\$ 230,000.00	Vendor Estimate
Deploy		-	-	\$ 35,000.00	\$ 35,000.00	Vendor Estimate
Travel		-	-	\$ 70,500.00	\$ 70,500.00	Vendor Estimate
<b>Contingency</b>				Total	Grand Total	Source of Detail
Contingency		-	-	\$ 26,525	\$ 26,525	Estimate
<b>Inflation</b>				Total	Grand Total	Source of Detail
Inflation		-	-	\$ 51,651.26	\$ 51,651.26	Estimate
<b>TOTALS</b>				\$ 645,676.26	\$ 645,676.26	

Note: Totals does not agree precisely to Exhibit G - Capital Budget Project Justification, pages 950-922 of 936 due to a change in vendor estimate received after submission.

**ATTACHMENT 6-4: 2018.04.02 SJW OFSC Estimate v1.0**



OFSC Implementation Estimate  
March 2018



# Oracle Field Service Cloud Modules





# Scope Summary



# SI Project Staffing



# Timeline

## 12 – 16 Weeks



# Services Estimate



Project Stage	Services
Requirements & Design	\$90,000
Configuration & Unit Test	\$115,000
Testing (SIT & UAT)	\$230,000
Deploy	\$35,000

Travel expenses are estimated to be approximately 15% of services fees for travel 50% of the available weeks.

