

KINNELOA IRRIGATION DISTRICT
Regular Meeting – Board of Directors
1999 Kinclair Drive, Pasadena, CA 91107
Tuesday, April 17, 2018
2:30 P.M. – Closed Session
3:00 P.M. – Open Session

AGENDA

- 1. CALL TO ORDER – 2:30 P.M.**
 - a. Declaration of a quorum
 - b. Review of agenda
- 2. PUBLIC COMMENT – Comments from the Public regarding closed session item**
- 3. CLOSED SESSION – PUBLIC EMPLOYEE PERFORMANCE EVALUATION – Government Code §54957(b)(1):** Titles: General Manager, Senior Facilities Operator, Facilities Operator, Facilities Maintenance Worker, Office Manager, Administrative Assistant, Secretary to the Board
- 4. OPEN SESSION – 3:00 P.M.**
- 5. REPORT ON CLOSED SESSION**
- 6. PUBLIC COMMENT – Comments from the Public regarding items on the Agenda or other items within the jurisdiction of the District**

In compliance with the Brown Act, the Board cannot discuss or act on items not on the Agenda. However, Board Members or District Staff may acknowledge Public comments, briefly respond to statements or questions posed by the Public, ask a question for clarification, or request Staff to place item on a future Agenda (Government Code section §54954.2)
- 7. REVIEW OF MINUTES – Discussion and approval of March 20, 2018 minutes**

Discussion and approval of April 3, 2018 minutes
- 8. REVIEW OF FINANCIAL REPORTS – Discussion and approval of March 31, 2018 financial reports**
- 9. GENERAL MANAGER’S REPORT – Information item by General Manager**
- 10. WATER MASTER PLAN FOR THE KINNELOA IRRIGATION DISTRICT – Discussion and adoption of the revised Water Master Plan for the Kinneloa Irrigation District, Revision 4**
- 11. BROWN WELL AND BROWN RESERVOIR EASEMENTS – Information item by General Manager**
- 12. GENERAL MANAGER JOB DESCRIPTION – Discussion and approval of the General Manager Job Description**
- 13. EMPLOYEE PERFORMANCE EVALUATION FORM – Discussion and decision on model, style or components for employee performance evaluation forms**

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Tuesday, April 17, 2018
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3:00 P.M. – Open Session

AGENDA

14. REGULAR BOARD MEETING TIME – Discussion and decision to hold regular meetings of the Board on the third Tuesday of each month, at 3:00 P.M., at the District office, or at such other time and place as the Board may determine.

15. DIRECTOR REPORTS AND/OR COMMENTS – In accordance with Government Code §54954.2 Directors may make brief announcements or brief reports on their own activities. Directors may ask a question for clarification, provide a reference to staff or other resources for factual information, request staff to report back to the Directors at a subsequent meeting, or take action to direct staff to place a matter of business on a future agenda.

16. CALENDAR – May 15, 2018
June 19, 2018
July 17, 2018
August 21, 2018

17. ADJOURNMENT

In compliance with the Americans with Disabilities Act, if you are a disabled person and need a disability-related modification or accommodation to participate in this meeting, please contact the District office 48 hours prior to the meeting at 626-797-6295.

Each item on the agenda, no matter how described, shall be deemed to include any appropriate motion, whether to adopt a minute motion, resolution, payment of any bill, approval of any matter or action, or any other action. Material related to an item on this agenda submitted after distribution of the agenda packet is available for public review at the District office or online at the District's website www.KinneloalrrigationDistrict.info.

KINNELOA IRRIGATION DISTRICT
Regular Meeting – Board of Directors
1999 Kinclair Drive, Pasadena, CA 91107
Tuesday, March 20, 2018
7:30 P.M.
Minutes

DIRECTORS PRESENT: Directors Tim Eldridge, Frank Griffith, Gordon Johnson, Gerrie Kilburn, Bill Opel

DIRECTORS ABSENT: None

STAFF PRESENT: Melvin Matthews, General Manager; Chris Burt, Sr. Facilities Operator; Bernadette Allen, Office Manager/Board Secretary

1. CALL TO ORDER: The Chair, Frank Griffith, called the meeting to order at 7:30 P.M. A quorum of Board Members was present. The Agenda was reviewed, and no changes were requested. The Chair made a statement regarding the purpose of the Board, requested a meeting be scheduled for the General Manager and two Board members, and requested that hands be raised to be recognized by the Chair to speak. Recognition would be in order of hands raised and the Board would have preference.

2. PUBLIC COMMENT: No members of the public were present.

3. REVIEW OF MINUTES: The minutes of February 20, 2018, were reviewed. Director Griffith requested one spelling correction in Item 10.

It was motioned/seconded/carried unanimously-(Johnson/Opel-5/0/0).

“That the Board approve the minutes as corrected for filing and posting on the website.”

4. REVIEW OF FINANCIAL REPORTS: Director Opel reviewed the financial reports for February 28, 2018. The General Manager answered questions regarding accounts with larger variances. It was motioned/seconded/carried unanimously-(Kilburn/Eldridge-5/0/0).

“That the Board approve the financial reports for filing as presented.”

5. GENERAL MANAGER’S REPORT: The General Manager and Board reviewed the report.

II. A. HR Activities: The General Manager answered a question regarding the range of licensing requirements for the Facilities Operator candidates, from licensing in process to T2/D3 or higher.

II. D. VersaTerm Replacement Project: The General Manager answered questions regarding the ability of the VersaTerm to read meters and what conditions interfere or cause reading failures. He stated reading may fail due to: poor connection between meter register and radio transmitter, broken radio transmitter, broken meter register, or frozen meter. Sometimes there is radio interference or obstruction, in which case, the meter is uncovered. Any meter with a radio read failure is read manually and billed normally. For a frozen meter, usage is estimated using a variety of means. Approximately 580 radio transmitters in the field have a sealed internal battery with a 10-year life. The new replacements have a 20-year life.

III. A. Water Leak/...: Director Johnson asked what is involved with a leak check. The General Manager explained that a leak check request is usually generated by a letter sent by the office.

KINNELOA IRRIGATION DISTRICT
Regular Meeting – Board of Directors
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Minutes

If any customer's meter runs continuously for 24-hours or more, the office gets a leak indicator when meters are read, and a letter is sent to the customer. Field staff checks the low flow indicator on the meter when the customer has turned off all the water. If the meter is still spinning when the customer thinks they have everything off, they have a leak. Suggestions are given for places to look for the leak. The program is well received by the customers.

Director Eldridge asked about the status of rocks on top of the meter in Pasadena Glen. The General Manager stated that a certified letter was sent to the customer stating if the customer did not move the rocks, the District would move them at the customer's expense. There is a hard date for removal.

III. B. Water Samples...: This section is new in response to a request by Director Opel. The General Manager and staff answered questions regarding: state, federal and District variance levels for fluoride; sampling points in the District; and bacteriological tests performed.

III. C. Facilities Maintenance: The Chair asked if adjusting the Flo-Loc® valve operator at West Tank caused the need for a repair of the East Tank Flo-Loc. The answer was no. The Chair asked for more details regarding the chlorine leak at K-3, and the Sr. Facilities Operator stated that the leak was a chlorine generator that needed repair. It was not a gas leak.

IV. Water Supply...: The General Manager stated that the lease of 207 acre-feet will be on the City of Alhambra, March 26th agenda. The leased water will add to the surplus water total.

6. WATER QUALITY INCIDENTS, TESTING AND REPORTING: The General Manager reviewed the Water Quality Incidents, Testing and Reporting Memo. The Chair requested that the General Manager look back at the Chair's email request for water quality information, and if anything is missing, answer next month. The General Manager stated that names and addresses were not included for customer privacy. The Chair asked about insurance, and the General Manager explained that the labs are state certified. He added that copies of the lab accreditation are kept in the District office. Director Opel thanked the General Manager for his report

7. NEW CUSTOMER INFORMATION AND PAYMENT PORTAL: The General Manager demonstrated the new customer information and payment portal: payment history, usage history, copies of the bill, usage and billing graphic comparison charts, and water usage comparison graph that displays four years of past usage. The data is uploaded with the billing program. There is a send message feature, which enables customers to email the office. The website adjusts for viewing on a mobile device. The General Manager encouraged the Board try out the portal and provide feedback.

8. WATER MASTER PLAN FOR THE KINNELOA IRRIGATION DISTRICT:

The Chair suggested that since it has been over 20 years since an engineer has reviewed the plan, perhaps it should be reviewed before the Board decides.

Director Opel had a question regarding page 6, bullet 5, the strike out line starting, "The KID presently has..." In terms of fire protection, does this edit mean the system is upgraded and the District has made progress? The General Manager answered, yes, the District has made progress. The design standards have not changed but many improvements have been made that allow many of the fire flows to be vastly greater than 1250.

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Regular Meeting – Board of Directors
Tuesday, March 20, 2018
Minutes

Director Kilburn requested the table of content pages be rechecked for page number accuracy. The Chair requested that capitalization be consistent. The Chair asked if the plan should be reviewed. Director Johnson said that it is a good idea. Adding, it is unusual to have the ability to produce a report in house, with the General Manager. Most agencies hire a consultant to prepare a report like this. It could be a good thing to have an external review. He did not have time to review the plan and requested that the item be carried over to the next meeting. The Board agreed to continue discussion at the next meeting.

9. DIRECTOR REPORTS AND/OR COMMENTS: Director Johnson stated that a closed session meeting was not held on March 6, 2018. The Chair suggested dates for a closed session. The Board agreed to meet Tuesday, April 3, 2018, at 2:30 P.M. for a closed session to continue the Public Employee Performance Evaluation. Director Eldridge requested a meeting reminder text message the day before. There were no additional reports or comments.

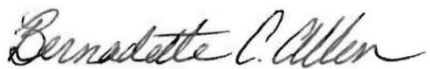
10. CALENDAR: The next regular meeting will be on April 17, 2018, at 7:30 P.M. A closed session meeting will be on April 3, 2018, at 2:30 P.M.

Possible Items for the Next Regular Meeting Agenda:

1. Water quality information
2. Water Master Plan for the Kinneloa Irrigation District
3. Review of insurance, presentation by ACWA JPIA

15. ADJOURNMENT: The meeting was adjourned at 8:34 P.M.

Respectfully submitted,



Bernadette C. Allen
Secretary to the Board

KINNELOA IRRIGATION DISTRICT
Special Meeting – Board of Directors
1999 Kinclair Drive, Pasadena, CA 91107
Tuesday, April 3, 2018
2:30 P.M.
Minutes

DIRECTORS PRESENT: Directors Tim Eldridge, Frank Griffith, Gordon Johnson, Gerrie Kilburn, Bill Opel

DIRECTORS ABSENT: None

STAFF PRESENT: Melvin Matthews, General Manager; Bernadette Allen, Office Manager/Board Secretary

1. CALL TO ORDER: The Chair, Frank Griffith, called the meeting to order at 2:38 P.M. A quorum of Board Members was present. The Agenda was reviewed, and no changes were requested.

2. PUBLIC COMMENT: No members of the public were present.

3. RESOLUTION 2018-04-03 CSDA COMMERCIAL CARD PROGRAM WITH UMPQUA BANK

It was motioned/seconded (Eldridge/Kilburn). Discussion ensued on the description of the card, the reason for changing cards, the rewards program and the selection of the bank. The General Manager confirmed that the rewards program is better than the previous program, with no change in cost and no annual fee. The motion carried unanimously-(5/0/0).

“That the Board approve Resolution 2018-04-03 authorizing the General Manager to complete the application to participate with Umpqua Bank in the CSDA Commercial Card Program.”

4. CLOSED SESSION – PUBLIC EMPLOYEE PERFORMANCE EVALUATION – Government Code

§54957(b)(1): Titles: General Manager, Senior Facilities Operator, Facilities Operator, Facilities Maintenance Worker, Office Manager, Administrative Assistant, Secretary to the Board.
At 7:03 P.M., the Board adjourned to closed session.

5. OPEN SESSION: The Board reconvened to open session at 4:36: P.M.

6. REPORT ON CLOSED SESSION: The Chair stated that no decisions were made.

7. DIRECTOR REPORTS AND/OR COMMENTS: Director Kilburn requested that the Personnel Committee’s draft General Manager Job Description be on the next regular meeting agenda. Director Johnson requested that example performance evaluations, which he would provide, be included with the next agenda packet to discuss and decide what model, style or components the Board would like to use. Director Kilburn and Director Opel asked if the regular meeting time could be changed to an afternoon meeting. The General Manager replied that the Board can choose the time for the regular meeting.

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Regular Meeting – Board of Directors
Tuesday, April 3, 2018
Minutes

8. CALENDAR: The next regular meeting will be at a new time of 3:00 P.M on Tuesday, April 17, 2018, with a closed session on Tuesday, April 17, 2018, at 2:30 P.M.

Possible Items for the Next Regular Meeting Agenda:

1. General Manager Job Description – discuss and approve
2. Employee Performance Evaluation Form – discuss and decide
3. Public Employee Performance Evaluation – closed session

9. ADJOURNMENT: The meeting was adjourned at 4:52 P.M.

Respectfully submitted,



Bernadette C. Allen
Secretary to the Board

DRAFT

Kinneloa Irrigation District
Income Statement for the Three Months Ending March 31, 2018

	Current Month Actual	Current Month Budget	Current Month Variance	Year to Date Actual	Year to Date Budget	Year to Date Variance
Revenues						
4000 Water Sales	102,152.13	104,000.00	(1,847.87)	322,563.48	312,000.00	10,563.48 *
4015 Wholesale Water Sales	0.00	0.00	0.00	3,847.26	0.00	3,847.26 *
4020 Service/Installation Charges	3,491.55	833.33	2,658.22	4,598.22	2,499.99	2,098.23
4035 Interest-Reserve Fund	1,903.91	833.33	1,070.58	5,360.00	2,499.99	2,860.01
Total Revenues	107,547.59	105,666.66	1,880.93	336,368.96	316,999.98	19,368.98
Expenses						
5000 Leased Water Rights	63,135.00	63,135.00	0.00	63,135.00	63,135.00	0.00 *
5005 Electricity	9,671.03	9,500.00	171.03	30,562.83	27,000.00	3,562.83 *
5010 Maintenance/Repair Supplies	2,843.53	2,083.33	760.20	11,997.06	6,249.99	5,747.07
5011 Material and Labor for Install	664.89	833.33	(168.44)	664.89	2,499.99	(1,835.10)
5012 Safety Equipment	0.00	133.33	(133.33)	0.00	399.99	(399.99)
5015 Operations Labor	11,366.25	15,616.67	(4,250.42)	33,004.98	46,850.01	(13,845.03)
5016 Operations OT	583.88	666.67	(82.79)	937.71	2,000.01	(1,062.30)
5020 Stand-by Compensation	720.00	912.50	(192.50)	1,860.00	2,737.50	(877.50)
5022 Training/Certification	0.00	133.33	(133.33)	0.00	399.99	(399.99)
5025 Water Treatment/Analysis	3,348.18	1,833.33	1,514.85	4,848.71	5,499.99	(651.28)
5030 Maintenance/Repair Contractors	6,147.96	10,416.67	(4,268.71)	20,579.30	31,250.01	(10,670.71)
5034 Equipment Maintenance	6,898.70	833.33	6,065.37	6,898.70	2,499.99	4,398.71
5035 Vehicle Maintenance	856.16	833.33	22.83	3,810.06	2,499.99	1,310.07
5036 Fuel	633.23	1,250.00	(616.77)	3,959.46	3,750.00	209.46
5045 Insurance-Workers Compensation	2,274.34	3,000.00	(725.66)	2,274.34	3,000.00	(725.66) *
5046 Insurance-Liability	1,183.50	1,333.33	(149.83)	3,550.50	3,999.99	(449.49)
5048 Insurance-Property	155.37	208.33	(52.96)	466.03	624.99	(158.96)
5049 Insurance-Medical	6,518.38	6,375.00	143.38	20,358.69	19,125.00	1,233.69
6000 Engineering Services	2,150.00	3,958.33	(1,808.33)	2,150.00	11,874.99	(9,724.99)
6005 Watermaster Services	909.25	1,000.00	(90.75)	2,727.75	3,000.00	(272.25)
6015 Administrative Salary	10,838.70	11,666.67	(827.97)	32,516.10	35,000.01	(2,483.91)
6017 Administrative Travel	34.61	250.00	(215.39)	129.44	750.00	(620.56)
6020 Board Compensation	400.00	466.67	(66.67)	1,200.00	1,400.01	(200.01)
6021 Administrative & Board Expense	0.00	83.33	(83.33)	0.00	249.99	(249.99)
6022 Board of Directors Election	0.00	0.00	0.00	81.28	100.00	(18.72) *
6024 Customer/Public Info. Prog.	125.00	166.67	(41.67)	500.00	500.01	(0.01)
6025 PERS - KID	2,908.98	2,062.50	846.48	8,574.11	6,187.50	2,386.61
6030 Social Security - KID	1,920.22	2,145.83	(225.61)	5,568.24	6,437.49	(869.25)
6031 Medicare - KID	449.08	516.67	(67.59)	1,302.25	1,550.01	(247.76)
6035 Office/Computer Supplies	1,159.35	583.33	576.02	2,076.82	1,749.99	326.83
6036 Postage/Delivery	344.18	416.67	(72.49)	1,118.86	1,250.01	(131.15)
6040 Professional Dues	898.66	1,000.00	(101.34)	2,695.98	3,000.00	(304.02)
6045 Legal Services	1,043.02	1,250.00	(206.98)	2,200.47	3,750.00	(1,549.53)
6050 Telephone	361.35	375.00	(13.65)	1,083.26	1,125.00	(41.74)
6051 Mobile Telephone	57.58	125.00	(67.42)	172.66	375.00	(202.34)

Favorable variances are shown in GREEN and unfavorable variances are shown in RED.

* 2018 budgeted total amount for account not evenly allocated.

Kinneloa Irrigation District
Income Statement for the Three Months Ending March 31, 2018

	Current Month Actual	Current Month Budget	Current Month Variance	Year to Date Actual	Year to Date Budget	Year to Date Variance
6052 Pagers	24.93	41.67	(16.74)	74.79	125.01	(50.22)
6053 Internet Service	545.11	83.33	461.78	665.09	249.99	415.10
6059 Computer Software Maintenance	340.00	750.00	(410.00)	8,742.97	2,250.00	6,492.97
6061 Office Equipment Maintenance	0.00	83.33	(83.33)	0.00	249.99	(249.99)
6070 Office & Accounting Labor	8,021.88	8,045.83	(23.95)	23,170.26	24,137.49	(967.23)
6075 Professional/Contract Services	1,992.58	1,916.67	75.91	7,851.26	5,750.01	2,101.25
6080 Administrative Fees	708.72	741.67	(32.95)	2,091.59	2,225.01	(133.42)
6081 Permits/Fees	293.00	1,250.00	(957.00)	1,709.33	3,750.00	(2,040.67)
6086 Taxes - Sales	84.00	500.00	(416.00)	84.00	500.00	(416.00) *
6120 Bank Service Charges	257.53	541.67	(284.14)	1,538.35	1,625.01	(86.66)
Total Expenses	152,868.13	159,118.32	(6,250.19)	318,933.12	342,684.96	(23,751.84)
Net Income	(45,320.54)	(53,451.66)	8,131.12	17,435.84	(25,684.98)	43,120.82
Other Expenditures						
1512 Water Meters	996.23	0.00	996.23	9,091.77	4,500.00	4,591.77 *
1514 Computer/Office Equipment	0.00	0.00	0.00	8,034.65	5,000.00	3,034.65 *
Total Other Expenditures	996.23	0.00	996.23	17,126.42	9,500.00	7,626.42
Total Increase or (Drawdown)	(46,316.77)	(53,451.66)	7,134.89	309.42	(35,184.98)	35,494.40

Favorable variances are shown in GREEN and unfavorable variances are shown in RED.

* 2018 budgeted total amount for account not evenly allocated.

Kinneloa Irrigation District Balance Sheet as of March 31, 2018

ASSETS

Current Assets

1010	Checking-Wells Fargo Bank	\$ 471,143.91
1012	Reserve Fund-LAIF	120,860.13
1014	Reserve Fund-CalTRUST	1,144,561.67
1015	Unrealized Gain(Loss)-CalTRUST	13,822.56
1016	Accrued Interest-LAIF	331.13
1100	Accts. Receivable-Water Sales	33,547.30
1101	Accts. Receiv.-Service Charges	457.37
1190	Allowance for Bad Debts	(771.48)
1200	Inventory	20,000.00
1340	Accrued Water Sales	118,324.70
1350	Prepaid Insurance	7,221.49
1360	Prepaid Expenses	13,558.10

Total Current Assets

1,943,056.88

Property and Equipment

1501	Water Rights	52,060.41
1503	Land Sites	96,700.08
1504	Water Mains	3,584,517.77
1505	Water Tunnels	729,074.60
1506	K-3 Well	89,543.06
1507	Improvement District #1	602,778.12
1508	Mountain Property	6,620.00
1509	Wilcox Well/Wilcox Booster	94,030.98
1510	Interconnections	14,203.27
1511	Water Treatment Plant	185,398.06
1512	Water Meters	97,420.27
1513	Electrical/Electronic Equip.	256,918.72
1514	Computer/Office Equipment	75,205.63
1515	Vehicles & Portable Equipment	242,548.91
1516	Water Company Facilities	70,422.20
1517	KID Office	54,202.92
1518	Shaw Ranch	280,789.92
1519	Dove Creek Project	487,383.87
1520	Glen Reservoir/Booster	24,190.86
1521	Kinneloa Ridge Project	690,492.58
1522	Eucalyptus Booster Station	532,342.43
1526	Vosburg Booster	1,647,215.66
1527	SCADA Equipment	278,045.10
1528	Tanks and Reservoirs	119,491.90
1529	Holly Tanks	181,113.76
1530	Tools	6,811.57
1600	Accum. Depreciation	(4,245,822.02)

Total Property and Equipment

6,253,700.63

Other Assets

1901	PERS-Deferred Outflows	30,295.00
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Total Assets

\$ 8,227,052.51

Kinneloa Irrigation District
Balance Sheet as of March 31, 2018

LIABILITIES AND CAPITAL

Current Liabilities

2000	Accounts Payable	\$ 24,872.20	
2272	Job Deposits	1,800.00	
2275	Deposits-Water Customers	255.02	
2290	Accrued Vacation	14,380.60	
	Total Current Liabilities		41,307.82

Long-Term Liabilities

2400	Installment Purchase Agreement	1,997,389.65	
2801	PERS- Net Liability	173,870.00	
2901	PERS- Deferred Inflows	53,567.00	
	Total Long-Term Liabilities		2,224,826.65
	Total Liabilities		2,266,134.47

Capital

3040	Fund Balance	5,943,482.20	
	Net Income	17,435.84	
	Total Capital		5,960,918.04
	Total Liabilities & Capital		\$ 8,227,052.51

Kinneloa Irrigation District
Statement of Cash Flow
For the Three Months Ended March 31, 2018

	Current Month	Year to Date
Cash Flows from Operating Activities		
Net Income	\$ (45,320.54)	\$ 17,435.84
<i>Adjustments to reconcile net income to net cash provided by operating activities</i>		
1100 Accts. Receivable-Water Sales	6,534.40	(633.05)
1101 Accts. Receiv.-Service Charges	(457.37)	(457.37)
1340 Accrued Water Sales	14,167.18	72,216.23
1350 Prepaid Insurance	(395.13)	2,282.53
1360 Prepaid Expenses	3,336.74	8,635.22
2000 Accounts Payable	(9,869.38)	(1,051.94)
2272 Job Deposits	(900.00)	1,800.00
	12,416.44	82,791.62
Total Adjustments	12,416.44	82,791.62
Net Cash Provided by Operations	(32,904.10)	100,227.46
 Cash Flows from Investing Activities		
<i>Used for</i>		
1512 Water Meters	(996.23)	(9,091.77)
1514 Computer/Office Equipment	0.00	(8,034.65)
	(996.23)	(17,126.42)
Net Cash Used in Investing	(996.23)	(17,126.42)
 Cash Flows from Financing Activities		
<i>Proceeds from</i>		
<i>Used for</i>		
Net Cash Used in Financing	0.00	0.00
Net Increase (Decrease) in Cash	\$ (33,900.33)	\$ 83,101.04
 Summary		
Cash Balance at End of Period	\$ 1,750,719.40	\$ 1,750,719.40
Cash Balance at Beg. of Period	(1,784,619.73)	(1,667,618.36)
Net Increase (Decrease) in Cash	\$ (33,900.33)	\$ 83,101.04

Kinneloa Irrigation District
Check Register
For the Period from March 1, 2018 to March 31 , 2018

Date	Check #	Payee	Amount	Description
3/12/18	EFT3397	Arco Gaspro Plus	633.23	fuel for trucks
3/12/18	EFT3398	CA Public Employees Ret. Sys.	3,932.89	CalPERS Feb. KID and employee contributions
3/12/18	EFT3399	Century Business Solutions	245.04	banking service fee
3/12/18	EFT3400	Southern California Edison Co.	7,949.65	electricity for 12 sites Feb. Sage not billed
3/12/18	EFT3401	Board of Equalization	84.00	use tax 2017
3/12/18	8739	ACWA/JPIA	7,478.04	KID & employee payment for health insurance
3/12/18	8740	Bernadette Allen	28.23	mileage & postage reimbursement
3/12/18	8741	Eurofins Eaton Analytical, Inc.	105.60	water sample analysis
3/12/18	8742	Ferguson Waterworks #1083	996.23	5 Neptune water meters
3/12/18	8743	McMaster Carr	1,015.49	maintenance supplies
3/12/18	8744	National Meter & Automation	2,271.50	20 meter transponders
3/12/18	8745	OpenGov, Inc.	1,500.00	OpenGov reporting and analysis
3/12/18	8746	Underground Service Alert	16.60	digalert
3/12/18	8747	Useware, Inc.	12,574.34	VersaTerm upgrade project
3/12/18	8748	Western Water Works	512.13	3 meter boxes
3/12/18	EFT3402	Automatic Data Processing, Inc.	77.31	payroll processing
3/12/18	EFT3403	Automatic Data Processing, Inc.	85.87	payroll processing
3/14/18	8749	Estate of Shukla Reyes	127.65	overpayment refund on closed account
3/15/18	EFT3404	Bernadette C. Allen	1,419.53	salary
3/15/18	EFT3405	Joel D. Bundy	1,296.68	salary
3/15/18	EFT3406	Christopher A. Burt	2,217.52	salary
3/15/18	EFT3407	Brian L. Fry	1,832.77	salary
3/15/18	EFT3408	Melvin L. Matthews	3,657.93	salary
3/15/18	EFT3409	Christopher A. Burt	150.00	salary
3/15/18	EFT3410	Automatic Data Processing, Inc.	4,469.41	payroll taxes and employee withholdings
3/20/18	EFT3411	American Messaging Services	24.93	pager service
3/20/18	EFT3412	Athens Services	170.49	trash pickup
3/20/18	EFT3413	Bank of the West Business Card	4,750.16	credit card payment - see attached detail
3/20/18	EFT3414	Century Business Solutions	15.00	monthly fee
3/20/18	EFT3415	Pasadena Municipal Services	1,571.67	Wilcox Well power
3/20/18	EFT3416	Verizon Wireless	57.54	mobile phone for C. Burt
3/20/18	8750	AmeriPride Services	59.85	shop rag service
3/20/18	8751	BrightView Landscape Services	1,490.00	landscape maintenance
3/20/18	8752	Byrd Industrial Electronics	432.36	Wilcox Well battery backup maintenance
3/20/18	8753	Clinical Laboratory, SB	24.00	water sample analysis
3/20/18	8754	Eurofins Eaton Analytical, Inc.	118.80	water sample analysis
3/20/18	8755	Foothill Municipal Water District	708.72	administrative fee
3/20/18	8756	Utility Service Co., Inc.	4,607.60	tank maintenance agreement
3/20/18	8757	Western Water Works	323.47	2 meter box covers
3/20/18	8758	Generator Services Co.	6,898.70	annual generator maintenance/repair

Kinneloa Irrigation District
Check Register
For the Period from March 1, 2018 to March 31 , 2018

Date	Check #	Payee	Amount	Description
3/30/18	EFT3417	Charter Communications	346.34	phone and internet
3/30/18	8759	ACWA/JPIA	1,734.00	annual property insurance
3/30/18	8760	City of Alhambra	63,135.00	water rights lease
3/30/18	8761	Eurofins Eaton Analytical, Inc.	105.60	water sample analysis
3/30/18	8762	Lagerlof,Senecal,Gosney & Kruse	1,043.02	general matters
3/30/18	8763	McMaster Carr	1,108.42	generator maintenance supplies and tools
3/30/18	8764	Perry Thomas Construction Co.	1,108.00	8" line repair - Holly Reservoir
3/30/18	8765	Ultimate Cleaning Solutions, Inc.	75.00	janitorial service for office
3/30/18	8766	Dan Doctorian	57.26	net refund on fire flow deposit
3/30/18	8767	Shong, Yan or Parrague	57.26	net refund on fire flow deposit
3/31/18	EFT3418	Bernadette C. Allen	1,580.22	salary
3/31/18	EFT3419	Joel D. Bundy	1,296.68	salary
3/31/18	EFT3420	Christopher A. Burt	2,636.52	salary
3/31/18	EFT3421	Timothy J. Eldridge	92.35	salary
3/31/18	EFT3422	Brian L. Fry	1,800.29	salary
3/31/18	EFT3423	Francis J. Griffith	92.35	salary
3/31/18	EFT3424	Gerrie G. Kilburn	92.35	salary
3/31/18	EFT3425	Melvin L. Matthews	3,657.92	salary
3/31/18	EFT3426	Arthur W. Opel	92.35	salary
3/31/18	EFT3427	Automatic Data Processing, Inc.	77.31	payroll processing
3/31/18	EFT3428	Christopher A. Burt	150.00	salary
3/31/18	EFT3429	Automatic Data Processing, Inc.	<u>4,767.64</u>	payroll taxes and employee withholdings
Total			<u>161,036.81</u>	

Credit Card Detail Bank of the West

February 2018

(Expenses incurred/billed in February and due/paid in March)

Acct. No.	Account Description	Additional Description	BCA	CAB	BLF	MLM	TOTAL
1514	Computer/Office Equip.	Dell optiplex computer and monitor				\$1,367.31	\$1,367.31
5010	Maintenance Supplies	power relays; rebar, bricks, hose bibbs		\$245.25	\$65.63		\$310.88
5012	Safety Equipment						\$0.00
5022	Training/Certification						\$0.00
5025	Water Treatment/Analysis						\$0.00
5035	Vehicle Maintenance	2008-02 Ford radiator replacement				\$1,437.52	\$1,437.52
5036	Fuel						\$0.00
6017	Adm. Travel						\$0.00
6021	Adm. & Bd. Exp.						\$0.00
6035	Office/Computer Supplies	folders, sharpie pens, office supplies; toner	\$180.28			\$203.00	\$383.28
6036	Postage/Delivery	postage: 15 rolls of stamps, 5 certified mail letters	\$771.68				\$771.68
6040	Professional Dues						\$0.00
6050	Telephone	answering service				\$75.00	\$75.00
6051	Mobile Phone						\$0.00
6053	Internet Service						\$0.00
6059	Computer/Software Maint.	security software				\$49.49	\$49.49
6061	Office Equipment Maint.						\$0.00
6075	Outside Services	job postings				\$355.00	\$355.00
6081	Permits/Fees						\$0.00
TOTAL			\$951.96	\$245.25	\$65.63	\$3,487.32	\$4,750.16

General Manager's Report for the Board of Directors Meeting on April 17, 2018

I. Customer Account Information and Internet Usage

A. Delinquent Accounts –

- 15 accounts received past-due notice
- 15 accounts received late charges in the total amount of \$248.70
- 2 accounts received door hanger shut off notice
- 0 accounts were shut off for non-payment
- 0 accounts remain shut off for non-payment

B. Aged Receivables –

Month	Current	30 days	60 days	90 days or greater	Total
January	\$41,770.80	\$1,293.38	\$233.37	\$496.86	\$43,794.41
February	\$33,167.69	\$6,413.90	\$269.88	\$230.23	\$40,081.70
March	\$30,908.94	\$2,238.94	\$399.31	\$0.11	\$33,547.30
April					
May					
June					
July					
August					
September					
October					
November					
December					

C. Internet Usage –

Month	Users	Page Views	Online Payments	Online Amount
January	145	208	60	\$17,554.59
February	173	229	62	\$12,719.98
March	175	241	84	\$16,947.45
April				
May				
June				
July				
August				
September				
October				
November				
December				
Year to Date	493	678	206	\$47,222.02

II. General Manager's Projects and Activities

- A. HR Activities** – An offer of employment was made and accepted for the **Facilities Operator** position. However, the candidate subsequently declined the offer after accepting another position. I interviewed other candidates and made an offer of employment to a candidate for **Facilities Maintenance Worker** as the initial position based on current qualifications and experience of that candidate. I have started the recruitment process for **Administrative Assistant** or **Office Manager** depending on qualifications and experience of the candidate.
- B. Upgrade Project for the “My Account” Customer Information Portal on the KID Website** – This project has been completed and the portal is available to customers. It provides comparative usage information and increased payment options among other benefits. Customer feedback has been positive.
- C. SCADA Computer Replacement and Software Upgrade Project** – Onsite installation has been completed and testing is in progress.
- D. VersaTerm Replacement Project** – Able Software is configuring the new handheld meter-reading computer and developing the software interface. Onsite installation will be scheduled as soon as this work is completed.
- E. Activities/Meetings/Webinars/Conferences**

Subject or Organization	Location	Start	End	Purpose/Notes/Action/Benefit
Staff Meeting	Office	Mon 3/5/2018 9:00 AM	Mon 3/5/2018 10:00 AM	<ul style="list-style-type: none"> • Tasks for the week • Projects -- current and future • Safety topic • Customer service update • Operations update • GM update
Staff Meeting	Office	Mon 3/12/2018 9:00 AM	Mon 3/12/2018 10:00 AM	<ul style="list-style-type: none"> • Tasks for the week • Projects -- current and future • Safety topic • Customer service update • Operations update • GM update
No Drinking Water Tax Coalition Meeting	Upper San Gabriel Valley Municipal Water District	Thu 3/15/2018 2:30 PM	Thu 3/15/2018 3:30 PM	<ul style="list-style-type: none"> • Update on ACWA's plan for opposing SB 623 and other measures by the state to implement a tax on water
ACWA	Conference Call	Fri 3/16/2018 2:30 PM	Fri 3/16/2018 3:30 PM	<ul style="list-style-type: none"> • Region 8 Board Meeting • Discuss 2018-2019 work plan • ACWA legislative update • Plan conference educational sessions and special events
Staff Meeting	Office	Mon 3/19/2018 9:00 AM	Mon 3/19/2018 10:00 AM	<ul style="list-style-type: none"> • Tasks for the week • Projects -- current and future • Safety topic • Customer service update • Operations update • GM update
FMWD	La Cañada	Mon 3/19/2018 3:00 PM	Mon 3/19/2018 5:00 PM	<ul style="list-style-type: none"> • Regular board meeting

KID Board Meeting	Office	Tue 3/20/2018 6:30 PM	Tue 3/20/2018 10:00 PM	<ul style="list-style-type: none"> • Closed Session • Regular board meeting
Staff Meeting	Office	Mon 3/26/2018 9:00 AM	Mon 3/26/2018 10:00 AM	<ul style="list-style-type: none"> • Tasks for the week • Projects -- current and future • Safety topic • Customer service update • Operations update • GM update

III. System and Facility Activities and Incident Reports

A. Water Leak/Water Waste/Water Quality/Customer Contact

Location	Type	Date	Description
Doyne Road	Water Leak	3/12/2018	Customer requested field person to investigate a leak. The leak was isolated to the outside irrigation system by shutting off a valve. Customer was informed that leak was adding about \$29 to the monthly bill. Customer will continue to search for the source of the leak.
Mesaloo Lane	Customer Contact	3/16/2018	Customer reported that the fire department was opening a hydrant on her street and wanted us to investigate. Chris determined that the fire department was doing annual maintenance. Other hydrants in the area were opened but not flushed.

B. Water Samples and Test Results Update table

Sample Date	Source/Distribution	Lab	# of tests	Results*	Description
01/09/18	Source	Weck	3	1.1 - 2.8 ppm	Title 22 fluoride
01/09/18	Source	Weck	2	<MCL	Title 22 nitrate
01/09/18	Source	Weck	2	1.6 - 2 ppm	Title 22 fluoride
01/09/18	Source	Weck	4	ND	Title 22 1,2,3 TCP
01/09/18	Source	Weck	1	<MCL	Title 22 Gross Alpha
01/10/18	Distribution	Clinical	18	<MCL	color, odor, turbidity
01/10/18	Distribution	Clinical	6	1.2 - 1.5 ppm	fluoride
01/10/18	Both	Eurofins	72	ND or A	coliform, e. coli
01/23/18	Both	Eurofins	64	ND or A	coliform, e. coli
01/31/18	Distribution	Eurofins	16	ND or A	coliform, e. coli
02/01/18	Distribution	Eurofins	16	ND or A	coliform, e. coli
02/06/18	Distribution	Clinical	6	<MCL	color, odor, turbidity
02/06/18	Both	Eurofins	72	ND or A	coliform, e. coli
02/08/18	Distribution	Eurofins	16	ND or A	coliform, e. coli
02/09/18	Distribution	Eurofins	16	ND or A	coliform, e. coli
02/20/18	Both	Eurofins	64	ND or A	coliform, e. coli
03/06/18	Both	Eurofins	72	ND or A	coliform, e. coli
03/07/18	Distribution	Clinical	6	<MCL	color, odor, turbidity
03/20/18	Both	Eurofins	64	ND or A	coliform, e. coli

Total Tests 520

*ppm = parts-per-million, <MCL = less than Maximum Contaminant Level, ND = not detected, A = Absence

C. Facilities Improvement, Maintenance and Repair Projects

1. Holly East Tank Interior sand blasting, re-coating and hatch safety upgrades by Utility Service Company are in progress. The work is expected to be completed by the end of April.
2. Sage Tank and the chlorine generator were prepared to receive High-Pressure Tunnel water to facilitate above project.
3. Repaired leak on Holly East Tank discharge line (with assistance of Perry Thomas Construction crew).
4. Exercised all valves at Holly East Tank in preparation for the Holly East Tank project.
5. Pump, motor and production meter maintenance was performed at all facilities (with assistance of Pump Check).
6. Glen Reservoir area light was repaired.

IV. Water Supply Summary as of February 2018 for the Fiscal Year July 2017 through June 2018

Raymond Basin Groundwater (Acre Feet)		Kinneloa Irrigation District Water Tunnels (Acre Feet)	
Water Rights	516	Eucalyptus	4
Prior Year Carryover	52	Far Mesa	2
Less Temporary 30% Reduction in Water Rights	-155	Delores	0
Leases/Exchanges	207	House	0
Prior Year Spreading	103	Holly High/Low	2
Short Term Storage	191		
Current Year Spreading	0		
Total Allowable Extractions	914		
Less Water Extracted YTD through June 2018	- 545	Current Tunnel Monthly Production	8
Remaining Allowable Groundwater Extractions through June 2018	369	Remaining Estimated Tunnel Production through June 2018	40
Total Available Water Supply through September 2018 (Remaining Allowable Groundwater + Remaining Estimated Tunnel Production through June 2018)			409 Acre Feet
Less Remaining Forecasted Retail Water Sales through June 2018			-203 Acre Feet
Surplus Water through June 2018*			206 Acre Feet

* This is the forecasted surplus water available for sale in the current year and/or carryover to the next Watermaster year which starts on July 1 subject to the carryover limits established by the Raymond Basin Management Board. Regarding the available surplus water, we will generally maximize the carryover to the next year and deliver the balance of the forecasted surplus water (if any) to the City of Pasadena. In the 2016-2017 year, 29 Acre-Feet were sold to the City, 52 Acre-Feet were carried over to 2017-2018 and 191 Acre-Feet were put into our short-term storage account. Although we may lease additional pumping rights from another agency with surplus pumping rights, this is not considered a guaranteed source of supply since it is subject to negotiation. In addition to the available water, the KID has 790 Acre Feet in a long-term storage account. Additions to long-term storage are no longer permitted but withdrawals can be made at any time to supplement allowable extractions. However, since long-term storage is considered by KID staff to be an emergency supply we do not plan to use or sell this water now.



Memo

Date: March 13, 2018
To: Board of Directors
From: Mel Matthews
Subject: Water Master Plan for the Kinneloa Irrigation District
Recommended Action: Discuss and Adopt Revision 4

Background

The Water Master Plan for the Kinneloa Irrigation District (KID) provides a description of the KID's domestic water distribution system. It describes present, historical, and future water demands and potential future changes in the source of water supply. The Water Master Plan identifies and prioritizes necessary improvements and sets out cost estimates for implementing the improvements. It is a dynamic document that is revised periodically to reflect completed projects, new projects and updated project costs.

Historically, after significant discussions and review of the original plan, the Board determined that modification of the existing KID reservoirs was too expensive and would involve costly environmental studies. The Board determined that pump station improvements would better serve the District, concentrating on providing booster station flow capacities to achieve the desired fire flows of 1250 gpm. Cost estimates for KID funded improvements to reservoirs are in Exhibit I of the Appendix but are not integrated in the Water Master Plan. Since increased reservoir storage capability is still an important objective of the District to prepare for all types of emergencies and to provide operational flexibility, current and future Boards may re-evaluate consideration of these projects.

In addition to implementing pump station and pipeline improvements, the preparation of the Water Master Plan includes the following goals and considerations:

- All pipes that develop chronic leaks should be replaced to achieve overall lower operational cost and minimize emergency shut-downs.
- Pipelines, which have become inaccessible due to development or are crossing private property should be relocated.
- Pipelines should be upsized where required to meet the Fire Preparedness Policy goals found in Appendix Exhibit III.
- Preferred installation for booster pumps should be high efficiency vertical turbine units.
- Water tunnels and transmission lines should be maintained as a supplemental source of water with gravity flow to reservoirs.
- The KID should continue to fund planned maintenance on all facilities.

Summary and Conclusion

The Water Master Plan was primarily developed to address fire flow issues and general emergency preparedness issues that were raised after the 1993 firestorm. However, it is not practical or affordable to construct a system to meet all the demands of another similar firestorm. The KID system is designed to meet or exceed the general Los Angeles County requirements for fighting residential fires at the time of the original construction or replacement of the pipeline. The KID system meets those requirements. However, in pipeline replacement projects, it is the general practice of the KID to upsize pipe diameters as has been the case in four recent pipeline projects to benefit entire neighborhoods. Also, individual construction projects may require fire flows greater than the general requirements. The KID provides an estimated cost to the customer for these improvements.

Although many operational improvements are gained through completion of recommended projects, this Master Plan does not address many worthwhile projects that would improve the operational efficiency and reliability of the production and distribution system. Therefore, the Water Master Plan is not intended to be a complete list of all capital improvement projects. However, some of the other recommended projects are outlined in the Executive Summary and all major projects on the planning horizon are presented to the Board periodically for discussion and approval along with funding options when applicable.

Recommendation

Since it has been four years since the last revision was adopted and many projects have been completed, it is recommended that the Board adopts this current revision to better reflect the status of the plan and the current estimated cost to complete the remaining items.



WATER MASTER PLAN
FOR
THE KINNELOA IRRIGATION DISTRICT

Adopted by the Board of Directors on June 20, 2000

Revision 1 dated June 20, 2005
Adopted September 20, 2005

Revision 2 dated October 21, 2007
Adopted January 15, 2008

Revision 3 dated January 2, 2014
Adopted May 20, 2014

Revision 4 dated January 10, 2018
Adopted

Melvin L. Matthews
General Manager

Kinneloa Irrigation District
1999 Kinclair Drive
Pasadena, CA 91107-1017
(626) 797-6295

WATER MASTER PLAN EXECUTIVE SUMMARY

The ~~KID~~ Water Master Plan for the Kinneloa Irrigation District (KID) provides a description of the ~~Kinneloa Irrigation District's (KID)~~KID's domestic water distribution system. It describes present, historical, and future water demands and potential future changes in the source of water supply. The Master Plan identifies and prioritizes necessary improvements and sets out cost estimates for implementing the improvements.

Since its formation in 1953, the KID ~~has~~ made minor renovations or upgrades to its system, based on a policy only to repair or replace facilities and pipelines as needed. However, by the mid-1990s ~~a number of many~~ factors convinced the Board and many residents that significant upgrades to the system were needed.

Originally in 1953, the KID's ~~parent systems'~~ minimum fire flow standard was 750 gallons per minute (gpm) for 2 hours. This means that a fire truck could pump 750 gpm for up to 2 hours for a fire and all other homes in the same pressure zone would have enough residual pressure for basic domestic needs. Then in 1973 the Improvement District No. 1 (formerly Mira Loma Mutual Water Company) was designed for an average fire flow of ~~1000~~1,000 gpm with 20 pounds per square inch (psi) residual. However, average means not every fire hydrant would meet this current standard. Currently, the County of Los Angeles Fire Department has a minimum standard of ~~1250~~1,250 gpm to be pumped for 2 hours. Today, in ~~2014~~2018, approximately ~~25~~20% of the current system does not meet the new standard for fire flow and fire hydrant location. The firestorm of October 1993 exposed weaknesses in the KID's pipeline delivery capacities. The Fire Preparedness Policy (FPP) was developed in February 1997 and revised in April 2005-and January 2018. The intent of the FPP was to set goals to be achieved to prepare for future multiple structure fires within the KID community. As a result, the KID Fire Preparedness Policy now requires that all new facilities, including pipe, be sized to support a fire flow of ~~1250~~1,250 gpm with 20 psi minimum residual for 4 hours. The FPP is included as Exhibit III in the Appendix.

The information and data used in the Water Master Plan were developed from ~~a number of many~~ sources:

- Discussions with the KID staff.
- A review of KID files dating back to 1953 was used for a baseline to build the initial data.
- Hydraulic studies completed for the Kinneloa Ridge Development and the Doyne Road Development contributed important information to the plan.
- The average day and maximum day demands were developed during the 1990-1991 droughts.

In April of 1996, ASL Consulting Engineers conducted a study of the KID to identify water main and reservoir improvements required to increase water system capabilities to deliver domestic demands plus 1,250 gpm fire flows. As a part of this plan ASL Consulting Engineers prepared cost estimates in April 1996, with updates in February of 2000. Staff reviewed these estimates and ~~made adjustments~~adjusted for inflation and other factors to update the plan for 2005, 2007, 2014 and again for this update in

| 20142018.

After significant discussions and review of the original plan the Board determined that modification of the existing KID reservoirs was too expensive and would involve costly environmental studies. The Board determined that pump station improvements would better serve the District by concentrating on providing booster station flow capacities to achieve the desired fire flows of 1250 gpm. Cost estimates for KID funded improvements to reservoirs are in Exhibit I of the Appendix, but are not implemented in the Water Master Plan. However, should outside sources of funding become available consideration of these projects will be re-evaluated since increased reservoir storage capability is still an important objective of the District ~~in order~~ to prepare for all types of emergencies and to provide operational flexibility.

In addition to implementing pump station improvements the preparation of the Water Master Plan ~~has revealed~~includes the following ~~conclusions~~goals:

- All pipes that develop chronic leaks should be replaced to achieve overall lower operational cost and minimize emergency shut-downs.
- ~~All pipes which have exceeded their useful life should be replaced. For the purpose of this plan, the useful service life of these facilities is set at 50 years.~~
- Pipelines, which have become inaccessible due to development or are ~~traversing~~crossing private property ~~in easements~~, should be relocated.
- Pipelines should be upsized where required to meet the Fire Preparedness Policy goals.
- ~~The KID presently has sufficient booster pump capacity to provide for domestic demands. The 1,250 gpm fire flow requires supplementing booster station flow with gravity flow from reservoirs.~~
- Preferred installation for booster pumps ~~would~~should be high efficiency vertical turbine units.
- ~~High Pressure Tunnel~~Water tunnels and transmission lines should ~~have~~be maintained as a ~~permanent replacement pipeline.~~
- ~~Low Pressure Tunnel should have a permanent replacement pipeline. supplemental source of water with gravity flow to~~
- ~~The KID should provide radio telemetry at all facilities.~~
- ~~All reservoirs should have earthquake sensors and automatic shutoff valves.~~
- The KID should continue to fund planned maintenance on all facilities.

The total estimated costs of all necessary improvements as identified in the Water Master Plan adopted in 2000 were:

1. Pipeline Improvements	\$1,192,600
2. Pump Station Improvements	\$ 108,200
3. Tunnels	\$ 421,900
4. Other Improvements	\$ <u>395,500</u>
Total	\$2,118,200

The total estimated costs as revised and updated in 2005 were:

1. Pipeline Improvements	\$1,899,600
2. Pump Station Improvements	\$ 3,600
3. Tunnels	\$ 321,000
4. Other Improvements	\$ 271,000
5. Planned Maintenance	\$ <u>687,400</u>
Total	\$3,182,600

The difference between the 2000 costs and 2005 costs was an increase of \$1,064,400. The net increase was attributed to the following factors:

- Inclusion of planned maintenance items in the amount of \$687,400 that are expected over the next ten years.
- The estimated cost of remaining projects after removing completed projects and adding new projects identified since the master plan was adopted.
- Adjustment of previous costs to reflect inflationary and other factors in current project costs.
- Exclusion of projects paid by developers.

The following projects were completed between the 2005 and 2007 revisions:

- East Tank was refurbished.
- K-3 Well pump and motor were rebuilt.
- One of the Holly booster pumps was rebuilt.
- Safety upgrades were completed at Holly Tanks.
- Maintenance agreement with tank maintenance company was established for all five steel tanks.
- Earthquake-sensing valves were installed as part of our emergency preparedness program at all tank and reservoir facilities except for the Brown Reservoir.
- Continuous chlorine analyzers were installed at all production sources.
- Major upgrades to our SCADA system were completed to allow continuous monitoring and alarms on additional components of our production and distribution system.
- Permanent repairs and pipeline replacement were completed on the House Tunnel and the High/Low Pressure Tunnel production sources.
- The Vosburg booster pump was replaced with a new 25 HP submersible unit.

The total estimated costs for remaining projects as revised and updated in the 2007 Revision using our engineers' estimates and our internal estimates were:

1. Pipeline Improvements	\$3,128,000
2. Pump Station Improvements	\$ 190,000
3. Tunnels	\$ 321,000
4. Other Improvements	\$ 189,000
5. Planned Maintenance	<u>\$ 542,000</u>
Total	\$4,370,000

The difference between the 2005 costs and 2007 costs is an increase of \$1,187,400. The net increase was attributed to the following factors:

- Adjustment of previous costs to reflect inflationary and other factors in current project costs.
- A significant increase in pipeline construction costs based on bids for current projects.
- The estimated cost of remaining projects after removing completed projects and adding new projects identified since the master plan was adopted.

The following projects have been completed since the 2007 revision:

- All five steel tanks have been refurbished as necessary to maintain “as-new” condition.
- K-3 Well pump inspected and lowered 20 feet.
- New main installed connecting K-3 Well with the Wilcox Reservoir.
- Installed replacement mains in Kinneloa Mesa area.
- Replaced chlorine generators at two sites with Chlortec® units.
- Installed earthquake-sensing valve at the Brown Reservoir as part of our emergency preparedness program.
- Replaced pipeline in a portion of Villa Knolls Drive.
- Continuing upgrades to our SCADA system were completed to allow continuous monitoring and alarms on additional components of our production and distribution system.
- Solar power and SCADA installed at Brown Reservoir.
- Completed joint emergency interconnect project with Pasadena at two locations.
- Purchased additional emergency generators for three facilities.
- Installed utility electrical service at the East Tank to supplement existing solar power supply.
- Rebuilt Wilcox Reservoir 75 HP booster pump and motor.
- Rebuilt Pasadena Glen booster pump and motor.
- Installed replacement mains in Windover Road and portions of Sierra Madre Villa Avenue.
- Installed replacement connection and valves at the Vosburg Reservoir.
- Installed Variable Frequency Motor Control on K-3 Well pump.
- Replaced and added valves on main line on Villa Heights Road in East Tank pressure zone.
- Upgraded Chlorine analyzer at K-3 Well to include pH measurement.
- Replaced water depth measuring tube at Wilcox Well.
- Converted PCIC Interconnection facility to radio-based telemetry system.
- Rebuilt two of the Eucalyptus booster pumps.
- Installed transponders for radio reading of customer water meters.

The total estimated costs for remaining projects as revised and updated in ~~this~~the 2014 Revision using our engineers’ estimates and our internal estimates ~~are~~were:

1. Pipeline Improvements	\$2,564,000
2. Pump Station Improvements	\$ 520,000
3. Tunnels	\$ 361,000
4. Other Improvements	\$ 105,000
5. Planned Maintenance	<u>\$ 397,000</u>
Total	\$3,947,000

The difference between the 2007 costs and 2014 costs is a decrease of \$423,000. The net decrease is primarily attributed to the completion of many master plan projects during the past seven years offset by the higher costs of some of the remaining projects. The overall cost of completing the master plan as compared to the original 2000 master plan is subject to the following factors:

- Adjustment of the previous costs of uncompleted projects to reflect inflationary and other factors.
- Adjustment of the previous costs based on the bidding results of similar projects.

- The estimated cost of remaining projects after removing completed projects and adding new projects identified since the master plan was adopted.

The following major projects have been completed since the 2014 revision:

- Delores Tunnel pipeline repairs
- Far Mesa Tunnel pipeline repairs
- Sierra Madre Villa water main replacement between Vosburg and Barhite Streets
- Barhite Street water main replacement east of Sierra Madre Villa
- Pasadena Glen access road water main replacement
- SCADA HMI/ touch panels
- SCADA maintenance and upgrades
- East Tank-West Tank connector pipeline
- Standby generator for Vosburg pump station
- Standby generator for Sage Tank
- Testing and maintenance of all system and fire hydrant valves and replacement of defective valves
- Vosburg Reservoir pump station replacement

The total estimated costs for remaining projects as revised and updated in this 2018 Revision using our engineers' estimates and our internal estimates are:

1. Pipeline Improvements	\$ 2,955,000
2. Pump Station Improvements	\$ 90,000
3. Tunnels	\$ 361,000
4. Other Improvements	\$ 140,000
5. Planned Maintenance	\$ 397,000
Total	\$ 3,943,000

The difference between the 2014 costs and 2018 costs is a decrease of \$574,000. The net decrease is primarily attributed to the completion of many master plan projects during the past four years offset by the higher costs of some of the remaining projects. The overall cost of completing the master plan as compared to the original 2000 master plan is subject to the following factors:

- Adjustment of the previous costs of uncompleted projects to reflect inflationary and other factors.
- Adjustment of the previous costs based on the bidding results of similar projects.
- The estimated cost of remaining projects after removing completed projects and adding new projects identified since the master plan was adopted.

In conclusion, many of the distribution and transmission facilities predate 1953, and are nearing the end of their useful service life. Originally, water facilities in the KID provided domestic supply, plus a fire flow of 750 gpm. As the population of the KID has grown over the years, the demand placed upon the entire system, including distribution and transmission mains, water sources, reservoirs, and pump stations have encroached upon the ability of the system to meet the required demands. The need for increased fire flow to meet the minimum Fire Department requirements for every fire hydrant will require the KID to

| continue to construct improvements to the water system in the years ahead. Although many projects identified in the Water Master Plan adopted in 2000 and subsequent revisions have been completed, failure to continue to undertake the expenditures for the remaining projects leaves the KID vulnerable to serious and sustained service failure in the event of natural disaster or unanticipated breakage. Moreover, the cost to replace facilities and pipelines under non-optimal emergency conditions is likely to be much higher than if done under a planned program.

| As a footnote to this ~~2014~~2018 Revision, it should be noted once again that this Water Master Plan was primarily developed to address fire flow issues and general emergency preparedness issues that were raised after the 1993 firestorm. Although many operational improvements are gained through completion of recommended projects, this Master Plan does not address many worthwhile projects that would improve the operational efficiency and reliability of the production and distribution system. For example, the Wilcox Well is no longer a major production facility due to declining pumping levels in the Raymond Basin and production level from the tunnels has also been declining due to lower average rainfall. That has made the KID increasingly dependent on a single production source – the K-3 Well. If the current conditions continue or worsen in the years ahead, the K-3 Well may not be able to meet our production demands for normal or emergency conditions. Therefore, the KID staff will continue to examine possible new production sources such as drilling a new well and/or constructing a connection with Foothill Municipal Water District ~~in order~~ to receive imported water from the Metropolitan Water District. However, the cost of developing new production sources is not currently reflected in this Master Plan. Therefore, unless additional funding sources are identified, voluntary or mandatory conservation programs may continue to be necessary in the future to avoid major additional capital expenditures not included in this revision of the Master Plan.

~~KINNELOA IRRIGATION DISTRICT~~
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KINNELOA IRRIGATION DISTRICT

WATER MASTER PLAN

1.0 INTRODUCTION, PURPOSE, AND HISTORY

1.1 *Introduction*

The Kinneloa Irrigation District (KID) is a State irrigation district which owns and operates a water system in the north-central part of the Los Angeles County with the city limits of Pasadena on the west, south, and east sides and the Angeles National Forest to the north. The service area of the District covers an area of approximately 500 acres. The District additionally encompasses a watershed area north of the District. The KID serves a population of approximately 1,450,900 and there are 600,587 active metered services in the District's service area as of this revision. Additionally, it is the KID's responsibility to provide fire protection water to its customers. The District maintains 100,115 fire hydrants.

Revenue for the KID is derived almost exclusively from the sale of water.

1.2 *Purpose*

The purpose of this Master Plan is to describe the existing water system facilities within the KID, identify weaknesses within the system, recommend improvements, prioritize the necessary improvements, and determine cost estimates for implementing the improvements. This plan will also identify undeveloped land within the KID and assess potential for future development of that land.

1.3 *History*

The Kinneloa Irrigation District, originally formed in 1953, is a state irrigation district established pursuant to Division 11 of the California Water Code. A five member publicly elected Board of Directors governs it. The District water system presently serves about 600,584 households as well as a school, nursery, church, and fire station. In 1974, the KID had 190 services.

In 1974 an improvement district was formed with the addition of the Mira Loma, Canyon Mutual, and Osborn Water Companies to the Kinneloa Irrigation District. The facilities in this area were replaced or upgraded to the current standards using funds from a bond issue. This added additional 225 services to the KID.

In 1978, the Wilcox Well was upgraded to provide additional production capacity for homes on the east side of the district.

In 1979, 24 homes were added on Villa Highlands Drive and Villa Knolls Drive by Falzone Development.

In 1983, Nordberg and Neimeyer developed the area known as Hastings Heights and provided lots for 27 homes.

In 1990, town homes were built by Dove Creek Development at a site near New York Drive and Altadena Drive which added 50 services.

In 2003, 21 building sites were completed in the Kinneloa Canyon area known as Kinneloa Ridge by Diamond-Segundo Development and 23 services are now active including two for watering common areas. Additional pumping and storage facilities were added to accommodate this development and to provide a benefit for the District ~~as a whole~~.

Additionally, several individual lots have been developed to account for the ~~600~~584 present metered services. Approximately 25 lots remained undeveloped including homes that were not rebuilt after the 1993 fire.

KINNELOA IRRIGATION DISTRICT WATER MASTER PLAN

2.0 SYSTEM DESCRIPTION

2.1 *General*

The Kinneloa Irrigation District ~~is~~ was historically divided into two distinct geographic areas. They are the east service area and the west service area, which are generally, divided by the Wilcox Canyon watercourse. ~~Presently~~ However, the east and west service ~~zones~~ areas are now connected by pipelines ~~consisting of 6-inch and 8-inch pipe connecting the~~ between the following facilities: Holly Booster Pump Station, the East Tank, and the Vosburg Booster Station; K-3 Well pump on the west side with the Wilcox Reservoir on the east side; and the West Tank with the East Tank. These pipeline improvements have integrated the east and west service areas into a single system.

Almost all ~~of~~ the services in the KID are residential services for single family homes. The need for irrigating hillsides on relatively large lots creates much of the demand. Services and meters range from 3/4" to 2" in size.

Within each service area are several pressure zones which are serviced by a piping network, reservoirs, booster pump stations, wells, and horizontal water tunnels. See Exhibit II for a schematic drawing of the existing KID system.

2.2 *Water Sources*

2.2.1 Water Wells

The KID owns five water wells. Two of these wells are operational and are the primary source of water for the District. Those wells are the Wilcox Well which supplies the Wilcox Reservoir and the K-3 Well which supplies the Eucalyptus ~~Reservoir and Wilcox Reservoirs.~~ Both wells pump from the Raymond Basin. The District's adjudicated pumping allowance is 516 acre-feet per year plus an allowance for spreading. The current pumping allowance has been reduced by 30% to 361 acre-feet by informal agreement among water agencies to help maintain basin water levels. Both wells are equipped with deep-well, oil-lubricated, vertical turbine pumps and on-site generated sodium hypochlorite (0.8%) chlorinators with metering pumps for disinfection. Well status signals are received via radio telemetry and start-stop commands are based on reservoir levels and time-of-use schedules to take advantage of off-peak electricity rates. See Table 2.2A for a summary of well data.

**TABLE 2.2A
WELL DATA**

Well Name	Year Drilled & Depth	Casing Size (inches)	Motor Horsepower	2012-2013 2016-2017 Production
Wilcox Well	1924 500'	14"	100	58 <u>5</u> acre-feet
K-3 Well	1965 700'	14" I.D.	125	584 <u>557</u> acre-feet*

* Includes production of wholesale water sold to the City of Pasadena.

2.2.2 Tunnels

The KID owns and operates 15 water supply tunnels. The tunnels were originally constructed by hand in the 1800's and, in recent times, have supplied groundwater to the KID system and for spreading. Tunnel flow rate varies continuously according to the time of year. Tunnel water is delivered via gravity. Table 2.2B summarizes the tunnels, their status, and production.

**TABLE 2.2B
TUNNEL SUPPLIES**

Tunnel Name	Current Status	2012-2013 2016-2017 Production
High & Low-Pressure Tunnels (4)	Currently in Service – feeds the Holly Tanks	5441 acre-feet
House Tunnel	In service – feeds the -Holly Tanks	140 acre-feet (No flow during this period)
Eucalyptus Tunnel	In service – feeds the Eucalyptus Reservoir	4139 acre-feet
Long Tunnel	In service for spreading	34 acre-feet
Delores Tunnel	In service – feeds the Vosburg Reservoir or used for spreading	1712 acre-feet
Far Mesa Tunnels (2)	In service – feed the Glen Reservoir	3929 acre-feet
Tent Tunnel	In service for spreading	2 acre-feet
Falls Tunnel	In service for spreading	Measured for spreading credit only

Tunnel Name	Current Status	2012-2013 2016-2017 Production
Diversion Tunnel	In service for spreading	Measured for spreading credit only
Winifred Tunnels (2)	Not in service	Not measured

Depending on the season of the year, the tunnels are each capable of supplying anywhere from a few gallons per minute up to a hundred gallons per minute or more.

The tunnels have traditionally been a low-cost source of water for the KID. However, the firestorm of October 1993 damaged the High and Low-Pressure Tunnel delivery pipelines. The rainstorms of the winter of 1993-94 further damaged the High and Low-Pressure Tunnel pipelines. The High and Low-Pressure Tunnel pipelines were further damaged in the winter storms of 1994-95. ~~As a result~~Because of the ~~aforementioned~~ natural disasters, temporary repairs were made to return these sources to service and permanent repairs were made in 2006. Old age, rockslide damage, and rain storm runoff washed out the Delores Tunnel delivery pipeline. This pipeline was replaced in 2001 after being out of service since 1979.

Because of the age of the tunnels and their vulnerability to damage from natural causes, the tunnel supply is not considered as a reliable source of supply for ~~the purpose of~~ calculating available water source supply. In this respect, the tunnel supply should be thought of as a reserve or "back-up" supply.

2.2.3 Spreading Credit and Leased Water Rights

The KID receives spreading credit for surface water diversion to the Sierra Madre Villa and the Kinneloa Canyon Debris Basins. Total credit from these sources for ~~2012-2013~~2016-2017 was ~~161~~130 acre-feet. Leased Water Rights are available in some years from other water agencies to supplement our adjudicated pumping rights. Water from these sources is produced by the K-3 and Wilcox Well pumps and is included in the totals for those production sources.

2.2.4 Imported Water

The Kinneloa Irrigation District is a member of the Foothill Municipal Water District (FMWD) which supplies imported water from the Metropolitan Water District of Southern California (MWD) to eight ~~member~~ agencies in the area. Although there is no physical pipeline connection from FMWD to the KID, arrangements could be made to deliver the water through the distribution systems of an adjacent water agency if supplemental water is ever needed.

2.2.5 Interconnections with the City of Pasadena

The KID has six interconnections with the City of Pasadena to deliver excess KID water and/or to receive water in the event of an emergency. These interconnections are shown in Table 2.2C. The capacity of interconnections 3 and 5 was increased in 2008 as a joint project with the City of Pasadena.

TABLE 2.2C
INTERCONNECTIONS WITH CITY OF PASADENA

ID	Location	Description	Size	Capacity	Purpose
1	1776 Kinneloa Canyon Road	KID-Eucalyptus (1125 HWL) to Pasadena-Sheldon (1050 HWL)	4"	800 gpm	Deliver excess KID water to City of Pasadena
2	1727 Kinneloa Canyon Road	Pasadena-Calaveras (1209 HWL) to KID-Eucalyptus (1125 HWL)	4"	650 gpm	Emergency interconnection to KID-Eucalyptus (K-3 Well System)
3	3560 Ranch Top Road	Pasadena-Don Benito (1432 HWL) to KID-Vosburg (1430 HWL)	8"	800 gpm	Emergency interconnection to KID-Vosburg & Brown/Glen System and to deliver excess KID water to Pasadena
4	2999 New York Drive	Pasadena-Sheldon (1050 HWL) to KID-Wilcox Reservoir (944 HWL)	6"	1200 gpm	Emergency interconnection to KID-Wilcox Well/Wilcox Reservoir
5	3410 Fairpoint Street	KID-Vosburg (1430 HWL) to Pasadena-Murray System (1176 HWL)	8"	400 gpm	Emergency interconnection to Pasadena-Murray/Calaveras System and to deliver excess KID water to Pasadena
6	2650 New York Drive	Pasadena-Calaveras (1209 HWL) to KID-Eucalyptus (1125 HWL)	8"	1500 gpm	Emergency interconnection to KID to provide additional fire protection for Dove Creek Town Homes

2.2.6 Portable ~~Booster Pumps and~~ Generators

~~The KID currently has two (2) trailer mounted portable boosters available for emergency operations and to supplement fire flows in some or all pressure zones. These pumps are capable of 1050 gallons per minute (gpm) at 360 feet Total Dynamic Head (TDH). The KID also has four~~
The KID currently has six (6) diesel-powered trailer mounted portable generators to supply emergency power to any of the KID facilities. Although the generators can be moved, each generator is dedicated to a facility that is critical in the event of a power failure due to any cause.

2.3 Reservoirs

The KID operates and maintains ten (10) water storage tanks and reservoirs. Overflow elevations range from 940 feet to 1,637 feet. Reservoir data is shown in Table 2.3A.

**TABLE 2.3A
STORAGE RESERVOIR DATA**

Reservoir Name	Number & Capacity	Zone Served	High Water Line	Construction
Eucalyptus	1 - 0.180 MG	Eucalyptus	1,125'	Partially Buried Reinforced Concrete
Wilcox	1 - 1.125 MG	N/A	940'	Partially Buried Concrete
Holly Tanks	2 - 0.150 MG	Holly/Sage	1,460'	Circular, Welded Steel Aboveground
Vosburg	1 - 1.250 MG	Vosburg	1,430'	Partially Buried Reinforced Concrete
Glen	1 - 0.125 MG	Glen/Brown	1,265'	Buried Reinforced Concrete
Brown	1 - 0.125 MG	Glen/Brown	1265'	Buried Reinforced Concrete
East Tank	1 - 0.150 MG	East/ West	1,637'	Circular Welded Steel, Aboveground
Sage Tank	1 - 0.225 MG	Holly/Sage	1,457'	Circular Welded Steel, Aboveground
West Tank	1 - 0.500 MG	East /West	1,634'	Circular Welded Steel, Aboveground
Total Storage	3.980 MG			

MG = Million Gallons

Existing storage capacity by zone is shown in Table 2.3B.

**TABLE 2.3B
STORAGE CAPACITY BY SERVICE ZONE**

Zone	Storage Capacity
Eucalyptus	0.180 MG
Holly/Sage	0.525 MG
Glen/Brown	0.250 MG
East- Tank / West Tanks	0. 150 <u>650</u> MG
Vosburg	1.250 MG
West Tank	0.500 MG

2.4 *Booster Pumping Facilities*

The KID operates and maintains five (5) separate booster-pumping facilities. All booster pumps are operated via telemetry and based upon reservoir levels. Booster pump facility data is shown in Table 2.4.

**TABLE 2.4
BOOSTER PUMPING FACILITIES**

Facility Name	No. of Pumps	Horsepower	Head (feet)	Approx. Capacity (gpm)	Service
Eucalyptus	3	50 HP each	346'	400 each	Eucalyptus Reservoir to the Holly/Sage Tanks
Holly	2	20 HP each	205'	200 each	Holly Tanks to East Tank
Vosburg	3	25 HP	195'	280 300	Vosburg Reservoir to East- Tank / <u>West Tanks</u>
Glen	1	25 HP	165'	345	Glen Reservoir to Vosburg Reservoir
Sage	2	25 HP each	205'	400 each	Sage Tank to <u>East</u> / West Tank <u>Tanks</u>
Wilcox Reservoir	1*	75 HP	325'	515	Wilcox Reservoir to Brown/Glen Reservoirs
		75 HP	490'	360	Wilcox Reservoir to Vosburg Reservoir
	2**	50 HP & 75 HP	325'	650	Wilcox Reservoir to Brown/Glen Reservoirs
		50 HP & 75 HP	490'	433	Wilcox Reservoir to Vosburg Reservoir

* Condition when pumping to either Brown/Glen Reservoirs or Vosburg Reservoir with just the 75 HP pump.

** Condition when pumping to either Brown/Glen Reservoirs or Vosburg Reservoir with both pumps.

2.5 *Piping*

2.5.1 Existing Piping

There are approximately ~~6670~~6,000 Linear Feet of transmission and distribution mains in the KID service area. The pipes range in size from 1" to ~~12-inch~~16-inches in diameter. Piping materials include galvanized steel, CML and CMC steel, asbestos cement (AC), ductile iron (DI) and AWWA C-900 PVC. There are approximately ~~90115~~ fire hydrants in the system ranging in size from 2 ½" to 6" x 4" x 2 ½". All-~~of~~ the galvanized steel piping is old and obsolete. Some of the existing pipe is old and inadequate to provide current revised requirements for fire service.

2.5.2 Future Piping

Traditionally, piping in the KID was sized to provide for fire flows of 750 gpm. The firestorm of October 1993 exposed this pipeline delivery capacity weakness. As a result, the KID Fire Preparedness Policy now requires that all new facilities, including pipe, be sized to support a fire flow of 1,250 gpm with a 20-psi minimum residual. This represents a 500 gpm increase to the original system design capacity of 750 gpm fire flow at 20 psi minimum residual pressure. Some areas of the existing system meet the new requirements; however, portions of the distribution system will provide only the minimum original system design fire flows. Additionally, the County of Los Angeles has required 2000 gpm or more fire flow for some of the new larger homes currently being built where fire sprinklers are required. Future pipeline projects may need to be sized to support this flow.

KINNELOA IRRIGATION DISTRICT
WATER MASTER PLAN

3.0 EXISTING SERVICE DEMANDS

The KID services approximately ~~600~~587 customers with a population of approximately 1,~~500~~900. Service sizes range from 3/4" to 2". All services within the District are residential with the following exceptions:

- High Point Academy
- Magic Growers
- Los Angeles County Fire Station No. 66
- Pasadena Church of Christ
- Equestrian Center

The KID produces water from two wells and several tunnels. The ~~2012-2013~~2016-2017 production from those sources is shown in Table 3.0.

TABLE 3.0
TUNNEL AND WELL PRODUCTION
DELIVERED TO DISTRIBUTION SYSTEM ~~2012-2013~~2016-2017

Source	2012-2013 <u>2016-2017</u> Production
K-3 Well	584.2 <u>556.9</u> acre-feet*
Wilcox Well	57.6 <u>5.1</u> acre-feet
High and Low--Pressure Tunnels	53.5 <u>40.9</u> acre-feet
Far Mesa Tunnel	39.3 <u>28.5</u> acre-feet
House Tunnel	14.3 <u>0</u> acre-feet (No flow during this period)
Eucalyptus Tunnel	40.7 <u>39.0</u> acre-feet
Delores Tunnel	17.4 <u>11.7</u> acre-feet
TOTAL	807<u>682.0</u> acre-feet

* Includes production of wholesale water sold to the City of Pasadena.

Additional production from tunnels is delivered for spreading in the Raymond Basin. Water delivered for spreading can be recovered by the District by increased pumping allotments or can be sold to other water purveyors. In ~~2012-2013~~2016-2017, water delivered for spreading by the KID amounted to ~~161~~130 acre-feet. The sources of this water in a ~~particular~~-year can include the High and Low--Pressure Tunnels, the Long Tunnel, Delores Tunnel, Diversion Tunnel, Falls Tunnel, Winifred Tunnels, Tent Tunnel, and surface runoff from watershed owned by the District into the Glen Wash, Kinneloa Canyon and the Sierra Madre Villa Debris Basins.

KINNELOA IRRIGATION DISTRICT WATER MASTER PLAN

4.0 FUTURE DEVELOPMENT

4.1 *General*

A report dated July 2, 1990, prepared for the KID by ASL Consulting Engineers identified a potential for 95 new dwelling units within the KID boundaries. The report identified 57 potential units which would be built by developers and another 38 units which would most probably be constructed as single units and not part of a development project. Since that time all major development work has been completed except for a potential development in the Doyne Road area as described below and the building or re-building of approximately 25 homes on individual vacant lots.

4.2 *Doyne Road Development*

Hydraulic studies were completed for a potential development (Tract no. 44323) that was planned to be constructed in the south-central area of the KID. The new tract was to be served from the existing Holly/Sage Zone. The development required the grading of 8 undeveloped lots ranging in size from 0.60 acres to 3.0 acres. Total area was approximately 13 acres in the final development plan. Water system improvements for this tract were to include new distribution and transmission mains and a new booster pump station at the Wilcox Reservoir. However, after grading was completed for 8 lots, the property was purchased from the developer by an individual who subsequently abandoned plans for the tract and combined the lots into two separate parcels. As of January ~~2014~~2018, the status for building homes on these parcels is not known. There is also an adjacent two-acre parcel under separate ownership on which the home was not rebuilt after it was destroyed in the 1993 Kinneloa-Altadena firestorm.

4.3 *Potential Future Well Sites*

The KID has a few potential ~~future water source~~ well sites within the District boundaries. The Equestrian Center north of New York Drive was acquired by Los Angeles County and incorporated into the Eaton Canyon Natural Area. The park status will allow for a well site for the District. The area of Wilcox Canyon, north or south of the Wilcox Reservoir also offers potential for a future well site. Finally, a site on Outpost Lane owned by the City of Pasadena is a possible location for a joint well project.

KINNELOA IRRIGATION DISTRICT
WATER MASTER PLAN

5.0 CAPACITY CHARGE IMPROVEMENT FEE

Improvements were made to the KID water system during the Dove Creek Development in 1987-1990. These improvements included improvements to the K-3 Well, Eucalyptus Reservoir, and piping in New York Drive. At the time of these improvements, the KID decided to build in reserve system capacity and redundancy beyond that required by the Dove Creek Development. Because the cost of the improvements was beyond what was required by the Dove Creek Development, the KID funded the marginal increase of the cost of the improvements beyond the Dove Creek Development requirements.

To recover the cost of the reserve capacity, the Board of Directors of the KID in 1990 instituted a Capacity Charge Improvement Fee on all future development in the District. The fee is \$3,000.00 per lot and is only charged for existing or newly created lots that do not have an existing water service. This fee is in addition to reimbursement for the cost of installing the new water service and required system improvements.

KINNELOA IRRIGATION DISTRICT
WATER MASTER PLAN

6.0 SERVICE DEMANDS

6.1 *Existing Service Demands*

Average day and maximum day service demands are based on water delivery records for the drought year (September 1990 – September 1991). Average day demand is the total annual water delivered as recorded by the individual customer water meters averaged over 365 days per year. Maximum day demand is the maximum day total water delivered, averaged over 24 hours. Maximum day delivery data is not available for individual customer water meters. Customer water meter demand is only recorded monthly. Individual pumping facility production and reservoir levels are recorded daily at roughly the same time each day. Individual facility records are used to determine maximum day total water delivery. To establish a comparison between average day and maximum day demands it is necessary to compare average day and maximum day demands of the same representative service area. Average day and maximum day data is available for the total Holly and East Tank service area.

The record data for this service area indicates the following:

- 237 services
- 189 total acres
- Annual delivery of 134,990 billing units (B.U.)
- Maximum day delivery (7/29/1990) of 1,029 billing units

Average Day Demand

$$\frac{134,990 \text{ B.U.}}{189 \text{ Acre/Year}} \times \frac{748 \text{ Gal.}}{\text{B.U.}} \times \frac{1 \text{ Year}}{365 \text{ Days}} \times \frac{1 \text{ Day}}{1,440 \text{ Min.}} = \frac{1.02 \text{ Gal/Min}}{\text{Acre}}$$

OR:

$$\frac{134,990 \text{ B.U.}}{237 \text{ Services}} \times \frac{748 \text{ Gal.}}{\text{B.U.}} \times \frac{1 \text{ Year}}{365 \text{ Days}} \times \frac{1 \text{ Day}}{1,440 \text{ Min.}} = \frac{0.81 \text{ Gal/Min}}{\text{Service}}$$

Maximum Day Demand

$$\frac{1,029 \text{ B.U.}}{189 \text{ Acre/Day}} \times \frac{748 \text{ Gal.}}{\text{B.U.}} \times \frac{1 \text{ Day}}{1,440 \text{ Min.}} = \frac{2.83 \text{ Gal/Min}}{\text{Acre}}$$

OR:

$$\frac{1,029 \text{ B.U.}}{237 \text{ Services}} \times \frac{748 \text{ Gal.}}{\text{B.U.}} \times \frac{1 \text{ Day}}{1,440 \text{ Min.}} = \frac{2.26 \text{ Gal/Min}}{\text{Service}}$$

The ratio of the maximum day demand over the average day demand is the maximum day factor. For the existing Holly and East Tank Zone, the maximum day factor is as follows:

$$\frac{2.83}{1.02} = 2.77$$

Existing service demands for the number of services in 2007 for each zone were based on the calculated average day and maximum day demand factors for the Holly and East Tank Zone and are shown in Table 6.1.

TABLE 6.1
SERVICE DEMANDS BY ZONE IN THE
KINNELOA IRRIGATION DISTRICT

Service Zone	No. of Services	Average Day Demand 0.81 gpm/service (gpm)	Maximum Day Demand 2.26 gpm/service (gpm)
Eucalyptus	62	51	141
Holly/Sage	190	154	430
East/ West*	6186	5097	138257
West*	-25	-47	119
Brown/Glen	70	57	159
Vosburg	192	156	434

* West Tank service demand based on 1.85 gpm/acre average day and 5.12 gpm/acre maximum day demands and a 23.3-acre service area.

6.2 *Future Service Demands*

Future service demands for various zones in the KID system were calculated based on the number of existing services, the planned additional services and the estimated future customer service demands. Planned additional services in the KID service area have a higher potential for water use than the existing customer services. Planned additional services are estimated to be comparable to the Shaw Ranch Estate type properties. Shaw Ranch record data indicates the September 1990 – September 1991 annual demand for 24 active services, serving 16.94 acres was a total of 21,984 billing units. Average day demand for planned future services is calculated as follows:

$$\frac{21,984 \text{ B.U.}}{12 \text{ Months}} \times \frac{748 \text{ Gal.}}{\text{B.U.}} \times \frac{1 \text{ Year}}{12 \text{ Months}} \times \frac{1 \text{ Day}}{24 \text{ Hours}} = \frac{1.85 \text{ gpm}}{\text{Service}}$$

16.94 Acre/Yr

B.U.

365 Days

1,440 Min.

Acre

OR:

$$\frac{21,984 \text{ B.U.}}{24 \text{ Services}} \times \frac{748 \text{ Gal.}}{\text{B.U.}} \times \frac{1 \text{ Year}}{365 \text{ Days}} \times \frac{1 \text{ Day}}{1,440 \text{ Min.}} = \frac{1.30 \text{ gpm}}{\text{Service}}$$

Maximum day demand for planned future services is the average day demand multiplied by the developed maximum day factor as follows:

$$1.85 \text{ gpm/acre} \times 2.77 = 5.12 \text{ gpm/acre}$$

OR:

$$1.30 \text{ gpm/service} \times 2.77 = 3.60 \text{ gpm/service}$$

For master planning and calculation of future system demands, 5.12 gpm/acre or 3.60 gpm/service will be used to calculate future service demands per zone. Table 6.2A shows the future service demand of the potential new services by zone.

TABLE 6.2A
FUTURE SERVICE DEMANDS BY ZONE IN THE
KINNELOA IRRIGATION DISTRICT

Service Zone	No. of Future Services	Average Day Demand 1.3 gpm/service (gpm)	Maximum Day Demand 3.6 gpm/service (gpm)
Eucalyptus	1	1.3	3.6
Holly/Sage	16	21.0	57.6
East/ West	+2	+32.6	367.2
West	-0	-0.0	-0.0
Brown/Glen	8	11.0	28.8
Vosburg	5	7.0	18.0

Table 6.2B shows the sum of the water demand for existing services in Table 6.1 and the potential new services in Table 6.2A.

TABLE 6.2B
TOTAL FUTURE SERVICE DEMANDS BY ZONE
IN THE KINNELOA IRRIGATION DISTRICT

Service Zone	Total Services	Average Day Demand (gpm)	Maximum Day Demand (gpm)
Eucalyptus	63	52	145
Holly/Sage	206	175	488
East/ West *	6287	5198	142261
West *	-25	-47	119
Brown/Glen	78	68	188
Vosburg	197	163	452

* West Tank service demand based on 1.85 gpm/acre average day and 5.12 gpm/acre maximum day demands and a 23.3-acre service area.

KINNELOA IRRIGATION DISTRICT
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7.0 SYSTEM IMPROVEMENTS

7.1 *General*

The KID was formed in 1953. Many of the distribution and transmission pipelines predate 1953 and are nearing the end of their useful service life. For the purposes of this plan, the useful service life of the pipelines is set at 50 years. Development of excessive numbers of leaks and/or reduced pipeline capacity are two of the indications of pipelines at the end of their useful service life.

Originally, water mains in the KID provided domestic supply plus a fire flow of 750 gpm. The existing distribution system meets the original fire flow design criteria. The firestorms of October 1993 exposed the KID pipeline delivery capacity weakness. As a result, the KID adopted a Fire Preparedness Policy which requires new water mains to be sized to provide 20 gpm per service, plus a fire flow of 1,250 gpm each at two fire hydrants simultaneously.

As the population of the KID has grown over the years, the demands placed upon the entire system, including distribution and transmission mains, water sources, reservoirs, and pump stations have encroached upon the ability of the system to meet the required demands. Population growth, plus the need for increased fire flow to provide adequate fire protection will require the KID to construct improvements to the KID water system.

7.2 *Piping*

In April 1996, ASL Consulting Engineers conducted a study for the KID to identify water main improvements required to increase water system capabilities to deliver domestic demands plus 1,250 gpm fire flows.

All pipes that develop chronic leaks should be replaced to decrease waste of water and to achieve overall lower operational costs.

~~In addition, pipes which have exceeded their useful life should be replaced. It can be shown that replacing older pipelines will result in lower long term operational costs.~~ Pipelines which have become inaccessible due to development or are traversing private property in easements should also be replaced if practical and/or possible. Pipelines should be upsized where required to meet the fire preparedness goals. Upsizing is to be determined by hydraulic modeling and verified by field-testing.

Many projects have been completed since the original master plan. The remaining projects that are listed in Table 7.2 provide a remedy for the following conditions:

- Chronically leaking pipes.
- Pipe requiring upgrade to meet domestic demand and fire preparedness goals.
- ~~Piping which has exceeded its useful service life of 50 years.~~
- ~~Piping which has~~ become inaccessible due to development or ~~traverses~~crosses private property in easements.

TABLE 7.2
REQUIRED WATER MAIN REPLACEMENTS
TO MEET 1,250 GPM FIRE FLOW AND
450 FEET VEHICULAR DISTANCE

Main Size	Description	
	From	To
8"	Sierra Madre Villa at Windover Rd.	Corner of 2090 & 2060 Villa Heights Rd..
8"	Country Lane	Southeast Corner of 1747 Country Lane
12"	Glen Reservoir	Intersection Villa Highlands & Sierra Madre Villa Includes Slope from Pasadena Glen to Barhite
8"	Kinclair Dr.	Behind 2150 Kinclair Dr.
8"	Kinclair Dr.	#4 Cricklewood Path
8"	Kinneloa Canyon Rd.	Behind 2044 Piccadilly Ln.
8"	Intersection of Vosburg St. & Lower Pasadena Glen Rd.	In front of 1658 Pasadena Glen Rd.

7.3 *Booster Pump Stations*

7.3.1 Existing Booster Pump Stations

The KID presently has sufficient booster pump capacity to provide for domestic demands. The 1,250 gpm fire flow requires supplementing booster station flow with gravity flow from reservoirs.

There are booster pump facilities located at the Eucalyptus Reservoir, Holly Tanks, Sage Tank, Wilcox Reservoir, Glen Reservoir and at the Vosburg Reservoir. The booster pumps at the Eucalyptus Reservoir were replaced with high efficiency vertical turbine units in 2002 as part of the system improvements needed for the Kinneloa Ridge Development.

~~The booster pump at the Holly Tank is a horizontal, split case pump. A preferred installation would be Tanks are scheduled to be removed since the construction of new facilities at the Vosburg Reservoir provide redundant operation.~~

~~The three booster pumps at the Vosburg Reservoir are high efficiency vertical turbine units set which were installed in 2016.~~

~~The booster pump at the Vosburg Reservoir is a submersible, centrifugal pump. A preferred installation would be a high efficiency vertical turbine unit, but a replacement 25 HP submersible pump that was installed in 2006 is providing increased flow and efficiency as compared to the previous 20 HP unit. A permanent three booster pump station is currently in the design process and is expected to be constructed in 2015 or 2016 if the project is approved by the KID Board.~~

Table 7.3A compares the required booster pump station capabilities with existing booster pump station capabilities. Required booster pump station capabilities will supply maximum day demand with an off-peak 16-hour maximum pumping period.

Required Booster Pump Capacity Calculations: Each booster facility must provide capacity to serve all zones in the system above the booster station.

- ~~Eucalyptus Booster Station must provide capacity to serve Holly/Sage Zone, West Zone, and 1/2 of the East Zone. Flow rates required are from Table 6.2B.~~

- ~~Eucalyptus Booster Capacity = $\frac{24}{16} (488+119+\frac{142}{2}) = 1017$ gpm~~

- ~~Holly Booster Station must provide 1/2 of the East Zone.~~

~~Holly Booster Capacity = $\frac{24}{16} \cdot \frac{142}{2} = 107$ gpm~~

- Vosburg Booster capacity is ~~285~~300 gpm.

- ~~Glen Booster must supply Vosburg Zone and 1/2 of East Zone.~~

- ~~Glen Booster Capacity = $\frac{24}{16} (452+\frac{142}{2}) = 785$ gpm~~

- ~~Sage Booster supplies the West Zone only.~~

- ~~Sage Booster Capacity = $\frac{24}{16} (119) = 179$ gpm~~

- ~~Wilcox Booster must supply Vosburg Zone, Brown/Glen Zone and ½ of East Tank Zone.~~

~~Wilcox Booster Capacity = $\frac{24}{16} (452+188+142) = 1067$ gpm~~

**TABLE 7.3A
COMPARISON OF REQUIRED BOOSTER PUMP CAPACITIES**

Booster Station	Required Future Pump Capacities (gpm)	Existing Capacity (gpm)***)*	Additional Capacity Required (gpm)
Eucalyptus	1,017	800 750	0
Holly	-107	200	0
Vosburg*	107	285 300	0
Glen	785	345	440
Sage	179	400	0
Wilcox Reservoir	1,067	650	417

* ~~Additional capacity and redundancy will be provided with the proposed construction of a permanent booster station at the Vosburg Reservoir in conjunction with the proposed East West Tank connector pipeline project.~~

*** Existing capacity reflects normal operation. Some sites have additional capacity if all boosters are used simultaneously.

Table 7.3B shows the proposed booster pump improvements to increase efficiencies and/or capacities and provide improved redundancy.

**TABLE 7.3B
PROPOSED BOOSTER IMPROVEMENTS**

Booster Station	Description
Glen	Increase booster pump capacity.
Holly*	Replace existing pumps with two vertical turbine pumps in cans.
Vosburg	Replace existing submersible pump with three vertical turbine pumps in cans.
Wilcox Reservoir***	Increase booster pump capacity.

* ~~Not needed if East West Tank Connector Pipeline project is completed.~~

**

* Pipeline upgrades also required to reduce pumping head.

7.3.2 Proposed Booster Pump Stations

Although the plan for an eight-home tract on Doyne Road has been abandoned, the building of two or more homes on Doyne Road may require additional booster pump capacity at the Wilcox Reservoir and other pipeline upgrades. The necessary improvements have already been made at the Eucalyptus Booster Pump Station in conjunction with the Kinneloa Ridge Development and the main on Doyne Road was replaced as part of the Kinneloa Mesa pipeline improvement project.

7.4 *Tunnels*

7.4.1 High Pressure Tunnel

The High-Pressure Tunnel pipeline is currently in service and supplies water to the Holly Tanks or the West Tank. The High-Pressure Tunnel pipeline was damaged during the firestorms of October 1993. Additional damage occurred from mudslides during the rainy season of subsequent years. In 1994, the High-Pressure Tunnel pipeline was repaired with FEMA funding. In the winters of 1994-95 and 2004-05, the High-Pressure Tunnel pipeline was again damaged by mudslides. The KID applied for FEMA funding ~~as a result~~because of the disaster declaration after the 2004-2005 storms and permanent repairs were completed in 2006 using a combination FEMA funds and KID funds.

7.4.2 Low Pressure Tunnels

Pipelines delivering water from the Low-Pressure Tunnels to the Holly Tanks have been out of service at various times since 1993. Both low pressure tunnel pipelines were damaged during the fire storms of October 1993. Further damages occurred from mudslides during the rainy seasons of subsequent years. In 1994, the lower Low-Pressure Tunnel pipeline was replaced using FEMA funding. In subsequent rainy seasons, the tunnel has since been buried by mudslides. The storms of 2004-2005 further damaged the lines. The KID applied for FEMA funding to repair the lines ~~in order~~ to take advantage of the low-cost water supply. The upper low-pressure tunnel pipeline was replaced and put back in service in 2006. The lower low-pressure tunnel was excavated to the tunnel face, but further work has been suspended due to lack of funding and safety concerns.

7.4.3 House Tunnel

The House Tunnel pipeline was also damaged in the 2004-2005 storms. The damaged section was replaced with flexible hose suspended from a cable and the rest of the pipeline was inspected and repaired at two locations. Since ~~the majority~~most of the pipeline is galvanized steel and was installed decades ago, it is expected that the pipeline will need to be replaced within the next 20 years even if there is no further storm damage. The tunnel is not currently delivering water to the distribution system.

7.4.4 Delores Tunnel

The Delores Tunnel was out of service between 1979 and 2001 due to rockslide and rain storm damage to the delivery pipeline. Although this pipeline was replaced in 2001 with flexible hose suspended from a cable for much of its length, it is still vulnerable to damage in the future. Therefore, it is expected that portions will need to be repaired or replaced within the time frame of this master plan.

The required tunnel maintenance and improvements are listed in Table 7.4.

TABLE 7.4
REQUIRED TUNNEL MAINTENANCE AND IMPROVEMENTS

Tunnel	Description
High Pressure	Periodically inspect pipeline for potential damage from landsides. Inspect for leaks and repair or replace pipeline as needed.
Low Pressure	Periodically inspect pipeline for potential damage from landsides. Continue excavation of lower tunnel and complete new tunnel face and pipeline between the tunnel and the injector if tunnel flow is significant.
House	Periodically inspect pipeline for potential damage from landsides. Inspect for leaks and repair or replace pipeline as needed.
Delores	Periodically inspect pipeline for potential damage from landsides. Inspect for leaks and repair or replace pipeline as needed.

7.5 *Other Improvements*

7.5.1 General

Within Section 7 of this master plan, necessary improvements have been identified which would connect tunnel water supplies to the system and improve system hydraulics ~~in order~~ to meet a 1,250 gpm fire flow for two hours. Also, improvements to reservoirs have been identified which are necessary to meet a minimum 1,250 gpm fire flow for two hours plus domestic demands. This section will examine other necessary system improvements.

7.5.2 Additional Improvements

The KID has identified other capital improvements necessary to upgrade existing facilities to provide increased operational efficiency, greater margins of safety, address emergency preparedness issues and to decrease maintenance costs. Additional capital improvements are shown in Table 7.5.

TABLE 7.5
ADDITIONAL IMPROVEMENTS AS IDENTIFIED BY THE
KINNELOA IRRIGATION DISTRICT

Description
Upgrade SCADA hardware, software and communications radios to prevent obsolescence (OPS)
Replace obsolete on-site chlorine generators. (OPS)
Purchase 250 kw trailer-mounted generator to be used and Wilcox and K-3 (EP)
EP= Emergency Preparedness OPS= Operations Improvement

KINNELOA IRRIGATION DISTRICT
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8.0 PLANNED MAINTENANCE PROGRAM

The KID has developed a Planned Maintenance Program for the KID’s water distribution system which extends the life of existing capital improvements. These items of work include pump overhauls, motor overhauls and replacements, reservoir recoating, reservoir roof repairs, upgrade interconnections with other agencies, purchase of small tools, upgrading various facilities, and office improvements. The items of work identified in this section are typically referred to as operations and maintenance items but due to relatively high cost they need to be budgeted in the same manner as capital improvements. Planned maintenance items identified by the staff are listed in Table 8.0 and are not in priority order.

TABLE 8.0
PLANNED MAINTENANCE PROGRAM ITEMS

Item	Description	Est. Cost
1	Glen Reservoir - Install Polypropylene Liner <u>liner or coating</u>	\$30,000
2	Upgrading of Fire Hydrant Heads (\$500.00 to \$2,500 ea.)	\$34,000
3	Tunnel Maintenance -(avg. \$7,000 per year for a 10- y ear period)	\$70,000
4	Valve Maintenance (replacement cost averages \$2,500 per valve)	\$25,000
5	Office Maintenance & Improvements: 1. Replace carpet and do interior painting; 2. Add storage shed to exiting concrete pad	\$40,000
6	Brown Reservoir - Install -liner <u>or coating</u>	\$30,000
7	Holly Tanks Erosion Control (All Phases)	\$140,000
8	Holly Boosters - Paint Booster Station	\$1,000
9	Wilcox Reservoir - Pump stand/other repairs	\$25,000
10	Service Area - Emergency prep. - install or replace “Blue Dot” Markers for Fire Hydrants	\$1,000
11	Wilcox Well - Modify dump line to dispose of water on site	\$1,000
	Total	\$397,000

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9.0 PROJECT PRIORITIES

Project priorities are based upon cost-benefit considerations. Projects that will realize higher revenues per unit cost are given a higher priority than projects that will realize lower revenue, or no revenue, per unit dollar spent. Priorities are also based upon increased fire protection, increased operational efficiencies and lower maintenance costs. Projects are listed in Table 9.0 in order of decreasing priority in each project category.

TABLE 9.0
CAPITAL IMPROVEMENT PROJECTS LISTED BY PRIORITY

Priority	Project	Description
1	Pipeline	West Tank to East Tank (including portion of High/Low Pressure Tunnel line listed below).
2	Pipeline	Sierra Madre Villa from Windover Road to Corner of 2090 and 2060 Villa Heights Road
3	Pipeline	Replace service main in portion of Fairpoint Street from 3410 to last service at 3500 Fairpoint
3	Pipeline	Replace Brown/Glen line from corner of Fairpoint Street and Sierra Madre Villa to Barhite Street
4	Pipeline	Country Lane to Southeast Corner of 1747 Country Lane
5	Pipeline	Kinclair Drive to rear of 2150 Kinclair Drive
6	Pipeline	Kinclair Drive to #4 Cricklewood Path
7	Pipeline	Kinneloa Canyon Road to rear of 2044 Piccadilly Lane
8	Pipeline	Intersection of Vosburg St. and lower Pasadena Glen Rd. to front of 1658 Pasadena Glen Rd.
9	Pipeline	Replace service main in Edgecliff Lane from Villa Knolls Drive to cul-de-sac
10	Pipeline	1908 N. Kinneloa Cyn. Canyon Rd. to intersection of Larmona Drive & Kinneloa Mesa Road (Doyne Road project)
11	Pipeline	Replace service main from Villa Knolls Drive to end of Hartwood Point Drive
12	Pipeline	Replace service main in Villa Mesa Dr. from Sierra Madre Villa Ave. to 3336 Villa Mesa Dr.
13	Pipeline	From Glen Reservoir to intersection of Villa Highlands and Sierra Madre Villa. Includes slope from Pasadena Glen to Barhite
14	Pipeline	Replace water main from Wilcox Well to Wilcox Reservoir
1	Tunnel	Construct permanent replacement pipeline section from High Pressure Tunnel to Holly and/or Sage Reservoir
2	Tunnel	Construct pipeline from lower Low-Pressure Tunnel to junction with High Pressure Tunnel Pipeline north of Kinneloa Debris Basin
3	Tunnel	Replace other tunnel pipelines as required
1	Booster	Replace the existing 50 HP oil lubricated booster pump at Wilcox Reservoir with a water lubricated pump
2	Booster	Install additional booster pump and new electrical at Wilcox Reservoir if needed
3	Booster	Replace existing booster pump at Glen Reservoir with a higher capacity unit
4	Booster	Replace existing booster pumps at Holly Tank with vertical turbine pumps in a can (Not needed if West Tank to East Tank pipeline is constructed)
1	Other (Emergency)	Purchase 250 kw trailer-mounted generator for Wilcox and K-3

Priority	Project	Description
	Preparedness)	
2	Other (Preventative Maintenance)	Upgrade SCADA hardware, software and communications radios to prevent obsolescence
3	Other (Preventative Maintenance)	Replace Uniclor with Chlortec chlorine generators to prevent obsolescence

**KINNELOA IRRIGATION DISTRICT
WATER MASTER PLAN**

10.0 COST ESTIMATES FOR REQUIRED IMPROVEMENTS

10.1 Pipelines

Cost estimates for pipeline replacements as described in Section 7.1, are taken from a study prepared by ASL Consulting Engineers for the KID in April 1996. Cost estimates were updated in July 2002 and adjusted for inflation and current construction costs in 2014. ~~Nearly all 2018.~~ Most of the replacement pipelines are needed to meet 1,250 gpm fire flow and 450 feet vehicular distance requirements. Category definitions are as follows: EP-Emergency Preparedness; PM-Preventive Maintenance; OPS- Operational Improvement. The estimated costs are shown in Table 10.1. ~~In order for the district to get the best prices for these projects, the~~ The smaller projects should be bundled in dollar amounts not less than \$150,000- for the district to get the best prices on these projects

**TABLE 10.1
PIPING IMPROVEMENTS COST ESTIMATES**

Priority	Main Size	Description		Category	Cost
		From	To		
1	12" 8"	West Tank Sierra Madre Villa at Windover Rd.	East Tank Corner of 2090 and 2060 Villa Heights Road	EP/OPS 5000 1840 ft.	\$1,150 200,000
2	8"	Fairpoint Street and Sierra Madre Villa at Windover Rd.	Corner of 2090 and 2060 Sierra Madre Villa Heights Road and Barhite Street	EP 1840 ft. OPS/PM 450 ft.	\$188 50,000
3	4"	Eastern portion of Fairpoint St.	Last service on Fairpoint St.	EP/PM 950 ft.	\$84 100,000
4	8"	Country Lane	Southeast Corner of 1747 Country Lane	EP 270 ft.	\$28 30,000
5	8"	Kinclair Dr.	Rear of 2150 Kinclair Dr.	EP 250 ft.	\$38 40,000
6	8"	Kinclair Dr.	#4 Cricklewood Path	EP 400 ft.	\$50 60,000
7	8"	Kinneloa Canyon Rd.	Rear of 2044 Piccadilly Ln.	EP -250 ft.	\$38 40,000
8	8"	Intersection of Vosburg St. & Lower Pasadena Glen Rd.	Front of 1658 Pasadena Glen Rd.	EP/PM 350 ft.	\$48 50,000
9	8"	Edgecliff Lane from Villa Knolls	End of Cul-de-sac	EP/PM 700 ft.	\$80 90,000

Priority	Main Size	Description		Category	Cost
		From	To		
10	8"	Larmona Drive & Kinneloa Mesa Road	1908 N. Kinneloa Canyon Rd. (Doyne Rd. Project)	EP 2000 ft.	\$204,575,000
11	8"	Villa Knolls Drive	End of Harwood Point	EP/PM 1960 ft.	\$204,300,000
12	8"	Sierra Madre Villa	3336 Villa Mesa	EP/PM 300 ft.	\$425,000
13	12"	Glen Reservoir	Intersection Villa Highlands & Sierra Madre Villa Includes Slope from Pasadena Glen to Barhite	EP/OPS 3100 ft.	\$442,600,000
14	10"	Wilcox Well	Wilcox Reservoir Line	EP/OPS/PM 500 ft.	\$607,000
SUBTOTAL					\$2,656,250,000
Engineering, Design, and Planning					\$209,500,000
Construction Management and Inspection					\$159,200,000
SUBTOTAL					\$359,700,000
TOTAL PIPELINE PROJECTS					\$3,006,2,955,000

10.2 *Booster Pump Station Improvements*

Cost estimates for installation of some of the booster pump improvements at the Wilcox Reservoir that were required for the Doyne Road Development (Tract 44323) were developed in a report prepared by ASL Consulting Engineers for the KID and dated June 3, 1996. Cost estimates were up-dated in February 2002 but were not included in the KID capital project budget because it was expected that these improvements would be constructed at the developer's expense. However, since the development as originally planned has been abandoned by a new owner of the property, the cost of an additional booster at the Wilcox Reservoir is not included.

Cost estimates for installation of other booster pump improvements were developed in a report prepared by ASL Consulting Engineers for the KID and dated November 3, 1995. Cost estimates were up-dated in February 2002. ~~Although some of these projects are being deferred because of the purchase of portable pumps, they are listed and have been adjusted for planning purposes in the event that the portable pumps are used for other purposes inflation to 2018 dollars.~~

Costs for improvements to the booster pumps at the Wilcox Reservoir, ~~and Glen Reservoir, Holly Tank and the Vosburg~~ Reservoir are included in the KID capital project budget. Costs include engineering, inspection, management and contingency. ~~All costs were updated in 2002 and have been adjusted for inflation to 2014 dollars.~~

Booster Pump Station Improvements are shown in Table 10.2.

TABLE 10.2
BOOSTER PUMP STATION IMPROVEMENTS

Priority	Description	Estimated Costs
1	Replace the existing 50 HP oil lubricated booster pump at Wilcox Reservoir with a water-lubricated pump.	\$1030,000.00
2	Construct improvements to the Booster Pump at Glen Reservoir	\$60,000.00*
3	Construct new Booster Pump Station at Vosburg Reservoir Total Pump Station at Vosburg Reservoir Improvements	\$39090,000.00*
4	Construct improvements to the Booster Pumps at Holly Tanks (Not needed if East West Tank connector pipeline is constructed)	\$60,000.00*

~~*Previously deferred by purchase of portable pumps. Needed to maximize benefit if East West Tank connector pipeline is constructed.~~

10.3 Tunnel Improvements

The pipeline from the upper Low-Pressure Tunnel face to the new High/Low combiner was replaced in 2006. The existing High-Pressure pipeline was not replaced but the line was suspended from a new cable to the combiner to protect it from landslides. The lower Low-Pressure Tunnel pipeline was not replaced since there was no water exiting that tunnel at the time of the construction work in 2006. The combined High/Low Pressure pipeline from the combiner to the Kinneloa Canyon West Debris Basin may also need to be replaced in future years. The cost estimates for the remaining pipelines are shown in Table 10.3.

TABLE 10.3
TUNNEL IMPROVEMENTS

Priority	Description	Cost Estimate
1	Replace the combined High/Low Pressure Tunnel Pipeline from combiner to Kinneloa Canyon West Debris Basin	\$200,000.00
2	Replace the lower Low-Pressure Tunnel Pipeline	\$ 61,000.00
3	Replace other tunnel pipelines as required	\$100,000.00
	Total Tunnel Improvements	\$361,000

10.4 *Costs of Other Improvements*

Cost estimates for the construction or purchase of other improvements are based upon estimates by KID staff and are shown in Table 10.4.

**TABLE 10.4
OTHER IMPROVEMENTS**

Priority	Description	Estimated Cost
1	Purchase 250 kw portable generator for Wilcox and K-3	\$ 40 <u>50</u> ,000
2	Upgrade SCADA hardware, software and communications radios to prevent obsolescence	\$ 50 <u>70</u> ,000
3	Replace Uniolor with Chortee <u>Chlortec</u> chlorine generators	\$ 13 <u>20</u> ,000
	Total Other Improvements	\$<u>140,000</u>

10.5 *Total Costs*

Table 10.5 shows total estimated costs for all necessary improvements as identified in this master plan. Cost estimates include design, inspection, construction management and contingency costs. Improvements identified to be installed and financed by developers are not included. Costs for the items identified as other work were developed for this master plan from cost estimates by the KID staff.

**TABLE 10.5
TOTAL ESTIMATED COSTS**

No.	Description	Cost Estimate
1	Pipeline Improvements	\$ 2,564 <u>955</u> ,000
2	Pump Station Improvements	\$ 520 <u>90</u> ,000
3	Tunnels	\$361,000
4	Other Improvements	\$ 103 <u>140</u> ,000
5	Planned Maintenance (from Section 8)	\$397,000
	TOTAL <u>Estimated Costs</u>	\$<u>3,945,943,000</u>

APPENDIX

EXHIBIT I
RESERVOIR IMPROVEMENTS

RESERVOIR IMPROVEMENTS

Cost estimates for District funded improvements to reservoirs are not included in the Water Master Plan. Since these costs were estimated in 1996, these projects will need to be re-evaluated if they are pursued in the future.

Existing Reservoirs

In April 1996, ASL Consulting Engineers conducted a study for the KID to identify reservoir improvements, which would have to be made to comply with the KID Fire Preparedness Policy. The results of that study indicate that additional capacity is required at the Holly Tanks, Glen Reservoir and East Tank. However, the completion of the East Tank – West Tank Connector Pipeline project as added The West Tank capacity of 500,000 gallons provided a combined east/west pressure zone capacity of 650,000 gallons. Table I has been revised to reflect the combined pressure zone.

Table I compares the required future reservoir storage capacity with the existing reservoir capacity for each service zone. Wilcox Reservoir with a capacity of 1,125,000 gallons is a forebay for the Wilcox Well and is not included. Required capacity is the sum of maximum day demand, operational capacity, and fire flow.

TABLE I (Revised 2018)
REQUIRED RESERVOIR CAPACITY

Reservoir	Maximum Day Demand (Gal.) *	Operational Capacity (Gal.) *****	Fire Flow (Gal.) **	Required Capacity (Gal.)	Existing Capacity (Gal.)	Additional Capacity Required (Gal.)
Eucalyptus Reservoir	308,160	77,000	300,000	685,160	180,000	505,160
Holly/Sage Tanks	702,720	176,000	300,000	1,178,720	525,000	653,720
East Tank / West Tanks****	230,400 <u>365,760</u>	58,000	300,000	588,400 <u>723,760</u>	150 <u>650,000</u>	438,400 <u>73,760</u>
West Tank****	135,360	0 <u>***</u>	300,000	435,360	500,000	0
Brown/Glen Reservoir	298,080	75,000	300,000	673,080	250,000	423,080
Vosburg Reservoir	643,680	161,000	300,000	1,104,680	1,250,000	0

* Maximum Day Demand = 60 min. x 24 hours x max day demand (gpm/service).

** Fire Flow = 1,250 gpm for 4 hours.

*** Operational storage not required.

**** West Tank Maximum Day Demand based on (gpm/acre).

***** 25% of maximum day demand.

The proposed reservoir improvements are shown in Table II.

TABLE II (Revised 2018)
PROPOSED RESERVOIR IMPROVEMENTS

Tank	Description
Holly Tanks	Remove both existing reservoir in two stages. Construct new concrete reservoir in two stages and miscellaneous site improvements. Increase existing Holly Tanks to provide total 1-MG storage.
East Tank*	Site has 1 existing 0.15 MG reservoir. Add two additional 0.15 MG steel reservoirs and miscellaneous site improvements. Site limitations <u>may</u> prevent construction of <u>a larger reservoir.</u> <u>However, the completion of East/West connector pipeline has eliminated the needed for a significant increase in the size of the total required storage.</u> Maximum day operation will require careful management of operational levels with potential of encroaching on peak pumping Edison rate, in the east/west pressure zone.
Glen Reservoir**	Demolish existing 0.15 MG reservoir. Construct new 0.5 MG concrete reservoir and miscellaneous site improvements.
Eucalyptus Reservoir	Emergency connections, portable pumps and tunnel supply are considered to make up storage deficit.

* Low priority ~~because the~~ East-West Tank connector pipeline ~~is~~was constructed.

** Low priority because Glen Reservoir has back up storage in Vosburg Reservoir.

Cost estimates for District funded improvements to reservoirs were developed in a study by ASL Consulting Engineers for the KID and dated April 1996. The Estimated cost for improvements to Holly Tanks, East Tanks, and Glen Reservoir are shown in Tables III, IV, and V respectively. All costs are in 1996 dollars.

TOTAL ESTIMATED COSTS

No.	Description	Cost Estimate
1	Holly Reservoir Improvements	\$612,000
2	East Tank Improvements	\$422,000
3	Glen Reservoir Improvements	\$624, 000 <u>500</u>
	Total Reservoir Improvements	\$1,658,000<u>500</u>

**TABLE III
HOLLY RESERVOIR IMPROVEMENTS COST ESTIMATE**

Item	Quantity	Unit	Description	Unit Price	Total Price
PHASE I					
1	1	L.S.	Mobilization/Demobilization	\$6,750.00	\$6,750.00
2	1	L.S.	Modify Existing Inlet/Outlet and Tunnel Well Piping	\$5,000.00	\$5,000.00
3	1	L.S.	Demolish and Remove West Reservoir	\$25,000.00	\$25,000.00
4	275	L.F.	Install Excavation Shoring, Entire Site	\$30.00	\$8,250.00
5	900	C.Y.	Excavate Entire Site	\$30.00	\$27,000.00
6	1	L.S.	Install Sub drain System	\$4,000.00	\$4,000.00
7	1	L.S.	Install Inlet/Outlet Piping	\$3,000.00	\$3,000.00
8	1	L.S.	Construct West Half of New Reservoir	\$200,000.00	\$200,000.00
9	1	L.S.	Test, Disinfect, and Place West Half of Reservoir in Service	\$2,000.00	\$2,000.00
PHASE II					
1	1	L.S.	Demolish and Remove East Reservoir	\$25,000.00	\$25,000.00
2	1	L.S.	Install Sub drain System	\$4,000.00	\$4,000.00
3	1	L.S.	Install Inlet/Outlet Piping	\$5,000.00	\$5,000.00
4	1	L.S.	Construct East Half of New Reservoir	\$200,000.00	\$200,000.00
5	1	L.S.	Test, Disinfect, and Place East Half of Reservoir in Service	\$2,000.00	\$2,000.00
6	200	C.Y.	Backfill and Remove Shoring	\$50.00	\$10,000.00
7	1	L.S.	Construct Site Improvements, A.C. Pavement, Landscaping and Irrigation, and Site Drainage Facilities	\$15,000.00	\$15,000.00
SUBTOTAL					\$542,000.00
Engineering Design and Planning					\$30,000.00
Soils Investigation					\$10,000.00
Environmental Documents					\$10,000.00
Construction Administration and Inspection					\$20,000.00
SUBTOTAL					\$70,000.00
TOTAL PROJECT					\$612,000.00

TABLE IV
EAST TANK IMPROVEMENTS COST ESTIMATE

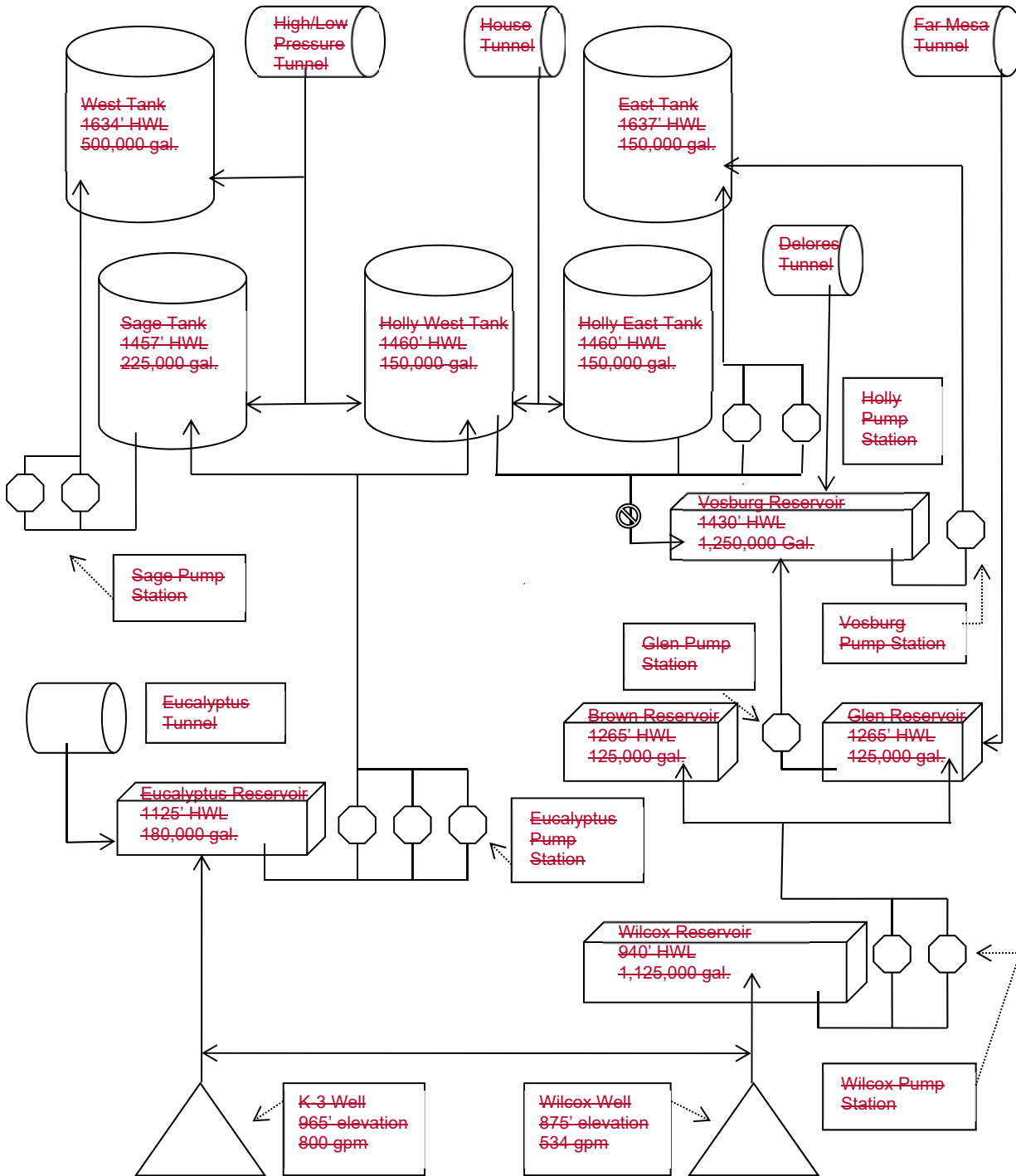
Item	Quantity	Unit	Description	Unit Price	Total Price
1	---	L.S.	Mobilization/Demobilization	\$5,000.00	\$5,000.00
2	1,300	C.Y.	Excavation / Grading	\$50.00	\$65,000.00
3	---	L.S.	Access Road – Grading and Paving	\$22,000.00	\$22,000.00
4	2	EA.	Tank Footing and Oil Sand	\$15,000.00	\$30,000.00
5	---	L.S.	Sub drain System	\$10,000.00	\$10,000.00
6	---	L.S.	Slope Treatment	\$15,000.00	\$15,000.00
7	---	L.S.	Site Drainage	\$30,000.00	\$30,000.00
8	2	EA.	Tank Material and Construction	\$75,000.00	\$150,000.00
SUBTOTAL					\$327,000.00
Engineering Design and Planning					\$25,000.00
Soils Investigation					\$15,000.00
Environmental Documents					\$15,000.00
Construction Management and Inspection					\$40,000.00
SUBTOTAL					\$95,000.00
TOTAL PROJECT					\$422,000.00

TABLE V
GLEN RESERVOIR IMPROVEMENTS COST ESTIMATE

Item	Quantity	Unit	Description	Unit Price	Total Price
1	1	L.S.	Mobilization/Demobilization	\$6,000.00	\$6,000.00
2	1	L.S.	Temporary Relocation of Long Tunnel Pipeline	\$2,000.00	\$2,000.00
3	1	L.S.	Salvage Pump, Electrical, and Chlorination Equipment	\$6,000.00	\$6,000.00
4	1	L.S.	Demolish A.C. Pavement	\$2,000.00	\$2,000.00
5	1	L.S.	Demolish and Remove Existing Reservoir Structure and Appurtenances	\$35,000.00	\$35,000.00
6	300	L.F.	Install Excavation Shoring	\$30.00	\$9,000.00
7	1,900	C.Y.	Excavate Reservoir Pad	\$35.00	\$66,500.00
8	1	L.S.	Install Sub drain System	\$8,000.00	\$8,000.00
9	1	L.S.	Install Reservoir Inlet/Outlet and Drain Piping	\$5,000.00	\$5,000.00
10	1	L.S.	Construct Reservoir	\$350,000.00	\$350,000.00
11	1	L.S.	Test, Disinfect, and Place Reservoir in Service	\$3,000.00	\$3,000.00
12	1	L.S.	Backfill and Grade Site	\$7,000.00	\$7,000.00
13	1	L.S.	Install Chlorination, Pump, and Electrical Equipment	\$15,000.00	\$15,000.00
14	1	L.S.	Construct Site Improvements, A.C. Pavement, Landscaping, and Irrigation	\$10,000.00	\$10,000.00
SUBTOTAL					\$524,500.00
Engineering Design and Planning					\$45,000.00
Soils Investigation					\$10,000.00
Environmental Documents					\$15,000.00
Construction Management and Inspection					\$30,000.00
SUBTOTAL					\$100,000.00
TOTAL PROJECT					\$624,500.00

EXHIBIT II
SCHEMATIC OF WATER SYSTEM

KINNELOA IRRIGATION DISTRICT HYDRAULIC SCHEMATIC



KINNELOA IRRIGATION DISTRICT HYDRAULIC SCHEMATIC

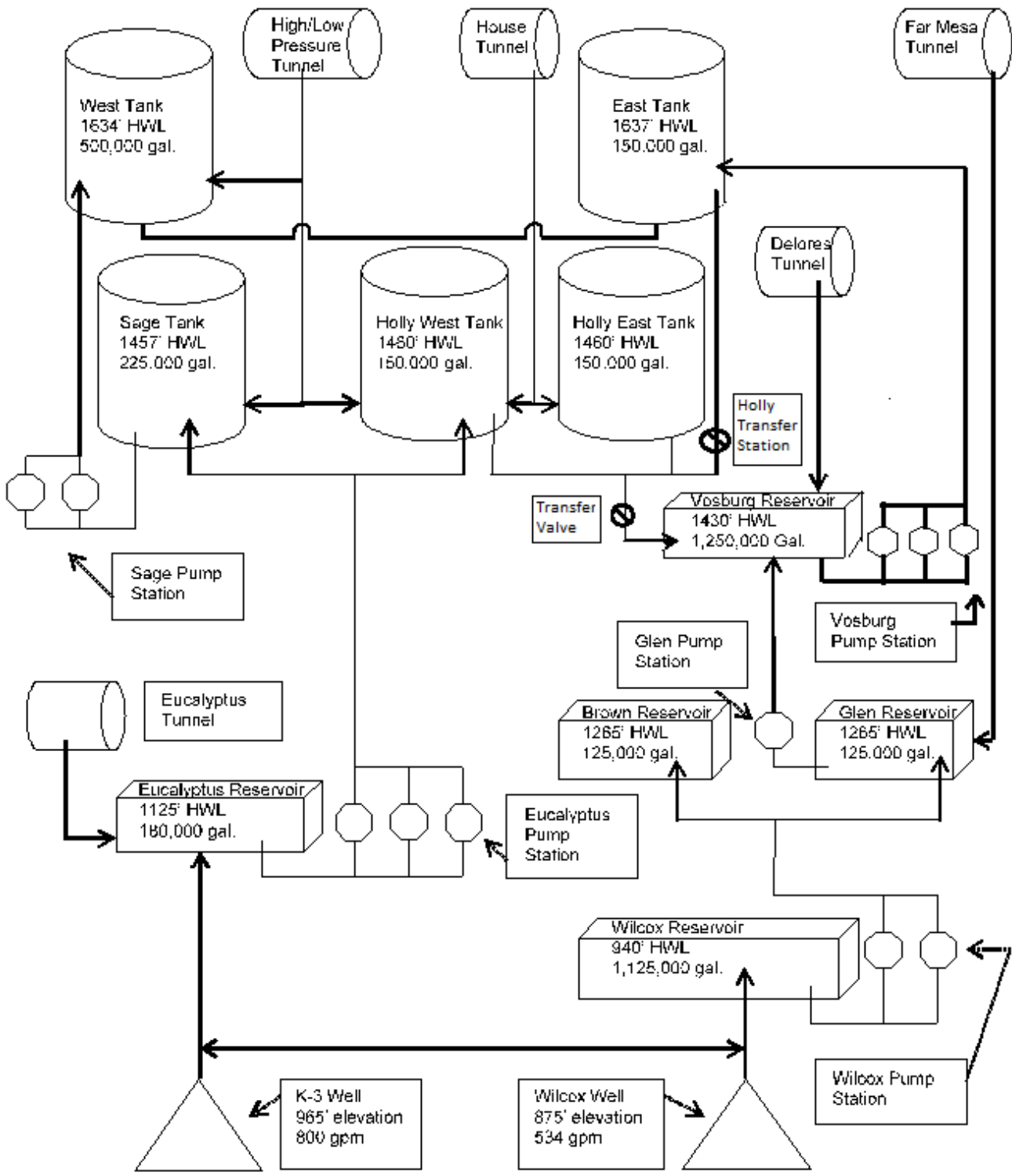


EXHIBIT III
FIRE PREPAREDNESS POLICY

FIRE PREPAREDNESS POLICY
FOR
THE KINNELOA IRRIGATION DISTRICT

Prepared for

The Kinneloa Irrigation District
1999 Kinclair Drive
Pasadena, CA 91107
(626) 797-6295

Prepared by:

ASL Consulting Engineers
3280 East Foothill Boulevard
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February 1997

Revised by:

Melvin L. Matthews
General Manager

~~April 2005~~

January 2018

KINNELOA IRRIGATION DISTRICT

FIRE PREPAREDNESS POLICY

INTRODUCTION

The Kinneloa Irrigation District (KID) provides water service to approximately 500 acres of hillside customers in northeast Pasadena. The Angeles National Forest borders the District on the north. Under certain weather conditions, wild fire danger is extremely high. Santa Ana winds have the capability to drive wild fires into the District with potential to cause major damage. The 1993 Altadena wild fire was the latest example of the potential fire danger. There are many factors that contributed to the Altadena wildfire damage. These factors are as follows:

- The availability of water for fire protection.
- Fuel source availability.
- Coordination of manpower.
- Equipment deployment.
- Limited ingress and egress.
- Fire preparedness.

Complete protection from major natural disasters such as wild fires is extremely difficult to provide. Preparation for all possible contingencies is impossible. The KID has determined that there are some water issues that exceed standard fire protection measures that may reduce wild fire damage to the community. These measures as applicable to the KID are identified in the KID Fire Preparedness Policy (FPP). The FPP issues identified are not necessarily immediately achievable. The FPP measures identified are a goal to be achieved to minimize future wild fire damage to the KID community.

The existing District facilities provide the level of structure fire protection originally intended. Recent wild fire events have identified several areas where water system performance above original design standards and in some cases additional capacities above current standards would be prudent. The FPP is an attempt to identify these areas and set goals to achieve reasonable standards.

The FPP identifies goals in four areas. These areas are as follows:

- Reservoir storage to maintain gravity supply to the distribution system for each pressure zone.
- Distribution piping to deliver the water supply to all areas of the District.
- Pumping capacity to supplement reservoir storage and transfer water to higher zones when necessary.
- Operational guidelines necessary to maximize system performance and minimize water loss during a wild fire event.

Following is a detailed discussion of each goal:

1. Reservoir Storage

The FPP reservoir storage goal is to provide storage in each zone to supply fire flow to multiple fire hydrants simultaneously in addition to customer demand. Fire flow storage goal is to provide 1,250 gpm at two locations for duration of two hours (300,000 gallons) plus 20 gpm for each customer for two hours (2,400 gallons per customer). The following table identifies the reservoir fire flow storage goals for each zone. Total services include planned developments.

Service Zone	Total Services	Customer Demand (gallons)	Fire Storage (gallons)	FPP Goal (gallons)	Existing Storage (gallons)
Eucalyptus Zone	62	148,800	300,000	448,800	180,000
Holly/Sage Zone	205	492,600	300,000	792,600	525,000
East/ West Tank Zone	6186	146206,800	300,000	446506,800	150650,000
West Tank Zone	25	60,000	300,000	360,000	-500,000
Brown/Glen Zone	77	184,800	300,000	484,800	250,000
Vosburg Zone	195	468,000	300,000	768,000	1,250,000

Note: FPP storage goal does not include reservoir operational storage. The FPP reservoir storage goal will be accomplished through new reservoir construction resulting from development and/or replacement or reconstruction of existing reservoir facilities.

2. Distribution Piping

The FPP distribution piping goal is to improve the distribution piping network to increase the delivery capability to all fire hydrants and customer services. The original system design required capability of delivering 750 gallons per minute of water to a single fire hydrant. The current distribution piping has the capability to meet this requirement. Flow requirements have been increased by revisions to the County Fire Department regulations. New construction within the District requires a minimum of 1,250 gpm flow for 2-hour duration.

The FPP goal is to improve the distribution system piping within each service zone to provide 1,250 gpm flows to two fire hydrants flowing simultaneously, plus a flow of 20 gpm for each customer service within the service zone. This goal is not immediately achievable. The goal will be accomplished by adequately sizing new water mains and replacing existing mains as required due to system modifications and pipe deterioration due to age. Additional fire hydrants will be added where required to meet the revised Los Angeles County requirement of 450 feet maximum vehicular distance to structures.

3. Pumping Capacity

The FPP pumping capacity goal is to improve the reliability, efficiency, and capacity of the District's pumping facilities. The existing pumping facilities have adequate capacity to provide maximum day domestic demands. Tunnel well water is required to meet maximum day domestic demand for some zones. Development of additional customer services will increase demand above

current pumping capacities. Additional pumping capacity is required to meet the additional demands.

The FPP pumping capacity goal is to improve pumping facilities to the following standards:

- A. Pumping capacity for each zone will be sufficient to pump maximum day demand during Edison Company off-peak demand 16-hour daily pumping period.
- B. Pumping capacity will be sufficient to replace fire flow storage within a minimum of one 24-hour period.
- C. Pump facilities for each zone will include a minimum of two pumps:
 - One (1) Duty
 - One (1) Standby

There will be an alternative for larger capacity facilities having three pumps:

- Two (2) Duty
- One (1) Standby

Pumps will be high efficiency vertical turbine pumps, with pump can manifold, aboveground discharge, and pump control valve check valves to minimize system pressure surges. Each facility will include provisions for emergency generator lug connections. Emergency generator shall provide power to a minimum of one Duty pump. Pump station piping shall include provisions for bypass valve and bypass connections for fire engine pumping equipment or portable emergency pumping equipment.

The FPP goal will be accomplished by applying the above standards to all new pumping facility designs and upgrading existing facilities to above standards when capacity modifications are required or when pumping equipment is replaced.

4. System Operational Guidelines

The FPP guidelines were developed from discussions with KID staff focusing on the 1993 wild fire incident. The goal of the operational guidelines is to make efficient use of the water supply to protect the KID customers and maximize fire department suppression capabilities. In the event of wild fire danger, the KID staff will attempt to implement the following guidelines:

- A. General Manager or Facilities Supervisor will coordinate water system operation with fire department deployment of manpower and equipment.
- B. Whenever possible, KID staff will attempt to minimize water waste by stopping visible leaks from damaged structures and/or irrigation systems. Water service to damaged structures and/or irrigation system may be turned off.

- C. Fire department pumping equipment may be deployed and connected to inter zone transfer facilities.
- D. Bypass valves or pumping facilities may be operated as required to make up reservoir storage losses. Transfers between zones will be made only when necessary and only when transfer will not deplete zone storage below levels required to provide adequate fire protection. Transfer of water between zones will be at the discretion of the General Manager or Facilities Supervisor.
- E. District emergency portable generator will be maintained and tested monthly and placed in service when required to provide emergency power for pumping when anticipated power failure is expected for a duration of more than 2 hours. Additional emergency generators will be provided at the discretion of the General Manager or Facilities Supervisor.
- ~~F. District's two portable pumps will be maintained and tested monthly and placed in service when prolonged power outages and/or failure of booster pumps require the use of the pumps to maintain adequate reservoir storage levels.~~



WATER MASTER PLAN

FOR

THE KINNELOA IRRIGATION DISTRICT

Adopted by the Board of Directors on June 20, 2000

Revision 1 dated June 20, 2005
Adopted September 20, 2005

Revision 2 dated October 21, 2007
Adopted January 15, 2008

Revision 3 dated January 2, 2014
Adopted May 20, 2014

Revision 4 dated January 10, 2018
Adopted

Melvin L. Matthews
General Manager

Kinneloa Irrigation District
1999 Kinclair Drive
Pasadena, CA 91107-1017
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WATER MASTER PLAN EXECUTIVE SUMMARY

The Water Master Plan for the Kinneloa Irrigation District (KID) provides a description of the KID's domestic water distribution system. It describes present, historical, and future water demands and potential future changes in the source of water supply. The Master Plan identifies and prioritizes necessary improvements and sets out cost estimates for implementing the improvements.

Since its formation in 1953, the KID made minor renovations or upgrades to its system, based on a policy only to repair or replace facilities and pipelines as needed. However, by the mid-1990s many factors convinced the Board and many residents that significant upgrades to the system were needed.

Originally in 1953, the KID's minimum fire flow standard was 750 gallons per minute (gpm) for 2 hours. This means that a fire truck could pump 750 gpm for up to 2 hours for a fire and all other homes in the same pressure zone would have enough residual pressure for basic domestic needs. Then in 1973 the Improvement District No. 1 (formerly Mira Loma Mutual Water Company) was designed for an average fire flow of 1,000 gpm with 20 pounds per square inch (psi) residual. However, average means not every fire hydrant would meet this current standard. Currently, the County of Los Angeles Fire Department has a minimum standard of 1,250 gpm to be pumped for 2 hours. Today, in 2018, approximately 20% of the current system does not meet the new standard for fire flow and fire hydrant location. The firestorm of October 1993 exposed weaknesses in the KID's pipeline delivery capacities. The Fire Preparedness Policy (FPP) was developed in February 1997 and revised in April 2005 and January 2018. The intent of the FPP was to set goals to be achieved to prepare for future multiple structure fires within the KID community. As a result, the KID Fire Preparedness Policy now requires that all new facilities, including pipe, be sized to support a fire flow of 1,250 gpm with 20 psi minimum residual for 4 hours. The FPP is included as Exhibit III in the Appendix.

The information and data used in the Water Master Plan were developed from many sources:

- Discussions with the KID staff.
- A review of KID files dating back to 1953 was used for a baseline to build the initial data.
- Hydraulic studies completed for the Kinneloa Ridge Development and the Doyne Road Development contributed important information to the plan.
- The average day and maximum day demands were developed during the 1990-1991 droughts.

In April of 1996, ASL Consulting Engineers conducted a study of the KID to identify water main and reservoir improvements required to increase water system capabilities to deliver domestic demands plus 1,250 gpm fire flows. As a part of this plan ASL Consulting Engineers prepared cost estimates in April 1996, with updates in February of 2000. Staff reviewed these estimates and adjusted for inflation and other factors to update the plan for 2005, 2007, 2014 and again for this update in 2018.

After significant discussions and review of the original plan the Board determined that modification of the existing KID reservoirs was too expensive and would involve costly environmental studies. The Board determined that pump station improvements would better serve the District by concentrating on providing booster station flow capacities to achieve the desired fire flows of 1250 gpm. Cost estimates for KID

funded improvements to reservoirs are in Exhibit I of the Appendix, but are not implemented in the Water Master Plan. However, should outside sources of funding become available consideration of these projects will be re-evaluated since increased reservoir storage capability is still an important objective of the District to prepare for all types of emergencies and to provide operational flexibility.

In addition to implementing pump station improvements the preparation of the Water Master Plan includes the following goals:

- All pipes that develop chronic leaks should be replaced to achieve overall lower operational cost and minimize emergency shut-downs.
- Pipelines, which have become inaccessible due to development or are crossing private property should be relocated.
- Pipelines should be upsized where required to meet the Fire Preparedness Policy goals.
- Preferred installation for booster pumps should be high efficiency vertical turbine units.
- Water tunnels and transmission lines should be maintained as a supplemental source of water with gravity flow to reservoirs.
- The KID should continue to fund planned maintenance on all facilities.

The total estimated costs of all necessary improvements as identified in the Water Master Plan adopted in 2000 were:

1. Pipeline Improvements	\$1,192,600
2. Pump Station Improvements	\$ 108,200
3. Tunnels	\$ 421,900
4. Other Improvements	<u>\$ 395,500</u>
Total	\$2,118,200

The total estimated costs as revised and updated in 2005 were:

1. Pipeline Improvements	\$1,899,600
2. Pump Station Improvements	\$ 3,600
3. Tunnels	\$ 321,000
4. Other Improvements	\$ 271,000
5. Planned Maintenance	<u>\$ 687,400</u>
Total	\$3,182,600

The difference between the 2000 costs and 2005 costs was an increase of \$1,064,400. The net increase was attributed to the following factors:

- Inclusion of planned maintenance items in the amount of \$687,400 that are expected over the next ten years.
- The estimated cost of remaining projects after removing completed projects and adding new projects identified since the master plan was adopted.
- Adjustment of previous costs to reflect inflationary and other factors in current project costs.
- Exclusion of projects paid by developers.

The following projects were completed between the 2005 and 2007 revisions:

- East Tank was refurbished.
- K-3 Well pump and motor were rebuilt.
- One of the Holly booster pumps was rebuilt.

- Safety upgrades were completed at Holly Tanks.
- Maintenance agreement with tank maintenance company was established for all five steel tanks.
- Earthquake-sensing valves were installed as part of our emergency preparedness program at all tank and reservoir facilities except for the Brown Reservoir.
- Continuous chlorine analyzers were installed at all production sources.
- Major upgrades to our SCADA system were completed to allow continuous monitoring and alarms on additional components of our production and distribution system.
- Permanent repairs and pipeline replacement were completed on the House Tunnel and the High/Low Pressure Tunnel production sources.
- The Vosburg booster pump was replaced with a new 25 HP submersible unit.

The total estimated costs for remaining projects as revised and updated in the 2007 Revision using our engineers' estimates and our internal estimates were:

1. Pipeline Improvements	\$3,128,000
2. Pump Station Improvements	\$ 190,000
3. Tunnels	\$ 321,000
4. Other Improvements	\$ 189,000
5. Planned Maintenance	<u>\$ 542,000</u>
Total	\$4,370,000

The difference between the 2005 costs and 2007 costs is an increase of \$1,187,400. The net increase was attributed to the following factors:

- Adjustment of previous costs to reflect inflationary and other factors in current project costs.
- A significant increase in pipeline construction costs based on bids for current projects.
- The estimated cost of remaining projects after removing completed projects and adding new projects identified since the master plan was adopted.

The following projects have been completed since the 2007 revision:

- All five steel tanks have been refurbished as necessary to maintain "as-new" condition.
- K-3 Well pump inspected and lowered 20 feet.
- New main installed connecting K-3 Well with the Wilcox Reservoir.
- Installed replacement mains in Kinneloa Mesa area.
- Replaced chlorine generators at two sites with Chlortec[®] units.
- Installed earthquake-sensing valve at the Brown Reservoir as part of our emergency preparedness program.
- Replaced pipeline in a portion of Villa Knolls Drive.
- Continuing upgrades to our SCADA system were completed to allow continuous monitoring and alarms on additional components of our production and distribution system.
- Solar power and SCADA installed at Brown Reservoir.
- Completed joint emergency interconnect project with Pasadena at two locations.
- Purchased additional emergency generators for three facilities.
- Installed utility electrical service at the East Tank to supplement existing solar power supply.
- Rebuilt Wilcox Reservoir 75 HP booster pump and motor.
- Rebuilt Pasadena Glen booster pump and motor.
- Installed replacement mains in Windover Road and portions of Sierra Madre Villa Avenue.

- Installed replacement connection and valves at the Vosburg Reservoir.
- Installed Variable Frequency Motor Control on K-3 Well pump.
- Replaced and added valves on main line on Villa Heights Road in East Tank pressure zone.
- Upgraded Chlorine analyzer at K-3 Well to include pH measurement.
- Replaced water depth measuring tube at Wilcox Well.
- Converted PCIC Interconnection facility to radio-based telemetry system.
- Rebuilt two of the Eucalyptus booster pumps.
- Installed transponders for radio reading of customer water meters.

The total estimated costs for remaining projects as revised and updated in the 2014 Revision using our engineers' estimates and our internal estimates were:

1. Pipeline Improvements	\$2,564,000
2. Pump Station Improvements	\$ 520,000
3. Tunnels	\$ 361,000
4. Other Improvements	\$ 105,000
5. Planned Maintenance	<u>\$ 397,000</u>
Total	<u>\$3,947,000</u>

The difference between the 2007 costs and 2014 costs is a decrease of \$423,000. The net decrease is primarily attributed to the completion of many master plan projects during the past seven years offset by the higher costs of some of the remaining projects. The overall cost of completing the master plan as compared to the original 2000 master plan is subject to the following factors:

- Adjustment of the previous costs of uncompleted projects to reflect inflationary and other factors.
- Adjustment of the previous costs based on the bidding results of similar projects.
- The estimated cost of remaining projects after removing completed projects and adding new projects identified since the master plan was adopted.

The following major projects have been completed since the 2014 revision:

- Delores Tunnel pipeline repairs
- Far Mesa Tunnel pipeline repairs
- Sierra Madre Villa water main replacement between Vosburg and Barhite Streets
- Barhite Street water main replacement east of Sierra Madre Villa
- Pasadena Glen access road water main replacement
- SCADA HMI/ touch panels
- SCADA maintenance and upgrades
- East Tank-West Tank connector pipeline
- Standby generator for Vosburg pump station
- Standby generator for Sage Tank
- Testing and maintenance of all system and fire hydrant valves and replacement of defective valves
- Vosburg Reservoir pump station replacement

The total estimated costs for remaining projects as revised and updated in this 2018 Revision using our engineers' estimates and our internal estimates are:

1. Pipeline Improvements	\$ 2,955,000
2. Pump Station Improvements	\$ 90,000
3. Tunnels	\$ 361,000
4. Other Improvements	\$ 140,000
5. Planned Maintenance	\$ 397,000
Total	\$ 3,943,000

The difference between the 2014 costs and 2018 costs is a decrease of \$574,000. The net decrease is primarily attributed to the completion of many master plan projects during the past four years offset by the higher costs of some of the remaining projects. The overall cost of completing the master plan as compared to the original 2000 master plan is subject to the following factors:

- Adjustment of the previous costs of uncompleted projects to reflect inflationary and other factors.
- Adjustment of the previous costs based on the bidding results of similar projects.
- The estimated cost of remaining projects after removing completed projects and adding new projects identified since the master plan was adopted.

In conclusion, many of the distribution and transmission facilities predate 1953, and are nearing the end of their useful service life. Originally, water facilities in the KID provided domestic supply, plus a fire flow of 750 gpm. As the population of the KID has grown over the years, the demand placed upon the entire system, including distribution and transmission mains, water sources, reservoirs, and pump stations have encroached upon the ability of the system to meet the required demands. The need for increased fire flow to meet the minimum Fire Department requirements for every fire hydrant will require the KID to continue to construct improvements to the water system in the years ahead. Although many projects identified in the Water Master Plan adopted in 2000 and subsequent revisions have been completed, failure to continue to undertake the expenditures for the remaining projects leaves the KID vulnerable to serious and sustained service failure in the event of natural disaster or unanticipated breakage. Moreover, the cost to replace facilities and pipelines under non-optimal emergency conditions is likely to be much higher than if done under a planned program.

As a footnote to this 2018 Revision, it should be noted once again that this Water Master Plan was primarily developed to address fire flow issues and general emergency preparedness issues that were raised after the 1993 firestorm. Although many operational improvements are gained through completion of recommended projects, this Master Plan does not address many worthwhile projects that would improve the operational efficiency and reliability of the production and distribution system. For example, the Wilcox Well is no longer a major production facility due to declining pumping levels in the Raymond Basin and production level from the tunnels has also been declining due to lower average rainfall. That has made the KID increasingly dependent on a single production source – the K-3 Well. If the current conditions continue or worsen in the years ahead, the K-3 Well may not be able to meet our production demands for normal or emergency conditions. Therefore, the KID staff will continue to examine possible new production sources such as drilling a new well and/or constructing a connection with Foothill Municipal Water District to receive imported water from the Metropolitan Water District. However, the cost of developing new production sources is not currently reflected in this Master Plan. Therefore, unless additional funding sources are identified, voluntary or mandatory conservation programs may continue to be necessary in the future to avoid major additional capital expenditures not included in this revision of the Master Plan.

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FOR
THE KINNELOA IRRIGATION DISTRICT
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KINNELOA IRRIGATION DISTRICT
WATER MASTER PLAN

1.0 INTRODUCTION, PURPOSE, AND HISTORY

1.1 *Introduction*

The Kinneloa Irrigation District (KID) is a State irrigation district which owns and operates a water system in the north-central part of the Los Angeles County with the city limits of Pasadena on the west, south, and east sides and the Angeles National Forest to the north. The service area of the District covers an area of approximately 500 acres. The District additionally encompasses a watershed area north of the District. The KID serves a population of approximately 1,900 and there are 587 active metered services in the District's service area as of this revision. Additionally, it is the KID's responsibility to provide fire protection water to its customers. The District maintains 115 fire hydrants.

Revenue for the KID is derived almost exclusively from the sale of water.

1.2 *Purpose*

The purpose of this Master Plan is to describe the existing water system facilities within the KID, identify weaknesses within the system, recommend improvements, prioritize the necessary improvements, and determine cost estimates for implementing the improvements. This plan will also identify undeveloped land within the KID and assess potential for future development of that land.

1.3 *History*

The Kinneloa Irrigation District, originally formed in 1953, is a state irrigation district established pursuant to Division 11 of the California Water Code. A five member publicly elected Board of Directors governs it. The District water system presently serves about 584 households as well as a school, nursery, church, and fire station. In 1974, the KID had 190 services.

In 1974 an improvement district was formed with the addition of the Mira Loma, Canyon Mutual, and Osborn Water Companies to the Kinneloa Irrigation District. The facilities in this area were replaced or upgraded to the current standards using funds from a bond issue. This added additional 225 services to the KID.

In 1978, the Wilcox Well was upgraded to provide additional production capacity for homes on the east side of the district.

In 1979, 24 homes were added on Villa Highlands Drive and Villa Knolls Drive by Falzone Development.

In 1983, Nordberg and Neimeyer developed the area known as Hastings Heights and provided lots for 27 homes.

In 1990, town homes were built by Dove Creek Development at a site near New York Drive and Altadena Drive which added 50 services.

In 2003, 21 building sites were completed in the Kinneloa Canyon area known as Kinneloa Ridge by Diamond-Segundo Development and 23 services are now active including two for watering common areas. Additional pumping and storage facilities were added to accommodate this development and to provide a benefit for the District.

Additionally, several individual lots have been developed to account for the 584 present metered services. Approximately 25 lots remained undeveloped including homes that were not rebuilt after the 1993 fire.

KINNELOA IRRIGATION DISTRICT

WATER MASTER PLAN

2.0 SYSTEM DESCRIPTION

2.1 *General*

The Kinneloa Irrigation District was historically divided into two distinct geographic areas. They are the east service area and the west service area, which are generally, divided by the Wilcox Canyon watercourse. However, the east and west service areas are now connected by pipelines between the following facilities: Holly Booster Pump Station, the East Tank, and the Vosburg Booster Station; K-3 Well pump on the west side with the Wilcox Reservoir on the east side; and the West Tank with the East Tank. These pipeline improvements have integrated the east and west service areas into a single system.

Almost all the services in the KID are residential services for single family homes. The need for irrigating hillsides on relatively large lots creates much of the demand. Services and meters range from 3/4" to 2" in size.

Within each service area are several pressure zones which are serviced by a piping network, reservoirs, booster pump stations, wells, and horizontal water tunnels. See Exhibit II for a schematic drawing of the existing KID system.

2.2 *Water Sources*

2.2.1 Water Wells

The KID owns five water wells. Two of these wells are operational and are the primary source of water for the District. Those wells are the Wilcox Well which supplies the Wilcox Reservoir and the K-3 Well which supplies the Eucalyptus and Wilcox Reservoirs. Both wells pump from the Raymond Basin. The District's adjudicated pumping allowance is 516 acre-feet per year plus an allowance for spreading. The current pumping allowance has been reduced by 30% to 361 acre-feet by informal agreement among water agencies to help maintain basin water levels. Both wells are equipped with deep-well, oil-lubricated, vertical turbine pumps and on-site generated sodium hypochlorite (0.8%) chlorinators with metering pumps for disinfection. Well status signals are received via radio telemetry and start-stop commands are based on reservoir levels and time-of-use schedules to take advantage of off-peak electricity rates. See Table 2.2A for a summary of well data.

**TABLE 2.2A
WELL DATA**

Well Name	Year Drilled & Depth	Casing Size (inches)	Motor Horsepower	2016-2017 Production
Wilcox Well	1924 500'	14"	100	5 acre-feet
K-3 Well	1965 700'	14" I.D.	125	557 acre-feet*

* Includes production of wholesale water sold to the City of Pasadena.

2.2.2 Tunnels

The KID owns and operates 15 water supply tunnels. The tunnels were originally constructed by hand in the 1800's and, in recent times, have supplied groundwater to the KID system and for spreading. Tunnel flow rate varies continuously according to the time of year. Tunnel water is delivered via gravity. Table 2.2B summarizes the tunnels, their status, and production.

**TABLE 2.2B
TUNNEL SUPPLIES**

Tunnel Name	Status	2016-2017 Production
High & Low-Pressure Tunnels (4)	Currently in Service – feeds the Holly Tanks	41 acre-feet
House Tunnel	In service – feeds the Holly Tanks	0 acre-feet (No flow during this period)
Eucalyptus Tunnel	In service – feeds the Eucalyptus Reservoir	39 acre-feet
Long Tunnel	In service for spreading	34 acre-feet
Delores Tunnel	In service – feeds the Vosburg Reservoir or used for spreading	12 acre-feet
Far Mesa Tunnels (2)	In service – feed the Glen Reservoir	29 acre-feet
Tent Tunnel	In service for spreading	2 acre-feet
Falls Tunnel	In service for spreading	Measured for spreading credit only
Diversion Tunnel	In service for spreading	Measured for spreading credit only
Winifred Tunnels (2)	Not in service	Not measured

Depending on the season of the year, the tunnels are each capable of supplying anywhere from a few gallons per minute up to a hundred gallons per minute or more.

The tunnels have traditionally been a low-cost source of water for the KID. However, the firestorm of October 1993 damaged the High and Low-Pressure Tunnel delivery pipelines. The rainstorms of the winter of 1993-94 further damaged the High and Low-Pressure Tunnel pipelines. The High and Low-Pressure Tunnel pipelines were further damaged in the winter storms of 1994-95. Because of the natural disasters, temporary repairs were made to return these sources to service and permanent repairs were made in 2006. Old age, rockslide damage, and rain storm runoff washed out the Delores Tunnel delivery pipeline. This pipeline was replaced in 2001 after being out of service since 1979.

Because of the age of the tunnels and their vulnerability to damage from natural causes, the tunnel supply is not considered as a reliable source of supply for calculating available water source supply. In this respect, the tunnel supply should be thought of as a reserve or "back-up" supply.

2.2.3 Spreading Credit and Leased Water Rights

The KID receives spreading credit for surface water diversion to the Sierra Madre Villa and the Kinneloa Canyon Debris Basins. Total credit from these sources for 2016-2017 was 130 acre-feet. Leased Water Rights are available in some years from other water agencies to supplement our adjudicated pumping rights. Water from these sources is produced by the K-3 and Wilcox Well pumps and is included in the totals for those production sources.

2.2.4 Imported Water

The Kinneloa Irrigation District is a member of the Foothill Municipal Water District (FMWD) which supplies imported water from the Metropolitan Water District of Southern California (MWD) to eight agencies in the area. Although there is no physical pipeline connection from FMWD to the KID, arrangements could be made to deliver the water through the distribution systems of an adjacent water agency if supplemental water is ever needed.

2.2.5 Interconnections with the City of Pasadena

The KID has six interconnections with the City of Pasadena to deliver excess KID water and/or to receive water in the event of an emergency. These interconnections are shown in Table 2.2C. The capacity of interconnections 3 and 5 was increased in 2008 as a joint project with the City of Pasadena.

TABLE 2.2C
INTERCONNECTIONS WITH CITY OF PASADENA

ID	Location	Description	Size	Capacity	Purpose
1	1776 Kinneloa Canyon Road	KID-Eucalyptus (1125 HWL) to Pasadena-Sheldon (1050 HWL)	4"	800 gpm	Deliver excess KID water to City of Pasadena
2	1727 Kinneloa Canyon Road	Pasadena-Calaveras (1209 HWL) to KID-Eucalyptus (1125 HWL)	4"	650 gpm	Emergency interconnection to KID-Eucalyptus (K-3 Well System)
3	3560 Ranch Top Road	Pasadena-Don Benito (1432 HWL) to KID-Vosburg (1430 HWL)	8"	800 gpm	Emergency interconnection to KID-Vosburg & Brown/Glen System and to deliver excess KID water to Pasadena
4	2999 New York Drive	Pasadena-Sheldon (1050 HWL) to KID-Wilcox Reservoir (944 HWL)	6"	1200 gpm	Emergency interconnection to KID-Wilcox Well/Wilcox Reservoir
5	3410 Fairpoint Street	KID-Vosburg (1430 HWL) to Pasadena-Murray System (1176 HWL)	8"	400 gpm	Emergency interconnection to Pasadena-Murray/Calaveras System and to deliver excess KID water to Pasadena
6	2650 New York Drive	Pasadena-Calaveras (1209 HWL) to KID-Eucalyptus (1125 HWL)	8"	1500 gpm	Emergency interconnection to KID to provide additional fire protection for Dove Creek Town Homes

2.2.6 Portable Generators

The KID currently has six (6) diesel-powered trailer mounted portable generators to supply emergency power to any of the KID facilities. Although the generators can be moved, each generator is dedicated to a facility that is critical in the event of a power failure due to any cause.

2.3 Reservoirs

The KID operates and maintains ten (10) water storage tanks and reservoirs. Overflow elevations range from 940 feet to 1,637 feet. Reservoir data is shown in Table 2.3A.

**TABLE 2.3A
STORAGE RESERVOIR DATA**

Reservoir Name	Number & Capacity	Zone Served	High Water Line	Construction
Eucalyptus	1 - 0.180 MG	Eucalyptus	1,125'	Partially Buried Reinforced Concrete
Wilcox	1 - 1.125 MG	N/A	940'	Partially Buried Concrete
Holly Tanks	2 - 0.150 MG	Holly/Sage	1,460'	Circular, Welded Steel Aboveground
Vosburg	1 - 1.250 MG	Vosburg	1,430'	Partially Buried Reinforced Concrete
Glen	1 - 0.125 MG	Glen/Brown	1,265'	Buried Reinforced Concrete
Brown	1 - 0.125 MG	Glen/Brown	1265'	Buried Reinforced Concrete
East Tank	1 - 0.150 MG	East/West	1,637'	Circular Welded Steel, Aboveground
Sage Tank	1 - 0.225 MG	Holly/Sage	1,457'	Circular Welded Steel, Aboveground
West Tank	1 - 0.500 MG	East/West	1,634'	Circular Welded Steel, Aboveground
Total Storage	3.980 MG			

MG = Million Gallons

Existing storage capacity by zone is shown in Table 2.3B.

**TABLE 2.3B
STORAGE CAPACITY BY SERVICE ZONE**

Zone	Storage Capacity
Eucalyptus	0.180 MG
Holly/Sage	0.525 MG
Glen/Brown	0.250 MG
East/West Tanks	0.650 MG
Vosburg	1.250 MG

2.4 *Booster Pumping Facilities*

The KID operates and maintains five (5) separate booster-pumping facilities. All booster pumps are operated via telemetry and based upon reservoir levels. Booster pump facility data is shown in Table 2.4.

**TABLE 2.4
BOOSTER PUMPING FACILITIES**

Facility Name	No. of Pumps	Horsepower	Head (feet)	Approx. Capacity (gpm)	Service
Eucalyptus	3	50 HP each	346'	400 each	Eucalyptus Reservoir to the Holly/Sage Tanks
Holly	2	20 HP each	205'	200 each	Holly Tanks to East Tank
Vosburg	3	25 HP	195'	300	Vosburg Reservoir to East/West Tanks
Glen	1	25 HP	165'	345	Glen Reservoir to Vosburg Reservoir
Sage	2	25 HP each	205'	400 each	Sage Tank to East/West Tanks
Wilcox Reservoir	1*	75 HP	325'	515	Wilcox Reservoir to Brown/Glen Reservoirs
		75 HP	490'	360	Wilcox Reservoir to Vosburg Reservoir
	2**	50 HP & 75 HP	325'	650	Wilcox Reservoir to Brown/Glen Reservoirs
		50 HP & 75 HP	490'	433	Wilcox Reservoir to Vosburg Reservoir

* Condition when pumping to either Brown/Glen Reservoirs or Vosburg Reservoir with just the 75 HP pump.

** Condition when pumping to either Brown/Glen Reservoirs or Vosburg Reservoir with both pumps.

2.5 *Piping*

2.5.1 Existing Piping

There are approximately 70,000 Linear Feet of transmission and distribution mains in the KID service area. The pipes range in size from 1" to 16-inches in diameter. Piping materials include galvanized steel, CML and CMC steel, asbestos cement (AC), ductile iron (DI) and AWWA C-900 PVC. There are approximately 115 fire hydrants in the system ranging in size from 2 ½" to 6" x 4" x 2 ½". All the galvanized steel piping is old and obsolete. Some of the existing pipe is old and inadequate to provide current revised requirements for fire service.

2.5.2 Future Piping

Traditionally, piping in the KID was sized to provide for fire flows of 750 gpm. The firestorm of October 1993 exposed this pipeline delivery capacity weakness. As a result, the KID Fire Preparedness Policy now requires that all new facilities, including pipe, be sized to support a fire flow of 1,250 gpm with a 20-psi minimum residual. This represents a 500 gpm increase to the original system design capacity of 750 gpm fire flow at 20 psi minimum residual pressure. Some areas of the

existing system meet the new requirements; however, portions of the distribution system will provide only the minimum original system design fire flows. Additionally, the County of Los Angeles has required 2000 gpm or more fire flow for some of the new larger homes currently being built where fire sprinklers are required. Future pipeline projects may need to be sized to support this flow.

KINNELOA IRRIGATION DISTRICT
WATER MASTER PLAN

3.0 EXISTING SERVICE DEMANDS

The KID services approximately 587 customers with a population of approximately 1,900. Service sizes range from 3/4" to 2". All services within the District are residential with the following exceptions:

- High Point Academy
- Magic Growers
- Los Angeles County Fire Station No. 66
- Pasadena Church of Christ
- Equestrian Center

The KID produces water from two wells and several tunnels. The 2016-2017 production from those sources is shown in Table 3.0.

TABLE 3.0
TUNNEL AND WELL PRODUCTION
DELIVERED TO DISTRIBUTION SYSTEM 2016-2017

Source	2016-2017 Production
K-3 Well	556.9 acre-feet*
Wilcox Well	5.1 acre-feet
High and Low-Pressure Tunnels	40.9 acre-feet
Far Mesa Tunnel	28.5 acre-feet
House Tunnel	0 acre-feet (No flow during this period)
Eucalyptus Tunnel	39.0 acre-feet
Delores Tunnel	11.7 acre-feet
TOTAL	682.0 acre-feet

* Includes production of wholesale water sold to the City of Pasadena.

Additional production from tunnels is delivered for spreading in the Raymond Basin. Water delivered for spreading can be recovered by the District by increased pumping allotments or can be sold to other water purveyors. In 2016-2017, water delivered for spreading by the KID amounted to 130 acre-feet. The sources of this water in a year can include the High and Low-Pressure Tunnels, the Long Tunnel, Delores Tunnel, Diversion Tunnel, Falls Tunnel, Winifred Tunnels, Tent Tunnel, and surface runoff from watershed owned by the District into the Glen Wash, Kinneloa Canyon and the Sierra Madre Villa Debris Basins.

KINNELOA IRRIGATION DISTRICT
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4.0 FUTURE DEVELOPMENT

4.1 *General*

A report dated July 2, 1990, prepared for the KID by ASL Consulting Engineers identified a potential for 95 new dwelling units within the KID boundaries. The report identified 57 potential units which would be built by developers and another 38 units which would most probably be constructed as single units and not part of a development project. Since that time all major development work has been completed except for a potential development in the Doyne Road area as described below and the building or re-building of approximately 25 homes on individual vacant lots.

4.2 *Doyne Road Development*

Hydraulic studies were completed for a potential development (Tract no. 44323) that was planned to be constructed in the south-central area of the KID. The new tract was to be served from the existing Holly/Sage Zone. The development required the grading of 8 undeveloped lots ranging in size from 0.60 acres to 3.0 acres. Total area was approximately 13 acres in the final development plan. Water system improvements for this tract were to include new distribution and transmission mains and a new booster pump station at the Wilcox Reservoir. However, after grading was completed for 8 lots, the property was purchased from the developer by an individual who subsequently abandoned plans for the tract and combined the lots into two separate parcels. As of January 2018, the status for building homes on these parcels is not known. There is also an adjacent two-acre parcel under separate ownership on which the home was not rebuilt after it was destroyed in the 1993 Kinneloa-Altadena firestorm.

4.3 *Potential Future Well Sites*

The KID has a few potential well sites within the District boundaries. The Equestrian Center north of New York Drive was acquired by Los Angeles County and incorporated into the Eaton Canyon Natural Area. The park status will allow for a well site for the District. The area of Wilcox Canyon, north or south of the Wilcox Reservoir also offers potential for a future well site. Finally, a site on Outpost Lane owned by the City of Pasadena is a possible location for a joint well project.

KINNELOA IRRIGATION DISTRICT
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5.0 CAPACITY CHARGE IMPROVEMENT FEE

Improvements were made to the KID water system during the Dove Creek Development in 1987-1990. These improvements included improvements to the K-3 Well, Eucalyptus Reservoir, and piping in New York Drive. At the time of these improvements, the KID decided to build in reserve system capacity and redundancy beyond that required by the Dove Creek Development. Because the cost of the improvements was beyond what was required by the Dove Creek Development, the KID funded the marginal increase of the cost of the improvements beyond the Dove Creek Development requirements.

To recover the cost of the reserve capacity, the Board of Directors of the KID in 1990 instituted a Capacity Charge Improvement Fee on all future development in the District. The fee is \$3,000.00 per lot and is only charged for existing or newly created lots that do not have an existing water service. This fee is in addition to reimbursement for the cost of installing the new water service and required system improvements.

KINNELOA IRRIGATION DISTRICT
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6.0 SERVICE DEMANDS

6.1 *Existing Service Demands*

Average day and maximum day service demands are based on water delivery records for the drought year (September 1990 – September 1991). Average day demand is the total annual water delivered as recorded by the individual customer water meters averaged over 365 days per year. Maximum day demand is the maximum day total water delivered, averaged over 24 hours. Maximum day delivery data is not available for individual customer water meters. Customer water meter demand is only recorded monthly. Individual pumping facility production and reservoir levels are recorded daily at roughly the same time each day. Individual facility records are used to determine maximum day total water delivery. To establish a comparison between average day and maximum day demands it is necessary to compare average day and maximum day demands of the same representative service area. Average day and maximum day data is available for the total Holly and East Tank service area.

The record data for this service area indicates the following:

- 237 services
- 189 total acres
- Annual delivery of 134,990 billing units (B.U.)
- Maximum day delivery (7/29/1990) of 1,029 billing units

Average Day Demand

$$\frac{134,990 \text{ B.U.}}{189 \text{ Acre/Year}} \times \frac{748 \text{ Gal.}}{\text{B.U.}} \times \frac{1 \text{ Year}}{365 \text{ Days}} \times \frac{1 \text{ Day}}{1,440 \text{ Min.}} = \frac{1.02 \text{ Gal/Min}}{\text{Acre}}$$

OR:

$$\frac{134,990 \text{ B.U.}}{237 \text{ Services}} \times \frac{748 \text{ Gal.}}{\text{B.U.}} \times \frac{1 \text{ Year}}{365 \text{ Days}} \times \frac{1 \text{ Day}}{1,440 \text{ Min.}} = \frac{0.81 \text{ Gal/Min}}{\text{Service}}$$

Maximum Day Demand

$$\frac{1,029 \text{ B.U.}}{189 \text{ Acre/Day}} \times \frac{748 \text{ Gal.}}{\text{B.U.}} \times \frac{1 \text{ Day}}{1,440 \text{ Min.}} = \frac{2.83 \text{ Gal/Min}}{\text{Acre}}$$

OR:

$$\frac{1,029 \text{ B.U.}}{237 \text{ Services}} \times \frac{748 \text{ Gal.}}{\text{B.U.}} \times \frac{1 \text{ Day}}{1,440 \text{ Min.}} = \frac{2.26 \text{ Gal/Min}}{\text{Service}}$$

The ratio of the maximum day demand over the average day demand is the maximum day factor. For the existing Holly and East Tank Zone, the maximum day factor is as follows:

$$\frac{2.83}{1.02} = 2.77$$

Existing service demands for the number of services in 2007 for each zone were based on the calculated average day and maximum day demand factors for the Holly and East Tank Zone and are shown in Table 6.1.

TABLE 6.1
SERVICE DEMANDS BY ZONE IN THE
KINNELOA IRRIGATION DISTRICT

Service Zone	No. of Services	Average Day Demand 0.81 gpm/service (gpm)	Maximum Day Demand 2.26 gpm/service (gpm)
Eucalyptus	62	51	141
Holly/Sage	190	154	430
East/West*	86	97	257
Brown/Glen	70	57	159
Vosburg	192	156	434

* West Tank service demand based on 1.85 gpm/acre average day and 5.12 gpm/acre maximum day demands and a 23.3-acre service area.

6.2 *Future Service Demands*

Future service demands for various zones in the KID system were calculated based on the number of existing services, the planned additional services and the estimated future customer service demands. Planned additional services in the KID service area have a higher potential for water use than the existing customer services. Planned additional services are estimated to be comparable to the Shaw Ranch Estate type properties. Shaw Ranch record data indicates the September 1990 – September 1991 annual demand for 24 active services, serving 16.94 acres was a total of 21,984 billing units. Average day demand for planned future services is calculated as follows:

$$\frac{21,984 \text{ B.U.}}{16.94 \text{ Acre/Yr}} \times \frac{748 \text{ Gal.}}{\text{B.U.}} \times \frac{1 \text{ Year}}{365 \text{ Days}} \times \frac{1 \text{ Day}}{1,440 \text{ Min.}} = \frac{1.85 \text{ gpm}}{\text{Acre}}$$

OR:

$$\frac{21,984 \text{ B.U.}}{24 \text{ Services}} \times \frac{748 \text{ Gal.}}{\text{B.U.}} \times \frac{1 \text{ Year}}{365 \text{ Days}} \times \frac{1 \text{ Day}}{1,440 \text{ Min.}} = \frac{1.30 \text{ gpm}}{\text{Service}}$$

Maximum day demand for planned future services is the average day demand multiplied by the developed maximum day factor as follows:

$$1.85 \text{ gpm/acre} \times 2.77 = 5.12 \text{ gpm/acre}$$

OR:

$$1.30 \text{ gpm/service} \times 2.77 = 3.60 \text{ gpm/service}$$

For master planning and calculation of future system demands, 5.12 gpm/acre or 3.60 gpm/service will be used to calculate future service demands per zone. Table 6.2A shows the future service demand of the potential new services by zone.

TABLE 6.2A
FUTURE SERVICE DEMANDS BY ZONE IN THE
KINNELOA IRRIGATION DISTRICT

Service Zone	No. of Future Services	Average Day Demand 1.3 gpm/service (gpm)	Maximum Day Demand 3.6 gpm/service (gpm)
Eucalyptus	1	1.3	3.6
Holly/Sage	16	21.0	57.6
East/West	2	2.6	7.2
Brown/Glen	8	11.0	28.8
Vosburg	5	7.0	18.0

Table 6.2B shows the sum of the water demand for existing services in Table 6.1 and the potential new services in Table 6.2A.

TABLE 6.2B
TOTAL FUTURE SERVICE DEMANDS BY ZONE
IN THE KINNELOA IRRIGATION DISTRICT

Service Zone	Total Services	Average Day Demand (gpm)	Maximum Day Demand (gpm)
Eucalyptus	63	52	145
Holly/Sage	206	175	488
East/West*	87	98	261
Brown/Glen	78	68	188
Vosburg	197	163	452

* West Tank service demand based on 1.85 gpm/acre average day and 5.12 gpm/acre maximum day demands and a 23.3-acre service area.

KINNELOA IRRIGATION DISTRICT
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7.0 SYSTEM IMPROVEMENTS

7.1 *General*

The KID was formed in 1953. Many of the distribution and transmission pipelines predate 1953 and are nearing the end of their useful service life. For the purposes of this plan, the useful service life of the pipelines is set at 50 years. Development of excessive numbers of leaks and/or reduced pipeline capacity are two of the indications of pipelines at the end of their useful service life.

Originally, water mains in the KID provided domestic supply plus a fire flow of 750 gpm. The existing distribution system meets the original fire flow design criteria. The firestorms of October 1993 exposed the KID pipeline delivery capacity weakness. As a result, the KID adopted a Fire Preparedness Policy which requires new water mains to be sized to provide 20 gpm per service, plus a fire flow of 1,250 gpm each at two fire hydrants simultaneously.

As the population of the KID has grown over the years, the demands placed upon the entire system, including distribution and transmission mains, water sources, reservoirs, and pump stations have encroached upon the ability of the system to meet the required demands. Population growth, plus the need for increased fire flow to provide adequate fire protection will require the KID to construct improvements to the KID water system.

7.2 *Piping*

In April 1996, ASL Consulting Engineers conducted a study for the KID to identify water main improvements required to increase water system capabilities to deliver domestic demands plus 1,250 gpm fire flows.

All pipes that develop chronic leaks should be replaced to decrease waste of water and to achieve overall lower operational costs.

Pipelines which have become inaccessible due to development or are traversing private property in easements should also be replaced if practical and/or possible. Pipelines should be upsized where required to meet the fire preparedness goals. Upsizing is to be determined by hydraulic modeling and verified by field-testing.

Many projects have been completed since the original master plan. The remaining projects that are listed in Table 7.2 provide a remedy for the following conditions:

- Chronically leaking pipes.
- Pipe requiring upgrade to meet domestic demand and fire preparedness goals.
- Piping which has become inaccessible due to development or crosses private property in easements.

TABLE 7.2
REQUIRED WATER MAIN REPLACEMENTS
TO MEET 1,250 GPM FIRE FLOW AND
450 FEET VEHICULAR DISTANCE

Main Size	Description	
	From	To
8"	Sierra Madre Villa at Windover Rd.	Corner of 2090 & 2060 Villa Heights Rd..
8"	Country Lane	Southeast Corner of 1747 Country Lane
12"	Glen Reservoir	Intersection Villa Highlands & Sierra Madre Villa Includes Slope from Pasadena Glen to Barhite
8"	Kinclair Dr.	Behind 2150 Kinclair Dr.
8"	Kinclair Dr.	#4 Cricklewood Path
8"	Kinneloa Canyon Rd.	Behind 2044 Piccadilly Ln.
8"	Intersection of Vosburg St. & Lower Pasadena Glen Rd.	In front of 1658 Pasadena Glen Rd.

7.3 *Booster Pump Stations*

7.3.1 Existing Booster Pump Stations

The KID presently has sufficient booster pump capacity to provide for domestic demands. The 1,250 gpm fire flow requires supplementing booster station flow with gravity flow from reservoirs.

There are booster pump facilities located at the Eucalyptus Reservoir, Holly Tanks, Sage Tank, Wilcox Reservoir, Glen Reservoir and at the Vosburg Reservoir. The booster pumps at the Eucalyptus Reservoir were replaced with high efficiency vertical turbine units in 2002 as part of the system improvements needed for the Kinneloa Ridge Development.

The booster pumps at Holly Tanks are scheduled to be removed since the construction of new facilities at the Vosburg Reservoir provide redundant operation.

The three booster pumps at the Vosburg Reservoir are high efficiency vertical turbine units which were installed in 2016.

Table 7.3A compares the required booster pump station capabilities with existing booster pump station capabilities. Required booster pump station capabilities will supply maximum day demand with an off-peak 16-hour maximum pumping period.

Required Booster Pump Capacity: Each booster facility must provide capacity to serve all zones in the system above the booster station.

- Eucalyptus Booster Capacity is 1017 gpm
- Vosburg Booster capacity is 300 gpm
- Glen Booster Capacity is 785 gpm
- Sage Booster Capacity is 179 gpm
- Wilcox Booster Capacity is 1067 gpm

TABLE 7.3A
COMPARISON OF REQUIRED BOOSTER PUMP CAPACITIES

Booster Station	Required Future Pump Capacities (gpm)	Existing Capacity (gpm)*	Additional Capacity Required (gpm)
Eucalyptus	1,017	750	0
Vosburg	107	300	0
Glen	785	345	440
Sage	179	400	0
Wilcox Reservoir	1,067	650	417

* Existing capacity reflects normal operation. Some sites have additional capacity if all boosters are used simultaneously.

Table 7.3B shows the proposed booster pump improvements to increase efficiencies and/or capacities and provide improved redundancy.

TABLE 7.3B
PROPOSED BOOSTER IMPROVEMENTS

Booster Station	Description
Glen	Increase booster pump capacity.
Wilcox Reservoir*	Increase booster pump capacity.

* Pipeline upgrades also required to reduce pumping head.

7.3.2 Proposed Booster Pump Stations

Although the plan for an eight-home tract on Doyne Road has been abandoned, the building of two or more homes on Doyne Road may require additional booster pump capacity at the Wilcox Reservoir and other pipeline upgrades. The necessary improvements have already been made at the Eucalyptus Booster Pump Station in conjunction with the Kinneloa Ridge Development and the main on Doyne Road was replaced as part of the Kinneloa Mesa pipeline improvement project.

7.4 *Tunnels*

7.4.1 High Pressure Tunnel

The High-Pressure Tunnel pipeline is currently in service and supplies water to the Holly Tanks or the West Tank. The High-Pressure Tunnel pipeline was damaged during the firestorms of October 1993. Additional damage occurred from mudslides during the rainy season of subsequent years. In 1994, the High-Pressure Tunnel pipeline was repaired with FEMA funding. In the winters of 1994-95 and 2004-05, the High-Pressure Tunnel pipeline was again damaged by mudslides. The KID applied for FEMA funding because of the disaster declaration after the 2004-2005 storms and permanent repairs were completed in 2006 using a combination FEMA funds and KID funds.

7.4.2 Low Pressure Tunnels

Pipelines delivering water from the Low-Pressure Tunnels to the Holly Tanks have been out of service at various times since 1993. Both low pressure tunnel pipelines were damaged during the fire storms of October 1993. Further damages occurred from mudslides during the rainy seasons of subsequent years. In 1994, the lower Low-Pressure Tunnel pipeline was replaced using FEMA funding. In subsequent rainy seasons, the tunnel has since been buried by mudslides. The storms of 2004-2005 further damaged the lines. The KID applied for FEMA funding to repair the lines to take advantage of the low-cost water supply. The upper low-pressure tunnel pipeline was replaced and put back in service in 2006. The lower low-pressure tunnel was excavated to the tunnel face, but further work has been suspended due to lack of funding and safety concerns.

7.4.3 House Tunnel

The House Tunnel pipeline was also damaged in the 2004-2005 storms. The damaged section was replaced with flexible hose suspended from a cable and the rest of the pipeline was inspected and repaired at two locations. Since most of the pipeline is galvanized steel and was installed decades ago, it is expected that the pipeline will need to be replaced within the next 20 years even if there is no further storm damage. The tunnel is not currently delivering water to the distribution system.

7.4.4 Delores Tunnel

The Delores Tunnel was out of service between 1979 and 2001 due to rockslide and rain storm damage to the delivery pipeline. Although this pipeline was replaced in 2001 with flexible hose suspended from a cable for much of its length, it is still vulnerable to damage in the future. Therefore, it is expected that portions will need to be repaired or replaced within the time frame of this master plan.

The required tunnel maintenance and improvements are listed in Table 7.4.

TABLE 7.4
REQUIRED TUNNEL MAINTENANCE AND IMPROVEMENTS

Tunnel	Description
High Pressure	Periodically inspect pipeline for potential damage from landslides. Inspect for leaks and repair or replace pipeline as needed.
Low Pressure	Periodically inspect pipeline for potential damage from landslides. Continue excavation of lower tunnel and complete new tunnel face and pipeline between the tunnel and the injector if tunnel flow is significant.
House	Periodically inspect pipeline for potential damage from landslides. Inspect for leaks and repair or replace pipeline as needed.
Delores	Periodically inspect pipeline for potential damage from landslides. Inspect for leaks and repair or replace pipeline as needed.

7.5 *Other Improvements*

7.5.1 General

Within Section 7 of this master plan, necessary improvements have been identified which would connect tunnel water supplies to the system and improve system hydraulics to meet a 1,250 gpm fire flow for two hours. Also, improvements to reservoirs have been identified which are necessary to meet a minimum 1,250 gpm fire flow for two hours plus domestic demands. This section will examine other necessary system improvements.

7.5.2 Additional Improvements

The KID has identified other capital improvements necessary to upgrade existing facilities to provide increased operational efficiency, greater margins of safety, address emergency preparedness issues and to decrease maintenance costs. Additional capital improvements are shown in Table 7.5.

TABLE 7.5
ADDITIONAL IMPROVEMENTS AS IDENTIFIED BY THE
KINNELOA IRRIGATION DISTRICT

Description
Upgrade SCADA hardware, software and communications radios to prevent obsolescence (OPS)
Replace obsolete on-site chlorine generators. (OPS)
Purchase 250 kw trailer-mounted generator to be used and Wilcox and K-3 (EP)
EP= Emergency Preparedness OPS= Operations Improvement

KINNELOA IRRIGATION DISTRICT
WATER MASTER PLAN

8.0 PLANNED MAINTENANCE PROGRAM

The KID has developed a Planned Maintenance Program for the KID’s water distribution system which extends the life of existing capital improvements. These items of work include pump overhauls, motor overhauls and replacements, reservoir recoating, reservoir roof repairs, upgrade interconnections with other agencies, purchase of small tools, upgrading various facilities, and office improvements. The items of work identified in this section are typically referred to as operations and maintenance items but due to relatively high cost they need to be budgeted in the same manner as capital improvements. Planned maintenance items identified by the staff are listed in Table 8.0 and are not in priority order.

TABLE 8.0
PLANNED MAINTENANCE PROGRAM ITEMS

Item	Description	Est. Cost
1	Glen Reservoir - Install liner or coating	\$30,000
2	Upgrading of Fire Hydrant Heads (\$500.00 to \$2,500 ea.)	\$34,000
3	Tunnel Maintenance (avg. \$7,000 per year for a 10-year period)	\$70,000
4	Valve Maintenance (replacement cost averages \$2,500 per valve)	\$25,000
5	Office Maintenance & Improvements: 1. Replace carpet and do interior painting; 2. Add storage shed to exiting concrete pad	\$40,000
6	Brown Reservoir - Install liner or coating	\$30,000
7	Holly Tanks Erosion Control (All Phases)	\$140,000
8	Holly Boosters - Paint Booster Station	\$1,000
9	Wilcox Reservoir - Pump stand/other repairs	\$25,000
10	Service Area - Emergency prep. - install or replace “Blue Dot” Markers for Fire Hydrants	\$1,000
11	Wilcox Well - Modify dump line to dispose of water on site	\$1,000
	Total	\$397,000

KINNELOA IRRIGATION DISTRICT
WATER MASTER PLAN

9.0 PROJECT PRIORITIES

Project priorities are based upon cost-benefit considerations. Projects that will realize higher revenues per unit cost are given a higher priority than projects that will realize lower revenue, or no revenue, per unit dollar spent. Priorities are also based upon increased fire protection, increased operational efficiencies and lower maintenance costs. Projects are listed in Table 9.0 in order of decreasing priority in each project category.

TABLE 9.0
CAPITAL IMPROVEMENT PROJECTS LISTED BY PRIORITY

Priority	Project	Description
1	Pipeline	Sierra Madre Villa from Windover Road to Corner of 2090 and 2060 Villa Heights Road
2	Pipeline	Replace service main in portion of Fairpoint Street from 3410 to last service at 3500 Fairpoint
3	Pipeline	Replace Brown/Glen line from corner of Fairpoint Street and Sierra Madre Villa to Barhite Street
4	Pipeline	Country Lane to Southeast Corner of 1747 Country Lane
5	Pipeline	Kinclair Drive to rear of 2150 Kinclair Drive
6	Pipeline	Kinclair Drive to #4 Cricklewood Path
7	Pipeline	Kinneloa Canyon Road to rear of 2044 Piccadilly Lane
8	Pipeline	Intersection of Vosburg St. and lower Pasadena Glen Rd. to front of 1658 Pasadena Glen Rd.
9	Pipeline	Replace service main in Edgecliff Lane from Villa Knolls Drive to cul-de-sac
10	Pipeline	1908 N. Kinneloa Canyon Rd. to intersection of Larmona Drive & Kinneloa Mesa Road (Doyne Road project)
11	Pipeline	Replace service main from Villa Knolls Drive to end of Hartwood Point Drive
12	Pipeline	Replace service main in Villa Mesa Dr. from Sierra Madre Villa Ave. to 3336 Villa Mesa Dr.
13	Pipeline	From Glen Reservoir to intersection of Villa Highlands and Sierra Madre Villa. Includes slope from Pasadena Glen to Barhite
14	Pipeline	Replace water main from Wilcox Well to Wilcox Reservoir
1	Tunnel	Construct permanent replacement pipeline section from High Pressure Tunnel to Holly and/or Sage Reservoir
2	Tunnel	Construct pipeline from lower Low-Pressure Tunnel to junction with High Pressure Tunnel Pipeline north of Kinneloa Debris Basin
3	Tunnel	Replace other tunnel pipelines as required
1	Booster	Replace the existing 50 HP oil lubricated booster pump at Wilcox Reservoir with a water lubricated pump
2	Booster	Install additional booster pump and new electrical at Wilcox Reservoir if needed
3	Booster	Replace existing booster pump at Glen Reservoir with a higher capacity unit
1	Other (Emergency Preparedness)	Purchase 250 kw trailer-mounted generator for Wilcox and K-3
2	Other (Preventative Maintenance)	Upgrade SCADA hardware, software and communications radios to prevent obsolescence
3	Other (Preventative Maintenance)	Replace Uniclор with Chlortec chlorine generators to prevent obsolescence

KINNELOA IRRIGATION DISTRICT
WATER MASTER PLAN

10.0 COST ESTIMATES FOR REQUIRED IMPROVEMENTS

10.1 *Pipelines*

Cost estimates for pipeline replacements as described in Section 7.1, are taken from a study prepared by ASL Consulting Engineers for the KID in April 1996. Cost estimates were updated in July 2002 and adjusted for inflation and current construction costs in 2018. Most of the replacement pipelines are needed to meet 1,250 gpm fire flow and 450 feet vehicular distance requirements. Category definitions are as follows: EP-Emergency Preparedness; PM-Preventive Maintenance; OPS- Operational Improvement. The estimated costs are shown in Table 10.1. The smaller projects should be bundled in dollar amounts not less than \$150,000 for the district to get the best prices on these projects

TABLE 10.1
PIPING IMPROVEMENTS COST ESTIMATES

Priority	Main Size	Description		Category	Cost
		From	To		
1	8"	Sierra Madre Villa at Windover Rd.	Corner of 2090 and 2060 Villa Heights Road	EP 1840 ft.	\$200,000
2	8"	Fairpoint Street and Sierra Madre Villa	Sierra Madre Villa and Barhite Street	OPS/PM 450 ft.	\$50,000
3	4"	Eastern portion of Fairpoint St.	Last service on Fairpoint St.	EP/PM 950 ft.	\$100,000
4	8"	Country Lane	Southeast Corner of 1747 Country Lane	EP 270 ft.	\$30,000
5	8"	Kinclair Dr.	Rear of 2150 Kinclair Dr.	EP 250 ft.	\$40,000
6	8"	Kinclair Dr.	#4 Cricklewood Path	EP 400 ft.	\$60,000
7	8"	Kinneloa Canyon Rd.	Rear of 2044 Piccadilly Ln.	EP 250 ft.	\$40,000
8	8"	Intersection of Vosburg St. & Lower Pasadena Glen Rd.	Front of 1658 Pasadena Glen Rd.	EP/PM 350 ft.	\$50,000
9	8"	Edgecliff Lane from Villa Knolls	End of Cul-de-sac	EP/PM 700 ft.	\$90,000
10	8"	Larmona Drive & Kinneloa Mesa Road	1908 N. Kinneloa Canyon Rd. (Doyne Rd. Project)	EP 2000 ft.	\$575,000
11	8"	Villa Knolls Drive	End of Harwood Point	EP/PM 1960 ft.	\$300,000
12	8"	Sierra Madre Villa	3336 Villa Mesa	EP/PM 300 ft.	\$50,000

Priority	Main Size	Description		Category	Cost
		From	To		
13	12"	Glen Reservoir	Intersection Villa Highlands & Sierra Madre Villa Includes Slope from Pasadena Glen to Barhite	EP/OPS 3100 ft.	\$600,000
14	10"	Wilcox Well	Wilcox Reservoir Line	EP/OPS/PM 500 ft.	\$70,000
SUBTOTAL					\$2,250,000
Engineering, Design, and Planning					\$500,000
Construction Management and Inspection					\$200,000
SUBTOTAL					\$700,000
TOTAL PIPELINE PROJECTS					\$2,955,000

10.2 *Booster Pump Station Improvements*

Cost estimates for installation of some of the booster pump improvements at the Wilcox Reservoir that were required for the Doyme Road Development (Tract 44323) were developed in a report prepared by ASL Consulting Engineers for the KID and dated June 3, 1996. Cost estimates were up-dated in February 2002 but were not included in the KID capital project budget because it was expected that these improvements would be constructed at the developer's expense. However, since the development as originally planned has been abandoned by a new owner of the property, the cost of an additional booster at the Wilcox Reservoir is not included.

Cost estimates for installation of other booster pump improvements were developed in a report prepared by ASL Consulting Engineers for the KID and dated November 3, 1995. Cost estimates were up-dated in February 2002 and have been adjusted for inflation to 2018 dollars.

Costs for improvements to the booster pumps at the Wilcox Reservoir and Glen Reservoir are included in the KID capital project budget. Costs include engineering, inspection, management and contingency

Booster Pump Station Improvements are shown in Table 10.2.

TABLE 10.2
BOOSTER PUMP STATION IMPROVEMENTS

Priority	Description	Estimated Costs
1	Replace the existing 50 HP oil lubricated booster pump at Wilcox Reservoir with a water-lubricated pump.	\$30,000
2	Construct improvements to the Booster Pump at Glen Reservoir	\$60,000
	Total Pump Station Improvements	\$90,000

10.3 *Tunnel Improvements*

The pipeline from the upper Low-Pressure Tunnel face to the new High/Low combiner was replaced in 2006. The existing High-Pressure pipeline was not replaced but the line was suspended from a new cable to the combiner to protect it from landsides. The lower Low-Pressure Tunnel pipeline was not replaced since there was no water exiting that tunnel at the time of the construction work in 2006. The combined High/Low Pressure pipeline from the combiner to the Kinneloa Canyon West Debris Basin may also need to be replaced in future years. The cost estimates for the remaining pipelines are shown in Table 10.3.

TABLE 10.3
TUNNEL IMPROVEMENTS

Priority	Description	Cost Estimate
1	Replace the combined High/Low Pressure Tunnel Pipeline from combiner to Kinneloa Canyon West Debris Basin	\$200,000
2	Replace the lower Low-Pressure Tunnel Pipeline	\$ 61,000
3	Replace other tunnel pipelines as required	\$100,000
	Total Tunnel Improvements	\$361,000

10.4 *Costs of Other Improvements*

Cost estimates for the construction or purchase of other improvements are based upon estimates by KID staff and are shown in Table 10.4.

TABLE 10.4
OTHER IMPROVEMENTS

Priority	Description	Estimated Cost
1	Purchase 250 kw portable generator for Wilcox and K-3	\$50,000
2	Upgrade SCADA hardware, software and communications radios to prevent obsolescence	\$70,000
3	Replace Uniclор with Chlortec chlorine generators	\$20,000
	Total Other Improvements	\$140,000

10.5 *Total Costs*

Table 10.5 shows total estimated costs for all necessary improvements as identified in this master plan. Cost estimates include design, inspection, construction management and contingency costs. Improvements identified to be installed and financed by developers are not included. Costs for the items identified as other work were developed for this master plan from cost estimates by the KID staff.

TABLE 10.5
TOTAL ESTIMATED COSTS

No.	Description	Cost Estimate
1	Pipeline Improvements	\$2,955,000
2	Pump Station Improvements	\$90,000
3	Tunnels	\$361,000
4	Other Improvements	\$140,000
5	Planned Maintenance (from Section 8)	\$397,000
	TOTAL Estimated Costs	\$3,943,000

APPENDIX

EXHIBIT I
RESERVOIR IMPROVEMENTS

RESERVOIR IMPROVEMENTS

Cost estimates for District funded improvements to reservoirs are not included in the Water Master Plan. Since these costs were estimated in 1996, these projects will need to be re-evaluated if they are pursued in the future.

Existing Reservoirs

In April 1996, ASL Consulting Engineers conducted a study for the KID to identify reservoir improvements, which would have to be made to comply with the KID Fire Preparedness Policy. The results of that study indicate that additional capacity is required at the Holly Tanks, Glen Reservoir and East Tank. However, the completion of the East Tank – West Tank Connector Pipeline project as added The West Tank capacity of 500,000 gallons provided a combined east/west pressure zone capacity of 650,000 gallons. Table I has been revised to reflect the combined pressure zone.

Table I compares the required future reservoir storage capacity with the existing reservoir capacity for each service zone. Wilcox Reservoir with a capacity of 1,125,000 gallons is a forebay for the Wilcox Well and is not included. Required capacity is the sum of maximum day demand, operational capacity, and fire flow.

TABLE I (Revised 2018)
REQUIRED RESERVOIR CAPACITY

Reservoir	Maximum Day Demand (Gal.) *	Operational Capacity (Gal.) *****	Fire Flow (Gal.) **	Required Capacity (Gal.)	Existing Capacity (Gal.)	Additional Capacity Required (Gal.)
Eucalyptus Reservoir	308,160	77,000	300,000	685,160	180,000	505,160
Holly/Sage Tanks	702,720	176,000	300,000	1,178,720	525,000	653,720
East/West Tanks****	365,760	58,000	300,000	723,760	650,000	73,760
Brown/Glen Reservoir	298,080	75,000	300,000	670,080	250,000	420,080
Vosburg Reservoir	643,680	161,000	300,000	1,104,680	1,250,000	0

* Maximum Day Demand = 60 min. x 24 hours x max day demand (gpm/service).

** Fire Flow = 1,250 gpm for 4 hours.

*** Operational storage not required.

**** West Tank Maximum Day Demand based on (gpm/acre).

***** 25% of maximum day demand.

The proposed reservoir improvements are shown in Table II.

TABLE II (Revised 2018)
PROPOSED RESERVOIR IMPROVEMENTS

Tank	Description
Holly Tanks	Remove both existing reservoir in two stages. Construct new concrete reservoir in two stages and miscellaneous site improvements. Increase existing Holly Tanks to provide total 1-MG storage.
East Tank*	Site has 1 existing 0.15 MG reservoir. Site limitations may prevent construction of a larger reservoir. However, the completion of East/West connector pipeline has eliminated the needed for a significant increase in the size of the total required storage in the east/west pressure zone.
Glen Reservoir**	Demolish existing 0.15 MG reservoir. Construct new 0.5 MG concrete reservoir and miscellaneous site improvements.
Eucalyptus Reservoir	Emergency connections, portable pumps and tunnel supply are considered to make up storage deficit.

* Low priority because the East-West Tank connector pipeline was constructed.

** Low priority because Glen Reservoir has back up storage in Vosburg Reservoir.

Cost estimates for District funded improvements to reservoirs were developed in a study by ASL Consulting Engineers for the KID and dated April 1996. The Estimated cost for improvements to Holly Tanks, East Tanks, and Glen Reservoir are shown in Tables III, IV, and V respectively. All costs are in 1996 dollars.

TOTAL ESTIMATED COSTS

No.	Description	Cost Estimate
1	Holly Reservoir Improvements	\$612,000
2	East Tank Improvements	\$422,000
3	Glen Reservoir Improvements	\$624,500
	Total Reservoir Improvements	\$1,658,500

**TABLE III
HOLLY RESERVOIR IMPROVEMENTS COST ESTIMATE**

Item	Quantity	Unit	Description	Unit Price	Total Price
PHASE I					
1	1	L.S.	Mobilization/Demobilization	\$6,750.00	\$6,750.00
2	1	L.S.	Modify Existing Inlet/Outlet and Tunnel Well Piping	\$5,000.00	\$5,000.00
3	1	L.S.	Demolish and Remove West Reservoir	\$25,000.00	\$25,000.00
4	275	L.F.	Install Excavation Shoring, Entire Site	\$30.00	\$8,250.00
5	900	C.Y.	Excavate Entire Site	\$30.00	\$27,000.00
6	1	L.S.	Install Sub drain System	\$4,000.00	\$4,000.00
7	1	L.S.	Install Inlet/Outlet Piping	\$3,000.00	\$3,000.00
8	1	L.S.	Construct West Half of New Reservoir	\$200,000.00	\$200,000.00
9	1	L.S.	Test, Disinfect, and Place West Half of Reservoir in Service	\$2,000.00	\$2,000.00
PHASE II					
1	1	L.S.	Demolish and Remove East Reservoir	\$25,000.00	\$25,000.00
2	1	L.S.	Install Sub drain System	\$4,000.00	\$4,000.00
3	1	L.S.	Install Inlet/Outlet Piping	\$5,000.00	\$5,000.00
4	1	L.S.	Construct East Half of New Reservoir	\$200,000.00	\$200,000.00
5	1	L.S.	Test, Disinfect, and Place East Half of Reservoir in Service	\$2,000.00	\$2,000.00
6	200	C.Y.	Backfill and Remove Shoring	\$50.00	\$10,000.00
7	1	L.S.	Construct Site Improvements, A.C. Pavement, Landscaping and Irrigation, and Site Drainage Facilities	\$15,000.00	\$15,000.00
SUBTOTAL					\$542,000.00
Engineering Design and Planning					\$30,000.00
Soils Investigation					\$10,000.00
Environmental Documents					\$10,000.00
Construction Administration and Inspection					\$20,000.00
SUBTOTAL					\$70,000.00
TOTAL PROJECT					\$612,000.00

TABLE IV
EAST TANK IMPROVEMENTS COST ESTIMATE

Item	Quantity	Unit	Description	Unit Price	Total Price
1	---	L.S.	Mobilization/Demobilization	\$5,000.00	\$5,000.00
2	1,300	C.Y.	Excavation / Grading	\$50.00	\$65,000.00
3	---	L.S.	Access Road – Grading and Paving	\$22,000.00	\$22,000.00
4	2	EA.	Tank Footing and Oil Sand	\$15,000.00	\$30,000.00
5	---	L.S.	Sub drain System	\$10,000.00	\$10,000.00
6	---	L.S.	Slope Treatment	\$15,000.00	\$15,000.00
7	---	L.S.	Site Drainage	\$30,000.00	\$30,000.00
8	2	EA.	Tank Material and Construction	\$75,000.00	\$150,000.00
SUBTOTAL					\$327,000.00
Engineering Design and Planning					\$25,000.00
Soils Investigation					\$15,000.00
Environmental Documents					\$15,000.00
Construction Management and Inspection					\$40,000.00
SUBTOTAL					\$95,000.00
TOTAL PROJECT					\$422,000.00

TABLE V
GLEN RESERVOIR IMPROVEMENTS COST ESTIMATE

Item	Quantity	Unit	Description	Unit Price	Total Price
1	1	L.S.	Mobilization/Demobilization	\$6,000.00	\$6,000.00
2	1	L.S.	Temporary Relocation of Long Tunnel Pipeline	\$2,000.00	\$2,000.00
3	1	L.S.	Salvage Pump, Electrical, and Chlorination Equipment	\$6,000.00	\$6,000.00
4	1	L.S.	Demolish A.C. Pavement	\$2,000.00	\$2,000.00
5	1	L.S.	Demolish and Remove Existing Reservoir Structure and Appurtenances	\$35,000.00	\$35,000.00
6	300	L.F.	Install Excavation Shoring	\$30.00	\$9,000.00
7	1,900	C.Y.	Excavate Reservoir Pad	\$35.00	\$66,500.00
8	1	L.S.	Install Sub drain System	\$8,000.00	\$8,000.00
9	1	L.S.	Install Reservoir Inlet/Outlet and Drain Piping	\$5,000.00	\$5,000.00
10	1	L.S.	Construct Reservoir	\$350,000.00	\$350,000.00
11	1	L.S.	Test, Disinfect, and Place Reservoir in Service	\$3,000.00	\$3,000.00
12	1	L.S.	Backfill and Grade Site	\$7,000.00	\$7,000.00
13	1	L.S.	Install Chlorination, Pump, and Electrical Equipment	\$15,000.00	\$15,000.00
14	1	L.S.	Construct Site Improvements, A.C. Pavement, Landscaping, and Irrigation	\$10,000.00	\$10,000.00
SUBTOTAL					\$524,500.00
Engineering Design and Planning					\$45,000.00
Soils Investigation					\$10,000.00
Environmental Documents					\$15,000.00
Construction Management and Inspection					\$30,000.00
SUBTOTAL					\$100,000.00
TOTAL PROJECT					\$624,500.00

EXHIBIT II
SCHEMATIC OF WATER SYSTEM

KINNELOA IRRIGATION DISTRICT HYDRAULIC SCHEMATIC

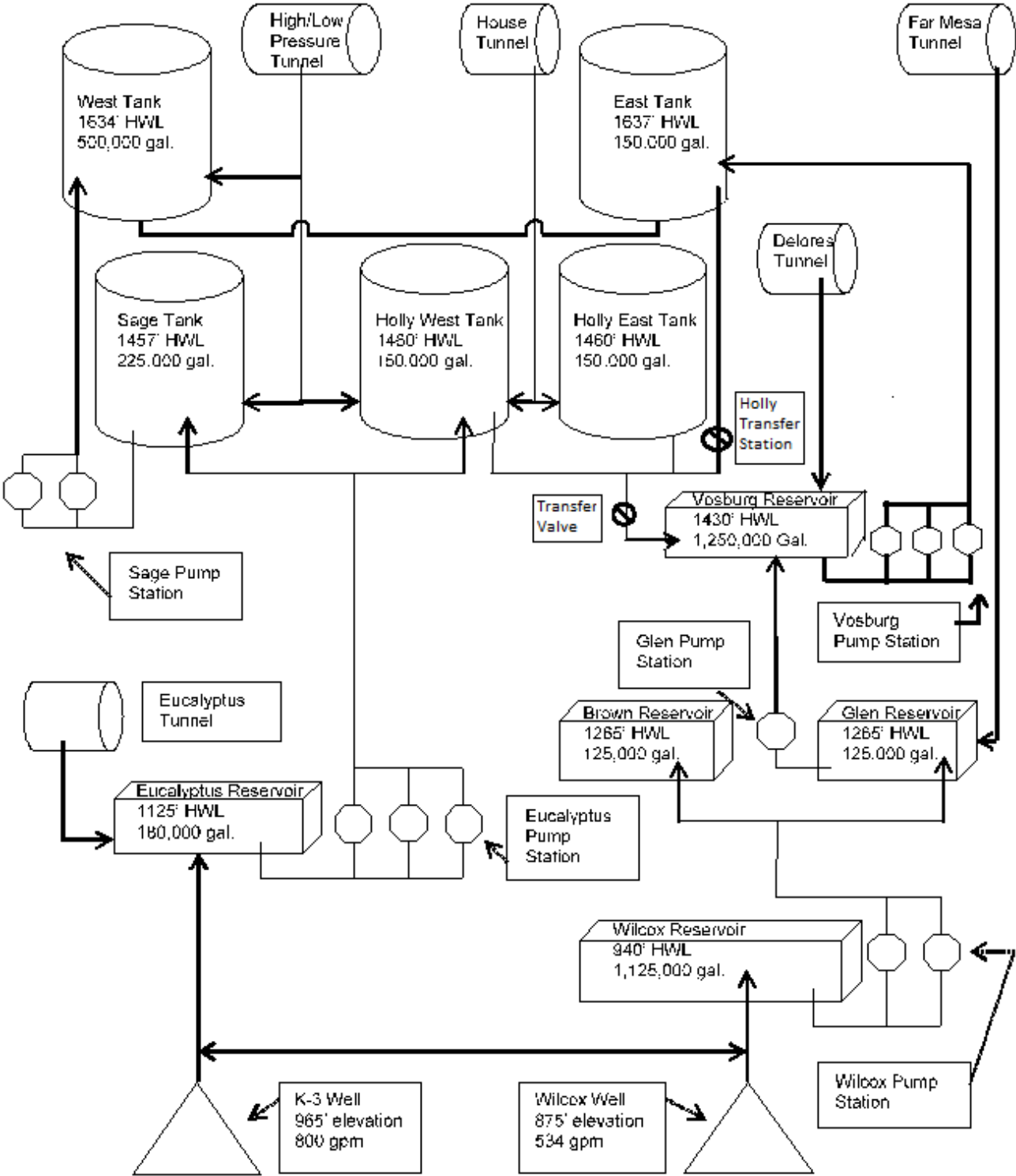


EXHIBIT III
FIRE PREPAREDNESS POLICY

FIRE PREPAREDNESS POLICY
FOR
THE KINNELOA IRRIGATION DISTRICT

Prepared for

The Kinneloa Irrigation District
1999 Kinclair Drive
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February 1997

Revised by:

Melvin L. Matthews
General Manager

January 2018

KINNELOA IRRIGATION DISTRICT

FIRE PREPAREDNESS POLICY

INTRODUCTION

The Kinneloa Irrigation District (KID) provides water service to approximately 500 acres of hillside customers in northeast Pasadena. The Angeles National Forest borders the District on the north. Under certain weather conditions, wild fire danger is extremely high. Santa Ana winds have the capability to drive wild fires into the District with potential to cause major damage. The 1993 Altadena wild fire was the latest example of the potential fire danger. There are many factors that contributed to the Altadena wildfire damage. These factors are as follows:

- The availability of water for fire protection.
- Fuel source availability.
- Coordination of manpower.
- Equipment deployment.
- Limited ingress and egress.
- Fire preparedness.

Complete protection from major natural disasters such as wild fires is extremely difficult to provide. Preparation for all possible contingencies is impossible. The KID has determined that there are some water issues that exceed standard fire protection measures that may reduce wild fire damage to the community. These measures as applicable to the KID are identified in the KID Fire Preparedness Policy (FPP). The FPP issues identified are not necessarily immediately achievable. The FPP measures identified are a goal to be achieved to minimize future wild fire damage to the KID community.

The existing District facilities provide the level of structure fire protection originally intended. Recent wild fire events have identified several areas where water system performance above original design standards and in some cases additional capacities above current standards would be prudent. The FPP is an attempt to identify these areas and set goals to achieve reasonable standards.

The FPP identifies goals in four areas. These areas are as follows:

- Reservoir storage to maintain gravity supply to the distribution system for each pressure zone.
- Distribution piping to deliver the water supply to all areas of the District.
- Pumping capacity to supplement reservoir storage and transfer water to higher zones when necessary.
- Operational guidelines necessary to maximize system performance and minimize water loss during a wild fire event.

Following is a detailed discussion of each goal:

1. **Reservoir Storage**

The FPP reservoir storage goal is to provide storage in each zone to supply fire flow to multiple fire hydrants simultaneously in addition to customer demand. Fire flow storage goal is to provide 1,250 gpm at two locations for duration of two hours (300,000 gallons) plus 20 gpm for each customer

for two hours (2,400 gallons per customer). The following table identifies the reservoir fire flow storage goals for each zone. Total services include planned developments.

Service Zone	Total Services	Customer Demand (gallons)	Fire Storage (gallons)	FPP Goal (gallons)	Existing Storage (gallons)
Eucalyptus Zone	62	148,800	300,000	448,800	180,000
Holly/Sage Zone	205	492,600	300,000	792,600	525,000
East/West Tank Zone	86	206,800	300,000	506,800	650,000
Brown/Glen Zone	77	184,800	300,000	484,800	250,000
Vosburg Zone	195	468,000	300,000	768,000	1,250,000

Note: FPP storage goal does not include reservoir operational storage. The FPP reservoir storage goal will be accomplished through new reservoir construction resulting from development and/or replacement or reconstruction of existing reservoir facilities.

2. Distribution Piping

The FPP distribution piping goal is to improve the distribution piping network to increase the delivery capability to all fire hydrants and customer services. The original system design required capability of delivering 750 gallons per minute of water to a single fire hydrant. The current distribution piping has the capability to meet this requirement. Flow requirements have been increased by revisions to the County Fire Department regulations. New construction within the District requires a minimum of 1,250 gpm flow for 2-hour duration.

The FPP goal is to improve the distribution system piping within each service zone to provide 1,250 gpm flows to two fire hydrants flowing simultaneously, plus a flow of 20 gpm for each customer service within the service zone. This goal is not immediately achievable. The goal will be accomplished by adequately sizing new water mains and replacing existing mains as required due to system modifications and pipe deterioration due to age. Additional fire hydrants will be added where required to meet the revised Los Angeles County requirement of 450 feet maximum vehicular distance to structures.

3. Pumping Capacity

The FPP pumping capacity goal is to improve the reliability, efficiency, and capacity of the District's pumping facilities. The existing pumping facilities have adequate capacity to provide maximum day domestic demands. Tunnel well water is required to meet maximum day domestic demand for some zones. Development of additional customer services will increase demand above current pumping capacities. Additional pumping capacity is required to meet the additional demands.

The FPP pumping capacity goal is to improve pumping facilities to the following standards:

- A. Pumping capacity for each zone will be sufficient to pump maximum day demand during Edison Company off-peak demand 16-hour daily pumping period.
- B. Pumping capacity will be sufficient to replace fire flow storage within a minimum of one 24-hour period.

C. Pump facilities for each zone will include a minimum of two pumps:

- One (1) Duty
- One (1) Standby

There will be an alternative for larger capacity facilities having three pumps:

- Two (2) Duty
- One (1) Standby

Pumps will be high efficiency vertical turbine pumps, with pump can manifold, aboveground discharge, and pump control valve check valves to minimize system pressure surges. Each facility will include provisions for emergency generator lug connections. Emergency generator shall provide power to a minimum of one Duty pump. Pump station piping shall include provisions for bypass valve and bypass connections for fire engine pumping equipment or portable emergency pumping equipment.

The FPP goal will be accomplished by applying the above standards to all new pumping facility designs and upgrading existing facilities to above standards when capacity modifications are required or when pumping equipment is replaced.

4. System Operational Guidelines

The FPP guidelines were developed from discussions with KID staff focusing on the 1993 wild fire incident. The goal of the operational guidelines is to make efficient use of the water supply to protect the KID customers and maximize fire department suppression capabilities. In the event of wild fire danger, the KID staff will attempt to implement the following guidelines:

- A. General Manager or Facilities Supervisor will coordinate water system operation with fire department deployment of manpower and equipment.
- B. Whenever possible, KID staff will attempt to minimize water waste by stopping visible leaks from damaged structures and/or irrigation systems. Water service to damaged structures and/or irrigation system may be turned off.
- C. Fire department pumping equipment may be deployed and connected to inter zone transfer facilities.
- D. Bypass valves or pumping facilities may be operated as required to make up reservoir storage losses. Transfers between zones will be made only when necessary and only when transfer will not deplete zone storage below levels required to provide adequate fire protection. Transfer of water between zones will be at the discretion of the General Manager or Facilities Supervisor.
- E. District emergency portable generator will be maintained and tested monthly and placed in service when required to provide emergency power for pumping when anticipated power failure is expected for a duration of more than 2 hours. Additional emergency generators will be provided at the discretion of the General Manager or Facilities Supervisor.



Memo

Date: April 11, 2018
 To: Board of Directors
 From: Mel Matthews
 Subject: Brown Well and Brown Reservoir Easements

Background

The Kinneloa Irrigation District has different types of easements to enable travel over private property at some facilities to gain access and maintain those facilities. Additionally, the KID grants Revocable License Agreements to a few property owners for landscaping and landscape maintenance on KID-owned property and easements.

California recognizes four types of easements, each of which exists in a very specific scenario:

Express Easements

An express easement exists when a landowner voluntarily agrees to burden his own land. For example, assume that there are two adjoining landowners, A and B. B has access to a public road over B's own land, but the road is unpaved and can be difficult to travel over in heavy rain. B approaches A and asks A whether A would allow B to travel over A's paved portion of land to the public road. If A agrees, A has granted an express easement. Because such an easement is an interest in land, it must be in writing to be enforceable. This requirement is found in Section 1624 of California's Civil Code, commonly referred to as the "Statute of Frauds."

Implied Easement by Existing Use

This type of easement applies only where a tract of land is divided into two portions and one portion of the land was used for the benefit of the other portion before the land was divided. For example, A owns a large plot of land. The paved road crosses the entire length of land and ends at a public roadway. A sells a portion of the land to B. The portion sold to B does not have access to the public highway unless the paved road that crosses A's portion is used or unless B constructs a new road. The California court could imply an easement here if it finds that A and B intended to continue the use of the road when the land was divided. Unlike express easements, an implied easement need not be in writing.

Easement by Necessity

An easement by necessity is very similar to an implied easement by existing use, but with one major difference. An easement by necessity will be created only if there is no possible alternative to crossing the land of another. For example,

A sells a portion of his land to B. B has no access to a public road other than by crossing A's land. The California court may create an easement by necessity because B has no other option if B wants access to the public road. If B had the option of constructing a road, an easement by necessity would not apply. Like the implied easement by existing use, an easement by necessity need not be in writing.

Prescriptive Easement

A prescriptive easement is created when a person uses land of another, without the landowner's consent, in such a way that the landowner should reasonably be aware of and does so for a continuous period of five years. The most litigated concept here is continuity of use. Continuous use does not mean constant use. The use need only be as frequent as is appropriate given the nature of the easement and the character of the land. Particularly in rural areas, occasional or seasonal use of an easement may be sufficient. Because action is a factor in the creation of this type of easement, no writing is required.

Scope of the Easement

"Scope" in this context refers to how the easement may be used. Scope is determined by the type of easement. The scope of an express easement is limited to the terms of the grant. For example, if A grants an express easement to B that provides that B may cross A's land only if it is raining, B may then only cross the land if it is raining. If B crosses A's land when it is not raining, B could be liable to A for trespass. The scope of an implied easement by existing use is limited to how the burdened land was used before the easement was created. An easement by necessity is limited in scope by the extent of the necessity. The scope of a prescriptive easement is usually limited by California courts to how the land was originally used and does not need to be in writing.

Brown Well and Brown Reservoir

My research into these facilities according to our records and parcel maps indicate the following:

- The Brown Well is on a parcel owned by the Kinneloa Irrigation District. A revocable license Agreement has been granted to an adjacent property owner to install and maintain landscaping on a portion of the District's property.
- Access to the Brown Well parcel is currently over a portion of the driveway for 1999 Sierra Madre Villa Avenue and is not blocked by any gate or obstructions per verbal agreement with the owner in exchange for allowing the owner a wider driveway that encroaches on the KID property and the agreement to reimburse the KID for landscaping on KID property. An express easement for access to the Brown Well was granted and recorded by a prior property owner to the Mesa Loma Mutual Water Company. An unsigned, unrecorded Grant of Easement to the Kinneloa Irrigation District is in our files. The KID parcel is adjacent to a public road and is not blocked by private property.
- The Brown Reservoir is on a parcel owned by the Kinneloa Irrigation District.
- The surrounding parcels were originally owned by a single owner.
- Access to the Brown Reservoir is via the driveway to 1963 Sierra Madre Villa Avenue. An easement was granted in the same document described above. This easement has been in continuous use and is the only easement required to access the reservoir.
- The Grant Deed to Mesa Loma Mutual Water Co. also includes what the KID refers to as the "turn-around" easement, which originally was a driveway between the driveways described above. The owner of 1999 Sierra Madre Villa Avenue ("1999") installed (with our permission) a gate between his property and the 1963 Sierra Madre Villa Avenue ("1963") property. The 1999 owner also installed (with our permission) an electric security gate on his driveway beyond our access to the Brown Well. These two gates effectively blocked our immediate access to this easement. However, this easement has not been used for many years and is not essential for access to either of the Brown facilities.
- Sometime in the recent past, the gate between the 1999 and 1963 driveways was replaced with a low wall and fence and potted plants were placed on the driveway next to the wall. We are not aware of which property owner constructed the wall.

Regardless of the legal status of any of any these easements, there is no impact on our access to either of the Brown facilities by the construction of the wall and fence and the placement of potted plants on the driveway.

4/3/18

Kinneloa Irrigation District

General Manager

DRAFT Job Description

DEFINITION

The General Manager is responsible for all administrative, regulatory, public relations, human resources, and general affairs of the District. The General Manager represents the Board of Directors in all matters with employees, community organizations, other agencies, and customers.

Adopted: 04/xx/18

Supersedes: 02/29/04

FLSA Status: Exempt

Reporting Location: KID offices

Work Schedule: [Need to discuss how to describe this. Expectation is M-F during normal business hours, plus other time as needed. Should indicate expectation for amount of time in the field vs. office, and amount of time on KID business vs. non-KID activities.]

OVERSIGHT

Supervision Received: Receives direction from the Board of Directors

Supervision Provided: Manages and supervises all District employees

ESSENTIAL FUNCTIONS

- Serves as the Chief Administrative Officer for the District.
- Keeps the Board informed of all District activities, and all significant upcoming actions by the General Manager.
- Provides analyses and recommendations for the development of District programs and policies.
- Represents the Board and communicates District policies, programs, and services with employees, other agencies, and community representatives.
- Oversees preparation of the District's annual budget, and makes recommendations to the Board on expenditures.
- Conducts a variety of studies and surveys related to water supply and the condition of District infrastructure, and makes recommendations to the Board on capital improvements.

- Provides financial management which includes oversight of customer billing, collections, accounts payable, and accounts receivable.
- Assures that all District operations comply with regulatory requirements, and completes and files all required reports in a timely manner.
- Maintains continuous awareness of administrative practices, and recommends changes which increase the efficiency and economy of District operations.
- Manages and takes responsibility for all District human resources issues, including employment procedures, preparation of job descriptions, classification and pay, resolution of disputes, and employer-employee relations. Supervises all employees, which includes responsibility for hiring, training, assigning/reviewing work, establishing work schedules and locations, and approving leave and overtime. Prepares performance evaluations for Board review, and delivers the evaluations to employees.
- Maintains up-to-date records, manuals, and operating procedures. Prepares monthly and annual reports for the Board of Directors of all significant activities in the District, including financial status and budget compliance, major operational or maintenance issues, capital improvement projects, water production and sales, water quality, and legal issues.
- Oversees development of agendas for meetings of the Board of Directors.
- Leads the preparation and prioritization of District goals, for approval by the Board of Directors.
- Manages and reviews all work by consultants and contractors.
- Prepares leases and agreements with other agencies.
- Establishes and maintains positive working relationships with the Board, employees, other agencies, and the public.

Responsibility for execution of the Essential Functions may be delegated to other employees, with approval of the Board of Directors.

OTHER DUTIES

- Maintains and updates the District's web-site, and prepares quarterly communiques for customers via multiple delivery formats.
- Investigates alternative sources of income for the District, including water sales, leasing of water rights, and state and federal grants and loans.
- Steps in and functions in place of any employee, as necessary, and performs routine standby duty for operation of the water delivery system on a monthly basis.
- Participates in the activities of other organizations, with Board approval, when that participation benefits the District and does not interfere with performance of the General Manager's other duties.

MINIMUM QUALIFICATIONS

Education and Experience: High school diploma and a minimum of five years of progressively increasing experience in all aspects of water company operations, administration, and management.

Certifications and Licenses:

- California Water Treatment Operator license, T2 level
- California Distribution Operator license, D3 level
- California Class C driver license

Required Knowledge:

- Principles and practices of public administration including administrative analysis, fiscal planning and control, and policy and program development
- Laws, regulations, and legislative processes controlling District functions, programs, and operations
- Methods of research, analysis, and evaluation
- Organization, operations, and challenges of special districts
- Cost estimating and contract administration
- Public agency personnel administration and employer-employee relations
- Business-related computer hardware and software for word processing, accounting spreadsheets, database management, and web-site management

Required Skills and Abilities:

- Excellent written and oral communication skills
- Ability to communicate effectively with the public and the Board of Directors
- Ability to plan, organize, coordinate, and direct the work of employees to achieve efficient overall operation and meet District goals
- Ability to exercise leadership, authority, and supervision tactfully and effectively
- Ability to ensure the timely and cost-effective completion of District projects, studies, and regulatory submittals
- Ability to maintain the District in sound financial condition while addressing long-term infrastructure needs

DESIRABLE QUALIFICATIONS

- B. S. degree in engineering, accounting, or business administration
- California Professional Engineer license
- Experience in engineering, construction, project management, or field maintenance

WORK ENVIRONMENT

Physical Demands: Light

Environmental Factors: xxx

I have reviewed this Job Description with the Board of Directors and agree with its contents.

Employee Signature

Date

Supervisor Signature

Date



MyPERFORMANCE

Strategy • Collaboration • Results

MANAGER Evaluation

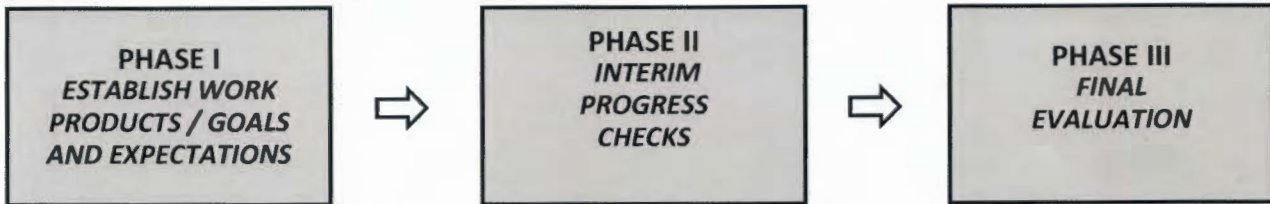
ID Number _____ Name _____ Group _____

Job Title _____ Period: From _____ To _____

MyPERFORMANCE -- Manager Performance Evaluation Process

Employee evaluation is a process of rating an employee's work performance, based upon a supervisor's objective and factual appraisal of his job knowledge, skills, initiative, productivity, work habits, human relations and communication skills. This process is intended to foster a high performance environment that enables managers to perform to the best of their abilities through work product / goal planning, periodic progress checks and clear feedback on performance.

Clear expectations and effective and frequent performance conversations between the manager and his/her supervisor, and between the supervisor and others assigning work, throughout the year are key to successful performance. Goals, Interim Progress Checks and the Final Evaluation will all be provided in writing.



Ongoing Performance Conversations

All employees are expected to demonstrate performance which meets expected standards.

PERFORMANCE RATING DEFINITIONS

UNSATISFACTORY [U]	IMPROVEMENT NEEDED [IN]	MEETS STANDARDS [MS]	EXCEEDS STANDARDS [ES]	OUTSTANDING [O]
Performance DOES NOT MEET the minimum expectations for Meets Standards performance in this position, either overall or in one or more critical ways.	Performance generally Meets Standards, but REQUIRES IMPROVEMENT or additional development in some areas in order to achieve minimum expectations for Meets Standards performance in this position.	Solid performer; ACHIEVES GOOD RESULTS on <i>key</i> work products / goals, performance competencies and assigned job duties, responsibilities and deadlines. Effective team player who focuses on good customer service and quality work. May exceed standards in some areas.	ACHIEVES RESULTS which exceed standards on a majority of assignments and all priority items. Excellent team player who effectively focuses on excellence, effective customer service and meeting deadlines.	Consistently achieves performance that SIGNIFICANTLY CONTRIBUTES to organization results through critical achievements that contribute benefits to Metropolitan.

MyPERFORMANCE -- MANAGERS

PART I - WORK PRODUCTS / GOALS	PERIOD COVERED _____	To _____
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INSTRUCTIONS: Identify 3 - 6 key work products or goals to be completed during the next 12 months. Describe the work to be accomplished together with how successful performance will be demonstrated / assessed. Goals/work products should be **Specific, Measurable, realistic, Attainable, Relevant and Time-based**, and should account for available resources. Goals/work products may be changed, updated or added, as required, in collaboration with the supervisor. Goals for employees shall be based upon the employee's current classification and assignments. Goals for those who have been temporarily promoted are to be based on the duration of the temporary promotion. Goals for employees who have been assigned to a project or team outside their line organization are to be formulated with consideration of that project or team's objectives.

KEY WORK PRODUCTS / GOALS	KEY PERFORMANCE EXPECTATIONS (e.g., Quality, Cost, Schedule/Time, Customer)	WEIGHT (Optional)
		<input style="width: 40px; height: 20px;" type="text"/>
		<input style="width: 40px; height: 20px;" type="text"/>
		<input style="width: 40px; height: 20px;" type="text"/>
		<input style="width: 40px; height: 20px;" type="text"/>
		<input style="width: 40px; height: 20px;" type="text"/>

(OPTIONAL) SPECIAL ASSIGNMENTS / ROLES

		<input style="width: 40px; height: 20px;" type="text"/>
		<input style="width: 40px; height: 20px;" type="text"/>

EXPECTATIONS FOR KEY WORK PRODUCTS / GOALS WERE DISCUSSED WITH ME:

Employee Signature

Date

Supervisor (Sign & Print)

Date

WORK PRODUCTS / GOALS FEEDBACK (required):

MyPERFORMANCE -- MANAGERS

PART II A - PERFORMANCE FACTORS -- MANAGERS

The following 16 Performance Factors are reflective of the broader performance categories outlined in the Memoranda of Understanding.

PERFORMANCE FACTOR	PERFORMANCE EXPECTATIONS	N/A	U	IN	MS	ES	O
Provides Strategic Leadership and Planning	<ul style="list-style-type: none"> ✓ Prioritizes and aligns work to support District business goals ✓ Establishes a clear sense of purpose and direction ✓ Develops practical plans and schedules for meeting goals and anticipating barriers to getting the job done ✓ Anticipates future business challenges and needs 	N/A	U	IN	MS	ES	O
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>COMMENTS</i>							
Focuses on the Customer / User	<ul style="list-style-type: none"> ✓ Understands customer / user needs, expectations and priorities ✓ Provides timely, responsive and courteous service ✓ Partners with customer/users to accomplish Metropolitan objectives ✓ Keeps the customer informed of progress, options and issues 	N/A	U	IN	MS	ES	O
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>COMMENTS</i>							
Fosters Safe Work Environment	<ul style="list-style-type: none"> ✓ Fosters a safe working environment ✓ Ensures compliance with safety regulations and training requirements 	N/A	U	IN	MS	ES	O
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>COMMENTS</i>							
Engages and Empowers Staff	<ul style="list-style-type: none"> ✓ Communicates effectively to all audiences, both orally and in writing ✓ Inspires team commitment, spirit, pride and trust ✓ Prepares and enables staff to take personal ownership and responsibility for successful accomplishment of goals, projects and tasks ✓ Empowers staff to make decisions and take action ✓ Delegates responsibility to lowest possible level and holds staff accountable for completion 	N/A	U	IN	MS	ES	O
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>COMMENTS</i>							
Encourages Collaboration	<ul style="list-style-type: none"> ✓ Establishes cooperative relationships with others ✓ Shares information to support workgroup goals ✓ Fosters an open exchange of ideas ✓ Actively listens to clarify understanding and learn from others ✓ Coordinates and builds support for planned actions ✓ Builds internal and external relationships and networks and uses them efficiently to create value 	N/A	U	IN	MS	ES	O
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>COMMENTS</i>							
Delivers Value and Productivity	<ul style="list-style-type: none"> ✓ Makes decisions that consider cost/benefits ✓ Works diligently to ensure decisions and actions produce tangible value ✓ Implements new ideas, processes and creative solutions ✓ Ensures team members work productively 	N/A	U	IN	MS	ES	O
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>COMMENTS</i>							

MyPERFORMANCE -- MANAGERS

PART II B - PERFORMANCE FACTORS -- MANAGERS (CONTINUED)							
PERFORMANCE FACTOR	PERFORMANCE EXPECTATIONS	N/A	U	IN	MS	ES	O
Sets High Performance Standards	<ul style="list-style-type: none"> ✓ Sets high standards for conduct and performance excellence ✓ Uses benchmarks, past performance and best practices to set challenging goals ✓ Holds staff and self, accountable for measurable, timely, high-quality, cost-effective results ✓ Addresses low performance ✓ Provides appropriate recognition for high performance 	N/A	U	IN	MS	ES	O
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>COMMENTS</i>							
Conducts On-Time Performance Assessments	<ul style="list-style-type: none"> ✓ Conducts timely, candid and constructive performance evaluations ✓ Uses ongoing performance feedback to ensure "No Surprises" ✓ Completes all performance evaluations within 30 days of due date 	N/A	U	IN	MS	ES	O
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>COMMENTS</i>							
Knows the Job	<ul style="list-style-type: none"> ✓ Demonstrates good understanding of skills, processes and tools necessary to perform the job ✓ Stays up-to-date on business and job-related technical knowledge 	N/A	U	IN	MS	ES	O
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>COMMENTS</i>							
Leads with Integrity and Fairness	<ul style="list-style-type: none"> ✓ Leads by example ✓ Follows relevant laws, rules, regulations and policies to complete assignments with integrity and respect for all ✓ Acts ethically ✓ Manages employees fairly and consistently ✓ Effectively manages diversity, knowledge levels, ideas and individual styles 	N/A	U	IN	MS	ES	O
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>COMMENTS</i>							
Acts Courageously	<ul style="list-style-type: none"> ✓ Makes decisions based on what's best for the business ✓ Willing to go against the conventional wisdom, when it makes sense ✓ Tackles issues/problems that need to be addressed ✓ Effectively confronts and deals with poor performers ✓ Effectively manages conflict ✓ Accepts responsibility for mistakes and learns from the experience 	N/A	U	IN	MS	ES	O
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>COMMENTS</i>							
Takes Swift Action	<ul style="list-style-type: none"> ✓ Acts swiftly to capture opportunities as well as to minimize adverse impact of decisions or issues ✓ Minimizes unnecessary escalation of employee concerns through appropriate actions 	N/A	U	IN	MS	ES	O
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>COMMENTS</i>							

MyPERFORMANCE -- MANAGERS

PART II C - PERFORMANCE FACTORS -- MANAGERS (CONTINUED)							
PERFORMANCE FACTOR	PERFORMANCE EXPECTATIONS	N/A	U	IN	MS	ES	O
Develops People	<ul style="list-style-type: none"> ✓ Selects capable and talented people ✓ Builds a strong team with complementary strengths ✓ Uses training and job assignments to ensure readiness for future work objectives ✓ Coaches and provides timely feedback to foster learning and performance improvement 	N/A	U	IN	MS	ES	O
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>COMMENTS</i>							
Optimizes Resources	<ul style="list-style-type: none"> ✓ Seeks opportunities to obtain maximum benefit from available resources ✓ Ensures staff time and resources are fully utilized ✓ Minimizes waste, inefficiency and unnecessary expenses ✓ Works to ensure things are done right the first time 	N/A	U	IN	MS	ES	O
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>COMMENTS</i>							
Continuously Improves	<ul style="list-style-type: none"> ✓ Stays abreast of business/technology changes and incorporates them as appropriate ✓ Prepares the team to meet future objectives ✓ Seeks continuous improvement in systems, processes and procedures ✓ Continually improves contribution of workgroup to the business 	N/A	U	IN	MS	ES	O
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>COMMENTS</i>							
Gets the Job Done	<ul style="list-style-type: none"> ✓ Willing to take on challenging assignments ✓ Overcomes barriers and works effectively to get the job done ✓ Adapts behaviors/work methods as required with new information, changing conditions, priorities or unexpected obstacles ✓ Completes requested assignments / projects on schedule 	N/A	U	IN	MS	ES	O
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>COMMENTS</i>							
COMMENTS:							

MyPERFORMANCE -- MANAGERS

PART III - OVERALL PERFORMANCE RATING

Place an X in the box which best identifies employee's overall performance

UNSATISFACTORY

IMPROVEMENT NEEDED

MEETS STANDARDS

EXCEEDS STANDARDS

OUTSTANDING

The Overall Performance Rating is based on the performance of assigned job duties and responsibilities, work products / goal accomplishments, performance factors, additional contributions and performance within the organization. The rating also includes the views of project/program team managers outside the line organization for whom an employee completes assignments.

PERFORMANCE RATING DEFINITIONS

UNSATISFACTORY [U]

Performance **DOES NOT MEET** the minimum expectations for Meets Standards performance in this position, either overall or in one or more critical ways.

IMPROVEMENT NEEDED [IN]

Performance generally Meets Standards, but **REQUIRES IMPROVEMENT** or additional development in some areas in order to achieve minimum expectations for Meets Standards performance in this position.

MEETS STANDARDS [MS]

Solid performer; **ACHIEVES GOOD RESULTS** on key work products / goals, performance competencies and assigned job duties, responsibilities and deadlines. Effective team player who focuses on good customer service and quality work. May exceed standards in some areas.

EXCEEDS STANDARDS [ES]

ACHIEVES RESULTS which exceed standards on a majority of assignments and all-priority items. Excellent team player who effectively focuses on excellence, effective customer service and meeting deadlines.

OUTSTANDING [O]

Consistently achieves performance that **SIGNIFICANTLY CONTRIBUTES** to organization results through critical achievements that contribute benefits to Metropolitan.

PART IV - SUPERVISOR'S JUSTIFICATION FOR OVERALL PERFORMANCE RATING

PART V - EMPLOYEE COMMENTS FOR ANNUAL PERFORMANCE ASSESSMENT (OPTIONAL FOR EMPLOYEE)

PART VI - SIGNATURES

THIS PERFORMANCE REVIEW WAS DISCUSSED WITH ME. MY SIGNATURE DOES NOT NECESSARILY INDICATE AGREEMENT WITH THIS ASSESSMENT.

EMPLOYEE SIGNATURE

DATE

THIS REPORT IS BASED ON MY OBSERVATION/KNOWLEDGE. IT REPRESENTS MY BEST JUDGMENT OF THE EMPLOYEE'S PERFORMANCE.

SUPERVISOR (SIGN & PRINT)

DATE

REVIEWER SIGNATURE

DATE



MyPERFORMANCE

Strategy • Collaboration • Results

EMPLOYEE Evaluation

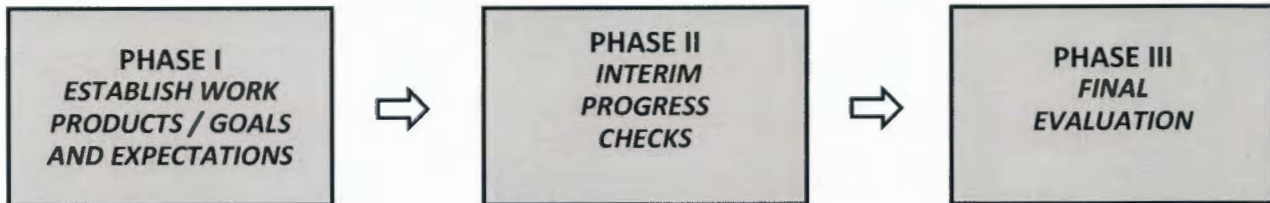
ID Number _____ Name _____ Group _____

Job Title _____ Period: From _____ To _____

MyPERFORMANCE -- Employee Performance Evaluation Process

Employee evaluation is a process of rating an employee's work performance, based upon a supervisor's objective and factual appraisal of his job knowledge, skills, initiative, productivity, work habits, human relations and communication skills. This process is intended to foster a high performance environment that enables employees to perform to the best of their abilities through work product / goal planning, periodic progress checks and clear feedback on performance.

Clear expectations and effective and frequent performance conversations between the employee and his/her supervisor, and between the supervisor and others assigning work, throughout the year are key to successful performance. Goals, Interim Progress Checks and the Final Evaluation will all be provided in writing.



Ongoing Performance Conversations

All employees are expected to demonstrate performance which meets expected standards.

PERFORMANCE RATING DEFINITIONS

UNSATISFACTORY [U]	IMPROVEMENT NEEDED [IN]	MEETS STANDARDS [MS]	EXCEEDS STANDARDS [ES]	OUTSTANDING [O]
Performance DOES NOT MEET the minimum expectations for Meets Standards performance in this position, either overall or in one or more critical ways.	Performance generally Meets Standards, but REQUIRES IMPROVEMENT or additional development in some areas in order to achieve minimum expectations for Meets Standards performance in this position.	Solid performer; ACHIEVES GOOD RESULTS on <i>key</i> work products / goals, performance competencies and assigned job duties, responsibilities and deadlines. Effective team player who focuses on good customer service and quality work. May exceed standards in some areas.	ACHIEVES RESULTS which exceed standards on a majority of assignments and all priority items. Excellent team player who effectively focuses on excellence, effective customer service and meeting deadlines.	Consistently achieves performance that SIGNIFICANTLY CONTRIBUTES to organization results through critical achievements that contribute benefits to Metropolitan.

MyPERFORMANCE -- EMPLOYEES

PART I - WORK PRODUCTS / GOALS	PERIOD COVERED _____	To _____
---------------------------------------	-----------------------------	-----------------

INSTRUCTIONS: Identify 3 - 6 key work products or goals to be completed during the next 12 months. Describe the work to be accomplished together with how successful performance will be demonstrated / assessed. Goals/work products should be **Specific, Measurable, realistic, Attainable, Relevant and Time-based**, and should account for available resources. Goals/work products may be changed, updated or added, as required, in collaboration with the supervisor. Goals for employees shall be based upon the employee's current classification and assignments. Goals for those who have been temporarily promoted are to be based on the duration of the temporary promotion. Goals for employees who have been assigned to a project or team outside their line organization are to be formulated with consideration of that project or team's objectives.

KEY WORK PRODUCTS / GOALS	KEY PERFORMANCE EXPECTATIONS (e.g., Quality, Cost, Schedule/Time, Customer)	WEIGHT (Optional)
		<input style="width: 40px; height: 20px;" type="text"/>
		<input style="width: 40px; height: 20px;" type="text"/>
		<input style="width: 40px; height: 20px;" type="text"/>
		<input style="width: 40px; height: 20px;" type="text"/>
		<input style="width: 40px; height: 20px;" type="text"/>

(OPTIONAL) SPECIAL ASSIGNMENTS / ROLES

		<input style="width: 40px; height: 20px;" type="text"/>
		<input style="width: 40px; height: 20px;" type="text"/>

EXPECTATIONS FOR KEY WORK PRODUCTS / GOALS WERE DISCUSSED WITH ME:

_____ Date _____ Supervisor (Sign & Print) _____ Date _____
 Employee Signature

WORK PRODUCTS / GOALS FEEDBACK (required):

MyPERFORMANCE -- EMPLOYEES

PART II A - PERFORMANCE FACTORS

The following 14 Performance Factors are reflective of the broader performance categories outlined in the Memoranda of Understanding.

PERFORMANCE FACTOR	PERFORMANCE EXPECTATIONS	N/A	U	IN	MS	ES	O
Works Safely	<ul style="list-style-type: none"> ✓ Applies appropriate knowledge of regulatory practices ✓ Follows safe work practices ✓ Completes required safety training 	N/A	U	IN	MS	ES	O
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>COMMENTS</i>							
Focuses on the Customer / User	<ul style="list-style-type: none"> ✓ Understands customer / user needs, expectations and priorities ✓ Provides timely, responsive and courteous service ✓ Partners with customer/users to accomplish Metropolitan objectives ✓ Keeps the customer informed of progress, options and issues 	N/A	U	IN	MS	ES	O
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>COMMENTS</i>							
Plans Effectively	<ul style="list-style-type: none"> ✓ Plans for work needs and acts with minimal instruction ✓ Develops practical plans and schedules to meet goals ✓ Uses facts, data and sound judgment for planning decisions 	N/A	U	IN	MS	ES	O
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>COMMENTS</i>							
Communicates Effectively	<ul style="list-style-type: none"> ✓ Regularly keeps those impacted informed, as appropriate ✓ Able to communicate clearly to get point across ✓ Is effective at communication with others ✓ Is proactive in communicating with those impacted 	N/A	U	IN	MS	ES	O
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>COMMENTS</i>							
Knows the Job	<ul style="list-style-type: none"> ✓ Demonstrates good understanding of skills, processes and tools necessary to perform the job ✓ Effectively applies required technical knowledge ✓ Stays up-to-date on business and job-related technical knowledge and skills ✓ Is up-to-date on required training 	N/A	U	IN	MS	ES	O
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>COMMENTS</i>							
Takes Ownership of Performance	<ul style="list-style-type: none"> ✓ Frequently a self-starter ✓ Often takes the initiative and follows-through ✓ Mostly takes personal ownership to meet performance commitments and goals ✓ Works to resolve problems and overcome challenges ✓ Considers impact of actions beyond immediate job 	N/A	U	IN	MS	ES	O
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>COMMENTS</i>							
Demonstrates Sound Work Habits	<ul style="list-style-type: none"> ✓ Observes assigned schedule and working hours ✓ Is responsive to work requests ✓ Manages time and priorities effectively ✓ Knows and follows District processes and procedures 	N/A	U	IN	MS	ES	O
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>COMMENTS</i>							

MyPERFORMANCE -- EMPLOYEES

PART II B - PERFORMANCE FACTORS (CONTINUED)							
PERFORMANCE FACTOR	PERFORMANCE EXPECTATIONS	N/A	U	IN	MS	ES	O
Works Well with Others	<ul style="list-style-type: none"> ✓ Builds good working relationships with customers, co-workers and others impacted ✓ Treats others with respect ✓ Effectively handles conflict ✓ Collaborates with others to perform assignments 	N/A	U	IN	MS	ES	O
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>COMMENTS</i>							
Produces High Quality Work	<ul style="list-style-type: none"> ✓ Performs quality / error-free work ✓ Creates services/solutions of value ✓ Contributes high quality ideas and successful solutions 	N/A	U	IN	MS	ES	O
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>COMMENTS</i>							
Works Productively	<ul style="list-style-type: none"> ✓ Produces amount of work required to accomplish assigned tasks ✓ Uses time effectively and productively 	N/A	U	IN	MS	ES	O
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>COMMENTS</i>							
Conserves Resources	<ul style="list-style-type: none"> ✓ Decisions take into account the cost impact on own organization as well as the impact on the entire organization ✓ Manages own time, equipment and supplies effectively ✓ Identifies ways to reduce costs and eliminate waste 	N/A	U	IN	MS	ES	O
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>COMMENTS</i>							
Evidences Integrity	<ul style="list-style-type: none"> ✓ Acts with integrity ✓ Follows through on commitments ✓ Builds trust 	N/A	U	IN	MS	ES	O
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>COMMENTS</i>							
Continuously Improves	<ul style="list-style-type: none"> ✓ Offers and tries new ideas and approaches ✓ Uses opportunities to improve processes, streamline work and reduce waste ✓ Supports changes to bring about process improvements ✓ Participates in discussions to improve performance 	N/A	U	IN	MS	ES	O
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>COMMENTS</i>							
Gets the Job Done	<ul style="list-style-type: none"> ✓ Usually willing to take on challenging assignments ✓ Overcomes barriers and works effectively to get the job done ✓ Adapts behaviors/work methods as required with new information, changing conditions, priorities or unexpected obstacles ✓ Generally completes requested assignments / projects on schedule 	N/A	U	IN	MS	ES	O
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>COMMENTS</i>							

MyPERFORMANCE -- EMPLOYEES

PART III - OVERALL PERFORMANCE RATING

Place an X in the box which best identifies employee's overall performance

UNSATISFACTORY

IMPROVEMENT NEEDED

MEETS STANDARDS

EXCEEDS STANDARDS

OUTSTANDING

The Overall Performance Rating is based on the performance of assigned job duties and responsibilities, work products / goal accomplishments, performance factors, additional contributions and performance within the organization. The rating also includes the views of project/program team managers outside the line organization for whom an employee completes assignments.

PERFORMANCE RATING DEFINITIONS

UNSATISFACTORY [U]

Performance **DOES NOT MEET** the minimum expectations for Meets Standards performance in this position, either overall or in one or more critical ways.

IMPROVEMENT NEEDED [IN]

Performance generally Meets Standards, but **REQUIRES IMPROVEMENT** or additional development in some areas in order to achieve minimum expectations for Meets Standards performance in this position.

MEETS STANDARDS [MS]

Solid performer; **ACHIEVES GOOD RESULTS** on key work products / goals, performance competencies and assigned job duties, responsibilities and deadlines. Effective team player who focuses on good customer service and quality work. May exceed standards in some areas.

EXCEEDS STANDARDS [ES]

ACHIEVES RESULTS which exceed standards on a majority of assignments and all-priority items. Excellent team player who effectively focuses on excellence, effective customer service and meeting deadlines.

OUTSTANDING [O]

Consistently achieves performance that **SIGNIFICANTLY CONTRIBUTES** to organization results through critical achievements that contribute benefits to Metropolitan.

PART IV - SUPERVISOR'S JUSTIFICATION FOR OVERALL PERFORMANCE RATING

PART V - EMPLOYEE COMMENTS FOR ANNUAL PERFORMANCE ASSESSMENT (OPTIONAL FOR EMPLOYEE)

PART VI -SIGNATURES

THIS PERFORMANCE REVIEW WAS DISCUSSED WITH ME. MY SIGNATURE DOES NOT NECESSARILY INDICATE AGREEMENT WITH THIS ASSESSMENT.

EMPLOYEE SIGNATURE

DATE

THIS REPORT IS BASED ON MY OBSERVATION/KNOWLEDGE. IT REPRESENTS MY BEST JUDGMENT OF THE EMPLOYEE'S PERFORMANCE.

SUPERVISOR (SIGN & PRINT)

DATE

REVIEWER SIGNATURE

DATE



Hillsides

Annual Performance Review
Managers and Supervisors

Employee Name:	
Employee Job Title:	
Employee Department:	
Immediate Supervisor:	
Review Period:	

INSTRUCTIONS

1. Employee completes the **Self Review** section
2. Employee completes the **Objectives & Goals for the Next Review Period** section
3. Employee emails the form to his/her immediate supervisor
4. Immediate supervisor reviews the questions answered by the employee
5. Immediate supervisor completes the **Performance Review** section
6. Employee and immediate supervisor meet to discuss the content of the form
7. Supervisor makes any agreed upon edits to the **Objectives & Goals for the Next Review Period** and **Performance Review** sections
8. Supervisor returns a fully signed original of the Performance Review Form to Human Resources

SELF REVIEW

1. What do you feel have been your 2-3 most significant highlights, accomplishments or areas of strength over the review period?

Employee Comments:

2. What areas of your performance do you feel could use improvement? What could help support that improvement?

Employee Comments:

3. List your Professional Development Goals for this review period and comment on the achievement of these goals (might be easiest to copy and paste the list from last year's review form):

Employee Comments:

4. List your Performance Objectives for this review period and comment on the achievement of these objectives (might be easiest to copy and paste the list from last year's review form):

Employee Comments:

5. Please provide feedback to your supervisor on the following:

a. How clearly are expectations/requirements communicated?

Employee Comments:

b. Is performance feedback provided with adequate frequency?

Employee Comments:

c. If you could offer one suggestion to improve your working relationship, what would it be?

Employee Comments:

OBJECTIVES & GOALS FOR THE NEXT REVIEW PERIOD

This section is completed by the employee and can be revised by the immediate supervisor (with additional dialogue occurring as needed).

Whenever possible, be sure to apply "S.M.A.R.T." criteria when describing each objective and goal. Specific, Measurable, Attainable, Realistic, Timely (use a 3, 6 or 12 month time frame).

Visit <http://topachievement.com/smart.html> for additional tips on applying S.M.A.R.T. criteria.

1. List 1 to 5 Performance Objectives for the next review period*:

1)	
2)	
3)	
4)	
5)	

2. List 1 to 3 Professional Development Goals for the upcoming review period*:

1)	
----	--

2)	
3)	

*Please attach additional sheet if more space is needed.

PERFORMANCE REVIEW BY IMMEDIATE SUPERVISOR

Listed below are the key competencies for a manager or supervisor at Hillside. For each competency, the **immediate supervisor** of the employee should determine the level of performance based on behaviors and actions that were observed during the review period. This is done by placing a number in the box in front of each competency that corresponds to the appropriate level of performance and adding any comments that include specific examples of the behavior and actions that were demonstrated.

5 - Outstanding: Performance consistently exceeds expectations. Demonstrates unusually high level of performance relative to all job responsibilities. Distinguished performance overall (**Supervisor comments and examples are required for this ranking**).

4- 4.9 – Exceeds Expectations: Performance meets and often exceeds expectations. Demonstrates successful performance with all job responsibilities and consistently exceeds position requirements in most areas.

3- 3.9 – Meets Expectations: Performance consistently meets expectations. Demonstrates successful performance with all or most of the job responsibilities.

2- 2.9 – Needs Improvement: Meets some expectations but not consistently. Overall performance is below the acceptable level and must improve to meet the minimum requirements for the position (**Supervisor comments and examples are required for this ranking**).

1- 1.9 – Unacceptable: Performance is consistently below expectations. Fails to meet the minimum requirements for the position in most areas. If performance does not improve it could result in disciplinary action up to and including termination of employment (**Supervisor comments and examples are required for this ranking**).

N/A: This competency is not applicable or has not been observed by the direct supervisor

Adaptability: Easily adjusts to changes in routine, assignments and departmental or organizational objectives.

Supervisor Comments and Examples:	
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Communication: Maintains open, effective communication with all employees and colleagues. Written and verbal communication are clear, concise and understandable.

Supervisor Comments and Examples:	
-----------------------------------	--

- Initiative:** Takes the initiative to recommend or implement resources, alternatives or original ideas.

Supervisor Comments and Examples:

- Judgment:** Makes wise decisions after adequately contemplating various available courses of action.

Supervisor Comments and Examples:

- Knowledge & Skills:** Possesses and applies knowledge or skills necessary for task completion. Keeps current on new developments in area of work.

Supervisor Comments and Examples:

- Leadership:** Gains commitment and mobilize others to achieve organizational goals. Creates and communicates a compelling vision that generates excitement, enthusiasm and commitment.

Supervisor Comments and Examples:

- Planning:** Prioritizes tasks, anticipates needs and makes adjustments.

Supervisor Comments and Examples:

- Problem Solving:** Identifies problems within own area, develops resourceful solutions and makes recommendations or implements corrective action.

Supervisor Comments and Examples:

- Professionalism:** Thinks carefully about the likely effects on others of one's words, actions, appearance and mode of behavior.

Supervisor Comments and Examples:

- Quality of Work:** Assignments are accurate, complete and are congruent with objectives, policies or procedures.

Supervisor Comments and Examples:

- Quantity of Work:** Produces a significant volume of work to support goals within specified time frames.

Supervisor Comments and Examples:

- Reliability:** Can be relied upon to complete tasks and follow-up as needed.

Supervisor Comments and Examples:

- Teamwork:** Willingly cooperates, shares information, assists and is collaborative with all employees, clients and partners.

Supervisor Comments and Examples:

- Other Competency (if applicable):** _____
Description of Competency: _____

Supervisor Comments and Examples:

- Other Competency (if applicable):** _____
Description of Competency: _____

Supervisor Comments and Examples:

OVERALL ASSESSMENT OF PERFORMANCE

Overall evaluation of the employee's performance and suggested merit increase (to obtain the overall average, sum the scores for all competencies and divide by the total number of competencies)

Supervisor Comments:
Suggested Merit Increase:

Immediate Supervisor Signature: _____ Date: _____

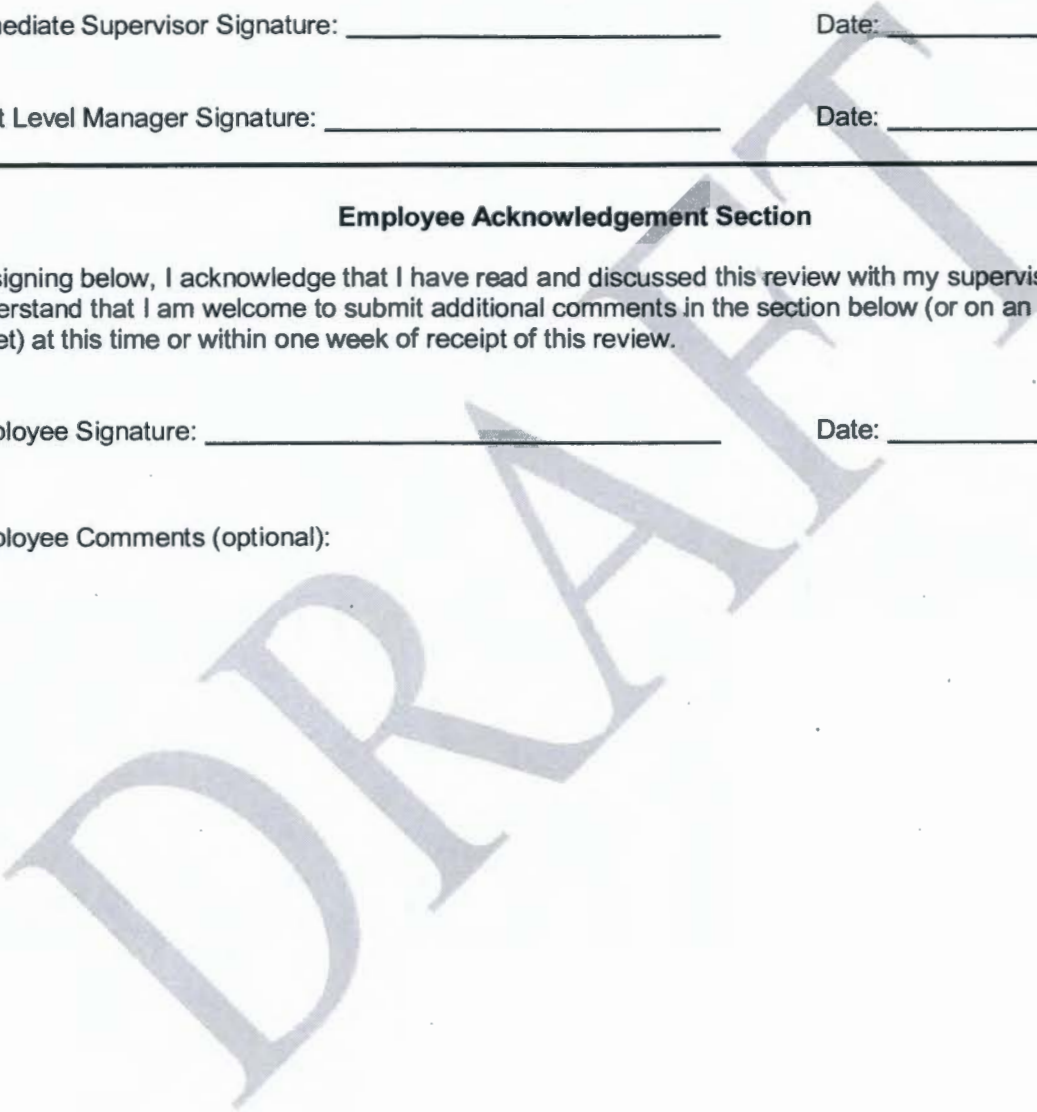
Next Level Manager Signature: _____ Date: _____

Employee Acknowledgement Section

By signing below, I acknowledge that I have read and discussed this review with my supervisor. I further understand that I am welcome to submit additional comments in the section below (or on an attached sheet) at this time or within one week of receipt of this review.

Employee Signature: _____ Date: _____

Employee Comments (optional):





Hillsides

Annual Performance Review
Administration & Support Services

Employee Name:	
Employee Job Title:	
Employee Department:	
Immediate Supervisor:	
Review Period:	

INSTRUCTIONS

1. Employee completes the **Self Review** section
2. Employee completes the **Objectives & Goals for the Next Review Period** section
3. Employee emails the form to his/her immediate supervisor
4. Immediate supervisor reviews the questions answered by the employee
5. Immediate supervisor completes the **Performance Review** section
6. Employee and immediate supervisor meet to discuss the content of the form
7. Supervisor makes any agreed upon edits to the **Objectives & Goals for the Next Review Period** and **Performance Review** sections
8. Supervisor returns a fully signed original of the Performance Review Form to Human Resources

SELF REVIEW

1. What do you feel have been your 2-3 most significant highlights, accomplishments or areas of strength over the review period?

Employee Comments:

2. What areas of your performance do you feel could use improvement? What could help support that improvement?

Employee Comments:

3. List your Professional Development Goals for this review period and comment on the achievement of these goals (might be easiest to copy and paste the list from last year's review form):

Employee Comments:

4. List your Performance Objectives for this review period and comment on the achievement of these objectives (might be easiest to copy and paste the list from last year's review form):

Employee Comments:

5. Please provide feedback to your supervisor on the following:

a. How clearly are expectations/requirements communicated?

Employee Comments:

b. Is performance feedback provided with adequate frequency?

Employee Comments:

c. If you could offer one suggestion to improve your working relationship, what would it be?

Employee Comments:

OBJECTIVES & GOALS FOR THE NEXT REVIEW PERIOD

This section is completed by the employee and can be revised by the immediate supervisor (with additional dialogue occurring as needed).

*Whenever possible, be sure to apply "S.M.A.R.T." criteria when describing each objective and goal. **Specific, Measurable, Attainable, Realistic, Timely** (use a 3, 6 or 12 month time frame).*

Visit <http://topachievement.com/smart.html> for additional tips on applying S.M.A.R.T. criteria.

1. List 1 to 5 Performance Objectives for the next review period*:

1)	
2)	
3)	
4)	
5)	

2. List 1 to 3 Professional Development Goals for the upcoming review period*:

1)	
----	--

2)	
3)	

*Please attach additional sheet if more space is needed.

PERFORMANCE REVIEW BY IMMEDIATE SUPERVISOR

Listed below are the key competencies for an employee in an administrative or support services role at Hillside. For each competency, the **immediate supervisor** of the employee should determine the level of performance based on behaviors and actions that were observed during the review period. This is done by placing a number in the box in front of each competency that corresponds to the appropriate level of performance and adding any comments that include specific examples of the behavior and actions that were demonstrated.

5 - Outstanding: Performance consistently exceeds expectations. Demonstrates unusually high level of performance relative to all job responsibilities. Distinguished performance overall (**Supervisor comments and examples are required for this ranking**).

4- 4.9 – Exceeds Expectations: Performance meets and often exceeds expectations. Demonstrates successful performance with all job responsibilities and consistently exceeds position requirements in most areas.

3- 3.9 – Meets Expectations: Performance consistently meets expectations. Demonstrates successful performance with all or most of the job responsibilities.

2- 2.9 – Needs Improvement: Meets some expectations but not consistently. Overall performance is below the acceptable level and must improve to meet the minimum requirements for the position (**Supervisor comments and examples are required for this ranking**).

1- 1.9 – Unacceptable: Performance is consistently below expectations. Fails to meet the minimum requirements for the position in most areas. If performance does not improve it could result in disciplinary action up to and including termination of employment (**Supervisor comments and examples are required for this ranking**).

N/A: This competency is not applicable or has not been observed by the direct supervisor

Adaptability: Easily adjusts to changes in routine, assignments and departmental or organizational objectives.

Supervisor Comments and Examples:

Attendance: Arrives to scheduled shift on time and exhibits excellent reliability with respect to attendance.

Supervisor Comments and Examples:

- Communication:** Maintains open, effective communication with all employees and colleagues. Written and verbal communication are clear, concise and understandable.

Supervisor Comments and Examples:

- Initiative:** Takes the initiative to recommend or implement resources, alternatives or original ideas.

Supervisor Comments and Examples:

- Judgment:** Makes wise decisions after adequately contemplating various available courses of action.

Supervisor Comments and Examples:

- Knowledge & Skills:** Possesses and applies knowledge or skills necessary for task completion. Keeps current on new developments in area of work.

Supervisor Comments and Examples:

- Planning:** Prioritizes tasks, anticipates needs and makes adjustments.

Supervisor Comments and Examples:

- Problem Solving:** Identifies problems within own area, develops resourceful solutions and makes recommendations or implements corrective action.

Supervisor Comments and Examples:

- Professionalism:** Thinks carefully about the likely effects on others of one's words, actions, appearance and mode of behavior.

Supervisor Comments and Examples:

- Quality of Work:** Assignments are accurate, complete and are congruent with objectives, policies or procedures.

Supervisor Comments and Examples:

- Quantity of Work:** Produces a significant volume of work to support goals within specified time frames.

Supervisor Comments and Examples:

- Reliability:** Can be relied upon to complete tasks and follow-up as needed.

Supervisor Comments and Examples:

- Service Levels:** Provides outstanding service to internal and external customers in a timely manner.

Supervisor Comments and Examples:

- Teamwork:** Willingly cooperates, shares information, assists and is collaborative with all employees, clients and partners.

Supervisor Comments and Examples:

- Other Competency (if applicable):** _____
Description of Competency: _____

Supervisor Comments and Examples:

- Other Competency (if applicable):** _____
Description of Competency: _____

Supervisor Comments and Examples:

OVERALL ASSESSMENT OF PERFORMANCE

Overall evaluation of the employee's performance and suggested merit increase (to obtain the overall average, sum the scores for all competencies and divide by the total number of competencies)

Supervisor Comments:

Suggested Merit Increase:

Immediate Supervisor Signature: _____ Date: _____

Next Level Manager Signature: _____ Date: _____

Employee Acknowledgement Section

By signing below, I acknowledge that I have read and discussed this review with my supervisor. I further understand that I am welcome to submit additional comments in the section below (or on an attached sheet) at this time or within one week of receipt of this review.

Employee Signature: _____ Date: _____

Employee Comments (optional):



Hillsides

Annual Performance Review
Community Based Services

Employee Name:	
Employee Job Title:	
Employee Department:	
Immediate Supervisor:	
Review Period:	

INSTRUCTIONS

1. Employee completes the **Self Review** section
2. Employee completes the **Objectives & Goals for the Next Review Period** section
3. Employee emails the form to his/her immediate supervisor
4. Immediate supervisor reviews the questions answered by the employee
5. Immediate supervisor completes the **Performance Review** section
6. Employee and immediate supervisor meet to discuss the content of the form
7. Supervisor makes any agreed upon edits to the **Objectives & Goals for the Next Review Period** and **Performance Review** sections
8. Supervisor returns a fully signed original of the Performance Review Form to Human Resources

SELF REVIEW

1. What do you feel have been your 2-3 most significant highlights, accomplishments or areas of strength over the review period?

Employee Comments:

2. What areas of your performance do you feel could use improvement? What could help support that improvement?

Employee Comments:

3. List your Professional Development Goals for this review period and comment on the achievement of these goals (might be easiest to copy and paste the list from last year's review form):

Employee Comments:

4. List your Performance Objectives for this review period and comment on the achievement of these objectives (might be easiest to copy and paste the list from last year's review form):

Employee Comments:

5. Please provide feedback to your supervisor on the following:

a. How clearly are expectations/requirements communicated?

Employee Comments:

b. Is performance feedback provided with adequate frequency?

Employee Comments:

c. If you could offer one suggestion to improve your working relationship, what would it be?

Employee Comments:

OBJECTIVES & GOALS FOR THE NEXT REVIEW PERIOD

This section is completed by the employee and can be revised by the immediate supervisor (with additional dialogue occurring as needed).

*Whenever possible, be sure to apply "S.M.A.R.T." criteria when describing each objective and goal. **Specific, Measurable, Attainable, Realistic, Timely** (use a 3, 6 or 12 month time frame).*

Visit <http://topachievement.com/smart.html> for additional tips on applying S.M.A.R.T. criteria.

1. List 1 to 5 Performance Objectives for the next review period*:

1)	
2)	
3)	
4)	
5)	

2. List 1 to 3 Professional Development Goals for the upcoming review period*:

1)	
----	--

2)	
3)	

*Please attach additional sheet if more space is needed.

PERFORMANCE REVIEW BY IMMEDIATE SUPERVISOR

Listed below are the key competencies for an employee providing community based services at Hillside. For each competency, the **immediate supervisor** of the employee should determine the level of performance based on behaviors and actions that were observed during the review period. This is done by placing a number in the box in front of each competency that corresponds to the appropriate level of performance and adding any comments that include specific examples of the behavior and actions that were demonstrated.

5 - Outstanding: Performance consistently exceeds expectations. Demonstrates unusually high level of performance relative to all job responsibilities. Distinguished performance overall (**Supervisor comments and examples are required for this ranking**).

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3- 3.9 – Meets Expectations: Performance consistently meets expectations. Demonstrates successful performance with all or most of the job responsibilities.

2- 2.9 – Needs Improvement: Meets some expectations but not consistently. Overall performance is below the acceptable level and must improve to meet the minimum requirements for the position (**Supervisor comments and examples are required for this ranking**).

1- 1.9 – Unacceptable: Performance is consistently below expectations. Fails to meet the minimum requirements for the position in most areas. If performance does not improve it could result in disciplinary action up to and including termination of employment (**Supervisor comments and examples are required for this ranking**).

N/A: This competency is not applicable or has not been observed by the direct supervisor

Adaptability: Easily adjusts to changes in routine, assignments and departmental or organizational objectives.

Supervisor Comments and Examples:

Attendance: Arrives to scheduled shift on time and exhibits excellent reliability with respect to attendance.

Supervisor Comments and Examples:

- Clinical Documentation:** Assessments are appropriate and documented. Treatment plans are consistent with diagnoses.

Supervisor Comments and Examples:

- Clinical Skills:** Engages with clients in a caring manner, diagnoses consistent with symptomology, addresses cultural issues with sensitivity, effectively utilizes/refers to community resources, establishes and maintains clinical boundaries, effectively navigates group dynamics, excellent case management skills, develops therapeutic alliance with clients, collaborative with the client's family, displays excellent advocacy and develops/implements appropriate clinical interventions.

Supervisor Comments and Examples:

- Communication:** Maintains open, effective communication with all employees, clients and colleagues. Written and verbal communication are clear, concise and understandable.

Supervisor Comments and Examples:

- Initiative:** Takes the initiative to recommend or implement resources, alternatives or original ideas.

Supervisor Comments and Examples:

- Judgment:** Makes wise decisions after adequately contemplating various available courses of action.

Supervisor Comments and Examples:

- Knowledge & Skills:** Possesses and applies knowledge or skills necessary for task completion. Keeps current on new developments in area of work.

Supervisor Comments and Examples:

- Planning:** Prioritizes tasks, anticipates needs and makes adjustments.

Supervisor Comments and Examples:

- Problem Solving:** Identifies problems within own area, develops resourceful solutions and makes recommendations or implements corrective action.

Supervisor Comments and Examples:

- Professionalism:** Thinks carefully about the likely effects on others of one's words, actions, appearance and mode of behavior.

Supervisor Comments and Examples:

- Quality of Work:** Assignments are accurate, complete and are congruent with objectives, policies or procedures.

Supervisor Comments and Examples:

- Quantity of Work:** Produces a significant volume of work to support goals within specified time frames.

Supervisor Comments and Examples:

- Reliability:** Can be relied upon to complete tasks and follow-up as needed.

Supervisor Comments and Examples:

- Teamwork:** Willingly cooperates, shares information, assists and is collaborative with all employees, clients and partners.

Supervisor Comments and Examples:

Other Competency (if applicable): _____
Description of Competency: _____

Supervisor Comments and Examples:

Other Competency (if applicable): _____
Description of Competency: _____

Supervisor Comments and Examples:

OVERALL ASSESSMENT OF PERFORMANCE

Overall evaluation of the employee's performance and suggested merit increase (to obtain the overall average, sum the scores for all competencies and divide by the total number of competencies)

Supervisor Comments:

Suggested Merit Increase:

Immediate Supervisor Signature: _____ Date: _____

Next Level Manager Signature: _____ Date: _____

Employee Acknowledgement Section

By signing below, I acknowledge that I have read and discussed this review with my supervisor. I further understand that I am welcome to submit additional comments in the section below (or on an attached sheet) at this time or within one week of receipt of this review.

Employee Signature: _____ Date: _____

Employee Comments (optional):

DRAFT

MANAGER/PROFESSIONAL/EXEMPT
BIENVENIDOS
ANNUAL PERFORMANCE REVIEW



Employee Name: [REDACTED]

Job Title: [REDACTED]

Facility/Department: [REDACTED]

Immediate Supervisor: [REDACTED]

Evaluation Period: [REDACTED]

Listed below are the key competencies for a Managerial/Professional employee at Bienvenidos Children's Center, Inc. For each competency, determine the LEVEL OF PERFORMANCE based on behaviors and actions you have observed during the year. Place a number in the box in front of each competency that corresponds to the appropriate level of performance. At the end of the evaluation, summarize the employee's strengths/weaknesses and indicate those actions that the employee can take to improve performance. If a competency is not applicable to the job responsibilities of the employee, write "N/A" in the box preceding the competency (this should occur infrequently).

LEVELS OF PERFORMANCE

1. **Does Not Meet Expectations:** Work is characterized by frequent difficulties in accomplishing assigned tasks, excessive errors, failure to meet objectives and key job competencies or disregard for instructions.
2. **Partially Meets Expectations:** Work is characterized by minor errors, a minimum work level, and inability to consistently meet several of the key job responsibilities, objectives, or competencies.
3. **Meets Expectations:** Is the reasonable and acceptable performance level for most employees.
4. **Exceeds Expectations:** Produces above-average results that exceed reasonable and acceptable desired performance levels.
5. **Far Exceeds Expectations:** Consistently produces outstanding results that exceed desired performance levels and norms.

Please include explanation and details for rating of 1 or 5.

1

EFFECTIVE COMMUNICATION is the ability to convey information in a manner that facilitates and ensures understanding. Involves the sharing of information with people at all levels and in other departments or functions; encouraging the free and constructive exchange of information and expertise; a willingness to listen to and accept input from others in a non-defensive manner; and, an appreciation for different and opposing perspectives on an issue.

3

PLANNING AND ORGANIZING is the ability to identify the tasks that need to be achieved to meet agreed upon milestones and to achieve results by the effective mobilization, development, and utilization of resources including human, physical, technical, and/or financial resources. Involves developing plans and anticipating/creating contingency plans to deal with possible problems and roadblocks.

3

LEADERSHIP is the ability to gain commitment and mobilize others to achieve organizational goals. Leadership is the application of traits and principles that develop team players and establish a "can do" esprit de corps. Involves creating and communicating a compelling vision that generates excitement, enthusiasm and commitment; putting organizational needs before own; and, a willingness to take a stand when it is important to the mission of the organization.

3

TEAMWORK entails building rapport with individuals at all levels, both inside and outside the organization. Involves establishing networks that enhance performance. Involves leveraging those networks and relationships to obtain critical information; motivating other to excel; and, providing a supportive work environment that generates trust, respect, and commitment.

3

PROBLEM SOLVING is understanding a situation by breaking it into smaller pieces or tracing step-by-step the implications of a situation. Includes organizing the parts of a problem systematically; making logical comparisons of different components; rationally setting priorities; and, identifying time sequences.

3

ACCOUNTABILITY is taking responsibility for results and being personally committed to achieving the objectives of the organization. Involves accepting personal responsibility in spite of difficulties; seeing obstacles as challenges to overcome versus impossibilities; showing a strong commitment to personal and professional values; and, adhering to policies, procedures, regulations and codes of conduct.

3

OVERALL ASSESSMENT OF PERFORMANCE is the overall evaluation of the employee's performance when taking into account the level of performance of each individual competency.

Strengths – describe the positive attitude, work habits and/or job competencies.

Weaknesses – describe the attitude, work habits and/or job competencies that need to be enhanced or developed.

Goals – were goals set for the last evaluation period? What were the goals? Were the goals met?

Supervisor Signature:

Date:

Next Level of Management Signature:

Date:

Employee Signature:

Date:

[An employee's signature indicates that a discussion has taken place covering the information on the annual summary. The employee's signature is not necessarily a reflection of agreement with the supervisor's evaluation or recommendations.]

Rev. 03.2013

**EXEMPT/NONEXEMPT
BIENVENIDOS
ANNUAL PERFORMANCE REVIEW**



Employee Name:

Job Title:

Facility/Department:

Immediate Supervisor:

Evaluation Period:

Listed below are the key work habits and competencies for an Exempt/Non-exempt Employee at Bienvenidos. For each work habit and competency, place an "X" in the box that best describes the employee's performance. While there may be some overlap between the choices, choose the one level that you feel is the most descriptive of performance. At the end of the evaluation, summarize the employee's strengths/weaknesses and indicate those actions that the employee can take to improve performance.

ATTENDANCE:

- 1 - Frequent absences
- 2 - Borderline; absences evident
- 3 - Regular attendance; absences not excessive
- 4 - Very few absences
- 5 - No absences

PUNCTUALITY:

- 1 - Frequently late to work and/or to meetings
- 2 - Borderline; lateness evident
- 3 - Regular punctuality; usually on time
- 4 - Very little lateness
- 5 - Always prompt

FOLLOWS INSTRUCTIONS:

- 1 - Disregards instructions
- 2 - Marginal follow through
- 3 - Usually listens and follows through
- 4 - Consistently listens and follows through
- 5 - Always listens, understands and gets it done

ENERGY:

- 1 - Does as little as possible
- 2 - Does what is minimally acceptable
- 3 - Maintains an acceptable level of performance
- 4 - Exerts higher levels of productivity at times
- 5 - Consistent level of high productivity

COOPERATION/TEAMWORK:

- 1 - Relations are frequently negative, detrimental or abrasive with others; does not cooperate with others; disrespectful of supervision
- 2 - Usually assists only when asked; occasionally argumentative or unhelpful; is disrespectful of supervision at times
- 3 - Regularly and competently helps others; willingly provides whatever support is required by others; respects supervision
- 4 - Actively seeks to provide support to others; asks how support can be given to others; actively supports supervision
- 5 - Is willing to offer assistance even in the face of adversity; consistently helps others; generates a cooperative team spirit; enthusiastic and actively supports supervision

DECISION MAKING:

- 1 - Unable to make independent decisions appropriate to job responsibilities
- 2 - Decisions are frequently marginal, deficient, or otherwise inappropriate; reacts to issues and crisis as they arise
- 3 - Reasonable and acceptable decisions are competently and regularly made; brings issues to closure before they become a crisis
- 4 - Makes timely independent decisions that are appropriate and sound. Decisions that achieve short-term results with some consideration for long-term implications
- 5 - Decisions are consistently creative, innovative, uniformly workable and appropriate; takes actions now to create opportunities or to avoid problems

ACCOUNTABILITY:

- 1 - Demonstrates little or no accountability; usually blames others for poor performance; constantly making excuses for results
- 2 - When pushed will accept some accountability; recognizes the concept of personal accountability but at times tends to blame others for circumstances or poor results
- 3 - Accepts personal responsibility for achieving assigned tasks and objectives and makes reasonable efforts to achieve objectives
- 4 - Readily accepts personal responsibility for results and persists in achieving objectives in spite of difficulties or obstacles
- 5 - Assumes personal accountability for results beyond area of assigned responsibility or where no one else has taken responsibility. Achieves objectives regardless of obstacles or difficulties.

COMMUNICATION:

- 1 - Does not share information: does not make an attempt to communicate or be understood by others: does not listen.
- 2 - Shares information only when asked; will communicate with others but is not concerned about understanding or perceptions; listens half-heartedly
- 3 - Communicates information that is useful to others; communication is clear and succinct; listens
- 4 - Conveys important information or opinions even when negative; communications are clear and succinct; uses active listening skills such as summarizing and follow-up questions to confirm that the communication was understood
- 5 - Shares information with all levels; acts to promote an atmosphere of candor and openness; actively supports the sharing of information; listens and genuinely values others input and perspective

COMMITMENT TO EXCELLENCE

- 1 - Has little or no concern about work quality
- 2 - Does only what is expected; quality standard is that which is minimally acceptable
- 3 - Meets the quality standards established by management; occasionally strives and achieves excellence beyond the established standard
- 4 - Sets performance standards for self that go above the standards established by management; strives for excellence in selected areas of performance
- 5 - Quality of performance sets the standard by which others are measured; achieves excellence in all endeavors

SELF DEVELOPMENT

- 1 - Does not try to improve skills or abilities; little or no interest in self improvement
- 2 - Acknowledges strengths and weaknesses but tends to minimize weaknesses or compensate for them in other ways versus trying to change or improve areas needing development
- 3 - Recognizes learning experiences that will improve weaknesses; takes advantage of these learning experiences and/or feedback from others in order to improve some weaknesses; learns from mistakes
- 4 - Recognizes and takes advantage of learning experiences and feedback that will improve strengths and weaknesses
- 5 - Actively pursues learning experiences that will improve strengths and weaknesses; seeks a broad variety of experiences both inside and outside the organization; actively strives to improve self

ORGANIZATIONAL COMMITMENT

- 1 - Actions and behaviors do not demonstrate dedication to or respect for the organization's mission
- 2 - Usually tries to fit in and act appropriately although at times may act in ways that are not supportive of the organization and/or its goals
- 3 - Acts to support the organization's mission and goals. Makes choices and sets priorities that try to meet the organization's needs and fit the organization's objectives; publicly acts in a manner consistent with the mission of the organization
- 4 - Frequently puts organizational needs before own; makes sacrifices in such things as personal preferences in order to meet organization needs
- 5 - Consistently puts organizational needs before own; makes sacrifices in such things as personal preferences in order to meet organization needs

OVERALL ASSESSMENT OF PERFORMANCE

- 1 - Does Not Meet Expectations – work is characterized by frequent difficulties in completing assigned tasks, excessive errors, failure to meet key responsibilities, objectives or competencies.
- 2 - Partially Meets Expectations – work is characterized by minor errors, a minimum work level, and inability to consistently meet several of the key job responsibilities, objectives, or competencies.
- 3 - Meets Expectations – Is the reasonable and acceptable performance level for most employees.
- 4 - Exceeds Expectations – Produces above average results that exceed the reasonable and acceptable desired performance levels.
- 5 – Far Exceeds Expectations – Consistently produces outstanding results that far exceed desired performance levels and norms.

Strengths – describe the positive work habits and/or job competencies.

Weaknesses – describe the work habits and/or job competencies that need to be enhanced or developed.

Comments – describe the reasons for the “Overall Assessment of Performance” rating shown above.

Recommendations – describe what actions will to be taken to address work habits and/or job competencies that need to be enhanced or developed.

Supervisor Signature:	<input type="text"/>	Date:	<input type="text"/>
Next Level of Management Signature:	<input type="text"/>	<input type="text"/>	<input type="text"/>
Employee Signature:	<input type="text"/>	<input type="text"/>	<input type="text"/>

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