

Humboldt Bay Municipal Water District

To: Board of Directors
From: John Friedenbach
Date: January 9, 2017
Subject: CIP Update 2017

DISCUSSION

As you are aware, the District's comprehensive Capital Improvement Plan (CIP) was created in 2011. During the past year, staff has been updating the content of the CIP for the ten year period 2016/17 to 2025/26. Attached is the spreadsheet showing the results of this effort. The first five years are shaded light green. The second five years are shaded mustard yellow. At the Board meeting staff will provide a detailed explanation of the contents of the CIP update and answer any questions that the Board may have.

I would draw your attention to the Summary on the last page. There is a GRAND TOTAL line which represents the sum of all CIP projects by fiscal year. Following that is a line that totals the five year blocks of time. The next line is labeled MRAR which is the Maintenance Recurring Annual Repairs. The sum of the GRAND TOTAL and MRAR lines equals the Total Funding Need.

The lines below the Total Funding Need delineate specific funding sources, which were detailed for the first five year portion of the CIP update. The final line on the last page is the current level of rate funding for projects including MRAR for the current 2016/17 fiscal year. The amount is \$2,302,400. By comparing this number to the line above labeled "Rates", it can be determined if a rate increase is necessary. During the first five year window, it appears that there is sufficient rate funding to cover the projected CIP and MRAR costs combined with the anticipated grant funding.

Bartle Wells Associates is working on an update to our CIP financial plan that was contained in the 2011 CIP document. They are adjusting the funding requirements based on the updated 2016/17 to 2025/26 projections and assuming a 10% grant funding level. The original CIP assumed a 25% grant funding level. It is anticipated that some financing mechanism(s) will need to be utilized during the second five year window contained in the CIP update. Staff expects the financial plan update from Bartle Wells Associates by the February Board meeting.

RECOMMENDATION

Staff requests authorization from the Board to continue to implement the CIP as delineated on the January 2017 CIP Update.

HUMBOLDT BAY MUNICIPAL WATER DISTRICT
CAPITAL IMPROVEMENT/REPLACEMENT PROJECTS
(For Jan, 2017 Capital Improvement Plan)

ASSET INVENTORY		PRIORITIZATION RANKING					COST ESTIMATE BY FISCAL YEAR (Costs are Escalated)**									
Assets and Proposed Projects	Comments	Remaining Useful Life	Importance	Redundancy	Final Priority Ranking	Recommended Focused Engineering Study to Compile More Information (Y/N)	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26
							2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
SOURCE OF SUPPLY																
R. W. Mathews Dam and Reservoir	Ruth Lake Boom Log Repair	Essex maintenance crew completed replacement of log boom in June of 2014. I contacted Worthington and they said expected life of the new log boom is not less than 10-15 years with proper maintenance. That said, I put replacement every 12 yrs.	2	4	4	3.3	YES 1									\$ 135,034
	Howell Bunger Valve Replacement	Cost for 36" Cone Valve from Rodney Hunt Co 800-448-8860. Major repair, and coating of existing valve done in June 2002 (cost \$24,000)	1	4	4	3.0										
	Ruth Bridge Painting	2014 - Quote from James-Carl Painting - Tom Shivley \$70,000. Reccomended by Pat K. for every 5 yrs.														\$ 109,313
	Ruth Bridge Replacement	Quote from Big R Bridge	1	2	3	2.0										
	Plunge pool repair	Variable scope and cost (extent of damage given degradation due to storm events over time). Cost shown is reasonable placeholder.	N/A												\$ 125,059	
	Dam Spillway Wall Repair/Retrofit (Phase 1)	At some point in the near future work will be required to strengthen/retrofit the spillway walls - whether triggered by HBMWD given monitoring results, or triggered by the FERC or DSOD. Two projects are proposed as placeholders until a more definitive scope is known: 1) for engineering assessment and design, or minor repairs, and 2) more significant structural repairs/improvements. This project is the first of two phases.	3	3	4	3.3										
	Dam Spillway Wall Repair/Retrofit (Phase 2)	At some point in the near future work will be required to strengthen/retrofit the spillway walls - whether triggered by HBMWD given monitoring results, or triggered by the FERC or DSOD. Two projects are proposed as placeholders until a more definitive scope is known: 1) engineering assessment and design, or minor repairs, and 2) more significant structural repairs/improvements. This project is the second of the two phases.	2	3	4	3.0										
Slide Gate Hydraulics	Replace hydraulic lines and system for the dam's slidegate. (work completed by HBMWD and M&M Dive).	N/A - Done				YES 2						\$ 33,113				
TOTAL - SOURCE OF SUPPLY							\$ -	\$ -	\$ -	\$ -	\$ -	\$ 33,113	\$ -	\$ 125,059	\$ 244,347	\$ -

HUMBOLDT BAY MUNICIPAL WATER DISTRICT

CAPITAL IMPROVEMENT/REPLACEMENT PROJECTS
(For Jan, 2017 Capital Improvement Plan)

ASSET INVENTORY		PRIORITIZATION RANKING					COST ESTIMATE BY FISCAL YEAR (Costs are Escalated)**									
Assets and Proposed Projects	Comments	Remaining Useful Life	Importance	Redundancy	Final Priority Ranking	Recommended Focused Engineering Study to Compile More Information (Y/N)	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26
REGIONAL/DOMESTIC SYSTEM - Diversion and Pumping																
Ranney Collector 1	Collection Laterals	1) See Collector Wells International report, and series of engineering assessments and planning documents for Ranney lateral replacement program. Also see HBMWD July 3, 2008 memo re: CIP Development Recommendations. 2) Lead time for this project required to develop project. Includes some valve replacement and testing for water in Collector 1. If water unavailable in existing laterals in Collector 1, move to collector 1a and install new laterals. 3) Refinement of scope and cost estimate for this project required after Collector 3 lateral replacement project complete.	3	3	3	3.0	YES 3	\$ 1,920,000								
	Pump 1-1, Worthington 350hp Model 24M440 E-2 SN 6863, Motor G.E. SN FBJ608010	Motor cleaned and dipped, 2006; Pump rebuilt from inventory 2006; 15 year lifecycle on all pumps + efficiency testing	2	3	3	2.7			\$ 206,620							
	Pump 1-2, Worthington 350hp Model 24M440 E-2 SN, Motor G.E. SN RWJ420007	Motor and pump rebuilt 1967; Tested ok in 05. Scheduled for pump test in 08, will schedule replacement based on pump test or planned for replacement after lateral replacement project	3	3	3	3.0			\$ 200,924							
	Pump 1-3, Flowserve	New in 08, Flowserve 17EPH 4000 gpm capacity	2	3	3	2.7								\$237,612		
	Pump 1-4, Byron Jackson 200hp Model 20KKH, SN 390652, Motor G.E. SN: 1285068002	Motor and pump rebuilt August 1986, \$28,000.00. Tested OK in 05, scheduled for pump test in 08, will schedule replacement based on pump test	3	3	3	3.0		\$ 185,062								
	Valves and Distribution to Domestic Reservoir	Life cycle and more detailed engineer cost estimate required. Ballpark cost and represents 1/4 of total: \$4,070,725 for all collectors	3	3	3	3.0	YES 11						\$1,337,729			
	Paint/Galvanize Collector	FY89, cost: \$161,000 (all five collectors)	2	2	4	2.7										\$ 264,499
	Surge Tank	Place holder for repairs and painting, probe replacement	2	3	4	3.0					\$ 23,000					
Ranney Collector 2	Engineering	Design, Plans & Specifications, Bid CM	N/A											\$ 88,695		
	Collection Laterals	1) Cleaned laterals, pump tested and installed new lateral valves, August 05. 2) See Collector Wells International report, and series of engineering assessments and planning documents for Ranney lateral replacement program. Also see HBMWD July 3, 2008 memo re: CIP Development Recommendations. 3) Refinement of scope and cost estimate for this project required after Collector 3 lateral replacement project complete.	3	3	3	3.0	YES 3							\$ 2,365,191		
	Pump 2-1, Flowserve 350hp Model 20EKH 4 Stage, Motor	Pump and motor replaced in 2007	2	3	3	2.7									\$ 231,062	
	Pump 2-2, Worthington 350hp Model 24M440 E-2 SN6872, Motor G.E. SN RWJ420006	Motor rebuilt 1987, installed 2001, pump rebuilt 1987, scheduled for pump test in 08, will schedule replacement based on pump test	2	3	3	2.7									\$ 231,062	

HUMBOLDT BAY MUNICIPAL WATER DISTRICT
CAPITAL IMPROVEMENT/REPLACEMENT PROJECTS
(For Jan, 2017 Capital Improvement Plan)

ASSET INVENTORY		PRIORITIZATION RANKING					COST ESTIMATE BY FISCAL YEAR (Costs are Escalated)**										
Assets and Proposed Projects	Comments	Remaining Useful Life	Importance	Redundancy	Final Priority Ranking	Recommended Focused Engineering Study to Compile More Information (Y/N)	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	
	Valves and Distribution to Domestic Reservoir	Life cycle and more detailed engineer cost estimate required. Ballpark cost and represents 1/4 of total: \$4,070,725 for all collectors	3	3	3	3.0	YES 11									\$1,375,649	
	Paint/Galvanize Collector	FY89, cost: \$161,000 (all five collectors)	2	2	4	2.7										\$ 264,499	
	Surge Tank	Place holder for repairs and painting, probe replacement	2	3	4	3.0					\$ 18,700						
Ranney Collector 3	Engineering	Bid & CM	N/A														
	Collection Laterals We need the actual final cost of project.	See Collector Wells International report and series of engineering assessments and planning documents for Ranney lateral replacement program. Replace 3 laterals at Collector 3. Replacement of laterals valves already done (FY 2009-10) as well as preparation of plans and specs.	1	3	3	2.3	YES 3										
	Pump 3-1, Flowserve Model 18ENH-6 stage pump. S/N 1408NSH01908 1. Motor- 400 HP US motor. S/N 422707-006	Pump purchased in FY-13/14. Not installed until March 2016 due to other higher priority work. New Pump, 316SS lube tubes, 416 SS shafts, Bronze bearings & Motor. Scheduled to be installed in March 2016	2	3	3	2.7											
	Pump 3-2, Flowserve Model 18ENH-6 Stage pump, SN 1311NSH01720 1, Motor - 400 HP US Motor SN: U11 2013746 S0100	New Pump, 316SS lube tubes, 416 SS shafts, Bronze bearings & Motor. Scheduled to be installed in March 2014	2	3	3	2.7											
	Pump 3-3, Flowserve Model 16ENL-8 stage, SN 1311NSH01719-1, Motor - 250 HP US Motor. SN: U11 20130744 0001 R0001	Complete new installation. Pump purchased FY 13/14 - New pump, motor, Column, 316 SS lube tubes, 416 SS line shafts, bronze bearings, motor stand.. - Purchased through Pacific Water Resources.	2	3	3	2.7											
	Valves and Distribution to Domestic Reservoir	Life cycle and more detailed engineer cost estimate required. Ballpark cost and represents 1/4 of total: \$4,070,725 for all collectors	3	3	3	3.0	YES 11									\$1,414,643	
	Paint/Galvanize Collector	FY89, cost: \$161,000 (all five collectors)	2	2	4	2.7											\$ 264,499

HUMBOLDT BAY MUNICIPAL WATER DISTRICT
CAPITAL IMPROVEMENT/REPLACEMENT PROJECTS
(For Jan, 2017 Capital Improvement Plan)

ASSET INVENTORY		PRIORITIZATION RANKING				Recommended Focused Engineering Study to Compile More Information (Y/N)	COST ESTIMATE BY FISCAL YEAR (Costs are Escalated)**													
Assets and Proposed Projects	Comments	Remaining Useful Life	Importance	Redundancy	Final Priority Ranking		16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26				
Ranney Collector 4	Engineering	Design, Plans & Specifications, Bid CM	N/A																	
	Collection Laterals	1) See Collector Wells International report, and series of engineering assessments and planning documents for Ranney lateral replacement program. Also see HBMWD July 3, 2008 memo re: CIP Development Recommendations. 2) Refinement of scope and cost estimate for this project required after Collector 3 lateral replacement project complete.	3	3	3	3.0														
	Pump 4-1, Flowserve	New in 08 Flowserve 17EPH 4000 gpm capacity	2	3	3	2.7														
	Pump 4-2, Flowserve 350hp Model 20EKH 4 Stage, Motor	Pump and motor replaced in 2007	2	3	3	2.7														
	Valves and Distribution to Domestic Reservoir	Life cycle and more detailed engineer cost estimate required. Ballpark cost and represents 1/4 of total: \$4,070,725 for all collectors	2	3	4	3.0	YES 11										\$1,454,743			
	Paint/Galvanize Collector	FY89, cost: \$161,000 (all five collectors)	2	2	4	2.7											\$ 264,499			
	Surge Tank	Place holder for repairs and painting, probe replacement	2	3	4	3.0					\$ 23,000									
Ranney Collector 5	Rehab vs. Decommission	Engineering study required	3	1	1	1.7	YES 12													
	Harden Collector to prevent vandalism	Depends on Engr Study Results. Ball park cost provided	N/A Given status of collector						\$ 21,749								\$ -			
	Replace Collector Door	Planned in FY 03-04 Budget. Depends on Engr. Study Results									\$ -									
	Paint/Galvanize Collector	FY89, cost: \$161,000 (all five collectors). Depends on Engr. Study Results									\$ -									
Subtotal - Diversion and Pumping							\$ 1,920,000	\$ 391,681	\$ 222,674	\$ -	\$ 64,700	\$ -	\$ 1,337,729	\$ 2,691,497	\$ 1,876,768	\$ 3,888,387				

HUMBOLDT BAY MUNICIPAL WATER DISTRICT

CAPITAL IMPROVEMENT/REPLACEMENT PROJECTS
(For Jan, 2017 Capital Improvement Plan)

ASSET INVENTORY		PRIORITIZATION RANKING				COST ESTIMATE BY FISCAL YEAR (Costs are Escalated)**										
Assets and Proposed Projects	Comments	Remaining Useful Life	Importance	Redundancy	Final Priority Ranking	Recommended Focused Engineering Study to Compile More Information (Y/N)	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26
REGIONAL/DOMESTIC SYSTEM - Water Treatment																
Chlorination Facility	Upgrade Existing system															
	Install CL2 system scrubber	Install a Cl2 scrubber to mitigate the hazard of CL2. Instead of installing a Hypochlorite system I propose we consider this as the best method to reduce the hazard of Cl2, vs going with Hypochlorite due to higher costs, more maintenance required, and more frequent delivery's required. DHD Need discussion with Management and Board.	1	3	2	2.0		\$ 317,249								
	Replace Cl2 injection line, install double containment	This will replace the existing chlorine injection line between the chloring room and West End Rd. injection point and make it double contained per current requirements for new construction.	3	4	4	3.7		\$ 105,750								
	Chlorine System Upgrade to Hypochlorite	Reference March 29, 2004 report from Kennedy/Jenks Consultants. Need discussion with Management and Board.	4	4	4	4.0	YES 4									
"CT" Tank	General Maintenance and Repairs and painting	CT tank put in service in 1997. This work is for periodic major maintenance and painting (15 year cycle)	2	4	3	3.0				\$ 167,745						
	CT Tank Fabric Baffles	One baffle replaced in 2010 (\$16,300). Engineering study required to establish life cycle, but estimated replacement before 2018	2	4	3	3.0				\$ 95,055						
Turbidity Reduction Facility (TRF)	TRF Filter Building - Structural Components	Structural work, of significance, on this building is not anticipated to be necessary during planning horizon (thru 2025/26). Cost shown are reasonable estimate to conduct engineering assessment or maintenance work during this planning horizon.				N/A						\$ 59,130				
	TRF Replace two Blowers (for filter air wash function)	10 yr repair cycle (\$35,000 each 75 Hp Centrifugal Multi-stage with soft start/intake and exhaust silencers, surge control)	2	4	3	3.0							\$ 48,645			\$ 52,900
	TRF Filter Beds - Replace Filter Media (Anthracite)	The Maintenance Projects Plan assumes periodic partial replacement of the anthracite. At a lesser frequency, total replacement will be required. (Quantities: 450CY/12,150CF/322tons. Eff. Size=1.40-1.60mm, Uniform. Coeff=1.40 or less)	2	4	4	3.3	YES					\$ 251,876				
	TRF Chemical Feed Building - Structural Components	Structural work, of significance, on this building is not anticipated to be necessary during planning horizon (thru 2025/26). Cost shown are reasonable estimate to conduct engineering assessment or maintenance work during this planning horizon.				N/A								\$ 60,806		
	TRF Replace Emergency Generator	Replacement of 80 kW generator (assumes transfer switch, etc. remains)	2	3	4	3.0										

HUMBOLDT BAY MUNICIPAL WATER DISTRICT
CAPITAL IMPROVEMENT/REPLACEMENT PROJECTS
(For Jan, 2017 Capital Improvement Plan)

ASSET INVENTORY		PRIORITIZATION RANKING					COST ESTIMATE BY FISCAL YEAR (Costs are Escalated)**										
Assets and Proposed Projects	Comments	Remaining Useful Life	Importance	Redundancy	Final Priority Ranking	Recommended Focused Engineering Study to Compile More Information (Y/N)	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	
Regional Treatment Plant -	TRF Chemical Feed Systems - Secondary coagulant (Alum)	Replace pumps, drives and valves 10yr life cycle (2 pumps, pipes and controls, \$70,000) For CIP we should only fund for pump and Starter replacement. Piping and other small equipment should be done out of Maintenance contingency in MRAR.	2	4	4	3.3							\$ 21,890				
	TRF Chemical Feed Systems - Primary coagulant system #2 (Alum)	In FY 12/13 we installed 2 new Alum chemical pumps. These pumps were sized more appropriate to our lower end chemical dosages. The original system is still fully functional for high dosage delivery if needed.	2	3	3	2.7							\$ 18,242				
	TRF Chemical Feed Systems - Cationic Polymer for coagulation aid	Replace pumps, drives and valves 10yr life cycle (330 gallon tote, platform scale, metering pumps P-631 & 632, controls, \$70,000) For CIP we should only fund for pump and Starter replacement. Piping and other small equipment should be done out of Maintenance contingency in MRAR.	2	4	4	3.3			\$ 24,468								
	TRF Chemical Feed Systems - Non-ionic Polymer for Filter aid & Pre-treat filter	Replace pumps, drives and valves 10yr life cycle (120 gallon tote, scales, mixer, drum pump, 800 gal day tank Metering pumps P-641, 642, & P-652 controls) Replaced P-652 in Nov. 2013. For CIP we should only fund for pump and Starter replacement. Piping and other small equipment should be done out of Maintenance contingency in MRAR.	2	4	4	3.3			\$ 32,624								
	TRF Chemical Feed Systems - Non-ionic Polymer for Pre-treat	Rebuild pumps and valves 10yr life cycle For CIP we should only fund for pump and Starter replacement. Piping and other small equipment should be done out of Maintenance contingency in MRAR Pumps 651, 653, 654 are unused.	2	4	4	3.3											
	TRF Chemical Feed System - Sodium Hypochlorite	Replace pumps and valves 10yr life cycle (3 metering pumps, 1 recirculation pump, valves, controls, \$70,000) For CIP we should only fund for pump and Starter replacement. Piping and other small equipment should be done out of Maintenance contingency in MRAR.	2	4	4	3.3								\$ 22,511			
	TRF Chemical Feed System - Caustic System for pH control.	Currently system not in use and not likely to be required. No cost calculated at this time	N/A														
	TRF Plant Water System	Replace pumps and valves 10yr life cycle	2	4	4	3.3								\$ 115,531			
	TRF Wastewater Recovery Basins - Chain and Flight System	Replace chain and flights, motors & gears	2	4	4	3.3										\$ 514,416	
	TRF Sludge Beds - Structural Components	Structural work, of significance, on this building is not anticipated to be necessary during planning horizon (thru 2025/26). Cost shown are reasonable estimate to conduct engineering assessment or maintenance work during this planning horizon.	N/A													\$ 64,302	

HUMBOLDT BAY MUNICIPAL WATER DISTRICT

CAPITAL IMPROVEMENT/REPLACEMENT PROJECTS
(For Jan, 2017 Capital Improvement Plan)

ASSET INVENTORY		PRIORITIZATION RANKING				Recommended Focused Engineering Study to Compile More Information (Y/N)	COST ESTIMATE BY FISCAL YEAR (Costs are Escalated)**										
Assets and Proposed Projects	Comments	Remaining Useful Life	Importance	Redundancy	Final Priority Ranking		16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	
Regional Treatment Plant - Turbidity Reduction Facility (TRF)	TRF Backwash Pump Building - Structural Components	Structural work, of significance, on this building is not anticipated to be necessary during planning horizon (thru 2025/26). Cost shown are reasonable estimate to conduct engineering assessment or maintenance work during this planning horizon.	N/A														\$ 66,125
	TRF Backwash Pumps	15-20 year life expectancy (2 ea 250 hp split case centrifugal pumps with soft start, \$105,000 each)	2	4	4	3.3							\$ 137,565			\$ 145,474	
	TRF Rapid Mix Building Structural Components	Structural work, of significance, on this building is not anticipated to be necessary during planning horizon (thru 2025/26). Cost shown are reasonable estimate to conduct engineering assessment or maintenance work during this planning horizon.	N/A										\$ 31,265				
	TRF Washwater Pre-Return System (Pressure Filter)	Replacement of Pressure Filter System is not anticipated in planning horizon (through 2025/26). Costs shown are reasonable estimate to assess condition and determine replacement timeframe and/or to perform maintenance. This is for sand blasting and painting	2	3	4	3						\$ 30,403					
	TRF Washwater Pre-Return System (Washwater return pumps)	Replacement of 1 Washwater return pump was necessary in 2014. Propose we consider 10 yr life cycle	2	3	3	2.7						\$ 15,810				\$ 17,192	
	TRF- Instrumentation Replacement	This project replaces level sensorsl,	2	4	4	3.3						\$ 118,260					
	TRF - SCADA system upgrade						\$ 100,000										
	TRF - Valve network upgrade	Replsaac Valve operator network. Phased project	2	3	3	2.7					\$ 115,000	\$ 118,260	\$ 121,612	\$ 125,059			
	TRF - Valves		2	3	3	2.7											
Subtotal - Water Treatment						\$100,000	\$422,998	\$57,092	\$262,800	\$115,000	\$547,524	\$432,938	\$316,399	\$578,718	\$281,691		

HUMBOLDT BAY MUNICIPAL WATER DISTRICT

CAPITAL IMPROVEMENT/REPLACEMENT PROJECTS
(For Jan, 2017 Capital Improvement Plan)

ASSET INVENTORY		PRIORITIZATION RANKING					COST ESTIMATE BY FISCAL YEAR (Costs are Escalated)**									
Assets and Proposed Projects	Comments	Remaining Useful Life	Importance	Redundancy	Final Priority Ranking	Recommended Focused Engineering Study to Complete More Information (Y/N)	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26
REGIONAL/DOMESTIC SYSTEM - Water Storage and Transmission																
Korblex Domestic Reservoir	Reservoir Painting	Last painted in combination with ID Reservoir in 1998 total cost for both reservoirs: \$346,149	3	3	3	3.0										
	Replace roof and Paint entire reservoir	Due to structural review of roof in August of 2015 it was determined that roof replacement was required. It was also determined that while we had painters there it would be the right time to paint the entire reservoir.	4	4	4	4.0	\$ 602,000									
	General Maintenance and Cleanout	(3)- Ops – Maint techs and (1) Supervisor for 10 days	2	3	4	3.0						\$ 18,922				
	General Repairs	Minor repairs and paint touch up as needed	2	3	4	3.0	YES ₆									
	Install new valve below 1 Mg reservoir	Installation of this valve would make isolating parts of the system easier and reduce the need to bypass the reservoir to isolate the South feed (Eka, Arc, HCSO) and still serve the North feed (McK, BL, FB).	4	3	3	3.3	\$ 30,403									
Mission System Pipelines and Appurtenances	Peninsula - Replace 15" DW line	At some point in the near future, capacity of the domestic water pipeline on the Peninsula will need to be addressed. It is currently operating very close to its maximum capacity. This project assumes an upgrade to 3.75 miles of the 15-inch pipeline. Detailed engineering study required, but the project represents a reasonable placeholder.	2	3	4	3.0	YES ₈									\$ 7,009,216
	Peninsula - Replace 18" DW Techite line	Replace Techite pipeline (1.87 miles) at southern end of Samoa Peninsula. District applied for and should receive FEMA Hazard Mitigation Grant (which will fund 75% of the project).	3	3	4	3.3	YES ₉									
	Pipeline on NCRA Trestle over Mad River (Emergency Repair)	Completed temporary trestle repair in 2009. Pipeline will be difficult to maintain & repair if trestle is not replaced within 5 years.	N/A - Done				YES ₁₀									
	Replace pipeline on NCRA Trestle over Mad River (Blue Lake-FG-CSD River Crossing)	Must replace current pipeline crossing over Mad River (or fix RR bridge). Cost based on replacement with new aerial crossing per W&K feasibility report (May 2009). District has applied for Prop. 84 grant via Northcoast IRWMP and for a FEMA Hazard Mitigation Grant.	3	3	4	3.3	YES ₁₀	\$ 1,786,729	\$ 1,786,729							
	Peninsula Slough Crossing (Double Pipeline)	Piling structure replaced in 2003, including upgrade to current seismic standards. Likely will not need replacement until 2030's or 2040's	N/A - Done													
	Peninsula Slough Crossing (Single Pipeline)	Board policy/business decision required re: Industrial Water System. If asset is to be maintained, need engineering estimate re: condition and cost	N/A				YES ₁₅									
	Pipeline Engineering Study	This Engineering study will support Pipeline replacement project below by determining area of greatest need.	N/A					\$ 211,499								

HUMBOLDT BAY MUNICIPAL WATER DISTRICT
CAPITAL IMPROVEMENT/REPLACEMENT PROJECTS
(For Jan, 2017 Capital Improvement Plan)

ASSET INVENTORY		PRIORITIZATION RANKING					COST ESTIMATE BY FISCAL YEAR (Costs are Escalated)**										
Assets and Proposed Projects	Comments	Remaining Useful Life	Importance	Redundancy	Final Priority Ranking	Recommended Focused Engineering Study to Compile More Information (Y/N)	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	
Transm	Pipeline Replacement Program (system wide)	Timing and extent yet to be determined. Establish monitoring program to assess condition and determine when programmatic replacements is necessary. This will be a very costly program over time.	1	3	3	2											Assess Condition and Develop Plan to Programmatically Replace
	Mainline Valve Replacement Program	Engineering study required to determine life cycle and detailed cost estimate. This represents ballpark costs spread out over 10 years for programmatic replacement of mainline valve.	2	3	4	3.0		\$ 100,000	\$ 187,588	\$ 192,906	\$ 198,374	\$ 203,997	\$ 209,780	\$ 215,726	\$ 221,841	\$ 228,130	\$ 234,596
	Valve Box 1	This is for structural repairs of the vault itself. Valve replacement is included in Mainline Valve Replacement Project (above)	2	2	1	1.7							\$ 59,130				
	Valve Box 2	This is for structural repairs of the vault itself. Valve replacement is included in Mainline Valve Replacement Project (above)	2	2	1	1.7											\$ 66,125
Transmission System - Samoa Booster Pump Station	General Building & Fence Repairs	148 tons asphalt overlay, re-roof, 3 roof hatches replaced, 500ft of fence and 3 double wide gates replaced, assumed 30 yr life	2	2	1	1.7											\$99,187
	Samoa Booster Station - Replace 100 hp Pump & Motor	Installed March 1996 (Floway SN: 21620-1-1, Motor G.E. SN L405TP16). Evaluate in 12 years given 15-20 yr life expectancy	2	3	3	2.7					\$ 78,200						
	Samoa Booster Station - Replace 200 hp Pump & Motor	Installed March 1996 (Floway SN: 21620-3-1, Motor G.E. SN L447TP16). Does not run as frequently as 100 hp pump. Evaluate in 12 years given 15-20 yr life expectancy	2	3	1	2.0								\$ 115,054			
System - Cathodic Protection	Jackson Ranch Anode Bed	Approximately \$115,000 in construction and engineering costs per well assuming each well is constructed individually. Includes mobilization, abandonment, drilling, replacement, labor and engineering services.	2	3	1	2.0	YES			\$ 130,497							
	299 Anode Bed	Approximately \$115,000 in construction and engineering costs per well assuming each well is constructed individually. Includes mobilization, abandonment, drilling, replacement, labor and engineering services.	2	3	1	2.0	YES			\$ 134,196							

HUMBOLDT BAY MUNICIPAL WATER DISTRICT
CAPITAL IMPROVEMENT/REPLACEMENT PROJECTS
(For Jan, 2017 Capital Improvement Plan)

ASSET INVENTORY			PRIORITIZATION RANKING					COST ESTIMATE BY FISCAL YEAR (Costs are Escalated)**									
Assets and Proposed Projects	Comments	Remaining Useful Life	Importance	Redundancy	Final Priority Ranking	Recommended Focused Engineering Study to Compile More Information (Y/N)	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	
Transmission &	Jane's Creek Anode Bed	Approximately \$115,000 in construction and engineering costs per well assuming each well is constructed individually. Includes mobilization, abandonment, drilling, replacement, labor and engineering services.	2	3	1	2.0	YES					\$ 138,000					
Subtotal - Water Storage and Transmission							\$ 732,403	\$ 2,185,817	\$ 2,110,132	\$ 332,570	\$ 420,197	\$ 287,831	\$ 215,726	\$ 336,895	\$ 228,130	\$ 7,409,124	

HUMBOLDT BAY MUNICIPAL WATER DISTRICT
CAPITAL IMPROVEMENT/REPLACEMENT PROJECTS
(For Jan, 2017 Capital Improvement Plan)

ASSET INVENTORY		PRIORITIZATION RANKING					COST ESTIMATE BY FISCAL YEAR (Costs are Escalated)**									
Assets and Proposed Projects	Comments	Remaining Useful Life	Importance	Redundancy	Final Priority Ranking	Recommended Focused Engineering Study to Compile More Information (Y/N)	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26
REGIONAL/DOMESTIC SYSTEM - Support Systems																
Electrical Systems and Equipment	Distribution System	Replace poles, wire, and cross arms. MOVED TO AN ANNUAL MAINTENANCE ITEM SEE MRAR	2	3	4	3.0	YES ₁₃					\$ -				
	Starters	Replace Domestic pump starters (last project 2007-09, \$116,000)	2	3	3	2.7			\$ 135,934			\$ 147,824			\$ 160,755	
	2MW Generator	Replace Generator (Reference July 20, 2009 Report - Essex High Voltage System Condition Assessment Report)	2	3	3	2.7										\$ 595,122
	Switchgear for 2MW Generator	Replace Switchgear (Reference July 20, 2009 Report - Essex High Voltage System Condition Assessment Report)	2	3	3	2.7										\$ 343,848
	Transformer for 2 MW Generator 2,500 KVA	Replace Transformers (Reference July 20, 2009 Report - Essex High Voltage System Condition Assessment Report)	2	3	3	2.7										\$ 79,350
	35 KW Generator		2	2	2	2.0									\$ 45,011	
	Main switch gear (incoming)	Replace Incoming Switchgear (Reference July 20, 2009 Report - Essex High Voltage System Condition Assessment Report)	2	3	4	3.0					\$ 1,800,000					
	Replace 12kV Transformers on DW Collectors	Replace Collector Transformers (Reference July 20, 2009 Report - Essex High Voltage System Condition Assessment Report)	3	2	4	3.0	YES ₁₄	\$ 105,750		\$ 111,830						
Communications and Control	Collector Telemetry Upgrade	This project was last completed in FY 14/15. This project put wireless communications from collectors 2,3 & 4 to collector 1. From Collector 1 the information gets to the control center via a fibre optic link.	2	2	4	2.7										
	Fibre Optic link to Collector 1	This link was installed in FY 14/15. Assume 20 yr life.	1	3	3	2.3										
	Fiber Optic Link to Collector 2	This project consists of engineering, permitting & construction of an underground 12KV electrical feed and new fiber optic cable from Essex to Collector 2.	3	3	3	3.0					\$ 115,000					
	Essex Control System Upgrade Phase 1	FY87, cost: \$118,000 Planning phase	3	3	3	3.0										
	Essex Control System Upgrade Phase 2	Construction phase	4	4	4	4.0		\$ 381,000								
Facilities	Construct Sandblasting Building	Assume 20'x40' and \$100/SF	2	2	2	2.0			\$ 81,560							
	Build Maintenance Shop Addition	Assume 75'x40' and \$150/SF	2	2	1	1.7								\$ 562,765		

HUMBOLDT BAY MUNICIPAL WATER DISTRICT
CAPITAL IMPROVEMENT/REPLACEMENT PROJECTS
(For Jan, 2017 Capital Improvement Plan)

ASSET INVENTORY			PRIORITIZATION RANKING				COST ESTIMATE BY FISCAL YEAR (Costs are Escalated)**									
Assets and Proposed Projects	Comments	Remaining Useful Life	Importance	Redundancy	Final Priority Ranking	Recommended Focused Engineering Study to Compile More Information (Y/N)	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26
Building I	Emergency Operations Center at TRF	Assumes two storey, 40'x60' EOC w/ Line Shed below at TRF (see Option 3, "Essex Control Facilities Plan", GHD Aug. 2016)	1	2	2	1.7						\$ 1,655,633				
	Build Break Rm and Training Center Addition		3	3	2	2.7			\$ 489,362							
Subtotal - Support Systems							\$ 381,000	\$ 105,750	\$ 706,857	\$ 111,830	\$ 1,915,000	\$ 1,803,458	\$ -	\$ 562,765	\$ 205,766	\$ 1,018,320
TOTAL - REGIONAL/DOMESTIC SYSTEM							\$ 3,133,403	\$ 3,106,246	\$ 3,096,754	\$ 707,199	\$ 2,514,896	\$ 2,671,926	\$ 1,986,393	\$ 4,032,616	\$ 3,133,729	\$ 12,597,522

HUMBOLDT BAY MUNICIPAL WATER DISTRICT
CAPITAL IMPROVEMENT/REPLACEMENT PROJECTS
(For Jan, 2017 Capital Improvement Plan)

ASSET INVENTORY		PRIORITIZATION RANKING				COST ESTIMATE BY FISCAL YEAR (Costs are Escalated)**											
Assets and Proposed Projects	Comments	Remaining Useful Life	Importance	Redundancy	Final Priority Ranking	Recommended Focused Engineering Study to Compile More Information (Y/N)	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	
HYDRO-ELECTRIC POWER PLANT																	
Hydro-Electric Plant	Ruth Hydro Sump Pump Replacement	Replaced in 1999, Replacement cycle 15 years. Barnes Submersible non-clog pump model 4SE5094L															
	Transformer, Oil Filled 2000 KVA	Need maintenance/repairs schedule/life cycle				YES 2				\$ 161,838							
	2 1048 KW horizontal shaft Francis turbines (Boving)	Need maintenance/repairs schedule/life cycle				YES 2											
	2000 KVA Transformers								\$ 61,217								
	2, 1000 KW AC Generators, Brushless, (Ideal)	Need maintenance/repairs schedule/life cycle				YES 2				\$ 393,455							
	Replace Electrical/Mechanical Components	Estimated cost of \$800,000 - \$1,200,000 based on GEI Report Assessment of Mechanical and Electrical Gosselin Hydro June 2005 (line 20 -25 included in this estimate) See CIP Development Recommendations dated July 3, 2008															
	Replace Protective relays system							\$ 40,000	\$ 120,000								
	Hydraulic systems, governors, controls, electric panels, circuit breaker, Auto Synchronizer	Need maintenance/repairs schedule/life cycle					YES 2							\$ 230,679			
	Interrupter switchgear panel, Westinghouse, (located outside next to transformer) 600 amp	Need maintenance/repairs schedule/life cycle, \$18,000					YES 2			\$ 27,548							
	Static Exciter														\$ 153,044		
30 KW generator									\$ 31,740								
Battery Bank Replacement																	
Dedicated Hydro Study	Need input for project scope and cost																
TOTAL - HYDRO-ELECTRIC POWER PLANT							\$ -	\$ 40,000	\$ 120,000	\$ 120,505	\$ 555,292	\$ -	\$ -	\$ 230,679	\$ 153,044	\$ -	

HUMBOLDT BAY MUNICIPAL WATER DISTRICT
CAPITAL IMPROVEMENT/REPLACEMENT PROJECTS
(For Jan, 2017 Capital Improvement Plan)

ASSET INVENTORY			PRIORITIZATION RANKING				COST ESTIMATE BY FISCAL YEAR (Costs are Escalated)**									
Assets and Proposed Projects	Comments	Remaining Useful Life	Importance	Redundancy	Final Priority Ranking	Recommended Focused Engineering Study to Compile More Information (Y/N)	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26
INDUSTRIAL SYSTEM - Water Storage and Transmission																
Terminal Industrial Reservoir	Reservoir Painting	Painted 1998	N/A Given status of industrial system.						\$ 271,868							
	General Maintenance and Cleanout	Cleanout in 1997, \$16,733 Realignment of the boiler ash piles may affect the area we have used for depositing past clean out spoils. This could force us to look into a more expensive disposal alternative. FY01. Cleaned in 2007, \$23,000, approximately 5 year cycle						\$ 33,286				\$38,279				
	General Repairs	Roof Beam Replacement FY88, cost: \$110,000						\$ 271,868								
Surge Tower	Engineering Analysis			YES ₁₉												
	General Repairs, replace	Engineering Analysis Required. All part costs provided for dismantling only.		YES ₁₉				\$ 960,000								
Transmission Pipelines	42" RW pipeline TV inspection	FY92 cost: \$18,500, Inspection required to estimate repairs and costs		YES ₂₀								\$118,260				
Subtotal - Industrial Storage and Transmission							\$ -	\$ -	\$ 577,022	\$ 960,000	\$ -	\$ 118,260	\$ 38,279	\$ -	\$ -	\$ -
INDUSTRIAL SYSTEM - Diversion and Pumping																
Pump Station 6	Pump 6-1, Worthington 700hp, Model 28hh1200 3 stage 30.1% below pump curve, repair now according to 05 Flowserve pump tests	Pump rebuilt in 1983, scheduled for pump test in 07	N/A Given status of industrial system.										\$ 392,149			
	Pump 6-2, Worthington 700hp, Model 28hh1200 3 stage	Pump rebuilt in 1988, scheduled for pump test in 07											\$ 414,696			
	Pump 6-3, Byron Jackson, 200hpSN: 95WC0014 16.7% below pump curve, repair now according to 05 Flowserve pump tests	Installed 12-6-95, scheduled for line shaft bearings 08, will schedule replacement based on pump test													\$ 312,647	
	Pump 6-4, Worthington 700hp, Model 28hh1200 3 stage	Pump rebuild 1989 will schedule replacement based on pump test													\$ 426,451	

HUMBOLDT BAY MUNICIPAL WATER DISTRICT
CAPITAL IMPROVEMENT/REPLACEMENT PROJECTS
(For Jan, 2017 Capital Improvement Plan)

ASSET INVENTORY			PRIORITIZATION RANKING				COST ESTIMATE BY FISCAL YEAR (Costs are Escalated)**													
Assets and Proposed Projects	Comments	Remaining Useful Life	Importance	Redundancy	Final Priority Ranking	Recommended Focused Engineering Study to Compile More Information (Y/N)	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26				
Pump Station 6	Pump 6-5, Worthington 700hp, Model 28hh1200 3 stage	Pump rebuilt in 1986, Tension bearing installed in 08, will schedule replacement based on pump test	N/A Given status of industrial system.												\$ 426,451					
	Pump 6-6, Byron Jackson, 200hpSN: 95WC0013	Installed 12-6-95, will schedule replacement based on pump test																\$ 312,647		
	Fore bay Inlet Screens and Debris Rake	10 year life cycle																		\$ 20,221
	Rock Weir Extension	Channel work and construction of gravel berm (per Corps & DFG permits and HCP) may ensure flow to Station 6 during low-flow season for years without building new river structures. Cost provided is ballpark figure including engineering, permitting and construction for new jetty structure.																		\$ 750,708
	Traveling Water Screen Repair	Chain and Tensioner replacement FY 93, cost: \$75,000																	\$ 184,526	
	Structure Replacement	Project started as painting of existing "super structure." Engineering study determined replacement more cost effective. Project planned for FY 2008/09. Kernan Construction Bid was \$415,000 in 2008. Project cancelled when Evergreen Pulp mill ceased operation.										\$ 505,617								
Subtotal - Industrial Diversion and Pumping							\$ -	\$ -	\$ -	\$ -	\$ -	\$ 505,617	\$ -	\$ 806,845	\$ 1,662,724	\$ 770,929				
TOTAL - INDUSTRIAL SYSTEM							\$ -	\$ -	\$ 577,022	\$ 960,000	\$ -	\$ 623,876	\$ 38,279	\$ 806,845	\$ 1,662,724	\$ 770,929				

HUMBOLDT BAY MUNICIPAL WATER DISTRICT
CAPITAL IMPROVEMENT/REPLACEMENT PROJECTS
 (For Jan, 2017 Capital Improvement Plan)

ASSET INVENTORY		PRIORITIZATION RANKING					COST ESTIMATE BY FISCAL YEAR (Costs are Escalated)**									
Assets and Proposed Projects	Comments	Remaining Useful Life	Importance	Redundancy	Final Priority Ranking	Recommended Focused Engineering Study to Compile More Information (Y/N)	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26
GRAND TOTAL*							\$ 3,133,403	\$ 3,146,246	\$ 3,793,776	\$ 1,787,705	\$ 3,070,188	\$ 3,328,915	\$ 2,024,672	\$ 5,195,199	\$ 5,193,843	\$ 13,368,450
Total Costs FY11/12 - FY15/16							2011-2016 Total									
Total Costs FY16/17 - FY20/21							2017-2021 Total									
Total Costs in 5 FY blocks							Total Costs in 5 FY blocks									
							\$ 29,111,080									
*Notes: Includes all Regional/Domestic, Hydro-electric and Industrial Project Costs.				MRAR Amounts			\$ 535,200	\$ 406,683	\$ 336,822	\$ 353,604	\$ 406,571	\$ 486,171	\$ 405,301	\$ 385,904	\$ 580,992	\$ 594,253
Legend				Total Funding Need			\$ 3,668,603	\$ 3,552,930	\$ 4,130,599	\$ 2,141,309	\$ 3,476,759	\$ 3,815,086	\$ 2,429,973	\$ 5,581,104	\$ 5,774,835	\$ 13,962,703
: Complete 2011/12 through 2015/16				Funding Source:												
: Complete 2016/17 through 2020/21				Advance Charges			(538,000)									
: Complete 2021/22 through 2025/26				Grants			(666,000)	(1,786,729)	(1,786,729)	(720,000)	(1,350,000)					
: Need Cost Data or Engineering Study				Reserves			-	-	-	-	-					
:1) Projects that will reoccur beyond planning horizon (2025/26) or :2) Projects that are not currently required.				Rates			(2,302,403)	(1,604,001)	(2,181,670)	(1,259,109)	(1,964,559)					
				Financing			(162,200)	(162,200)	(162,200)	(162,200)	(162,200)	(162,200)				
							\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,652,886	\$ 2,429,973	\$ 5,581,104	\$ 5,774,835	\$ 13,962,703
White				Rate Funding FY 2016/17			2,302,400	2,302,400	2,302,400	2,302,400	2,302,400	2,302,400	2,302,400	2,302,400	2,302,400	2,302,400
Priority Ranking:																
Remaining Useful Life																
< 2 yrs = 4																
< 5 yrs = 3																
Operating below efficiency or recommended life + 3																
5 - 20 yrs = 2																
> 20 yrs = 1																
Importance																
Existing threat to public health or internal safety concern = 4																
Mandated regulatory requirements = 4																
Potential public health or safety concern = 3																
Increase service reliability or capacity = 3																
Increase reliability or capacity = 3																
Improve system operations and/or maintenance (O&M) = 2																
It would be nice to do = 1																
Redundancy																
System can not function without Asset = 4																
System can have limited functioning without Asset = 3																
System requires asset for Emergency Operations = 2																
System can function without Asset = 1																
Final Priority Ranking = Average of Useful Life, Importance, and Redundancy																