

Attachment 1a - East and West HI Pump Station & Force Main Renovation

EAST AND WEST Hawai'i PUMP STATION AND FORCE MAIN RENOVATION											
Priority	Force Main	Size (in)	Approx. Length (ft)	Pipe Material	Installation Year	Years in service	Proposed System	Est. Cost	Total Design and Construction (mo.)	Estimated Completion	Remarks
1	Lanihau	6	700	Cast Iron	1962	55	8" PVC or HDPE	\$575,000	11	May-18	Pipe Bursting being considered but direct dig still being considered if it expedites the project.
2	Hale Halawai	12	880	Cast Iron	1962	55	8" or 10" PVC or HDPE	\$575,000	16	October-18	Existing Force Main sized to discharge on Kalawa St. at 25 ft. higher elevation (prior to sewer in Kuakini Hwy). Slip-line to be considered to reduce impact to traffic and businesses.
3	Keopu	12	180	Cast Iron	1962	55	12" PVC Gravity	\$4,000,000	23	May-19	Pump Station to be relocated out of public gathering area. Pump station to be upgraded and emergency generator will be installed
		6	410	Cast Iron	1962	55	8" PVC or HDPE				
4	Wailuku	10	640	Cast Iron	1963	54	10" PVC or HDPE Dual FM	\$385,000	23	May-19	Pump Station renovated 2010. Boring to be evaluated to cross State Highway. Force Main to be re-routed via Wailuku Drive, approximately 900 ft.
5	Paukaa	8	8,200	Cast Iron	1983	34	8" or 10" PVC or HDPE dual FM	\$4,000,000	27	September-19	Pump Station renovation required. SPS unable to keep up with flows during rain events.
6	Onekahakaha	12	1,100	Cast Iron	1968	49	12" PVC or HDPE dual FM	\$4,000,000	37	July-20	Pump Station needs to be renovated. Underground canned station. Unable to certify elevator as agencies unwilling to repair or certify.
7	Kolea	8	1,700	Cast Iron	1968	49	8" PVC or HDPE dual FM	\$2,800,000	37	July-20	Pump Station Needs to be Renovated. Underground canned station. Leaks to floor from groundwater from corrosion previously repaired.
8	Project 19	6	975	Cast Iron	1980	37	6" PVC or HDPE dual FM	\$2,300,000	43	January-21	Pump Station to be renovated. Underground canned station. Only 1 pump in service. Wet well previously lined due to high H2S corrosion.
Total FM (ft)			12,615	Avg. service years		45	\$13,485,000				

Notes:

1. Pua Pump Station Renovation design underway and is to include complete renovation to address hydraulic surge issues as well as connection for second force main. Estimate probably in the order of \$8-10 M
2. Currently soliciting consultant contract for replacement of Pua FM. FM has previously had issues with liner separation and has ruptured in the past. FM also has restriction, believed to be due to separating liner resulting in maximum flows of 9 MGD which is well below original design capacity of 13 MGD and may not be able to handle flows during storm events. Wailoa SPS which feeds Pua has a Design Capacity of 20 MGD. Existing FM to be rehabilitated once second FM installed for redundancy. Estimated cost \$15 M
3. Kealakehe SPS pumps need replacement but replacement pending hydraulic surge analysis as hydro-pneumatic tank system originally installed at the station never used due to problems during initial construction. Existing pumps also do not meet design capacities of 3600 gpm, however, upsizing of the pumps without hydraulic surge analysis could result in damage to the existing FM which also had liner separation problems during initial construction which could also be indicative of vacuum areas in the main which could result in similar problems as Pua's FM.