

Clark Regional Wastewater District - New Business Model Operations and Maintenance Department

Staffing Requirement Summary

Collection System Maintenance	Current District Services		Current Staffing Model	
Core Functions	Staff Current (FTEs)	Staff Current (%)	Staff Requirement (FTEs)	Staff Requirement (percentage)
1 CCTV Inspection			4.25	17.0%
2 Manhole Inspection			0.44	1.8%
3 Line Cleaning			0.22	0.9%
4 Lateral Maintenance			0.69	2.7%
5 I&I Compliance			0.20	0.8%
6 Pump Stations			5.30	21.2%
7 Force Mains			0.07	0.3%
8 Air Release/Vacuum Relief Valves			0.76	3.0%
9 STEP Systems			1.26	5.0%
10 MOV Systems/Siphons			0.09	0.4%
11 Odor Control			0.34	1.4%
12 Utility Locates			1.46	5.8%
13 Customer Service (MS Only)			0.27	1.1%
14 System Repairs			1.28	5.1%
Subtotal	15.00	65.2%	16.64	66.5%
Additional Maintenance Tasks				
15 Fleet/Equipment Maintenance			0.40	1.6%
16 Shop Maintenance/Facilities Support			0.26	1.0%
17 Fabrication			0.13	0.5%
18 Inventory			0.32	1.3%
19 Construction/Engineering Support			0.23	0.9%
20 Public Outreach			0.03	0.1%
Subtotal	1.00	4.3%	1.38	5.5%
Systems and Support				
15 GIS		0.0%	1.50	6.0%
16 MMS		0.0%	0.30	1.2%
17 CUES/G-Net		0.0%	0.20	0.8%
18 SCADA/PLC Programming/Hardware		0.0%	1.00	4.0%
19 Admin		0.0%	1.00	4.0%
Total - Systems and Support	4.00	17.4%	4.00	16.0%
Management and Supervision				
Manager	1.00	4.0%	1.00	4.0%
Supervisor	2.00	8.0%	2.00	8.0%
Total - Department Management and Supervision	3.00	13.0%	3.00	12.0%
Total Staffing Requirements				
Total - Staff Requirements for All Functions	23.00	100.0%	25.02	100.0%

Core Function Workload Assessment - STAFFING REQUIREMENTS

Activities	Crew Size	Level of Service	Core Function Productivity Factor	Workload	Resource Requirement (annual hours)	Resource Requirement (FTEs)	Department Availability Factor	Staff Requirement (FTEs)	Percent of Total FTEs	Annual Staff Cost at Average Burdened Rate			
Gravity System													
CCTV Inspection Program													
1A(i) Inspection by Basin - 6-year cycle	2	Inspection cycle (years)	6.0	Hourly production (feet)	175	Length of pipe (miles)	445	4,475	2.15	77%	2.79	11.2%	\$435,337
1A(ii) Re-inspection Following Cleaning	2	Inspect after cleaning	1.0	Hourly production (feet)	150	Length of pipe (miles)	6	421	0.20	77%	0.26	1.1%	\$40,932
1A(iii) Lines with a History of Operational Issues	2	Inspection cycle (years)	3.0	Hourly production (feet)	150	Length of pipe (miles)	18	422	0.20	77%	0.26	1.1%	\$41,008
1A(iv) Hot Spot Re-inspection	2	Inspection cycle (years)	3.0	Hourly production (feet)	150	Length of pipe (miles)	8	189	0.09	77%	0.12	0.5%	\$18,393
1A(v) Interceptors, Trunk Lines >=24"	2	Inspection cycle (years)	3.0	Hourly production (feet)	200	Length of pipe (miles)	11	194	0.09	77%	0.12	0.5%	\$18,832
1A(vi) Limited-Access Lines	4	Inspection cycle (years)	3.0	Hourly production (feet)	100	Length of pipe (miles)	7	493	0.24	77%	0.31	1.2%	\$47,936
n/a Flagging In Support of CCTV Inspection	2	Lines needing flagging	5.0%	Flagging days/year	31.0	CCTV days/year	619	619	0.30	77%	0.39	1.5%	\$60,244
Manhole Inspection (accessible manholes)													
1B(i) Routine Inspection (included in CCTV work)	4	Maint. cycle (years)	1.0	Average time per MH (hrs)	0.5	LOS MHs	150	300	0.14	77%	0.19	0.7%	\$29,182
1B(ii) Limited Access Area Maintenance	3	Inspection cycle (years)	1.0	Average time per MH (hrs)	0.75	LOS MHs	182	410	0.20	77%	0.26	1.0%	\$39,833
Line Cleaning													
1C(i) O&M grade 3-5 - Root Removal	1	As Needed	1.0	Hourly production (feet)	150	Length of pipe (miles)	4	140	0.07	77%	0.09	0.3%	\$13,618
1C(ii) O&M grade 3-5 - HVC (Grease/Debris)	1	As Needed	1.0	Hourly production (feet)	150	Length of pipe (miles)	2	70	0.03	77%	0.04	0.2%	\$6,848
1C(iii) O&M grade 3-5 - Root Foaming/Contractor Support	2	Cleaning cycle (years)	1.0	Daily production (feet)	2,000	Length of pipe (miles)	4	21	0.01	77%	0.01	0.1%	\$2,054
1C(iv) O&M grade 3-5 - Root Foaming/Follow-up HVC	2	Cleaning cycle (years)	1.0	Daily production (feet)	2,000	Length of pipe (miles)	4	21	0.01	77%	0.01	0.1%	\$2,054
1C(v) Hot Spots	2	Cleaning cycle (years)	1.0	Daily production (feet)	2,000	Length of pipe (miles)	11.7	62	0.03	77%	0.04	0.2%	\$6,031
n/a Flagging In Support of Line Cleaning	2	Lines needing flagging	5.0%	Flagging days/year	1.6	Cleaning days per year	31	31	0.02	77%	0.02	0.1%	\$3,061
Lateral Maintenance/Ownership													
1D(i) Lateral CCTV Inspection	2	Respond to every request		Average time per lateral (hours)	3.0	WO per year	100	600	0.29	77%	0.37	1.5%	\$58,364
1D(ii) Lateral Maintenance (Root Removal, Root Foaming, HVC)	2	As Needed		Average time per lateral (hours)	4.0	WO per year	50	400	0.19	77%	0.25	1.0%	\$38,909
1D(iii) Preventative Maintenance - Hot Spots	2	Cleaning cycle (years)	1	Average time per lateral (hours)	2.0	PM laterals	25	100	0.05	77%	0.06	0.2%	\$9,727
I&I Compliance													
1E(i) Flow Monitoring (install, data collection, calibration, etc.)	2	As Needed		Hours per site visit	2	No. per year	40	160	0.08	77%	0.10	0.4%	\$15,564
1E(ii) Smoke Testing	3	As Needed		Average time per test (hours)	3.0	No. per year	6	54	0.03	77%	0.03	0.1%	\$5,253
1E(iii) Dye Testing	2	As Needed		Average time per call (hours)	3.0	No. per year	5	30	0.01	77%	0.02	0.1%	\$2,918
1E(iv) I&I Investigation	2	As Needed		Estimated activity level		Staff hours per year	80	80	0.04	77%	0.05	0.2%	\$7,790
Pressure Systems													
Pump Stations													
2A(i) SCADA Monitoring				Estimated activity level		Staff hours per week	10	520	0.25	77%	0.32	1.3%	\$50,582
2A(ii) Virtual Pump Run - Daily	1	Virtual pump runs daily	3	Time per cycle (hours)	0.5	Staff hours per year	548	548	0.26	77%	0.34	1.4%	\$53,257
2A(iii) Pump Run - Weekly (High-Priority Pump Stations)	1	Weekly site visits	1	Time per cycle (hours)	8.0	No. sites	21	640	0.31	77%	0.40	1.6%	\$62,255
2A(iv) Pump Run - Monthly (All PS/MOVs/Biofilters)	2	Monthly site visits	1	Time per cycle (hours)	35.0	No. sites	80	840	0.40	77%	0.52	2.1%	\$81,709
2A(v) Pump Station Condition Assessment - Annual	1	Annual site visits	1	Time per site visit (hours)	6.0	No. sites (PS & MOV)	80	960	0.46	77%	0.60	2.4%	\$93,382
2A(vi) Pump Station Electrical Inspection - Annual	1	Annual site visits	1	Time per site visit (hours)	3.0	No. sites (PS/MOV/BF/Rep)	90	270	0.13	77%	0.17	0.7%	\$26,264
2A(vii) Wetwell Cleaning (Grease Removal Only)	2	As Needed		Time per wetwell (hours)	80	Sites per year	80	480	0.23	77%	0.30	1.2%	\$46,691
2A(viii) Wetwell Cleaning (Bottom Cleaning)	3	As Needed		Time per wetwell (hours)	5.0	Sites per year	6	90	0.04	77%	0.06	0.2%	\$8,755
2A(ix) Pump Repairs/Replacements	2	As Needed		Time per repair (hours)	4.0	Repairs/year	8	64	0.03	77%	0.04	0.2%	\$6,225
2A(x) Pump Repairs/Replacements (Electrician Support)	1	As Needed		Time per repair (hours)	3.0	Repairs/year	8	24	0.01	77%	0.01	0.1%	\$2,335
2A(xi) Generator/Portable Pump Maintenance	1	Site Visits/Quarter	1	Time per site visit (hours)	1.0	No. assets	62	248	0.12	77%	0.15	0.6%	\$24,124
n/a Building, Site, and Landscape Maintenance	2	Site Visits/Month	1	Time per site visit (hours)	1.0	No. sites (PS & MOV)	20	480	0.23	77%	0.30	1.2%	\$46,691
n/a Surge Tank Maintenance	4	PMs per year	1	Time per PM (hours)	10.0	No. surge tanks	2	80	0.04	77%	0.05	0.2%	\$7,782
n/a Pump De-Ragging (requires removal of pump)	2	As Needed		Time per site visit (hours)	2.5	Work orders per year	150	750	0.36	77%	0.47	1.9%	\$72,955
n/a Mechanical Maintenance & Minor Repairs - Pump Crew	2	As Needed		Estimated activity level		Crew hours per year	1040	1,040	0.50	77%	0.65	2.6%	\$101,164
n/a Electrical Maintenance & Minor Repairs - Electrician	1	As Needed		Time per work order (hours)	2.0	Work orders per month	45	1,080	0.52	77%	0.67	2.7%	\$105,055
n/a Radio Network Maintenance - Electrician	1	As Needed		Time per issue (hours)	8	Issues per month	2	192	0.09	77%	0.12	0.5%	\$18,676
n/a New Pump Station Startup - Pump Crew	2	As Needed		Time per event (hours)	10.0	Events per year	4	80	0.04	77%	0.05	0.2%	\$7,782
n/a New Pump Station Startup - Electrician	1	As Needed		Time per event (hours)	25.0	Events per year	4	100	0.05	77%	0.06	0.2%	\$9,727
Force Mains													
2B(ii) Cleaning (Pigging)	4	As Needed		Time per cleaning (hours)	10	Force mains cleaned per year	3	120	0.06	77%	0.07	0.3%	\$10,905
Air Release/Vacuum Relief Valves													
2C(i) Inspect and Exercise ARVs	2	Inspections/year	1	Time per site visit (hours)	1.5	Valves in system	232	696	0.33	77%	0.43	1.7%	\$67,702
n/a Inspect and Exercise Gate Valves	2	Inspections/year	1	Time per site visit (hours)	1.0	Valves in system	190	380	0.18	77%	0.24	0.9%	\$36,964
n/a Repair and Maintain	2	As Needed		Time per repair (hours)	3.75	Repairs per year	18	135	0.06	77%	0.08	0.3%	\$13,132
STEP Systems													
2D(i) Non-Residential STEP System Inspection - Annual	2	Inspection cycle (years)	1	Time per site visit (hours)	1.5	No. STEP Systems	67	201	0.10	77%	0.13	0.5%	\$19,552
2D(ii) Residential STEP System Inspection - Every 3 Years	2	Inspection cycle (years)	3	Time per site visit (hours)	0.75	No. STEP Systems	828	414	0.20	77%	0.26	1.0%	\$40,271
2D(iii) Tank Pumping (Scum/Sludge > 8")	2	As Needed		Time per site visit (hours)	3	Pumpouts per year	125	375	0.36	77%	0.47	1.9%	\$72,955
n/a Minor Repairs - Reactive	2	As Needed		Time per repair (hours)	1.5	Repairs per year	100	300	0.14	77%	0.19	0.7%	\$29,182
n/a Electrical/Controls Support	1	As Needed		Time per event (hours)	2	Events per month	2	48	0.02	77%	0.03	0.1%	\$4,669
n/a Minor Electrical Repairs - Electrician	1	As Needed		Time per site visit (hours)	2	Work orders per year	75	150	0.07	77%	0.09	0.4%	\$14,591
n/a Inspection (new construction)	1	As Needed		Time per permit (hours)	16	Permits per year	10	160	0.08	77%	0.10	0.4%	\$15,564
MOV Systems/Siphons													
2E(i) SCADA Monitoring (included with pump stations)													
2E(ii) Monthly MOV Maintenance	2	Monthly site visits	1	Time per site visit (hours)	1.5	No. sites	4	36	0.02	77%	0.02	0.1%	\$3,502
2E(iii) HVC Siphons under Salmon Creek	4	Inspection cycle (years)	1	Time per siphon (hours)	5	No. siphons	4	80	0.04	77%	0.05	0.2%	\$7,782
2E(iv) Maintain Siphon Access	2	PMs per year	4	Time per siphon (hours)	1	No. siphons	4	32	0.02	77%	0.02	0.1%	\$3,113
Odor Control													
2F(i) Inspect and Maintain Chemical Dosing Equipment	2	Visits/year	6	Time per site (hours)	2	No. active chemical systems	15	360	0.17	77%	0.22	0.9%	\$35,018
2F(ii) Fill Chemical Tanks (contractor support)	2	Visits/year	2	Time per site (hours)	0.75	No. active chemical systems	15	45	0.02	77%	0.03	0.1%	\$4,377
2F(iii) Carbon Scrubber (media replacement)	2	As Needed		Time per replacement (hours)	1.5	Media change per year	5	15	0.01	77%	0.01	0.0%	\$1,459
2F(iv) Biofilter (media replacement)	4	Replacement cycle (years)	10	Time per replacement (hours)	35	Media change per year	0.1	21	0.01	77%	0.01	0.1%	\$2,023
2F(v) Biofilter (preventative maintenance)	2	PMs per year	2	Time per site (hours)	4	No. of Biofilters	5	80	0.04	77%	0.05	0.2%	\$7,782
2F(vi) Biofilter Repairs	2	As Needed		Time per repair (hours)	4	Repairs per year	3	24	0.01	77%	0.01	0.1%	\$2,335
Program													
Utility Locates													
3A(i) Site Locates	1			Time per locate (hours)	0.25	Locates marked per year	7500	1,875	0.90	77%	1.17	4.7%	\$182,386
3A(ii) Calls to Clients	1			Time per locate (hours)	0.25	Calls per year	1875	469	0.23	77%	0.29	1.2%	\$45,597
Customer Service													
3C(i) Dispatching Maintenance Issues/Admin Duties													
3C(ii) Customer Response/Field Visits	2	Respond to every request		Average time per event (hours)	2	Work orders per week	2	416	0.20	77%	0.26	1.0%	
3C(iii) STEP System Customer Service	1	Respond to every request		Average time per event (hours)	1	Work orders per month	2	24	0.01	77%	0.01	0.1%	\$2,335
Repairs													
3H(i) Gravity Mainline Repairs (Dig-ups)	4	As Needed		Average time per repair (hours)	10	Repairs per year	6	240	0.12	77%	0.15	0.6%	\$23,345
3H(ii) Gravity Mainline Repairs (Quicklocks/Patch Liners)	3	As Needed		Average time per repair (hours)	3	Repairs per year	40	360	0.17	77%	0.22	0.9%	\$35,018
3H(iii) Manhole Chemical Grouting	2	As Needed		Average time per MH (hours)	4	No. per year	5	40	0.02	77%	0.02	0.1%	\$3,891
3H(iv) Manhole Adjust/Raise	3	As Needed		Average time per MH (hours)	8	Repairs per year	8	96	0.05	77%	0.06	0.2%	\$9,338
3H(v) Manhole Repairs/Rehabilitation	2	As Needed		Average time per MH (hours)	3	Repairs per year	24	144	0.07	77%	0.09	0.4%	\$14,007
3H(vi) Lateral Repairs (Dig-ups)	4	As Needed		Average time per repair (hours)	12	Repairs per year	6	288	0.14	77%	0.18	0.7%	\$28,015
3H(vii) Lateral Repairs (Liners)	3	As Needed		Average time per liner (hours)	5	Repairs per year	12	180	0.09	77%	0.11	0.4%	\$17,509
3H(viii) Pump Station/MOV/Biofilter Repairs													
3H(ix) Force Main Repairs	4	As Needed		Time per repair (hours)	20	Repairs per year	0.5	40	0.02	77%	0.02	0.1%	\$3,116
3H(x) STEP System Repairs - Float Replacement	3	As Needed		Time per repair (hours)	3	Repairs per year	24	216	0.10	77%	0.13	0.5%	\$21,011
3H(xi) STEP System Repairs - Pump Replacement	2	As Needed		Time per repair (hours)	3	Repairs per year	10	60	0.03	77%	0.04	0.1%	\$5,836
3H(xii) STEP System Repairs - Other	2	As Needed		Time per repair (hours)	5	Repairs per year	24	240	0.12	77%	0.15	0.6%	\$23,345
3H(xiii) STEP System Repairs - Major	4	As Needed		Time per repair (hours)	10	Repairs per year	4	160	0.08	77%	0.10	0.4%	\$15,564
Other Department Work													
GEM Work													
n/a Line Cleaning	2	As Needed		Average time per event (hours)	5	Nominal Amount		0	0.00	77%	0.00	0.0%	\$0
n/a CCTV Inspection	2	As Needed		Average time per event (hours)	5	Nominal Amount		0	0.00	77%	0.00	0.0%	\$0
Other External Support													
n/a Construction Department Support	2	As Requested		Average time per event (hours)	3	Events per year	12	72	0.03	77%	0.04	0.2%	\$7,004
n/a Engineering Department Support	2	As Requested		Average time per event (hours)	10	Events per year	15	300	0.14	77%	0.19	0.7%	\$29,182