

Table 6.10. Consolidated Dry Season TMDL Allocations to Existing Sources*
and

Load Reductions Required to Achieve Kapaa Stream TMDLs

Dry Season Baseflow	TMDLs			Existing			Reductions Required		
	TSS	TN	TP	TSS	TN	TP	TSS	TN	TP
	(kgd)	(kgd)	(kgd)	(kgd)	(kgd)	(kgd)	(kgd)	(kgd)	(kgd)
LAs to facility areas									
CCH MS4	5	0.0	0.0	5	0.1	0.0	1	11	0.1
CCH Kalaheo Landfill	19	0.1	0.0	24	0.5	0.2	5	20	0.5
CCH Kapa'a Landfill	27	0.1	0.0	36	0.9	0.3	9	25	0.8
CCH Waste Transfer	1	0.0	0.0	23	0.3	0.1	22	95	0.3
HIDOT Highways MS4	4	0.0	0.0	4	0.1	0.0	0	4	0.1
Ameron Quarry	62	0.2	0.1	69	1.4	0.3	7	10	1.2
Industrial Park	22	0.1	0.0	28	0.4	0.1	5	19	0.3
LA to other source areas	40	0.3	0.1	41	1.0	0.4	1	2	0.7
Totals	180	0.8	0.2	229	4.6	1.4	49	21	3.9
Dry Season 10% Runoff	TMDLs			Existing			Reductions		
WLAs	TSS	TN	TP	TSS	TN	TP	TSS	TN	TP
	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
CCH MS4	0.1	0.0	0.0	0.1	0.0	0.0	0.0	13	0.0
CCH Kalaheo Landfill	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0
CCH Kapa'a Landfill	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0
CCH Waste Transfer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0
HIDOT Highways MS4	0.2	0.0	0.0	0.3	0.0	0.0	0.0	5	0.0
Ameron Quarry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0
Industrial Park	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0
LA to Nonpoint sources	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0
Totals	0.3	0.0	0.0	0.4	0.0	0.0	0.0	7	0.0
Dry Season 2% Runoff	TMDLs			Existing			Reductions		
WLAs	TSS	TN	TP	TSS	TN	TP	TSS	TN	TP
	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
CCH MS4	61	0.2	0.1	384	0.7	0.5	323	84	0.5
CCH Kalaheo Landfill	0	0.0	0.0	0	0.0	0.0	0	0	0.0
CCH Kapa'a Landfill	80	0.8	0.1	3586	4.9	1.3	3506	98	4.0
CCH Waste Transfer	3	0.1	0.0	49	0.3	0.1	46	95	0.2
HIDOT Highways MS4	49	0.5	0.2	68	0.7	0.7	19	28	0.2
Ameron Quarry	0	0.0	0.0	0	0.0	0.0	0	0	0.0
Industrial Park	133	0.6	0.1	272	1.7	0.3	139	51	1.1
LA to Nonpoint sources	434	2.2	0.3	8545	5.0	3.5	8111	95	2.9
Totals	760	4.5	0.7	12904	13.3	6.3	12144	94	8.8

*TMDL allocations in kgd (kilograms per day) are obtained by dividing dry season total kg by 184 days.

Loads and Load Reductions are rounded to the nearest 0.1 kg, thus (a) **Totals** may be different than the sum of their parts and (b) **TMDLs, Existing Loads and Reductions Required** may actually be greater than 0.

Acronyms

TMDLs = Total Maximum Daily Loads

LAs = Load Allocations

WLAs = Waste Load Allocations

kgd = kilograms per day

TSS = Total Suspended Solids

TN = Total Nitrogen

TP = Total Phosphorous

CCH = City and County of Honolulu

MS4 = Municipal Separate Storm Sewer System

HIDOT = State of Hawaii Department of Transportation

kg = kilograms

Table 6.11. Consolidated Wet Season TMDL Allocations to Existing Sources and Load Reductions Required to Achieve Kapaa Stream TMDLs

Wet Season Baseflow	TMDLs			Existing			Reductions Required								
	TSS	TN	TP	TSS	TN	TP	TSS	(kgd)	(%)	TN	(kgd)	(%)	TP	(kgd)	(%)
LAs to facility areas	(kgd)	(kgd)	(kgd)	(kgd)	(kgd)	(kgd)	(kgd)			(kgd)			(kgd)		
CCH MS4	7	0.0	0.0	7	0.1	0.0	0	0	0.1	81	0.0	82			
CCH Kalaheo Landfill	34	0.1	0.1	34	0.8	0.3	0	0	0.6	82	0.3	83			
CCH Kapa'a Landfill	39	0.2	0.1	52	1.3	0.5	13	25	1.2	87	0.4	88			
CCH Waste Transfer	3	0.0	0.0	27	0.4	0.1	24	89	0.3	92	0.3	95			
HI DOT Highways MS4	5	0.0	0.0	5	0.1	0.0	0	0	0.1	76	0.0	76			
Ameron Quarry	91	0.3	0.1	91	1.2	0.4	0	0	1.5	82	0.3	75			
Industrial Park	31	0.1	0.0	31	0.4	0.1	0	0	0.4	82	0.1	83			
LA to other source areas	59	0.5	0.2	59	1.4	0.5	0	0	1.0	69	0.3	66			
Totals	269	1.2	0.4	306	6.3	1.9	37	12	5.1	81	1.5	79			
Wet Season 10% Runoff	TMDLs			Existing			Reductions Required								
WLAs	TSS	TN	TP	TSS	TN	TP	TSS	(kgd)	(%)	TN	(kgd)	(%)	TP	(kgd)	(%)
CCH MS4	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)			(kg)			(kgd)		
CCH Kalaheo Landfill	22	0.1	0.0	113	0.2	0.2	91	80	0.1	61	0.1	83			
CCH Kapa'a Landfill	0	0.0	0.0	0	0.0	0.0	0	0	0.0	0	0.0	0			
CCH Waste Transfer	16	0.2	0.0	902	1.2	0.3	886	98	1.1	87	0.3	90			
HIDOT Highways MS4	0	0.0	0.0	0	0.0	0.0	0	0	0.0	0	0.0	0			
Ameron Quarry	17	0.2	0.1	23	0.2	0.2	6	27	0.1	28	0.1	60			
Industrial Park	0	0.0	0.0	0	0.0	0.0	0	0	0.0	0	0.0	0			
LA to Nonpoint sources	63	0.2	0.0	89	0.6	0.1	26	29	0.3	59	0.1	65			
Totals	119	0.3	0.1	2252	1.2	0.9	2134	95	0.9	74	0.8	92			
Wet Season 2% Runoff	TMDLs			Existing			Reductions Required								
WLAs	TSS	TN	TP	TSS	TN	TP	TSS	(kgd)	(%)	TN	(kgd)	(%)	TP	(kgd)	(%)
CCH MS4	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)			(kg)			(kgd)		
CCH Kalaheo Landfill	258	1.3	0.4	1926	3.2	2.1	1668	87	2.0	61	1.7	83			
CCH Kapa'a Landfill	136	1.4	0.2	3154	4.6	1.3	3018	96	3.3	71	1.1	84			
CCH Waste Transfer	800	7.1	1.3	22726	30.9	8.2	21926	96	23.8	77	6.9	84			
HIDOT Highways MS4	42	1.3	0.3	806	4.8	1.3	765	95	3.4	72	1.1	80			
Ameron Quarry	212	2.2	1.1	268	2.7	2.7	56	21	0.5	17	1.6	59			
Industrial Park	0	0.0	0.0	0	0.0	0.0	0	0	0.0	0	0.0	0			
LA to Nonpoint sources	530	3.5	0.4	1239	7.8	1.6	710	57	4.3	55	1.2	75			
Totals	6516	15.6	3.8	41164	27.3	18.2	34648	84	11.7	43	14.4	79			

*TMDL allocations in kgd (kilograms per day) are obtained by dividing wet season kg by 181 days.

Loads and Load Reductions rounded to the nearest 0.1 kg, thus (a) **Totals** may be different than the sum of their parts and (b) **TMDLs, Existing Loads and Reductions Required** may actually be greater than 0.

Acronyms – see previous dry season table

6.6 Implementation Assurance

Wasteload Allocations (WLAs) for the Kapa'a Stream TMDLs will be implemented through compliance with NPDES permit conditions and by following the stormwater management plans associated with those permits (Table 6.12). It will be necessary to revise most of these permits to include effluent limitations consistent with the approved WLAs, as required by federal regulations at 40 CFR 122.44(d)(1). Note that updated information for Table 6.12 was not readily available at press time. Updating the permit schedules, planning requirements, compliance information, and monitoring requirements, and making these updates more readily available for agency and public use, is an important ongoing implementation task.

Table 5.10. Consolidated Dry Season TMDL Allocations to Major Sources

Dry Season Baseflow	<u>Allocations</u>			<u>Existing Loads</u>			<u>Reductions Needed</u>					
	TSS (kgd)	TN (kgd)	TP (kgd)	TSS (kgd)	TN (kgd)	TP (kgd)	TSS (kgd)	TN (%)	TP (kgd)	TN (%)	TP (kgd)	TP (%)
LA to Hawaii DOT	31	0.38	0.052	31	0.62	0.052	0	0	0.24	38	0	0
LA to Hawaii DOD	1.1	0.02	0.003	1.1	0.04	0.003	0	0	0.02	50	0	0
LA to Hawaii DOE	1.3	0.06	0.003	1.3	0.06	0.003	0	0	0	0	0	0
LA to Hawaii DOH	1.9	0.09	0.005	1.9	0.09	0.005	0	0	0	0	0	0
LA to CCH ENV	253	5.02	0.474	253	5.37	0.474	0	0	0.35	7	0	0
LA to UH WCC	1.5	0.07	0.004	1.5	0.08	0.004	0	0	0.00	5	0	0
LA to Other NPS	354	5.67	0.918	354	9.31	0.918	0	0	3.65	39	0	0
Totals:	643.7	11.31	1.458	644	15.58	1.458	0	0	4.26	27	0	0

Dry Season 10% Runoff	<u>Allocations</u>			<u>Existing Loads</u>			<u>Reductions Needed</u>					
	TSS (kg)	TN (kg)	TP (kg)	TSS (kg)	TN (kg)	TP (kg)	TSS (kg)	TN (%)	TP (kg)	TN (%)	TP (kg)	TP (%)
WLA to Hawaii DOT	65	1.07	0.33	65	1.11	0.36	0	0	0.04	4	0.04	10
WLA to Hawaii DOD	0	0	0	0	0	0	0	0	0	0	0	0
WLA to Hawaii DOE	0	0	0	0	0	0	0	0	0	0	0	0
WLA to Hawaii DOH	0	0	0	0	0	0	0	0	0	0	0	0
WLA to CCH ENV	135	2.00	0.60	135	2.16	0.73	0	0	0.16	7	0.13	18
WLA to UH WCC	0	0	0	0	0	0	0	0	0	0	0	0
LA to NPS	0	0	0	0	0	0	0	0	0	0	0	0
Totals:	199	3.07	0.93	199	3.28	1.09	0	0	0.21	6	0.17	15

Dry Season 2% Runoff	<u>Allocations</u>			<u>Existing Loads</u>			<u>Reductions Needed</u>					
	TSS (kg)	TN (kg)	TP (kg)	TSS (kg)	TN (kg)	TP (kg)	TSS (kg)	TN (%)	TP (kg)	TN (%)	TP (kg)	TP (%)
WLA to Hawaii DOT	784	8.06	1.64	784	14.6	4.56	0	0	6.56	45	2.92	64
WLA to Hawaii DOD	0	0	0	0	0	0	0	0	0	0	0	0
WLA to Hawaii DOE	0.93	0.02	0.003	0.93	0.023	0.006	0	0	0	31	0.002	43
WLA to Hawaii DOH	1.42	0.02	0.003	1.42	0.036	0.009	0	0	0	0	0	0
WLA to CCH ENV	2,733	19.4	4.23	2733	33.7	10	0	0	14.3	42	6.11	59
WLA to UH WCC	1.15	0.02	0	1.15	0.029	0.007	0	0	0.01	45	0.005	68
LA to NPS	536	8.14	1.15	536	16.1	3.22	0	0	7.98	50	2.07	64
Totals:	4,056	35.7	7.03	4,056	64.6	18.1	0	0	28.9	45	11.1	61

Table 5.11. Consolidated Wet Season TMDL Allocations to Major Sources

Wet Season Baseflow	<u>Allocations</u>			<u>Existing Loads</u>			<u>Reductions Needed</u>					
	TSS (kgd)	TN (kgd)	TP (kgd)	TSS (kgd)	TN (kgd)	TP (kgd)	TSS (kgd)	(%)	TN (kgd)	(%)	TP (kgd)	(%)
LA to Hawaii DOT	34	0.51	0.057	34	0.68	0.057	0	0	0.17	25	0	0
LA to Hawaii DOD	1	0.035	0.004	1	0.054	0.004	0	0	0.02	35	0	0
LA to Hawaii DOE	2	0.076	0.004	2	0.076	0.004	0	0	0	0	0	0
LA to Hawaii DOH	2	0.11	0.006	2	0.11	0.006	0	0	0	0	0	0
LA to CCH ENV	297	6.07	0.557	297	6.31	0.557	0	0	0.24	4	0	0
LA to UH WCC	2	0.090	0.004	2	0.090	0.004	0	0	0	0	0	0
LA to Other NPS	392	7.70	1.017	392	10.33	1.02	0	0	2.63	25	0	0
Totals:	729	14.59	1.648	729	17.65	1.648	0	0	3.07	17	0	0

Wet Season 10% Runoff	<u>Allocations</u>			<u>Existing Loads</u>			<u>Reductions Needed</u>					
	TSS (kg)	TN (kg)	TP (kg)	TSS (kg)	TN (kg)	TP (kg)	TSS (kg)	(%)	TN (kg)	(%)	TP (kg)	(%)
WLA to Hawaii DOT	273	4.21	1.25	273	4.94	1.57	0	0	0.73	15	0.32	20
WLA to Hawaii DOD	0	0	0	0	0	0	0	0	0	0	0	0
WLA to Hawaii DOE	0	0	0	0	0	0	0	0	0	0	0	0
WLA to Hawaii DOH	0	0	0	0	0	0	0	0	0	0	0	0
WLA to CCH ENV	594	6.03	1.89	594	8.42	2.88	0	0	2.39	28	0.99	34
WLA to UH WCC	0	0	0	0	0	0	0	0	0	0	0	0
LA to NPS	0	0	0	0	0	0	0	0	0	0	0	0
Totals:	868	10.2	3.14	868	13.4	4.44	0	0	3.12	23	1.30	29

Wet Season 2% Runoff	<u>Allocations</u>			<u>Existing Loads</u>			<u>Reductions Needed</u>					
	TSS (kg)	TN (kg)	TP (kg)	TSS (kg)	TN (kg)	TP (kg)	TSS (kg)	(%)	TN (kg)	(%)	TP (kg)	(%)
WLA to Hawaii DOT	1,834	14.5	4.21	1,834	34.5	10.7	0	0	20.0	58	6.50	61
WLA to Hawaii DOD	11.5	0.16	0.03	11.5	0.43	0.07	0	0	0.27	63	0.05	63
WLA to Hawaii DOE	30.0	0.51	0.11	30.0	0.75	0.19	0	0	0.24	32	0.07	39
WLA to Hawaii DOH	41.0	0.47	0.10	41.0	1.02	0.26	0	0	0	0	0	0
WLA to CCH ENV	11,672	88.8	22.1	11,672	148	41.0	0	0	59.7	40	18.9	46
WLA to UH WCC	33.1	0.38	0.08	33.1	0.83	0.21	0	0	0.45	54	0.12	60
LA to NPS	5,889	68.6	13.6	5,889	184	36.6	0	0	115	63	23.1	63
Totals:	19,511	173	40.2	19,511	369	89.0	0	0	196	53	48.8	55