

APPENDIX A: Sources of Pollutants in Urban Areas.

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Oversize tables from Chapters 23 and 24.

Oversize table from Chapter 23.

Table 23.7

Pollutant and Land Use	Roofs	Paved Parking	Paved Storage	Unpaved Parking/Storage	Paved Driveways	Unpaved Driveways	Dirt Walks	Paved Sidewalks	Streets
<u>Total Solids (mg/L)</u>									
Residential:	58 (5) 64 (1) 18 (4)	1790 (5)	73 (5)		510 (5)		1240 (5)	49 (5)	325 (5) 235 (4)
Commercial:	95 (1) 190 (4)	340 (2) 240 (1) 102 (7)							325 (4)
Industrial:	113 (5)	490 (5)	270 (5)	1250 (5)	506 (5)	5620 (5)		580 (5)	1800 (5)
<u>Suspended Solids (mg/L)</u>									
Residential:	22 (1) 13 (5)	1660 (5)	41 (5)		440 (5)		810 (5)	20 (5)	242 (5)
Commercial:		270 (2) 65 (1) 41 (7)							242 (5)
Industrial:	4 (5)	306 (5)	202 (5)	730 (5)	373 (5)	4670 (5)		434 (5)	1300 (5)

Pollutant and Land Use	Roofs	Paved Parking	Paved Storage	Unpaved Parking/Storage	Paved Driveways	Unpaved Driveways	Dirt Walks	Paved Sidewalks	Streets
<u>Dissolved Solids (mg/L)</u>									
Residential:	42 (10 5 (5))	130 (5)	32 (5)		70 (5)		430 (5)	29 (5)	83 (5) 83 (4)
Commercial:		70 (2) 175 (1) 61 (7)							83 (5)
Industrial:	109 (5)	184 (5)	68 (5)	520 (5)	133 (5)	950 (5)		146 (5)	500 (5)
<u>BOD₅ (mg/L)</u>									
Residential:	3 (4)	22 (4)							13 (4)
Commercial:	7 (4)	11 (1) 4 (8)							

Pollutant and Land Use	Roofs	Paved Parking	Paved Storage	Unpaved Parking/Storage	Paved Driveways	Unpaved Driveways	Dirt Walks	Paved Sidewalks	Streets
<u>Total Phosphorus (mg/L)</u>									
Residential:	0.03 (5) 0.05 (1) 0.1 (4)				0.36 (5)		0.20 (5)	0.80 (5)	0.62 (5) 0.31 (4)
Commercial:	0.03 (4) 0.07 (4)	0.16 (1) 0.15 (7) 0.73 (5) 0.9 (2) 0.5 (4)							0.62 (5)
Industrial:	<0.06 (5)	2.3 (5)	0.7 (5)	1.0 (5)	0.9 (5)	3.0 (5)		0.82 (5)	1.6 (5)
<u>Total Phosphate (mg/L)</u>									
Residential:	<0.04 (5) 0.08 (4)				<0.2 (5)		0.66 (5)	0.64 (5)	0.07 (5) 0.12 (4)
Commercial:	0.02 (4)	0.03 (5) 0.3 (2) 0.5 (4) 0.04 (7) 0.22 (8)	<0.02 (5)						0.07 (5)
Industrial:	<0.02 (5)	0.6 (5)	0.06 (5)	0.13 (5)	<0.02 (5)	0.10 (5)		0.03 (5)	0.15 (5)

Pollutant and Land Use	Roofs	Paved Parking	Paved Storage	Unpaved Parking/Storage	Paved Driveways	Unpaved Driveways	Dirt Walks	Paved Sidewalks	Streets
<u>TKN (mg/L)</u>									
Residential:	1.1 (5) 0.71 (4)				3.1 (5)		1.3 (5)	1.1 (5)	2.4 (5) 2.4 (4)
Commercial:	4.4 (4)	3.8 (5) 4.1 (2) 1.5 (4) 1.0 (1) 0.8 (8)							2.4 (5)
Industrial:	1.7 (5)	2.9 (5)	3.5 (5)	2.7 (5)	5.7 (5)	7.5 (5)		4.7 (5)	5.7 (5)
<u>Ammonia (mg/L)</u>									
Residential:	0.1 (5) 0.9 (1) 0.5 (4)	0.1 (5)	0.3 (5)		<0.1 (5)		0.5 (5)	0.3 (5)	<0.1 (5) 0.42 (4)
Commercial:	1.1 (4)	1.4 (2) 0.35 (4) 0.38 (1)							<0.1 (5)
Industrial:	0.4 (5)	0.3 (5)	0.3 (5)	<0.1 (5)	<0.1 (5)	<0.1 (5)		<0.1 (5)	<0.1 (5)
<u>Phenols (mg/L)</u>									
Residential:	2.4 (5)	12.2 (5)	30.0 (5)		9.7 (5)		<0.4 (5)	8.6 (5)	6.2 (5)
Industrial:	1.2 (5)	9.4 (5)	2.6 (5)	8.7 (5)	7.0 (5)	7.4 (5)		8.7 (5)	24 (7)

Pollutant and Land Use	Roofs	Paved Parking	Paved Storage	Unpaved Parking/Storage	Paved Driveways	Unpaved Driveways	Dirt Walks	Paved Sidewalks	Streets
<u>Cadmium (µg/L)</u>									
Residential:	<4 (5) 0.6 (1)	2 (5)	<5 (5)		5 (5)		<1 (5)	<4 (5)	<5 (5)
Commercial:		5.1 (7) 0.6 (8)							<5 (5)
Industrial:	<4 (5)	<4 (5)	<4 (5)	<4 (5)	<4 (5)	<4 (5)		<4 (5)	<4 (5)
<u>Chromium (µg/L)</u>									
Residential:	<60 (5) <5 (4)	20 (5) 71 (4)	<10 (5)		<60 (5)		<10 (5)	<60 (5)	<60 (5) 49 (4)
Commercial:	<5 (4)	19 (7) 12 (8)							<60 (5)
Industrial:	<60 (5)	<60 (5)	<60 (5)	<60 (5)	<60 (5)	70 (5)		<60 (5)	<60 (5)
<u>Copper (µg/L)</u>									
Residential:	10 (5) <5 (4)	100 (5)	20 (5)		210 (5)		20 (5)	20 (5)	40 (5) 30 (4)
Commercial:	110 (4)	40 (2) 46 (4) 110 (7)							40 (5)
Industrial:	<20 (5)	480 (5)	260 (5)	120 (5)	40 (5)	140 (5)		30 (5)	220 (5)

Pollutant and Land Use	Roofs	Paved Parking	Paved Storage	Unpaved Parking/Storage	Paved Driveways	Unpaved Driveways	Dirt Walks	Paved Sidewalks	Streets
<u>Lead (µg/L)</u>									
Residential:	<40 (5) 30 (3) 48 (1) 17 (4)	250 (5)	760 (5)		1400 (5)		30 (5)	80 (5)	180 (5) 670 (4)
Commercial:	19 (4) 30 (1)	200 (2) 350 (3) 1090 (4) 146 (1) 255 (7) 54 (8)							180 (5)
Industrial:	<40 (5)	230 (5)	280 (5)	210 (5)	260 (5)	340 (5)		<40 (5)	560 (5)
<u>Zinc (µg/L)</u>									
Residential:	320 (5) 670 (1) 180 (4)	520 (5)	390 (5)		1000 (5)		40 (5)	60 (5)	180 (5) 140 (4)
Commercial:	310 (1) 80 (4)	300 (5) 230 (4) 133 (1) 490 (7)							180 (5)
Industrial:	70 (5)	640 (7)	310 (5)	410 (5)	310 (5)	690 (5)		60 (5)	910 (5)

(1) Bannerman, *et al.* 1983 (Milwaukee, WI) (NURP)

(3) Pitt 1983 (Ottawa)

(5) Pitt and McLean 1986 (Toronto)

(7) STORET Site #596296-2954843 (Huntington-Long Island, NY) (NURP)

(2) Denver Regional Council of Governments 1983 (NURP)

(4) Pitt and Bozeman 1982 (San Jose)

(6) STORET Site #590866-2954309 (Shop-Save-Durham, NH) (NURP)

Oversize table from Chapter 23.

Table 23.9

Pollutant and Land Use	Roofs	Paved Parking	Paved Storage	Unpaved Parking/Storage	Paved Drives	Unpaved Drives	Dirt Walks	Paved Side walks	Streets	Land-scaped	Un-developed	Freeway Paved Lane and Shoulders
Fecal Coliforms (#/100 ml)												
Residential:	85 (2) <2 (3) 1400 (4)	250,000 (4)	100 (4)		600 (4)			11,000 (4)	920 (3) 6,900 (4)	3300 (4)	5400 (2) 49 (3)	1500 (7)
Commercial	9 (3)	2900 (2) 350 (3) 210 (1) 480 (5) 23,000 (6)										
Industrial:	1600 (4)	8660 (6)	9200 (4)	18,000 (4)	66,000 (4)	300,000 (4)		55,000 (4)	100,000 (4)			

Pollutant and Land Use	Roofs	Paved Parking	Paved Storage	Unpaved Parking/Storage	Paved Drives	Unpaved Drives	Dirt Walks	Paved Side walks	Streets	Land-scaped	Un-developed	Freeway Lane and Shoulders
Fecal Strep (#/100 ml)												
Residential:	170 (2) 920 (3) 2200 (4) 17 (2)	190,000 (4)	<100 (4)		1900 (4)		1800 (4)		>2400 (3) 7300 (4)	43,000 (4)	16,500 (2) 920 (3)	2200 (7)
Commercial:		11,900 (2) >2400 (3) 770 (1) 1120 (5) 62,000 (6)										
Industrial:	690 (4)	7300 (4)	2070 (4)	8100 (4)	36,000 (4)	21,000 (4)		3600 (4)	45,000 (4)			
Pseudo, Aerug (#/100 ml)												
Residential:	30,000 (4) 50 (4)	1900 (4)	100 (4)		600 (4)		600 (4)		570 (4)	2100 (4)		
Industrial:		5800 (4)	5850 (4)	14,000 (4)	14,300 (4)	100 (4)		3600 (4)	6200 (4)			

(1) Bannerman, et al. 1983 (Milwaukee, WI) (NURP)

(2) Pitt 1983 (Ottawa)

(3) Pitt and Bozeman 1982 (San Jose)

(4) Pitt and McLean 1986 (Toronto)

(5) STORET Site #590866-2954309 (Shop-Save-Durham, NH) (NURP)

(6) STORET Site #596296-2954843 (Huntington-Long Island, NY) (NURP)

(7) Kobriger, et al. 1981 and Gupta, et al. 1977

Oversize tables from Chapter 24.

Table 24.1

	Residential			Commercial			Industrial		
	Total	Filterable	Filterable (%)	Total	Filterable	Filterable (%)	Total	Filterable	Filterable (%)
Roof Runoff									
Solids (mg/L)	64	42	66 (1)				113	110	97 (3)
	58	45	77 (3)						
Phosphorus (mg/L)	0.054	0.013	24 (1)						
Lead (µg/L)	48	4	8 (1)						
Paved Parking									
Solids (mg/L)				240	175	73 (1)	490	138	28 (3)
				102	61	60 (4)			
				1790	138	8 (3)			
Phosphorus (mg/L)				0.16	0.03	19 (1)			
				0.9	0.3	33 (2)			
TKN (mg/L)				0.77	0.48	62 (5)			
Lead (µg/L)				146	5	3 (1)			
				54	8.8	16 (5)			
Arsenic (µg/L)				0.38	0.095	25 (5)			
Cadmium (µg/L)				0.62	0.11	18 (5)			
Chromium (µg/L)				11.8	2.8	24 (5)			

	Residential			Commercial			Industrial		
	Total	Filterable	Filterable (%)	Total	Filterable	Filterable (%)	Total	Filterable	Filt. (%)
Paved Storage									
Solids (mg/L)				73	32	44 (3)	270	64	24 (3)

- (1) Bannerman, et al. 1983 (Milwaukee) (NURP)
- (2) Denver Regional Council of Governments 1983 (NURP)
- (3) Pitt and McLean 1986 (Toronto)
- (4) STORET Site #590866-2954309 (Shop-Save-Durham, NH) (NURP)
- (5) STORET Site #596296-2954843 (Huntington-Long Island, NY) (NURP)

Oversize table from Chapter 24.

Table 24.1

	Roof areas		Parking areas		Storage areas		Street runoff		Loading docks		Vehicle service areas		Landscaped areas		Urban creeks		Detention ponds	
Total samples	NF: ¹ 12	F: ² 12	NF: 16	F: 16	NF: 8	F: 8	NF: 6	F: 6	NF: 3	F: 3	NF: 5	F: 5	NF: 6	F: 6	NF: 19	F: 19	NF: 12	F: 12
Base neutrals (detection limit = 0.5 µg/L)																		
1,3-Dichlorobenzene (detection frequency = 20% N.F. and 13% F)																		
No. detected ³	3	2	3	2	1	1	1	1	0	0	3	2	3	2	2	0	1	1
Mean ⁴	52	20	34	13	16	14	5.4	3.3			48	26	29	5.6	93		27	21
Max.	88	23	103	26							72	47	54	7.5	120			
Min. ⁵	14	17	3.0	2.0							6.0	4.9	4.5	3.8	65			
Fluoranthene (detection frequency = 20% N.F. and 12% F)																		
No. detected	3	2	3	2	1	0	1	1	0	0	3	2	3	2	1	0	2	1
Mean	23	9.3	37	2.7	4.5	0	0.6	0.5			39	3.6	13	1.0	130		10	6.6
Max.	45	14	110	5.4							53	6.8	38	1.3			14	
Min.	7.6	4.8	3.0	2.0							0.4	0.4	0.7	0.7			6.6	
Pyrene (detection frequency = 17% N.F. and 7% F)																		
No. detected	1	0	3	2	1	0	1	1	0	0	3	2	2	0	1	0	2	1
Mean	28		40	9.8	8		1.0	0.7			44	4.1	5.3		100		31	5.8
Max.			120	20							51	7.4	8.2				57	
Min.			3.0	2.0							0.7	0.7	2.3				6.0	
Benzo(b)fluoranthene (detection frequency = 15% N.F. and 0% F)																		
No. detected	4	0	3	0	0	0	1	0	0	0	2	0	1	0	2	0	0	0
Mean	76		53				14				98		30		36			
Max.	260		160								110				64			
Min.	6.4		3.0								90				8.0			
Benzo(k)fluoranthene (detection frequency = 11% N.F. and 0% F)																		
No. detected	0	0	3	0	0	0	1	0	0	0	2	0	1	0	2	0	0	0
Mean			20				15				59		61		55			
Max.			1								103				78			
Min.			3.0								15				31			

	Roof areas		Parking areas		Storage areas		Street runoff		Loading docks		Vehicle service areas		Landscaped areas		Urban creeks		Detention ponds	
Total samples	NF ¹	F ²	NF.	F.	NF.	F.	NF.	F.	NF.	F.	NF.	F.	NF.	F.	NF.	F.	NF.	F.
	12	12	16	16	8	8	6	6	3	3	5	5	6	6	19	19	12	12
Benzo(a)pyrene (detection frequency = 15% N.F. and 0% F)																		
No. detected	4	0	3	0	0	0	1	0	0	0	2	0	1	0	2	0	0	0
Mean	99		40				19				90		54		73			
Max.	300		120								120				130			
Min.	34		3.0								60				19			
Bis(2-chloroethyl) ether (detection frequency = 12% N.F. and 2% F)																		
No. detected	3	1	2	0	0	0	1	0	0	0	1	1	1	0	1	0	1	0
Mean	42	17	20				15				45	23	56		200		15	
Max.	87	2	39								6.0	4.9	4.5	3.8	65			
Min.	20		2.0															
Bis(chloroisopropyl) ether (detection frequency = 13% N.F. and 0% F)																		
No. detected	3	0	3	0	0	0	0	0	0	0	2	0	1	0	2	0	0	0
Mean	99		130								120		85		59			
Max.	150		400								160				78			
Min.	68		3.0								74				40			
Naphthalene (detection frequency = 11% N.F. and 6% F)																		
No. detected	2	0	1	1	0	0	0	0	0	0	2	1	1	0	1	1	2	2
Mean	17		72	6.6							70	82	49		300	6.7	43	12
Max.	21										100				68		17	
Min.	13										37				18		6.6	
Benzo(a)anthracene (detection frequency = 10% N.F. and 0% F)																		
No. detected	1	0	3	0	0	0	0	0	0	0	2	0	1	0	1	0	0	0
Mean	16		24								35		54		61			
Max.			73								39							
Min.			3.0								31							

	Roof areas		Parking areas		Storage areas		Street runoff		Loading docks		Vehicle service areas		Landscaped areas		Urban creeks		Detention ponds	
Total samples	NF: ¹ 12	F: ² 12	NF: 16	F: 16	NF: 8	F: 8	NF: 6	F: 6	NF: 3	F: 3	NF: 5	F: 5	NF: 6	F: 6	NF: 19	F: 19	NF: 12	F: 12
Butylbenzyl phthalate (detection frequency = 10% N.F. and 4% F)																		
No. detected	1	0	2	1	0	0	0	0	0	0	2	2	1	0	1	0	1	0
Mean	100		12	3.3							26	9.8	130		59		13	
Max.			21								48	16						
Min.			3.3								3.8	3						
Pesticides (detection limit = 0.3 µg/L)																		
Chlordane (detection frequency = 11% N.F. and 0% F)																		
No. detected	2	0	2	0	3	0	1	0	0	0	1	0	0	0	0	0	0	0
Mean	1.6		1.0		1.7		0.8		0.8									
Max.	2.2		1.2		2.9													
Min.	0.9		0.8		1.0													
Metals (detection limit = 1µg/L)																		
Lead detection frequency = 100% N.F. and 54% F.																		
No. detected	12	1	16	8	8	7	6	4	3	1	5	2	6	1	19	15	12	8
Mean	41	1.1	46	2.1	105	2.6	43	2.0	55	2.3	63	2.4	24	1.7	20	1.4	19	1.0
Max.	170		130	5.2	330	5.7	150	3.9	80		110	3.4	70		100	1.6	55	1.0
Min.	1.3		1.0	1.2	3.6	1.6	1.5	1.1	25		27	1.4	1.4		1.4	<1	1	<1
Zinc detection frequency = 99% N.F. and 98% F.																		
No. detected	12	12	16	16	8	7	6	6	2	2	5	5	6	6	19	19	12	12
Mean	250	220	110	86	1730	22	58	31	55	33	105	73	230	140	10	10	13	14
Max.	1580	1550	650	560	13100	100	130	76	79	62	230	230	1160	670	32	23	25	25
Min.	11	9	12	6	12	3.0	4.0	4.0	31	4.0	30	11	18	18	<1	<1	<1	<1
Copper (detection frequency = 98% N.F. and 78% F)																		
No. detected	11	7	15	13	8	6	6	5	3	2	5	4	6	6	19	17	12	8
Mean	110	2.9	116	11	290	250	280	3.8	22	8.7	135	8.4	81	4.2	50	1.4	43	20
Max.	900	8.7	770	61	1830	1520	1250	11	30	15	580	24	300	8.8	440	1.7	210	35
Min.	1.5	1.1	10	1.1	10	1.0	10	1.0	15	2.6	1.5	1.1	1.9	0.9	<1	<1	0.2	<1

	Roof areas		Parking areas		Storage areas		Street runoff		Loading docks		Vehicle service areas		Landscaped areas		Urban creeks		Detention ponds	
Total samples	NF: ¹ 12	F: ² 12	NF: 16	F: 16	NF: 8	F: 8	NF: 6	F: 6	NF: 3	F: 3	NF: 5	F: 5	NF: 6	F: 6	NF: 19	F: 19	NF: 12	F: 12
Aluminum (detection frequency = 97% N.F. and 92% F)																		
No. detected	12	12	15	15	7	6	6	6	3	1	5	4	5	5	19	19	12	12
Mean (mg/L)	6.85	0.23	3.21	0.43	2.32	0.18	3.08	0.88	0.78	0.18	0.70	0.17	2.3	1.2	0.62	0.19	0.70	0.21
Max. (mg/L)	71.3	1.56	6.48	2.90	6.99	0.74	10.0	4.38	0.93		1.37	0.41	4.6	1.9	3.25	0.50	1.57	0.36
Min. (µg/L)	25	6.4	130	5.0	180	10	70	18	590		93	0.3	180	120	<5	<5	<5	<5
Cadmium (detection frequency = 95% N.F. and 69% F)																		
No. detected	11	7	15	9	8	7	6	5	3	3	5	3	4	2	19	15	12	9
Mean	3.4	0.4	6.3	0.6	5.9	2.1	37	0.3	1.4	0.4	9.2	0.3	0.5	0.6	8.3	0.2	2	0.5
Max.	30	0.7	70	1.8	17	10	220	0.6	2.4	0.6	30	0.5	1	1	30	0.3	11	0.7
Min.	0.2	0.1	0.1	0.1	0.9	0.3	0.4	0.1	0.7	0.3	1.7	0.2	0.1	0.1	<0.1	<0.1	0.1	0.4
Chromium detection frequency = 91% N.F. and 55% F.																		
No. detected	7	2	15	8	8	5	5	4	3	0	5	1	6	5	19	15	11	8
Mean	85	1.8	56	2.3	75	11	9.9	1.8	17		74	2.5	79	2.0	62	1.6	37	2.0
Max.	510	2.3	310	5.0	340	32	30	2.7	40		320		250	4.1	710	4.3	230	3.0
Min.	5.0	1.4	2.4	1.1	3.7	1.1	2.8	1.3	2.4		2.4		2.2	1.4	<0.1	<0.1	<0.1	<0.1
Nickel detection frequency = 90% N.F. and 37% F.																		
No. detected	10	0	14	4	8	1	5	0	3	1	5	1	4	1	18	16	11	8
Mean	16		45	5.1	55	87	17		6.7	1.3	42	31	53	2.1	29	2.3	24	3.0
Max.	70		130	13	170		70		8.1		70		130		74	3.6	70	6.0
Min.	2.6		4.2	1.6	1.9		1.2		4.2		7.9		21		<1	<1	1.5	<1

	Roof areas	Parking areas	Storage areas	Street runoff	Loading docks	Vehicle service areas	Landscaped areas	Urban creeks	Detention ponds
pH									
Mean	6.9	7.3	8.5	7.6	7.8	7.2	6.7	7.7	8.0
Max.	8.4	8.7	12	8.4	8.3	8.1	7.2	8.6	9.0
Min.	4.4	5.6	6.5	6.9	7.1	5.3	6.2	6.9	7.0
Suspended solids									
Mean	14	110	100	49	40	24	33	26	17
Max.	92	750	450	110	47	38	81	140	60
Min.	0.5	9.0	5.0	7.0	34	17	8.0	5.0	3.0

- 1) N.F.: concentration associated with a non-filtered sample.
- 2) F.: concentration after the sample was filtered through a 0.45 µm membrane filter.
- 3) Number detected refers to the number of samples in which the constituent was detected.
- 4) Mean values based only on the number of samples with a definite concentration reported (not on the total number of samples analyzed).
- 5) The minimum values shown are the lowest concentration detected; they are not necessarily the detection limit.

Oversize table from Chapter 24.

Table 24.2

Source Area	Total Solids (mg/L)	Suspended Solids (mg/L)	Dissolved Solids (mg/L)	COD Total (mg/L)	COD Particulate* (mg/Kg)	COD Dissolved (mg/L)	BOD ₅ , Total (mg/L)	BOD ₅ , Particulate* (mg/Kg)	BOD ₅ , Dissolved (mg/L)
Residential Roofs									
Sample Count	38	81	38	8	8	8	9	6	7
Average	112	36.7	60.8	78	590,000	30	19	140,000	9.6
COV**	1.12	2.07	1.20	1.34	0.72	0.68	0.49	0.6	0.54
Commercial Roofs									
Sample Count	19	34	19	6	6	6	9	4	6
Average	146	32.8	115	172	740,000	152.3	24	94,000	17.5
COV	0.66	1.25	0.85	0.66	1.05	0.69	0.78	0.94	0.84
Industrial Roofs									
Sample Count	45	42	42	34	32	34	n/a	n/a	n/a
Average	76	15.8	60.8	23	760,000	20	n/a	n/a	n/a
COV	0.40	1.7	0.54	0.60	0.88	0.60	n/a	n/a	n/a
Commercial Parking									
Sample Count	21	44	21	6	5	6	5	4	5
Average	246	130	62.7	77	330,000	39	10.5	28,000	7.5
COV	0.77	1.15	0.81	0.23	0.32	0.81	0.41	0.52	0.63
Industrial Parking Lots									
Sample Count	89	90	89	14	n/d	n/d	15	n/d	n/d
Average	1246	244	1002	120	n/d	n/d	18	n/d	n/d
COV	3	0.96	3	0.43	n/d	n/d	0.62	n/d	n/d
Driveways									
Sample Count	19	69	19	9	9	9	7	6	7
Average	350	154	111	146	300,000	91.8	16	32,000	7.71
COV	0.58	1.10	0.81	1.07	0.84	1.68	0.35	0.45	1.05
Small Landscape Areas									
Sample Count	13	40	13	4	4	4	2	1	1
Average	657	227	183	172.5	380,000	90.5	25	12,000	1.6
COV	0.62	1.25	1.10	0.23	0.63	0.50	0.55	n/a	n/a

*Particulate = (total constituent - dissolved constituent)/suspended solids ** COV = coefficient of variation = mean/standard deviation

Source Area	Total Solids (mg/L)	Suspended Solids (mg/L)	Dissolved Solids (mg/L)	COD Total (mg/L)	COD Particulate* (mg/Kg)	COD Dissolved (mg/L)	BOD ₅ , Total (mg/L)	BOD ₅ , Particulate* (mg/Kg)	BOD ₅ , Dissolved (mg/L)
Commercial Streets									
Sample Count	50	75	50.0	16	14	14	12	11	12
Average	345	176	123	88	200,000	47.9	14	21,000	10.6
COV	0.89	1.17	1.05	0.45	0.84	0.63	0.51	0.81	0.54
Residential Streets									
Sample Count	32	131	32	5	3	4	4	2	4.0
Average	521	183	116	46.2	200,000	25	6.7	25,000	6.6
COV	1.16	1.7	0.92	0.39	0.78	0.75	0.95	0.24	0.97
Industrial Streets									
Sample Count	15	15	15	n/a	n/a	n/a	n/a	n/a	n/a
Average	1064	894	170	n/a	n/a	n/a	n/a	n/a	n/a
COV	0.58	0.69	0.64	n/a	n/a	n/a	n/a	n/a	n/a
Freeways									
Sample Count	11	66	11	n/a	n/a	n/a	n/a	n/a	n/a
Average	201	138	94.4	n/a	n/a	n/a	n/a	n/a	n/a
COV	0.51	1.17	0.39	n/a	n/a	n/a	n/a	n/a	n/a
Undeveloped Areas									
Sample Count	6	5	5	8	8	8	7	5	5
Average	260	16	186.2	87	720,000	69	26	67,000	20
COV	0.54	0.43	0.06	0.72	2.0	0.74	0.50	1.38	0.66

Source Area	P, Total (mg/L)	P, Part.* (mg/Kg)	P, Dis. (mg/L)	TKN (mg/L)	Kjeldahl N, Part.* (mg/Kg)	Kjeldahl N, Dis. (mg/L)	Nitrite + Nitrate N (mg/L)	Cd, Total (µg/L)	Cd, Part.* (mg/Kg)	Cd, Dis. (µg/L)
Residential Roofs										
Sample Count	87	76	82	7	7	7	8	21	5	14
Average	0.17	4600	0.07	1.1	18,000	0.80	0.68	0.54	9.0	0.15
COV	1.22	1.11	1.25	0.67	1.3	0.82	0.97	1.78	0.67	0.67
Commercial Roofs										
Sample Count	19	29	31	7	7	7	9.0	12	5	9
Average	0.18	9400	0.061	2.0	26,000	1.65	0.75	0.65	12.45	0.73
COV	0.67	1.24	1.09	0.56	1.55	0.73	0.86	1.03	1.00	1.06
Industrial Roofs										
Sample Count	9	9	9	n/a	n/a	n/a	n/a	4	1	4
Average	0.13	3400	0.021	n/a	n/a	n/a	n/a	0.30	1.56	0.28
COV	0.72	1.41	0.54	n/a	n/a	n/a	n/a	0.47	n/a	0.75
Commercial Parking Lots										
Sample Count	42	36	39	5	5	5	7	19	16	19
Average	0.2	1900	0.055	1.2	3900	0.58	0.4	0.95	4.65	0.48
COV	1.02	0.89	1.08	0.40	0.42	0.43	0.60	0.69	0.59	1.33
Industrial Parking Lots										
Sample Count	40	34	36	n/a	n/a	n/a	19	27	20	24
Average	0.39	1300	0.09	n/a	n/a	n/a	0.41	1.5	4.2	0.49
COV	0.58	0.66	1.1	n/a	n/a	n/a	0.62	0.53	0.55	1.11
Driveways										
Sample Count	69	66	65	9	9	9	9	19	14	14
Average	1	3400	0.290	2.6	9500	0.69	0.45	0.91	2.88	0.25
COV	1.24	0.79	1.76	0.73	0.69	0.90	1.03	1.06	0.79	0.74
Small Landscape Areas										
Sample Count	42	39	39	4	4	4	4	3	3	3
Average	2.2	7400	1.35	10.5	30,000	1.97	0.45	0.63	1.51	0.30
COV	1.08	1.23	1.63	0.53	0.69	0.52	0.53	0.40	0.69	0.99

Source Area	P, Total (mg/L)	P, Part.* (mg/Kg)	P, Dis. (mg/L)	TKN (mg/L)	Kjeldahl N, Part.* (mg/Kg)	Kjeldahl N, Dis. (mg/L)	Nitrite + Nitrate N (mg/L)	Cd, Total (µg/L)	Cd, Part.* (mg/Kg)	Cd, Dis. (µg/L)
Commercial Streets										
Sample Count	74.0	67	65	16	15	15	16	39	36	38
Average	0.31	1900	0.060	3.7	19,500	0.9	0.49	1.03	4.81	0.38
COV	1.11	0.72	1.21	2.18	2.95	0.70	0.56	0.67	0.74	1.54
Residential Streets										
Sample Count	132	127	127	5	4	4	5	14	9	9
Average	0.66	2800	0.298	1.0	5000	0.52	0.40	0.6	2.25	0.14
COV	1.39	0.83	1.78	0.15	0.65	0.19	0.35	0.85	0.80	0.37
Industrial Streets										
Sample Count	15	15	15	n/a	n/a	n/a	n/a	13	10	10
Average	1.3	1300	0.46	n/a	n/a	n/a	n/a	1.1	1.15	0.29
COV	0.37	0.59	0.77	n/a	n/a	n/a	n/a	0.82	0.88	0.60
Freeways										
Sample Count	21	20	20	10	10	10	10	21	11	11
Average	0.24	1700	0.08	1.3	7900	0.49	0.78	0.71	4.64	0.22
COV	0.56	0.60	0.93	0.32	0.64	0.45	0.83	0.36	0.34	0.39
Undeveloped Areas										
Sample Count	5	3	3	5	5	5	2	n/a	n/a	n/a
Average	0.08	400	0.01	1.1	1500	0.88	0.033	n/a	n/a	n/a
COV	0.30	0.49	0.82	0.09	0.70	0.10	0.24	n/a	n/a	n/a

Source Area	Cr, Total (µg/L)	Cr, Part.* (mg/Kg)	Cr, Dis. (µg/L)	Cu, Total (µg/L)	Cu, Part.* (mg/Kg)	Cu, Dis. (µg/L)	Pb, Total (µg/L)	Pb, Part.* (mg/Kg)	Pb, Dis. (µg/L)
Residential Roofs									
Sample Count	n/a	n/a	n/a	34	28	29	23	21	21
Average	n/a	n/a	n/a	21	160	10.2	43	870	8.47
COV	n/a	n/a	n/a	1.60	1.32	1.37	2.19	0.77	1.52
Commercial Roofs									
Sample Count	n/a	n/a	n/a	18	12	13	13	13	14
Average	n/a	n/a	n/a	19	180	12.9	58	750	27.1
COV	n/a	n/a	n/a	0.81	1.01	1.17	1.06	0.53	1.40
Industrial Roofs									
Sample Count	n/a	n/a	n/a	43	n/a	n/a	4	4	4
Average	n/a	n/a	n/a	9	n/a	n/a	8.25	220	1.50
COV	n/a	n/a	n/a	0.57	n/a	n/a	0.30	1.09	0.0
Commercial Parking									
Lots									
Sample Count	13	11	14	19	18	19	19	18	19
Average	9.8	47	2.46	30	100	14.4	51.1	320	1.72
COV	0.81	0.40	0.83	0.81	0.69	0.89	0.81	0.35	0.35
Industrial Parking									
Lots									
Sample Count	27	12	13	41	33	34	25	11	11
Average	11	24	1.26	33	83	11.0	53	180	2.06
COV	0.84	0.42	0.75	0.50	0.48	1.05	0.49	0.46	1.14
Driveways									
Sample Count	9	2	2	19	17	17	19	19	8
Average	1.94	11	1.5	37	89	13.0	57	240	3
COV	0.47	0.01	0.00	1.02	1.04	0.74	1.3	0.81	0.55
Small Landscape									
Areas									
Sample Count	1	1	1	11	10	11	3	3	3
Average	19	20	1.5	12	14	7.4	54	250	2.83
COV	n/a	n/a	n/a	0.36	0.42	0.51	0.90	1.07	0.64

Source Area	Zn, Total (µg/L)	Zn, Part.* (mg/Kg)	Zn, Dis. (µg/L)	Fluoranthene, Total (µg/L)	Fluoranthene, Part.* (mg/kg)	Pyrene, Total (µg/L)	Pyrene, Part.* (mg/kg)
Residential Roofs							
Sample Count	34	5	6	10	10	10	10
Average	185	2900	278	0.22	6.7	0.15	4.7
COV	1.09	0.56	0.80	1.09	0.75	1.12	0.84
Commercial Roofs							
Sample Count	15	6	6	10.0	10.0	10.0	10.0
Average	322	3500	182	0.85	25	0.6	18
COV	0.54	0.95	0.92	1.21	0.70	1.27	0.72
Industrial Roofs							
Sample Count	44	n/a	n/a	n/a	n/a	n/a	n/a
Average	319	n/a	n/a	n/a	n/a	n/a	n/a
COV	1.49	n/a	n/a	n/a	n/a	n/a	n/a
Commercial Parking Lots							
Sample Count	20	7	7	7	7	7	6
Average	292	802	51	28	290	17	180
COV	0.91	0.58	0.42	0.77	0.77	0.80	0.67
Industrial Parking Lots							
Sample Count	26	17	19	26	26	26	26
Average	227.7	490	99.5	2.48	10	1.85	7.7
COV	0.67	0.47	1.25	0.74	0.57	0.79	0.57
Driveways							
Sample Count	19	19	15	6	6	6	6
Average	164	650	166	1.1	23	0.8	17
COV	0.79	0.48	0.48	0.9	2.21	0.94	2.21
Small Landscape Areas							
Sample Count	10	2	2	n/a	n/a	n/a	n/a
Average	67	160	34.0	n/a	n/a	n/a	n/a
COV	0.39	1.28	0.37	n/a	n/a	n/a	n/a

