Appendix A

STORM DRAINAGE AREAS BY RECEIVING WATER BODY

Surface Water	Outfall	Total (acres)	Res. %	Comm. %	Ind. %	Public %	Open %	Rail %	Runoff Coeff.	Pop.
Mississippi River (Minneapolis)	10-xxx	18,077	0.53	0.16	0.16	0.04	0.07	0.04	0.46	263,400
Mississippi River (Columbia Heights)	10-100	348	0.48	0.11	0.33	0.00	0.08	0.00	0.37	2,765
Mississippi River (UofM)	15-xxx	100	0.00	0.00	0.00	1.00	0.00	0.00	0.55	0
Shingle Creek	20-xxx	1,365	0.62	0.17	0.06	0.03	0.04	0.07	0.44	11,493
Ryan Lake (Minneapolis)	21-xxx	49	1.00	0.00	0.00	0.00	0.05	0.00	0.45	388
Bassett Creek	40-xxx	2,293	0.58	0.12	0.13	0.03	0.08	0.05	0.44	26,756
New Bassett Creek Tunnel	41-xxx	219	0.22	0.26	0.26	0.04	0.10	0.11	0.45	669
Brownie Lake (Minneapolis)	51-xxx	34	0.99	0.00	0.01	0.00	0.00	0.00	0.45	193
Cedar Lake (Minneapolis)	52-xxx	224	0.79	0.01	0.00	0.00	0.17	0.03	0.38	1,674
Lake of the Isles	53-xxx	760	0.76	0.07	0.02	0.01	0.12	0.01	0.42	13,644
Lake Calhoun (Minneapolis)	54-xxx	1,249	0.69	0.11	0.03	0.10	0.07	0.00	0.46	13,640
Cemetary Lake	55-xxx	205	0.00	0.99	0.00	0.00	0.01	0.00	0.60	41
Sanctuary Pond	56-xxx	68	0.00	1.00	0.00	0.00	0.00	0.00	0.60	0
Lake Harriet	57-xxx	863	0.83	0.09	0.01	0.04	0.02	0.00	0.46	12,249
Hart Lake (Minneapolis)	61-xxx	3	0.32	0.68	0.00	0.00	0.00	0.00	0.55	0
Silver Lake (Minneapolis)	62-xxx	28	0.94	0.03	0.00	0.00	0.03	0.00	0.44	245
Crystal Lake (Minneapolis)	63-xxx	469	0.92	0.04	0.00	0.02	0.03	0.00	0.45	5,985
Legion Lake (Minneapolis)	64-xxx	49	1.00	0.00	0.00	0.00	0.00	0.00	0.45	332
Legion Lake (Richfield)	64-xxx	1,700	0.96	0.00	0.01	0.00	0.03	0.00	0.30	9,781
Richfield Lake (Minneapolis)	65-xxx	715	0.88	0.06	0.02	0.00	0.04	0.00	0.32	4,388
Richfield Lake (Richfield)	65-xxx	58	0.58	0.37	0.05	0.00	0.01	0.00	0.51	442
Wood Lake (Richfield)	66-xxx	627	0.75	0.05	0.02	0.00	0.18	0.00	0.29	7,316
Minnehaha Creek	70-xxx	3,213	0.85	0.07	0.01	0.04	0.03	0.00	0.44	38,399
Diamond Lake	71-xxx	685	0.72	0.11	0.09	0.03	0.05	0.00	0.47	6,456
Lake Nokomis	72-xxx	620	0.78	0.03	0.00	0.03	0.16	0.00	0.40	7,120
Taft Lake	73-xxx	100	0.76	0.00	0.00	0.00	0.24	0.00	0.37	675
Mother Lake (Minneapolis)	74-xxx	49	0.83	0.19	0.00	0.00	0.00	0.00	0.48	111
Mother Lake (Richfield)	74-xxx	245	0.71	0.09	0.00	0.00	0.20	0.00	0.30	2,025
Unnamed Wetland W of Mother Lake	75-xxx	41	0.91	0.00	0.00	0.00	0.00	0.09	0.41	344
Lake Hiawatha	76-xxx	1,008	0.87	0.07	0.02	0.03	0.02	0.00	0.46	14,707
Birch Pond	81-xxx	31	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
Powderhorn Lake	82-xxx	286	0.88	0.05	0.02	0.04	0.01	0.00	0.46	5,621
Grass Lake	83-xxx	386	0.90	0.04	0.00	0.05	0.02	0.00	0.46	4,128
Unnamed Wetland on Hwy 62	84-xxx	17	0.86	0.00	0.14	0.00	0.00	0.00	0.47	0
Unnamed Wetland on Ewing Ave S	85-xxx	22	0.86	0.00	0.14	0.00	0.00	0.00	0.47	0
GRAND TOTAL		**36,205**	**0.58**	**0.13**	**0.10**	**0.04**	**0.06**	**0.03**	**0.42**	**454,987**

Appendix A1 - Storm Drainage Areas by Receiving Water Body
Source: Minneapolis Public Works - Surface Water & Sewers

STORM DRAINAGE AREAS CHARACTERIZATION

Outfall	Pipe Size(in)	Location of Outfall	Total(Ac)	Res	Comm	Ind	Public	Open	Rail	Runoff	Pop
10-010	60	53rd Ave N.	113.55	0.90	0.03	0.00	0.00	0.07	0.00	0.42	1,208
10-020	42	51st Ave. N (Mississippi Ct.)	7.81	0.82	0.00	0.00	0.00	0.18	0.00	0.39	40
10-030	15	49th Ave N.	4.05	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
10-040	78	49th Ave. N	167.42	0.65	0.12	0.12	0.00	0.10	0.01	0.45	1,176
10-050	42	46th Ave N (I-94)	114.18	0.83	0.08	0.08	0.00	0.00	0.01	0.47	1,312
10-060	15	St. Anthony Pkwy & 36th Ave NE	10.50	0.00	1.00	0.00	0.00	0.00	0.00	0.60	0
10-070	72	41st Ave N & Sooline R.R. (sanitary overflow)	30.66	0.00	0.33	0.30	0.00	0.05	0.32	0.38	0
10-080	36	1st St. N approx. 39th Ave N	30.66	0.00	0.33	0.30	0.00	0.05	0.32	0.38	0
10-090A	18	39th Ave N (At River)	0.99	0.00	0.00	1.00	0.00	0.00	0.00	0.60	0
10-090B	18	37th Ave N (At River)	1.47	0.00	0.00	1.00	0.00	0.00	0.00	0.60	0
10-090C	24	37th Ave N (Sooline R.R.)	12.77	0.00	0.00	0.90	0.00	0.02	0.08	0.54	0
10-090D	30	36th Ave N (Sooline R.R.)	4.41	0.00	0.00	1.00	0.00	0.00	0.00	0.60	0
10-100	24	Marshall St (31st Ave NE)	1392.10	0.59	0.02	0.11	0.01	0.16	0.11	0.36	8,400
10-110	48	Dowling Ave N (At River)	300.11	0.78	0.17	0.01	0.01	0.03	0.00	0.47	3,205
10-120A,B	(A)48, (B)36	(A) Approx. 34th Ave N, (B) Approx. 33rd Ave N (At River)	372.78	0.75	0.04	0.10	0.01	0.07	0.03	0.43	4,883
10-130	24	27th Ave NE (Monroe St NE)	336.00	0.30	0.07	0.45	0.00	0.05	0.13	0.45	1,669
10-140A	36	Lowry Ave NE (At River) North	2.59	0.04	0.69	0.20	0.03	0.04	0.00	0.57	2,136
10-140B	18	Lowry Ave NE (At River) South	220.65	0.05	0.70	0.20	0.02	0.03	0.00	0.58	2,136
10-150	27	Marshall St NE (Lowry Ave NE)	157.15	0.63	0.20	0.13	0.00	0.03	0.01	0.48	1,476
10-160	48	31st Ave N (Pacific St N)	17.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0
10-170	42	30th Ave N (Mill St Extended)	176.01	0.57	0.07	0.33	0.00	0.03	0.00	0.50	2,702
10-180	78	22nd Ave NE (Grand St NE)	284.26	0.60	0.14	0.10	0.05	0.05	0.06	0.45	3,214
10-190	30	27th Ave N (Mill St N)	14.58	0.00	0.53	0.45	0.00	0.02	0.00	0.59	0
10-200	36	Marshall St NE (18th Ave NE)	42.44	0.30	0.07	0.43	0.00	0.02	0.18	0.44	433
10-210	54	26th Ave N (Mill St N)	98.32	0.50	0.03	0.41	0.00	0.05	0.01	0.49	837
10-220	18	22nd Ave N	18.83	0.00	0.33	0.60	0.00	0.01	0.06	0.56	0
10-230	60	21st Ave N	235.02	0.60	0.18	0.12	0.05	0.04	0.01	0.48	4,455
10-240	42	West Broadway	103.83	0.42	0.32	0.18	0.03	0.05	0.00	0.51	985
10-250	72	12th Ave NE (Vacated)	242.96	0.64	0.09	0.17	0.06	0.03	0.01	0.48	2,674
10-260	24	17th Ave N	23.77	0.00	0.05	0.85	0.00	0.02	0.08	0.54	0
10-270	48	10th Ave NE	72.45	0.76	0.05	0.15	0.00	0.04	0.00	0.47	922
10-280	54	14th Ave (extended)	55.08	0.00	0.02	0.54	0.14	0.20	0.10	0.44	0
10-290	21	Plymouth Ave N	6.83	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
10-300	27	8th Ave NE	17.74	0.66	0.29	0.05	0.00	0.00	0.00	0.50	125
10-310	42	Ramsey St NE (extension)	60.29	0.85	0.08	0.01	0.05	0.01	0.00	0.47	523
10-320	84	3rd Ave NE	341.99	0.65	0.12	0.10	0.04	0.06	0.03	0.45	4,680
10-330	18x60	W River Pkwy approx. 500' SE of 4th Ave N	21.61	0.14	0.00	0.06	0.00	0.80	0.00	0.18	126
10-340	30X'60	W River Pkwy at 1st Ave N (extended)	20.74	0.00	0.12	0.59	0.00	0.21	0.08	0.45	8
10-350	36	1st Ave NE	28.16	0.00	0.50	0.50	0.00	0.00	0.00	0.60	20
10-360	36	East Hennepin (on Nicollet Isld)	29.02	0.02	0.50	0.46	0.00	0.02	0.00	0.59	9
10-370	21	East Hennepin Ave	14.46	0.00	0.52	0.38	0.07	0.03	0.00	0.59	331
10-380	30X67	W River Pkwy at 2nd Ave S (extended)	14.38	0.15	0.09	0.00	0.50	0.25	0.01	0.45	0
10-390	tunnel	3rd Ave SE	41.97	0.13	0.26	0.58	0.00	0.01	0.02	0.56	456
10-400A	30	2nd St S at 3rd Ave S	1.07	0.14	0.32	0.34	0.00	0.15	0.05	0.47	280
10-400B	108	2nd St S tunnel btwn Hennepin Ave and 3rd Ave	17.66	0.02	0.50	0.46	0.00	0.02	0.00	0.59	19

STORM DRAINAGE AREAS CHARACTERIZATION

Outfall	Pipe Size(in)	Location of Outfall	Total(Ac)	Res	Comm	Ind	Public	Open	Rail	Runoff	Pop
10-400C	108	12th Ave N approx.150' W of 3rd St. N	50.25	0.20	0.00	0.00	0.79	0.01	0.00	0.57	134
10-410A	24	Washington Ave S at Chicago Ave S	46.22	0.00	0.49	0.35	0.00	0.05	0.11	0.51	2
10-410B	30	2nd St at Park Ave S (extended)	21.29	0.00	0.00	0.41	0.00	0.59	0.00	0.31	2
10-410C	36	Washington Ave S at Portland Ave S	22.80	0.00	0.03	0.50	0.25	0.22	0.00	0.49	193
10-410D	30	Washington Ave S at 5th Ave S	27.34	0.00	0.13	0.30	0.33	0.00	0.24	0.46	423
10-410E	tunnel	Washington,Marquette,Nicollet Tunnel	220.65	0.04	0.70	0.20	0.03	0.04	0.00	0.58	2,136
10-410F	36	10th St S@ 2nd Ave S	37.92	0.06	0.42	0.51	0.00	0.01	0.00	0.59	118
10-420A	21	W River Pkwy approx 200' E of 11th Ave S (extended)	23.05	0.00	0.58	0.15	0.00	0.02	0.25	0.44	13
10-420B	15	Washington Ave S at 11th Ave S	10.06	0.00	0.74	0.25	0.00	0.01	0.00	0.60	0
10-420C	60 X 78	Washington Ave S at 11th Ave S	7.42	0.00	0.96	0.03	0.00	0.00	0.01	0.59	2
10-420D	48	5th St S at 11th Ave S	20.73	0.00	0.90	0.00	0.00	0.00	0.10	0.54	0
10-420E	60	11th Ave S at 5th St S	127.89	0.08	0.38	0.33	0.13	0.08	0.00	0.55	2,096
10-430A	24	I-35W @ 1st St S	7.07	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0
10-430B	48	I-35W @ 4th St S	54.72	0.10	0.25	0.60	0.00	0.00	0.05	0.56	2,867
10-430C	MNDOT	14th Ave S @ St. Pacific RR Bridge	44.83	0.10	0.65	0.05	0.00	0.10	0.10	0.48	17
10-430D	72	9th St S @ 13th Ave S	85.79	0.64	0.15	0.15	0.05	0.01	0.00	0.50	3,540
10-430E	36	I -35W @ W side of Portland Ave S Bridge	86.66	0.25	0.60	0.05	0.00	0.10	0.00	0.51	0
10-430F	30	Middle of I-35W 300' W of Portland Ave Bridge	12.27	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
10-430G	54	E. 18th St @ Clinton Ave S	82.63	0.53	0.30	0.12	0.00	0.05	0.00	0.50	5,054
10-430H	MNDOT	I-94 @ W side of 1st Ave S Bridge	33.18	0.64	0.20	0.15	0.00	0.01	0.00	0.50	658
10-430I	48	Nicollet Ave S 100' S of E 16th St	32.61	0.07	0.10	0.10	0.70	0.03	0.00	0.57	42
10-430J	120	W 15th St @ Willow St	532.36	0.45	0.20	0.08	0.08	0.18	0.01	0.44	12,300
10-430K	48	W 27th St (extended) 200' E of I-35W	337.06	0.50	0.27	0.10	0.03	0.10	0.00	0.48	8,015
10-430L	42	E 31st St @ 2nd Ave S	84.40	0.87	0.04	0.04	0.00	0.05	0.00	0.44	1,696
10-430M	48	E 31st St @ Stevens Ave S	75.94	0.32	0.47	0.15	0.04	0.01	0.01	0.54	1,681
10-430N	24	E 34th St @ 2nd Ave S	26.43	0.84	0.09	0.02	0.03	0.02	0.00	0.46	17,919
10-430O	66	E 35th St @ 2nd Ave S	109.53	0.80	0.06	0.00	0.10	0.04	0.00	0.46	1,978
10-430P	78	E 35th St @ Stevens Ave S	212.53	0.90	0.08	0.01	0.00	0.01	0.00	0.46	4,545
10-430Q	30	I-35W @ N side of W 35th St Bridge	8.03	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
10-430R	84	E 39th St @ 2nd Ave S	150.32	0.79	0.15	0.02	0.02	0.02	0.00	0.47	2,269
10-430S	21	I-35W @ S side of E 39th St Bridge	5.15	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
10-430T	78	W 39th St @ Stevens Ave S	262.47	0.93	0.04	0.01	0.01	0.01	0.00	0.46	5,157
10-430U	78	I-35W @ W 39th St Bridge	431.37	0.83	0.11	0.00	0.06	0.00	0.00	0.48	5,600
10-430V	72	King's Hwy Holding Pond @ 700' S of W 38th St	329.11	0.86	0.06	0.02	0.04	0.02	0.00	0.46	6,929
10-440A	18	35W Btwn University Ave SE 4th St SE	23.18	0.65	0.15	0.11	0.00	0.09	0.00	0.46	443
10-440B	18	35W @ 9th St SE (extended),	34.23	0.56	0.21	0.00	0.23	0.00	0.00	0.52	0
10-440C&D	(C) 18, (D) 18	(C) 35W @ Winter St, (D) Johnson St 400' S of E Broadway	56.00	0.26	0.40	0.33	0.00	0.01	0.00	0.56	60
10-440E	18	E Broadway @ New Brighton Blvd	831.25	0.45	0.35	0.15	0.02	0.02	0.01	0.52	3,677
10-440F	96	35W @ 13th Ave NE (extended)	538.85	0.59	0.15	0.14	0.04	0.04	0.04	0.47	12,569
10-450A	18	10th Ave SE @ 2nd St SE	338.26	0.50	0.16	0.21	0.03	0.04	0.06	0.47	6,510
10-450B	18	10th Ave SE 50' N of Univ. Ave SE	3.41	0.56	0.20	0.00	0.24	0.00	0.00	0.52	60
10-450C	18	10th Ave SE 50' N of 4th St SE	55.64	0.90	0.00	0.10	0.00	0.00	0.00	0.47	304
10-450D	18	10th Ave SE @ 5th St SE	4.62	1.00	0.00	0.00	0.00	0.00	0.00	0.45	219
10-450E	18	10th Ave SE @ 6th St SE	3.20	0.98	0.00	0.00	0.00	0.02	0.00	0.44	212
10-450F	18	8th St SE @ 15th Ave SE	158.55	0.10	0.31	0.38	0.00	0.02	0.19	0.46	1,473

STORM DRAINAGE AREAS CHARACTERIZATION

Outfall	Pipe Size(in)	Location of Outfall	Total(Ac)	Res	Comm	Ind	Public	Open	Rail	Runoff	Pop
10-450G&H	(G) 18, (H) 18	(G)Como Av SE 100' E 35W E Front. Rd, (H)12 Ave SE @ SCL E Henn.	73.97	0.71	0.15	0.04	0.01	0.08	0.01	0.45	1,342
10-450I	18	E Hennepin @ Pierce St NE	243.64	0.36	0.32	0.21	0.00	0.03	0.08	0.48	2,263
10-450J	18	E Hennepin @ Garfield St NE	17.16	0.03	0.20	0.61	0.00	0.02	0.14	0.50	78
10-450K	18	Winter St NE @ Garfield St NE	37.01	0.11	0.26	0.62	0.00	0.01	0.00	0.58	153
10-450L	66	Arthur St NE @ Kennedy St NE	213.41	0.00	0.21	0.63	0.00	0.02	0.14	0.51	0
10-460A	18	300' S of University Ave SE	0.00								
10-460B	18	University Ave SE 100' SE of 14th Ave SE	7.29	0.09	0.70	0.00	0.10	0.00	0.11	0.52	0
10-460C&D	18	(C) 5th St SE @ 16th Ave SE, (D) 8th St SE @ 17th Ave SE	112.22	0.00	0.03	0.15	0.41	0.05	0.36	0.36	0
10-460E	18	18th Ave SE @ Elm St. SE	231.41	0.48	0.05	0.37	0.00	0.02	0.08	0.47	1,376
10-460F	18	18th Ave SE @ Alley S of Como Ave SE	14.75	0.70	0.08	0.00	0.22	0.00	0.00	0.50	137
10-460G	18	Talmage Ave SE 50' E of 18th Ave SE	79.66	0.37	0.10	0.21	0.25	0.03	0.04	0.51	1,711
10-460H	18	18th Ave SE 50 S of E Hennepin	12.35	0.03	0.17	0.60	0.00	0.02	0.18	0.48	90
10-460I	18	Stinson Blvd @ Traffic St NE	74.29	0.01	0.21	0.69	0.00	0.02	0.07	0.55	28
10-460J	18	Como Ave @ 19th Ave SE	5.36	0.91	0.00	0.09	0.00	0.00	0.00	0.46	0
10-460K	18	Como Ave @ 20th Ave SE	5.48	0.77	0.00	0.00	0.00	0.03	0.20	0.35	45
10-460L	18	Como Ave @ 21st Ave SE	3.50	0.44	0.50	0.00	0.00	0.06	0.00	0.50	3
10-460M	18	Como Ave @ 122nd Ave SE	9.55	0.81	0.18	0.01	0.00	0.00	0.00	0.48	67
10-460N	18	Como Ave @ 23rd Ave SE	3.85	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
10-460O	18	Como Ave @ 24th Ave SE	4.15	0.98	0.02	0.00	0.00	0.00	0.00	0.45	5
10-460P	18	25th Ave SE 100' S of Como Ave SE	4.34	1.00	0.00	0.00	0.00	0.00	0.00	0.45	76
10-460Q	18	Como Ave SE @ 27th Ave SE	19.73	0.10	0.07	0.77	0.00	0.00	0.06	0.55	62
10-460R	18	25th Ave SE 200' N of Talmadge	50.46	0.03	0.11	0.78	0.00	0.00	0.08	0.55	0
10-460S	60	Hoover St NE @ E Hennepin	233.54	0.00	0.17	0.75	0.00	0.02	0.06	0.55	0
10-465	12	West River Pkwy @ RR Bridge	8.56	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
10-470	24	West River Road 200' N of Washington Ave	25.60	0.70	0.00	0.12	0.00	0.13	0.05	0.40	407
10-480	60	West River Road 100' N of Washington Ave	39.66	0.15	0.05	0.10	0.69	0.01	0.00	0.57	0
10-485	12	West River Road 100' S of Washington Ave	7.27	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0
10-490	84	West River Road @ 4th St S	150.96	0.45	0.20	0.15	0.01	0.18	0.01	0.44	1,822
10-500A	54	7th St S (vacated) 15' SE of 17th Ave S	26.21	0.00	0.34	0.10	0.00	0.00	0.56	0.27	571
10-500B	18	17th Ave S Under I-94	8.48	0.00	0.00	0.60	0.00	0.36	0.04	0.40	0
10-500C	72	East Franklin Av 250' E of Cedar Ave S	218.00	0.73	0.10	0.05	0.02	0.10	0.00	0.44	2,090
10-500D	12	Cedar Ave S 500' S of I-94	3.83	0.00	0.11	0.29	0.00	0.00	0.60	0.24	0
10-500E	24	19th Ave S	23.34	0.50	0.25	0.10	0.08	0.07	0.00	0.49	5,884
10-500F	48	E 18th St @ 14th Ave S	270.00	0.14	0.00	0.00	0.00	0.86	0.00	0.15	183
10-500G	60	E 24th St @ Snelling Ave S	112.94	0.67	0.09	0.18	0.03	0.03	0.00	0.48	2,090
10-505	12	West River Road below St Marys' Hospital	7.85	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
10-510	30X60	West River Road @ 27th Ave S (extended)	62.36	0.47	0.06	0.15	0.22	0.10	0.00	0.48	1,138
10-520	U of M	U of M Outfall	139.98	0.08	0.25	0.35	0.13	0.19	0.00	0.49	2,813
10-530	96	Oak St SE	116.15	0.15	0.23	0.23	0.12	0.25	0.02	0.44	789
10-540	30	West River Road @ I-94	53.90	0.05	0.00	0.00	0.00	0.95	0.00	0.12	72
10-550	36	West River Road @ E Franklin Av	25.83	0.90	0.07	0.02	0.00	0.01	0.00	0.46	629
10-560A&B	96	26th Ave SE Bridal Vail Creek Tunnel	600.63	0.18	0.27	0.28	0.02	0.05	0.20	0.43	2,921
10-570A	24	West River Road @ 33rd Ave S	14.64	1.00	0.00	0.00	0.00	0.00	0.00	0.45	93
10-570B	48	West River Road @ 33rd Ave S	228.18	0.58	0.14	0.10	0.03	0.15	0.00	0.44	2,847
10-580	30	Seymour Ave SE	73.39	1.00	0.00	0.00	0.00	0.00	0.00	0.45	760

STORM DRAINAGE AREAS CHARACTERIZATION

Outfall	Pipe Size(in)	Location of Outfall	Total(Ac)	Res	Comm	Ind	Public	Open	Rail	Runoff	Pop
10-600	36	Cecil St SE	89.24	0.75	0.15	0.00	0.00	0.10	0.00	0.44	859
10-610	12	East City Limits	25.60	0.88	0.08	0.02	0.00	0.00	0.02	0.46	239
10-630A	12	West River Rd @ 28th Ave S (extended)	9.80	0.95	0.02	0.00	0.03	0.00	0.00	0.46	1,641
10-630B	16	E 28th St @ Dorman Ave S	6.24	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
10-630C	60	E 28th St @ 42nd Ave S	4.68	1.00	0.00	0.00	0.00	0.00	0.00	0.45	102
10-630D	21	E 28th St @ 42nd Ave S	96.03	0.76	0.19	0.03	0.01	0.01	0.00	0.48	1,071
10-630E	16	28th Ave S	6.37	1.00	0.00	0.00	0.00	0.00	0.00	0.45	40
10-630F	16	E 28th St @ 38th Ave S	8.52	1.00	0.00	0.00	0.00	0.00	0.00	0.45	254
10-630G	60	E 28th St and 36th Ave S	17.56	0.40	0.60	0.00	0.00	0.00	0.00	0.54	170
10-630H	24	36th Ave S 100' S of E 27th St	5.90	1.00	0.00	0.00	0.00	0.00	0.00	0.45	58
10-630I	16	E 28th St @ 34th Ave S	25.63	0.42	0.05	0.14	0.00	0.00	0.39	0.30	196
10-630J	12	E 28th St @ Alleyway btwn 32nd & 33rd Ave S	12.48	0.42	0.00	0.43	0.00	0.00	0.15	0.45	52
10-630K	54	E 28th St @ 31st Ave S	95.29	0.36	0.12	0.38	0.00	0.09	0.05	0.47	440
10-630L	48	E 28th St @ 31st Ave S	100.42	0.48	0.40	0.07	0.04	0.01	0.00	0.52	1,201
10-630M	15	E 28th St @ 31st Ave S	11.71	0.65	0.00	0.33	0.00	0.02	0.00	0.49	67
10-630N	12	E 28th St @ 29th Ave S	8.45	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
10-630O	12	E 28th St @ Alley btwn 27th & 28th Ave S,	5.77	0.01	0.24	0.23	0.00	0.50	0.02	0.34	0
10-630P&Q	36	E 28th St @ 26th Ave S	66.45	0.01	0.28	0.09	0.00	0.60	0.02	0.29	0
10-630R	60	E 29th St @ 22nd Ave S	83.89	0.15	0.25	0.15	0.10	0.05	0.30	0.37	920
10-630S	21	E 29th St @ Layman Ave S	37.02	0.00	0.02	0.37	0.00	0.60	0.01	0.29	60
10-630T	16	E 29th St @ 21st Ave S	7.72	0.25	0.75	0.00	0.00	0.00	0.00	0.56	0
10-630U	16	Drill Hole along 29th Ave S	115.42	0.36	0.24	0.14	0.02	0.08	0.16	0.41	1,443
10-630V	36	E 29th St @ 14th Ave S	33.85	0.52	0.25	0.10	0.05	0.08	0.00	0.48	2,240
10-630W	16	14th Ave S @ E 28th St	23.68	0.62	0.08	0.24	0.00	0.03	0.03	0.47	458
10-630X	21	E 27th St @ 13th Ave S	14.78	0.83	0.05	0.02	0.02	0.08	0.00	0.44	549
10-630Y	60	E 27th St @ 12th Ave S	111.54	0.44	0.29	0.11	0.06	0.10	0.00	0.48	1,290
10-630Z	36	14th Ave S 200' S of E Lake St	45.66	0.82	0.11	0.04	0.02	0.01	0.00	0.47	950
10-640	40X72	W River Pkwy at E Lake St	258.18	0.83	0.07	0.03	0.03	0.02	0.02	0.45	2,980
10-650	12	W River Pkwy at E 32nd St	19.53	0.29	0.71	0.00	0.00	0.00	0.00	0.56	203
10-660	48X 72	W River Pkwy at E 33rd St	306.37	0.86	0.05	0.03	0.04	0.02	0.00	0.46	3,816
10-670	36	W River Pkwy at E 36th St	137.88	1.00	0.00	0.00	0.00	0.00	0.00	0.45	1,408
10-680	120	W River Pkwy at E 38th St	707.95	0.71	0.06	0.08	0.07	0.04	0.04	0.45	7,782
10-690	27	W River Pkwy at E 42nd St	70.63	0.66	0.04	0.00	0.30	0.00	0.00	0.50	654
10-700	60	W River Pkwy at E 44th St	222.07	0.87	0.05	0.04	0.03	0.01	0.00	0.46	2,606
10-710	36	W River Pkwy 250' S of E 46th St	29.95	0.60	0.02	0.00	0.00	0.38	0.00	0.32	244
10-720A	12	Riverview Rd 250' N of E 54th St	15.77	0.98	0.00	0.00	0.00	0.02	0.00	0.44	75
10-720B	66	E 53rd St at 48th Ave S	422.18	0.74	0.01	0.23	0.01	0.01	0.00	0.48	4,182
10-720C	24	E 52nd St at 47th Ave S	26.35	0.76	0.08	0.01	0.00	0.15	0.00	0.41	261
10-720D	21	E 54th at 38th Ave S	22.95	0.96	0.04	0.00	0.00	0.00	0.00	0.46	337
10-720E	12	Boardman Ave S at 35th Ave S (extended)	18.39	0.96	0.04	0.00	0.00	0.00	0.00	0.46	350
10-720F	84	E 55th at 33rd Ave S	317.75	0.80	0.20	0.00	0.00	0.00	0.00	0.48	3,710
10-720G	15	Hiawatha Ave at E 51st St	13.25	1.00	0.00	0.00	0.00	0.00	0.00	0.45	246
10-720H	12	Hiawatha Ave at 44th Ave S	4.55	1.00	0.00	0.00	0.00	0.00	0.00	0.45	71
10-720I	36	Hiawatha Ave at E 50th St	87.27	0.91	0.05	0.00	0.00	0.04	0.00	0.44	802
10-720J	12	Hiawatha Ave at 42nd Ave S	3.71	0.75	0.00	0.00	0.00	0.25	0.00	0.36	47

STORM DRAINAGE AREAS CHARACTERIZATION

Outfall	Pipe Size(in)	Location of Outfall	Total(Ac)	Res	Comm	Ind	Public	Open	Rail	Runoff	Pop
10-720K	12	Hiawatha Ave at E Minnehaha Pkwy	32.76	0.00	0.80	0.10	0.00	0.04	0.06	0.54	0
10-720L	12	E 59th St at 46th Ave S	5.00	1.00	0.00	0.00	0.00	0.00	0.00	0.45	102
20-010	18	Penn Ave N	93.99	0.89	0.00	0.00	0.00	0.11	0.00	0.41	990
20-020	12	52nd Ave N (Penn Av N)	15.09	0.95	0.00	0.00	0.00	0.05	0.00	0.43	170
20-030	21	52nd Ave N (Oliver Ave N)	7.95	1.00	0.00	0.00	0.00	0.00	0.00	0.45	65
20-040	12	Newton Ave N	6.79	0.80	0.00	0.00	0.00	0.20	0.00	0.38	37
20-050	12	51st Ave N (Newton Av N)	1.59	0.80	0.00	0.00	0.00	0.20	0.00	0.38	37
20-060	36	Knox Ave N	5.91	1.00	0.00	0.00	0.00	0.00	0.00	0.45	63
20-070	30	50th Ave N (Knox Ave N)	39.07	0.91	0.04	0.00	0.00	0.05	0.00	0.44	441
20-080	24	50th Ave N (James Ave N)	33.72	0.94	0.04	0.00	0.00	0.02	0.00	0.45	438
20-090	12	Alley W of Humboldt Ave N	9.95	0.32	0.00	0.00	0.68	0.00	0.00	0.55	85
20-100	54	49th Ave N (Ryan Creek)	0.99	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
20-110	21	49th Ave N (Humboldt Ave N)	216.04	0.13	0.04	0.23	0.00	0.15	0.45	0.24	370
20-120	24	48th Ave N (Humboldt Ave N)	10.22	0.89	0.06	0.00	0.05	0.00	0.00	0.47	55
20-130	12	47th Ave N (Shingle Crk Pkwy)	16.12	1.00	0.00	0.00	0.00	0.00	0.00	0.45	168
20-140	24	47th Ave N (Girard Ave N)	2.97	0.95	0.00	0.00	0.00	0.05	0.00	0.43	61
20-150	12	Malmquist Lane	14.48	1.00	0.00	0.00	0.00	0.00	0.00	0.45	182
20-160	12	Fremont Ave N (Shingle Crk Pkwy)	3.21	0.45	0.20	0.00	0.35	0.00	0.00	0.53	0
20-170	12	46th Ave N (Mamquist Lane)	4.94	0.74	0.00	0.00	0.00	0.26	0.00	0.36	44
20-180	12	46th Ave N (Shingle Crk Pkwy)	5.30	0.64	0.36	0.00	0.00	0.00	0.00	0.50	20
20-190	24	Dupont Ave N (Shingle Crk Pkwy)	1.35	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
20-200	60	45th Ave N (Dupont Ave N)	13.84	1.00	0.00	0.00	0.00	0.00	0.00	0.45	191
20-210A	60	44th Ave N (Soo Line RR)	92.90	0.96	0.00	0.00	0.00	0.03	0.01	0.44	710
20-210B	30	45th Ave N (Colfax Ave N)	620.78	0.62	0.32	0.03	0.03	0.00	0.00	0.51	5,932
20-220	24	43rd Ave N	26.38	0.60	0.10	0.20	0.00	0.10	0.00	0.46	202
20-230	24	Weber Pkwy (Aldrich Ave N)	21.16	1.00	0.00	0.00	0.00	0.00	0.00	0.45	115
20-240	21	Lyndale Ave N (S of Creek)	30.06	0.77	0.13	0.10	0.00	0.00	0.00	0.48	337
20-250	15	Lyndale Ave N (N of Creek)	6.28	0.00	0.80	0.10	0.00	0.10	0.00	0.55	0
20-260	60	I- 94 (S of Creek)	3.50	0.00	0.00	1.00	0.00	0.00	0.00	0.60	115
20-270	40	I-94 (E of I-94 at Creek)	42.81	0.75	0.02	0.03	0.20	0.00	0.00	0.49	665
20-280	24	I-94 (N of Creek)	8.98	0.00	0.90	0.00	0.00	0.05	0.05	0.55	0
20-290	54	47th Ave N @ Xerxes Ave N	8.41	0.00	0.50	0.40	0.00	0.10	0.00	0.55	0
21-010	96	14th Ave N @ Xerxes Ave N	49.49	1.00	0.00	0.00	0.00	0.05	0.00	0.45	388
40-010	future	Xerxes Ave N (S of T.H. 55)	719.17	0.87	0.05	0.01	0.02	0.05	0.00	0.44	10,605
40-020	36	Vincent Ave N (N. of T.H. 55)	15.36	1.00	0.00	0.00	0.00	0.00	0.00	0.45	85
40-030	42	Upton Ave N (N of T.H.)	51.02	0.91	0.00	0.00	0.00	0.09	0.00	0.42	426
40-040	15	T.H. 55 @ Upton Av N	65.39	0.93	0.02	0.00	0.00	0.05	0.00	0.44	987
40-050	12	100' N of 5th Av N @ Thomas Av N	10.28	1.00	0.00	0.00	0.00	0.00	0.00	0.45	65
40-060	future	S of Thomas Av N @ Inglewood St N	3.20	1.00	0.00	0.00	0.00	0.00	0.00	0.45	8
40-070	24	Thomas Av N (N of Chestnut Av N)	7.98	0.80	0.00	0.00	0.00	0.20	0.00	0.38	59
40-080	30	Queen Av N (N of Chestnut Av N)	60.51	0.81	0.00	0.00	0.00	0.19	0.00	0.38	376
40-090	15	Queen Av N -S of 2nd Av N	20.65	0.90	0.02	0.05	0.00	0.03	0.00	0.45	587
40-100	30	Oliver Av N - S of 2nd Av N	10.70	0.93	0.03	0.02	0.00	0.02	0.00	0.45	471
40-110	36	Newton Av N (S of Bassett Creek)	2.61	0.98	0.00	0.00	0.00	0.02	0.00	0.44	0
40-120	30	Morgan Av N (N of Bassett Creek)	65.87	0.87	0.04	0.03	0.00	0.03	0.03	0.44	644

STORM DRAINAGE AREAS CHARACTERIZATION

Outfall	Pipe Size(in)	Location of Outfall	Total(Ac)	Res	Comm	Ind	Public	Open	Rail	Runoff	Pop
40-130	66	Morgan Av N extended (S of Bassett Creek)	35.01	0.89	0.05	0.03	0.00	0.03	0.00	0.45	610
40-140	future	Irving Av N	125.46	0.27	0.36	0.00	0.00	0.05	0.32	0.34	572
40-150	18	2nd Av N - !00' Dupont Av N	24.31	0.38	0.16	0.33	0.00	0.05	0.08	0.47	181
40-160	36	Dupont Av N @ 2nd Av N	30.99	0.16	0.09	0.60	0.00	0.02	0.13	0.49	201
40-170	27	Glenwood Av N @ Dupont Av N (west MH)	194.89	0.12	0.29	0.14	0.03	0.25	0.17	0.36	131
40-180	42	Glenwood Av N @ Dupont Av N (east MH)	16.80	0.17	0.33	0.31	0.12	0.07	0.00	0.54	210
40-190	24	4th Av N @ Dupont Av N (west MH)	65.53	0.00	0.36	0.51	0.00	0.05	0.08	0.53	184
40-200	27	4th Av N @ Dupont Av N (east MH)	24.75	0.40	0.06	0.00	0.38	0.16	0.00	0.46	572
40-210	42	5th Av N @ Dupont Av N (west MH)	17.26	0.72	0.15	0.08	0.01	0.04	0.00	0.47	2,368
40-220	21	5th Av N @ Dupont Av N (east MH)	100.58	0.77	0.17	0.01	0.01	0.04	0.00	0.46	1,559
40-230	48	TH 55 @ Dupont Av N (west MH)	13.78	0.82	0.00	0.00	0.12	0.06	0.00	0.45	200
40-240	54	8th Av N @ Aldrich Av N	341.00	0.55	0.09	0.10	0.13	0.13	0.00	0.45	5,292
40-250	18	TH 55 @ Dupont Av N (east MH)	1.15	0.00	1.00	0.00	0.00	0.00	0.00	0.60	0
40-260	15	T H 55 (N frontage Rd) @ Dupont	3.49	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
40-270	21	T H 55 (West Bound) @ Sumner Av	9.59	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
40-280	48	Alley - NW of 8th Av N & 10th Av N	12.76	0.09	0.13	0.70	0.00	0.08	0.00	0.55	23
40-290	future	10th Av SE - 200' NE of 8th Av NE	13.73	0.04	0.66	0.15	0.00	0.08	0.07	0.51	0
40-300	42	6th St N - 100' N of 8th Av N	10.38	0.05	0.06	0.69	0.00	0.11	0.09	0.48	0
40-310	24	4th St N @ 8th Av N (extended) South MH	97.86	0.00	0.09	0.66	0.00	0.05	0.20	0.46	0
40-320	24	4th St N @ 8th Av N (extended) North MH	9.43	0.00	0.00	1.00	0.00	0.00	0.00	0.60	0
40-330	future	3rd St N @ 7th Av N (vacated) South MH	15.34	0.00	0.27	0.71	0.00	0.01	0.01	0.59	136
40-340	future	3rd St N -200' SE of 8th Av N	35.27	0.00	0.08	0.80	0.00	0.04	0.08	0.53	0
40-350	30	Washington Av N -200' S of 8th Av N	8.99	0.00	0.09	0.81	0.00	0.00	0.10	0.54	0
40-360	30	2nd St N - 100' SE of 8th Av N	8.09	0.00	0.03	0.97	0.00	0.00	0.00	0.60	0
40-370	18	1stSt N - 100' SE of 8th Av N	12.41	0.00	0.44	0.51	0.00	0.05	0.00	0.58	0
40-380	15	West River Parkway @ Bassett Creek (west curb)	24.92	0.13	0.12	0.40	0.00	0.25	0.10	0.40	204
40-390	15	Bassett Creek outlet to Mississippi River	5.72	0.00	0.96	0.00	0.00	0.04	0.00	0.58	0
40-400	60	I-394 at Penn Av S (Penn Av Holding Pond)	1.07	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
41-010	none	BNRR tracks at 16th St (extended)	94.73	0.50	0.15	0.10	0.00	0.10	0.15	0.39	142
41-020	72	Washington Av N at 3rd Av N	14.89	0.00	0.03	0.12	0.35	0.05	0.45	0.31	0
41-030	48	6th St at 2nd Av N	60.47	0.03	0.37	0.40	0.00	0.14	0.06	0.49	402
41-040	24	2nd Av N at 5th St N	35.59	0.00	0.35	0.45	0.10	0.10	0.00	0.55	125
41-050	15	2nd Av N at 4th St N	10.48	0.00	0.62	0.38	0.00	0.00	0.00	0.60	0
41-060	36	North edge of Brownie Lake	2.95	0.00	0.66	0.34	0.00	0.00	0.00	0.60	0
51-010	12	Cedar Lake Road - 250' SW of Lake View	29.63	0.99	0.00	0.01	0.00	0.00	0.00	0.45	162
51-020	21	W '21st St (extended)	4.00	1.00	0.00	0.00	0.00	0.00	0.00	0.45	31
52-010	12	Burnham Road @ Kenilworth Lagoon	45.29	0.53	0.00	0.00	0.00	0.36	0.11	0.27	147
52-020	12	Park Lane - 500' North of Burnham Road	6.09	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
52-030	12	Burnham Road - '100' North of Cedar Lake Pkwy	7.18	1.00	0.00	0.00	0.00	0.00	0.00	0.45	16
52-040	24	Cedar Lake Pkwy @ Depot	4.54	0.90	0.00	0.00	0.00	0.10	0.00	0.42	0
52-050	18	Cedar Lake Pkwy @ Chowen (extended)	15.30	0.95	0.00	0.00	0.00	0.05	0.00	0.43	74
52-060	36	Cedar Lake Pkwy @ Drew Ave S (extended)	3.22	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
52-070	24	Cedar Lake Pkwy @ Ewing Av S (extended	86.94	0.88	0.02	0.00	0.00	0.10	0.00	0.42	1,095
52-080	18	Cedar Lake Pkwy @ at Basswood Road	8.08	0.41	0.00	0.00	0.00	0.59	0.00	0.24	0
52-090	42	Cedar Lake Pkwy @ West 24th St	4.89	1.00	0.00	0.00	0.00	0.00	0.00	0.45	19

STORM DRAINAGE AREAS CHARACTERIZATION

Outfall	Pipe Size(in)	Location of Outfall	Total(Ac)	Res	Comm	Ind	Public	Open	Rail	Runoff	Pop
52-100	48	Cedar Lake Pkwy @ West 22nd St	11.89	0.58	0.00	0.00	0.00	0.39	0.03	0.30	92
52-110	24	Cedar Lake Pkwy @ West Franklin Av	8.84	0.99	0.00	0.00	0.00	0.01	0.00	0.45	45
52-120	8	Cedar Lake Pkwy @ Cedar Lake Road	14.74	1.00	0.00	0.00	0.00	0.00	0.00	0.45	168
52-130	12	Upton Av S @ West 26th St	7.18	0.70	0.00	0.00	0.00	0.00	0.30	0.32	18
53-010	24	West 26th St @ Lake of the Isles Parkway	7.03	1.00	0.00	0.00	0.00	0.00	0.00	0.45	66
53-020	15	Thomas Av S (Dean Blvd)	12.38	0.61	0.00	0.00	0.00	0.00	0.39	0.28	57
53-030	18	Lake of the Isles Parkway ('200' E of Russell Av S)	11.37	0.96	0.00	0.00	0.00	0.04	0.00	0.44	65
53-040	24	Lake of the Isles Parkway (West 24th ST)	2.78	1.00	0.00	0.00	0.00	0.00	0.00	0.45	71
53-050	30	Lake of the Isles Parkway (Penn Av S)	13.66	1.00	0.00	0.00	0.00	0.00	0.00	0.45	149
53-060	18	Lake of the Isles Parkway (Newton Av S)	20.37	1.00	0.00	0.00	0.00	0.00	0.00	0.45	284
53-070	24	Lake of the Isles Parkway (Oliver Av S)	4.89	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
53-080	24	West 21st St @ Lake of the Isles Blvd	5.81	0.84	0.00	0.00	0.00	0.16	0.00	0.39	36
53-090	24	Lake of the Isles Blvd @Franklin Av	59.59	0.68	0.01	0.00	0.03	0.28	0.00	0.36	1,555
53-100	12	Lake of the Isles Blvd @Franklin Av	107.81	0.54	0.01	0.00	0.00	0.45	0.00	0.29	634
53-110	36	Lake of the Isles Pkwy @ West 22nd St	4.59	0.81	0.00	0.00	0.00	0.19	0.00	0.38	26
53-120	12	Lake of the Isles Pkwy @ West 25th St	129.79	0.95	0.04	0.01	0.00	0.00	0.00	0.46	2,688
53-130	15	Lake of the Isles Pkwy @ West 26th St	5.02	1.00	0.00	0.00	0.00	0.00	0.00	0.45	14
53-140	42	Lake of the Isles Pkwy @ Euclid Place	6.36	1.00	0.00	0.00	0.00	0.00	0.00	0.45	60
53-150	54	Lake of the Isles Pkwy @ West 27th St	90.40	0.70	0.20	0.02	0.06	0.02	0.00	0.49	1,586
53-160	15	Lake of the Isles Pkwy @ '250' SW of James Av S	252.19	0.78	0.12	0.06	0.01	0.03	0.00	0.47	6,244
53-170	15	Lake of the Isles Pkwy @ '500' W of Lagoon	6.39	0.75	0.00	0.00	0.00	0.25	0.00	0.36	33
53-180	18	Lake of the Isles Pkwy @ West 28th St	8.09	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
53-190	36	E. Isles Pkwy at The Mall	11.41	0.57	0.00	0.00	0.00	0.43	0.00	0.30	76
54-010	42	E. Calhoun Pkwy at 33rd St. W	84.93	0.67	0.15	0.05	0.00	0.13	0.00	0.43	2,220
54-040	18	E. Calhoun Pkwy at 36th St W.	255.14	0.68	0.22	0.08	0.02	0.00	0.00	0.50	3,792
54-050	18	W. Calhoun Pkwy at Sheridan Av S.	9.27	0.21	0.00	0.00	0.00	0.79	0.00	0.17	27
54-060	30	W. Calhoun Pkwy at Vincent Av S	32.13	0.95	0.00	0.00	0.00	0.05	0.00	0.43	69
54-070	60	W. Calhoun Pwky at Xerxes Av S	60.80	0.74	0.00	0.00	0.00	0.26	0.00	0.36	595
54-080	12	W. Calhoun Pwky approx. '250' S. of W 36th St	414.26	0.89	0.03	0.01	0.05	0.02	0.00	0.46	4,180
54-090	36	W. Calhoun Pwky at W. 36th St	3.55	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
54-100	18	W. Calhoun Pwky at Rose Lane	114.24	0.20	0.00	0.00	0.78	0.02	0.00	0.56	134
54-110	24	W. Calhoun Pwky at Ivy Lane	24.55	1.00	0.00	0.00	0.00	0.00	0.00	0.45	20
54-120	12	W. Calhoun Pwky approx. '200' N of W 32nd St	62.08	0.76	0.08	0.01	0.09	0.06	0.00	0.46	378
54-130	30	W. Calhoun Pwky at Market Place (extended)	1.07	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
54-140	24	W. Calhoun Pwky at Calhoun Blvd (extended)	113.01	0.32	0.35	0.04	0.00	0.25	0.04	0.40	1,729
54-150	9	W. Calhoun Pwky at Dean Pwky	55.34	0.94	0.02	0.01	0.00	0.03	0.00	0.44	455
54-160	12	W. Calhoun Pwky approx. 200' E of Thomas Av S	2.62	0.00	1.00	0.00	0.00	0.00	0.00	0.60	0
54-170	12	W. Calhoun Pwky approx. 500' E of Thomas Av S	8.08	0.13	0.42	0.44	0.00	0.01	0.00	0.58	0
54-180	12	W. Calhoun Pwky approx 750' E of Thomas Av S	2.82	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
54-190	12	W. Calhoun Pwky approx. 1000' E of Thomas Av S	2.20	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
54-200	12	W. Calhoun Pwky approx. 1200' E of Thomas Av S	2.13	0.00	0.00	0.00	0.00	1.00	0.00	0.10	41
54-210	12	E. Calhoun Pkwy approx. 1000' NE of Wm Berry Pkwy	1.14	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
55-010	12	Lakewood Cemetary	14.98	0.00	1.00	0.00	0.00	0.00	0.00	0.60	0
55-020	12	Lake Harriet Pkwy at Roseway Rd	189.58	0.00	0.99	0.00	0.00	0.01	0.00	0.60	41
56-010	15	E. Harriet Pwky at 43rd St	67.62	0.00	1.00	0.00	0.00	0.00	0.00	0.60	0

STORM DRAINAGE AREAS CHARACTERIZATION

Outfall	Pipe Size(in)	Location of Outfall	Total(Ac)	Res	Comm	Ind	Public	Open	Rail	Runoff	Pop
57-010	36	E. Harriet Pwky at 44th St	26.10	0.44	0.56	0.00	0.00	0.00	0.00	0.53	130
57-020	12	E. Harriet Pwky at Kings Highway	143.08	0.95	0.02	0.00	0.03	0.00	0.00	0.46	1,641
57-030	24	E. Harriet Pwky at W 47th St	18.22	1.00	0.00	0.00	0.00	0.00	0.00	0.45	157
57-040	12	Harriet Pwky at Morgan Av S	39.88	0.71	0.00	0.00	0.00	0.29	0.00	0.35	390
57-050	24	Harriet Pwky at Oliver Ave S.	7.90	1.00	0.00	0.00	0.00	0.00	0.00	0.45	51
57-060	36	W. Harriet Pwky @ Queen Av S	26.11	0.91	0.08	0.01	0.00	0.00	0.00	0.46	436
57-070	12	W. Harriet Pwky @ Russel Av S	81.33	0.98	0.02	0.00	0.00	0.00	0.00	0.45	1,011
57-080	42	W. Harriet Pwky @ Thomas Av S	5.54	0.92	0.00	0.00	0.00	0.08	0.00	0.42	45
57-090	60	W. Harriet Pwky @ W. 47th St	77.77	0.85	0.05	0.01	0.09	0.00	0.00	0.47	833
57-100	12	W. Harriet Pwky @ W.46th St (extended)	313.43	0.81	0.11	0.02	0.06	0.00	0.00	0.48	3,458
57-110	30	W. Harriet Pwky @ W. 44th St.	21.60	0.40	0.60	0.00	0.00	0.00	0.00	0.54	275
57-120	18	W. Harriet Pwky @ approx. 400' N of W 44th St	62.08	0.81	0.11	0.02	0.06	0.00	0.00	0.48	3,458
57-130	18	W. Harriet Pwky @ approx. 500' S W 42nd St	1.16	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
57-140	15	W. Harriet Pwky @ W 42nd St	1.55	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
57-150	12	Lake Harriet Pkwy approx. 50' N of W 42nd St	35.68	0.88	0.02	0.00	0.00	0.10	0.00	0.42	364
57-160	future	Cleveland St NE at 37th Av NE	1.89	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
61-010	36	Silver Lake Stinson Blvd and 37th Av NE	2.86	0.32	0.68	0.00	0.00	0.00	0.00	0.55	0
62-010	66	Victory Pkwy @ Dowling Av N	27.84	0.94	0.03	0.00	0.00	0.03	0.00	0.44	245
63-010	24	W Broadwy Av at Xerxes Av N	455.67	0.92	0.04	0.00	0.02	0.02	0.00	0.45	5,985
63-020	24	Columbus Av S (extended) 200' S of E 61st St	13.62	0.75	0.00	0.00	0.00	0.25	0.00	0.36	0
64-100	12	Elliot Av S (extended) S side of Hwy 62	24.92	1.00	0.00	0.00	0.00	0.00	0.00	0.45	314
64-110	30	Oakland Av S (extended) @ 50' N of Hwy 62	6.01	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
64-120	12	Park Av S 300' E of Portland Av (at curve)	16.04	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
64-130	30	Mn Hwy 190 @ Hwy 62	2.44	1.00	0.00	0.00	0.00	0.00	0.00	0.45	18
65-010	33	W 62nd St (extended) @ State Hwy 190	18.97	0.86	0.00	0.14	0.00	0.00	0.00	0.47	0
65-020	12	W 54th @ France Av S	39.13	0.44	0.55	0.00	0.00	0.01	0.00	0.53	442
70 -265	21	Pratt St @ W M'haha Pkwy (north bank)	185.98	0.81	0.15	0.02	0.00	0.02	0.00	0.47	2,415
70-010	24	W 54th St 150' E of Zenith Av S	6.23	0.93	0.07	0.00	0.00	0.00	0.00	0.46	55
70-015	24	York Av S @ W 54th St (extended)	11.69	1.00	0.00	0.00	0.00	0.00	0.00	0.45	124
70-020	12	Xerxes Av S @ 54th St	37.55	1.00	0.00	0.00	0.00	0.00	0.00	0.45	576
70-025	18	Washburn Av S @ N Bank of Creek	3.67	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-030	12	Washburn Av S	13.48	1.00	0.00	0.00	0.00	0.00	0.00	0.45	106
70-035	12	Vincent Av S @ W 54th St	4.53	1.00	0.00	0.00	0.00	0.00	0.00	0.45	57
70-040	12	W 54th St 50' W of Upton Av S	2.42	1.00	0.00	0.00	0.00	0.00	0.00	0.45	55
70-045	18	Upton Av S - N Bank of Creek	0.22	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-050	60	W 54th St 250' E of Upton Av S	17.41	1.00	0.00	0.00	0.00	0.00	0.00	0.45	216
70-055	12	Forest Dale Rd 250' E of Upton Av S	333.43	0.87	0.09	0.00	0.02	0.02	0.00	0.46	3,186
70-060	12	Forest Dale Rd 750' E of Upton Av S	3.53	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-065	12	Forest Dale Rd @ Sheridan Av S (extended)	1.89	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-070	12	Queen Av S @ W 53rd St S	5.80	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-075	15	Penn Av S - S Bank of Creek	5.00	0.95	0.00	0.00	0.00	0.05	0.00	0.43	96
70-080	48	Morgan Av S 300' N of 53rd St	11.96	0.94	0.03	0.00	0.00	0.03	0.00	0.44	2,796
70-085	15	W 52nd St - W Bank of Creek	229.48	0.94	0.03	0.00	0.00	0.03	0.00	0.44	2,702
70-090	15	W 52nd St -E Bank of Creek	18.57	1.00	0.00	0.00	0.00	0.00	0.00	0.45	271
70-095	12	300' SE of Newton Av S @ W 51st St	9.99	1.00	0.00	0.00	0.00	0.00	0.00	0.45	129

STORM DRAINAGE AREAS CHARACTERIZATION

Outfall	Pipe Size(in)	Location of Outfall	Total(Ac)	Res	Comm	Ind	Public	Open	Rail	Runoff	Pop
70-100	12	Morgan Av S '500' N of W 52nd St	9.64	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-105	21	Morgan Av S @ 51st St	1.63	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-110	12	Logan Av S at W M' haha Pkwy (South bank)	18.13	1.00	0.00	0.00	0.00	0.00	0.00	0.45	217
70-115	21	Logan Av S at W M' haha Pkwy (north bank)	3.71	1.00	0.00	0.00	0.00	0.00	0.00	0.45	40
70-120	12	Knox Av S @ W M' haha Pkwy (south)	4.22	1.00	0.00	0.00	0.00	0.00	0.00	0.45	61
70-125	36	James Av S @ N Bank of Creek	5.23	1.00	0.00	0.00	0.00	0.00	0.00	0.45	66
70-130	12	Irving Av S @ W 51st St	34.29	0.70	0.23	0.00	0.07	0.00	0.00	0.50	218
70-135	12	Humboldt Av S @ N Bank of Creek	7.46	1.00	0.00	0.00	0.00	0.00	0.00	0.45	115
70-140	20	W 50th St @ W M' haha Pkwy	0.78	0.00	0.00	0.00	1.00	0.00	0.00	0.60	0
70-145	30	W 49th St @ Humboldt Av S (vacated)	9.19	0.00	0.60	0.00	0.40	0.00	0.00	0.60	0
70-150	15	Humboldt Av S '50' N of W 49th St	4.51	1.00	0.00	0.00	0.00	0.00	0.00	0.45	77
70-155	12	Harriet Pkwy @ Irving Av S	2.05	1.00	0.00	0.00	0.00	0.00	0.00	0.45	66
70-160	15	W 48th St @ Humboldt Av S	2.95	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-165	15	W 49th St @ W M'haha Pkwy	27.77	1.00	0.00	0.00	0.00	0.00	0.00	0.45	286
70-170	18	W 50th St @ W M' haha (east bank)	23.74	1.00	0.00	0.00	0.00	0.00	0.00	0.45	179
70-175	12	W M 'haha Pkwy 400' S of W 50th St	30.89	0.95	0.02	0.00	0.03	0.00	0.00	0.46	420
70-180	12	W 51st St @ Humboldt Av S	1.14	1.00	0.00	0.00	0.00	0.00	0.00	0.45	17
70-185	18	Humboldt Av S @ W M ' haha Pkwy (west bank)	1.53	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-190	21	Fremont Av S @ W M' haha Pkwy (east bank)	15.04	0.21	0.00	0.00	0.00	0.79	0.00	0.17	171
70-195	24	Girard Av S @ W M' haha Pkwy	46.02	0.96	0.04	0.00	0.00	0.00	0.00	0.46	554
70-200	12	W M 'haha Pkwy 250' W of Emerson Av S (east bank)	31.52	1.00	0.00	0.00	0.00	0.00	0.00	0.45	342
70-205	12	W M 'haha Pkwy @ Fremont Av S (extended)	1.39	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-210	12	Emerson Av S @ W M' haha	3.58	1.00	0.00	0.00	0.00	0.00	0.00	0.45	111
70-215	12	Dupont Av S @ W M' haha Pkwy (south bank)	5.93	1.00	0.00	0.00	0.00	0.00	0.00	0.45	60
70-220	12	Dupont Av S @ W M' haha Pkwy (northbank)	4.54	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-225	12	Colfax Av S @ W M 'haha Pkwy (north bank)	4.99	1.00	0.00	0.00	0.00	0.00	0.00	0.45	65
70-230	12	Bryant Av S @ W M' haha Pkwy (north bank)	4.72	1.00	0.00	0.00	0.00	0.00	0.00	0.45	66
70-235	30	Bryant Av S @ W M' haha Pkwy (south bank)	5.04	1.00	0.00	0.00	0.00	0.00	0.00	0.45	68
70-240	12	Aldrich Av S @ W M"haha Pkwy (north bank)	4.52	1.00	0.00	0.00	0.00	0.00	0.00	0.45	93
70-245	27	Lyndale Av S @ W M ' haha Pkwy (south bank)	9.98	0.95	0.00	0.00	0.00	0.05	0.00	0.43	187
70-250	24	Harriet Av S @ W M' haha Pkwy (north bank)	41.27	0.78	0.20	0.02	0.00	0.00	0.00	0.48	398
70-255	30	Gladstone Av S (ext) @ W M haha Pkwy (north bank)	45.37	1.00	0.00	0.00	0.00	0.00	0.00	0.45	388
70-260	48	Pleasant Av S @ W M'haha Pkwy (south bank)	24.90	0.94	0.00	0.06	0.00	0.00	0.00	0.46	341
70-270	24	W M 'haha Pkwy 250' W of Nicollet Ave S (east bank)	4.66	1.00	0.00	0.00	0.00	0.00	0.00	0.45	119
70-275	21	W M' haha Pkwy 300' S of Valley View (north bank)	4.28	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-280	18	Nicollet Ave S at M ' haha Pkwy (north bank)	9.39	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-285	12	E M' haha Pkwy 300' E of Nicollet Ave S (n bank)	19.03	1.00	0.00	0.00	0.00	0.00	0.00	0.45	60
70-290	15	E M ' haha Pkwy 50' W of Stevens Av S (south bank)	2.37	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-295	12	E M ' haha Pkwy 50' W of Stevens Av S (south bank)	7.18	1.00	0.00	0.00	0.00	0.00	0.00	0.45	90
70-300	12	E M ' haha Pkwy at Luverne Av S (north bank)	0.40	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
70-305	12	E M ' haha Pkwy at 3rd Av S (north bank)	12.68	0.99	0.00	0.00	0.00	0.01	0.00	0.45	118
70-310	21	E M ' haha Pkwy at 200' W of Tarrymore Av S (S bank)	5.36	0.82	0.00	0.00	0.00	0.18	0.00	0.39	0
70-315	36	E M ' haha Pkwy at E 50th St (north Bank)	5.79	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-320	9	E M ' haha Pkwy at 5th Av S (north bank)	2.32	0.82	0.00	0.00	0.00	0.18	0.00	0.39	394
70-325	54	E M ' haha Pkwy at 5th Av S (north bank)	2.35	1.00	0.00	0.00	0.00	0.00	0.00	0.45	394

STORM DRAINAGE AREAS CHARACTERIZATION

Outfall	Pipe Size(in)	Location of Outfall	Total(Ac)	Res	Comm	Ind	Public	Open	Rail	Runoff	Pop
70-330	18	E M ' haha Pkwy at 100' W of Portland Av S (s bank)	279.41	0.83	0.03	0.00	0.14	0.00	0.00	0.48	3,211
70-335	12	E M ' haha Pkwy at Portland Av S (s bank)	1.99	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-340	12	E M ' haha Pkwy at Oakland Av S (s bank)	21.97	0.12	0.12	0.40	0.00	0.25	0.11	0.39	204
70-345	60	E M ' haha Pkwy at Oakland Av S (n bank)	3.81	1.00	0.00	0.00	0.00	0.00	0.00	0.45	60
70-350	12	E M ' haha Pkwy at Park Av S (s bank)	314.40	0.70	0.25	0.01	0.04	0.00	0.00	0.50	4,075
70-355	42	E M ' haha Pkwy at Park Av S (s bank)	1.29	1.00	0.00	0.00	0.00	0.00	0.00	0.45	18
70-360	12	E M ' haha Pkwy at Columbus Av S (s bank)	131.96	0.96	0.02	0.01	0.01	0.00	0.00	0.46	1,253
70-365	21	E M ' haha Pkwy at Chicago Av S (n bank)	6.70	1.00	0.00	0.00	0.00	0.00	0.00	0.45	116
70-370	12	E M ' haha Pkwy at Chicago Av S (s bank)	3.75	0.96	0.00	0.00	0.00	0.04	0.00	0.44	33
70-375	15	E M' haha Pkwy at 11th Av S (s bank)	7.10	0.85	0.15	0.00	0.00	0.00	0.00	0.47	64
70-380	127	E M ' haha Pkwy 150 ' W of 11th Av S (n bank)	14.40	1.00	0.00	0.00	0.00	0.00	0.00	0.45	222
70-385	24	E M' haha Pkwy at 12th Av S (s bank)	14.97	1.00	0.00	0.00	0.00	0.00	0.00	0.45	243
70-390	30	E M' haha Pkwy at 12th Av S (n bank)	58.11	0.90	0.00	0.00	0.10	0.00	0.00	0.47	770
70-395	12	E 50th St at 13th Av S (s bank)	57.19	0.94	0.00	0.00	0.00	0.06	0.00	0.43	713
70-400	15	E 50th St at Bloomington Av S (south bank)	9.67	0.95	0.00	0.00	0.00	0.05	0.00	0.43	119
70-405	12	E 49th St at 16th Av S (south bank)	7.16	0.40	0.00	0.00	0.00	0.60	0.00	0.24	0
70-410	36x96	E M' haha Pkwy at 16th Av S (north bank)	5.80	0.90	0.00	0.00	0.00	0.10	0.00	0.42	67
70-415	15	E M' haha Pkwy at 18th Av S (south bank)	120.75	0.96	0.02	0.00	0.02	0.00	0.00	0.46	947
70-420	30	E M' haha Pkwy at Cedar Av S (north bank)	16.99	1.00	0.00	0.00	0.00	0.00	0.00	0.45	164
70-425	15	E M' haha Pkwy 1/2 mi. E of Longfellow Av (w bank)	20.63	0.59	0.34	0.07	0.00	0.00	0.00	0.51	163
70-430	18	E M' haha Pkwy 1/2 mi. E of Longfellow Av (e bank)	6.19	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
70-435	42	47th St E (extended) 1/2 mi. E Longfellow Av	9.16	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
70-440	12	28th Av S @ W 47th St (s bank)	34.48	0.68	0.06	0.06	0.20	0.00	0.00	0.50	236
70-445	12	28th Av S 500' S of 46th St E (n band)	5.60	1.00	0.00	0.00	0.00	0.00	0.00	0.45	65
70-450	12	29th Av S 500' N E M' haha Pkwy (s band)	2.65	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-455	12	29th Av S 500' S of 46th St E (n bank)	2.66	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-460	15	'30th Av S 500' N of E M ' haha Pkwy (s band)	2.67	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-465	15	30th Av S 500' S of E 46th St (n bank)	2.58	1.00	0.00	0.00	0.00	0.00	0.00	0.45	92
70-470	60	Nokomis Av 200' S of 46th St (n bank)	8.55	0.81	0.00	0.00	0.00	0.19	0.00	0.38	164
70-475	12	31st Av S @ E 46th St (n bank)	229.14	0.85	0.02	0.00	0.10	0.03	0.00	0.46	2,806
70-480	24	E 31st St 600' N of 47th St (s bank)	0.68	0.00	0.00	0.00	1.00	0.00	0.00	0.60	0
70-485	48	31st Av @ E 46th St (s bank)	13.36	1.00	0.00	0.00	0.00	0.00	0.00	0.45	140
70-490	15	32nd Av S @ E 46th St	48.75	0.85	0.00	0.00	0.15	0.00	0.00	0.47	466
70-495	12	32nd Av S 250' N of E M' haha Pkwy (s bank)	7.74	1.00	0.00	0.00	0.00	0.00	0.00	0.45	66
70-500	15	E 47th St 200' W of 32nd Av S	0.56	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-505	27	32nd Av S 300' N of E M' haha Pkwy (s bank)	8.12	0.89	0.00	0.00	0.00	0.11	0.00	0.41	110
70-510	30	33rd Av S '250' NE of E M' haha Pkwy (s bank)	41.82	0.99	0.01	0.00	0.00	0.00	0.00	0.45	360
70-515	18	34th Av S '150 N of E M' haha Pkwy (s bank)	62.73	0.86	0.14	0.00	0.00	0.00	0.00	0.47	778
70-520	15	35th Av S @ E M' haha Pkwy (s bank)	6.05	1.00	0.00	0.00	0.00	0.00	0.00	0.45	74
70-525	12	35th Av S @ e 47th St	6.23	1.00	0.00	0.00	0.00	0.00	0.00	0.45	110
70-530	24	35th Av S 100' S of Crosby Av S	1.67	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-535	12	35th Av S @ E 47th St (s bank)	30.24	0.75	0.05	0.00	0.00	0.20	0.00	0.39	370
70-540	12	36th Av S @ Crosby Av (n bank)	5.10	0.32	0.00	0.00	0.00	0.68	0.00	0.21	63
70-545	12	37th Av S 100' N of E 47th St (s bank)	1.89	1.00	0.00	0.00	0.00	0.00	0.00	0.45	55
70-550	12	37th Av S Crosby Av S	1.77	1.00	0.00	0.00	0.00	0.00	0.00	0.45	55

STORM DRAINAGE AREAS CHARACTERIZATION

Outfall	Pipe Size(in)	Location of Outfall	Total(Ac)	Res	Comm	Ind	Public	Open	Rail	Runoff	Pop
70-555	12	E 47th St @ 38th Av S (s bank)	1.73	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-560	12	E M' haha Pkwy @ 39th Av S (s bank)	3.33	1.00	0.00	0.00	0.00	0.00	0.00	0.45	39
70-565	12	39th Av S 250' N of E 49th St (s bank)	16.63	0.40	0.00	0.00	0.00	0.60	0.00	0.24	143
70-570	24	E 49th St @ 30th Av S	1.23	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-575	48	Godfrey Rd @ 46th Av S (extended)	15.39	1.00	0.00	0.00	0.00	0.00	0.00	0.45	175
70-580	12	Portland Av S 250' S of Diamond Lake Rd	119.93	0.73	0.10	0.05	0.00	0.12	0.00	0.43	1,025
71-010	18	E 55th St @ Portland Av S	1.12	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
71-020	24	E 56th St @ Park Av S	14.05	1.00	0.00	0.00	0.00	0.00	0.00	0.45	115
71-030	12	E 57th St @ Portland Av S	28.58	0.98	0.02	0.00	0.00	0.00	0.00	0.45	328
71-040	36	E 58th St @ Portland Av S	20.93	0.34	0.00	0.00	0.00	0.66	0.00	0.22	131
71-050	12	Diamond Lake Lane @ E 59th St	120.42	0.95	0.05	0.00	0.00	0.00	0.00	0.46	1,218
71-060	66	W 58th St @ Clinton Av S	3.11	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
71-070	54	E Diamond Lake Road @ Clinton Av S	386.69	0.60	0.15	0.15	0.05	0.05	0.00	0.49	3,657
71-080	12	Hampshire Drive @ E Diamond Lake Rd	101.79	0.85	0.10	0.05	0.00	0.00	0.00	0.47	938
71-090	12	Diamond Lake Rd 250' E of Hampshire Drive	6.50	0.99	0.00	0.00	0.00	0.01	0.00	0.45	69
71-100	21	Nokomis Pkwy at Parking Lot on North Shore	1.99	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
72-010	18	E Nokomis Pkwy approx. 100' N of 50th St	17.32	0.00	0.00	0.00	0.15	0.85	0.00	0.18	0
72-020	21	E Nokomis Pkwy approx 200 N of 52nd St E	24.70	0.77	0.05	0.00	0.00	0.18	0.00	0.39	205
72-030	36	E Nokomis Pkwy @ E 53rd St	5.25	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
72-040	18	E Nokomis Pkwy @ 54th St (extended)	166.54	0.80	0.04	0.00	0.03	0.13	0.00	0.42	1,911
72-050	36	E Nokomis Pkwy E 56th St	5.16	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
72-060	12	Cedar Av S 500' N of Nokomis Pkwy	113.04	0.69	0.00	0.00	0.04	0.27	0.00	0.36	947
72-070	12	W Nokomis Pkwy 500' W of Cedar Av S	2.21	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
72-080	73x115	Edgewater Blvd at Nokomis Lane	4.74	0.00	1.00	0.00	0.00	0.00	0.00	0.60	0
72-090	42	Edgewater Blvd 50' W of Nokomis Lane	68.71	0.92	0.00	0.00	0.05	0.03	0.00	0.45	717
72-100	12	Nokomis Pkwy 600' W of Cedar Av S	68.32	0.91	0.09	0.00	0.00	0.00	0.00	0.46	760
72-110	27	E Nokomis Pkwy at 54th St	3.22	1.00	0.00	0.00	0.00	0.00	0.00	0.45	610
72-120	30	Cedar Av S at E 52nd St	62.98	1.00	0.00	0.00	0.00	0.00	0.00	0.45	589
72-130	12	E Nokomis Pkwy at Parking Lot on NW Shore	58.06	0.96	0.04	0.00	0.00	0.00	0.00	0.46	706
72-140	24	Nokomis Pkwy at Parking Lot on N Shore	10.19	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
72-150	12	W Nokomis Pkwy 500' S of Minnehaha Creek	4.76	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
72-160	48	E 61st St @ Bloomington Av S	4.55	0.95	0.00	0.00	0.00	0.05	0.00	0.43	675
73-010	42	E 61st St @ Bloomington Av S	20.76	0.98	0.00	0.00	0.00	0.02	0.00	0.44	92
73-020	12	North Shore of Taft Lake	57.47	0.97	0.00	0.00	0.00	0.03	0.00	0.44	583
73-030	12	Hwy 62 at NW Shore of Mother Lake	21.56	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
74-010	18	59th St E at 26th Ave S	44.39	0.81	0.19	0.00	0.00	0.00	0.00	0.48	111
74-020	12	Highway 62 @ SW shore of Wetland	4.41	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
75-005	12	Highway 62 frontage Rd @ 15th Av S	12.39	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
75-010	12	E 60th St 50' W of 15th Av S	3.65	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0
75-020	15	14th Av S @ E 59th St	1.53	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
75-030	15	E 59th St @ 12th Av S	8.38	1.00	0.00	0.00	0.00	0.00	0.00	0.45	35
75-040	60x69	E 43rd St @ 23rd Av S (extended)	14.74	1.00	0.00	0.00	0.00	0.00	0.00	0.45	309
76-010	42	27th Av S @ E44th St	907.31	0.86	0.07	0.02	0.03	0.02	0.00	0.46	13,563
76-020	15	E 44th St @ 27th Av S	88.62	0.96	0.04	0.00	0.00	0.00	0.00	0.46	1,074
76-030	15	E 45th St @ 28th Av S	7.55	1.00	0.00	0.00	0.00	0.00	0.00	0.45	70

STORM DRAINAGE AREAS CHARACTERIZATION

Outfall	Pipe Size(in)	Location of Outfall	Total(Ac)	Res	Comm	Ind	Public	Open	Rail	Runoff	Pop
76-040	15	E 46th St @ 28th Av S	4.67	0.25	0.00	0.00	0.00	0.75	0.00	0.19	0
81-010	18	Wirth Pkwy @ S side of Birch Pond	31.17	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
82-010	36	Powderhorn Terrace @ 12th Av S	23.53	0.72	0.22	0.06	0.00	0.00	0.00	0.49	457
82-020	36	15th Av S 300' S of E 34th St	73.45	0.94	0.03	0.01	0.02	0.00	0.00	0.46	1,285
82-030	30	E 35th St @ 13th Av S	90.04	0.91	0.04	0.01	0.02	0.02	0.00	0.45	1,998
82-040	36	10th Av S 200' S of E 33rd St	98.49	0.85	0.03	0.02	0.08	0.02	0.00	0.46	1,881
83-010		W 61st St @ Grass Lake Terrace	6.59	1.00	0.00	0.00	0.00	0.00	0.00	0.45	39
83-015	24	S Shore of Grass Lake @ Grass Lake Terrace	0.99	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
83-020	48	Road btwn W 61st St & Grass Lake Terrace	85.96	0.96	0.00	0.00	0.00	0.04	0.00	0.44	241
83-025	36	Road btwn W 61st St & Grass Lake Terrace	51.23	1.00	0.00	0.00	0.00	0.00	0.00	0.45	474
83-030	24	W Grass Lake Terr. @ SW corner of Grass Lake	0.82	0.00	0.00	1.00	0.00	0.00	0.00	0.60	0
83-040	32	W Grass Lake Terr. @ W shore of Grass Lake	1.08	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
83-050	24	W 59th St (extended) @ Grass Lake Terrace	40.40	0.99	0.00	0.01	0.00	0.00	0.00	0.45	295
83-060	15	Girard Av S 250' S Grass Lake Terrace	10.05	1.00	0.00	0.00	0.00	0.00	0.00	0.45	149
83-070	24	Girard Av S @ W 60th St	1.19	0.82	0.08	0.00	0.10	0.00	0.00	0.48	1,426
83-080	60	Girard Av S 250' N of Dupont Av S	178.63	0.82	0.08	0.00	0.10	0.00	0.00	0.48	1,426
83-090	15	Dupont Av S @ Girard Av S	9.16	0.85	0.00	0.00	0.00	0.15	0.00	0.40	78
84-010	12	Hwy 62 between 28th and 34th Ave S	16.93	0.86	0.00	0.14	0.00	0.00	0.00	0.47	0
85-010	12	Ewing Ave S & W 22nd St.	21.56	0.86	0.00	0.14	0.00	0.00	0.00	0.47	0

SOURCES OF POLLUTANTS IN STORMWATER RUNOFF

	Fossil Fuel Combustion Incinerators	Gasoline Consumption	Metal Corrosion Metal Protection	Road Salts	Tires	Asphalt	Fertilizers, Pesticides, Soil Treatments	Wood Preservatives	Paints and Stains	Plastics	Soil Erosion	Sanitary Waste	Manufacturing	Animal Waste	Atmospheric Deposition	Plant Materials
Organic Toxic Pollutants:																
Volatiles	√	√		√		√	√		√	√		√	√	√	√	
Acid Compounds	√	√					√	√	√			√		√		
Base/Neutral	√					√	√	√	√	√		√	√	√		
Pesticides					√		√								√	√
Other Toxic Pollutants (Metals and Cyanide) and Total Phenols:																
Antimony			√						√	√	√		√		√	
Arsenic	√						√				√		√		√	
Beryllium	√		√								√		√			
Cadmium	√		√		√		√						√		√	
Chromium			√					√	√				√			
Copper			√				√		√				√			
Lead		√	√		√				√				√		√	
Mercury	√						√		√		√		√		√	
Nickel	√	√				√							√		√	
Selenium	√								√		√		√	√	√	
Silver			√								√		√			
Thallium							√				√		√		√	
Zinc			√	√	√				√				√			
Cyanide		√	√	√												
Phenols						?		√		√						

SOURCES OF POLLUTANTS IN STORMWATER RUNOFF

	Fossil Fuel Combustion Incinerators	Gasoline Consumption	Metal Corrosion Metal Protection	Road Salts	Tires	Asphalt	Fertilizers, Pesticides, Soil Treatments	Wood Preservatives	Paints and Stains	Plastics	Soil Erosion	Sanitary Waste	Manufacturing	Animal Waste	Atmospheric Deposition	Plant Materials
Other Conventional and Non-Conventional Pollutants:																
Total Dissolved Solids (TDS)	√			√		√	√					√		√	√	√
Total Suspended Solids (TSS)	√		√	√	√	√	√			√	√	√	√	√	√	√
Biochemical Oxygen Demand (BOD_5)											√	√		√	√	√
Chemical Oxygen Demand (COD)									√				√		√	√
Oil and Grease		√				√							√			
Fecal Coliform											?	√		√	√	
Fecal Streptococcus											?	√		√	√	
Phosphorus, Total	√	√			?	?	√				√	√	√	√	√	√
Phosphorus, Dissolved	√	√			?	?	√				√	√		√	√	√
pH			√	√												
Total Kjeldahl Nitrogen							√					√		√	√	√
Nitrate + Nitrite		√					√				√	√	√	√	√	√
Total Ammonia and Organic Nitrogen							√					√		√	√	√
Total Residual Chlorine			√	√						√		√	√		√	

24. NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) MONITORING

BACKGROUND

The Minneapolis Park and Recreation Board (MPRB) and Minneapolis Public Works (MPW) Department are co-signatories on the City's National Pollutant Discharge Elimination System (NPDES) stormwater permit. As part of its role the MPRB has historically done stormwater monitoring. The purpose of the stormwater monitoring is to characterize the impacts of stormwater discharges to receiving waters.

Previously the MPRB and MPW partnered with the City of St. Paul to fulfill the NPDES monitoring requirements. Five sites were monitored for 2001–2004 located in Minneapolis and St. Paul. In 2005 four new sites were selected for monitoring located in Minneapolis. In 2006 new sites were chosen to comply with the original NPDES permit and to assist MPW with their modeling and load allocation efforts. In 2008 four different land use sites: residential, commercial/industrial, mixed use and parkland were monitored for stormwater runoff quality in Minneapolis.

METHODS

This summary includes descriptions of the equipment installation at each site, the parameters monitored, field quality assurance sampling, data handling, validation, and reporting.

Site Installation

The equipment installed at each site included an ISCO 3700 sampler, a low profile area/velocity pressure transducer, and ISCO 4150 datalogger. The dataloggers were flow-paced and adjusted accordingly throughout the year to collect samples over the entire hydrograph.

Sites 7 (14th/Park) and 9 (61st/Lyndale) were installed on 5/6/08. Sites 6 (22nd/Aldrich) and 8a (Pershing Park) were installed on 5/5/08. Equipment installation began when freezing temperatures were no longer a concern in the spring to prevent transducers damage. See **Table 24.1** for site characteristics. See **Figure 24.1** for a map of site locations.

Monitored Parameters

In 2008 storm event samples were collected from May through November. One snowmelt grab sample was collected in 2008 from each site. Sites 6, 7, and 9 were collected in January and site 8a was collected in March. The target frequency for sample collection was once a month. If a sample was missed one month due to lack of precipitation events then two were taken the next month. Total volume sampled for each site and total recorded volumes in 2008 are given in **Table 24.2** along with the seasonal aggregate percentage sampled. Detailed information on sampling events is shown in **Table 24.3**.

Multiple bacteria grab samples were taken during the season except at site 8a which was inaccessible for grab sampling following snowmelt. The pH was measured in the field using an Oakton Waterproof pHTestr 2™ or at the laboratory Instrumental Research, Inc. (IRI). The pH meter was calibrated each sampling trip. Fecal Coliform and pH samples were collected from grab samples (spring, summer, and fall). All required sampling was successfully accomplished in 2008.

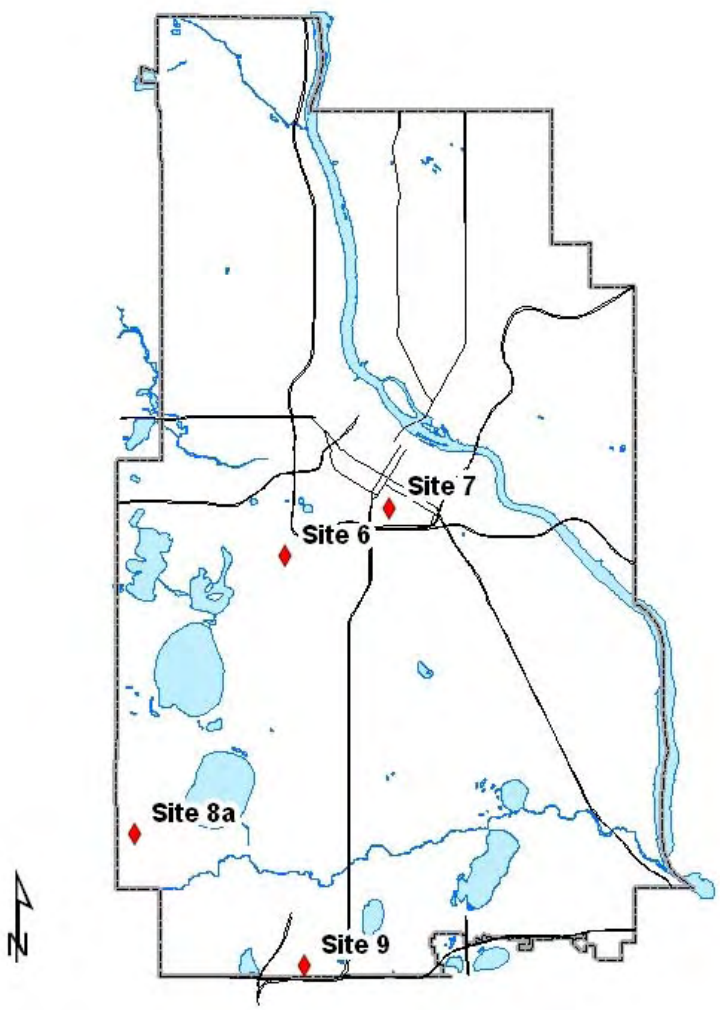


Figure 24.1. Map of the 2008 NPDES sites located in Minneapolis.

Table 24.1. 2008 NPDES stormwater monitoring sites for Minneapolis.

Site ID	Site 6	Site 7	Site 8a	Site 9
Location	22nd St & Aldrich Ave S	E 14th St & Park Ave S	Pershing Field east of 49th St & Chowen Ave	335 ft east of 61st St & Harriet Ave S
Land Use	Multi–Family Residential	Commercial/Industrial/ High Rise Residential	Recreational/Parkland	Commercial/Industrial
Area (acres)	8.9	13.1	2.5	34.9
Pipe Diameter (inches)	18	42	10	36
Outfall ID#	10 – 430J	10 – 430D	57 – 100A/B	71 – 070

Table 24.2. NPDES site volume totals for the sampling period 5/5/08 – 11/4/08.

	Site 6	Site 7	Site 8a	Site 9
Total volume of sampled events (cf)	27,108	92,842	19,225	388,503
Total volume recorded for 2008 (cf)	39,376	292,506	29,736	664,194
% sampled ANNUAL	69%	32%	65%	58%
% sampled SPRING (April- June)	26%	14%	25%	22%
% sampled SUMMER (July- September)	40%	15%	18%	33%
% sampled FALL (October- November)	2%	2%	3%	3%

Table 24.4 shows the parameters tested as part of the NPDES permit for each sample collected. **Table 24.5** gives the approved method used for analysis, reporting limit, and holding time for each parameter as reported by the contract laboratory IRI. The only change that occurred was starting August 1 2008 Legend Technical Services Laboratory began analyzing all metals samples due to an equipment breakdown at IRI.

Table 24.3. 2008 precipitation event data and samples collected for NDPES sites. A precipitation event is defined as being greater than 0.10 inches and separated by 8 hours. The rain gage is located at 3800 Bryant Ave. S., Minneapolis, MN.

Event	Start Date/Time	End Date/Time	Precip (inches)	Duration (hours)	Intensity (in/hr)	Sample Type	2008 NPDES Events Collected			
							Site 6 22nd/Aldrich	Site 7 14th/Park	Site 8a Pershing	Site 9 61st/Lyndale
+1	1/28/2008	n/a	n/a	n/a	n/a	grab	X(w/fecal)	X(w/fecal)		X(w/fecal)
+2	3/13/2008	n/a	n/a	n/a	n/a	grab			X(w/fecal)	
3	5/2/2008/13:35	n/a	n/a	n/a	n/a	grab			X(fecal only)	
4	5/6/2008/12:00	5/6/2008/17:45	0.23	5.45	0.042	composite		X		X
5	5/10/2008/10:45	5/11/2008/12:15	0.55	13.50	0.041	composite			X(Lmtd)	
6	5/31/2008/16:30	5/31/2008/21:30	0.49	5.00	0.098	composite	X(Lmtd)		X(Lmtd)	
7	6/5/2008/13:15	6/6/2008/14:15	0.91	13.0	0.070	composite	X	X	X	X
8	6/11/2008/8:00	6/12/2008/14:45	1.08	18.45	0.059	composite	X(w/fecal)	X(fecal only)	X	X(fecal only)
9	7/7/2008/6:45	7/7/2008/20:15	0.31	1.50	0.207	composite			X	X
10	7/10/2008/11:45	7/11/2008/3:30	0.92	4.45	0.207	composite	X	X		
11	8/12/2008/20:30	8/13/2008/1:00	0.21	4.50	0.047	composite	X(Lmtd)	X	X	
12	8/13/2008/14:00	8/13/2008/14:30	0.53	0.50	1.060	composite				X
13	8/27/2008/23:00	8/28/2008/3:00	0.93	4.00	0.233	composite	X			X
14	9/2/2008/9:30	9/2/2008/13:00	0.18	3.5	0.051	composite	X(w/fecal)	X(Lmtd,w/fecal)	X	X(fecal only)
15	9/11/08/4:00	9/11/08/17:30	0.43	15.50	0.028	composite		X		X
16	10/5/2008/10:00	10/5/2008/11:00	0.29	1.00	0.290	composite	X		X	X
17	10/7/08/12:30	10/7/08/18:00	0.57	17.50	0.033	composite		X		
		Totals	**6.36**				**7**	**7**	**7**	**8**

+snowmelt event

n/a = not applicable

X(lmtd) = event sampled with limited parameters generally due to holding times

X(w/fecal) = event sampled with fecal coliform

X(fecal only) = only fecal coliform sampled

Source: 2008 Water Resources Report – Minneapolis Park & Recreation Board

Table 24.4. The list of monitored chemical parameters for the NPDES permit. BOD is biochemical oxygen demand.

Parameter	Abbreviation	Units	Sample Type
BOD –carbonaceous, 5 Day	cBOD	mg/L	Composite
Chloride, Total	Cl	mg/L	Composite
Specific Conductivity	Sp. Cond	µmhos/cm	Composite
Copper, Total	Cu	µg/L	Composite
Fecal Coli form	F. coli	#/100mL	Grab (3X year)
Lead, Total	Pb	µg/L	Composite
Nitrite+Nitrate, Total as N	NO_2NO_3	mg/L	Composite
Ammonia, Un-ionized as N	NH_3	mg/L	Composite
Kjeldahl Nitrogen, Total	TKN	mg/L	Composite
pH	pH	standard unit	Grab (3X year)
Phosphorus, Total Dissolved	TDP	mg/L	Composite
Phosphorus, Total	TP	mg/L	Composite
Solids, Total Dissolved	TDS	mg/L	Composite
Solids, Total Suspended	TSS	mg/L	Composite
Zinc, Total	Zn	µg/L	Composite

Table 24.5. Analysis method, reporting limit, and holding times for parameters used by Instrumental Research, Inc.

Parameter	Method	Reporting Limit	Holding Times
cBOD, carbonaceous, 5 Day (20°C)	SM 5210 B	1.0 mg/L	24 hours
Chloride, Total	SM 4500-Cl^- B	2.0 mg/L	28 days
Specific Conductivity	SM 2510 B	10 µmhos/cm	28 days
Copper, Total	EPA 200.9	5 µg/L	6 months
Fecal Coliform	SM 9222D	<1 per 100mL	< 24hrs
Lead, Total	SM 3500-Pb B	5 µg/L	6 months
Nitrite+Nitrate, Total as N	SM 4500-NO_3 E	0.030 mg/L	28 days
Ammonia, Un-ionized as N	SM 4500-NH_3 F	0.500 mg/L	7 days
Kjeldahl Nitrogen, Total	SM 4500-Norg B	0.500 mg/L	7 days
Phosphorus, Total Dissolved	SM 4500-P A, B, G	0.010 mg/L	48 hours
Phosphorus, Total	SM 4500-P A, B, E	0.010 mg/L	48 hours
Solids, Total Dissolved	SM 2540 C	10.0 mg/L	7 days
Solids, Total Suspended	SM 2540 D	1.0 mg/L	7 days
Zinc, Total	SM 3500-Zn B	50 µg/L	6 months

Field Quality Assurance Samples

10% of samples were used as quality assurance samples. Field blanks consisted of deionized water which accompanied samples from the sites to the analytical laboratory. One field blank was used for each sampling trip and was analyzed for all NPDES parameters. All field blank parameters from each trip were below the minimum detection limits.

An equipment blank (~ 2 L sample) was collected at site 8a (Pershing) on 11/6/08. To collect the equipment blank a large bottle of deionized water was placed at the end of the sampler tubing. The intake line was flushed and pumped by pulling deionized water through the sampler simulating the pre-sample flush. The flush water was back-pumped to waste and then a sample of deionized water was collected. The sample was of sufficient volume to allow analysis of all parameters. All analytes came back from the laboratory below the minimum detection limits with the exception of TSS (2 mg/L) and Cu (10 µg/L). It was determined that these very low levels of TSS and Cu were not of concern so the values were not subtracted from the data set.

As part of the overall QA/QC program blind monthly performance samples were made for all monitored parameters and delivered to IRI.

Manual transcription of data was minimized to reduce any errors. A minimum of 10% of the final data were checked by hand against the raw data sent by the laboratory to ensure there were no errors entering, manipulating, or transferring the data. See **Section 28**, Quality Assurance Assessment Report for details.

Field measurements were recorded on the Field Measurement Form in the Field Log Book and then entered into a computer database. Computerized data from the laboratory were forwarded to the MPRB in pre-formatted spreadsheets. Computerized data from the laboratory were checked and passed laboratory quality assurance procedures. Protocols for data validity followed those defined in the Storm Water Monitoring Program Manual (MPRB, 2001). For data reported below the reporting limit the reporting limit value was divided in half and then used for all statistical calculations.

A Chain of Custody (sample receipt) form accompanied each set of sample bottles delivered to the lab. Each sampler tray or container(s) were labeled indicating the date and time of collection, site location, and the field personnel initials. The time each sample was collected was recorded from the ISCO sampler onto field sheets. A complete description of methods can be found in the Storm Water Monitoring Program Manual (MPRB, 2001).

Statistics for event mean concentrations were calculated using Microsoft Excel spreadsheets. The computer program FLUX and computer model P8 were used to calculate flow-weighted mean concentrations and estimate snowmelt runoff volume, respectively.

A description of FLUX as described in the FLUX manual (Walker, 1996):

> FLUX is an interactive program designed for use in estimating the loadings of nutrients or other water quality components passing a tributary sampling station over a given period of time. These estimates can be used in formulating reservoir nutrient balances over annual or seasonal averaging periods appropriate for application of empirical eutrophication models.
>
> Using six calculation techniques, FLUX maps the flow/concentration relationship

> developed from the sample record onto the entire flow record to calculate total mass discharge and associated error statistics. In many cases, stratifying the data increases the accuracy and precision of loading estimates.

A description of P8 as described in the software's introduction:

> P8 is a model for predicting the generation and transport of stormwater runoff pollutants in small urban catchments. Simulations are driven by hourly rainfall and daily air-temperature time series.

RESULTS & DISCUSSION

Event data mean concentrations are listed in **Table 24.6**.

When flow was sufficient in 2008 Fecal Coliform grab samples were collected. This occurred eleven times at the NPDES sites. In 2008 limited parameters were collected five times. These samples were stored more than 24 hours and parameters with short holding times were not analyzed (e.g. cBOD, TDP).

In 2008 no NPDES chemical data records were flagged. The March TSS and cBOD blind monthly performance standards failed to achieve proper recovery. The March TSS recovery was 121% and cBOD recovery was 73%. The data were not flagged as possibly suspect and were still used in calculations because the values were deemed reasonable. The TSS recovery was 1% over the limit and the biologically based cBOD test is extremely difficult to control. Further quality assurance protocols can be found in **Section 28**.

Table 24.7 lists the statistical calculations for all measured parameters. Many parameters fluctuate with season. Typically maximums for most parameters were reached during snowmelt and early spring they included TP, NH_3, NO_2NO_3, Cl, TSS, TDS, Cu, Pb and Zn. Some parameters peaked in late summer early fall (but were not maximums) they included TP, TDP, NO_2NO_3, NH_3, cBOD, TSS, TDS and metals probably due to leaf litter or build up wash off. It was notable that the mid to late summer of 2008 was unusually dry which may have contributed to the "build up and wash off" during the late summer events.

Peak phosphorus levels during snowmelt were probably due to an accumulation of animal, lawn, and leaf litter waste in late fall/winter and atmospheric deposition during winter months. The maximum TP of 2.93 mg/L at Site 9 was on 1/28/08.

Most snowmelt samples were brown to dark brown and very turbid except Site 8a which was relatively clear. This is most likely due to the filtering effect of the parkland turf as this site has mostly park overland flow runoff and has little or no street runoff. High Cl concentrations are typical for stormwater runoff during winter and early spring months. Road salt is used throughout the winter and subsequently washed off the streets and gutters during snowmelt and early spring rains.

Site 9 showed increased amounts of chloride during the summer months. The event 8/27/08 at Site 9 had 306 mg/L Cl. There are many commercial industries surrounding Site 9 which may be contributing to higher chloride levels during the summer months. Site 9 also has a small baseflow indicating that there is discharge or infiltration coming from an unknown source.

In addition Specific Conductivity, TDS, and TSS generally tend to be high during winter and spring months with the exception of Site 8a. High TSS values in snowmelt and spring might be attributed to

wash off of accumulated sand applied to icy roads. A small amount of sand can lead to very high TSS values. Almost all maximum metal values followed the same trend as TSS. Zinc was below the detection limit for most of Site 6, Site 7, and Site 8a events. Fecal Coliform values were lowest for the snowmelt event and generally peaked during summer/fall months. This result is expected since bacterial survival is temperature dependent.

At site 8a large construction projects began in the park in 2007 and finished in 2008. Projects included installation of a new basketball court, fence, and playground. The projects appear to have had little or no effect on mean TP (and most other parameters) when compared to the previous year.

Table 24.6. 2008 NDPES sampled event data by site.

Date	Time	Site ID & Location	Sample Type	TP mg/L	TDP mg/L	TKN mg/L	NO_3NO_2 mg/L	NH_3 mg/L	Cl mg/L	Field pH	Sp.Cond. µmhos/cm	F. coli cfu/100mL	cBOD mg/L	TSS mg/L	TDS mg/L	Cu µg/L	Pb µg/L	Zn µg/L
1/28/2008	13:10	Site #6 22nd & Aldrich	Grab	1.54	0.460	11.8	1.91	3.84	5830	8.2	16580	170	87	400	9321	94.0	134	635
*5/31/2008	20:17	Site #6 22nd & Aldrich	Composite	1.25		7.97	0.122	1.02	<2.00		101			417	79	7.00	160	<50.0
6/6/2008	3:50	Site #6 22nd & Aldrich	Composite	0.602	0.138	2.29	0.446	0.524	<2.00		69.1		8	140	38	5.30	46.1	146
6/11/2008	12:05	Site #6 22nd & Aldrich	Grab							8.7		10000						
6/12/2008	5:25	Site #6 22nd & Aldrich	Composite	0.214	0.065	0.843	0.201	<0.500	<2.00		35.0		3	37	33	<5.00	11.1	57.0
7/11/2008	4:11	Site #6 22nd & Aldrich	Composite	0.514	0.085	2.04	0.482	<0.500	<2.00		50.0		11	126	57	22.0	58.6	111
*8/12/2008	20:25	Site #6 22nd & Aldrich	Composite	0.581		3.75	0.565							245	36	22.5	121	163
8/28/2008	0:38	Site #6 22nd & Aldrich	Composite	0.358	0.082	2.33	0.412	0.973	<2.00		38.5		4	107	40	12.0	80.0	110
9/2/2008	13:14	Site #6 22nd & Aldrich	Composite	0.316	0.086	2.71	0.370	0.643	<2.00		59.8		7	49	72	16.0	23.0	84.0
9/2/2008	13:15	Site #6 22nd & Aldrich	Grab							8.7		1500						
10/5/2008	10:02	Site #6 22nd & Aldrich	Composite	0.247	0.088	1.6	0.389	<0.500	<2.00		53.4		8	42	9	16.0	23.0	83.0
1/28/2008	11:25	Site #7 14th & Park	Grab	0.674	0.208	7.04	1.82	2.59	5419	7.9	14890	32	46	177	8324	36.6	19.3	253
5/6/2008	17:42	Site #7 14th & Park	Composite	0.401	0.057	7.04	1.01	1.45	48.2		304		13	180	172	34.0	16.4	136
6/5/2008	21:03	Site #7 14th & Park	Composite	0.382	0.029	1.73	0.475	<0.500	<2.00		61.4		7	112	4	<5.00	36.9	156
6/11/2008	12:10	Site #7 14th & Park	Grab							8.2		1000						
7/11/2008	4:18	Site #7 14th & Park	Composite	0.327	0.068	1.83	0.533	0.549	<2.00		56.0		8	80	39	23.6	18.6	108
8/12/2008	20:30	Site #7 14th & Park	Composite	0.475	0.042	2.27	0.433	0.555	3.30		57.0		10	189	52	34.5	51.0	241
*9/2/2008	13:23	Site #7 14th & Park	Composite	0.325		2.03	0.559	0.633						66	96	25.0	11.0	130
9/2/2008	13:30	Site #7 14th & Park	Grab							8.2		2000						
9/11/2008	10:47	Site #7 14th & Park	Composite	0.284	0.036	1.37	0.370	<0.500	<2.00		45.0		7	89	15	20.0	36.0	160
10/7/2008	17:30	Site #7 14th & Park	Composite	0.091	0.024	0.636	0.280	<0.500	<2.00		49.8		2	14	21	8.30	3.90	65.0
3/13/2008	12:25	Site #8a Pershing	Grab	0.877	0.734	6.42	1.40	1.81	88.6	7.4	394	270	37	51	268	<5.00	<5.00	<50.0
5/2/2008	13:35	Site #8a Pershing	Grab							7.7		12000						
*5/10/2008	23:30	Site #8a Pershing	Composite	0.244		2.64	0.900	1.49	<2.00		132			42	88	9.00	<5.00	<50.0
*5/31/2008	22:18	Site #8a Pershing	Composite	0.950		3.70	0.442	0.651	<2.00		123			308	65	<5.00	11.4	62.0
6/6/2008	2:46	Site #8a Pershing	Composite	0.855	0.133	2.85	<0.030	0.649	<2.00		124		11	189	70	<5.00	7.65	63.0
6/12/2008	4:50	Site #8a Pershing	Composite	0.288	0.03	2.09	0.033	<0.500	<2.00		55.0		16	78	18	<5.00	<5.00	50.0
7/7/2008	21:33	Site #8a Pershing	Composite	0.950	0.240	4.62	0.173	1.59	7.30		118		30	220	83	25.4	18.7	112
8/12/2008	20:45	Site #8a Pershing	Composite	0.533	0.117	2.53	0.445	0.659	<2.00		54.0		11	168	60	18.3	13.5	<50.0
9/2/2008	13:21	Site #8a Pershing	Composite	0.270	0.138	1.55	0.675	0.323	<2.00		66.5			51	57	7.40	<5.00	37.0
10/5/2008	10:05	Site #8a Pershing	Composite	0.223	0.091	1.07	0.438	<0.500	<2.00		34.4		6	43	29	9.20	5.00	54.0
1/28/2008	12:50	Site #9 61st & Lyndale	Grab	2.93	1.73	63.8	3.28	7.64	12307	10.2	46100	700	74	418	19508	95.2	<5.00	520
5/7/2008	0:22	Site #9 61st & Lyndale	Composite	0.253	0.063	2.50	0.610	1.30	7.90		96.0		12	53	50	22.8	10.4	88.0
6/5/2008	18:29	Site #9 61st & Lyndale	Composite	0.474	0.047	1.55	0.354	<0.500	6.50		140		4	230	33	<5.00	10.4	159
6/11/2008	11:40	Site #9 61st & Lyndale	Grab							10.1		16000						
7/7/2008	21:11	Site #9 61st & Lyndale	Composite	0.493	0.057	2.66	0.379	0.889	16.7		145		7	225	81	31.5	14.6	141
8/13/2008	14:32	Site #9 61st & Lyndale	Composite	0.493	0.060	2.35	0.360	0.961	7.80		108		7	483	82	36.2	26.8	193
8/27/2008	9:10	Site #9 61st & Lyndale	Composite	0.588	0.086	6.35	1.28	2.75	306		309		22	319	200	40.0	23.0	290
9/2/2008	12:45	Site #9 61st & Lyndale	Grab							8.9		7000						
9/11/2008	5:21	Site #9 61st & Lyndale	Composite	0.768	0.196	3.74	0.480	2.52	16.7		174		16	380	139	42.0	23.0	290
10/5/2008	10:21	Site #9 61st & Lyndale	Composite	0.535	0.134	3.01	0.403	1.43	10.7		180		8	301	40	27.0	17.0	210

* Sample collected after 24 hours.

Underlined data failed the blind monthly performance standard and are suspect.

Source: 2008 Water Resources Report – Minneapolis Park & Recreation Board

Table 24.7. 2008 event mean concentration statistics.

Site ID	Statistical Function	TP mg/L	TDP mg/L	TKN mg/L	NO_3NO_2 mg/L	NH_3 mg/L	Cl mg/L	Field pH	Sp.Cond. µmhos/cm	F. coli cfu/100mL	cBOD mg/L	TSS mg/L	TDS mg/L	Cu µg/L	Pb µg/L	Zn µg/L
6	MEAN (geometric)	0.503	0.112	2.89	0.411	0.613	3	8.5	112	1366	9	122	72	13.3	53.0	107
6	MEAN (arithmetic)	0.625	0.143	3.93	0.544	0.969	730	8.5	2123	3890	18	174	1076	21.9	73.0	157
6	MAX	1.54	0.460	11.8	1.91	3.84	5830	8.7	16580	10000	87	417	9321	94.0	160	635
6	MIN	0.214	0.065	0.843	0.122	0.250	1	8.2	35	170	3	37	9	2.50	11.1	25.0
6	MEDIAN	0.514	0.086	2.33	0.412	0.584	1	8.7	57	1500	8	126	40	16.0	58.6	110
6	STDEV	0.464	0.141	3.60	0.530	1.201	2061	0.289	5841	5333	30	148	3092	27.9	54.1	184
6	NUMBER	9	7	9	9	8	8	3	8	3	7	9	9	9	9	9
6	COV	0.743	0.986	0.916	0.974	1.24	2.82	0.034	2.75	1.37	1.67	0.852	2.87	1.27	0.741	1.17
7	MEAN (geometric)	0.328	0.051	2.24	0.573	0.571	7	8.1	153	400	9	90	66	17.9	19.0	144
7	MEAN (arithmetic)	0.370	0.066	2.99	0.685	0.816	782	8.1	2209	1011	13	113	1090	23.1	24.1	156
7	MAX	0.674	0.208	7.04	1.82	2.59	5419	8.2	14890	2000	46	189	8324	36.6	51.0	253
7	MIN	0.091	0.024	0.636	0.280	0.250	1	7.9	45	32	2	14	4	2.50	3.90	65.0
7	MEDIAN	0.355	0.042	1.93	0.504	0.552	1	8.2	57	1000	8	101	45	24.3	19.0	146
7	STDEV	0.166	0.064	2.55	0.508	0.818	2045	0.173	5593	984	15	63	2923	12.5	15.7	63.6
7	NUMBER	8	7	8	8	8	7	3	7	3	7	8	8	8	8	8
7	COV	0.45	0.971	0.850	0.741	1.00	2.61	0.021	2.53	0.974	1.11	0.557	2.68	0.540	0.650	0.407
8a	MEAN (geometric)	0.486	0.140	2.68	0.264	0.661	2.05	7.5	95.09	1800	15	97	63	6.07	5.46	44.5
8a	MEAN (arithmetic)	0.577	0.212	3.05	0.502	0.852	11.4	7.6	122.32	6135	18	128	82	8.81	7.36	50.3
8a	MAX	0.950	0.734	6.42	1.40	1.81	88.6	7.7	394.00	12000	37	308	268	25.4	18.7	112
8a	MIN	0.408	0.096	2.35	0.080	0.513	1.26	7.5	77.86	528	13	76	49	4.39	4.19	39.7
8a	MEDIAN	0.533	0.133	2.64	0.442	0.651	1.00	7.6	118.00	6135	14	78	65	7.40	5.00	50.0
8a	STDEV	0.328	0.239	1.65	0.443	0.612	29.0	0.212	108.38	8294	12	97	73	8.11	5.95	27.9
8a	NUMBER	9	7	9	9	9	9	2	9	2	6	9	9	9	9	9
8a	COV	0.569	1.13	0.541	0.882	0.718	2.54	0.028	0.89	1.35	0.667	0.759	0.896	0.921	0.808	0.554
9	MEAN (geometric)	0.616	0.119	4.27	0.627	1.46	38	9.7	314	4280	12	259	149	27.0	13.3	208
9	MEAN (arithmetic)	0.817	0.297	10.7	0.893	2.22	1585	9.7	5907	7900	19	301	2517	37.2	16.0	236
9	MAX	2.93	1.73	63.8	3.28	7.64	12307	10.2	46100	16000	74	483	19508	95.2	26.8	520
9	MIN	0.253	0.047	1.55	0.354	0.250	7	8.9	96	700	4	53	33	2.50	2.50	88.0
9	MEDIAN	0.514	0.075	2.84	0.442	1.37	14	10.1	160	7000	10	310	82	33.9	15.8	202
9	STDEV	0.866	0.581	21.5	1.01	2.34	4334	0.723	16241	7690	23	134	6866	26.6	8.13	134
9	NUMBER	8	8	8	8	8	8	3	8	3	8	8	8	8	8	8
9	COV	1.06	1.96	2.00	1.13	1.06	2.73	0.074	2.75	0.973	1.24	0.445	2.73	0.715	0.509	0.567
All	MEAN (geometric)	0.473	0.099	2.93	0.437	0.760	6	8.5	148	1403	11	128	81	13.7	16.5	106
All	MEAN (arithmetic)	0.597	0.184	5.08	0.648	1.20	753	8.6	2525	4607	17	177	1155	22.3	30.7	147
All	MAX	2.93	1.73	63.8	3.28	7.64	12307	10.2	46100	16000	87	483	19508	95.2	160	635
All	MIN	0.091	0.024	0.636	0.015	0.250	1	7.4	34	32	2	14	4	2.50	2.50	25.0
All	MEDIAN	0.484	0.086	2.52	0.444	0.651	1	8.2	99	1500	9	154	59	19.2	17.8	112
All	STDEV	0.517	0.331	10.6	0.641	1.45	2519	0.901	8832	5687	21	133	3860	22.2	38.5	133
All	NUMBER	34	29	34	34	33	32	11	32	11	28	34	34	34.0	34.0	34.0
All	COV	0.866	1.80	2.10	0.989	1.20	3.35	0.105	3.50	1.23	1.20	0.749	3.34	0.994	1.25	0.901

All = all 4 sites, STDEV = standard deviation, COV = coefficient of variation.

Source: 2008 Water Resources Report – Minneapolis Park & Recreation Board

Sampled data were comparable to typical urban stormwater data from the Nationwide Urban Runoff Program (NURP), Center for Watershed Protection (CWP) and Bannerman. **Table 24.8** shows median values for MPRB 2008 monitored residential sampled sites which were similar or less than reported NURP values with the notable exception of TP and TKN values. Most MPRB land use category values were similar to NURP values and all metals were well below NURP values. Most 2008 parameters were comparable to MRPB 2001–2007 data. Exceptions in 2008 were residential land uses which were higher for TSS and Pb, mixed land use higher for NO_3NO_2, TSS, and Zn and the composite of all land use categories where higher for TP, TSS, and Zn. In 2008 all three land use categories saw an increase in median TSS concentrations. It is important to note that the new sites monitored in 2005 -2008 are located in different watersheds and have similar but not identical land uses to those monitored in 2001–2004.

Table 24H. Typical Median stormwater sampled concentrations.

Land Use	**Residential**			**Mixed**			**Composite of all categories**		
Location	MPRB[1]	MPRB[2]	NURP	MPRB[3]	MPRB[4]	NURP	MPRB[5]	MPRB[6]	NURP
Year(s)	2008	2001–2007		2008	2001–2007		2008	2001–2007	
TP (mg/L)	0.514	0.455	0.383	0.355	0.311	0.263	0.484	0.383	0.33
TKN (mg/L)	2.33	2.63	1.9	1.93	1.69	1.288	2.52	2.23	1.5
NO_3NO_2 (mg/L)	0.412	0.352	0.736	0.504	0.409	0.558	0.444	0.407	0.68
BOD (mg/L)	8	12	10	8	12	7.8	9	11	9
TSS (mg/L)	126	85	101	101	68	67	154	87	100
Cu (µg/L)	16.0	17.2	33	24.3	18.3	27	19.2	17.9	30
Pb (µg/L)	58.6	19.5	144	19.0	16.7	114	17.8	16.4	140
Zn (µg/L)	110	74.0	135	146	83.5	154	112	77.5	160

[1] Site 6 data.
[2] Sites 1 and 2 data, (Site 6, 2005-2007).
[3] Site 7 data.
[4] Sites 5 and 5a data, (Site 7, 2005-2007).
[5] Sites 6 – 9 data.
[6] Sites 1 – 5a data, (Site 6 – 9, 2005-2007).
NURP = median event mean concentrations as reported by the Nationwide Urban Runoff Program (USEPA, 1996).
MPRB = median values calculated by the MPRB for the identified year(s).

Most MPRB mean concentrations were comparable to other studies as listed in **Table 24.9** below. 2008 TP values are most closely related to those monitored by other agencies. Data from MPRB Sites 1–5a (2001–2004) and 6–9 (2005–2007) were generally similar to Sites 6–9 in 2008. TP, TKN, NO_2NO_3, Cl, TDS and TSS increased while Cu decreased slightly.

Table 24.9. Typical MEAN urban stormwater concentrations. " -- " = not reported.

Parameter	NURP[1]	CWP[2]	Bannerman *et al.*[3]	Mpls PW[4]	St. Paul[5]	MPRB[6] 2001–2007	MPRB[7] 2008
TP (mg/L)	0.5	0.3	0.66	0.417	0.484	0.485	0.597
TDP (mg/L)	--	--	0.27	0.251	--	0.137	0.184
TKN (mg/L)	2.3	--	--	--	2.46	2.81	5.08
NO_3NO_2 (mg/L)	0.86	--	--	--	0.362	0.514	0.648
NH_3 (mg/L)	--	--	--	0.234	--	1.13	1.20
Cl (mg/L)	--	230 (winter)	--	--	--	252	753
BOD (mg/L)	12	--	--	14.9	25	16	17
TDS (mg/L)	--	--	--	73.3	78	479	1155
TSS (mg/L)	239	80	262	77.6	129.2	123	177
Cu (µg/L)	50	10	16	26.7	30	27.4	22.3
Pb (µg/L)	240	18	32	75.5	233	27.2	30.7
Zn (µg/L)	350	140	204	148	194	126	147

[1] USEPA (1996)
[2] Center for Watershed Protection (2000)
[3] Monroe study area of Bannerman *et al*. (1993)
[4] City of Minneapolis Public Works Department (1992) – average from a combination of land uses
[5] City of St. Paul 1994 stormwater data – average from a combination of land uses
[6] MPRB arithmetic mean data calculated from NPDES Sites 1 – 5a (2001 – 2004), 6 – 9 (2005 – 2007)
[7] MPRB arithmetic mean data calculated from NPDES Sites 6 – 9 (2008)

For this report the P8 model was used to estimate daily flows for snowmelt events and grab samples from January through mid-May. Average daily flows and collected chemical data were used as input for the interactive program FLUX. Daily temperature and hourly precipitation files obtained from the National Oceanic and Atmospheric Administration (NOAA) National Data Center (NDC) were used as input for P8. The heated rain gauge is located at the Minneapolis/St. Paul International Airport.

Large rain events can lead to pipe surcharges. Surcharges occur when the water backs up in pipes and creates a hydrostatic pressure head which can result in inaccurate daily flow calculations which should be considered when evaluating flow-weighted mean concentrations. These events usually happen during storm events with high precipitation totals or high intensity. The following surcharges occurred at the NPDES sites in 2008:

- Site 6 (22nd and Aldrich): none.
- Site 7 (Park and 14th): none.
- Site 8a (Pershing): 5/31, 6/5, 6/12, 7/10, 7/11, 8/13, 8/14, 8/28, 9/11, 9/13, 9/23, 10/5.
- Site 9 (61st and Lyndale): none.

Site 8a had twelve surcharges in 2008. At the site two pipes and overland flow enter the manhole basin and the outlet at the bottom is a 12 inch PVC pipe. This entire area of Minneapolis is lower in elevation than the surrounding areas causing a regular back up of many storm sewers in the system. Minneapolis Public Works is aware of this problem and doing its best to remediate it. In 2007 twenty five surcharges occurred. These surcharges do not appear to have caused any flooding problems.

The flow-weighted mean concentrations presented in **Table 24.10** were calculated using FLUX. FLUX calculates flow-weighted mean concentrations and associated error statistics based on six different calculation methods. Calculation methods 1-Direct Mean Loading, and 5-Regression, Second-Order were ignored because they are inappropriate for storm sewer applications where the daily flow file contains a significant number of zero flows (Bruce Wilson, MPCA Research Scientist, personal communication, 2001). In general calculation methods 2-Flow-Weighted Concentration and 6-Regression Applied to Individual Daily Flows were used. Sample concentrations and associated daily average flows were used as input for these calculations. The data were often stratified by flow or season to achieve the most accurate and precise results.

Table 24.10. Flow–weighted mean concentrations and related statistics for NPDES parameters in 2008.

Site	TP (mg/L)	TDP (mg/L)	TKN (mg/L)	NH_3 (mg/L)	NO_3NO_2 (mg/L)	Cl* (mg/L)	cBOD (mg/L)	TSS (mg/L)	TDS* (mg/L)	Cu (µg/L)	Pb (µg/L)	Zn (µg/L)
6	0.402	0.088	2.55	0.784	0.393	21	57	108	82	11	65	112
7	0.350	0.058	2.01	0.706	0.605	122	8	101	1244	23	27	153
8a	0.598	0.286	3.47	0.796	0.647	24	21	119	120	6	6	47
9	0.594	0.123	4.86	1.578	0.682	390	13	263	584	25	14	214
MEAN	**0.486**	**0.139**	**3.22**	**0.966**	**0.582**	**139**	**25**	**148**	**507**	**16.3**	**28.0**	**132**
MEDIAN	**0.498**	**0.106**	**3.01**	**0.790**	**1.48**	**73**	**17**	**114**	**352**	**17.0**	**20.5**	**133**
STANDEV	**0.129**	**0.102**	**1.25**	**0.410**	**0.130**	**174**	**22**	**77**	**541**	**9.22**	**26.1**	**70.2**

* Flow–weighted mean concentrations for Cl and TDS were difficult to estimate using FLUX due to large outliers from the two snowmelt samples; these estimates should be used with caution.
STANDEV= standard deviation.

Site 6 had the highest modeled concentrations of cBOD and Pb and the lowest modeled NO_2NO_3 and Cl. This may be due to the large mature leaf canopy in this urban residential watershed filtering and collecting airborne material and depositing it following significant precipitation.

Site 7 had the lowest estimated TP, TDP, TKN, and TSS. This was probably due to the lack of vegetation (seeds, leaves, grass clippings, etc.) within the Site 7 densely developed watershed.

Site 8a had higher modeled concentrations of TP, TSS and nitrogen than would be expected for an open parkland watershed. The metals appear to be very low when compared to other watersheds and more in-line with a parkland watershed. It is unknown why site 8a TP, TSS and nitrogen values are similar to other watersheds. It is possible surcharging may be affecting results. Further investigation may be warranted.

Site 9 had the highest modeled concentration of TKN, NH_3, NO_2NO_3, Cl, TSS, Cu, and Zn. Site 9 is mainly commercial/industrial and therefore higher concentrations may be expected. Site 9 is located adjacent to a large cement aggregate mixing facility which may explain the slightly higher TSS values. This site sometimes had a small baseflow which could be sampled during future monitoring to distinguish high concentrations from storm events or baseflow.

The highest and lowest TP concentrations were modeled at Site 8a and 7, respectively. Site 8a is recreational parkland and Site 7 is mostly high rise residential. In 2008 sites 8a and 9 had the two highest mean modeled TP concentrations of 0.598 mg/L and 0.594 mg/L, respectively. This is similar to historical data for these sites.

For comparison purposes **Table 24.11** includes flow-weighted mean pollutant concentrations reported by the U.S. Geological Survey (USGS) for various sites within the Twin Cities (as cited in MPCA, 2000). The Yates watershed was a stabilized residential area. Iverson was a residential watershed under development while Sandberg was predominantly light industrial land use area as reported by the USGS. Site 6 is more closely related to the Yates watershed land use characteristics. Sites 7 and 9 are most comparable to the Sandberg watershed land use characteristics.

When comparing the flow-weighted mean concentrations for these sites Site 6 has slightly lower concentrations than Yates for all parameters with the exception of Pb. Sites 7 and 9 have lower flow-weighted mean concentrations than Sandberg for almost all parameters and are well within the ranges shown. The exception being site 7 which had significantly lower TP and TSS and higher Pb. Overall the 2008 water quality of sites 6, 7, 8a, and 9 was better than in the below study sites of 1980.

Table 24.11. Flow–weighted mean stormwater pollutant concentrations (mg/L) and ranges as reported by the USGS (as cited in MPCA, 2000).

Pollutant		Monitoring Site		
		Yates area (stabilized residential)	**Iverson area (developing residential)**	**Sandburg area (light industrial)**
TSS	Mean Range	133 (2 – 758)	740 (17 – 26,610)	337 (7 – 4,388)
Pb	Mean Range	0.23 (0.015 – 1.8)	0.02 (0.008 – 0.31)	0.19 (0.003 – 1.5)
Zn	Mean Range	0.198 (0.02 – 2.2)	0.235 (0.028 – 0.53)	0.185 (0.02 – 0.81)
TKN	Mean Range	3.6 (0.6 – 28.6)	1.2 (1.0 – 29.2)	2.5 (0.4 – 16.0)
TP	Mean Range	0.63 (0.10 – 3.85)	0.62 (0.2 – 13.1)	0.63 (0.07 – 4.3)

Table 24L shows the flow weighted mean concentration in 2008 compared to previous years. Flow-weighted mean concentrations for Cl and TDS were difficult to estimate using FLUX due to large outliers from the snowmelt samples. These estimates should be used with good judgment. When samples were below the MDL, half of the MDL was used for calculations.

Cadmium was discontinued from monitoring in 2006 because Cd concentrations have typically been below detection for the Minneapolis/St. Paul area (**Table 24.12**). It should also be noted the detection limit for Cd has changed over time, in 2002 it was <0.500 µg/L, in 2003 it was <2.00 µg/L and in 2004 it was <5.00 µg/L.

Most parameters fell within the range of estimated flow-weighted mean concentration of previous years as seen in **Table 24.12**. The parameter cBOD generally had a higher concentration in 2008 than the previously monitored years.

Table 24.12. MPRB Flow–weighted mean concentration compared to previous years. Each year is the average flow–weighted mean concentration of all sites monitored that year.

	Flow–weighted mean concentrations							
	Sites 1-5a				Sites 6-9			
Parameter	**MPRB 2001**	**MPRB 2002**	**MPRB 2003**	**MPRB 2004**	**MPRB 2005**	**MPRB 2006**	**MPRB 2007**	**MPRB 2008**
TP (mg/L)	0.470	0.337	0.474	0.332	0.354	0.548	0.472	0.486
TDP (mg/L)	0.112	0.095	0.114	0.121	0.123	0.135	0.108	0.139
TKN (mg/L)	2.21	1.60	2.10	1.94	3.48	3.54	4.43	3.22
NO_3NO_2 (mg/L)	0.398	0.423	0.496	0.382	0.448	0.638	0.496	0.582
NH_3 (mg/L)	0.494	0.722	0.346	0.918	1.74	1.64	0.970	0.966
Cl (mg/L)	37.4	10.5	587	40.0	18.0	91	412	139
cBOD (mg/L)	12	8	16	20	9	9	17	25
TSS (mg/L)	116	83	116	70	108	156	180	148
TDS (mg/L)	306	85	725	130	252	183	737	507
Cd (µg/L)	0.532	0.518	2.11	2.80	2.50	nc	nc	nc
Cu (µg/L)	15.1	30.8	23.4	15.3	19.3	29.0	35.5	16.3
Pb (µg/L)	23.3	17.1	22.0	14.3	40.9	31.0	33.5	28.0
Zn (µg/L)	180	76.0	107	76.0	86.0	94.0	133	132

nc = data not collected.

Chemical concentrations in stormwater are highly variable. Many things can cause fluctuations in chemical concentrations. **Table 24.12** illustrates the variability of stormwater from year to year due to two likely causes. First, the watersheds monitored for the designated land uses have occasionally changed and secondly the timing between street sweeping and sampling probably affect variability within the monitoring year and between years.

Event mean concentration seasonal statistics (snowmelt, spring, summer, and fall) for a combination of all sites were calculated and are listed in **Table 24.13**. Seasonal patterns are evident. Snowmelt had the highest arithmetic mean concentrations of TP, TDP, TKN, NO_2NO_3, NH_3, Cl, Specific Conductivity, cBOD, TSS, TDS, Cu and Zn. Spring had the highest concentrations of Pb and lowest concentrations of Cu and Zn. Summer had the highest levels of F. coli. Fall had the lowest concentrations of TP, NH_3, Cl, Specific Conductivity, cBOD, TSS, TDS and Pb.

Table 24.13. 2008 statistical summary of concentrations by season from all sites (6 –9).

2008 Season	Statistical Function	TP mg/L	TDP mg/L	TKN mg/L	NO_3NO_2 mg/L	NH_3 mg/L	Cl mg/L	Field pH	Sp.Cond. µmhos/cm	F. coli cfu/100mL	cBOD mg/L	TSS mg/L	TDS mg/L	Cu µg/L	Pb µg/L	Zn µg/L
SNOWMELT (February-March)	**MEAN (geometric)**	1.28	0.590	13.6	2.00	3.42	2423	8.4	8183	179	58	197	4488	30.1	11.3	214
	MEAN (arithmetic)	1.51	0.783	22.3	2.10	3.97	5911	8.4	19491	293	61	261	9355	57.1	39.6	358
	MAX	2.93	1.73	63.8	3.28	7.64	12307	10.2	46100	700	87	418	19508	95.2	134	635
	MIN	0.674	0.208	6.42	1.40	1.81	89	7.4	394	32	37	51	268	2.50	2.50	25.0
	MEDIAN	1.21	0.597	9.42	1.87	3.22	5625	8.1	15735	220	60	289	8823	65.3	10.9	387
	STDEV	1.02	0.667	27.8	0.816	2.59	5002	1.2	19169	288	23	178	7889	45.5	63.4	274
	NUMBER	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	COV	0.677	0.852	1.25	0.388	0.651	0.846	0.146	0.983	0.984	0.381	0.681	0.843	0.8	1.6	0.8
SPRING (April-May)	**MEAN (geometric)**	0.494	0.060	4.24	0.496	1.13	3.28	7.7	137	12000	13	139	83	10.4	15.1	54.1
	MEAN (arithmetic)	0.620	0.060	4.77	0.617	1.18	11.8	7.7	151	12000	13	200	91	15.1	40.1	67.2
	MAX	1.25	0.063	7.97	1.01	1.49	48.2	7.7	304	12000	13	417	172	34.0	160	136
	MIN	0.244	0.057	2.50	0.122	0.651	1.00	7.7	96	12000	12	42	50	2.50	2.50	25.0
	MEDIAN	0.401	0.060	3.70	0.610	1.30	1.00	7.7	123	12000	13	180	79	9.00	11.4	62.0
	STDEV	0.455	0.004	2.56	0.357	0.350	20.6		87		0.2	163	48	13.0	67.2	46.8
	NUMBER	5	2	5	5	5	5	1	5	1	2	5	5	5	5	5
	COV	0.735	0.071	0.537	0.579	0.296	1.74		0.574		0.017	0.813	0.526	0.865	1.67	0.696
SUMMER (June-August)	**MEAN (geometric)**	0.476	0.072	2.38	0.291	0.574	2.84	9.0	79	5429	9	156	45	11.1	22.6	113
	MEAN (arithmetic)	0.508	0.085	2.63	0.412	0.757	23.8	9.0	95	9000	10	184	58	17.7	33.8	133
	MAX	0.950	0.240	6.35	1.28	2.75	306	10.1	309	16000	30	483	200	40.0	121	290
	MIN	0.214	0.029	0.843	0.015	0.250	1.00	8.2	35	1000	3	37	4	2.50	2.50	25.0
	MEDIAN	0.493	0.068	2.31	0.423	0.555	1.00	8.7	61	10000	8	179	46	20.2	20.9	127
	STDEV	0.191	0.055	1.32	0.284	0.666	78.2	1.0	70	7550	7	109	44	13.6	31.6	70.0
	NUMBER	16	15	16	16	15	15	3	15	3	15	16	16	16	16	16
	COV	0.375	0.640	0.500	0.691	0.881	3.29	0.109	0.740	0.839	0.693	0.589	0.765	0.769	0.934	0.527
FALL (Sept-Nov)	**MEAN (geometric)**	0.294	0.083	1.74	0.427	0.497	1.91	8.6	69	2759	7	70	39	16.3	11.7	102
	MEAN (arithmetic)	0.340	0.099	1.97	0.440	0.728	4.18	8.6	83	3500	8	115	53	19.0	16.0	124
	MAX	0.768	0.196	3.74	0.675	2.52	16.7	8.9	180	7000	16	380	139	42.0	36.0	290
	MIN	0.091	0.024	0.636	0.280	0.250	1.00	8.2	34	1500	2	14	9	7.40	2.50	37.0
	MEDIAN	0.284	0.090	1.60	0.403	0.323	1.00	8.7	57	2000	7	51	40	16.0	17.0	84.0
	STDEV	0.198	0.056	1.00	0.117	0.774	6.09	0.4	59	3041	4	131	43	11.1	11.3	83.3
	NUMBER	9	8	9	9	9	8	3	8	3	7	9	9	9	9	9
	COV	0.583	0.567	0.509	0.267	1.06	1.46	0.042	0.711	0.869	0.534	1.14	0.808	0.587	0.705	0.674

STDEV= standard deviation, COV= coefficient of variation

25. HERITAGE PARK BMP MONITORING

BACKGROUND

Best management practices (BMPs) include procedures and structures designed to help reduce water pollution. In 2007 and 2008 the MPRB monitored two City of Minneapolis stormwater ponds located in the northern part of the City at Heritage Park and Heritage Commons (**Figure 25.1**). For purposes of this report the stormwater ponds located north of the intersection of Olson Memorial Highway and Van White Memorial Boulevard are referred to as Heritage Park Pond and to the south as Heritage Commons Pond.

Heritage Park is a large redevelopment project of 140 acres which was formerly public housing and a public park. It is now a mix of public and private housing, a public park and an innovative collection of stormwater treatment systems. The treatment train of bio-filtration basins, grit chambers, trench forebays, wetlands, and ponds was designed to mitigate stormwater impacts by reducing pollutants discharged to the Mississippi River.

The drainage area to Heritage Park Pond is 283 acres. There are many innovative inlet treatment devices including 4 trench forebays, 13 Continuous Deflective Separators (CDS) units, 10 bio-filtration and 3 bio-infiltration basins, and 3 wetland ponds. The Heritage Park Pond system has one main outlet shown in **Figure 25.1**. The outlet weir elevation is designed to be at 805.80 mean sea level (msl) (**Figure 25.3**). It may actually be 805.50 because there is no metal plate present which is referenced in plans. On 9/3/08 the internal weir was removed by Minneapolis Public Works. This significantly changed the hydrology of the pond system. The largest of the ponds was designed to have a high water depth of 5.5 ft which may now be significantly lower due to removal of the internal weir in the outlet pipe.

Figure 25.1. The Heritage Park Pond outlet.

Heritage Commons Pond has a much smaller drainage area of 101 acres. It has many of the same structural BMPs as the larger Heritage Park Pond system. There are five CDS units, a wet sediment pond, a single, large bio-filtration basin, and the pond. Heritage Commons Pond has three main inlets and two outlets. **Figure 25.2** shows the Heritage Commons inlets labeled A, B and C and the two outlets labeled N (north) and S (south). The two outlets are at different elevations. The main outlet is north and the secondary emergency outlet is south. The north and south outlet weir elevations are 806.2 msl and 807.7 msl respectively. The small inlet pipes (A, B and C) drain the adjacent streets. Each stormwater inlet is treated with CDS units prior to pond discharge. The bottom of the pond was designed to have an elevation of 798.0 ft. an interim normal water depth of 4.9 ft., final high water depth of 11.9 ft., and a final normal water depth of 8.2 ft.

Figure 25.2. Arial photograph of Heritage Park and Heritage Commons located in Minneapolis.

METHODS

Heritage Park is divided into two parts, the part north of Olson Memorial Highway is referred to as Heritage Park Pond and the part south of Olson Memorial Highway is referred to as Heritage Commons Pond. In 2007 and 2008 the MPRB monitored both the Heritage Pond and Heritage Commons Pond systems.

Heritage Park Pond outlet auto-monitoring dates were 7/30/07 – 11/7/07 and 5/8/08 – 9/1/08. Auto-monitoring equipment consisted of an area/velocity pressure transducer with an ISCO 4150 datalogger coupled with an ISCO 3700 sampler. The Heritage Pond outlet is a large 10' wide by 5' tall box culvert (**Figure 25.3**).

Figure 25.3. The Heritage Park Pond weir is inside the 5' X 10' box culvert. Weir was removed on 9/3/08.

This configuration necessitated custom bracket fixtures to be designed, fabricated and installed in order to monitor this site shown in **Figure 25.4**. Entry into this site required a confined space entry and was cumbersome due to two to three feet of standing water. The outlet datalogger was flow paced and the pacing adjusted to collect samples over the entire hydrograph. Heritage Park Pond flow data were calculated using Flowlink 5. Statistical chemical and load data were calculated using an Excel spreadsheet.

Figure 25.4. Heritage Park Pond box culvert with monitoring equipment installed.

The Heritage Commons outlet auto-monitoring was performed from 6/3/08 – 8/5/08, 9/7/08 – 9/27/08. The brief break was caused by equipment failure. Auto-monitoring equipment consisted of an area/velocity pressure transducer with an ISCO 4150 datalogger coupled with an ISCO 3700 sampler at all sites except inlet C. Inlet C monitoring equipment was an ISCO 6712 combination datalogger/sampler coupled with a low profile area/velocity pressure transducer. Inlet B was never able to be auto-monitored and only a few grab samples were obtained through 2007 and 2008. Heritage Commons Pond flow data were calculated using Flowlink 5. Statistical chemical and load data were calculated using an Excel spreadsheet.

Heritage Commons inlet A was installed on 5/30/08 and was able to be monitored throughout the season but the CDS unit appears to be backing up and to prevent frequent flooding of monitoring equipment it needed to be bagged in plastic.

Heritage Commons inlet B experienced significant issues. Installation of auto-monitoring equipment was attempted on 5/23/08 but was unsuccessful due to large amounts (8-10”) of organic debris and sand in the pipe. The solids material buried the monitoring probes rendering them unable to collect accurate data. The decomposing organic material also caused low oxygen air-meter alarms posing potential harm to entrants.

The debris in inlet B is causing significant blockage of the inlet. The stormwater back-up extends 200+ feet up the pipe and then slowly drains down. This in effect turns the 42” pipe into a large grit chamber where significant solids material can then settle out. Unsuccessful attempts were made to rectify the problems. On June 5, 6, and 9, 2008 the CDS unit was vacuumed, the pipe jetted, and fire hydrants opened upstream in an effort to unsuccessfully dislodge the debris in the pipe. This site was abandoned for auto-monitoring until the debris issue can be resolved.

Heritage Commons inlet C was installed on 6/3/08 but filled with significant amounts of sand and rocks (post construction material) burying the monitoring probe. The site was successfully jetted and flushed on 6/30/08.

In 2008 NPDES parameters were analyzed at all sites. The chemical parameters monitored were: total phosphorus (TP), total dissolved phosphorus (TDP), total Kjeldahl nitrogen (TKN), nitrate+nitrite (NO_3NO_2), ammonia (NH_3), chloride (Cl), conductivity, carbonaceous biochemical oxygen demand (cBOD), total suspended solids (TSS), total dissolved solids (TDS), copper (Cu), lead (Pb), zinc (Zn) and fecal coliform grab samples. Depending on the time that the samples were collected certain chemical parameters were not analyzed due to expired holding times or limited volume. Only a limited number of fecal grab samples were collected. Holding times for all parameters are listed in **Section 23**.

RESULTS & DISCUSSION

Table 25.1 shows the sampling schedule of both composite and grab samples taken at Heritage Commons and Heritage Park in 2007 and 2008. It should be noted that equipment could not be installed at Heritage Commons inlet B due to significant debris in the pipe and back-ups as previously noted. An internal weir was removed at Heritage Park Outlet North on 9/3/2008 which significantly changed the hydrology of the system. All equipment was removed from this site at that time. It will be difficult to apply this historical data set to future data collected at that site.

Table 25.1. 2007 - 2008 event data collected for Heritage Commons and Heritage Park systems. A precipitation event is defined as greater than 0.10 inches separated by 8 hours.

Date	Time	Sample Type	Heritage Commons Inlet A	Heritage Commons Inlet B	Heritage Commons Inlet C	Heritage Commons Outlet North	Heritage Park Outlet North
8/11/2007	23:00	Grab					X
8/14/2007	7:51	Grab					X
8/19/2007	21:45	Grab					X
8/21/2007	9:55	Grab				X	X
8/27/2007	9:15	Grab				X	X
8/28/2007	9:50	Grab				X	X
9/7/2007	8:45	Grab				X	X
9/18/2007	8:30	Grab	X(w/fecal)	X(w/fecal)		X(w/fecal)	X
9/20/2007	23:32	Grab					X(w/fecal)
9/21/2007	8:55	Grab	X(w/fecal)			X(w/fecal)	
9/25/2007	11:35	Grab				X	X
10/2/2007	13:40	Grab	X			X	X
10/5/2007	11:50	Grab	X			X	X
10/8/2007	12:46	Grab					X
10/16/2007	8:50	Grab	X	X	X	X	X
10/18/2007	8:50	Grab	X	X	X	X	
10/19/2007	7:33	Grab					X
3/11/2008	14:10	Grab	X(w/fecal)	X(w/fecal)	X(w/fecal)		X(w/fecal)
3/14/2008	14:05	Grab		Can not install equip.		X(w/fecal)	
5/31/2008	19:43	Composite	X(lmtd)				
6/1/2008	19:18	Composite					X(lmtd)
6/5/2008	16:47	Composite	X		X	X(lmtd)	
6/6/2008	1:42	Composite					X
6/12/2008	3:31	Composite	X			X	
7/11/2008	5:01	Composite	X		X(lmtd)		X(lmtd)
7/12/2008	1:21	Composite					X(lmtd)
7/19/2008	16:35	Composite			X(lmtd)		X(lmtd)
7/20/2008	1:50	Composite				X(lmtd)	
8/4/2008	7:58	Composite			X	X(lmtd)	
8/12/2008	20:27	Composite	X(lmtd)		X		
8/28/2008	11:30	Composite			X	X	X
9/6/2008	19:29	Composite	X(lmtd)				9/3, Weir Removed
9/8/2008	9:30	Composite				X(lmtd)	
9/11/2008	12:25	Grab	X(fecal only)		X	X(w/fecal)	
9/23/2008	18:48	Composite	X(lmtd)	X(w/fecal)	X(fecal only)	X(w/fecal)	
10/7/2008	18:10	Composite	X				
10/8/2008	9:41	Composite				X	

X(lmtd) = event sampled with limited parameters generally due to holding times
X(w/fecal) = event sampled with fecal coliform
X(fecal only) = only fecal coliform sampled

It was originally planned for these data to assess and give an indication of the baseline efficacy of the Heritage Park and Heritage Common systems. The Heritage Commons data should provide useful insight when compared to data collected in later years.

Sample dates and lab results are presented in **Table 25.2**. At Heritage Commons the mean inlet versus the mean outlet data show a decrease in all parameters except TDP and NH_3. A probable explanation of

these increases may be due to significant inputs from large waterfowl (Canada geese) populations directly into the pond.

Heritage Park Pond was monitored at the outlet alone. The Heritage Park Pond system was finished before Heritage Commons and had more time to grow plants (terrestrial and wetland) and stabilize (**Figure 25.5**).

Figure 25.5. Heritage Park (pond 3) system after it was established.

The mean, median, standard deviation, maximum, and minimum statistics for all data are presented in **Table 25.3**. These 2007 data were collected during construction and should be interpreted as such and not as indicative of these systems long term effectiveness. In 2008 auto-monitoring gave a more complete data picture of the efficacy and functioning of both Heritage Park Pond and Heritage Commons systems. Auto-monitoring allows for flow weighted composite sample collection which produces a more complete picture than grab samples.

At the Heritage Commons site in 2007 grab samples were collected at both the inlets and at the north outlet for comparison. In 2008 auto-monitoring was installed at all inlets and outlets with the exception of inlet B. Inlet B is a large 42" pipe and could not be installed or rectified to allow monitoring. This is unfortunate since a mass balance "complete picture" cannot be obtained for Heritage Commons without monitoring at inputs and outlets.

Table 25.3 shows a decrease at Heritage Commons with regard to mean export of all parameters except TDP and NH_3. It appears that Heritage Commons is effective in removing significant amounts of Nitrate/Nitrite, TSS and metals from stormwater.

Table 25.4 shows the total volume recorded at the monitored outlet location(s), total pollutant load calculations and kg/day normalized data for Heritage Commons. The total outlet volume recorded for the sampling period 6/3/08 – 8/5/08, 9/7/08 – 9/27/08 was 1,236,155 cubic feet. Both in **Table 25.4** and **Table 25.5** the normalized load data appear to show that Heritage Commons is exporting significantly more pollutants than Heritage Park. The two systems were compared because a mass balance cannot be calculated for Heritage Commons since inlet B could not be installed. Pollutant loadings at Heritage Commons may decrease as it becomes more established. Inlet drainage areas and land use information may be helpful to better understand both systems.

The Heritage Park Pond total outlet volume recorded for the sampling period 7/30/07–11/7/07 was 578,360 cubic feet and 5/8/08 – 9/1/08 was 1,738,815 cubic feet. In comparing years of monitoring in **Table 25.4** and **Table 25.5** the 2008 normalized data show significantly higher export than 2007 in this system. This may be due to the variation of precipitation between years, the seasonality of the monitoring or work being done within this system to rectify structural performance issues. It was noted that the Heritage Park complex has an automatic in-ground sprinkler system which was observed draining directly to the system (7/30/07) which added an unknown dilution volume.

Further comprehensive study will be needed to explore and answer some of the questions raised below. Additional comprehensive auto-monitoring in the future can help better characterize the pre-treatment and pond performance and overall system efficiency. Recommendations for future monitoring include:

- Continue complete inlet and outlet monitoring for these ponds to produce a mass balance.
- Obtain accurate inlet drainage areas and land use data.
- Investigate CDS unit performance and sizing at Heritage Commons inlets A and B.
- Measure depth of pond sediment to ensure proper function in future years.
- Investigate digestion of previously settled organic solids in the pond bottom and possibility of later storm export of it as a dissolved fraction.
- Investigate any effects of in-ground automatic sprinkler systems.
- Investigate any effects of waterfowl on pond water quality.

Table 25.2. Heritage Commons and Heritage Park Pond sampled event data for 2007 - 2008.

Date	Time	Site ID & Location	Sample Type	TP mg/L	TDP mg/L	TKN mg/L	NO_3NO_2 mg/L	NH_3 mg/L	Cl mg/L	Field pH	Sp.Cond. µmhos/cm	F. coli cfu/100mL	cBOD mg/L	TSS mg/L	TDS mg/L	Cu µg/L	Pb µg/L	Zn µg/L
9/18/2007	9:00	Heritage Commons Inlet A	Grab	0.194	0.068	0.949	0.353	<0.500	<2.00		78	8000	4	31	56	7.50	5.50	<50.0
9/21/2007	9:05	Heritage Commons Inlet A	Grab	0.076	n/c	n/c	n/c	n/c	n/c		n/c	900	n/c	n/c	n/c	n/c	n/c	n/c
10/2/2007	13:25	Heritage Commons Inlet A	Grab	0.503	0.129	7.59	0.560	<0.500	8.90		185		10	222	109	17.7	19.0	<50.0
10/5/2007	12:00	Heritage Commons Inlet A	Grab	0.231	0.167	1.31	0.280	<0.500	6.40		213		2	10	232	9.55	<5.00	<50.0
10/16/2007	9:35	Heritage Commons Inlet A	Grab	0.260	0.204	0.539	0.377	<0.500	<2.00		78.0		4	27	40	<5.00	<5.00	<50.0
10/18/2007	8:35	Heritage Commons Inlet A	Grab	0.182	0.079	0.721	0.092	<0.500	<2.00		53		3	38	29	10.2	<5.00	<50.0
3/11/2008	14:10	Heritage Commons Inlet A	Grab	0.950	0.241	3.70	0.797	0.809	1163		2520	50	25	243	1329	27.1	30.3	215
5/31/2008	19:43	Heritage Commons Inlet A	Composite	0.511	n/c	3.11	0.648	n/c	n/c		n/c		n/c	147	n/c	n/c	n/c	n/c
6/5/2008	16:47	Heritage Commons Inlet A	Composite	1.30	0.054	4.43	0.685	1.25	7.50		154		26	563	76	<5.00	32.6	442
6/12/2008	3:31	Heritage Commons Inlet A	Composite	0.262	0.065	1.03	0.412	<0.500	2.10		63		4	20	39	<5.00	8.70	<50.0
7/11/2008	5:01	Heritage Commons Inlet A	Composite	0.841	0.130	3.34	0.395	0.719	3.30		69		10	308	59	29.0	22.4	104
8/12/2008	20:27	Heritage Commons Inlet A	Composite	0.963	n/c	5.77	0.289	n/c	n/c		n/c		n/c	292	47	31.3	28.7	170
9/6/2008	19:29	Heritage Commons Inlet A	Composite	0.673	n/c	3.26	0.407	0.983	3.30		83		n/c	226	61	29.0	23.0	200
9/11/2008	12:25	Heritage Commons Inlet A	Grab									230						
9/23/2008	9:20	Heritage Commons Inlet A	Grab									160						
9/23/2008	18:48	Heritage Commons Inlet A	Composite	0.435	0.121	2.29	0.334	0.723	<2.00		54		7	166	26	16.0	16.0	110
10/7/2008	18:10	Heritage Commons Inlet A	Composite	0.199	0.090	0.946	0.331	<0.500	<2.00		68		5	22	12	9.70	4.10	59.0
9/18/2007	8:50	Heritage Commons Inlet B	Grab	0.279	0.182	0.927	0.366	<0.500	7.30		82	6500	9	18	56	7.30	5.10	<50.0
10/16/2007	9:30	Heritage Commons Inlet B	Grab	0.766	0.582	1.28	0.015	<0.500	<2.00		104		23	36	121	19.0	<5.00	<50.0
10/18/2007	8:31	Heritage Commons Inlet B	Grab	0.380	0.215	0.764	0.037	<0.500	3.80		63		16	39	34	9.30	<5.00	<50.0
3/11/2008	14:00	Heritage Commons Inlet B	Grab	1.42	0.392	7.89	0.810	2.76	1772		6060	420	37	300	3114	39.0	52.2	312
9/23/2008	9:05	Heritage Commons Inlet B	Grab	0.582	0.372	2.53	1.50	<0.500	30.6	7.9	275	64000	27	17	190	16.0	4.40	63.0
10/16/2007	11:00	Heritage Commons Inlet C	Grab	0.165	0.076	1.16	0.688	<0.500	<2.00		89		4	34	56	9.40	<5.00	<50.0
10/18/2007	8:30	Heritage Commons Inlet C	Grab	0.135	0.065	1.28	0.101	<0.500	<2.00		90.2		1	26	28	8.50	<5.00	<50.0
3/11/2008	13:45	Heritage Commons Inlet C	Grab	0.742	0.197	4.08	0.789	1.46	1265		4020	160	15	254	2188	37.0	27.6	101
6/5/2008	18:00	Heritage Commons Inlet C	Composite	1.28	0.055	3.55	0.405	0.556	<2.00		136		3	1306	52	31.3	31.6	200
7/11/2008	20:49	Heritage Commons Inlet C	Composite	1.44	n/c	1.38	0.322	n/c	n/c		n/c		n/c	485	n/c	29.9	24.1	104
7/19/2008	16:35	Heritage Commons Inlet C	Composite	0.306	n/c	1.01	0.133	<0.500	<2.00		56		n/c	166	34	12.7	10.7	<50.0
8/4/2008	0:12	Heritage Commons Inlet C	Composite	0.179	<0.010	1.06	0.253	0.638	<2.00		61		3	120	37	8.30	6.10	<50.0
8/12/2008	19:55	Heritage Commons Inlet C	Composite	0.243	n/c	1.36	0.182	n/c	n/c		n/c		n/c	135	55	15.9	9.10	<50.0
8/28/2008	0:27	Heritage Commons Inlet C	Composite	0.539	0.058	2.24	0.255	0.633	<2.00		93		5	384	193	18.0	29.0	100
9/11/2008	4:37	Heritage Commons Inlet C	Composite	0.175	<0.010	0.839	0.201	<0.500	<2.00		35		4	102	9	9.40	6.40	66.0
9/23/2008	8:50	Heritage Commons Inlet C	Grab									240000						
		Mean Inlet		**0.540**	**0.154**	**2.43**	**0.414**	**0.571**	**171**	**7.9**	**591**	**32042**	**11**	**198**	**307**	**16.6**	**14.8**	**92.7**
8/21/2007	9:55	Heritage Commons Outlet North	Grab	0.322	0.221	2.91	0.171	0.979	29.0		354		3	13	214	5.10	<5.00	55.0
8/27/2007	9:15	Heritage Commons Outlet North	Grab	0.323	0.180	3.12	0.259	2.20	40.3		354		10	27	255	6.90	<5.00	<50.0
8/28/2007	9:50	Heritage Commons Outlet North	Grab	0.449	0.325	2.22	0.347	0.613	15.4		236		5	30	156	<5.00	6.80	<50.0
9/7/2007	8:45	Heritage Commons Outlet North	Grab	0.592	0.362	3.26	0.154	1.75	15.4		266		11	32	187	6.90	<5.00	<50.0
9/18/2007	8:30	Heritage Commons Outlet North	Grab	0.319	0.226	1.84	0.061	0.534	18.0		288	1700	5	20	188	<5.00	<5.00	<50.0
9/21/2007	8:55	Heritage Commons Outlet North	Grab	0.383	0.286	1.75	0.242	0.970	8.40		237	12000	4	18	129	5.20	<5.00	<50.0
9/25/2007	11:35	Heritage Commons Outlet North	Grab	0.491	0.336	1.89	0.109	0.570	9.90		265		5	44	26	6.60	<5.00	<50.0
10/2/2007	13:40	Heritage Commons Outlet North	Grab	0.438	0.299	1.97	0.078	0.250	14.9		282		3	38	186	5.70	<5.00	<50.0
10/5/2007	11:50	Heritage Commons Outlet North	Grab	0.414	0.320	1.31	0.148	0.250	13.1		269		3	20	218	<5.00	<5.00	<50.0
10/16/2007	8:50	Heritage Commons Outlet North	Grab	0.439	0.338	1.43	0.107	0.682	14.1		310		2	13	208	<5.00	<5.00	<50.0
10/18/2007	8:50	Heritage Commons Outlet North	Grab	0.400	0.318	1.40	0.136	0.637	13.6		301		3	7	192	6.30	<5.00	<50.0
3/14/2008	14:05	Heritage Commons Outlet North	Grab	0.886	0.624	3.91	0.582	1.74	220		894	220	15	32	513	15.7	6.30	<50.0
6/5/2008	22:31	Heritage Commons Outlet North	Composite	0.780	n/c	1.42	0.379	<0.500	64.0		457		4	16	237	<5.00	<5.00	<50.0
6/12/2008	6:45	Heritage Commons Outlet North	Composite	0.300	0.259	3.48	0.079	0.553	190		916		3	51	478	7.10	<5.00	<50.0
7/20/2008	1:50	Heritage Commons Outlet North	Composite	0.296	n/c	1.40	<0.030	<0.500	n/c		n/c		n/c	9	190	12.3	<5.00	<50.0
8/4/2008	7:58	Heritage Commons Outlet North	Composite	0.413	n/c	n/c	<0.030	n/c	n/c		n/c		6	16	400	6.20	<5.00	<50.0
8/28/2008	11:30	Heritage Commons Outlet North	Composite	0.412	0.243	3.31	0.128	1.08	112		539		14	36	345	10.0	<3.00	39.0
9/8/2008	9:30	Heritage Commons Outlet North	Composite	0.531	0.327	n/c	<0.030	n/c	92.6		494		n/c	32	327	10.0	<3.00	22.0
9/11/2008	14:14	Heritage Commons Outlet North	Composite	0.940	0.396	7.54	<0.030	3.26	92.6	8.8	482	3800	47	79	297	12.0	<3.00	32.0
9/23/2008	21:33	Heritage Commons Outlet North	Composite	0.713	0.279	7.25	<0.030	0.745	72.7	8.8	456	4000	40	74	256	10.0	<3.00	30.0
10/8/2008	9:41	Heritage Commons Outlet North	Composite	0.288	0.150	2.03	0.068	0.814	72.7		438		3	14	216	88.0	<3.00	26.0
		Mean Outlet		**0.482**	**0.305**	**2.81**	**0.149**	**0.954**	**58.4**	**8.8**	**413**	**4344**	**10**	**30**	**248**	**10.8**	**2.65**	**27.6**
8/11/2007	23:00	Heritage Park North Outlet	Composite	0.400	n/c	2.02	n/c	n/c	n/c		304		n/c	59	n/c	17.2	5.95	<50.0
8/14/2007	7:51	Heritage Park North Outlet	Composite	0.457	0.171	1.65	0.271	0.580	9.90		202		21	138	133	18.0	<5.00	<50.0
8/19/2007	21:45	Heritage Park North Outlet	Composite	0.346	0.182	1.18	0.147	<0.500	12.9		222		3	36	158	9.30	5.60	<50.0
8/21/2007	9:03	Heritage Park North Outlet	Composite	0.331	0.174	2.02	0.240	<0.500	10.4		245		4	46	132	13.7	8.40	<50.0
8/27/2007	7:29	Heritage Park North Outlet	Composite	0.284	0.112	1.06	0.069	<0.500	n/c		194		11	38	n/c	7.40	5.70	<50.0
8/28/2007	5:00	Heritage Park North Outlet	Composite	0.603	0.179	1.74	0.361	<0.500	7.40		156		4	276	94	25.9	5.60	<50.0
9/7/2007	6:00	Heritage Park North Outlet	Composite	0.338	0.136	1.24	0.210	<0.500	16.5		247		6	57	148	7.60	<5.00	<50.0
9/18/2007	22:50	Heritage Park North Outlet	Composite	0.334	0.165	0.894	0.234	<0.500	8.90		172		3	59	99	12.3	8.40	<50.0
9/20/2007	23:32	Heritage Park North Outlet	Composite	0.459	0.153	n/c	0.333	n/c	4.30		150	8000	n/c	137	107	15.1	21.1	<50.0
9/25/2007	14:15	Heritage Park North Outlet	Composite	0.369	0.147	1.06	0.241	<0.500	10.9		207		5	83	129	13.3	13.9	<50.0
10/2/2007	19:17	Heritage Park North Outlet	Composite	0.302	0.133	n/c	0.097	n/c	n/c		n/c		n/c	35	147	n/c	n/c	n/c
10/5/2007	9:02	Heritage Park North Outlet	Composite	0.364	n/c	1.16	0.209	<0.500	10.5		234		n/c	70	154	10.0	7.80	<50.0
10/8/2007	12:46	Heritage Park North Outlet	Composite	0.394	0.244	3.18	0.113	<0.500	8.50		254		11	35	160	9.80	<5.00	<50.0
10/16/2007	20:59	Heritage Park North Outlet	Composite	0.298	0.151	n/c	n/c	n/c	n/c		n/c		n/c	41	n/c	n/c	n/c	n/c
10/19/2007	7:33	Heritage Park North Outlet	Composite	0.306	n/c	0.689	0.303	<0.500	10.0		226		n/c	46	128	10.4	5.30	<50.0
3/11/2008	14:20	Heritage Park North Outlet	Grab	0.902	0.421	3.89	0.926	1.27	1062		3680	40	15	153	2019	41.7	27.3	188
6/1/2008	19:18	Heritage Park North Outlet	Composite	0.293	n/c	1.34	0.084	n/c	n/c		n/c		n/c	16	n/c	n/c	n/c	n/c
6/6/2008	1:42	Heritage Park North Outlet	Composite	0.200	0.144	1.06	<0.030	0.597	224		1024		2	4	541	<5.00	<5.00	65.0
7/11/2008	7:03	Heritage Park North Outlet	Composite	0.333	n/c	1.60	0.193	n/c	n/c		n/c		n/c	20	245	19.6	<5.00	62.0
7/12/2008	1:21	Heritage Park North Outlet	Composite	0.321	n/c	1.56	0.164	n/c	n/c		n/c		n/c	31	n/c	9.50	<5.00	62.0
7/19/2008	20:06	Heritage Park North Outlet	Composite	0.465	n/c	1.65	<0.030	<0.500	n/c		n/c		n/c	25	398	13.9	<5.00	<50.0
8/28/2008	6:47	Heritage Park North Outlet	Composite	0.437	0.106	2.36	<0.030	0.901	10.7		174		12	98	121	14.0	14.0	90.0
		Mean Outlet		**0.388**	**0.175**	**1.65**	**0.212**	**0.407**	**100**		**481**	**4020**	**8**	**68**	**289**	**14.3**	**7.71**	**43.0**

Note: n/c = not collected due to limited sample volume or expired holding time.

Table 25.3. Concentration statistics for Heritage Commons and Heritage Park Pond in 2007- 2008.

Site Location	Statistical Function	TP mg/L	TDP mg/L	TKN mg/L	NO_3NO_2 mg/L	NH_3 mg/L	Cl mg/L	Field pH	Sp.Cond. µm	F. Coli cfu/100mL	cBOD mg/L	TSS mg/L	TDS mg/L	Cu µg/L	Pb µg/L	Zn µg/L
Heritage Commons Inlet A	**MEAN**	0.505	0.123	2.78	0.426	0.520	100		302	1868	9	165	163	15.0	15.2	112
Heritage Commons Inlet A	**MEDIAN**	0.435	0.121	2.70	0.386	0.250	3		78	230	5	157	56	10.2	16.0	59.0
Heritage Commons Inlet A	**STDEV**	0.364	0.061	2.11	0.186	0.360	335		701	3444	9	159	355	10.9	11.5	122
Heritage Commons Inlet A	**MAXIMUM**	1.30	0.241	7.59	0.797	1.25	1163		2520	8000	26	563	1329	31.3	32.6	442
Heritage Commons Inlet A	**MINIMUM**	0.076	0.054	0.539	0.092	0.250	1		53	50	2	10	12	2.50	2.50	25.0
Heritage Commons Inlet A	**NUMBER**	15	11	14	14	12	12		12	5	11	14	13	13	13	13
Heritage Commons Inlet B	**MEAN**	0.685	0.349	2.68	0.546	0.752	363	7.9	1317	23640	23	82	703	18.1	13.3	90.0
Heritage Commons Inlet B	**MEDIAN**	0.582	0.372	1.28	0.366	0.250	7	7.9	104	6500	23	36	121	16.0	4.40	25.0
Heritage Commons Inlet B	**STDEV**	0.451	0.160	2.99	0.623	1.12	788		2653	35085	11	122	1349	12.6	21.8	125
Heritage Commons Inlet B	**MAXIMUM**	1.42	0.582	7.89	1.50	2.76	1772	7.9	6060	64000	37	300	3114	39.0	52.2	312
Heritage Commons Inlet B	**MINIMUM**	0.279	0.182	0.764	0.015	0.250	1	7.9	63	420	9	17	34	7.30	2.50	25.0
Heritage Commons Inlet B	**NUMBER**	5	5	5	5	5	5	1	5	3	5	5	5	5	5	5
Heritage Commons Inlet C	**MEAN**	0.520	0.066	1.80	0.333	0.536	159		573	120080	5	301	295	18.0	15.0	69.6
Heritage Commons Inlet C	**MEDIAN**	0.275	0.058	1.32	0.254	0.403	1		90	120080	4	151	52	14.3	9.90	46
Heritage Commons Inlet C	**STDEV**	0.484	0.064	1.14	0.232	0.414	447		1393	169592	4	383	712	10.8	11.7	57.8
Heritage Commons Inlet C	**MAXIMUM**	1.44	0.197	4.08	0.789	1.46	1265		4020	240000	15	1306	2188	37.0	31.6	200
Heritage Commons Inlet C	**MINIMUM**	0.135	0.005	0.84	0.101	0.250	1		35	160	1	26	9	8.30	2.50	25.0
Heritage Commons Inlet C	**NUMBER**	10	7	10	10	8	8		8	2	7	10	9	10	10	10
Heritage Commons Outlet North	**MEAN**	0.482	0.305	2.81	0.149	0.954	58	8.8	413	4344	10	30	248	10.8	2.65	27.6
Heritage Commons Outlet North	**MEDIAN**	0.414	0.309	2.03	0.109	0.682	29	8.8	354	3800	5	27	216	6.60	2.50	25.0
Heritage Commons Outlet North	**STDEV**	0.193	0.102	1.81	0.145	0.780	62		198	4556	12	20	114	18.1	1.37	7.22
Heritage Commons Outlet North	**MAXIMUM**	0.940	0.624	7.54	0.582	3.26	220	8.8	916	12000	47	79	513	88.0	6.80	55.0
Heritage Commons Outlet North	**MINIMUM**	0.288	0.150	1.31	0.015	0.250	8	8.8	236	220	2	7	26	2.50	1.50	22.0
Heritage Commons Outlet North	**NUMBER**	21	18	19	21	19	19	2	19	5	19	21	21	21	21	21
Heritage Park North Outlet	**MEAN**	0.388	0.175	1.65	0.212	0.407	100		481	4020	8	68	289	14.3	7.71	43.0
Heritage Park North Outlet	**MEDIAN**	0.342	0.153	1.56	0.201	0.250	10		224	4020	6	46	147	13.3	5.60	25.0
Heritage Park North Outlet	**STDEV**	0.142	0.076	0.797	0.198	0.308	283		878	5629	6	62	461	8.42	6.89	40.1
Heritage Park North Outlet	**MAXIMUM**	0.902	0.421	3.89	0.926	1.27	1062		3680	8000	21	276	2019	41.7	27.3	188
Heritage Park North Outlet	**MINIMUM**	0.200	0.106	0.689	0.015	0.250	4		150	40	2	4	94	2.50	2.50	25.0
Heritage Park North Outlet	**NUMBER**	22	15	19	20	15	14		16	2	12	22	17	19	19	19

Table 25.4. The calculated pollutant export load(s), volume(s) and kg/day calculation data for the 2008 Heritage Commons and 2007-2008 Heritage Park Outlet systems. The "normalized" loads for comparison purposes are the total kilograms exported divided by the number of days monitored. n/c = not collected.

Location	Dates	Total Cubic Feet	TP kg	TDP kg	TKN kg	NO_3NO_2 kg	NH_3 kg	Cl kg	F. coli cfu	cBOD kg	TSS kg	TDS kg	Cu kg	Pb kg	Zn kg
Heritage Commons Outlet-North 2008	**6/3/08 - 8/5/08, 9/7/08 - 9/27/08**	1,236,155	19.4	11.4	133	4.59	38.0	4008	93522	570	1254	11401	0.608	0.083	0.959
	83 days	**kg/day**	**0.234**	**0.137**	**1.60**	**0.055**	**0.458**	**48.3**	**1127**	**7**	**15**	**137**	**0.007**	**0.001**	**0.012**
Heritage Park Outlet 2007	**7/30/07 - 11/7/07**	578,360	6.09	2.66	24.4	3.56	4.58	164	130941	125	1263	2167	0.214	0.120	0.409
	100 days	**kg/day**	**0.061**	**0.027**	**0.244**	**0.036**	**0.046**	**1.64**	**1309**	**1**	**13**	**22**	**0.002**	**0.001**	**0.004**
Heritage Park Outlet 2008	**5/8/08 - 9/1/08**	1,738,815	16.8	6.15	78.5	3.99	28.7	5775	n/c	328	1595	16054	0.586	0.236	2.99
	116 days	**kg/day**	**0.145**	**0.053**	**0.677**	**0.034**	**0.247**	**49.8**		**3**	**14**	**138**	**0.005**	**0.002**	**0.026**

Table 25.5. The "normalized" export load data for 2008 Heritage Commons and 2007-2008 Heritage Park Outlet systems. The "normalized" data are the total milligrams exported/the number of acres drained to each system/the number of inches of precipitation measured during the monitoring period. n/c = not collected.

Drainage Area and Precipitation - Normalization		TP	TDP	TKN	NO_3NO_2	NH_3	Cl	F. coli	cBOD	TSS	TDS	Cu	Pb	Zn
Heritage Commons Outlet-North 2008	mg exported/acres drained/inches rain	30.4	17.8	207	7.16	59.4	6259	146050	891	1959	17805	0.950	0.130	1.50
Heritage Park Outlet 2007	mg exported/acres drained/inches rain	1.56	0.679	6.24	0.910	1.17	42	33480	32	323	554	0.055	0.031	0.105
Heritage Park Outlet 2008	mg exported/acres drained/inches rain	10.3	3.77	48.1	2.45	17.6	3543	n/c	201	979	9849	0.359	0.145	1.84

2008 ANNUAL POLLUTANT LOADINGS BY RECEIVING WATER

2008 ANNUAL POLLUTANT LOADINGS BY RECEIVING WATER - KILOGRAMS PER YEAR (estimated using FLUX)

WATERSHED	RUNOFF	AREA	BOD	TSS	TDS	TKN	NH3-N	NO2-NO3	TP	TDP	Cu	Pb	Zn
	COEFF.		mg\l	mg\l	mg\l	mg\l	mg\l	mg\l	mg\l	mg\l	mg\l	mg\l	mg\l
Mean Flow Weighted Mean Concentration - all 2008 sites			25.00	148	507	3.22	0.966	0.582	0.486	0.139	0.016	0.028	0.132
Mississippi River (Minneapolis)	0.46	18077	406,968.5	2,409,253.7	8,253,321.7	52,417.5	15,725.3	9,474.2	7,911.5	2,262.7	265.3	455.8	2,148.8
Shingle Creek	0.44	1365	29,513.6	174,720.4	1,554,650.8	3,801.3	1,140.4	687.1	573.7	164.1	19.2	33.1	155.8
Ryan Lake (Minneapolis)	0.45	49	1,095.3	6,484.4	57,698.2	141.1	42.3	25.5	21.3	6.1	0.7	1.2	5.8
Bassett Creek	0.44	2293	49,327.5	292,018.6	2,598,362.4	6,353.4	1,906.0	1,148.3	958.9	274.3	32.2	55.2	260.4
New Bassett Creek Tunnel	0.45	219	4,805.7	28,449.8	253,144.2	619.0	185.7	111.9	93.4	26.7	3.1	5.4	25.4
Brownie Lake (Minneapolis)	0.45	34	742.0	4,392.5	39,084.0	95.6	28.7	17.3	14.4	4.1	0.5	0.8	3.9
Cedar Lake (Minneapolis)	0.38	224	4,114.3	24,356.8	216,725.1	529.9	159.0	95.8	80.0	22.9	2.7	4.6	21.7
Lake of the Isles	0.42	760	15,657.2	92,690.6	824,754.7	2,016.6	605.0	364.5	304.4	87.1	10.2	17.5	82.7
Lake Calhoun (Minneapolis)	0.46	1249	27,931.5	165,354.4	1,471,313.1	3,597.6	1,079.3	650.2	543.0	155.3	18.2	31.3	147.5
Cemetary Lake	0.60	205	5,953.6	35,245.3	313,610.8	766.8	230.0	138.6	115.7	33.1	3.9	6.7	31.4
Sanctuary Pond	0.60	68	1,983.4	11,741.5	104,475.1	255.5	76.6	46.2	38.6	11.0	1.3	2.2	10.5
Lake Harriet	0.46	863	19,544.1	115,700.9	1,029,498.8	2,517.3	755.2	455.0	379.9	108.7	12.7	21.9	103.2
Hart Lake (Minneapolis)	0.55	3	77.2	456.9	4,065.3	9.9	3.0	1.8	1.5	0.4	0.1	0.1	0.4
Silver Lake (Minneapolis)	0.44	28	604.3	3,577.2	31,830.1	77.8	23.3	14.1	11.7	3.4	0.4	0.7	3.2
Crystal Lake (Minneapolis)	0.45	469	10,328.8	61,146.4	544,077.0	1,330.3	399.1	240.5	200.8	57.4	6.7	11.6	54.5
Legion Lake (Minneapolis)	0.45	49	1,086.9	6,434.6	57,255.0	140.0	42.0	25.3	21.1	6.0	0.7	1.2	5.7
Richfield Lake (Minneapolis)	0.32	715	11,184.9	66,214.5	589,172.1	1,440.6	432.2	260.4	217.4	62.2	7.3	12.5	59.1
Minnehaha Creek	0.44	3213	69,310.0	410,315.3	3,650,959.0	8,927.1	2,678.1	1,613.5	1,347.4	385.4	45.2	77.6	366.0
Diamond Lake	0.47	685	15,604.0	92,375.6	821,952.4	2,009.8	602.9	363.3	303.3	86.8	10.2	17.5	82.4
Lake Nokomis	0.40	620	12,170.7	72,050.8	641,103.6	1,567.6	470.3	283.3	236.6	67.7	7.9	13.6	64.3
Taft Lake	0.37	100	1,789.7	10,595.1	94,274.6	230.5	69.2	41.7	34.8	10.0	1.2	2.0	9.4
Mother Lake (Minneapolis)	0.48	49	1,154.3	6,833.4	60,803.1	148.7	44.6	26.9	22.4	6.4	0.8	1.3	6.1
Unnamed Wetland W of Mother Lake	0.41	41	815.3	4,826.3	42,944.5	105.0	31.5	19.0	15.8	4.5	0.5	0.9	4.3
Lake Hiawatha	0.46	1008	22,631.5	133,978.3	1,192,130.5	2,914.9	874.5	526.9	440.0	125.8	14.8	25.3	119.5
Birch Pond	0.10	31	152.4	902.1	8,026.4	19.6	5.9	3.5	3.0	0.8	0.1	0.2	0.8
Powderhorn Lake	0.46	286	6,436.9	38,106.6	339,070.3	829.1	248.7	149.9	125.1	35.8	4.2	7.2	34.0
Grass Lake	0.46	386	8,639.0	51,143.0	455,067.0	1,112.7	333.8	201.1	167.9	48.0	5.6	9.7	45.6
Unnamed Wetland on Hwy 62	0.47	17	389.3	2,304.4	20,504.8	50.1	15.0	9.1	7.6	2.2	0.3	0.4	2.1
Unnamed Wetland on Ewing Ave S	0.47	22	496.4	2,938.8	26,149.0	63.9	19.2	11.6	9.7	2.8	0.3	0.6	2.6
ANNUAL TOTAL KILOGRAMS - Minneapolis		33,127.7	730,508.2	4,324,608.3	25,296,023.5	94,089.4	28,226.8	17,006.2	14,201.1	4,061.6	476.3	818.2	3,857.1

National Weather Service, Annual Precipitation =22.38 inches 0.57 meters

ESTIMATES OF ANNUAL AND SEASONAL POLLUTANT LOADS

Statistics for event mean concentrations were calculated using Microsoft Excel spreadsheets. FLUX and P8 were used to calculate flow-weighted mean concentrations and snowmelt runoffs respectively.

All flow weighted mean concentrations were calculated using the model FLUX. FLUX calculates total mass discharge and associated error statistics based on six different calculation methods. Calculation methods 1-Direct Mean Loading and 5-Regression, Second-Order were ignored because they are inappropriate for storm sewer applications where the daily flow file contains a significant number of zero flows (Bruce Wilson, personal communication, 2001). Sample concentrations and associated daily average flows were used as input for these calculations. In order to achieve the most accurate and precise results, the data was often stratified by flow or by season.

The model P8 was used to calculate daily flows for the snowmelt events during January through April. Daily temperature and hourly precipitation files obtained from the National Oceanic and Atmospheric Administration (NOAA) National Data Center (NNDC) were used as input for P8.

A description of FLUX as described in the FLUX manual (Walker 1996):

> "FLUX is an interactive program designed for use in estimating the loadings of nutrients or other water quality components passing a tributary sampling station over a given period of time. These estimates can be used in formulating reservoir nutrient balances over annual or seasonal averaging periods appropriate for application of empirical eutrophication models.
>
> Using six calculation techniques, FLUX maps the flow/concentration relationship developed from the sample record onto the entire flow record to calculate total mass discharge and associated error statistics. In many cases, stratifying the data increases the accuracy and precision of loading estimates."

A description of P8 as described in the software's introduction:

> "P8 is a model for predicting the generation and transport of stormwater runoff pollutants in small urban catchments. Simulations are driven by hourly rainfall and daily air-temperature time series."

The following formula was used to calculate the total annual pollutant load. Conversion factors were used to convert acres to square meters and adjust units for concentration.

$$L = [(P)\ (Pj)\ (Rv)\ (C/1000)\ (A*4046.9)]$$

where: L = seasonal pollutant load, kilograms/season
P = seasonal precipitation, inches/season (meters/season)
Pj = correction factor for storms which do not produce runoff = 0.85
Rv = runoff coefficient

C = median event mean concentration of pollutants, mg/L
A = area, acres
Conversion factors 4046.9 for acres to square meters
1000 for liters to cubic meters

The flow weighted mean concentration (FWMC) expressed as a mean of all sites was used for the annual load estimation calculations as it most accurately reflects storm water loadings on an annual basis. The seasonal loadings were calculated from the pooled data using the median event mean concentration as there were too few data points from each watershed to use FLUX to determine with a reasonable degree of accuracy a seasonal FWMC for each site. The median of the data set is a better representation of the runoff data than the mean values (Bannerman et al., 1992). The annual load and a summation of the seasonal loads will not be equal due to this difference in calculation methods.

Seasonal loads were calculated on the following basis.

Season	Inclusive dates	Precipitation for period
Winter/snowmelt	01/01/08 – 03/31/08	2.52 inches (0.064 m)
Spring	04/01/08 – 05/31/08	5.65 inches (0.144 m)
Summer	06/01/08 – 08/31/08	8.18 inches (0.208 m)
Fall	09/01/08 – 12/31/08	6.03 inches (0.153 m)

$$L = [(P)\ (Pj)\ (Rv)\ (C/1000)\ (A*4046.9)]$$

where: L = seasonal pollutant load, kilograms/season
P = seasonal precipitation, inches/season (meters/season)
Pj = correction factor for storms which do not produce runoff = 0.85
Rv = runoff coefficient
C = median event mean concentration of pollutants, mg/L
A = area, acres
Conversion factors 4046.9 for acres to square meters
1000 for liters to cubic meters

Flow-weighted mean concentrations and related statistics for NPDES parameters in 2008. FWMC= Flow Weighted Mean Concentration, CV= Coefficient of Variance. STANDEV= standard deviation.

Site	TP (mg/L)	TDP (mg/L)	TKN (mg/L)	NH_3 (mg/L)	NO_3NO_2 (mg/L)	Cl* (mg/L)	cBOD (mg/L)	TSS (mg/L)	TDS* (mg/L)	Cu (µg/L)	Pb (µg/L)	Zn (µg/L)
6	0.402	0.088	2.55	0.784	0.393	21	57	108	82	11	65	112
7	0.350	0.058	2.01	0.706	0.605	122	8	101	1244	23	27	153
8a	0.598	0.286	3.47	0.796	0.647	24	21	119	120	6	6	47
9	0.594	0.123	4.86	1.578	0.682	390	13	263	584	25	14	214
MEAN	**0.486**	**0.139**	**3.22**	**0.966**	**0.582**	**139**	**25**	**148**	**507**	**16.3**	**28.0**	**132**
MEDIAN	**0.498**	**0.106**	**3.01**	**0.790**	**1.48**	**73**	**17**	**114**	**352**	**17.0**	**20.5**	**133**
STANDEV	**0.129**	**0.102**	**1.25**	**0.410**	**0.130**	**174**	**22**	**77**	**541**	**9.22**	**26.1**	**70.2**

*** Flow-weighted mean concentrations for Cl and TDS were difficult to estimate using FLUX due to large outliers from the one snowmelt sample, these estimates should be used with discretion.**

Statistical summary for event mean concentrations by season in 2008. Statistics were calculated from all sites (6-9). STDEV= standard deviation, COV= coefficient of variance.

2008 Season	Statistical Function	TP mg/L	TDP mg/L	TKN mg/L	NO_3NO_2 mg/L	NH_3 mg/L	Cl mg/L	Field pH	Sp.Cond. µmhos/cm	F. coli cfu/100mL	cBOD mg/L	TSS mg/L	TDS mg/L	Cu µg/L	Pb µg/L	Zn µg/L
SNOWMELT (February-March)	**MEAN (geometric)**	1.28	0.590	13.6	2.00	3.42	2423	8.4	8183	179	58	197	4488	30.1	11.3	214
	MEAN (arithmetic)	1.51	0.783	22.3	2.10	3.97	5911	8.4	19491	293	61	261	9355	57.1	39.6	358
	MAX	2.93	1.73	63.8	3.28	7.64	12307	10.2	46100	700	87	418	19508	95.2	134	635
	MIN	0.674	0.208	6.42	1.40	1.81	89	7.4	394	32	37	51	268	2.50	2.50	25.0
	MEDIAN	1.21	0.597	9.42	1.87	3.22	5625	8.1	15735	220	60	289	8823	65.3	10.9	387
	STDEV	1.02	0.667	27.8	0.816	2.59	5002	1.2	19169	288	23	178	7889	45.5	63.4	274
	NUMBER	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	COV	0.677	0.852	1.25	0.388	0.651	0.846	0.146	0.983	0.984	0.381	0.681	0.843	0.8	1.6	0.8
SPRING (April-May)	**MEAN (geometric)**	0.494	0.060	4.24	0.496	1.13	3.28	7.7	137	12000	13	139	83	10.4	15.1	54.1
	MEAN (arithmetic)	0.620	0.060	4.77	0.617	1.18	11.8	7.7	151	12000	13	200	91	15.1	40.1	67.2
	MAX	1.25	0.063	7.97	1.01	1.49	48.2	7.7	304	12000	13	417	172	34.0	160	136
	MIN	0.244	0.057	2.50	0.122	0.651	1.00	7.7	96	12000	12	42	50	2.50	2.50	25.0
	MEDIAN	0.401	0.060	3.70	0.610	1.30	1.00	7.7	123	12000	13	180	79	9.00	11.4	62.0
	STDEV	0.455	0.004	2.56	0.357	0.350	20.6		87		0.2	163	48	13.0	67.2	46.8
	NUMBER	5	2	5	5	5	5	1	5	1	2	5	5	5	5	5
	COV	0.735	0.071	0.537	0.579	0.296	1.74		0.574		0.017	0.813	0.526	0.865	1.67	0.696
SUMMER (June-August)	**MEAN (geometric)**	0.476	0.072	2.38	0.291	0.574	2.84	9.0	79	5429	9	156	45	11.1	22.6	113
	MEAN (arithmetic)	0.508	0.085	2.63	0.412	0.757	23.8	9.0	95	9000	10	184	58	17.7	33.8	133
	MAX	0.950	0.240	6.35	1.28	2.75	306	10.1	309	16000	30	483	200	40.0	121	290
	MIN	0.214	0.029	0.843	0.015	0.250	1.00	8.2	35	1000	3	37	4	2.50	2.50	25.0
	MEDIAN	0.493	0.068	2.31	0.423	0.555	1.00	8.7	61	10000	8	179	46	20.2	20.9	127
	STDEV	0.191	0.055	1.32	0.284	0.666	78.2	1.0	70	7550	7	109	44	13.6	31.6	70.0
	NUMBER	16	15	16	16	15	15	3	15	3	15	16	16	16	16	16
	COV	0.375	0.640	0.500	0.691	0.881	3.29	0.109	0.740	0.839	0.693	0.589	0.765	0.769	0.934	0.527
FALL (Sept-Nov)	**MEAN (geometric)**	0.294	0.083	1.74	0.427	0.497	1.91	8.6	69	2759	7	70	39	16.3	11.7	102
	MEAN (arithmetic)	0.340	0.099	1.97	0.440	0.728	4.18	8.6	83	3500	8	115	53	19.0	16.0	124
	MAX	0.768	0.196	3.74	0.675	2.52	16.7	8.9	180	7000	16	380	139	42.0	36.0	290
	MIN	0.091	0.024	0.636	0.280	0.250	1.00	8.2	34	1500	2	14	9	7.40	2.50	37.0
	MEDIAN	0.284	0.090	1.60	0.403	0.323	1.00	8.7	57	2000	7	51	40	16.0	17.0	84.0
	STDEV	0.198	0.056	1.00	0.117	0.774	6.09	0.4	59	3041	4	131	43	11.1	11.3	83.3
	NUMBER	9	8	9	9	9	8	3	8	3	7	9	9	9	9	9
	COV	0.583	0.567	0.509	0.267	1.06	1.46	0.042	0.711	0.869	0.534	1.14	0.808	0.587	0.705	0.674

Supporting Documents

Bannerman, R.T., D.W. Owens, R. Dodds, and P. Hughes. 1992. Sources of Pollutants in Wisconsin Stormwater. WI Dept. of Natural Resources, Madison, WI.

Walker, W. W., 1996. *Simplified Procedures for Eutrophication Assessment and Prediction: User Manual*. Instruction Report W-96-2, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

2008 POLLUTANT LOADINGS BY OUTFALL

2008 POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS PER YEAR (estimated using FLUX

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Mean Flow Weighted Mean Concentration - all 2008 sites			25.00	148	507	3.22	0.966	0.582	0.486	0.139	0.016	0.028	0.132
Precipitation (meters)	**0.568452**												
10-010	0.43	113.55	2,394.8	14,177.0	48,565.8	308.4	92.5	55.8	46.6	13.3	1.6	2.7	12.6
10-020	0.45	7.81	171.8	1,017.1	3,484.2	22.1	6.6	4.0	3.3	1.0	0.1	0.2	0.9
10-030	0.10	4.05	19.8	117.2	401.5	2.6	0.8	0.5	0.4	0.1	0.0	0.0	0.1
10-040	0.45	167.42	3,657.4	21,651.7	74,171.7	471.1	141.3	85.1	71.1	20.3	2.4	4.1	19.3
10-050	0.46	114.18	2,540.8	15,041.6	51,527.6	327.3	98.2	59.2	49.4	14.1	1.7	2.8	13.4
10-060	0.60	10.5	308.0	1,823.2	6,245.7	39.7	11.9	7.2	6.0	1.7	0.2	0.3	1.6
10-070	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-080	0.38	30.66	572.8	3,390.7	11,615.5	73.8	22.1	13.3	11.1	3.2	0.4	0.6	3.0
10-090A	0.00	0.85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-090B	0.00	1.48	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-090C	0.54	12.77	338.0	2,001.2	6,855.6	43.5	13.1	7.9	6.6	1.9	0.2	0.4	1.8
10-090D	0.00	4.68	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-100	0.36	1392.1	24,684.2	146,130.3	500,595.1	3,179.3	953.8	574.6	479.9	137.2	16.1	27.6	130.3
10-110	0.47	300.11	6,844.5	40,519.3	138,805.9	881.6	264.5	159.3	133.1	38.1	4.5	7.7	36.1
10-120A/B	0.44	372.78	7,931.9	46,956.6	160,857.9	1,021.6	306.5	184.7	154.2	44.1	5.2	8.9	41.9
10-130	0.45	336.46	7,426.5	43,965.1	150,610.0	956.5	287.0	172.9	144.4	41.3	4.8	8.3	39.2
10-140a	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-140a,b	0.58	220.65	6,206.9	36,744.6	125,875.0	799.4	239.8	144.5	120.7	34.5	4.0	7.0	32.8
10-150	0.47	157.15	3,602.0	21,323.9	73,048.9	463.9	139.2	83.9	70.0	20.0	2.3	4.0	19.0
10-160	0.00	17	2.1	12.3	42.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0
10-170	0.50	176.01	4,329.9	25,632.8	87,809.7	557.7	167.3	100.8	84.2	24.1	2.8	4.8	22.9
10-180	0.45	284.26	6,188.1	36,633.7	125,495.1	797.0	239.1	144.1	120.3	34.4	4.0	6.9	32.7
10-190	0.59	14.58	421.8	2,496.8	8,553.3	54.3	16.3	9.8	8.2	2.3	0.3	0.5	2.2
10-200	0.40	42.44	823.7	4,876.5	16,705.2	106.1	31.8	19.2	16.0	4.6	0.5	0.9	4.3
10-210	0.49	98.32	2,362.7	13,987.2	47,915.5	304.3	91.3	55.0	45.9	13.1	1.5	2.6	12.5
10-220	0.56	18.83	514.6	3,046.6	10,436.8	66.3	19.9	12.0	10.0	2.9	0.3	0.6	2.7
10-230	0.47	235.02	5,430.8	32,150.6	110,137.6	699.5	209.8	126.4	105.6	30.2	3.5	6.1	28.7
10-240	0.51	103.83	2,607.5	15,436.1	52,879.2	335.8	100.8	60.7	50.7	14.5	1.7	2.9	13.8
10-250	0.49	242.96	5,806.1	34,372.4	117,748.5	747.8	224.3	135.2	112.9	32.3	3.8	6.5	30.7
10-260	0.56	23.77	647.4	3,832.6	13,129.3	83.4	25.0	15.1	12.6	3.6	0.4	0.7	3.4
10-270	0.47	72.45	1,678.3	9,935.2	34,034.9	216.2	64.8	39.1	32.6	9.3	1.1	1.9	8.9
10-280	0.44	55.08	1,195.0	7,074.5	24,235.1	153.9	46.2	27.8	23.2	6.6	0.8	1.3	6.3
10-290	0.10	6.83	33.4	197.7	677.1	4.3	1.3	0.8	0.6	0.2	0.0	0.0	0.2
10-300	0.36	17.74	312.7	1,851.2	6,341.8	40.3	12.1	7.3	6.1	1.7	0.2	0.4	1.7
10-310	0.47	60.29	1,391.8	8,239.4	28,225.5	179.3	53.8	32.4	27.1	7.7	0.9	1.6	7.3
10-320	0.45	341.99	7,552.7	44,712.2	153,169.6	972.8	291.8	175.8	146.8	42.0	4.9	8.5	39.9
10-330	0.35	21.61	371.4	2,198.7	7,532.1	47.8	14.4	8.6	7.2	2.1	0.2	0.4	2.0
10-340	0.45	20.74	457.5	2,708.2	9,277.5	58.9	17.7	10.6	8.9	2.5	0.3	0.5	2.4
10-350	0.60	28.16	824.4	4,880.7	16,719.8	106.2	31.9	19.2	16.0	4.6	0.5	0.9	4.4
10-360	0.59	29.02	840.8	4,977.4	17,051.0	108.3	32.5	19.6	16.3	4.7	0.5	0.9	4.4
10-370	0.59	14.46	416.8	2,467.2	8,451.8	53.7	16.1	9.7	8.1	2.3	0.3	0.5	2.2
10-380	0.45	14.38	312.9	1,852.6	6,346.5	40.3	12.1	7.3	6.1	1.7	0.2	0.4	1.7
10-390	0.49	41.97	1,011.6	5,988.8	20,515.7	130.3	39.1	23.6	19.7	5.6	0.7	1.1	5.3
10-400A	0.10	1.07	5.2	31.0	106.1	0.7	0.2	0.1	0.1	0.0	0.0	0.0	0.0
10-400B	0.47	17.66	407.1	2,410.2	8,256.6	52.4	15.7	9.5	7.9	2.3	0.3	0.5	2.1
10-400C	0.57	50.25	1,389.8	8,227.8	28,185.8	179.0	53.7	32.4	27.0	7.7	0.9	1.6	7.3
10-410A	0.50	46.22	1,124.8	6,659.0	22,811.6	144.9	43.5	26.2	21.9	6.3	0.7	1.3	5.9
10-410B	0.32	21.29	329.3	1,949.4	6,678.1	42.4	12.7	7.7	6.4	1.8	0.2	0.4	1.7
10-410C	0.53	22.8	588.3	3,482.6	11,930.3	75.8	22.7	13.7	11.4	3.3	0.4	0.7	3.1
10-410D	0.60	27.34	802.2	4,749.2	16,269.2	103.3	31.0	18.7	15.6	4.5	0.5	0.9	4.2
10-410E	0.58	256.04	7,202.4	42,638.0	146,064.1	927.7	278.3	167.7	140.0	40.0	4.7	8.1	38.0
10-410F	0.59	37.92	1,090.4	6,455.2	22,113.4	140.4	42.1	25.4	21.2	6.1	0.7	1.2	5.8
10-420A	0.27	23.05	307.1	1,817.8	6,227.2	39.5	11.9	7.1	6.0	1.7	0.2	0.3	1.6
10-420B	0.00	10.06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-420C	0.00	7.42	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-420D	0.00	20.73	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-420E	0.59	127.89	3,668.8	21,719.3	74,403.3	472.5	141.8	85.4	71.3	20.4	2.4	4.1	19.4
10-430A	0.00	8.14	1.0	5.9	20.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-430B	0.53	54.72	1,429.3	8,461.7	28,987.1	184.1	55.2	33.3	27.8	7.9	0.9	1.6	7.5
10-430C	0.48	44.83	1,052.8	6,232.5	21,350.5	135.6	40.7	24.5	20.5	5.9	0.7	1.2	5.6
10-430D	0.49	85.79	2,061.7	12,205.3	41,811.5	265.5	79.7	48.0	40.1	11.5	1.3	2.3	10.9
10-430E	0.56	86.66	2,362.2	13,984.3	47,905.8	304.3	91.3	55.0	45.9	13.1	1.5	2.6	12.5
10-430F	0.10	377.97	1,847.7	10,938.4	37,471.4	238.0	71.4	43.0	35.9	10.3	1.2	2.1	9.8
10-430G	0.50	125.89	3,049.9	18,055.4	61,851.8	392.8	117.8	71.0	59.3	17.0	2.0	3.4	16.1
10-430H	0.49	33.18	797.0	4,718.4	16,163.6	102.7	30.8	18.6	15.5	4.4	0.5	0.9	4.2
10-430I	0.59	32.61	938.3	5,555.0	19,029.6	120.9	36.3	21.8	18.2	5.2	0.6	1.1	5.0
10-430J	0.43	532.36	11,293.3	66,856.4	229,028.2	1,454.6	436.4	262.9	219.5	62.8	7.4	12.6	59.6
10-430K	0.48	337.06	7,870.4	46,592.5	159,610.9	1,013.7	304.1	183.2	153.0	43.8	5.1	8.8	41.6
10-430L	0.45	84.4	1,859.8	11,009.8	37,716.0	239.5	71.9	43.3	36.2	10.3	1.2	2.1	9.8
10-430M	0.54	75.94	2,013.5	11,919.9	40,833.8	259.3	77.8	46.9	39.1	11.2	1.3	2.3	10.6
10-430N	0.44	26.43	573.6	3,395.4	11,631.6	73.9	22.2	13.4	11.1	3.2	0.4	0.6	3.0
10-430O	0.00	109.53	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-430P	0.00	229.12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-430Q	0.10	8.03	39.3	232.4	796.1	5.1	1.5	0.9	0.8	0.2	0.0	0.0	0.2
10-430R	0.47	150.32	3,435.2	20,336.1	69,664.8	442.4	132.7	80.0	66.8	19.1	2.2	3.8	18.1
10-430S	0.10	5.15	25.2	149.0	510.6	3.2	1.0	0.6	0.5	0.1	0.0	0.0	0.1
10-430T	0.46	262.47	5,865.2	34,722.2	118,946.9	755.4	226.6	136.5	114.0	32.6	3.8	6.6	31.0
10-430U	0.47	431.37	9,908.1	58,655.8	200,935.6	1,276.2	382.8	230.7	192.6	55.1	6.5	11.1	52.3
10-430V	0.46	329.11	7,478.5	44,272.8	151,664.3	963.2	289.0	174.1	145.4	41.6	4.9	8.4	39.5
10-440A	0.46	23.18	519.1	3,073.3	10,528.0	66.9	20.1	12.1	10.1	2.9	0.3	0.6	2.7
10-440B	0.49	34.23	824.6	4,881.7	16,723.3	106.2	31.9	19.2	16.0	4.6	0.5	0.9	4.4
10-440C/D	0.00	56	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-440E	0.51	831.25	20,896.3	123,706.0	423,776.5	2,691.4	807.4	486.5	406.2	116.2	13.6	23.4	110.3
10-440F	0.46	538.85	12,123.0	71,768.3	245,854.9	1,561.4	468.4	282.2	235.7	67.4	7.9	13.6	64.0
10-450A	0.00	343.67	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-450B	0.52	3.41	86.1	509.9	1,746.6	11.1	3.3	2.0	1.7	0.5	0.1	0.1	0.5
10-450C	0.59	55.64	1,615.2	9,562.2	32,756.8	208.0	62.4	37.6	31.4	9.0	1.1	1.8	8.5

2008 POLLUTANT LOADINGS BY OUTFALL

2008 POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS PER YEAR (estimated using FLUX

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Mean Flow Weighted Mean Concentration - all 2008 sites			25.00	148	507	3.22	0.966	0.582	0.486	0.139	0.016	0.028	0.132
Precipitation (meters)	**0.568452**												
10-450D	0.45	4.62	101.6	601.7	2,061.1	13.1	3.9	2.4	2.0	0.6	0.1	0.1	0.5
10-450E	0.44	3.2	69.1	409.3	1,402.2	8.9	2.7	1.6	1.3	0.4	0.0	0.1	0.4
10-450F	0.46	158.55	3,560.9	21,080.5	72,214.8	458.6	137.6	82.9	69.2	19.8	2.3	4.0	18.8
10-450G/H	0.48	75.02	1,762.1	10,431.8	35,736.0	227.0	68.1	41.0	34.3	9.8	1.1	2.0	9.3
10-450I	0.49	243.64	5,850.6	34,635.8	118,651.0	753.6	226.1	136.2	113.7	32.5	3.8	6.6	30.9
10-450J	0.49	17.16	407.3	2,410.9	8,259.0	52.5	15.7	9.5	7.9	2.3	0.3	0.5	2.2
10-450K	0.58	37.01	1,048.0	6,204.3	21,254.1	135.0	40.5	24.4	20.4	5.8	0.7	1.2	5.5
10-450L	0.51	213.41	5,269.1	31,192.9	106,856.7	678.7	203.6	122.7	102.4	29.3	3.4	5.9	27.8
10-460	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460A	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460B	0.52	7.29	184.2	1,090.3	3,734.9	23.7	7.1	4.3	3.6	1.0	0.1	0.2	1.0
10-460C/D/F	0.00	159.87	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460E	0.49	231.41	5,586.6	33,072.6	113,296.0	719.6	215.9	130.1	108.6	31.1	3.6	6.3	29.5
10-460F	0.49	14.75	356.7	2,111.8	7,234.2	45.9	13.8	8.3	6.9	2.0	0.2	0.4	1.9
10-460G	0.51	79.66	1,989.2	11,775.8	40,340.1	256.2	76.9	46.3	38.7	11.1	1.3	2.2	10.5
10-460H	0.48	12.35	289.4	1,713.4	5,869.6	37.3	11.2	6.7	5.6	1.6	0.2	0.3	1.5
10-460I	0.00	72.26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460J	0.46	5.36	121.5	719.3	2,463.9	15.6	4.7	2.8	2.4	0.7	0.1	0.1	0.6
10-460K	0.36	5.48	96.4	570.5	1,954.2	12.4	3.7	2.2	1.9	0.5	0.1	0.1	0.5
10-460L	0.46	3.5	79.3	469.4	1,608.1	10.2	3.1	1.8	1.5	0.4	0.1	0.1	0.4
10-460M	0.48	9.55	223.4	1,322.7	4,531.2	28.8	8.6	5.2	4.3	1.2	0.1	0.3	1.2
10-460N	0.45	3.85	84.7	501.4	1,717.6	10.9	3.3	2.0	1.6	0.5	0.1	0.1	0.4
10-460O	0.45	4.15	92.0	544.9	1,866.6	11.9	3.6	2.1	1.8	0.5	0.1	0.1	0.5
10-460P	0.45	4.34	95.5	565.2	1,936.2	12.3	3.7	2.2	1.9	0.5	0.1	0.1	0.5
10-460Q	0.56	19.73	544.1	3,221.3	11,035.1	70.1	21.0	12.7	10.6	3.0	0.4	0.6	2.9
10-460R	0.00	51.51	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460S	0.56	233.54	6,442.4	38,138.8	130,651.1	829.8	248.9	150.0	125.2	35.8	4.2	7.2	34.0
10-465	0.10	8.56	41.8	247.7	848.6	5.4	1.6	1.0	0.8	0.2	0.0	0.0	0.2
10-470	0.38	25.6	477.6	2,827.4	9,685.9	61.5	18.5	11.1	9.3	2.7	0.3	0.5	2.5
10-480	0.58	39.66	1,124.8	6,659.1	22,811.8	144.9	43.5	26.2	21.9	6.3	0.7	1.3	5.9
10-485	0.00	7.27	0.9	5.3	18.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-490	0.43	150.96	3,199.2	18,939.5	64,880.5	412.1	123.6	74.5	62.2	17.8	2.1	3.6	16.9
10-500A	0.26	26.21	336.3	1,990.7	6,819.4	43.3	13.0	7.8	6.5	1.9	0.2	0.4	1.8
10-500B	0.46	8.48	190.8	1,129.6	3,869.6	24.6	7.4	4.4	3.7	1.1	0.1	0.2	1.0
10-500C	0.44	111.36	2,370.0	14,030.4	48,063.6	305.3	91.6	55.2	46.1	13.2	1.5	2.7	12.5
10-500D	0.24	3.83	44.6	263.9	904.0	5.7	1.7	1.0	0.9	0.2	0.0	0.0	0.2
10-500E	0.53	23.34	607.5	3,596.4	12,320.1	78.2	23.5	14.1	11.8	3.4	0.4	0.7	3.2
10-500F	0.49	12.04	290.6	1,720.5	5,894.0	37.4	11.2	6.8	5.6	1.6	0.2	0.3	1.5
10-500G	0.00	112.94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-505	0.10	7.85	38.4	227.2	778.2	4.9	1.5	0.9	0.7	0.2	0.0	0.0	0.2
10-510	0.51	62.36	1,550.6	9,179.4	31,445.6	199.7	59.9	36.1	30.1	8.6	1.0	1.7	8.2
10-520	0.00	139.98	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-530	0.45	116.15	2,559.5	15,152.3	51,906.7	329.7	98.9	59.6	49.8	14.2	1.7	2.9	13.5
10-540	0.12	53.9	312.0	1,847.3	6,328.1	40.2	12.1	7.3	6.1	1.7	0.2	0.3	1.6
10-550	0.46	25.83	580.7	3,437.9	11,777.3	74.8	22.4	13.5	11.3	3.2	0.4	0.7	3.1
10-560A/B	0.44	600.63	12,845.5	76,045.5	260,507.2	1,654.5	496.4	299.0	249.7	71.4	8.4	14.4	67.8
10-570A	0.54	14.64	389.2	2,303.9	7,892.4	50.1	15.0	9.1	7.6	2.2	0.3	0.4	2.1
10-570B	0.44	228.18	4,869.1	28,825.3	98,746.1	627.1	188.1	113.4	94.7	27.1	3.2	5.5	25.7
10-580	0.45	73.39	1,610.3	9,532.7	32,655.9	207.4	62.2	37.5	31.3	9.0	1.0	1.8	8.5
10-600	0.48	89.24	2,109.7	12,489.6	42,785.3	271.7	81.5	49.1	41.0	11.7	1.4	2.4	11.1
10-610	0.46	25.6	573.6	3,395.7	11,632.7	73.9	22.2	13.4	11.2	3.2	0.4	0.6	3.0
10-620	0.00	9.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-630A	0.10	6.24	30.5	180.6	618.6	3.9	1.2	0.7	0.6	0.2	0.0	0.0	0.2
10-630B	0.45	4.68	103.0	609.5	2,087.9	13.3	4.0	2.4	2.0	0.6	0.1	0.1	0.5
10-630C	0.48	96.03	2,268.0	13,426.8	45,995.8	292.1	87.6	52.8	44.1	12.6	1.5	2.5	12.0
10-630D	0.45	6.37	140.1	829.6	2,841.8	18.0	5.4	3.3	2.7	0.8	0.1	0.2	0.7
10-630E	0.45	8.52	187.4	1,109.6	3,801.0	24.1	7.2	4.4	3.6	1.0	0.1	0.2	1.0
10-630F	0.54	17.56	463.8	2,745.4	9,404.9	59.7	17.9	10.8	9.0	2.6	0.3	0.5	2.4
10-630G	0.45	5.9	129.8	768.4	2,632.1	16.7	5.0	3.0	2.5	0.7	0.1	0.1	0.7
10-630H	0.30	25.63	379.5	2,246.5	7,695.7	48.9	14.7	8.8	7.4	2.1	0.2	0.4	2.0
10-630I	0.47	12.48	283.7	1,679.5	5,753.5	36.5	11.0	6.6	5.5	1.6	0.2	0.3	1.5
10-630J	0.55	14.69	397.6	2,353.8	8,063.3	51.2	15.4	9.3	7.7	2.2	0.3	0.4	2.1
10-630K	0.47	95.29	2,204.7	13,051.8	44,711.1	284.0	85.2	51.3	42.9	12.3	1.4	2.5	11.6
10-630L	0.52	100.42	2,557.6	15,141.0	51,868.2	329.4	98.8	59.5	49.7	14.2	1.7	2.9	13.5
10-630M	0.50	11.71	284.2	1,682.6	5,764.2	36.6	11.0	6.6	5.5	1.6	0.2	0.3	1.5
10-630N	0.45	8.45	185.9	1,100.4	3,769.7	23.9	7.2	4.3	3.6	1.0	0.1	0.2	1.0
10-630O	0.36	5.77	102.7	608.0	2,082.6	13.2	4.0	2.4	2.0	0.6	0.1	0.1	0.5
10-630P/Q	0.00	67.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-630R	0.33	83.89	1,369.7	8,108.3	27,776.6	176.4	52.9	31.9	26.6	7.6	0.9	1.5	7.2
10-630S	0.22	37.02	393.4	2,328.9	7,978.1	50.7	15.2	9.2	7.6	2.2	0.3	0.4	2.1
10-630T	0.56	7.72	212.3	1,256.7	4,305.1	27.3	8.2	4.9	4.1	1.2	0.1	0.2	1.1
10-630U	0.52	115.42	2,951.4	17,472.5	59,855.0	380.1	114.0	68.7	57.4	16.4	1.9	3.3	15.6
10-630V	0.11	33.85	174.7	1,034.5	3,543.8	22.5	6.8	4.1	3.4	1.0	0.1	0.2	0.9
10-630W	0.47	23.68	548.4	3,246.3	11,120.6	70.6	21.2	12.8	10.7	3.0	0.4	0.6	2.9
10-630X	0.44	14.78	319.6	1,892.2	6,482.2	41.2	12.4	7.4	6.2	1.8	0.2	0.4	1.7
10-630Y	0.00	112.03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-630Z	0.47	45.66	1,050.8	6,221.0	21,311.1	135.3	40.6	24.5	20.4	5.8	0.7	1.2	5.5
10-640	0.46	258.18	5,772.3	34,172.1	117,062.7	743.5	223.0	134.4	112.2	32.1	3.8	6.5	30.5
10-650	0.56	19.53	531.8	3,148.3	10,785.0	68.5	20.5	12.4	10.3	3.0	0.3	0.6	2.8
10-660	0.46	306.37	6,938.1	41,073.6	140,705.0	893.6	268.1	161.5	134.9	38.6	4.5	7.8	36.6
10-670	0.45	137.88	3,028.7	17,929.7	61,421.4	390.1	117.0	70.5	58.9	16.8	2.0	3.4	16.0
10-680	0.46	707.95	15,868.3	93,940.5	321,809.6	2,043.8	613.2	369.4	308.5	88.2	10.3	17.8	83.8
10-690	0.50	70.63	1,727.3	10,225.8	35,030.4	222.5	66.7	40.2	33.6	9.6	1.1	1.9	9.1
10-700	0.46	222.07	5,041.0	29,842.6	102,231.2	649.3	194.8	117.4	98.0	28.0	3.3	5.6	26.6
10-710	0.33	29.95	487.7	2,887.4	9,891.2	62.8	18.8	11.4	9.5	2.7	0.3	0.5	2.6
10-720A	0.44	15.77	341.8	2,023.7	6,932.5	44.0	13.2	8.0	6.6	1.9	0.2	0.4	1.8
10-720B	0.48	422.18	9,943.1	58,863.1	201,646.0	1,280.7	384.2	231.5	193.3	55.3	6.5	11.1	52.5

Appendix A7: Pollutant Loadings, Part C) 2008 Annual Pollutant Loadings by Outfall
Source: Minneapolis Park and Recreation Board

2008 POLLUTANT LOADINGS BY OUTFALL

2008 POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS PER YEAR (estimated using FLUX

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Mean Flow Weighted Mean Concentration - all 2008 sites			25.00	148	507	3.22	0.966	0.582	0.486	0.139	0.016	0.028	0.132
Precipitation (meters)	**0.568452**												
10-720C	0.43	26.35	553.1	3,274.5	11,217.2	71.2	21.4	12.9	10.8	3.1	0.4	0.6	2.9
10-720D	0.46	22.95	510.8	3,023.7	10,358.3	65.8	19.7	11.9	9.9	2.8	0.3	0.6	2.7
10-720E	0.46	18.39	409.7	2,425.4	8,308.7	52.8	15.8	9.5	8.0	2.3	0.3	0.5	2.2
10-720F	0.48	317.75	7,453.0	44,121.7	151,146.5	959.9	288.0	173.5	144.9	41.4	4.9	8.3	39.4
10-720G	0.00	13.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-720H	0.45	4.55	100.1	592.5	2,029.9	12.9	3.9	2.3	1.9	0.6	0.1	0.1	0.5
10-720I	0.45	87.27	1,902.5	11,263.0	38,583.3	245.0	73.5	44.3	37.0	10.6	1.2	2.1	10.0
10-720J	0.36	3.71	64.8	383.6	1,314.0	8.3	2.5	1.5	1.3	0.4	0.0	0.1	0.3
10-720K	0.55	32.76	879.4	5,205.8	17,833.3	113.3	34.0	20.5	17.1	4.9	0.6	1.0	4.6
10-720L	0.45	4.57	100.5	595.1	2,038.8	12.9	3.9	2.3	2.0	0.6	0.1	0.1	0.5
20-010	0.42	93.99	1,928.9	11,418.9	39,117.6	248.4	74.5	44.9	37.5	10.7	1.3	2.2	10.2
20-020	0.44	15.09	323.6	1,915.6	6,562.4	41.7	12.5	7.5	6.3	1.8	0.2	0.4	1.7
20-030	0.45	7.95	174.9	1,035.3	3,546.7	22.5	6.8	4.1	3.4	1.0	0.1	0.2	0.9
20-040	0.37	6.79	123.8	732.6	2,509.7	15.9	4.8	2.9	2.4	0.7	0.1	0.1	0.7
20-050	0.00	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-060	0.45	5.91	130.0	769.7	2,636.6	16.7	5.0	3.0	2.5	0.7	0.1	0.1	0.7
20-070	0.44	39.07	846.8	5,013.3	17,173.8	109.1	32.7	19.7	16.5	4.7	0.6	0.9	4.5
20-080	0.45	33.72	747.4	4,424.4	15,156.6	96.3	28.9	17.4	14.5	4.2	0.5	0.8	3.9
20-090	0.55	9.95	268.9	1,591.7	5,452.5	34.6	10.4	6.3	5.2	1.5	0.2	0.3	1.4
20-100	0.10	0.99	4.8	28.7	98.1	0.6	0.2	0.1	0.1	0.0	0.0	0.0	0.0
20-110	0.24	216.04	2,533.8	15,000.2	51,385.8	326.4	97.9	59.0	49.3	14.1	1.7	2.8	13.4
20-120	0.47	10.22	233.5	1,382.5	4,736.1	30.1	9.0	5.4	4.5	1.3	0.2	0.3	1.2
20-130	0.45	16.12	354.6	2,099.3	7,191.5	45.7	13.7	8.3	6.9	2.0	0.2	0.4	1.9
20-140	0.44	2.97	64.1	379.3	1,299.4	8.3	2.5	1.5	1.2	0.4	0.0	0.1	0.3
20-150	0.45	14.48	318.5	1,885.7	6,459.9	41.0	12.3	7.4	6.2	1.8	0.2	0.4	1.7
20-160	0.54	3.21	84.8	501.9	1,719.4	10.9	3.3	2.0	1.6	0.5	0.1	0.1	0.4
20-170	0.37	4.94	90.0	532.7	1,824.7	11.6	3.5	2.1	1.7	0.5	0.1	0.1	0.5
20-180	0.51	5.3	131.1	776.3	2,659.3	16.9	5.1	3.1	2.5	0.7	0.1	0.1	0.7
20-190	0.45	1.35	29.7	175.8	602.3	3.8	1.1	0.7	0.6	0.2	0.0	0.0	0.2
20-200	0.45	13.84	304.5	1,802.4	6,174.4	39.2	11.8	7.1	5.9	1.7	0.2	0.3	1.6
20-210A	0.44	92.9	1,994.9	11,809.8	40,456.7	256.9	77.1	46.4	38.8	11.1	1.3	2.2	10.5
20-210B	0.50	620.78	15,311.7	90,645.3	310,521.6	1,972.1	591.6	356.5	297.7	85.1	10.0	17.1	80.8
20-220	0.46	26.38	594.5	3,519.6	12,057.1	76.6	23.0	13.8	11.6	3.3	0.4	0.7	3.1
20-230	0.00	21.46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-240	0.48	30.06	708.0	4,191.3	14,358.2	91.2	27.4	16.5	13.8	3.9	0.5	0.8	3.7
20-250	0.57	6.28	175.5	1,039.1	3,559.5	22.6	6.8	4.1	3.4	1.0	0.1	0.2	0.9
20-260	0.60	3.5	102.7	607.7	2,081.9	13.2	4.0	2.4	2.0	0.6	0.1	0.1	0.5
20-270	0.48	42.81	997.7	5,906.1	20,232.4	128.5	38.5	23.2	19.4	5.5	0.7	1.1	5.3
20-280	0.54	8.98	235.9	1,396.7	4,784.8	30.4	9.1	5.5	4.6	1.3	0.2	0.3	1.2
20-290	0.00	4.98	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21-010	0.45	49.49	1,084.5	6,420.0	21,992.8	139.7	41.9	25.2	21.1	6.0	0.7	1.2	5.7
40-010	0.45	719.17	15,754.2	93,264.8	319,495.1	2,029.1	608.7	366.8	306.3	87.6	10.3	17.6	83.2
40-020	0.45	15.36	337.9	2,000.3	6,852.5	43.5	13.1	7.9	6.6	1.9	0.2	0.4	1.8
40-030	0.42	51.02	1,041.9	6,168.1	21,129.8	134.2	40.3	24.3	20.3	5.8	0.7	1.2	5.5
40-040	0.43	65.39	1,387.9	8,216.6	28,147.5	178.8	53.6	32.3	27.0	7.7	0.9	1.6	7.3
40-050	0.45	10.28	226.1	1,338.8	4,586.2	29.1	8.7	5.3	4.4	1.3	0.1	0.3	1.2
40-060	0.45	3.2	70.4	416.7	1,427.6	9.1	2.7	1.6	1.4	0.4	0.0	0.1	0.4
40-070	0.38	7.98	147.6	873.7	2,993.0	19.0	5.7	3.4	2.9	0.8	0.1	0.2	0.8
40-080	0.41	60.51	1,208.0	7,151.5	24,498.8	155.6	46.7	28.1	23.5	6.7	0.8	1.4	6.4
40-090	0.46	20.65	469.3	2,778.1	9,517.0	60.4	18.1	10.9	9.1	2.6	0.3	0.5	2.5
40-100	0.00	20.35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40-110	0.44	2.61	56.6	335.2	1,148.4	7.3	2.2	1.3	1.1	0.3	0.0	0.1	0.3
40-120	0.44	65.87	1,411.3	8,354.7	28,620.6	181.8	54.5	32.9	27.4	7.8	0.9	1.6	7.5
40-130	0.45	35.01	773.4	4,578.3	15,683.7	99.6	29.9	18.0	15.0	4.3	0.5	0.9	4.1
40-140	0.35	125.46	2,132.7	12,625.5	43,250.7	274.7	82.4	49.6	41.5	11.9	1.4	2.4	11.3
40-150	0.47	24.31	563.0	3,332.9	11,417.3	72.5	21.8	13.1	10.9	3.1	0.4	0.6	3.0
40-160	0.49	30.99	748.9	4,433.6	15,188.1	96.5	28.9	17.4	14.6	4.2	0.5	0.8	4.0
40-170	0.00	194.89	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40-180	0.54	16.8	442.1	2,617.4	8,966.3	56.9	17.1	10.3	8.6	2.5	0.3	0.5	2.3
40-190	0.53	65.53	1,693.9	10,027.8	34,352.0	218.2	65.5	39.4	32.9	9.4	1.1	1.9	8.9
40-200	0.46	24.75	559.4	3,311.4	11,343.9	72.0	21.6	13.0	10.9	3.1	0.4	0.6	3.0
40-210	0.54	17.26	459.7	2,721.5	9,323.0	59.2	17.8	10.7	8.9	2.6	0.3	0.5	2.4
40-220	0.47	100.58	2,298.6	13,607.4	46,614.7	296.1	88.8	53.5	44.7	12.8	1.5	2.6	12.1
40-230	0.44	13.78	299.7	1,773.9	6,077.0	38.6	11.6	7.0	5.8	1.7	0.2	0.3	1.6
40-240	0.00	340.86	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40-250	0.60	1.15	33.7	199.7	684.1	4.3	1.3	0.8	0.7	0.2	0.0	0.0	0.2
40-260	0.45	3.49	76.8	454.5	1,557.0	9.9	3.0	1.8	1.5	0.4	0.1	0.1	0.4
40-270	0.45	9.59	211.0	1,248.9	4,278.3	27.2	8.2	4.9	4.1	1.2	0.1	0.2	1.1
40-280	0.53	12.76	328.0	1,941.9	6,652.4	42.3	12.7	7.6	6.4	1.8	0.2	0.4	1.7
40-290	0.51	13.73	343.7	2,034.5	6,969.6	44.3	13.3	8.0	6.7	1.9	0.2	0.4	1.8
40-300	0.52	10.38	264.4	1,565.1	5,361.7	34.1	10.2	6.2	5.1	1.5	0.2	0.3	1.4
40-310	0.45	97.86	2,165.4	12,819.2	43,914.3	278.9	83.7	50.4	42.1	12.0	1.4	2.4	11.4
40-320	0.60	9.43	276.6	1,637.4	5,609.3	35.6	10.7	6.4	5.4	1.5	0.2	0.3	1.5
40-330	0.59	15.34	444.5	2,631.2	9,013.6	57.2	17.2	10.3	8.6	2.5	0.3	0.5	2.3
40-340	0.53	35.27	918.9	5,439.6	18,634.3	118.3	35.5	21.4	17.9	5.1	0.6	1.0	4.9
40-350	0.60	8.99	263.7	1,561.0	5,347.5	34.0	10.2	6.1	5.1	1.5	0.2	0.3	1.4
40-360	0.60	8.09	237.3	1,404.7	4,812.2	30.6	9.2	5.5	4.6	1.3	0.2	0.3	1.3
40-370	0.58	12.41	350.9	2,077.5	7,116.7	45.2	13.6	8.2	6.8	2.0	0.2	0.4	1.9
40-380	0.39	24.92	479.3	2,837.3	9,719.7	61.7	18.5	11.2	9.3	2.7	0.3	0.5	2.5
40-390	0.58	5.72	162.2	960.0	3,288.7	20.9	6.3	3.8	3.2	0.9	0.1	0.2	0.9
40-400	0.10	1.07	5.2	31.0	106.1	0.7	0.2	0.1	0.1	0.0	0.0	0.0	0.0
41-010	0.38	94.73	1,747.9	10,347.6	35,447.6	225.1	67.5	40.7	34.0	9.7	1.1	2.0	9.2
41-020	0.00	14.89	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41-030	0.50	60.47	1,483.9	8,784.7	30,093.4	191.1	57.3	34.5	28.8	8.3	1.0	1.7	7.8
41-040	0.57	35.59	996.9	5,901.7	20,217.4	128.4	38.5	23.2	19.4	5.5	0.6	1.1	5.3
41-050	0.60	10.48	307.4	1,819.7	6,233.8	39.6	11.9	7.2	6.0	1.7	0.2	0.3	1.6
41-060	0.60	2.95	86.5	512.2	1,754.8	11.1	3.3	2.0	1.7	0.5	0.1	0.1	0.5

Appendix A7: Pollutant Loadings, Part C) 2008 Annual Pollutant Loadings by Outfall
Source: Minneapolis Park and Recreation Board

2008 POLLUTANT LOADINGS BY OUTFALL

2008 POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS PER YEAR (estimated using FLUX

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Mean Flow Weighted Mean Concentration - all 2008 sites			25.00	148	507	3.22	0.966	0.582	0.486	0.139	0.016	0.028	0.132
Precipitation (meters)	**0.568452**												
51-010	0.45	29.63	653.7	3,870.1	13,257.9	84.2	25.3	15.2	12.7	3.6	0.4	0.7	3.5
51-020	0.45	4.55	100.1	592.5	2,029.9	12.9	3.9	2.3	1.9	0.6	0.1	0.1	0.5
52-010	0.28	45.29	611.8	3,622.1	12,408.1	78.8	23.6	14.2	11.9	3.4	0.4	0.7	3.2
52-020	0.45	6.09	134.0	793.1	2,716.9	17.3	5.2	3.1	2.6	0.7	0.1	0.2	0.7
52-030	0.45	7.18	157.9	935.0	3,203.2	20.3	6.1	3.7	3.1	0.9	0.1	0.2	0.8
52-040	0.41	4.54	91.7	543.1	1,860.5	11.8	3.5	2.1	1.8	0.5	0.1	0.1	0.5
52-050	0.44	15.3	325.4	1,926.2	6,598.5	41.9	12.6	7.6	6.3	1.8	0.2	0.4	1.7
52-060	0.10	3.22	15.7	93.2	319.2	2.0	0.6	0.4	0.3	0.1	0.0	0.0	0.1
52-070	0.42	86.94	1,798.5	10,647.4	36,474.4	231.7	69.5	41.9	35.0	10.0	1.2	2.0	9.5
52-080	0.24	8.08	95.6	565.9	1,938.8	12.3	3.7	2.2	1.9	0.5	0.1	0.1	0.5
52-090	0.45	4.89	107.6	636.8	2,181.5	13.9	4.2	2.5	2.1	0.6	0.1	0.1	0.6
52-100A/B	0.27	11.89	155.0	917.4	3,142.9	20.0	6.0	3.6	3.0	0.9	0.1	0.2	0.8
52-110	0.45	8.84	192.9	1,142.0	3,912.1	24.8	7.5	4.5	3.8	1.1	0.1	0.2	1.0
52-120	0.45	14.74	324.3	1,919.6	6,575.9	41.8	12.5	7.5	6.3	1.8	0.2	0.4	1.7
52-130	0.31	7.18	110.5	654.0	2,240.6	14.2	4.3	2.6	2.1	0.6	0.1	0.1	0.6
53-010	0.45	7.03	154.6	915.5	3,136.3	19.9	6.0	3.6	3.0	0.9	0.1	0.2	0.8
53-020	0.28	12.38	167.3	990.2	3,392.0	21.5	6.5	3.9	3.3	0.9	0.1	0.2	0.9
53-030	0.44	11.37	242.8	1,437.5	4,924.5	31.3	9.4	5.7	4.7	1.4	0.2	0.3	1.3
53-040	0.45	2.78	61.2	362.0	1,240.2	7.9	2.4	1.4	1.2	0.3	0.0	0.1	0.3
53-050	0.45	13.66	300.5	1,778.9	6,094.1	38.7	11.6	7.0	5.8	1.7	0.2	0.3	1.6
53-060	0.45	20.37	448.1	2,652.8	9,087.5	57.7	17.3	10.4	8.7	2.5	0.3	0.5	2.4
53-070	0.45	4.89	107.6	636.8	2,181.5	13.9	4.2	2.5	2.1	0.6	0.1	0.1	0.6
53-080	0.39	5.81	112.0	662.8	2,270.6	14.4	4.3	2.6	2.2	0.6	0.1	0.1	0.6
53-090	0.46	59.59	1,337.6	7,918.5	27,126.3	172.3	51.7	31.1	26.0	7.4	0.9	1.5	7.1
53-100	0.00	107	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
53-110	0.38	4.59	86.4	511.3	1,751.5	11.1	3.3	2.0	1.7	0.5	0.1	0.1	0.5
53-120A/B	0.46	129.79	2,890.8	17,113.4	58,624.9	372.3	111.7	67.3	56.2	16.1	1.9	3.2	15.3
53-130	0.45	5.02	110.4	653.8	2,239.5	14.2	4.3	2.6	2.1	0.6	0.1	0.1	0.6
53-140	0.45	6.36	139.9	828.3	2,837.3	18.0	5.4	3.3	2.7	0.8	0.1	0.2	0.7
53-150	0.48	90.4	2,138.1	12,657.4	43,360.2	275.4	82.6	49.8	41.6	11.9	1.4	2.4	11.3
53-160	0.47	252.19	5,828.5	34,504.5	118,201.1	750.7	225.2	135.7	113.3	32.4	3.8	6.5	30.8
53-170	0.36	6.39	112.7	667.3	2,286.0	14.5	4.4	2.6	2.2	0.6	0.1	0.1	0.6
53-180	0.10	8.09	39.5	234.1	802.0	5.1	1.5	0.9	0.8	0.2	0.0	0.0	0.2
53-190	0.30	11.41	167.6	992.3	3,399.3	21.6	6.5	3.9	3.3	0.9	0.1	0.2	0.9
54-010A/B	0.44	84.93	1,806.4	10,693.8	36,633.5	232.7	69.8	42.1	35.1	10.0	1.2	2.0	9.5
54-040A/B	0.49	255.14	6,173.1	36,545.0	125,191.3	795.1	238.5	143.7	120.0	34.3	4.0	6.9	32.6
54-050	0.17	9.27	78.8	466.5	1,598.0	10.1	3.0	1.8	1.5	0.4	0.1	0.1	0.4
54-060	0.44	32.13	689.9	4,084.4	13,991.9	88.9	26.7	16.1	13.4	3.8	0.4	0.8	3.6
54-070	0.36	60.8	1,065.8	6,309.4	21,613.9	137.3	41.2	24.8	20.7	5.9	0.7	1.2	5.6
54-080A/B/C	0.46	414.26	9,256.6	54,798.9	187,723.2	1,192.2	357.7	215.5	179.9	51.5	6.0	10.4	48.9
54-090	0.10	3.55	17.4	102.7	351.9	2.2	0.7	0.4	0.3	0.1	0.0	0.0	0.1
54-100A/B	0.60	114.24	3,326.8	19,694.4	67,466.6	428.5	128.5	77.4	64.7	18.5	2.2	3.7	17.6
54-110	0.45	24.55	540.1	3,197.1	10,952.3	69.6	20.9	12.6	10.5	3.0	0.4	0.6	2.9
54-120	0.46	62.08	1,386.7	8,209.4	28,122.8	178.6	53.6	32.3	27.0	7.7	0.9	1.6	7.3
54-130	0.10	1.07	5.2	31.0	106.1	0.7	0.2	0.1	0.1	0.0	0.0	0.0	0.0
54-140A/B	0.41	113.01	2,253.6	13,341.4	45,703.2	290.3	87.1	52.5	43.8	12.5	1.5	2.5	11.9
54-150	0.45	55.34	1,204.7	7,132.1	24,432.3	155.2	46.6	28.0	23.4	6.7	0.8	1.3	6.4
54-160	0.60	2.62	76.8	454.9	1,558.5	9.9	3.0	1.8	1.5	0.4	0.1	0.1	0.4
54-170	0.59	8.08	234.9	1,390.4	4,763.1	30.3	9.1	5.5	4.6	1.3	0.2	0.3	1.2
54-180	0.60	2.82	82.7	489.7	1,677.4	10.7	3.2	1.9	1.6	0.5	0.1	0.1	0.4
54-190	0.10	2.2	10.8	63.7	218.1	1.4	0.4	0.3	0.2	0.1	0.0	0.0	0.1
54-200	0.10	2.13	10.4	61.6	211.2	1.3	0.4	0.2	0.2	0.1	0.0	0.0	0.1
54-210	0.10	1.14	5.6	33.0	113.0	0.7	0.2	0.1	0.1	0.0	0.0	0.0	0.0
55-010	0.60	14.98	439.4	2,601.1	8,910.6	56.6	17.0	10.2	8.5	2.4	0.3	0.5	2.3
55-020	0.60	189.58	5,524.4	32,704.6	112,035.3	711.5	213.5	128.6	107.4	30.7	3.6	6.2	29.2
56-010	0.60	67.62	1,983.4	11,741.5	40,222.5	255.5	76.6	46.2	38.6	11.0	1.3	2.2	10.5
57-010	0.53	26.1	680.6	4,029.4	13,803.4	87.7	26.3	15.8	13.2	3.8	0.4	0.8	3.6
57-020	0.00	142	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57-030	0.45	18.22	400.8	2,372.8	8,128.4	51.6	15.5	9.3	7.8	2.2	0.3	0.4	2.1
57-040	0.35	39.88	680.3	4,027.4	13,796.5	87.6	26.3	15.8	13.2	3.8	0.4	0.8	3.6
57-050	0.45	7.9	173.8	1,028.8	3,524.4	22.4	6.7	4.0	3.4	1.0	0.1	0.2	0.9
57-060	0.46	26.11	590.3	3,494.4	11,970.6	76.0	22.8	13.7	11.5	3.3	0.4	0.7	3.1
57-070	0.45	81.33	1,793.4	10,616.9	36,369.9	231.0	69.3	41.8	34.9	10.0	1.2	2.0	9.5
57-080	0.42	5.54	114.5	677.7	2,321.6	14.7	4.4	2.7	2.2	0.6	0.1	0.1	0.6
57-090	0.47	77.77	1,784.2	10,562.4	36,183.5	229.8	68.9	41.5	34.7	9.9	1.2	2.0	9.4
57-100A/B	0.47	313.43	7,238.3	42,850.6	146,792.1	932.3	279.7	168.5	140.7	40.2	4.7	8.1	38.2
57-110	0.54	21.6	571.0	3,380.5	11,580.6	73.5	22.1	13.3	11.1	3.2	0.4	0.6	3.0
57-120A/B/C	0.00	65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57-130	0.10	1.16	5.7	33.6	115.0	0.7	0.2	0.1	0.1	0.0	0.0	0.0	0.0
57-140	0.10	1.55	7.6	44.9	153.7	1.0	0.3	0.2	0.1	0.0	0.0	0.0	0.0
57-150	0.43	35.68	752.8	4,456.6	15,267.0	97.0	29.1	17.5	14.6	4.2	0.5	0.8	4.0
57-160	0.10	1.89	9.2	54.7	187.4	1.2	0.4	0.2	0.2	0.1	0.0	0.0	0.0
61-010	0.55	2.86	77.1	456.7	1,564.4	9.9	3.0	1.8	1.5	0.4	0.1	0.1	0.4
62-010	0.45	27.84	615.3	3,642.3	12,477.5	79.2	23.8	14.3	12.0	3.4	0.4	0.7	3.2
63-010	0.45	388.79	8,593.2	50,871.6	174,269.6	1,106.8	332.0	200.0	167.1	47.8	5.6	9.6	45.4
63-020	0.00	11.91	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
64-100	0.45	24.92	547.7	3,242.3	11,107.0	70.5	21.2	12.8	10.6	3.0	0.4	0.6	2.9
64-110	0.45	6.01	132.2	782.7	2,681.2	17.0	5.1	3.1	2.6	0.7	0.1	0.1	0.7
64-120	0.45	16.04	352.9	2,088.9	7,155.8	45.4	13.6	8.2	6.9	2.0	0.2	0.4	1.9
64-130	0.45	2.44	53.7	317.8	1,088.5	6.9	2.1	1.2	1.0	0.3	0.0	0.1	0.3
65-010	0.00	18.97	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65-020	0.53	38.46	994.9	5,889.7	20,176.2	128.1	38.4	23.2	19.3	5.5	0.6	1.1	5.3
70-010	0.46	6.23	139.7	826.9	2,832.5	18.0	5.4	3.3	2.7	0.8	0.1	0.2	0.7
70-015	0.45	11.69	257.2	1,522.4	5,215.2	33.1	9.9	6.0	5.0	1.4	0.2	0.3	1.4
70-020	0.45	37.55	826.0	4,890.1	16,752.0	106.4	31.9	19.2	16.1	4.6	0.5	0.9	4.4
70-025	0.00	3.67	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-030	0.45	13.48	296.3	1,754.1	6,009.1	38.2	11.4	6.9	5.8	1.6	0.2	0.3	1.6

2008 POLLUTANT LOADINGS BY OUTFALL

2008 POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS PER YEAR (estimated using FLUX

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Mean Flow Weighted Mean Concentration - all 2008 sites			25.00	148	507	3.22	0.966	0.582	0.486	0.139	0.016	0.028	0.132
Precipitation (meters)	**0.568452**												
70-035	0.45	4.53	99.7	589.9	2,020.9	12.8	3.9	2.3	1.9	0.6	0.1	0.1	0.5
70-040	0.45	2.42	53.2	315.2	1,079.6	6.9	2.1	1.2	1.0	0.3	0.0	0.1	0.3
70-045	0.00	0.26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-050	0.45	17.41	383.0	2,267.3	7,767.0	49.3	14.8	8.9	7.4	2.1	0.2	0.4	2.0
70-055	0.46	333.43	7,564.9	44,784.4	153,417.0	974.4	292.3	176.1	147.1	42.1	4.9	8.5	39.9
70-060	0.45	3.53	77.7	459.7	1,574.8	10.0	3.0	1.8	1.5	0.4	0.1	0.1	0.4
70-065	0.45	1.89	41.6	246.1	843.2	5.4	1.6	1.0	0.8	0.2	0.0	0.0	0.2
70-070	0.45	5.8	127.6	755.3	2,587.5	16.4	4.9	3.0	2.5	0.7	0.1	0.1	0.7
70-075	0.43	5	105.4	624.2	2,138.3	13.6	4.1	2.5	2.0	0.6	0.1	0.1	0.6
70-080	0.46	11.96	270.1	1,599.0	5,477.8	34.8	10.4	6.3	5.3	1.5	0.2	0.3	1.4
70-085	0.45	229.48	5,017.1	29,701.4	101,747.5	646.2	193.9	116.8	97.5	27.9	3.3	5.6	26.5
70-090	0.45	18.57	408.5	2,418.4	8,284.5	52.6	15.8	9.5	7.9	2.3	0.3	0.5	2.2
70-095	0.45	9.99	219.8	1,301.0	4,456.8	28.3	8.5	5.1	4.3	1.2	0.1	0.2	1.2
70-100	0.45	9.64	212.1	1,255.4	4,300.6	27.3	8.2	4.9	4.1	1.2	0.1	0.2	1.1
70-105	0.45	1.63	35.9	212.3	727.2	4.6	1.4	0.8	0.7	0.2	0.0	0.0	0.2
70-110	0.45	18.13	398.8	2,361.1	8,088.2	51.4	15.4	9.3	7.8	2.2	0.3	0.4	2.1
70-115	0.45	3.71	81.6	483.2	1,655.1	10.5	3.2	1.9	1.6	0.5	0.1	0.1	0.4
70-120	0.45	4.22	92.8	549.6	1,882.6	12.0	3.6	2.2	1.8	0.5	0.1	0.1	0.5
70-125	0.00	5.04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-130	0.49	34.29	827.6	4,899.2	16,783.0	106.6	32.0	19.3	16.1	4.6	0.5	0.9	4.4
70-135	0.45	7.46	164.1	971.5	3,328.1	21.1	6.3	3.8	3.2	0.9	0.1	0.2	0.9
70-140	0.60	0.78	22.9	135.4	464.0	2.9	0.9	0.5	0.4	0.1	0.0	0.0	0.1
70-145	0.60	9.19	269.6	1,595.7	5,466.5	34.7	10.4	6.3	5.2	1.5	0.2	0.3	1.4
70-150	0.45	4.51	99.2	587.3	2,012.0	12.8	3.8	2.3	1.9	0.6	0.1	0.1	0.5
70-155	0.45	2.05	45.1	267.0	914.6	5.8	1.7	1.0	0.9	0.3	0.0	0.1	0.2
70-160	0.45	2.95	64.9	384.2	1,316.1	8.4	2.5	1.5	1.3	0.4	0.0	0.1	0.3
70-165	0.45	27.77	610.9	3,616.5	12,388.9	78.7	23.6	14.2	11.9	3.4	0.4	0.7	3.2
70-170	0.45	23.74	522.2	3,091.6	10,591.0	67.3	20.2	12.2	10.2	2.9	0.3	0.6	2.8
70-175	0.46	30.89	690.4	4,087.3	14,001.9	88.9	26.7	16.1	13.4	3.8	0.5	0.8	3.6
70-180	0.45	1.14	25.1	148.5	508.6	3.2	1.0	0.6	0.5	0.1	0.0	0.0	0.1
70-185	0.45	1.53	33.7	199.3	682.6	4.3	1.3	0.8	0.7	0.2	0.0	0.0	0.2
70-190	0.17	15.04	126.5	749.1	2,566.1	16.3	4.9	2.9	2.5	0.7	0.1	0.1	0.7
70-195	0.45	46.02	1,017.9	6,025.9	20,642.6	131.1	39.3	23.7	19.8	5.7	0.7	1.1	5.4
70-200	0.45	31.52	693.4	4,104.8	14,061.8	89.3	26.8	16.1	13.5	3.9	0.5	0.8	3.7
70-205	0.45	1.39	30.6	181.0	620.1	3.9	1.2	0.7	0.6	0.2	0.0	0.0	0.2
70-210	0.45	3.58	78.8	466.2	1,597.1	10.1	3.0	1.8	1.5	0.4	0.1	0.1	0.4
70-215	0.45	5.93	130.4	772.3	2,645.5	16.8	5.0	3.0	2.5	0.7	0.1	0.1	0.7
70-220	0.45	4.54	99.9	591.2	2,025.4	12.9	3.9	2.3	1.9	0.6	0.1	0.1	0.5
70-225	0.45	4.99	109.8	649.8	2,226.2	14.1	4.2	2.6	2.1	0.6	0.1	0.1	0.6
70-230	0.45	4.72	103.8	614.7	2,105.7	13.4	4.0	2.4	2.0	0.6	0.1	0.1	0.5
70-235	0.45	5.04	110.9	656.4	2,248.5	14.3	4.3	2.6	2.2	0.6	0.1	0.1	0.6
70-240	0.45	4.52	99.4	588.6	2,016.5	12.8	3.8	2.3	1.9	0.6	0.1	0.1	0.5
70-245	0.44	9.98	214.2	1,267.8	4,343.2	27.6	8.3	5.0	4.2	1.2	0.1	0.2	1.1
70-250	0.48	41.27	973.1	5,761.0	19,735.3	125.3	37.6	22.7	18.9	5.4	0.6	1.1	5.1
70-255	0.45	45.37	998.4	5,910.3	20,246.7	128.6	38.6	23.2	19.4	5.6	0.7	1.1	5.3
70-260	0.46	24.9	557.2	3,298.6	11,299.9	71.8	21.5	13.0	10.8	3.1	0.4	0.6	2.9
70-265A/B	0.00	183.65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-270	0.45	4.66	102.5	606.9	2,078.9	13.2	4.0	2.4	2.0	0.6	0.1	0.1	0.5
70-275	0.45	4.28	94.2	557.4	1,909.4	12.1	3.6	2.2	1.8	0.5	0.1	0.1	0.5
70-280	0.45	9.39	206.9	1,224.9	4,196.2	26.7	8.0	4.8	4.0	1.2	0.1	0.2	1.1
70-285	0.45	19.03	418.2	2,475.6	8,480.5	53.9	16.2	9.7	8.1	2.3	0.3	0.5	2.2
70-290	0.45	2.37	51.7	306.0	1,048.3	6.7	2.0	1.2	1.0	0.3	0.0	0.1	0.3
70-295	0.45	7.18	157.9	935.0	3,203.2	20.3	6.1	3.7	3.1	0.9	0.1	0.2	0.8
70-300	0.10	0.4	2.0	11.6	39.7	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0
70-305	0.45	12.68	276.4	1,636.5	5,606.0	35.6	10.7	6.4	5.4	1.5	0.2	0.3	1.5
70-310	0.00	5.25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-315	0.30	5.79	84.9	502.7	1,722.0	10.9	3.3	2.0	1.7	0.5	0.1	0.1	0.4
70-320	0.44	2.32	49.8	294.9	1,010.1	6.4	1.9	1.2	1.0	0.3	0.0	0.1	0.3
70-325	0.00	2.35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-330	0.47	279.41	6,434.0	38,089.1	130,481.1	828.7	248.6	149.8	125.1	35.8	4.2	7.2	34.0
70-335	0.45	1.99	43.8	259.2	887.8	5.6	1.7	1.0	0.9	0.2	0.0	0.0	0.2
70-340	0.39	22.25	427.9	2,533.3	8,678.3	55.1	16.5	10.0	8.3	2.4	0.3	0.5	2.3
70-345	0.45	3.81	83.8	496.2	1,699.7	10.8	3.2	2.0	1.6	0.5	0.1	0.1	0.4
70-350	0.49	314.4	7,594.3	44,958.5	154,013.3	978.2	293.4	176.8	147.6	42.2	5.0	8.5	40.1
70-355	0.45	1.29	28.4	168.0	575.5	3.7	1.1	0.7	0.6	0.2	0.0	0.0	0.1
70-360	0.45	131.96	2,932.0	17,357.3	59,460.5	377.6	113.3	68.3	57.0	16.3	1.9	3.3	15.5
70-365	0.45	6.7	147.4	872.5	2,989.0	19.0	5.7	3.4	2.9	0.8	0.1	0.2	0.8
70-370	0.44	3.75	81.2	480.7	1,646.8	10.5	3.1	1.9	1.6	0.5	0.1	0.1	0.4
70-375	0.47	7.1	164.0	971.1	3,326.8	21.1	6.3	3.8	3.2	0.9	0.1	0.2	0.9
70-380	0.45	14.4	316.8	1,875.3	6,424.2	40.8	12.2	7.4	6.2	1.8	0.2	0.4	1.7
70-385	0.45	14.97	329.3	1,949.5	6,678.5	42.4	12.7	7.7	6.4	1.8	0.2	0.4	1.7
70-390	0.46	58.11	1,315.9	7,790.2	26,686.7	169.5	50.8	30.6	25.6	7.3	0.9	1.5	6.9
70-395	0.43	57.19	1,200.8	7,108.9	24,353.0	154.7	46.4	28.0	23.3	6.7	0.8	1.3	6.3
70-400	0.44	9.67	207.4	1,228.1	4,207.0	26.7	8.0	4.8	4.0	1.2	0.1	0.2	1.1
70-405	0.25	7.16	87.5	518.2	1,775.2	11.3	3.4	2.0	1.7	0.5	0.1	0.1	0.5
70-410	0.43	5.8	121.6	719.8	2,466.0	15.7	4.7	2.8	2.4	0.7	0.1	0.1	0.6
70-415	0.45	120.75	2,679.7	15,863.6	54,343.5	345.1	103.5	62.4	52.1	14.9	1.7	3.0	14.1
70-420	0.45	16.99	373.7	2,212.6	7,579.6	48.1	14.4	8.7	7.3	2.1	0.2	0.4	2.0
70-425	0.51	20.63	515.3	3,050.8	10,450.9	66.4	19.9	12.0	10.0	2.9	0.3	0.6	2.7
70-430	0.10	6.19	30.3	179.1	613.7	3.9	1.2	0.7	0.6	0.2	0.0	0.0	0.2
70-435	0.10	9.16	44.8	265.1	908.1	5.8	1.7	1.0	0.9	0.2	0.0	0.1	0.2
70-440	0.50	34.48	837.2	4,956.4	16,979.0	107.8	32.4	19.5	16.3	4.7	0.5	0.9	4.4
70-445	0.45	5.6	123.2	729.3	2,498.3	15.9	4.8	2.9	2.4	0.7	0.1	0.1	0.7
70-450	0.45	2.65	58.3	345.1	1,182.2	7.5	2.3	1.4	1.1	0.3	0.0	0.1	0.3
70-455	0.00	2.66	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-460	0.45	2.67	58.7	347.7	1,191.2	7.6	2.3	1.4	1.1	0.3	0.0	0.1	0.3
70-465	0.45	2.58	56.8	336.0	1,151.0	7.3	2.2	1.3	1.1	0.3	0.0	0.1	0.3

Appendix A7: Pollutant Loadings, Part C) 2008 Annual Pollutant Loadings by Outfall
Source: Minneapolis Park and Recreation Board

2008 POLLUTANT LOADINGS BY OUTFALL

2008 POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS PER YEAR (estimated using FLUX

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Mean Flow Weighted Mean Concentration - all 2008 sites			25.00	148	507	3.22	0.966	0.582	0.486	0.139	0.016	0.028	0.132
Precipitation (meters)	**0.568452**												
70-470	0.38	8.55	160.5	950.3	3,255.4	20.7	6.2	3.7	3.1	0.9	0.1	0.2	0.8
70-475	0.46	229.14	5,156.4	30,525.8	104,571.5	664.1	199.2	120.0	100.2	28.7	3.4	5.8	27.2
70-480	0.60	0.31	9.1	53.8	184.4	1.2	0.4	0.2	0.2	0.1	0.0	0.0	0.0
70-485	0.45	13.36	293.9	1,739.9	5,960.2	37.9	11.4	6.8	5.7	1.6	0.2	0.3	1.6
70-490	0.47	48.75	1,118.6	6,621.9	22,684.5	144.1	43.2	26.0	21.7	6.2	0.7	1.3	5.9
70-495	0.45	7.74	170.3	1,008.0	3,453.0	21.9	6.6	4.0	3.3	0.9	0.1	0.2	0.9
70-500	0.45	0.56	12.3	72.9	249.8	1.6	0.5	0.3	0.2	0.1	0.0	0.0	0.1
70-505	0.41	8.12	163.4	967.3	3,313.7	21.0	6.3	3.8	3.2	0.9	0.1	0.2	0.9
70-510	0.45	41.82	923.0	5,464.0	18,717.9	118.9	35.7	21.5	17.9	5.1	0.6	1.0	4.9
70-515	0.47	62.73	1,441.0	8,531.0	29,224.5	185.6	55.7	33.5	28.0	8.0	0.9	1.6	7.6
70-520	0.45	6.05	133.1	787.9	2,699.1	17.1	5.1	3.1	2.6	0.7	0.1	0.1	0.7
70-525	0.45	6.23	137.0	811.3	2,779.4	17.7	5.3	3.2	2.7	0.8	0.1	0.2	0.7
70-530	0.45	1.67	36.7	217.5	745.0	4.7	1.4	0.9	0.7	0.2	0.0	0.0	0.2
70-535	0.45	30.24	666.8	3,947.3	13,522.1	85.9	25.8	15.5	13.0	3.7	0.4	0.7	3.5
70-540	0.21	5.1	53.2	315.1	1,079.3	6.9	2.1	1.2	1.0	0.3	0.0	0.1	0.3
70-545	0.45	1.89	41.6	246.1	843.2	5.4	1.6	1.0	0.8	0.2	0.0	0.0	0.2
70-550	0.26	1.3	16.5	97.4	333.6	2.1	0.6	0.4	0.3	0.1	0.0	0.0	0.1
70-555	0.45	1.73	38.1	225.3	771.8	4.9	1.5	0.9	0.7	0.2	0.0	0.0	0.2
70-560	0.45	3.33	73.3	433.7	1,485.6	9.4	2.8	1.7	1.4	0.4	0.0	0.1	0.4
70-565	0.24	16.63	195.6	1,157.7	3,966.0	25.2	7.6	4.6	3.8	1.1	0.1	0.2	1.0
70-570	0.45	1.23	27.1	160.2	548.7	3.5	1.0	0.6	0.5	0.2	0.0	0.0	0.1
70-575	0.45	15.39	338.2	2,002.2	6,859.0	43.6	13.1	7.9	6.6	1.9	0.2	0.4	1.8
70-580	0.43	119.93	2,543.2	15,056.0	51,577.0	327.6	98.3	59.2	49.4	14.1	1.7	2.8	13.4
71-010	0.10	1.12	5.5	32.4	111.0	0.7	0.2	0.1	0.1	0.0	0.0	0.0	0.0
71-020	0.45	14.05	309.1	1,829.7	6,268.0	39.8	11.9	7.2	6.0	1.7	0.2	0.3	1.6
71-030	0.45	28.58	632.1	3,742.3	12,819.9	81.4	24.4	14.7	12.3	3.5	0.4	0.7	3.3
71-040	0.22	20.93	224.6	1,329.5	4,554.4	28.9	8.7	5.2	4.4	1.2	0.1	0.3	1.2
71-050	0.46	120.42	2,696.1	15,960.9	54,676.7	347.3	104.2	62.8	52.4	15.0	1.8	3.0	14.2
71-060	0.45	3.11	68.4	405.0	1,387.4	8.8	2.6	1.6	1.3	0.4	0.0	0.1	0.4
71-070	0.00	386.63	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
71-080	0.46	101.79	2,270.4	13,441.1	46,044.7	292.4	87.7	52.9	44.1	12.6	1.5	2.5	12.0
71-090	0.45	6.5	141.6	838.1	2,871.2	18.2	5.5	3.3	2.8	0.8	0.1	0.2	0.7
71-100	0.10	1.99	9.7	57.6	197.3	1.3	0.4	0.2	0.2	0.1	0.0	0.0	0.1
72-010	0.18	17.32	148.3	877.7	3,006.6	19.1	5.7	3.5	2.9	0.8	0.1	0.2	0.8
72-020	0.40	24.7	477.1	2,824.5	9,675.8	61.5	18.4	11.1	9.3	2.7	0.3	0.5	2.5
72-030	0.10	5.25	25.7	151.9	520.5	3.3	1.0	0.6	0.5	0.1	0.0	0.0	0.1
72-040	0.42	166.54	3,391.1	20,075.5	68,772.2	436.8	131.0	78.9	65.9	18.9	2.2	3.8	17.9
72-050	0.10	5.16	25.2	149.3	511.6	3.2	1.0	0.6	0.5	0.1	0.0	0.0	0.1
72-060	0.36	113.04	1,998.8	11,833.2	40,536.6	257.5	77.2	46.5	38.9	11.1	1.3	2.2	10.6
72-070	0.10	2.21	10.8	64.0	219.1	1.4	0.4	0.3	0.2	0.1	0.0	0.0	0.1
72-080	0.60	4.74	139.0	823.1	2,819.5	17.9	5.4	3.2	2.7	0.8	0.1	0.2	0.7
72-090	0.45	68.71	1,502.0	8,891.8	30,460.4	193.5	58.0	35.0	29.2	8.4	1.0	1.7	7.9
72-100	0.46	68.32	1,546.4	9,154.4	31,360.0	199.2	59.8	36.0	30.1	8.6	1.0	1.7	8.2
72-110	0.10	3.22	15.7	93.2	319.2	2.0	0.6	0.4	0.3	0.1	0.0	0.0	0.1
72-120	0.45	62.98	1,385.4	8,201.9	28,096.9	178.4	53.5	32.3	26.9	7.7	0.9	1.6	7.3
72-130	0.46	58.06	1,295.2	7,667.5	26,266.3	166.8	50.0	30.2	25.2	7.2	0.8	1.5	6.8
72-140	0.10	10.19	49.8	294.9	1,010.2	6.4	1.9	1.2	1.0	0.3	0.0	0.1	0.3
72-150	0.10	4.76	23.3	137.8	471.9	3.0	0.9	0.5	0.5	0.1	0.0	0.0	0.1
72-160	0.10	4.55	22.2	131.7	451.1	2.9	0.9	0.5	0.4	0.1	0.0	0.0	0.1
73-010	0.44	20.76	445.4	2,636.8	9,032.8	57.4	17.2	10.4	8.7	2.5	0.3	0.5	2.4
73-020	0.44	57.47	1,243.4	7,360.9	25,216.0	160.1	48.0	28.9	24.2	6.9	0.8	1.4	6.6
73-030	0.10	21.56	105.4	623.9	2,137.4	13.6	4.1	2.5	2.0	0.6	0.1	0.1	0.6
74-010	0.48	44.39	1,038.7	6,149.1	21,064.9	133.8	40.1	24.2	20.2	5.8	0.7	1.2	5.5
74-020	0.45	4.41	97.0	574.3	1,967.4	12.5	3.7	2.3	1.9	0.5	0.1	0.1	0.5
75-005	0.45	12.39	272.2	1,611.6	5,520.8	35.1	10.5	6.3	5.3	1.5	0.2	0.3	1.4
75-010	0.60	3.65	107.1	633.8	2,171.1	13.8	4.1	2.5	2.1	0.6	0.1	0.1	0.6
75-020	0.45	1.53	33.7	199.3	682.6	4.3	1.3	0.8	0.7	0.2	0.0	0.0	0.2
75-030	0.45	8.38	184.3	1,091.3	3,738.5	23.7	7.1	4.3	3.6	1.0	0.1	0.2	1.0
75-040	0.45	14.74	324.3	1,919.6	6,575.9	41.8	12.5	7.5	6.3	1.8	0.2	0.4	1.7
76-010	0.46	907.31	20,573.1	121,792.6	417,221.9	2,649.8	794.9	478.9	399.9	114.4	13.4	23.0	108.6
76-020	0.46	88.62	1,974.1	11,686.5	40,034.1	254.3	76.3	46.0	38.4	11.0	1.3	2.2	10.4
76-030	0.45	7.55	166.1	983.2	3,368.2	21.4	6.4	3.9	3.2	0.9	0.1	0.2	0.9
76-040	0.19	4.67	42.5	251.6	861.8	5.5	1.6	1.0	0.8	0.2	0.0	0.0	0.2
76-050	0.00	2.39	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81-010	0.10	31.17	152.4	902.1	3,090.2	19.6	5.9	3.5	3.0	0.8	0.1	0.2	0.8
82-010	0.49	23.53	559.7	3,313.4	11,350.5	72.1	21.6	13.0	10.9	3.1	0.4	0.6	3.0
82-020	0.45	73.45	1,633.1	9,667.7	33,118.4	210.3	63.1	38.0	31.7	9.1	1.1	1.8	8.6
82-030	0.45	90.04	2,001.4	11,848.3	40,588.6	257.8	77.3	46.6	38.9	11.1	1.3	2.2	10.6
82-040	0.46	98.49	2,233.6	13,222.6	45,296.5	287.7	86.3	52.0	43.4	12.4	1.5	2.5	11.8
83-010	0.45	6.59	145.0	858.2	2,940.0	18.7	5.6	3.4	2.8	0.8	0.1	0.2	0.8
83-015	0.45	0.99	21.8	128.9	441.7	2.8	0.8	0.5	0.4	0.1	0.0	0.0	0.1
83-020	0.43	85.96	1,827.0	10,815.8	37,051.4	235.3	70.6	42.5	35.5	10.2	1.2	2.0	9.6
83-025	0.45	51.23	1,127.0	6,671.7	22,854.9	145.2	43.5	26.2	21.9	6.3	0.7	1.3	6.0
83-030	0.60	0.82	24.1	142.4	487.8	3.1	0.9	0.6	0.5	0.1	0.0	0.0	0.1
83-040	0.10	1.08	5.3	31.3	107.1	0.7	0.2	0.1	0.1	0.0	0.0	0.0	0.0
83-050	0.45	40.4	891.2	5,275.7	18,072.7	114.8	34.4	20.7	17.3	5.0	0.6	1.0	4.7
83-060	0.45	10.05	221.1	1,308.8	4,483.5	28.5	8.5	5.1	4.3	1.2	0.1	0.2	1.2
83-070	0.10	1.19	5.8	34.4	118.0	0.7	0.2	0.1	0.1	0.0	0.0	0.0	0.0
83-080	0.48	178.63	4,151.7	24,578.0	84,196.4	534.7	160.4	96.7	80.7	23.1	2.7	4.6	21.9
83-090	0.41	9.16	183.5	1,086.3	3,721.3	23.6	7.1	4.3	3.6	1.0	0.1	0.2	1.0
84-010	0.47	21.56	495.7	2,934.7	10,053.2	63.8	19.2	11.5	9.6	2.8	0.3	0.6	2.6
85-010	0.10	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ANNUAL SUMMATION (kg)			**660,329.61**	**3,909,151.32**	**13,391,484.57**	**85,050.45**	**25,515.14**	**15,372.47**	**12,836.81**	**3,671.43**	**430.53**	**739.57**	**3,486.54**

Appendix A7: Pollutant Loadings, Part C) 2008 Annual Pollutant Loadings by Outfall
Source: Minneapolis Park and Recreation Board

2008 WINTER/SNOWMELT POLLUTANT LOADINGS BY OUTFALL

2008 WINTER/SNOWMELT POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (01/01/08 - 03/31/08)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Winter/snowmelt Median Event Mean Concentration			58.0	197	4488	13.60	3.420	2.000	1.280	0.590	0.030	0.011	0.214
Precipitation (meters)	0.064008												
10-010	0.43	113.55	625.6	2,124.9	48,407.9	146.7	36.9	21.6	13.8	6.4	0.3	0.1	2.3
10-020	0.45	7.81	44.9	152.4	3,472.9	10.5	2.6	1.5	1.0	0.5	0.0	0.0	0.2
10-030	0.10	4.05	5.2	17.6	400.2	1.2	0.3	0.2	0.1	0.1	0.0	0.0	0.0
10-040	0.45	167.42	955.4	3,245.2	73,930.5	224.0	56.3	32.9	21.1	9.7	0.5	0.2	3.5
10-050	0.46	114.18	663.7	2,254.4	51,360.1	155.6	39.1	22.9	14.6	6.8	0.3	0.1	2.4
10-060	0.60	10.5	80.5	273.3	6,225.4	18.9	4.7	2.8	1.8	0.8	0.0	0.0	0.3
10-070	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-080	0.38	30.66	149.6	508.2	11,577.7	35.1	8.8	5.2	3.3	1.5	0.1	0.0	0.6
10-090A	0.00	0.85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-090B	0.00	1.48	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-090C	0.54	12.77	88.3	299.9	6,833.3	20.7	5.2	3.0	1.9	0.9	0.0	0.0	0.3
10-090D	0.00	4.68	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-100	0.36	1392.1	6,448.3	21,902.1	498,967.1	1,512.0	380.2	222.4	142.3	65.6	3.3	1.3	23.8
10-110	0.47	300.11	1,788.0	6,073.0	138,354.5	419.3	105.4	61.7	39.5	18.2	0.9	0.3	6.6
10-120A/B	0.44	372.78	2,072.1	7,037.9	160,334.8	485.9	122.2	71.5	45.7	21.1	1.1	0.4	7.6
10-130	0.45	336.46	1,940.1	6,589.5	150,120.2	454.9	114.4	66.9	42.8	19.7	1.0	0.4	7.2
10-140a	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-140a,b	0.58	220.65	1,621.4	5,507.3	125,465.7	380.2	95.6	55.9	35.8	16.5	0.8	0.3	6.0
10-150	0.47	157.15	941.0	3,196.0	72,811.3	220.6	55.5	32.4	20.8	9.6	0.5	0.2	3.5
10-160	0.00	17	0.5	1.8	42.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-170	0.50	176.01	1,131.1	3,841.9	87,524.2	265.2	66.7	39.0	25.0	11.5	0.6	0.2	4.2
10-180	0.45	284.26	1,616.5	5,490.7	125,087.0	379.1	95.3	55.7	35.7	16.4	0.8	0.3	6.0
10-190	0.59	14.58	110.2	374.2	8,525.4	25.8	6.5	3.8	2.4	1.1	0.1	0.0	0.4
10-200	0.40	42.44	215.2	730.9	16,650.9	50.5	12.7	7.4	4.7	2.2	0.1	0.0	0.8
10-210	0.49	98.32	617.2	2,096.4	47,759.7	144.7	36.4	21.3	13.6	6.3	0.3	0.1	2.3
10-220	0.56	18.83	134.4	456.6	10,402.8	31.5	7.9	4.6	3.0	1.4	0.1	0.0	0.5
10-230	0.47	235.02	1,418.7	4,818.7	109,779.4	332.7	83.7	48.9	31.3	14.4	0.7	0.3	5.2
10-240	0.51	103.83	681.2	2,313.6	52,707.2	159.7	40.2	23.5	15.0	6.9	0.4	0.1	2.5
10-250	0.49	242.96	1,516.8	5,151.7	117,365.6	355.7	89.4	52.3	33.5	15.4	0.8	0.3	5.6
10-260	0.56	23.77	169.1	574.4	13,086.6	39.7	10.0	5.8	3.7	1.7	0.1	0.0	0.6
10-270	0.47	72.45	438.4	1,489.1	33,924.2	102.8	25.9	15.1	9.7	4.5	0.2	0.1	1.6
10-280	0.44	55.08	312.2	1,060.3	24,156.3	73.2	18.4	10.8	6.9	3.2	0.2	0.1	1.2
10-290	0.10	6.83	8.7	29.6	674.9	2.0	0.5	0.3	0.2	0.1	0.0	0.0	0.0
10-300	0.36	17.74	81.7	277.5	6,321.1	19.2	4.8	2.8	1.8	0.8	0.0	0.0	0.3
10-310	0.47	60.29	363.6	1,234.9	28,133.7	85.3	21.4	12.5	8.0	3.7	0.2	0.1	1.3
10-320	0.45	341.99	1,973.0	6,701.5	152,671.5	462.6	116.3	68.0	43.5	20.1	1.0	0.4	7.3
10-330	0.35	21.61	97.0	329.5	7,507.6	22.8	5.7	3.3	2.1	1.0	0.1	0.0	0.4
10-340	0.45	20.74	119.5	405.9	9,247.3	28.0	7.0	4.1	2.6	1.2	0.1	0.0	0.4
10-350	0.60	28.16	215.4	731.5	16,665.4	50.5	12.7	7.4	4.8	2.2	0.1	0.0	0.8
10-360	0.59	29.02	219.6	746.0	16,995.5	51.5	13.0	7.6	4.8	2.2	0.1	0.0	0.8
10-370	0.59	14.46	108.9	369.8	8,424.3	25.5	6.4	3.8	2.4	1.1	0.1	0.0	0.4
10-380	0.45	14.38	81.8	277.7	6,325.8	19.2	4.8	2.8	1.8	0.8	0.0	0.0	0.3
10-390	0.49	41.97	264.3	897.6	20,449.0	62.0	15.6	9.1	5.8	2.7	0.1	0.1	1.0
10-400A	0.10	1.07	1.4	4.6	105.7	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0
10-400B	0.47	17.66	106.4	361.2	8,229.7	24.9	6.3	3.7	2.3	1.1	0.1	0.0	0.4
10-400C	0.57	50.25	363.1	1,233.2	28,094.2	85.1	21.4	12.5	8.0	3.7	0.2	0.1	1.3
10-410A	0.50	46.22	293.8	998.1	22,737.4	68.9	17.3	10.1	6.5	3.0	0.2	0.1	1.1
10-410B	0.32	21.29	86.0	292.2	6,656.4	20.2	5.1	3.0	1.9	0.9	0.0	0.0	0.3
10-410C	0.53	22.8	153.7	522.0	11,891.5	36.0	9.1	5.3	3.4	1.6	0.1	0.0	0.6
10-410D	0.60	27.34	209.6	711.8	16,216.3	49.1	12.4	7.2	4.6	2.1	0.1	0.0	0.8
10-410E	0.58	256.04	1,881.5	6,390.6	145,589.1	441.2	110.9	64.9	41.5	19.1	1.0	0.4	6.9
10-410F	0.59	37.92	284.8	967.5	22,041.5	66.8	16.8	9.8	6.3	2.9	0.1	0.1	1.1
10-420A	0.27	23.05	80.2	272.5	6,206.9	18.8	4.7	2.8	1.8	0.8	0.0	0.0	0.3
10-420B	0.00	10.06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-420C	0.00	7.42	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-420D	0.00	20.73	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-420E	0.59	127.89	958.4	3,255.3	74,161.3	224.7	56.5	33.0	21.2	9.7	0.5	0.2	3.5
10-430A	0.00	8.14	0.3	0.9	20.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-430B	0.53	54.72	373.4	1,268.2	28,892.8	87.6	22.0	12.9	8.2	3.8	0.2	0.1	1.4
10-430C	0.48	44.83	275.0	934.1	21,281.1	64.5	16.2	9.5	6.1	2.8	0.1	0.1	1.0
10-430D	0.49	85.79	538.6	1,829.3	41,675.6	126.3	31.8	18.6	11.9	5.5	0.3	0.1	2.0
10-430E	0.56	86.66	617.1	2,096.0	47,750.1	144.7	36.4	21.3	13.6	6.3	0.3	0.1	2.3
10-430F	0.10	377.97	482.7	1,639.5	37,349.6	113.2	28.5	16.6	10.7	4.9	0.3	0.1	1.8
10-430G	0.50	125.89	796.7	2,706.1	61,650.7	186.8	47.0	27.5	17.6	8.1	0.4	0.2	2.9
10-430H	0.49	33.18	208.2	707.2	16,111.0	48.8	12.3	7.2	4.6	2.1	0.1	0.0	0.8
10-430I	0.59	32.61	245.1	832.6	18,967.7	57.5	14.5	8.5	5.4	2.5	0.1	0.0	0.9
10-430J	0.43	532.36	2,950.2	10,020.5	228,283.4	691.8	174.0	101.7	65.1	30.0	1.5	0.6	10.9
10-430K	0.48	337.06	2,056.0	6,983.3	159,091.9	482.1	121.2	70.9	45.4	20.9	1.1	0.4	7.6
10-430L	0.45	84.4	485.8	1,650.2	37,593.4	113.9	28.6	16.8	10.7	4.9	0.3	0.1	1.8
10-430M	0.54	75.94	526.0	1,786.6	40,701.0	123.3	31.0	18.1	11.6	5.4	0.3	0.1	1.9
10-430N	0.44	26.43	149.8	508.9	11,593.8	35.1	8.8	5.2	3.3	1.5	0.1	0.0	0.6
10-430O	0.00	109.53	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-430P	0.00	229.12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-430Q	0.10	8.03	10.3	34.8	793.5	2.4	0.6	0.4	0.2	0.1	0.0	0.0	0.0
10-430R	0.47	150.32	897.4	3,048.0	69,438.3	210.4	52.9	30.9	19.8	9.1	0.5	0.2	3.3
10-430S	0.10	5.15	6.6	22.3	508.9	1.5	0.4	0.2	0.1	0.1	0.0	0.0	0.0
10-430T	0.46	262.47	1,532.2	5,204.2	118,560.1	359.3	90.3	52.8	33.8	15.6	0.8	0.3	5.7
10-430U	0.47	431.37	2,588.3	8,791.4	200,282.2	606.9	152.6	89.3	57.1	26.3	1.3	0.5	9.5
10-430V	0.46	329.11	1,953.6	6,635.6	151,171.1	458.1	115.2	67.4	43.1	19.9	1.0	0.4	7.2
10-440A	0.46	23.18	135.6	460.6	10,493.7	31.8	8.0	4.7	3.0	1.4	0.1	0.0	0.5
10-440B	0.49	34.23	215.4	731.7	16,668.9	50.5	12.7	7.4	4.8	2.2	0.1	0.0	0.8

2008 WINTER/SNOWMELT POLLUTANT LOADINGS BY OUTFALL

2008 WINTER/SNOWMELT POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (01/01/08 - 03/31/08)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Winter/snowmelt Median Event Mean Concentration			58.0	197	4488	13.60	3.420	2.000	1.280	0.590	0.030	0.011	0.214
Precipitation (meters)	**0.064008**												
10-440C/D	0.00	56	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-440E	0.51	831.25	5,458.8	18,541.1	422,398.4	1,280.0	321.9	188.2	120.5	55.5	2.8	1.1	20.1
10-440F	0.46	538.85	3,166.9	10,756.7	245,055.4	742.6	186.7	109.2	69.9	32.2	1.6	0.6	11.7
10-450A	0.00	343.67	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-450B	0.52	3.41	22.5	76.4	1,741.0	5.3	1.3	0.8	0.5	0.2	0.0	0.0	0.1
10-450C	0.59	55.64	422.0	1,433.2	32,650.3	98.9	24.9	14.6	9.3	4.3	0.2	0.1	1.6
10-450D	0.45	4.62	26.5	90.2	2,054.4	6.2	1.6	0.9	0.6	0.3	0.0	0.0	0.1
10-450E	0.44	3.2	18.1	61.3	1,397.6	4.2	1.1	0.6	0.4	0.2	0.0	0.0	0.1
10-450F	0.46	158.55	930.2	3,159.5	71,980.0	218.1	54.9	32.1	20.5	9.5	0.5	0.2	3.4
10-450G/H	0.48	75.02	460.3	1,563.5	35,619.8	107.9	27.1	15.9	10.2	4.7	0.2	0.1	1.7
10-450I	0.49	243.64	1,528.4	5,191.2	118,265.2	358.4	90.1	52.7	33.7	15.5	0.8	0.3	5.6
10-450J	0.49	17.16	106.4	361.4	8,232.2	24.9	6.3	3.7	2.3	1.1	0.1	0.0	0.4
10-450K	0.58	37.01	273.8	929.9	21,184.9	64.2	16.1	9.4	6.0	2.8	0.1	0.1	1.0
10-450L	0.51	213.41	1,376.5	4,675.2	106,509.2	322.8	81.2	47.5	30.4	14.0	0.7	0.3	5.1
10-460	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460A	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460B	0.52	7.29	48.1	163.4	3,722.8	11.3	2.8	1.7	1.1	0.5	0.0	0.0	0.2
10-460C/D/F	0.00	159.87	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460E	0.49	231.41	1,459.4	4,956.9	112,927.6	342.2	86.1	50.3	32.2	14.8	0.8	0.3	5.4
10-460F	0.49	14.75	93.2	316.5	7,210.7	21.9	5.5	3.2	2.1	0.9	0.0	0.0	0.3
10-460G	0.51	79.66	519.6	1,765.0	40,208.9	121.8	30.6	17.9	11.5	5.3	0.3	0.1	1.9
10-460H	0.48	12.35	75.6	256.8	5,850.5	17.7	4.5	2.6	1.7	0.8	0.0	0.0	0.3
10-460I	0.00	72.26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460J	0.46	5.36	31.7	107.8	2,455.9	7.4	1.9	1.1	0.7	0.3	0.0	0.0	0.1
10-460K	0.36	5.48	25.2	85.5	1,947.9	5.9	1.5	0.9	0.6	0.3	0.0	0.0	0.1
10-460L	0.46	3.5	20.7	70.4	1,602.8	4.9	1.2	0.7	0.5	0.2	0.0	0.0	0.1
10-460M	0.48	9.55	58.4	198.2	4,516.4	13.7	3.4	2.0	1.3	0.6	0.0	0.0	0.2
10-460N	0.45	3.85	22.1	75.1	1,712.0	5.2	1.3	0.8	0.5	0.2	0.0	0.0	0.1
10-460O	0.45	4.15	24.0	81.7	1,860.5	5.6	1.4	0.8	0.5	0.2	0.0	0.0	0.1
10-460P	0.45	4.34	24.9	84.7	1,929.9	5.8	1.5	0.9	0.6	0.3	0.0	0.0	0.1
10-460Q	0.56	19.73	142.1	482.8	10,999.2	33.3	8.4	4.9	3.1	1.4	0.1	0.0	0.5
10-460R	0.00	51.51	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460S	0.56	233.54	1,683.0	5,716.3	130,226.2	394.6	99.2	58.0	37.1	17.1	0.9	0.3	6.2
10-465	0.10	8.56	10.9	37.1	845.9	2.6	0.6	0.4	0.2	0.1	0.0	0.0	0.0
10-470	0.38	25.6	124.8	423.8	9,654.4	29.3	7.4	4.3	2.8	1.3	0.1	0.0	0.5
10-480	0.58	39.66	293.8	998.1	22,737.6	68.9	17.3	10.1	6.5	3.0	0.2	0.1	1.1
10-485	0.00	7.27	0.2	0.8	18.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-490	0.43	150.96	835.7	2,838.7	64,669.5	196.0	49.3	28.8	18.4	8.5	0.4	0.2	3.1
10-500A	0.26	26.21	87.8	298.4	6,797.2	20.6	5.2	3.0	1.9	0.9	0.0	0.0	0.3
10-500B	0.46	8.48	49.8	169.3	3,857.0	11.7	2.9	1.7	1.1	0.5	0.0	0.0	0.2
10-500C	0.44	111.36	619.1	2,102.9	47,907.3	145.2	36.5	21.3	13.7	6.3	0.3	0.1	2.3
10-500D	0.24	3.83	11.6	39.6	901.1	2.7	0.7	0.4	0.3	0.1	0.0	0.0	0.0
10-500E	0.53	23.34	158.7	539.0	12,280.0	37.2	9.4	5.5	3.5	1.6	0.1	0.0	0.6
10-500F	0.49	12.04	75.9	257.9	5,874.8	17.8	4.5	2.6	1.7	0.8	0.0	0.0	0.3
10-500G	0.00	112.94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-505	0.10	7.85	10.0	34.0	775.7	2.4	0.6	0.3	0.2	0.1	0.0	0.0	0.0
10-510	0.51	62.36	405.1	1,375.8	31,343.3	95.0	23.9	14.0	8.9	4.1	0.2	0.1	1.5
10-520	0.00	139.98	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-530	0.45	116.15	668.6	2,271.0	51,737.9	156.8	39.4	23.1	14.8	6.8	0.3	0.1	2.5
10-540	0.12	53.9	81.5	276.9	6,307.5	19.1	4.8	2.8	1.8	0.8	0.0	0.0	0.3
10-550	0.46	25.83	151.7	515.3	11,739.0	35.6	8.9	5.2	3.3	1.5	0.1	0.0	0.6
10-560A/B	0.44	600.63	3,355.7	11,397.7	259,660.1	786.8	197.9	115.7	74.1	34.1	1.7	0.7	12.4
10-570A	0.54	14.64	101.7	345.3	7,866.7	23.8	6.0	3.5	2.2	1.0	0.1	0.0	0.4
10-570B	0.44	228.18	1,272.0	4,320.3	98,425.0	298.3	75.0	43.9	28.1	12.9	0.7	0.2	4.7
10-580	0.45	73.39	420.7	1,428.8	32,549.7	98.6	24.8	14.5	9.3	4.3	0.2	0.1	1.6
10-600	0.48	89.24	551.1	1,871.9	42,646.1	129.2	32.5	19.0	12.2	5.6	0.3	0.1	2.0
10-610	0.46	25.6	149.8	509.0	11,594.9	35.1	8.8	5.2	3.3	1.5	0.1	0.0	0.6
10-620	0.00	9.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-630A	0.10	6.24	8.0	27.1	616.6	1.9	0.5	0.3	0.2	0.1	0.0	0.0	0.0
10-630B	0.45	4.68	26.9	91.3	2,081.1	6.3	1.6	0.9	0.6	0.3	0.0	0.0	0.1
10-630C	0.48	96.03	592.5	2,012.4	45,846.3	138.9	34.9	20.4	13.1	6.0	0.3	0.1	2.2
10-630D	0.45	6.37	36.6	124.3	2,832.6	8.6	2.2	1.3	0.8	0.4	0.0	0.0	0.1
10-630E	0.45	8.52	49.0	166.3	3,788.6	11.5	2.9	1.7	1.1	0.5	0.0	0.0	0.2
10-630F	0.54	17.56	121.1	411.5	9,374.3	28.4	7.1	4.2	2.7	1.2	0.1	0.0	0.4
10-630G	0.45	5.9	33.9	115.2	2,623.6	8.0	2.0	1.2	0.7	0.3	0.0	0.0	0.1
10-630H	0.30	25.63	99.1	336.7	7,670.7	23.2	5.8	3.4	2.2	1.0	0.1	0.0	0.4
10-630I	0.47	12.48	74.1	251.7	5,734.8	17.4	4.4	2.6	1.6	0.8	0.0	0.0	0.3
10-630J	0.55	14.69	103.9	352.8	8,037.1	24.4	6.1	3.6	2.3	1.1	0.1	0.0	0.4
10-630K	0.47	95.29	575.9	1,956.2	44,565.7	135.0	34.0	19.9	12.7	5.9	0.3	0.1	2.1
10-630L	0.52	100.42	668.1	2,269.3	51,699.5	156.7	39.4	23.0	14.7	6.8	0.3	0.1	2.5
10-630M	0.50	11.71	74.3	252.2	5,745.4	17.4	4.4	2.6	1.6	0.8	0.0	0.0	0.3
10-630N	0.45	8.45	48.6	164.9	3,757.5	11.4	2.9	1.7	1.1	0.5	0.0	0.0	0.2
10-630O	0.36	5.77	26.8	91.1	2,075.9	6.3	1.6	0.9	0.6	0.3	0.0	0.0	0.1
10-630P/Q	0.00	67.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-630R	0.33	83.89	357.8	1,215.3	27,686.2	83.9	21.1	12.3	7.9	3.6	0.2	0.1	1.3
10-630S	0.22	37.02	102.8	349.1	7,952.1	24.1	6.1	3.5	2.3	1.0	0.1	0.0	0.4
10-630T	0.56	7.72	55.5	188.4	4,291.1	13.0	3.3	1.9	1.2	0.6	0.0	0.0	0.2
10-630U	0.52	115.42	771.0	2,618.8	59,660.4	180.8	45.5	26.6	17.0	7.8	0.4	0.2	2.8
10-630V	0.11	33.85	45.6	155.0	3,532.3	10.7	2.7	1.6	1.0	0.5	0.0	0.0	0.2
10-630W	0.47	23.68	143.2	486.5	11,084.4	33.6	8.4	4.9	3.2	1.5	0.1	0.0	0.5
10-630X	0.44	14.78	83.5	283.6	6,461.1	19.6	4.9	2.9	1.8	0.8	0.0	0.0	0.3

2008 WINTER/SNOWMELT POLLUTANT LOADINGS BY OUTFALL

2008 WINTER/SNOWMELT POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (01/01/08 - 03/31/08)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Winter/snowmelt Median Event Mean Concentration			58.0	197	4488	13.60	3.420	2.000	1.280	0.590	0.030	0.011	0.214
Precipitation (meters)	0.064008												
10-630Y	0.00	112.03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-630Z	0.47	45.66	274.5	932.4	21,241.8	64.4	16.2	9.5	6.1	2.8	0.1	0.1	1.0
10-640	0.46	258.18	1,507.9	5,121.7	116,682.0	353.6	88.9	52.0	33.3	15.3	0.8	0.3	5.6
10-650	0.56	19.53	138.9	471.9	10,749.9	32.6	8.2	4.8	3.1	1.4	0.1	0.0	0.5
10-660	0.46	306.37	1,812.5	6,156.1	140,247.4	425.0	106.9	62.5	40.0	18.4	0.9	0.4	6.7
10-670	0.45	137.88	791.2	2,687.3	61,221.6	185.5	46.7	27.3	17.5	8.0	0.4	0.2	2.9
10-680	0.46	707.95	4,145.3	14,079.8	320,763.1	972.0	244.4	142.9	91.5	42.2	2.2	0.8	15.3
10-690	0.50	70.63	451.2	1,532.7	34,916.5	105.8	26.6	15.6	10.0	4.6	0.2	0.1	1.7
10-700	0.46	222.07	1,316.9	4,472.8	101,898.7	308.8	77.7	45.4	29.1	13.4	0.7	0.3	4.9
10-710	0.33	29.95	127.4	432.8	9,859.0	29.9	7.5	4.4	2.8	1.3	0.1	0.0	0.5
10-720A	0.44	15.77	89.3	303.3	6,910.0	20.9	5.3	3.1	2.0	0.9	0.0	0.0	0.3
10-720B	0.48	422.18	2,597.5	8,822.4	200,990.2	609.1	153.2	89.6	57.3	26.4	1.3	0.5	9.6
10-720C	0.43	26.35	144.5	490.8	11,180.8	33.9	8.5	5.0	3.2	1.5	0.1	0.0	0.5
10-720D	0.46	22.95	133.4	453.2	10,324.7	31.3	7.9	4.6	2.9	1.4	0.1	0.0	0.5
10-720E	0.46	18.39	107.0	363.5	8,281.7	25.1	6.3	3.7	2.4	1.1	0.1	0.0	0.4
10-720F	0.48	317.75	1,947.0	6,613.0	150,654.9	456.5	114.8	67.1	43.0	19.8	1.0	0.4	7.2
10-720G	0.00	13.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-720H	0.45	4.55	26.1	88.8	2,023.3	6.1	1.5	0.9	0.6	0.3	0.0	0.0	0.1
10-720I	0.45	87.27	497.0	1,688.1	38,457.8	116.5	29.3	17.1	11.0	5.1	0.3	0.1	1.8
10-720J	0.36	3.71	16.9	57.5	1,309.7	4.0	1.0	0.6	0.4	0.2	0.0	0.0	0.1
10-720K	0.55	32.76	229.7	780.2	17,775.3	53.9	13.5	7.9	5.1	2.3	0.1	0.0	0.8
10-720L	0.45	4.57	26.3	89.2	2,032.2	6.2	1.5	0.9	0.6	0.3	0.0	0.0	0.1
20-010	0.42	93.99	503.9	1,711.5	38,990.4	118.2	29.7	17.4	11.1	5.1	0.3	0.1	1.9
20-020	0.44	15.09	84.5	287.1	6,541.0	19.8	5.0	2.9	1.9	0.9	0.0	0.0	0.3
20-030	0.45	7.95	45.7	155.2	3,535.2	10.7	2.7	1.6	1.0	0.5	0.0	0.0	0.2
20-040	0.37	6.79	32.3	109.8	2,501.5	7.6	1.9	1.1	0.7	0.3	0.0	0.0	0.1
20-050	0.00	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-060	0.45	5.91	34.0	115.4	2,628.0	8.0	2.0	1.2	0.7	0.3	0.0	0.0	0.1
20-070	0.44	39.07	221.2	751.4	17,118.0	51.9	13.0	7.6	4.9	2.3	0.1	0.0	0.8
20-080	0.45	33.72	195.2	663.1	15,107.3	45.8	11.5	6.7	4.3	2.0	0.1	0.0	0.7
20-090	0.55	9.95	70.2	238.6	5,434.8	16.5	4.1	2.4	1.6	0.7	0.0	0.0	0.3
20-100	0.10	0.99	1.3	4.3	97.8	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0
20-110	0.24	216.04	661.9	2,248.2	51,218.7	155.2	39.0	22.8	14.6	6.7	0.3	0.1	2.4
20-120	0.47	10.22	61.0	207.2	4,720.7	14.3	3.6	2.1	1.3	0.6	0.0	0.0	0.2
20-130	0.45	16.12	92.6	314.6	7,168.1	21.7	5.5	3.2	2.0	0.9	0.0	0.0	0.3
20-140	0.44	2.97	16.7	56.9	1,295.2	3.9	1.0	0.6	0.4	0.2	0.0	0.0	0.1
20-150	0.45	14.48	83.2	282.6	6,438.9	19.5	4.9	2.9	1.8	0.8	0.0	0.0	0.3
20-160	0.54	3.21	22.1	75.2	1,713.8	5.2	1.3	0.8	0.5	0.2	0.0	0.0	0.1
20-170	0.37	4.94	23.5	79.8	1,818.8	5.5	1.4	0.8	0.5	0.2	0.0	0.0	0.1
20-180	0.51	5.3	34.3	116.4	2,650.7	8.0	2.0	1.2	0.8	0.3	0.0	0.0	0.1
20-190	0.45	1.35	7.8	26.4	600.3	1.8	0.5	0.3	0.2	0.1	0.0	0.0	0.0
20-200	0.45	13.84	79.5	270.1	6,154.3	18.6	4.7	2.7	1.8	0.8	0.0	0.0	0.3
20-210A	0.44	92.9	521.1	1,770.1	40,325.1	122.2	30.7	18.0	11.5	5.3	0.3	0.1	1.9
20-210B	0.50	620.78	3,999.9	13,586.0	309,511.7	937.9	235.9	137.9	88.3	40.7	2.1	0.8	14.8
20-220	0.46	26.38	155.3	527.5	12,017.9	36.4	9.2	5.4	3.4	1.6	0.1	0.0	0.6
20-230	0.00	21.46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-240	0.48	30.06	185.0	628.2	14,311.5	43.4	10.9	6.4	4.1	1.9	0.1	0.0	0.7
20-250	0.57	6.28	45.9	155.7	3,547.9	10.8	2.7	1.6	1.0	0.5	0.0	0.0	0.2
20-260	0.60	3.5	26.8	91.1	2,075.1	6.3	1.6	0.9	0.6	0.3	0.0	0.0	0.1
20-270	0.48	42.81	260.6	885.2	20,166.6	61.1	15.4	9.0	5.8	2.7	0.1	0.1	1.0
20-280	0.54	8.98	61.6	209.3	4,769.2	14.5	3.6	2.1	1.4	0.6	0.0	0.0	0.2
20-290	0.00	4.98	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21-010	0.45	49.49	283.3	962.2	21,921.3	66.4	16.7	9.8	6.3	2.9	0.1	0.1	1.0
40-010	0.45	719.17	4,115.5	13,978.6	318,456.1	965.0	242.7	141.9	90.8	41.9	2.1	0.8	15.2
40-020	0.45	15.36	88.3	299.8	6,830.2	20.7	5.2	3.0	1.9	0.9	0.0	0.0	0.3
40-030	0.42	51.02	272.2	924.5	21,061.1	63.8	16.0	9.4	6.0	2.8	0.1	0.1	1.0
40-040	0.43	65.39	362.6	1,231.5	28,055.9	85.0	21.4	12.5	8.0	3.7	0.2	0.1	1.3
40-050	0.45	10.28	59.1	200.7	4,571.2	13.9	3.5	2.0	1.3	0.6	0.0	0.0	0.2
40-060	0.45	3.2	18.4	62.5	1,423.0	4.3	1.1	0.6	0.4	0.2	0.0	0.0	0.1
40-070	0.38	7.98	38.6	130.9	2,983.2	9.0	2.3	1.3	0.9	0.4	0.0	0.0	0.1
40-080	0.41	60.51	315.6	1,071.9	24,419.2	74.0	18.6	10.9	7.0	3.2	0.2	0.1	1.2
40-090	0.46	20.65	122.6	416.4	9,486.0	28.7	7.2	4.2	2.7	1.2	0.1	0.0	0.5
40-100	0.00	20.35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40-110	0.44	2.61	14.8	50.2	1,144.6	3.5	0.9	0.5	0.3	0.2	0.0	0.0	0.1
40-120	0.44	65.87	368.7	1,252.2	28,527.6	86.4	21.7	12.7	8.1	3.8	0.2	0.1	1.4
40-130	0.45	35.01	202.0	686.2	15,632.7	47.4	11.9	7.0	4.5	2.1	0.1	0.0	0.7
40-140	0.35	125.46	557.1	1,892.3	43,110.1	130.6	32.9	19.2	12.3	5.7	0.3	0.1	2.1
40-150	0.47	24.31	147.1	499.5	11,380.2	34.5	8.7	5.1	3.2	1.5	0.1	0.0	0.5
40-160	0.49	30.99	195.6	664.5	15,138.7	45.9	11.5	6.7	4.3	2.0	0.1	0.0	0.7
40-170	0.00	194.89	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40-180	0.54	16.8	115.5	392.3	8,937.1	27.1	6.8	4.0	2.5	1.2	0.1	0.0	0.4
40-190	0.53	65.53	442.5	1,503.0	34,240.3	103.8	26.1	15.3	9.8	4.5	0.2	0.1	1.6
40-200	0.46	24.75	146.1	496.3	11,307.0	34.3	8.6	5.0	3.2	1.5	0.1	0.0	0.5
40-210	0.54	17.26	120.1	407.9	9,292.7	28.2	7.1	4.1	2.7	1.2	0.1	0.0	0.4
40-220	0.47	100.58	600.5	2,039.5	46,463.1	140.8	35.4	20.7	13.3	6.1	0.3	0.1	2.2
40-230	0.44	13.78	78.3	265.9	6,057.2	18.4	4.6	2.7	1.7	0.8	0.0	0.0	0.3
40-240	0.00	340.86	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40-250	0.60	1.15	8.8	29.9	681.8	2.1	0.5	0.3	0.2	0.1	0.0	0.0	0.0
40-260	0.45	3.49	20.1	68.1	1,551.9	4.7	1.2	0.7	0.4	0.2	0.0	0.0	0.1
40-270	0.45	9.59	55.1	187.2	4,264.4	12.9	3.2	1.9	1.2	0.6	0.0	0.0	0.2
40-280	0.53	12.76	85.7	291.1	6,630.8	20.1	5.1	3.0	1.9	0.9	0.0	0.0	0.3

2008 WINTER/SNOWMELT POLLUTANT LOADINGS BY OUTFALL

2008 WINTER/SNOWMELT POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (01/01/08 - 03/31/08)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Winter/snowmelt Median Event Mean Concentration			58.0	197	4488	13.60	3.420	2.000	1.280	0.590	0.030	0.011	0.214
Precipitation (meters)	**0.064008**												
40-290	0.51	13.73	89.8	304.9	6,946.9	21.1	5.3	3.1	2.0	0.9	0.0	0.0	0.3
40-300	0.52	10.38	69.1	234.6	5,344.2	16.2	4.1	2.4	1.5	0.7	0.0	0.0	0.3
40-310	0.45	97.86	565.7	1,921.3	43,771.5	132.6	33.4	19.5	12.5	5.8	0.3	0.1	2.1
40-320	0.60	9.43	72.3	245.4	5,591.0	16.9	4.3	2.5	1.6	0.7	0.0	0.0	0.3
40-330	0.59	15.34	116.1	394.4	8,984.3	27.2	6.8	4.0	2.6	1.2	0.1	0.0	0.4
40-340	0.53	35.27	240.0	815.3	18,573.7	56.3	14.2	8.3	5.3	2.4	0.1	0.0	0.9
40-350	0.60	8.99	68.9	234.0	5,330.2	16.2	4.1	2.4	1.5	0.7	0.0	0.0	0.3
40-360	0.60	8.09	62.0	210.5	4,796.5	14.5	3.7	2.1	1.4	0.6	0.0	0.0	0.2
40-370	0.58	12.41	91.7	311.4	7,093.6	21.5	5.4	3.2	2.0	0.9	0.0	0.0	0.3
40-380	0.39	24.92	125.2	425.3	9,688.1	29.4	7.4	4.3	2.8	1.3	0.1	0.0	0.5
40-390	0.58	5.72	42.4	143.9	3,278.0	9.9	2.5	1.5	0.9	0.4	0.0	0.0	0.2
40-400	0.10	1.07	1.4	4.6	105.7	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0
41-010	0.38	94.73	456.6	1,550.9	35,332.3	107.1	26.9	15.7	10.1	4.6	0.2	0.1	1.7
41-020	0.00	14.89	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41-030	0.50	60.47	387.6	1,316.7	29,995.6	90.9	22.9	13.4	8.6	3.9	0.2	0.1	1.4
41-040	0.57	35.59	260.4	884.6	20,151.7	61.1	15.4	9.0	5.7	2.6	0.1	0.1	1.0
41-050	0.60	10.48	80.3	272.7	6,213.6	18.8	4.7	2.8	1.8	0.8	0.0	0.0	0.3
41-060	0.60	2.95	22.6	76.8	1,749.0	5.3	1.3	0.8	0.5	0.2	0.0	0.0	0.1
51-010	0.45	29.63	170.8	580.1	13,214.8	40.0	10.1	5.9	3.8	1.7	0.1	0.0	0.6
51-020	0.45	4.55	26.1	88.8	2,023.3	6.1	1.5	0.9	0.6	0.3	0.0	0.0	0.1
52-010	0.28	45.29	159.8	542.9	12,367.7	37.5	9.4	5.5	3.5	1.6	0.1	0.0	0.6
52-020	0.45	6.09	35.0	118.9	2,708.1	8.2	2.1	1.2	0.8	0.4	0.0	0.0	0.1
52-030	0.45	7.18	41.3	140.1	3,192.8	9.7	2.4	1.4	0.9	0.4	0.0	0.0	0.2
52-040	0.41	4.54	24.0	81.4	1,854.4	5.6	1.4	0.8	0.5	0.2	0.0	0.0	0.1
52-050	0.44	15.3	85.0	288.7	6,577.0	19.9	5.0	2.9	1.9	0.9	0.0	0.0	0.3
52-060	0.10	3.22	4.1	14.0	318.2	1.0	0.2	0.1	0.1	0.0	0.0	0.0	0.0
52-070	0.42	86.94	469.8	1,595.8	36,355.8	110.2	27.7	16.2	10.4	4.8	0.2	0.1	1.7
52-080	0.24	8.08	25.0	84.8	1,932.5	5.9	1.5	0.9	0.6	0.3	0.0	0.0	0.1
52-090	0.45	4.89	28.1	95.4	2,174.5	6.6	1.7	1.0	0.6	0.3	0.0	0.0	0.1
52-100A/B	0.27	11.89	40.5	137.5	3,132.6	9.5	2.4	1.4	0.9	0.4	0.0	0.0	0.1
52-110	0.45	8.84	50.4	171.2	3,899.4	11.8	3.0	1.7	1.1	0.5	0.0	0.0	0.2
52-120	0.45	14.74	84.7	287.7	6,554.5	19.9	5.0	2.9	1.9	0.9	0.0	0.0	0.3
52-130	0.31	7.18	28.9	98.0	2,233.3	6.8	1.7	1.0	0.6	0.3	0.0	0.0	0.1
53-010	0.45	7.03	40.4	137.2	3,126.1	9.5	2.4	1.4	0.9	0.4	0.0	0.0	0.1
53-020	0.28	12.38	43.7	148.4	3,381.0	10.2	2.6	1.5	1.0	0.4	0.0	0.0	0.2
53-030	0.44	11.37	63.4	215.5	4,908.5	14.9	3.7	2.2	1.4	0.6	0.0	0.0	0.2
53-040	0.45	2.78	16.0	54.3	1,236.2	3.7	0.9	0.6	0.4	0.2	0.0	0.0	0.1
53-050	0.45	13.66	78.5	266.6	6,074.2	18.4	4.6	2.7	1.7	0.8	0.0	0.0	0.3
53-060	0.45	20.37	117.1	397.6	9,058.0	27.4	6.9	4.0	2.6	1.2	0.1	0.0	0.4
53-070	0.45	4.89	28.1	95.4	2,174.5	6.6	1.7	1.0	0.6	0.3	0.0	0.0	0.1
53-080	0.39	5.81	29.2	99.3	2,263.2	6.9	1.7	1.0	0.6	0.3	0.0	0.0	0.1
53-090	0.46	59.59	349.4	1,186.8	27,038.1	81.9	20.6	12.0	7.7	3.6	0.2	0.1	1.3
53-100	0.00	107	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
53-110	0.38	4.59	22.6	76.6	1,745.8	5.3	1.3	0.8	0.5	0.2	0.0	0.0	0.1
53-120A/B	0.46	129.79	755.2	2,565.0	58,434.3	177.1	44.5	26.0	16.7	7.7	0.4	0.1	2.8
53-130	0.45	5.02	28.8	98.0	2,232.3	6.8	1.7	1.0	0.6	0.3	0.0	0.0	0.1
53-140	0.45	6.36	36.5	124.1	2,828.1	8.6	2.2	1.3	0.8	0.4	0.0	0.0	0.1
53-150	0.48	90.4	558.5	1,897.1	43,219.2	131.0	32.9	19.3	12.3	5.7	0.3	0.1	2.1
53-160	0.47	252.19	1,522.6	5,171.5	117,816.7	357.0	89.8	52.5	33.6	15.5	0.8	0.3	5.6
53-170	0.36	6.39	29.4	100.0	2,278.6	6.9	1.7	1.0	0.6	0.3	0.0	0.0	0.1
53-180	0.10	8.09	10.3	35.1	799.4	2.4	0.6	0.4	0.2	0.1	0.0	0.0	0.0
53-190	0.30	11.41	43.8	148.7	3,388.2	10.3	2.6	1.5	1.0	0.4	0.0	0.0	0.2
54-010A/B	0.44	84.93	471.9	1,602.8	36,514.4	110.6	27.8	16.3	10.4	4.8	0.2	0.1	1.7
54-040A/B	0.49	255.14	1,612.6	5,477.4	124,784.2	378.1	95.1	55.6	35.6	16.4	0.8	0.3	6.0
54-050	0.17	9.27	20.6	69.9	1,592.8	4.8	1.2	0.7	0.5	0.2	0.0	0.0	0.1
54-060	0.44	32.13	180.2	612.2	13,946.4	42.3	10.6	6.2	4.0	1.8	0.1	0.0	0.7
54-070	0.36	60.8	278.4	945.7	21,543.6	65.3	16.4	9.6	6.1	2.8	0.1	0.1	1.0
54-080A/B/C	0.46	414.26	2,418.1	8,213.3	187,112.7	567.0	142.6	83.4	53.4	24.6	1.3	0.5	8.9
54-090	0.10	3.55	4.5	15.4	350.8	1.1	0.3	0.2	0.1	0.0	0.0	0.0	0.0
54-100A/B	0.60	114.24	869.1	2,951.8	67,247.2	203.8	51.2	30.0	19.2	8.8	0.5	0.2	3.2
54-110	0.45	24.55	141.1	479.2	10,916.7	33.1	8.3	4.9	3.1	1.4	0.1	0.0	0.5
54-120	0.46	62.08	362.3	1,230.4	28,031.4	84.9	21.4	12.5	8.0	3.7	0.2	0.1	1.3
54-130	0.10	1.07	1.4	4.6	105.7	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0
54-140A/B	0.41	113.01	588.7	1,999.6	45,554.6	138.0	34.7	20.3	13.0	6.0	0.3	0.1	2.2
54-150	0.45	55.34	314.7	1,069.0	24,352.8	73.8	18.6	10.9	6.9	3.2	0.2	0.1	1.2
54-160	0.60	2.62	20.1	68.2	1,553.4	4.7	1.2	0.7	0.4	0.2	0.0	0.0	0.1
54-170	0.59	8.08	61.4	208.4	4,747.6	14.4	3.6	2.1	1.4	0.6	0.0	0.0	0.2
54-180	0.60	2.82	21.6	73.4	1,672.0	5.1	1.3	0.7	0.5	0.2	0.0	0.0	0.1
54-190	0.10	2.2	2.8	9.5	217.4	0.7	0.2	0.1	0.1	0.0	0.0	0.0	0.0
54-200	0.10	2.13	2.7	9.2	210.5	0.6	0.2	0.1	0.1	0.0	0.0	0.0	0.0
54-210	0.10	1.14	1.5	4.9	112.7	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0
55-010	0.60	14.98	114.8	389.9	8,881.6	26.9	6.8	4.0	2.5	1.2	0.1	0.0	0.4
55-020	0.60	189.58	1,443.2	4,901.8	111,670.9	338.4	85.1	49.8	31.8	14.7	0.7	0.3	5.3
56-010	0.60	67.62	518.1	1,759.8	40,091.7	121.5	30.6	17.9	11.4	5.3	0.3	0.1	1.9
57-010	0.53	26.1	177.8	603.9	13,758.5	41.7	10.5	6.1	3.9	1.8	0.1	0.0	0.7
57-020	0.00	142	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57-030	0.45	18.22	104.7	355.6	8,101.9	24.6	6.2	3.6	2.3	1.1	0.1	0.0	0.4
57-040	0.35	39.88	177.7	603.6	13,751.6	41.7	10.5	6.1	3.9	1.8	0.1	0.0	0.7
57-050	0.45	7.9	45.4	154.2	3,512.9	10.6	2.7	1.6	1.0	0.5	0.0	0.0	0.2
57-060	0.46	26.11	154.2	523.7	11,931.6	36.2	9.1	5.3	3.4	1.6	0.1	0.0	0.6
57-070	0.45	81.33	468.5	1,591.3	36,251.7	109.9	27.6	16.2	10.3	4.8	0.2	0.1	1.7

2008 WINTER/SNOWMELT POLLUTANT LOADINGS BY OUTFALL

2008 WINTER/SNOWMELT POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (01/01/08 - 03/31/08)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Winter/snowmelt Median Event Mean Concentration			58.0	197	4488	13.60	3.420	2.000	1.280	0.590	0.030	0.011	0.214
Precipitation (meters)	0.064008												
57-080	0.42	5.54	29.9	101.6	2,314.0	7.0	1.8	1.0	0.7	0.3	0.0	0.0	0.1
57-090	0.47	77.77	466.1	1,583.1	36,065.8	109.3	27.5	16.1	10.3	4.7	0.2	0.1	1.7
57-100A/B	0.47	313.43	1,890.9	6,422.5	146,314.8	443.4	111.5	65.2	41.7	19.2	1.0	0.4	7.0
57-110	0.54	21.6	149.2	506.7	11,542.9	35.0	8.8	5.1	3.3	1.5	0.1	0.0	0.6
57-120A/B/C	0.00	65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57-130	0.10	1.16	1.5	5.0	114.6	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0
57-140	0.10	1.55	2.0	6.7	153.2	0.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0
57-150	0.43	35.68	196.7	668.0	15,217.4	46.1	11.6	6.8	4.3	2.0	0.1	0.0	0.7
57-160	0.10	1.89	2.4	8.2	186.8	0.6	0.1	0.1	0.1	0.0	0.0	0.0	0.0
61-010	0.55	2.86	20.2	68.4	1,559.3	4.7	1.2	0.7	0.4	0.2	0.0	0.0	0.1
62-010	0.45	27.84	160.7	545.9	12,436.9	37.7	9.5	5.5	3.5	1.6	0.1	0.0	0.6
63-010	0.45	388.79	2,244.8	7,624.7	173,702.8	526.4	132.4	77.4	49.5	22.8	1.2	0.4	8.3
63-020	0.00	11.91	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
64-100	0.45	24.92	143.1	486.0	11,070.9	33.5	8.4	4.9	3.2	1.5	0.1	0.0	0.5
64-110	0.45	6.01	34.5	117.3	2,672.5	8.1	2.0	1.2	0.8	0.4	0.0	0.0	0.1
64-120	0.45	16.04	92.2	313.1	7,132.6	21.6	5.4	3.2	2.0	0.9	0.0	0.0	0.3
64-130	0.45	2.44	14.0	47.6	1,085.0	3.3	0.8	0.5	0.3	0.1	0.0	0.0	0.1
65-010	0.00	18.97	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65-020	0.53	38.46	259.9	882.8	20,110.6	60.9	15.3	9.0	5.7	2.6	0.1	0.1	1.0
70-010	0.46	6.23	36.5	123.9	2,823.3	8.6	2.2	1.3	0.8	0.4	0.0	0.0	0.1
70-015	0.45	11.69	67.2	228.2	5,198.2	15.8	4.0	2.3	1.5	0.7	0.0	0.0	0.2
70-020	0.45	37.55	215.8	732.9	16,697.5	50.6	12.7	7.4	4.8	2.2	0.1	0.0	0.8
70-025	0.00	3.67	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-030	0.45	13.48	77.4	262.9	5,989.5	18.2	4.6	2.7	1.7	0.8	0.0	0.0	0.3
70-035	0.45	4.53	26.0	88.4	2,014.4	6.1	1.5	0.9	0.6	0.3	0.0	0.0	0.1
70-040	0.45	2.42	13.9	47.2	1,076.1	3.3	0.8	0.5	0.3	0.1	0.0	0.0	0.1
70-045	0.00	0.26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-050	0.45	17.41	100.0	339.8	7,741.8	23.5	5.9	3.4	2.2	1.0	0.1	0.0	0.4
70-055	0.46	333.43	1,976.2	6,712.3	152,918.1	463.4	116.5	68.1	43.6	20.1	1.0	0.4	7.3
70-060	0.45	3.53	20.3	68.9	1,569.7	4.8	1.2	0.7	0.4	0.2	0.0	0.0	0.1
70-065	0.45	1.89	10.9	36.9	840.4	2.5	0.6	0.4	0.2	0.1	0.0	0.0	0.0
70-070	0.45	5.8	33.3	113.2	2,579.1	7.8	2.0	1.1	0.7	0.3	0.0	0.0	0.1
70-075	0.43	5	27.5	93.6	2,131.4	6.5	1.6	0.9	0.6	0.3	0.0	0.0	0.1
70-080	0.46	11.96	70.6	239.7	5,459.9	16.5	4.2	2.4	1.6	0.7	0.0	0.0	0.3
70-085	0.45	229.48	1,310.6	4,451.7	101,416.6	307.3	77.3	45.2	28.9	13.3	0.7	0.3	4.8
70-090	0.45	18.57	106.7	362.5	8,257.6	25.0	6.3	3.7	2.4	1.1	0.1	0.0	0.4
70-095	0.45	9.99	57.4	195.0	4,442.3	13.5	3.4	2.0	1.3	0.6	0.0	0.0	0.2
70-100	0.45	9.64	55.4	188.2	4,286.7	13.0	3.3	1.9	1.2	0.6	0.0	0.0	0.2
70-105	0.45	1.63	9.4	31.8	724.8	2.2	0.6	0.3	0.2	0.1	0.0	0.0	0.0
70-110	0.45	18.13	104.2	353.9	8,061.9	24.4	6.1	3.6	2.3	1.1	0.1	0.0	0.4
70-115	0.45	3.71	21.3	72.4	1,649.7	5.0	1.3	0.7	0.5	0.2	0.0	0.0	0.1
70-120	0.45	4.22	24.3	82.4	1,876.5	5.7	1.4	0.8	0.5	0.2	0.0	0.0	0.1
70-125	0.00	5.04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-130	0.49	34.29	216.2	734.3	16,728.4	50.7	12.7	7.5	4.8	2.2	0.1	0.0	0.8
70-135	0.45	7.46	42.9	145.6	3,317.3	10.1	2.5	1.5	0.9	0.4	0.0	0.0	0.2
70-140	0.60	0.78	6.0	20.3	462.5	1.4	0.4	0.2	0.1	0.1	0.0	0.0	0.0
70-145	0.60	9.19	70.4	239.2	5,448.7	16.5	4.2	2.4	1.6	0.7	0.0	0.0	0.3
70-150	0.45	4.51	25.9	88.0	2,005.5	6.1	1.5	0.9	0.6	0.3	0.0	0.0	0.1
70-155	0.45	2.05	11.8	40.0	911.6	2.8	0.7	0.4	0.3	0.1	0.0	0.0	0.0
70-160	0.45	2.95	17.0	57.6	1,311.8	4.0	1.0	0.6	0.4	0.2	0.0	0.0	0.1
70-165	0.45	27.77	159.6	542.0	12,348.6	37.4	9.4	5.5	3.5	1.6	0.1	0.0	0.6
70-170	0.45	23.74	136.4	463.4	10,556.5	32.0	8.0	4.7	3.0	1.4	0.1	0.0	0.5
70-175	0.46	30.89	180.4	612.6	13,956.3	42.3	10.6	6.2	4.0	1.8	0.1	0.0	0.7
70-180	0.45	1.14	6.6	22.3	506.9	1.5	0.4	0.2	0.1	0.1	0.0	0.0	0.0
70-185	0.45	1.53	8.8	29.9	680.4	2.1	0.5	0.3	0.2	0.1	0.0	0.0	0.0
70-190	0.17	15.04	33.1	112.3	2,557.7	7.8	1.9	1.1	0.7	0.3	0.0	0.0	0.1
70-195	0.45	46.02	265.9	903.2	20,575.5	62.4	15.7	9.2	5.9	2.7	0.1	0.1	1.0
70-200	0.45	31.52	181.1	615.2	14,016.1	42.5	10.7	6.2	4.0	1.8	0.1	0.0	0.7
70-205	0.45	1.39	8.0	27.1	618.1	1.9	0.5	0.3	0.2	0.1	0.0	0.0	0.0
70-210	0.45	3.58	20.6	69.9	1,591.9	4.8	1.2	0.7	0.5	0.2	0.0	0.0	0.1
70-215	0.45	5.93	34.1	115.7	2,636.9	8.0	2.0	1.2	0.8	0.3	0.0	0.0	0.1
70-220	0.45	4.54	26.1	88.6	2,018.8	6.1	1.5	0.9	0.6	0.3	0.0	0.0	0.1
70-225	0.45	4.99	28.7	97.4	2,218.9	6.7	1.7	1.0	0.6	0.3	0.0	0.0	0.1
70-230	0.45	4.72	27.1	92.1	2,098.9	6.4	1.6	0.9	0.6	0.3	0.0	0.0	0.1
70-235	0.45	5.04	29.0	98.4	2,241.2	6.8	1.7	1.0	0.6	0.3	0.0	0.0	0.1
70-240	0.45	4.52	26.0	88.2	2,009.9	6.1	1.5	0.9	0.6	0.3	0.0	0.0	0.1
70-245	0.44	9.98	55.9	190.0	4,329.1	13.1	3.3	1.9	1.2	0.6	0.0	0.0	0.2
70-250	0.48	41.27	254.2	863.5	19,671.2	59.6	15.0	8.8	5.6	2.6	0.1	0.0	0.9
70-255	0.45	45.37	260.8	885.8	20,180.9	61.2	15.4	9.0	5.8	2.7	0.1	0.1	1.0
70-260	0.46	24.9	145.6	494.4	11,263.2	34.1	8.6	5.0	3.2	1.5	0.1	0.0	0.5
70-265A/B	0.00	183.65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-270	0.45	4.66	26.8	91.0	2,072.2	6.3	1.6	0.9	0.6	0.3	0.0	0.0	0.1
70-275	0.45	4.28	24.6	83.5	1,903.2	5.8	1.5	0.8	0.5	0.3	0.0	0.0	0.1
70-280	0.45	9.39	54.1	183.6	4,182.6	12.7	3.2	1.9	1.2	0.5	0.0	0.0	0.2
70-285	0.45	19.03	109.2	371.0	8,452.9	25.6	6.4	3.8	2.4	1.1	0.1	0.0	0.4
70-290	0.45	2.37	13.5	45.9	1,044.9	3.2	0.8	0.5	0.3	0.1	0.0	0.0	0.0
70-295	0.45	7.18	41.3	140.1	3,192.8	9.7	2.4	1.4	0.9	0.4	0.0	0.0	0.2
70-300	0.10	0.4	0.5	1.7	39.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-305	0.45	12.68	72.2	245.3	5,587.8	16.9	4.3	2.5	1.6	0.7	0.0	0.0	0.3
70-310	0.00	5.25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-315	0.30	5.79	22.2	75.3	1,716.4	5.2	1.3	0.8	0.5	0.2	0.0	0.0	0.1

2008 WINTER/SNOWMELT POLLUTANT LOADINGS BY OUTFALL

2008 WINTER/SNOWMELT POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (01/01/08 - 03/31/08)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Winter/snowmelt Median Event Mean Concentration			58.0	197	4488	13.60	3.420	2.000	1.280	0.590	0.030	0.011	0.214
Precipitation (meters)	0.064008												
70-320	0.44	2.32	13.0	44.2	1,006.8	3.1	0.8	0.4	0.3	0.1	0.0	0.0	0.0
70-325	0.00	2.35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-330	0.47	279.41	1,680.8	5,708.8	130,056.7	394.1	99.1	58.0	37.1	17.1	0.9	0.3	6.2
70-335	0.45	1.99	11.4	38.8	884.9	2.7	0.7	0.4	0.3	0.1	0.0	0.0	0.0
70-340	0.39	22.25	111.8	379.7	8,650.1	26.2	6.6	3.9	2.5	1.1	0.1	0.0	0.4
70-345	0.45	3.81	21.9	74.4	1,694.2	5.1	1.3	0.8	0.5	0.2	0.0	0.0	0.1
70-350	0.49	314.4	1,983.9	6,738.4	153,512.4	465.2	117.0	68.4	43.8	20.2	1.0	0.4	7.3
70-355	0.45	1.29	7.4	25.2	573.6	1.7	0.4	0.3	0.2	0.1	0.0	0.0	0.0
70-360	0.45	131.96	765.9	2,601.5	59,267.2	179.6	45.2	26.4	16.9	7.8	0.4	0.1	2.8
70-365	0.45	6.7	38.5	130.8	2,979.3	9.0	2.3	1.3	0.8	0.4	0.0	0.0	0.1
70-370	0.44	3.75	21.2	72.1	1,641.5	5.0	1.3	0.7	0.5	0.2	0.0	0.0	0.1
70-375	0.47	7.1	42.9	145.6	3,316.0	10.0	2.5	1.5	0.9	0.4	0.0	0.0	0.2
70-380	0.45	14.4	82.8	281.1	6,403.3	19.4	4.9	2.9	1.8	0.8	0.0	0.0	0.3
70-385	0.45	14.97	86.0	292.2	6,656.8	20.2	5.1	3.0	1.9	0.9	0.0	0.0	0.3
70-390	0.46	58.11	343.8	1,167.6	26,599.9	80.6	20.3	11.9	7.6	3.5	0.2	0.1	1.3
70-395	0.43	57.19	313.7	1,065.5	24,273.8	73.6	18.5	10.8	6.9	3.2	0.2	0.1	1.2
70-400	0.44	9.67	54.2	184.1	4,193.3	12.7	3.2	1.9	1.2	0.6	0.0	0.0	0.2
70-405	0.25	7.16	22.9	77.7	1,769.4	5.4	1.3	0.8	0.5	0.2	0.0	0.0	0.1
70-410	0.43	5.8	31.8	107.9	2,457.9	7.4	1.9	1.1	0.7	0.3	0.0	0.0	0.1
70-415	0.45	120.75	700.0	2,377.6	54,166.8	164.1	41.3	24.1	15.4	7.1	0.4	0.1	2.6
70-420	0.45	16.99	97.6	331.6	7,555.0	22.9	5.8	3.4	2.2	1.0	0.1	0.0	0.4
70-425	0.51	20.63	134.6	457.2	10,416.9	31.6	7.9	4.6	3.0	1.4	0.1	0.0	0.5
70-430	0.10	6.19	7.9	26.8	611.7	1.9	0.5	0.3	0.2	0.1	0.0	0.0	0.0
70-435	0.10	9.16	11.7	39.7	905.2	2.7	0.7	0.4	0.3	0.1	0.0	0.0	0.0
70-440	0.50	34.48	218.7	742.9	16,923.8	51.3	12.9	7.5	4.8	2.2	0.1	0.0	0.8
70-445	0.45	5.6	32.2	109.3	2,490.2	7.5	1.9	1.1	0.7	0.3	0.0	0.0	0.1
70-450	0.45	2.65	15.2	51.7	1,178.4	3.6	0.9	0.5	0.3	0.2	0.0	0.0	0.1
70-455	0.00	2.66	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-460	0.45	2.67	15.3	52.1	1,187.3	3.6	0.9	0.5	0.3	0.2	0.0	0.0	0.1
70-465	0.45	2.58	14.8	50.4	1,147.3	3.5	0.9	0.5	0.3	0.2	0.0	0.0	0.1
70-470	0.38	8.55	41.9	142.4	3,244.8	9.8	2.5	1.4	0.9	0.4	0.0	0.0	0.2
70-475	0.46	229.14	1,347.0	4,575.2	104,231.4	315.9	79.4	46.4	29.7	13.7	0.7	0.3	5.0
70-480	0.60	0.31	2.4	8.1	183.8	0.6	0.1	0.1	0.1	0.0	0.0	0.0	0.0
70-485	0.45	13.36	76.8	260.8	5,940.8	18.0	4.5	2.6	1.7	0.8	0.0	0.0	0.3
70-490	0.47	48.75	292.2	992.5	22,610.7	68.5	17.2	10.1	6.4	3.0	0.2	0.1	1.1
70-495	0.45	7.74	44.5	151.1	3,441.8	10.4	2.6	1.5	1.0	0.5	0.0	0.0	0.2
70-500	0.45	0.56	3.2	10.9	249.0	0.8	0.2	0.1	0.1	0.0	0.0	0.0	0.0
70-505	0.41	8.12	42.7	145.0	3,303.0	10.0	2.5	1.5	0.9	0.4	0.0	0.0	0.2
70-510	0.45	41.82	241.1	818.9	18,657.0	56.5	14.2	8.3	5.3	2.5	0.1	0.0	0.9
70-515	0.47	62.73	376.5	1,278.6	29,129.5	88.3	22.2	13.0	8.3	3.8	0.2	0.1	1.4
70-520	0.45	6.05	34.8	118.1	2,690.3	8.2	2.1	1.2	0.8	0.4	0.0	0.0	0.1
70-525	0.45	6.23	35.8	121.6	2,770.3	8.4	2.1	1.2	0.8	0.4	0.0	0.0	0.1
70-530	0.45	1.67	9.6	32.6	742.6	2.3	0.6	0.3	0.2	0.1	0.0	0.0	0.0
70-535	0.45	30.24	174.2	591.6	13,478.1	40.8	10.3	6.0	3.8	1.8	0.1	0.0	0.6
70-540	0.21	5.1	13.9	47.2	1,075.8	3.3	0.8	0.5	0.3	0.1	0.0	0.0	0.1
70-545	0.45	1.89	10.9	36.9	840.4	2.5	0.6	0.4	0.2	0.1	0.0	0.0	0.0
70-550	0.26	1.3	4.3	14.6	332.5	1.0	0.3	0.1	0.1	0.0	0.0	0.0	0.0
70-555	0.45	1.73	9.9	33.8	769.3	2.3	0.6	0.3	0.2	0.1	0.0	0.0	0.0
70-560	0.45	3.33	19.1	65.0	1,480.8	4.5	1.1	0.7	0.4	0.2	0.0	0.0	0.1
70-565	0.24	16.63	51.1	173.5	3,953.1	12.0	3.0	1.8	1.1	0.5	0.0	0.0	0.2
70-570	0.45	1.23	7.1	24.0	546.9	1.7	0.4	0.2	0.2	0.1	0.0	0.0	0.0
70-575	0.45	15.39	88.4	300.1	6,836.7	20.7	5.2	3.0	1.9	0.9	0.0	0.0	0.3
70-580	0.43	119.93	664.4	2,256.6	51,409.3	155.8	39.2	22.9	14.7	6.8	0.3	0.1	2.5
71-010	0.10	1.12	1.4	4.9	110.7	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0
71-020	0.45	14.05	80.7	274.2	6,247.7	18.9	4.8	2.8	1.8	0.8	0.0	0.0	0.3
71-030	0.45	28.58	165.1	560.9	12,778.2	38.7	9.7	5.7	3.6	1.7	0.1	0.0	0.6
71-040	0.22	20.93	58.7	199.3	4,539.5	13.8	3.5	2.0	1.3	0.6	0.0	0.0	0.2
71-050	0.46	120.42	704.3	2,392.2	54,498.9	165.1	41.5	24.3	15.5	7.2	0.4	0.1	2.6
71-060	0.45	3.11	17.9	60.7	1,382.9	4.2	1.1	0.6	0.4	0.2	0.0	0.0	0.1
71-070	0.00	386.63	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
71-080	0.46	101.79	593.1	2,014.6	45,895.0	139.1	35.0	20.5	13.1	6.0	0.3	0.1	2.2
71-090	0.45	6.5	37.0	125.6	2,861.8	8.7	2.2	1.3	0.8	0.4	0.0	0.0	0.1
71-100	0.10	1.99	2.5	8.6	196.6	0.6	0.1	0.1	0.1	0.0	0.0	0.0	0.0
72-010	0.18	17.32	38.7	131.5	2,996.8	9.1	2.3	1.3	0.9	0.4	0.0	0.0	0.1
72-020	0.40	24.7	124.6	423.3	9,644.3	29.2	7.3	4.3	2.8	1.3	0.1	0.0	0.5
72-030	0.10	5.25	6.7	22.8	518.8	1.6	0.4	0.2	0.1	0.1	0.0	0.0	0.0
72-040	0.42	166.54	885.9	3,008.9	68,548.6	207.7	52.2	30.5	19.6	9.0	0.5	0.2	3.3
72-050	0.10	5.16	6.6	22.4	509.9	1.5	0.4	0.2	0.1	0.1	0.0	0.0	0.0
72-060	0.36	113.04	522.2	1,773.6	40,404.8	122.4	30.8	18.0	11.5	5.3	0.3	0.1	1.9
72-070	0.10	2.21	2.8	9.6	218.4	0.7	0.2	0.1	0.1	0.0	0.0	0.0	0.0
72-080	0.60	4.74	36.3	123.4	2,810.3	8.5	2.1	1.3	0.8	0.4	0.0	0.0	0.1
72-090	0.45	68.71	392.4	1,332.7	30,361.4	92.0	23.1	13.5	8.7	4.0	0.2	0.1	1.4
72-100	0.46	68.32	404.0	1,372.1	31,258.1	94.7	23.8	13.9	8.9	4.1	0.2	0.1	1.5
72-110	0.10	3.22	4.1	14.0	318.2	1.0	0.2	0.1	0.1	0.0	0.0	0.0	0.0
72-120	0.45	62.98	361.9	1,229.3	28,005.5	84.9	21.3	12.5	8.0	3.7	0.2	0.1	1.3
72-130	0.46	58.06	338.3	1,149.2	26,180.9	79.3	20.0	11.7	7.5	3.4	0.2	0.1	1.2
72-140	0.10	10.19	13.0	44.2	1,006.9	3.1	0.8	0.4	0.3	0.1	0.0	0.0	0.0
72-150	0.10	4.76	6.1	20.6	470.4	1.4	0.4	0.2	0.1	0.1	0.0	0.0	0.0
72-160	0.10	4.55	5.8	19.7	449.6	1.4	0.3	0.2	0.1	0.1	0.0	0.0	0.0
73-010	0.44	20.76	116.4	395.2	9,003.4	27.3	6.9	4.0	2.6	1.2	0.1	0.0	0.4
73-020	0.44	57.47	324.8	1,103.3	25,134.0	76.2	19.2	11.2	7.2	3.3	0.2	0.1	1.2

2008 WINTER/SNOWMELT POLLUTANT LOADINGS BY OUTFALL

2008 WINTER/SNOWMELT POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (01/01/08 - 03/31/08)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Winter/snowmelt Median Event Mean Concentration			58.0	197	4488	13.60	3.420	2.000	1.280	0.590	0.030	0.011	0.214
Precipitation (meters)	**0.064008**												
73-030	0.10	21.56	27.5	93.5	2,130.5	6.5	1.6	0.9	0.6	0.3	0.0	0.0	0.1
74-010	0.48	44.39	271.3	921.6	20,996.4	63.6	16.0	9.4	6.0	2.8	0.1	0.1	1.0
74-020	0.45	4.41	25.3	86.1	1,961.0	5.9	1.5	0.9	0.6	0.3	0.0	0.0	0.1
75-005	0.45	12.39	71.1	241.5	5,502.9	16.7	4.2	2.5	1.6	0.7	0.0	0.0	0.3
75-010	0.60	3.65	28.0	95.0	2,164.1	6.6	1.6	1.0	0.6	0.3	0.0	0.0	0.1
75-020	0.45	1.53	8.8	29.9	680.4	2.1	0.5	0.3	0.2	0.1	0.0	0.0	0.0
75-030	0.45	8.38	48.2	163.6	3,726.4	11.3	2.8	1.7	1.1	0.5	0.0	0.0	0.2
75-040	0.45	14.74	84.7	287.7	6,554.5	19.9	5.0	2.9	1.9	0.9	0.0	0.0	0.3
76-010	0.46	907.31	5,374.4	18,254.3	415,865.0	1,260.2	316.9	185.3	118.6	54.7	2.8	1.0	19.8
76-020	0.46	88.62	515.7	1,751.6	39,903.9	120.9	30.4	17.8	11.4	5.2	0.3	0.1	1.9
76-030	0.45	7.55	43.4	147.4	3,357.3	10.2	2.6	1.5	1.0	0.4	0.0	0.0	0.2
76-040	0.19	4.67	11.1	37.7	859.0	2.6	0.7	0.4	0.2	0.1	0.0	0.0	0.0
76-050	0.00	2.39	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81-010	0.10	31.17	39.8	135.2	3,080.1	9.3	2.3	1.4	0.9	0.4	0.0	0.0	0.1
82-010	0.49	23.53	146.2	496.6	11,313.6	34.3	8.6	5.0	3.2	1.5	0.1	0.0	0.5
82-020	0.45	73.45	426.6	1,449.0	33,010.7	100.0	25.2	14.7	9.4	4.3	0.2	0.1	1.6
82-030	0.45	90.04	522.8	1,775.8	40,456.6	122.6	30.8	18.0	11.5	5.3	0.3	0.1	1.9
82-040	0.46	98.49	583.5	1,981.8	45,149.2	136.8	34.4	20.1	12.9	5.9	0.3	0.1	2.2
83-010	0.45	6.59	37.9	128.6	2,930.4	8.9	2.2	1.3	0.8	0.4	0.0	0.0	0.1
83-015	0.45	0.99	5.7	19.3	440.2	1.3	0.3	0.2	0.1	0.1	0.0	0.0	0.0
83-020	0.43	85.96	477.3	1,621.1	36,930.9	111.9	28.1	16.5	10.5	4.9	0.2	0.1	1.8
83-025	0.45	51.23	294.4	1,000.0	22,780.6	69.0	17.4	10.2	6.5	3.0	0.2	0.1	1.1
83-030	0.60	0.82	6.3	21.3	486.2	1.5	0.4	0.2	0.1	0.1	0.0	0.0	0.0
83-040	0.10	1.08	1.4	4.7	106.7	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0
83-050	0.45	40.4	232.8	790.7	18,013.9	54.6	13.7	8.0	5.1	2.4	0.1	0.0	0.9
83-060	0.45	10.05	57.8	196.2	4,469.0	13.5	3.4	2.0	1.3	0.6	0.0	0.0	0.2
83-070	0.10	1.19	1.5	5.2	117.6	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0
83-080	0.48	178.63	1,084.6	3,683.8	83,922.5	254.3	64.0	37.4	23.9	11.0	0.6	0.2	4.0
83-090	0.41	9.16	47.9	162.8	3,709.2	11.2	2.8	1.7	1.1	0.5	0.0	0.0	0.2
84-010	0.47	21.56	129.5	439.8	10,020.5	30.4	7.6	4.5	2.9	1.3	0.1	0.0	0.5
85-010	0.10	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WINTER (SNOWMELT) SEASONAL SUMMATION (kg)			**172,500.05**	**585,905.33**	**13,347,934.69**	**40,448.29**	**10,171.55**	**5,948.28**	**3,806.90**	**1,754.74**	**89.52**	**33.61**	**636.47**

2008 SPRING POLLUTANT LOADINGS BY OUTFALL

2008 SPRING POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (04/01/08 - 05/31/08)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Spring Median Event Mean Concentration			13.0	139	83	4.24	1.130	0.496	0.494	0.060	0.010	0.015	0.054
Precipitation (meters)	**0.144**												
10-010	0.43	113.55	314.4	3,361.4	2,007.2	102.5	27.3	12.0	11.9	1.5	0.3	0.4	1.3
10-020	0.45	7.81	22.6	241.2	144.0	7.4	2.0	0.9	0.9	0.1	0.0	0.0	0.1
10-030	0.10	4.05	2.6	27.8	16.6	0.8	0.2	0.1	0.1	0.0	0.0	0.0	0.0
10-040	0.45	167.42	480.1	5,133.7	3,065.5	156.6	41.7	18.3	18.2	2.2	0.4	0.6	2.0
10-050	0.46	114.18	333.6	3,566.4	2,129.6	108.8	29.0	12.7	12.7	1.5	0.3	0.4	1.4
10-060	0.60	10.5	40.4	432.3	258.1	13.2	3.5	1.5	1.5	0.2	0.0	0.0	0.2
10-070	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-080	0.38	30.66	75.2	804.0	480.1	24.5	6.5	2.9	2.9	0.3	0.1	0.1	0.3
10-090A	0.00	0.85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-090B	0.00	1.48	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-090C	0.54	12.77	44.4	474.5	283.3	14.5	3.9	1.7	1.7	0.2	0.0	0.1	0.2
10-090D	0.00	4.68	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-100	0.36	1392.1	3,240.5	34,648.3	20,689.3	1,056.9	281.7	123.6	123.1	15.0	2.6	3.8	13.5
10-110	0.47	300.11	898.5	9,607.3	5,736.8	293.1	78.1	34.3	34.1	4.1	0.7	1.0	3.7
10-120A/B	0.44	372.78	1,041.3	11,133.7	6,648.2	339.6	90.5	39.7	39.6	4.8	0.8	1.2	4.3
10-130	0.45	336.46	974.9	10,424.4	6,224.6	318.0	84.7	37.2	37.0	4.5	0.8	1.1	4.1
10-140a	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-140a,b	0.58	220.65	814.8	8,712.3	5,202.3	265.8	70.8	31.1	31.0	3.8	0.7	0.9	3.4
10-150	0.47	157.15	472.9	5,056.0	3,019.1	154.2	41.1	18.0	18.0	2.2	0.4	0.5	2.0
10-160	0.00	17	0.3	2.9	1.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-170	0.50	176.01	568.4	6,077.7	3,629.1	185.4	49.4	21.7	21.6	2.6	0.5	0.7	2.4
10-180	0.45	284.26	812.4	8,686.0	5,186.6	265.0	70.6	31.0	30.9	3.7	0.6	0.9	3.4
10-190	0.59	14.58	55.4	592.0	353.5	18.1	4.8	2.1	2.1	0.3	0.0	0.1	0.2
10-200	0.40	42.44	108.1	1,156.2	690.4	35.3	9.4	4.1	4.1	0.5	0.1	0.1	0.5
10-210	0.49	98.32	310.2	3,316.4	1,980.3	101.2	27.0	11.8	11.8	1.4	0.2	0.4	1.3
10-220	0.56	18.83	67.6	722.4	431.3	22.0	5.9	2.6	2.6	0.3	0.1	0.1	0.3
10-230	0.47	235.02	713.0	7,623.1	4,551.9	232.5	62.0	27.2	27.1	3.3	0.6	0.8	3.0
10-240	0.51	103.83	342.3	3,660.0	2,185.5	111.6	29.8	13.1	13.0	1.6	0.3	0.4	1.4
10-250	0.49	242.96	762.2	8,149.9	4,866.5	248.6	66.3	29.1	29.0	3.5	0.6	0.9	3.2
10-260	0.56	23.77	85.0	908.7	542.6	27.7	7.4	3.2	3.2	0.4	0.1	0.1	0.4
10-270	0.47	72.45	220.3	2,355.7	1,406.6	71.9	19.2	8.4	8.4	1.0	0.2	0.3	0.9
10-280	0.44	55.08	156.9	1,677.4	1,001.6	51.2	13.6	6.0	6.0	0.7	0.1	0.2	0.7
10-290	0.10	6.83	4.4	46.9	28.0	1.4	0.4	0.2	0.2	0.0	0.0	0.0	0.0
10-300	0.36	17.74	41.1	438.9	262.1	13.4	3.6	1.6	1.6	0.2	0.0	0.0	0.2
10-310	0.47	60.29	182.7	1,953.6	1,166.5	59.6	15.9	7.0	6.9	0.8	0.1	0.2	0.8
10-320	0.45	341.99	991.5	10,601.5	6,330.4	323.4	86.2	37.8	37.7	4.6	0.8	1.2	4.1
10-330	0.35	21.61	48.8	521.3	311.3	15.9	4.2	1.9	1.9	0.2	0.0	0.1	0.2
10-340	0.45	20.74	60.1	642.1	383.4	19.6	5.2	2.3	2.3	0.3	0.0	0.1	0.2
10-350	0.60	28.16	108.2	1,157.2	691.0	35.3	9.4	4.1	4.1	0.5	0.1	0.1	0.5
10-360	0.59	29.02	110.4	1,180.2	704.7	36.0	9.6	4.2	4.2	0.5	0.1	0.1	0.5
10-370	0.59	14.46	54.7	585.0	349.3	17.8	4.8	2.1	2.1	0.3	0.0	0.1	0.2
10-380	0.45	14.38	41.1	439.3	262.3	13.4	3.6	1.6	1.6	0.2	0.0	0.0	0.2
10-390	0.49	41.97	132.8	1,420.0	847.9	43.3	11.5	5.1	5.0	0.6	0.1	0.2	0.6
10-400A	0.10	1.07	0.7	7.3	4.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
10-400B	0.47	17.66	53.4	571.5	341.2	17.4	4.6	2.0	2.0	0.2	0.0	0.1	0.2
10-400C	0.57	50.25	182.5	1,950.9	1,164.9	59.5	15.9	7.0	6.9	0.8	0.1	0.2	0.8
10-410A	0.50	46.22	147.7	1,578.9	942.8	48.2	12.8	5.6	5.6	0.7	0.1	0.2	0.6
10-410B	0.32	21.29	43.2	462.2	276.0	14.1	3.8	1.6	1.6	0.2	0.0	0.1	0.2
10-410C	0.53	22.8	77.2	825.7	493.1	25.2	6.7	2.9	2.9	0.4	0.1	0.1	0.3
10-410D	0.60	27.34	105.3	1,126.1	672.4	34.3	9.2	4.0	4.0	0.5	0.1	0.1	0.4
10-410E	0.58	256.04	945.5	10,109.7	6,036.7	308.4	82.2	36.1	35.9	4.4	0.8	1.1	3.9
10-410F	0.59	37.92	143.1	1,530.6	913.9	46.7	12.4	5.5	5.4	0.7	0.1	0.2	0.6
10-420A	0.27	23.05	40.3	431.0	257.4	13.1	3.5	1.5	1.5	0.2	0.0	0.0	0.2
10-420B	0.00	10.06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-420C	0.00	7.42	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-420D	0.00	20.73	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-420E	0.59	127.89	481.6	5,149.8	3,075.0	157.1	41.9	18.4	18.3	2.2	0.4	0.6	2.0
10-430A	0.00	8.14	0.1	1.4	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-430B	0.53	54.72	187.6	2,006.3	1,198.0	61.2	16.3	7.2	7.1	0.9	0.2	0.2	0.8
10-430C	0.48	44.83	138.2	1,477.8	882.4	45.1	12.0	5.3	5.3	0.6	0.1	0.2	0.6
10-430D	0.49	85.79	270.7	2,894.0	1,728.0	88.3	23.5	10.3	10.3	1.2	0.2	0.3	1.1
10-430E	0.56	86.66	310.1	3,315.8	1,979.9	101.1	27.0	11.8	11.8	1.4	0.2	0.4	1.3
10-430F	0.10	377.97	242.6	2,593.6	1,548.7	79.1	21.1	9.3	9.2	1.1	0.2	0.3	1.0
10-430G	0.50	125.89	400.4	4,281.0	2,556.3	130.6	34.8	15.3	15.2	1.8	0.3	0.5	1.7
10-430H	0.49	33.18	104.6	1,118.7	668.0	34.1	9.1	4.0	4.0	0.5	0.1	0.1	0.4
10-430I	0.59	32.61	123.2	1,317.1	786.5	40.2	10.7	4.7	4.7	0.6	0.1	0.1	0.5
10-430J	0.43	532.36	1,482.6	15,852.0	9,465.6	483.5	128.9	56.6	56.3	6.8	1.2	1.7	6.2
10-430K	0.48	337.06	1,033.2	11,047.3	6,596.6	337.0	89.8	39.4	39.3	4.8	0.8	1.2	4.3
10-430L	0.45	84.4	244.1	2,610.5	1,558.8	79.6	21.2	9.3	9.3	1.1	0.2	0.3	1.0
10-430M	0.54	75.94	264.3	2,826.3	1,687.6	86.2	23.0	10.1	10.0	1.2	0.2	0.3	1.1
10-430N	0.44	26.43	75.3	805.1	480.7	24.6	6.5	2.9	2.9	0.3	0.1	0.1	0.3
10-430O	0.00	109.53	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-430P	0.00	229.12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-430Q	0.10	8.03	5.2	55.1	32.9	1.7	0.4	0.2	0.2	0.0	0.0	0.0	0.0
10-430R	0.47	150.32	451.0	4,821.8	2,879.2	147.1	39.2	17.2	17.1	2.1	0.4	0.5	1.9

2008 SPRING POLLUTANT LOADINGS BY OUTFALL

2008 SPRING POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (04/01/08 - 05/31/08)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Spring Median Event Mean Concentration			13.0	139	83	4.24	1.130	0.496	0.494	0.060	0.010	0.015	0.054
Precipitation (meters)	**0.144**												
10-430S	0.10	5.15	3.3	35.3	21.1	1.1	0.3	0.1	0.1	0.0	0.0	0.0	0.0
10-430T	0.46	262.47	770.0	8,232.8	4,916.0	251.1	66.9	29.4	29.3	3.6	0.6	0.9	3.2
10-430U	0.47	431.37	1,300.7	13,907.6	8,304.5	424.2	113.1	49.6	49.4	6.0	1.0	1.5	5.4
10-430V	0.46	329.11	981.8	10,497.3	6,268.2	320.2	85.3	37.5	37.3	4.5	0.8	1.1	4.1
10-440A	0.46	23.18	68.2	728.7	435.1	22.2	5.9	2.6	2.6	0.3	0.1	0.1	0.3
10-440B	0.49	34.23	108.3	1,157.5	691.2	35.3	9.4	4.1	4.1	0.5	0.1	0.1	0.5
10-440C/D	0.00	56	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-440E	0.51	831.25	2,743.2	29,331.4	17,514.4	894.7	238.4	104.7	104.2	12.7	2.2	3.2	11.4
10-440F	0.46	538.85	1,591.5	17,016.7	10,161.0	519.1	138.3	60.7	60.5	7.3	1.3	1.8	6.6
10-450A	0.00	343.67	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-450B	0.52	3.41	11.3	120.9	72.2	3.7	1.0	0.4	0.4	0.1	0.0	0.0	0.0
10-450C	0.59	55.64	212.0	2,267.2	1,353.8	69.2	18.4	8.1	8.1	1.0	0.2	0.2	0.9
10-450D	0.45	4.62	13.3	142.7	85.2	4.4	1.2	0.5	0.5	0.1	0.0	0.0	0.1
10-450E	0.44	3.2	9.1	97.1	58.0	3.0	0.8	0.3	0.3	0.0	0.0	0.0	0.0
10-450F	0.46	158.55	467.5	4,998.3	2,984.6	152.5	40.6	17.8	17.8	2.2	0.4	0.5	1.9
10-450G/H	0.48	75.02	231.3	2,473.4	1,476.9	75.4	20.1	8.8	8.8	1.1	0.2	0.3	1.0
10-450I	0.49	243.64	768.1	8,212.3	4,903.8	250.5	66.8	29.3	29.2	3.5	0.6	0.9	3.2
10-450J	0.49	17.16	53.5	571.6	341.3	17.4	4.6	2.0	2.0	0.2	0.0	0.1	0.2
10-450K	0.58	37.01	137.6	1,471.1	878.4	44.9	12.0	5.2	5.2	0.6	0.1	0.2	0.6
10-450L	0.51	213.41	691.7	7,396.0	4,416.3	225.6	60.1	26.4	26.3	3.2	0.6	0.8	2.9
10-460	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460A	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460B	0.52	7.29	24.2	258.5	154.4	7.9	2.1	0.9	0.9	0.1	0.0	0.0	0.1
10-460C/D/F	0.00	159.87	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460E	0.49	231.41	733.4	7,841.7	4,682.4	239.2	63.7	28.0	27.9	3.4	0.6	0.9	3.1
10-460F	0.49	14.75	46.8	500.7	299.0	15.3	4.1	1.8	1.8	0.2	0.0	0.1	0.2
10-460G	0.51	79.66	261.1	2,792.1	1,667.2	85.2	22.7	10.0	9.9	1.2	0.2	0.3	1.1
10-460H	0.48	12.35	38.0	406.3	242.6	12.4	3.3	1.4	1.4	0.2	0.0	0.0	0.2
10-460I	0.00	72.26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460J	0.46	5.36	15.9	170.5	101.8	5.2	1.4	0.6	0.6	0.1	0.0	0.0	0.1
10-460K	0.36	5.48	12.7	135.3	80.8	4.1	1.1	0.5	0.5	0.1	0.0	0.0	0.1
10-460L	0.46	3.5	10.4	111.3	66.5	3.4	0.9	0.4	0.4	0.0	0.0	0.0	0.0
10-460M	0.48	9.55	29.3	313.6	187.3	9.6	2.5	1.1	1.1	0.1	0.0	0.0	0.1
10-460N	0.45	3.85	11.1	118.9	71.0	3.6	1.0	0.4	0.4	0.1	0.0	0.0	0.0
10-460O	0.45	4.15	12.1	129.2	77.1	3.9	1.1	0.5	0.5	0.1	0.0	0.0	0.1
10-460P	0.45	4.34	12.5	134.0	80.0	4.1	1.1	0.5	0.5	0.1	0.0	0.0	0.1
10-460Q	0.56	19.73	71.4	763.8	456.1	23.3	6.2	2.7	2.7	0.3	0.1	0.1	0.3
10-460R	0.00	51.51	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460S	0.56	233.54	845.7	9,042.9	5,399.7	275.8	73.5	32.3	32.1	3.9	0.7	1.0	3.5
10-465	0.10	8.56	5.5	58.7	35.1	1.8	0.5	0.2	0.2	0.0	0.0	0.0	0.0
10-470	0.38	25.6	62.7	670.4	400.3	20.4	5.5	2.4	2.4	0.3	0.1	0.1	0.3
10-480	0.58	39.66	147.7	1,578.9	942.8	48.2	12.8	5.6	5.6	0.7	0.1	0.2	0.6
10-485	0.00	7.27	0.1	1.2	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-490	0.43	150.96	420.0	4,490.7	2,681.5	137.0	36.5	16.0	16.0	1.9	0.3	0.5	1.7
10-500A	0.26	26.21	44.1	472.0	281.8	14.4	3.8	1.7	1.7	0.2	0.0	0.1	0.2
10-500B	0.46	8.48	25.0	267.8	159.9	8.2	2.2	1.0	1.0	0.1	0.0	0.0	0.1
10-500C	0.44	111.36	311.1	3,326.7	1,986.4	101.5	27.0	11.9	11.8	1.4	0.2	0.4	1.3
10-500D	0.24	3.83	5.9	62.6	37.4	1.9	0.5	0.2	0.2	0.0	0.0	0.0	0.0
10-500E	0.53	23.34	79.8	852.7	509.2	26.0	6.9	3.0	3.0	0.4	0.1	0.1	0.3
10-500F	0.49	12.04	38.2	407.9	243.6	12.4	3.3	1.5	1.4	0.2	0.0	0.0	0.2
10-500G	0.00	112.94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-505	0.10	7.85	5.0	53.9	32.2	1.6	0.4	0.2	0.2	0.0	0.0	0.0	0.0
10-510	0.51	62.36	203.6	2,176.5	1,299.6	66.4	17.7	7.8	7.7	0.9	0.2	0.2	0.8
10-520	0.00	139.98	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-530	0.45	116.15	336.0	3,592.7	2,145.3	109.6	29.2	12.8	12.8	1.6	0.3	0.4	1.4
10-540	0.12	53.9	41.0	438.0	261.5	13.4	3.6	1.6	1.6	0.2	0.0	0.0	0.2
10-550	0.46	25.83	76.2	815.2	486.7	24.9	6.6	2.9	2.9	0.4	0.1	0.1	0.3
10-560A/B	0.44	600.63	1,686.3	18,030.8	10,766.6	550.0	146.6	64.3	64.1	7.8	1.3	2.0	7.0
10-570A	0.54	14.64	51.1	546.3	326.2	16.7	4.4	1.9	1.9	0.2	0.0	0.1	0.2
10-570B	0.44	228.18	639.2	6,834.6	4,081.1	208.5	55.6	24.4	24.3	3.0	0.5	0.7	2.7
10-580	0.45	73.39	211.4	2,260.3	1,349.6	68.9	18.4	8.1	8.0	1.0	0.2	0.2	0.9
10-600	0.48	89.24	277.0	2,961.3	1,768.3	90.3	24.1	10.6	10.5	1.3	0.2	0.3	1.2
10-610	0.46	25.6	75.3	805.1	480.8	24.6	6.5	2.9	2.9	0.3	0.1	0.1	0.3
10-620	0.00	9.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-630A	0.10	6.24	4.0	42.8	25.6	1.3	0.3	0.2	0.2	0.0	0.0	0.0	0.0
10-630B	0.45	4.68	13.5	144.5	86.3	4.4	1.2	0.5	0.5	0.1	0.0	0.0	0.1
10-630C	0.48	96.03	297.7	3,183.6	1,901.0	97.1	25.9	11.4	11.3	1.4	0.2	0.3	1.2
10-630D	0.45	6.37	18.4	196.7	117.5	6.0	1.6	0.7	0.7	0.1	0.0	0.0	0.1
10-630E	0.45	8.52	24.6	263.1	157.1	8.0	2.1	0.9	0.9	0.1	0.0	0.0	0.1
10-630F	0.54	17.56	60.9	651.0	388.7	19.9	5.3	2.3	2.3	0.3	0.0	0.1	0.3
10-630G	0.45	5.9	17.0	182.2	108.8	5.6	1.5	0.7	0.6	0.1	0.0	0.0	0.1
10-630H	0.30	25.63	49.8	532.7	318.1	16.2	4.3	1.9	1.9	0.2	0.0	0.1	0.2
10-630I	0.47	12.48	37.2	398.2	237.8	12.1	3.2	1.4	1.4	0.2	0.0	0.0	0.2
10-630J	0.55	14.69	52.2	558.1	333.3	17.0	4.5	2.0	2.0	0.2	0.0	0.1	0.2
10-630K	0.47	95.29	289.4	3,094.6	1,847.9	94.4	25.2	11.0	11.0	1.3	0.2	0.3	1.2

2008 SPRING POLLUTANT LOADINGS BY OUTFALL

2008 SPRING POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (04/01/08 - 05/31/08)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Spring Median Event Mean Concentration			13.0	139	83	4.24	1.130	0.496	0.494	0.060	0.010	0.015	0.054
Precipitation (meters)	**0.144**												
10-630L	0.52	100.42	335.8	3,590.0	2,143.7	109.5	29.2	12.8	12.8	1.5	0.3	0.4	1.4
10-630M	0.50	11.71	37.3	399.0	238.2	12.2	3.2	1.4	1.4	0.2	0.0	0.0	0.2
10-630N	0.45	8.45	24.4	260.9	155.8	8.0	2.1	0.9	0.9	0.1	0.0	0.0	0.1
10-630O	0.36	5.77	13.5	144.1	86.1	4.4	1.2	0.5	0.5	0.1	0.0	0.0	0.1
10-630P/Q	0.00	67.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-630R	0.33	83.89	179.8	1,922.5	1,148.0	58.6	15.6	6.9	6.8	0.8	0.1	0.2	0.7
10-630S	0.22	37.02	51.6	552.2	329.7	16.8	4.5	2.0	2.0	0.2	0.0	0.1	0.2
10-630T	0.56	7.72	27.9	298.0	177.9	9.1	2.4	1.1	1.1	0.1	0.0	0.0	0.1
10-630U	0.52	115.42	387.5	4,142.8	2,473.8	126.4	33.7	14.8	14.7	1.8	0.3	0.5	1.6
10-630V	0.11	33.85	22.9	245.3	146.5	7.5	2.0	0.9	0.9	0.1	0.0	0.0	0.1
10-630W	0.47	23.68	72.0	769.7	459.6	23.5	6.3	2.7	2.7	0.3	0.1	0.1	0.3
10-630X	0.44	14.78	42.0	448.7	267.9	13.7	3.6	1.6	1.6	0.2	0.0	0.0	0.2
10-630Y	0.00	112.03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-630Z	0.47	45.66	138.0	1,475.0	880.8	45.0	12.0	5.3	5.2	0.6	0.1	0.2	0.6
10-640	0.46	258.18	757.8	8,102.4	4,838.1	247.2	65.9	28.9	28.8	3.5	0.6	0.9	3.2
10-650	0.56	19.53	69.8	746.5	445.7	22.8	6.1	2.7	2.7	0.3	0.1	0.1	0.3
10-660	0.46	306.37	910.8	9,738.8	5,815.2	297.1	79.2	34.8	34.6	4.2	0.7	1.1	3.8
10-670	0.45	137.88	397.6	4,251.2	2,538.5	129.7	34.6	15.2	15.1	1.8	0.3	0.5	1.7
10-680	0.46	707.95	2,083.2	22,273.8	13,300.2	679.4	181.1	79.5	79.2	9.6	1.7	2.4	8.7
10-690	0.50	70.63	226.8	2,424.6	1,447.8	74.0	19.7	8.7	8.6	1.0	0.2	0.3	0.9
10-700	0.46	222.07	661.8	7,075.8	4,225.1	215.8	57.5	25.2	25.1	3.1	0.5	0.8	2.8
10-710	0.33	29.95	64.0	684.6	408.8	20.9	5.6	2.4	2.4	0.3	0.1	0.1	0.3
10-720A	0.44	15.77	44.9	479.8	286.5	14.6	3.9	1.7	1.7	0.2	0.0	0.1	0.2
10-720B	0.48	422.18	1,305.3	13,956.8	8,333.9	425.7	113.5	49.8	49.6	6.0	1.0	1.5	5.4
10-720C	0.43	26.35	72.6	776.4	463.6	23.7	6.3	2.8	2.8	0.3	0.1	0.1	0.3
10-720D	0.46	22.95	67.1	716.9	428.1	21.9	5.8	2.6	2.5	0.3	0.1	0.1	0.3
10-720E	0.46	18.39	53.8	575.1	343.4	17.5	4.7	2.1	2.0	0.2	0.0	0.1	0.2
10-720F	0.48	317.75	978.4	10,461.5	6,246.8	319.1	85.0	37.3	37.2	4.5	0.8	1.1	4.1
10-720G	0.00	13.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-720H	0.45	4.55	13.1	140.5	83.9	4.3	1.1	0.5	0.5	0.1	0.0	0.0	0.1
10-720I	0.45	87.27	249.8	2,670.5	1,594.6	81.5	21.7	9.5	9.5	1.2	0.2	0.3	1.0
10-720J	0.36	3.71	8.5	90.9	54.3	2.8	0.7	0.3	0.3	0.0	0.0	0.0	0.0
10-720K	0.55	32.76	115.4	1,234.3	737.0	37.7	10.0	4.4	4.4	0.5	0.1	0.1	0.5
10-720L	0.45	4.57	13.2	141.1	84.3	4.3	1.1	0.5	0.5	0.1	0.0	0.0	0.1
20-010	0.42	93.99	253.2	2,707.5	1,616.7	82.6	22.0	9.7	9.6	1.2	0.2	0.3	1.1
20-020	0.44	15.09	42.5	454.2	271.2	13.9	3.7	1.6	1.6	0.2	0.0	0.0	0.2
20-030	0.45	7.95	23.0	245.5	146.6	7.5	2.0	0.9	0.9	0.1	0.0	0.0	0.1
20-040	0.37	6.79	16.2	173.7	103.7	5.3	1.4	0.6	0.6	0.1	0.0	0.0	0.1
20-050	0.00	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-060	0.45	5.91	17.1	182.5	109.0	5.6	1.5	0.7	0.6	0.1	0.0	0.0	0.1
20-070	0.44	39.07	111.2	1,188.7	709.8	36.3	9.7	4.2	4.2	0.5	0.1	0.1	0.5
20-080	0.45	33.72	98.1	1,049.1	626.4	32.0	8.5	3.7	3.7	0.5	0.1	0.1	0.4
20-090	0.55	9.95	35.3	377.4	225.3	11.5	3.1	1.3	1.3	0.2	0.0	0.0	0.1
20-100	0.10	0.99	0.6	6.8	4.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
20-110	0.24	216.04	332.6	3,556.6	2,123.7	108.5	28.9	12.7	12.6	1.5	0.3	0.4	1.4
20-120	0.47	10.22	30.7	327.8	195.7	10.0	2.7	1.2	1.2	0.1	0.0	0.0	0.1
20-130	0.45	16.12	46.6	497.8	297.2	15.2	4.0	1.8	1.8	0.2	0.0	0.1	0.2
20-140	0.44	2.97	8.4	89.9	53.7	2.7	0.7	0.3	0.3	0.0	0.0	0.0	0.0
20-150	0.45	14.48	41.8	447.1	267.0	13.6	3.6	1.6	1.6	0.2	0.0	0.0	0.2
20-160	0.54	3.21	11.1	119.0	71.1	3.6	1.0	0.4	0.4	0.1	0.0	0.0	0.0
20-170	0.37	4.94	11.8	126.3	75.4	3.9	1.0	0.5	0.4	0.1	0.0	0.0	0.0
20-180	0.51	5.3	17.2	184.1	109.9	5.6	1.5	0.7	0.7	0.1	0.0	0.0	0.1
20-190	0.45	1.35	3.9	41.7	24.9	1.3	0.3	0.1	0.1	0.0	0.0	0.0	0.0
20-200	0.45	13.84	40.0	427.4	255.2	13.0	3.5	1.5	1.5	0.2	0.0	0.0	0.2
20-210A	0.44	92.9	261.9	2,800.2	1,672.0	85.4	22.8	10.0	10.0	1.2	0.2	0.3	1.1
20-210B	0.50	620.78	2,010.1	21,492.5	12,833.7	655.6	174.7	76.7	76.4	9.3	1.6	2.3	8.4
20-220	0.46	26.38	78.0	834.5	498.3	25.5	6.8	3.0	3.0	0.4	0.1	0.1	0.3
20-230	0.00	21.46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-240	0.48	30.06	92.9	993.8	593.4	30.3	8.1	3.5	3.5	0.4	0.1	0.1	0.4
20-250	0.57	6.28	23.0	246.4	147.1	7.5	2.0	0.9	0.9	0.1	0.0	0.0	0.1
20-260	0.60	3.5	13.5	144.1	86.0	4.4	1.2	0.5	0.5	0.1	0.0	0.0	0.1
20-270	0.48	42.81	131.0	1,400.4	836.2	42.7	11.4	5.0	5.0	0.6	0.1	0.2	0.5
20-280	0.54	8.98	31.0	331.2	197.8	10.1	2.7	1.2	1.2	0.1	0.0	0.0	0.1
20-290	0.00	4.98	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21-010	0.45	49.49	142.4	1,522.2	908.9	46.4	12.4	5.4	5.4	0.7	0.1	0.2	0.6
40-010	0.45	719.17	2,068.2	22,113.6	13,204.5	674.5	179.8	78.9	78.6	9.5	1.7	2.4	8.6
40-020	0.45	15.36	44.4	474.3	283.2	14.5	3.9	1.7	1.7	0.2	0.0	0.1	0.2
40-030	0.42	51.02	136.8	1,462.5	873.3	44.6	11.9	5.2	5.2	0.6	0.1	0.2	0.6
40-040	0.43	65.39	182.2	1,948.2	1,163.3	59.4	15.8	7.0	6.9	0.8	0.1	0.2	0.8
40-050	0.45	10.28	29.7	317.4	189.5	9.7	2.6	1.1	1.1	0.1	0.0	0.0	0.1
40-060	0.45	3.2	9.2	98.8	59.0	3.0	0.8	0.4	0.4	0.0	0.0	0.0	0.0
40-070	0.38	7.98	19.4	207.2	123.7	6.3	1.7	0.7	0.7	0.1	0.0	0.0	0.1
40-080	0.41	60.51	158.6	1,695.7	1,012.5	51.7	13.8	6.1	6.0	0.7	0.1	0.2	0.7
40-090	0.46	20.65	61.6	658.7	393.3	20.1	5.4	2.4	2.3	0.3	0.0	0.1	0.3
40-100	0.00	20.35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

2008 SPRING POLLUTANT LOADINGS BY OUTFALL

2008 SPRING POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (04/01/08 - 05/31/08)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Spring Median Event Mean Concentration			13.0	139	83	4.24	1.130	0.496	0.494	0.060	0.010	0.015	0.054
Precipitation (meters)	**0.144**												
40-110	0.44	2.61	7.4	79.5	47.5	2.4	0.6	0.3	0.3	0.0	0.0	0.0	0.0
40-120	0.44	65.87	185.3	1,981.0	1,182.9	60.4	16.1	7.1	7.0	0.9	0.1	0.2	0.8
40-130	0.45	35.01	101.5	1,085.5	648.2	33.1	8.8	3.9	3.9	0.5	0.1	0.1	0.4
40-140	0.35	125.46	280.0	2,993.6	1,787.5	91.3	24.3	10.7	10.6	1.3	0.2	0.3	1.2
40-150	0.47	24.31	73.9	790.2	471.9	24.1	6.4	2.8	2.8	0.3	0.1	0.1	0.3
40-160	0.49	30.99	98.3	1,051.2	627.7	32.1	8.5	3.8	3.7	0.5	0.1	0.1	0.4
40-170	0.00	194.89	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40-180	0.54	16.8	58.0	620.6	370.6	18.9	5.0	2.2	2.2	0.3	0.0	0.1	0.2
40-190	0.53	65.53	222.4	2,377.6	1,419.7	72.5	19.3	8.5	8.5	1.0	0.2	0.3	0.9
40-200	0.46	24.75	73.4	785.2	468.8	24.0	6.4	2.8	2.8	0.3	0.1	0.1	0.3
40-210	0.54	17.26	60.4	645.3	385.3	19.7	5.2	2.3	2.3	0.3	0.0	0.1	0.3
40-220	0.47	100.58	301.7	3,226.4	1,926.6	98.4	26.2	11.5	11.5	1.4	0.2	0.4	1.3
40-230	0.44	13.78	39.3	420.6	251.2	12.8	3.4	1.5	1.5	0.2	0.0	0.0	0.2
40-240	0.00	340.86	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40-250	0.60	1.15	4.4	47.3	28.3	1.4	0.4	0.2	0.2	0.0	0.0	0.0	0.0
40-260	0.45	3.49	10.1	107.8	64.3	3.3	0.9	0.4	0.4	0.0	0.0	0.0	0.0
40-270	0.45	9.59	27.7	296.1	176.8	9.0	2.4	1.1	1.1	0.1	0.0	0.0	0.1
40-280	0.53	12.76	43.1	460.4	274.9	14.0	3.7	1.6	1.6	0.2	0.0	0.1	0.2
40-290	0.51	13.73	45.1	482.4	288.0	14.7	3.9	1.7	1.7	0.2	0.0	0.1	0.2
40-300	0.52	10.38	34.7	371.1	221.6	11.3	3.0	1.3	1.3	0.2	0.0	0.0	0.1
40-310	0.45	97.86	284.3	3,039.5	1,815.0	92.7	24.7	10.8	10.8	1.3	0.2	0.3	1.2
40-320	0.60	9.43	36.3	388.2	231.8	11.8	3.2	1.4	1.4	0.2	0.0	0.0	0.2
40-330	0.59	15.34	58.3	623.9	372.5	19.0	5.1	2.2	2.2	0.3	0.0	0.1	0.2
40-340	0.53	35.27	120.6	1,289.8	770.1	39.3	10.5	4.6	4.6	0.6	0.1	0.1	0.5
40-350	0.60	8.99	34.6	370.1	221.0	11.3	3.0	1.3	1.3	0.2	0.0	0.0	0.1
40-360	0.60	8.09	31.2	333.1	198.9	10.2	2.7	1.2	1.2	0.1	0.0	0.0	0.1
40-370	0.58	12.41	46.1	492.6	294.1	15.0	4.0	1.8	1.8	0.2	0.0	0.1	0.2
40-380	0.39	24.92	62.9	672.7	401.7	20.5	5.5	2.4	2.4	0.3	0.1	0.1	0.3
40-390	0.58	5.72	21.3	227.6	135.9	6.9	1.9	0.8	0.8	0.1	0.0	0.0	0.1
40-400	0.10	1.07	0.7	7.3	4.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
41-010	0.38	94.73	229.5	2,453.5	1,465.0	74.8	19.9	8.8	8.7	1.1	0.2	0.3	1.0
41-020	0.00	14.89	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41-030	0.50	60.47	194.8	2,082.9	1,243.7	63.5	16.9	7.4	7.4	0.9	0.2	0.2	0.8
41-040	0.57	35.59	130.9	1,399.3	835.6	42.7	11.4	5.0	5.0	0.6	0.1	0.2	0.5
41-050	0.60	10.48	40.4	431.5	257.6	13.2	3.5	1.5	1.5	0.2	0.0	0.0	0.2
41-060	0.60	2.95	11.4	121.5	72.5	3.7	1.0	0.4	0.4	0.1	0.0	0.0	0.0
51-010	0.45	29.63	85.8	917.6	547.9	28.0	7.5	3.3	3.3	0.4	0.1	0.1	0.4
51-020	0.45	4.55	13.1	140.5	83.9	4.3	1.1	0.5	0.5	0.1	0.0	0.0	0.1
52-010	0.28	45.29	80.3	858.8	512.8	26.2	7.0	3.1	3.1	0.4	0.1	0.1	0.3
52-020	0.45	6.09	17.6	188.0	112.3	5.7	1.5	0.7	0.7	0.1	0.0	0.0	0.1
52-030	0.45	7.18	20.7	221.7	132.4	6.8	1.8	0.8	0.8	0.1	0.0	0.0	0.1
52-040	0.41	4.54	12.0	128.8	76.9	3.9	1.0	0.5	0.5	0.1	0.0	0.0	0.1
52-050	0.44	15.3	42.7	456.7	272.7	13.9	3.7	1.6	1.6	0.2	0.0	0.0	0.2
52-060	0.10	3.22	2.1	22.1	13.2	0.7	0.2	0.1	0.1	0.0	0.0	0.0	0.0
52-070	0.42	86.94	236.1	2,524.5	1,507.5	77.0	20.5	9.0	9.0	1.1	0.2	0.3	1.0
52-080	0.24	8.08	12.6	134.2	80.1	4.1	1.1	0.5	0.5	0.1	0.0	0.0	0.1
52-090	0.45	4.89	14.1	151.0	90.2	4.6	1.2	0.5	0.5	0.1	0.0	0.0	0.1
52-100A/B	0.27	11.89	20.3	217.5	129.9	6.6	1.8	0.8	0.8	0.1	0.0	0.0	0.1
52-110	0.45	8.84	25.3	270.8	161.7	8.3	2.2	1.0	1.0	0.1	0.0	0.0	0.1
52-120	0.45	14.74	42.6	455.1	271.8	13.9	3.7	1.6	1.6	0.2	0.0	0.0	0.2
52-130	0.31	7.18	14.5	155.1	92.6	4.7	1.3	0.6	0.6	0.1	0.0	0.0	0.1
53-010	0.45	7.03	20.3	217.1	129.6	6.6	1.8	0.8	0.8	0.1	0.0	0.0	0.1
53-020	0.28	12.38	22.0	234.8	140.2	7.2	1.9	0.8	0.8	0.1	0.0	0.0	0.1
53-030	0.44	11.37	31.9	340.8	203.5	10.4	2.8	1.2	1.2	0.1	0.0	0.0	0.1
53-040	0.45	2.78	8.0	85.8	51.3	2.6	0.7	0.3	0.3	0.0	0.0	0.0	0.0
53-050	0.45	13.66	39.4	421.8	251.9	12.9	3.4	1.5	1.5	0.2	0.0	0.0	0.2
53-060	0.45	20.37	58.8	629.0	375.6	19.2	5.1	2.2	2.2	0.3	0.0	0.1	0.2
53-070	0.45	4.89	14.1	151.0	90.2	4.6	1.2	0.5	0.5	0.1	0.0	0.0	0.1
53-080	0.39	5.81	14.7	157.2	93.8	4.8	1.3	0.6	0.6	0.1	0.0	0.0	0.1
53-090	0.46	59.59	175.6	1,877.5	1,121.1	57.3	15.3	6.7	6.7	0.8	0.1	0.2	0.7
53-100	0.00	107	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
53-110	0.38	4.59	11.3	121.2	72.4	3.7	1.0	0.4	0.4	0.1	0.0	0.0	0.0
53-120A/B	0.46	129.79	379.5	4,057.7	2,422.9	123.8	33.0	14.5	14.4	1.8	0.3	0.4	1.6
53-130	0.45	5.02	14.5	155.0	92.6	4.7	1.3	0.6	0.6	0.1	0.0	0.0	0.1
53-140	0.45	6.36	18.4	196.4	117.3	6.0	1.6	0.7	0.7	0.1	0.0	0.0	0.1
53-150	0.48	90.4	280.7	3,001.1	1,792.0	91.5	24.4	10.7	10.7	1.3	0.2	0.3	1.2
53-160	0.47	252.19	765.1	8,181.2	4,885.2	249.6	66.5	29.2	29.1	3.5	0.6	0.9	3.2
53-170	0.36	6.39	14.8	158.2	94.5	4.8	1.3	0.6	0.6	0.1	0.0	0.0	0.1
53-180	0.10	8.09	5.2	55.5	33.1	1.7	0.5	0.2	0.2	0.0	0.0	0.0	0.0
53-190	0.30	11.41	22.0	235.3	140.5	7.2	1.9	0.8	0.8	0.1	0.0	0.0	0.1
54-010A/B	0.44	84.93	237.1	2,535.6	1,514.0	77.3	20.6	9.0	9.0	1.1	0.2	0.3	1.0
54-040A/B	0.49	255.14	810.4	8,665.0	5,174.1	264.3	70.4	30.9	30.8	3.7	0.6	0.9	3.4
54-050	0.17	9.27	10.3	110.6	66.0	3.4	0.9	0.4	0.4	0.0	0.0	0.0	0.0
54-060	0.44	32.13	90.6	968.4	578.3	29.5	7.9	3.5	3.4	0.4	0.1	0.1	0.4
54-070	0.36	60.8	139.9	1,496.0	893.3	45.6	12.2	5.3	5.3	0.6	0.1	0.2	0.6

2008 SPRING POLLUTANT LOADINGS BY OUTFALL

2008 SPRING POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (04/01/08 - 05/31/08)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Spring Median Event Mean Concentration			13.0	139	83	4.24	1.130	0.496	0.494	0.060	0.010	0.015	0.054
Precipitation (meters)	**0.144**												
54-080A/B/C	0.46	414.26	1,215.2	12,993.1	7,758.5	396.3	105.6	46.4	46.2	5.6	1.0	1.4	5.1
54-090	0.10	3.55	2.3	24.4	14.5	0.7	0.2	0.1	0.1	0.0	0.0	0.0	0.0
54-100A/B	0.60	114.24	436.7	4,669.6	2,788.4	142.4	38.0	16.7	16.6	2.0	0.3	0.5	1.8
54-110	0.45	24.55	70.9	758.1	452.7	23.1	6.2	2.7	2.7	0.3	0.1	0.1	0.3
54-120	0.46	62.08	182.0	1,946.5	1,162.3	59.4	15.8	6.9	6.9	0.8	0.1	0.2	0.8
54-130	0.10	1.07	0.7	7.3	4.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
54-140A/B	0.41	113.01	295.8	3,163.3	1,888.9	96.5	25.7	11.3	11.2	1.4	0.2	0.3	1.2
54-150	0.45	55.34	158.2	1,691.1	1,009.8	51.6	13.7	6.0	6.0	0.7	0.1	0.2	0.7
54-160	0.60	2.62	10.1	107.9	64.4	3.3	0.9	0.4	0.4	0.0	0.0	0.0	0.0
54-170	0.59	8.08	30.8	329.7	196.9	10.1	2.7	1.2	1.2	0.1	0.0	0.0	0.1
54-180	0.60	2.82	10.9	116.1	69.3	3.5	0.9	0.4	0.4	0.1	0.0	0.0	0.0
54-190	0.10	2.2	1.4	15.1	9.0	0.5	0.1	0.1	0.1	0.0	0.0	0.0	0.0
54-200	0.10	2.13	1.4	14.6	8.7	0.4	0.1	0.1	0.1	0.0	0.0	0.0	0.0
54-210	0.10	1.14	0.7	7.8	4.7	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
55-010	0.60	14.98	57.7	616.7	368.3	18.8	5.0	2.2	2.2	0.3	0.0	0.1	0.2
55-020	0.60	189.58	725.2	7,754.4	4,630.3	236.5	63.0	27.7	27.6	3.3	0.6	0.8	3.0
56-010	0.60	67.62	260.4	2,784.0	1,662.4	84.9	22.6	9.9	9.9	1.2	0.2	0.3	1.1
57-010	0.53	26.1	89.4	955.4	570.5	29.1	7.8	3.4	3.4	0.4	0.1	0.1	0.4
57-020	0.00	142	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57-030	0.45	18.22	52.6	562.6	335.9	17.2	4.6	2.0	2.0	0.2	0.0	0.1	0.2
57-040	0.35	39.88	89.3	954.9	570.2	29.1	7.8	3.4	3.4	0.4	0.1	0.1	0.4
57-050	0.45	7.9	22.8	243.9	145.7	7.4	2.0	0.9	0.9	0.1	0.0	0.0	0.1
57-060	0.46	26.11	77.5	828.5	494.7	25.3	6.7	3.0	2.9	0.4	0.1	0.1	0.3
57-070	0.45	81.33	235.4	2,517.3	1,503.1	76.8	20.5	9.0	8.9	1.1	0.2	0.3	1.0
57-080	0.42	5.54	15.0	160.7	95.9	4.9	1.3	0.6	0.6	0.1	0.0	0.0	0.1
57-090	0.47	77.77	234.2	2,504.4	1,495.4	76.4	20.4	8.9	8.9	1.1	0.2	0.3	1.0
57-100A/B	0.47	313.43	950.2	10,160.1	6,066.8	309.9	82.6	36.3	36.1	4.4	0.8	1.1	4.0
57-110	0.54	21.6	75.0	801.5	478.6	24.4	6.5	2.9	2.8	0.3	0.1	0.1	0.3
57-120A/B/C	0.00	65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57-130	0.10	1.16	0.7	8.0	4.8	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
57-140	0.10	1.55	1.0	10.6	6.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0
57-150	0.43	35.68	98.8	1,056.7	631.0	32.2	8.6	3.8	3.8	0.5	0.1	0.1	0.4
57-160	0.10	1.89	1.2	13.0	7.7	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0
61-010	0.55	2.86	10.1	108.3	64.7	3.3	0.9	0.4	0.4	0.0	0.0	0.0	0.0
62-010	0.45	27.84	80.8	863.6	515.7	26.3	7.0	3.1	3.1	0.4	0.1	0.1	0.3
63-010	0.45	388.79	1,128.1	12,061.9	7,202.4	367.9	98.1	43.0	42.9	5.2	0.9	1.3	4.7
63-020	0.00	11.91	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
64-100	0.45	24.92	71.9	768.8	459.0	23.5	6.2	2.7	2.7	0.3	0.1	0.1	0.3
64-110	0.45	6.01	17.4	185.6	110.8	5.7	1.5	0.7	0.7	0.1	0.0	0.0	0.1
64-120	0.45	16.04	46.3	495.3	295.7	15.1	4.0	1.8	1.8	0.2	0.0	0.1	0.2
64-130	0.45	2.44	7.0	75.3	45.0	2.3	0.6	0.3	0.3	0.0	0.0	0.0	0.0
65-010	0.00	18.97	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65-020	0.53	38.46	130.6	1,396.5	833.9	42.6	11.4	5.0	5.0	0.6	0.1	0.2	0.5
70-010	0.46	6.23	18.3	196.1	117.1	6.0	1.6	0.7	0.7	0.1	0.0	0.0	0.1
70-015	0.45	11.69	33.8	361.0	215.5	11.0	2.9	1.3	1.3	0.2	0.0	0.0	0.1
70-020	0.45	37.55	108.4	1,159.5	692.3	35.4	9.4	4.1	4.1	0.5	0.1	0.1	0.5
70-025	0.00	3.67	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-030	0.45	13.48	38.9	415.9	248.4	12.7	3.4	1.5	1.5	0.2	0.0	0.0	0.2
70-035	0.45	4.53	13.1	139.9	83.5	4.3	1.1	0.5	0.5	0.1	0.0	0.0	0.1
70-040	0.45	2.42	7.0	74.7	44.6	2.3	0.6	0.3	0.3	0.0	0.0	0.0	0.0
70-045	0.00	0.26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-050	0.45	17.41	50.3	537.6	321.0	16.4	4.4	1.9	1.9	0.2	0.0	0.1	0.2
70-055	0.46	333.43	993.1	10,618.6	6,340.6	323.9	86.3	37.9	37.7	4.6	0.8	1.2	4.1
70-060	0.45	3.53	10.2	109.0	65.1	3.3	0.9	0.4	0.4	0.0	0.0	0.0	0.0
70-065	0.45	1.89	5.5	58.4	34.8	1.8	0.5	0.2	0.2	0.0	0.0	0.0	0.0
70-070	0.45	5.8	16.7	179.1	106.9	5.5	1.5	0.6	0.6	0.1	0.0	0.0	0.1
70-075	0.43	5	13.8	148.0	88.4	4.5	1.2	0.5	0.5	0.1	0.0	0.0	0.1
70-080	0.46	11.96	35.5	379.1	226.4	11.6	3.1	1.4	1.3	0.2	0.0	0.0	0.1
70-085	0.45	229.48	658.6	7,042.4	4,205.2	214.8	57.3	25.1	25.0	3.0	0.5	0.8	2.7
70-090	0.45	18.57	53.6	573.4	342.4	17.5	4.7	2.0	2.0	0.2	0.0	0.1	0.2
70-095	0.45	9.99	28.8	308.5	184.2	9.4	2.5	1.1	1.1	0.1	0.0	0.0	0.1
70-100	0.45	9.64	27.8	297.7	177.7	9.1	2.4	1.1	1.1	0.1	0.0	0.0	0.1
70-105	0.45	1.63	4.7	50.3	30.1	1.5	0.4	0.2	0.2	0.0	0.0	0.0	0.0
70-110	0.45	18.13	52.4	559.8	334.3	17.1	4.6	2.0	2.0	0.2	0.0	0.1	0.2
70-115	0.45	3.71	10.7	114.6	68.4	3.5	0.9	0.4	0.4	0.0	0.0	0.0	0.0
70-120	0.45	4.22	12.2	130.3	77.8	4.0	1.1	0.5	0.5	0.1	0.0	0.0	0.1
70-125	0.00	5.04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-130	0.49	34.29	108.6	1,161.6	693.6	35.4	9.4	4.1	4.1	0.5	0.1	0.1	0.5
70-135	0.45	7.46	21.5	230.4	137.5	7.0	1.9	0.8	0.8	0.1	0.0	0.0	0.1
70-140	0.60	0.78	3.0	32.1	19.2	1.0	0.3	0.1	0.1	0.0	0.0	0.0	0.0
70-145	0.60	9.19	35.4	378.4	225.9	11.5	3.1	1.4	1.3	0.2	0.0	0.0	0.1
70-150	0.45	4.51	13.0	139.3	83.2	4.2	1.1	0.5	0.5	0.1	0.0	0.0	0.1
70-155	0.45	2.05	5.9	63.3	37.8	1.9	0.5	0.2	0.2	0.0	0.0	0.0	0.0
70-160	0.45	2.95	8.5	91.1	54.4	2.8	0.7	0.3	0.3	0.0	0.0	0.0	0.0
70-165	0.45	27.77	80.2	857.5	512.0	26.2	7.0	3.1	3.0	0.4	0.1	0.1	0.3

2008 SPRING POLLUTANT LOADINGS BY OUTFALL

2008 SPRING POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (04/01/08 - 05/31/08)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Spring Median Event Mean Concentration			13.0	139	83	4.24	1.130	0.496	0.494	0.060	0.010	0.015	0.054
Precipitation (meters)	**0.144**												
70-170	0.45	23.74	68.6	733.0	437.7	22.4	6.0	2.6	2.6	0.3	0.1	0.1	0.3
70-175	0.46	30.89	90.6	969.1	578.7	29.6	7.9	3.5	3.4	0.4	0.1	0.1	0.4
70-180	0.45	1.14	3.3	35.2	21.0	1.1	0.3	0.1	0.1	0.0	0.0	0.0	0.0
70-185	0.45	1.53	4.4	47.2	28.2	1.4	0.4	0.2	0.2	0.0	0.0	0.0	0.0
70-190	0.17	15.04	16.6	177.6	106.1	5.4	1.4	0.6	0.6	0.1	0.0	0.0	0.1
70-195	0.45	46.02	133.6	1,428.8	853.1	43.6	11.6	5.1	5.1	0.6	0.1	0.2	0.6
70-200	0.45	31.52	91.0	973.3	581.2	29.7	7.9	3.5	3.5	0.4	0.1	0.1	0.4
70-205	0.45	1.39	4.0	42.9	25.6	1.3	0.3	0.2	0.2	0.0	0.0	0.0	0.0
70-210	0.45	3.58	10.3	110.5	66.0	3.4	0.9	0.4	0.4	0.0	0.0	0.0	0.0
70-215	0.45	5.93	17.1	183.1	109.3	5.6	1.5	0.7	0.7	0.1	0.0	0.0	0.1
70-220	0.45	4.54	13.1	140.2	83.7	4.3	1.1	0.5	0.5	0.1	0.0	0.0	0.1
70-225	0.45	4.99	14.4	154.1	92.0	4.7	1.3	0.5	0.5	0.1	0.0	0.0	0.1
70-230	0.45	4.72	13.6	145.7	87.0	4.4	1.2	0.5	0.5	0.1	0.0	0.0	0.1
70-235	0.45	5.04	14.6	155.6	92.9	4.7	1.3	0.6	0.6	0.1	0.0	0.0	0.1
70-240	0.45	4.52	13.1	139.6	83.3	4.3	1.1	0.5	0.5	0.1	0.0	0.0	0.1
70-245	0.44	9.98	28.1	300.6	179.5	9.2	2.4	1.1	1.1	0.1	0.0	0.0	0.1
70-250	0.48	41.27	127.8	1,366.0	815.6	41.7	11.1	4.9	4.9	0.6	0.1	0.1	0.5
70-255	0.45	45.37	131.1	1,401.4	836.8	42.7	11.4	5.0	5.0	0.6	0.1	0.2	0.5
70-260	0.46	24.9	73.1	782.1	467.0	23.9	6.4	2.8	2.8	0.3	0.1	0.1	0.3
70-265A/B	0.00	183.65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-270	0.45	4.66	13.5	143.9	85.9	4.4	1.2	0.5	0.5	0.1	0.0	0.0	0.1
70-275	0.45	4.28	12.4	132.2	78.9	4.0	1.1	0.5	0.5	0.1	0.0	0.0	0.1
70-280	0.45	9.39	27.2	290.4	173.4	8.9	2.4	1.0	1.0	0.1	0.0	0.0	0.1
70-285	0.45	19.03	54.9	587.0	350.5	17.9	4.8	2.1	2.1	0.3	0.0	0.1	0.2
70-290	0.45	2.37	6.8	72.6	43.3	2.2	0.6	0.3	0.3	0.0	0.0	0.0	0.0
70-295	0.45	7.18	20.7	221.7	132.4	6.8	1.8	0.8	0.8	0.1	0.0	0.0	0.1
70-300	0.10	0.4	0.3	2.7	1.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-305	0.45	12.68	36.3	388.0	231.7	11.8	3.2	1.4	1.4	0.2	0.0	0.0	0.2
70-310	0.00	5.25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-315	0.30	5.79	11.1	119.2	71.2	3.6	1.0	0.4	0.4	0.1	0.0	0.0	0.0
70-320	0.44	2.32	6.5	69.9	41.7	2.1	0.6	0.2	0.2	0.0	0.0	0.0	0.0
70-325	0.00	2.35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-330	0.47	279.41	844.6	9,031.1	5,392.7	275.5	73.4	32.2	32.1	3.9	0.7	1.0	3.5
70-335	0.45	1.99	5.7	61.4	36.7	1.9	0.5	0.2	0.2	0.0	0.0	0.0	0.0
70-340	0.39	22.25	56.2	600.7	358.7	18.3	4.9	2.1	2.1	0.3	0.0	0.1	0.2
70-345	0.45	3.81	11.0	117.6	70.2	3.6	1.0	0.4	0.4	0.1	0.0	0.0	0.0
70-350	0.49	314.4	997.0	10,659.9	6,365.3	325.2	86.7	38.0	37.9	4.6	0.8	1.2	4.1
70-355	0.45	1.29	3.7	39.8	23.8	1.2	0.3	0.1	0.1	0.0	0.0	0.0	0.0
70-360	0.45	131.96	384.9	4,115.5	2,457.5	125.5	33.5	14.7	14.6	1.8	0.3	0.4	1.6
70-365	0.45	6.7	19.3	206.9	123.5	6.3	1.7	0.7	0.7	0.1	0.0	0.0	0.1
70-370	0.44	3.75	10.7	114.0	68.1	3.5	0.9	0.4	0.4	0.0	0.0	0.0	0.0
70-375	0.47	7.1	21.5	230.3	137.5	7.0	1.9	0.8	0.8	0.1	0.0	0.0	0.1
70-380	0.45	14.4	41.6	444.6	265.5	13.6	3.6	1.6	1.6	0.2	0.0	0.0	0.2
70-385	0.45	14.97	43.2	462.2	276.0	14.1	3.8	1.6	1.6	0.2	0.0	0.1	0.2
70-390	0.46	58.11	172.8	1,847.1	1,102.9	56.3	15.0	6.6	6.6	0.8	0.1	0.2	0.7
70-395	0.43	57.19	157.6	1,685.6	1,006.5	51.4	13.7	6.0	6.0	0.7	0.1	0.2	0.7
70-400	0.44	9.67	27.2	291.2	173.9	8.9	2.4	1.0	1.0	0.1	0.0	0.0	0.1
70-405	0.25	7.16	11.5	122.9	73.4	3.7	1.0	0.4	0.4	0.1	0.0	0.0	0.0
70-410	0.43	5.8	16.0	170.7	101.9	5.2	1.4	0.6	0.6	0.1	0.0	0.0	0.1
70-415	0.45	120.75	351.8	3,761.3	2,246.0	114.7	30.6	13.4	13.4	1.6	0.3	0.4	1.5
70-420	0.45	16.99	49.1	524.6	313.3	16.0	4.3	1.9	1.9	0.2	0.0	0.1	0.2
70-425	0.51	20.63	67.7	723.4	431.9	22.1	5.9	2.6	2.6	0.3	0.1	0.1	0.3
70-430	0.10	6.19	4.0	42.5	25.4	1.3	0.3	0.2	0.2	0.0	0.0	0.0	0.0
70-435	0.10	9.16	5.9	62.9	37.5	1.9	0.5	0.2	0.2	0.0	0.0	0.0	0.0
70-440	0.50	34.48	109.9	1,175.2	701.7	35.8	9.6	4.2	4.2	0.5	0.1	0.1	0.5
70-445	0.45	5.6	16.2	172.9	103.3	5.3	1.4	0.6	0.6	0.1	0.0	0.0	0.1
70-450	0.45	2.65	7.7	81.8	48.9	2.5	0.7	0.3	0.3	0.0	0.0	0.0	0.0
70-455	0.00	2.66	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-460	0.45	2.67	7.7	82.4	49.2	2.5	0.7	0.3	0.3	0.0	0.0	0.0	0.0
70-465	0.45	2.58	7.5	79.7	47.6	2.4	0.6	0.3	0.3	0.0	0.0	0.0	0.0
70-470	0.38	8.55	21.1	225.3	134.5	6.9	1.8	0.8	0.8	0.1	0.0	0.0	0.1
70-475	0.46	229.14	676.9	7,237.8	4,321.9	220.8	58.8	25.8	25.7	3.1	0.5	0.8	2.8
70-480	0.60	0.31	1.2	12.8	7.6	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0
70-485	0.45	13.36	38.6	412.5	246.3	12.6	3.4	1.5	1.5	0.2	0.0	0.0	0.2
70-490	0.47	48.75	146.8	1,570.1	937.5	47.9	12.8	5.6	5.6	0.7	0.1	0.2	0.6
70-495	0.45	7.74	22.4	239.0	142.7	7.3	1.9	0.9	0.8	0.1	0.0	0.0	0.1
70-500	0.45	0.56	1.6	17.3	10.3	0.5	0.1	0.1	0.1	0.0	0.0	0.0	0.0
70-505	0.41	8.12	21.5	229.4	137.0	7.0	1.9	0.8	0.8	0.1	0.0	0.0	0.1
70-510	0.45	41.82	121.2	1,295.5	773.6	39.5	10.5	4.6	4.6	0.6	0.1	0.1	0.5
70-515	0.47	62.73	189.2	2,022.7	1,207.8	61.7	16.4	7.2	7.2	0.9	0.2	0.2	0.8
70-520	0.45	6.05	17.5	186.8	111.5	5.7	1.5	0.7	0.7	0.1	0.0	0.0	0.1
70-525	0.45	6.23	18.0	192.4	114.9	5.9	1.6	0.7	0.7	0.1	0.0	0.0	0.1
70-530	0.45	1.67	4.8	51.6	30.8	1.6	0.4	0.2	0.2	0.0	0.0	0.0	0.0
70-535	0.45	30.24	87.5	935.9	558.9	28.5	7.6	3.3	3.3	0.4	0.1	0.1	0.4
70-540	0.21	5.1	7.0	74.7	44.6	2.3	0.6	0.3	0.3	0.0	0.0	0.0	0.0

2008 SPRING POLLUTANT LOADINGS BY OUTFALL

2008 SPRING POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (04/01/08 - 05/31/08)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Spring Median Event Mean Concentration			13.0	139	83	4.24	1.130	0.496	0.494	0.060	0.010	0.015	0.054
Precipitation (meters)	**0.144**												
70-545	0.45	1.89	5.5	58.4	34.8	1.8	0.5	0.2	0.2	0.0	0.0	0.0	0.0
70-550	0.26	1.3	2.2	23.1	13.8	0.7	0.2	0.1	0.1	0.0	0.0	0.0	0.0
70-555	0.45	1.73	5.0	53.4	31.9	1.6	0.4	0.2	0.2	0.0	0.0	0.0	0.0
70-560	0.45	3.33	9.6	102.8	61.4	3.1	0.8	0.4	0.4	0.0	0.0	0.0	0.0
70-565	0.24	16.63	25.7	274.5	163.9	8.4	2.2	1.0	1.0	0.1	0.0	0.0	0.1
70-570	0.45	1.23	3.6	38.0	22.7	1.2	0.3	0.1	0.1	0.0	0.0	0.0	0.0
70-575	0.45	15.39	44.4	474.7	283.5	14.5	3.9	1.7	1.7	0.2	0.0	0.1	0.2
70-580	0.43	119.93	333.9	3,569.9	2,131.6	108.9	29.0	12.7	12.7	1.5	0.3	0.4	1.4
71-010	0.10	1.12	0.7	7.7	4.6	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
71-020	0.45	14.05	40.6	433.8	259.1	13.2	3.5	1.5	1.5	0.2	0.0	0.0	0.2
71-030	0.45	28.58	83.0	887.3	529.8	27.1	7.2	3.2	3.2	0.4	0.1	0.1	0.3
71-040	0.22	20.93	29.5	315.2	188.2	9.6	2.6	1.1	1.1	0.1	0.0	0.0	0.1
71-050	0.46	120.42	353.9	3,784.4	2,259.8	115.4	30.8	13.5	13.4	1.6	0.3	0.4	1.5
71-060	0.45	3.11	9.0	96.0	57.3	2.9	0.8	0.3	0.3	0.0	0.0	0.0	0.0
71-070	0.00	386.63	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
71-080	0.46	101.79	298.1	3,186.9	1,903.0	97.2	25.9	11.4	11.3	1.4	0.2	0.3	1.2
71-090	0.45	6.5	18.6	198.7	118.7	6.1	1.6	0.7	0.7	0.1	0.0	0.0	0.1
71-100	0.10	1.99	1.3	13.7	8.2	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0
72-010	0.18	17.32	19.5	208.1	124.3	6.3	1.7	0.7	0.7	0.1	0.0	0.0	0.1
72-020	0.40	24.7	62.6	669.7	399.9	20.4	5.4	2.4	2.4	0.3	0.1	0.1	0.3
72-030	0.10	5.25	3.4	36.0	21.5	1.1	0.3	0.1	0.1	0.0	0.0	0.0	0.0
72-040	0.42	166.54	445.2	4,760.0	2,842.3	145.2	38.7	17.0	16.9	2.1	0.4	0.5	1.9
72-050	0.10	5.16	3.3	35.4	21.1	1.1	0.3	0.1	0.1	0.0	0.0	0.0	0.0
72-060	0.36	113.04	262.4	2,805.7	1,675.4	85.6	22.8	10.0	10.0	1.2	0.2	0.3	1.1
72-070	0.10	2.21	1.4	15.2	9.1	0.5	0.1	0.1	0.1	0.0	0.0	0.0	0.0
72-080	0.60	4.74	18.3	195.1	116.5	6.0	1.6	0.7	0.7	0.1	0.0	0.0	0.1
72-090	0.45	68.71	197.2	2,108.3	1,258.9	64.3	17.1	7.5	7.5	0.9	0.2	0.2	0.8
72-100	0.46	68.32	203.0	2,170.6	1,296.1	66.2	17.6	7.7	7.7	0.9	0.2	0.2	0.8
72-110	0.10	3.22	2.1	22.1	13.2	0.7	0.2	0.1	0.1	0.0	0.0	0.0	0.0
72-120	0.45	62.98	181.9	1,944.7	1,161.2	59.3	15.8	6.9	6.9	0.8	0.1	0.2	0.8
72-130	0.46	58.06	170.0	1,818.0	1,085.6	55.5	14.8	6.5	6.5	0.8	0.1	0.2	0.7
72-140	0.10	10.19	6.5	69.9	41.8	2.1	0.6	0.2	0.2	0.0	0.0	0.0	0.0
72-150	0.10	4.76	3.1	32.7	19.5	1.0	0.3	0.1	0.1	0.0	0.0	0.0	0.0
72-160	0.10	4.55	2.9	31.2	18.6	1.0	0.3	0.1	0.1	0.0	0.0	0.0	0.0
73-010	0.44	20.76	58.5	625.2	373.3	19.1	5.1	2.2	2.2	0.3	0.0	0.1	0.2
73-020	0.44	57.47	163.2	1,745.3	1,042.2	53.2	14.2	6.2	6.2	0.8	0.1	0.2	0.7
73-030	0.10	21.56	13.8	147.9	88.3	4.5	1.2	0.5	0.5	0.1	0.0	0.0	0.1
74-010	0.48	44.39	136.4	1,458.0	870.6	44.5	11.9	5.2	5.2	0.6	0.1	0.2	0.6
74-020	0.45	4.41	12.7	136.2	81.3	4.2	1.1	0.5	0.5	0.1	0.0	0.0	0.1
75-005	0.45	12.39	35.7	382.1	228.2	11.7	3.1	1.4	1.4	0.2	0.0	0.0	0.1
75-010	0.60	3.65	14.1	150.3	89.7	4.6	1.2	0.5	0.5	0.1	0.0	0.0	0.1
75-020	0.45	1.53	4.4	47.2	28.2	1.4	0.4	0.2	0.2	0.0	0.0	0.0	0.0
75-030	0.45	8.38	24.2	258.8	154.5	7.9	2.1	0.9	0.9	0.1	0.0	0.0	0.1
75-040	0.45	14.74	42.6	455.1	271.8	13.9	3.7	1.6	1.6	0.2	0.0	0.0	0.2
76-010	0.46	907.31	2,700.8	28,877.7	17,243.5	880.9	234.8	103.0	102.6	12.5	2.2	3.1	11.2
76-020	0.46	88.62	259.2	2,770.9	1,654.6	84.5	22.5	9.9	9.8	1.2	0.2	0.3	1.1
76-030	0.45	7.55	21.8	233.1	139.2	7.1	1.9	0.8	0.8	0.1	0.0	0.0	0.1
76-040	0.19	4.67	5.6	59.6	35.6	1.8	0.5	0.2	0.2	0.0	0.0	0.0	0.0
76-050	0.00	2.39	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81-010	0.10	31.17	20.0	213.9	127.7	6.5	1.7	0.8	0.8	0.1	0.0	0.0	0.1
82-010	0.49	23.53	73.5	785.6	469.1	24.0	6.4	2.8	2.8	0.3	0.1	0.1	0.3
82-020	0.45	73.45	214.4	2,292.3	1,368.8	69.9	18.6	8.2	8.1	1.0	0.2	0.2	0.9
82-030	0.45	90.04	262.7	2,809.3	1,677.5	85.7	22.8	10.0	10.0	1.2	0.2	0.3	1.1
82-040	0.46	98.49	293.2	3,135.2	1,872.1	95.6	25.5	11.2	11.1	1.4	0.2	0.3	1.2
83-010	0.45	6.59	19.0	203.5	121.5	6.2	1.7	0.7	0.7	0.1	0.0	0.0	0.1
83-015	0.45	0.99	2.9	30.6	18.3	0.9	0.2	0.1	0.1	0.0	0.0	0.0	0.0
83-020	0.43	85.96	239.8	2,564.5	1,531.3	78.2	20.8	9.2	9.1	1.1	0.2	0.3	1.0
83-025	0.45	51.23	147.9	1,581.9	944.6	48.3	12.9	5.6	5.6	0.7	0.1	0.2	0.6
83-030	0.60	0.82	3.2	33.8	20.2	1.0	0.3	0.1	0.1	0.0	0.0	0.0	0.0
83-040	0.10	1.08	0.7	7.4	4.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
83-050	0.45	40.4	117.0	1,250.9	746.9	38.2	10.2	4.5	4.4	0.5	0.1	0.1	0.5
83-060	0.45	10.05	29.0	310.3	185.3	9.5	2.5	1.1	1.1	0.1	0.0	0.0	0.1
83-070	0.10	1.19	0.8	8.2	4.9	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
83-080	0.48	178.63	545.0	5,827.6	3,479.8	177.8	47.4	20.8	20.7	2.5	0.4	0.6	2.3
83-090	0.41	9.16	24.1	257.6	153.8	7.9	2.1	0.9	0.9	0.1	0.0	0.0	0.1
84-010	0.47	21.56	65.1	695.8	415.5	21.2	5.7	2.5	2.5	0.3	0.1	0.1	0.3
85-010	0.10	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SPRING SEASONAL SUM (kg)			**86,686.70**	**926,880.90**	**553,461.26**	**28,273.20**	**7,535.07**	**3,307.43**	**3,294.09**	**400.09**	**69.35**	**100.69**	**360.75**

Appendix A7: Pollutant Loadings, Part E) 2008 Spring Pollutant Loadings by Outfall
Source: Minneapolis Park and Recreation Board

2008 SUMMER POLLUTANT LOADINGS BY OUTFALL

2008 SUMMER POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (06/01/08 - 08/31/08)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Summer Median Event Mean Concentration			9.0	156	45	2.38	0.574	0.291	0.476	0.072	0.011	0.023	0.113
Precipitation (meters)	**0.207772**												
10-010	0.43	113.55	315.1	5,461.9	1,575.5	83.3	20.1	10.2	16.7	2.5	0.4	0.8	4.0
10-020	0.45	7.81	22.6	391.8	113.0	6.0	1.4	0.7	1.2	0.2	0.0	0.1	0.3
10-030	0.10	4.05	2.6	45.2	13.0	0.7	0.2	0.1	0.1	0.0	0.0	0.0	0.0
10-040	0.45	167.42	481.2	8,341.6	2,406.2	127.3	30.7	15.6	25.5	3.8	0.6	1.2	6.0
10-050	0.46	114.18	334.3	5,795.0	1,671.6	88.4	21.3	10.8	17.7	2.7	0.4	0.8	4.2
10-060	0.60	10.5	40.5	702.4	202.6	10.7	2.6	1.3	2.1	0.3	0.0	0.1	0.5
10-070	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-080	0.38	30.66	75.4	1,306.3	376.8	19.9	4.8	2.4	4.0	0.6	0.1	0.2	0.9
10-090A	0.00	0.85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-090B	0.00	1.48	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-090C	0.54	12.77	44.5	771.0	222.4	11.8	2.8	1.4	2.4	0.4	0.1	0.1	0.6
10-090D	0.00	4.68	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-100	0.36	1392.1	3,248.0	56,298.5	16,239.9	858.9	207.1	105.0	171.8	26.0	4.0	8.2	40.8
10-110	0.47	300.11	900.6	15,610.5	4,503.0	238.2	57.4	29.1	47.6	7.2	1.1	2.3	11.3
10-120A/B	0.44	372.78	1,043.7	18,090.6	5,218.4	276.0	66.6	33.7	55.2	8.3	1.3	2.6	13.1
10-130	0.45	336.46	977.2	16,938.1	4,886.0	258.4	62.3	31.6	51.7	7.8	1.2	2.5	12.3
10-140a	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-140a,b	0.58	220.65	816.7	14,156.3	4,083.5	216.0	52.1	26.4	43.2	6.5	1.0	2.1	10.3
10-150	0.47	157.15	474.0	8,215.3	2,369.8	125.3	30.2	15.3	25.1	3.8	0.6	1.2	6.0
10-160	0.00	17	0.3	4.7	1.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-170	0.50	176.01	569.7	9,875.4	2,848.7	150.7	36.3	18.4	30.1	4.6	0.7	1.4	7.2
10-180	0.45	284.26	814.2	14,113.6	4,071.2	215.3	51.9	26.3	43.1	6.5	1.0	2.0	10.2
10-190	0.59	14.58	55.5	961.9	277.5	14.7	3.5	1.8	2.9	0.4	0.1	0.1	0.7
10-200	0.40	42.44	108.4	1,878.7	541.9	28.7	6.9	3.5	5.7	0.9	0.1	0.3	1.4
10-210	0.49	98.32	310.9	5,388.7	1,554.4	82.2	19.8	10.1	16.4	2.5	0.4	0.8	3.9
10-220	0.56	18.83	67.7	1,173.8	338.6	17.9	4.3	2.2	3.6	0.5	0.1	0.2	0.9
10-230	0.47	235.02	714.6	12,386.4	3,573.0	189.0	45.6	23.1	37.8	5.7	0.9	1.8	9.0
10-240	0.51	103.83	343.1	5,947.0	1,715.5	90.7	21.9	11.1	18.1	2.7	0.4	0.9	4.3
10-250	0.49	242.96	764.0	13,242.4	3,819.9	202.0	48.7	24.7	40.4	6.1	0.9	1.9	9.6
10-260	0.56	23.77	85.2	1,476.6	425.9	22.5	5.4	2.8	4.5	0.7	0.1	0.2	1.1
10-270	0.47	72.45	220.8	3,827.7	1,104.1	58.4	14.1	7.1	11.7	1.8	0.3	0.6	2.8
10-280	0.44	55.08	157.2	2,725.6	786.2	41.6	10.0	5.1	8.3	1.3	0.2	0.4	2.0
10-290	0.10	6.83	4.4	76.2	22.0	1.2	0.3	0.1	0.2	0.0	0.0	0.0	0.1
10-300	0.36	17.74	41.1	713.2	205.7	10.9	2.6	1.3	2.2	0.3	0.1	0.1	0.5
10-310	0.47	60.29	183.1	3,174.3	915.7	48.4	11.7	5.9	9.7	1.5	0.2	0.5	2.3
10-320	0.45	341.99	993.8	17,225.9	4,969.0	262.8	63.4	32.1	52.6	8.0	1.2	2.5	12.5
10-330	0.35	21.61	48.9	847.1	244.4	12.9	3.1	1.6	2.6	0.4	0.1	0.1	0.6
10-340	0.45	20.74	60.2	1,043.4	301.0	15.9	3.8	1.9	3.2	0.5	0.1	0.2	0.8
10-350	0.60	28.16	108.5	1,880.4	542.4	28.7	6.9	3.5	5.7	0.9	0.1	0.3	1.4
10-360	0.59	29.02	110.6	1,917.6	553.2	29.3	7.1	3.6	5.9	0.9	0.1	0.3	1.4
10-370	0.59	14.46	54.8	950.5	274.2	14.5	3.5	1.8	2.9	0.4	0.1	0.1	0.7
10-380	0.45	14.38	41.2	713.7	205.9	10.9	2.6	1.3	2.2	0.3	0.1	0.1	0.5
10-390	0.49	41.97	133.1	2,307.3	665.6	35.2	8.5	4.3	7.0	1.1	0.2	0.3	1.7
10-400A	0.10	1.07	0.7	11.9	3.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-400B	0.47	17.66	53.6	928.6	267.9	14.2	3.4	1.7	2.8	0.4	0.1	0.1	0.7
10-400C	0.57	50.25	182.9	3,169.9	914.4	48.4	11.7	5.9	9.7	1.5	0.2	0.5	2.3
10-410A	0.50	46.22	148.0	2,565.5	740.0	39.1	9.4	4.8	7.8	1.2	0.2	0.4	1.9
10-410B	0.32	21.29	43.3	751.0	216.6	11.5	2.8	1.4	2.3	0.3	0.1	0.1	0.5
10-410C	0.53	22.8	77.4	1,341.7	387.0	20.5	4.9	2.5	4.1	0.6	0.1	0.2	1.0
10-410D	0.60	27.34	105.6	1,829.7	527.8	27.9	6.7	3.4	5.6	0.8	0.1	0.3	1.3
10-410E	0.58	256.04	947.7	16,426.8	4,738.5	250.6	60.4	30.6	50.1	7.6	1.2	2.4	11.9
10-410F	0.59	37.92	143.5	2,486.9	717.4	37.9	9.2	4.6	7.6	1.1	0.2	0.4	1.8
10-420A	0.27	23.05	40.4	700.3	202.0	10.7	2.6	1.3	2.1	0.3	0.0	0.1	0.5
10-420B	0.00	10.06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-420C	0.00	7.42	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-420D	0.00	20.73	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-420E	0.59	127.89	482.7	8,367.6	2,413.7	127.7	30.8	15.6	25.5	3.9	0.6	1.2	6.1
10-430A	0.00	8.14	0.1	2.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-430B	0.53	54.72	188.1	3,260.0	940.4	49.7	12.0	6.1	9.9	1.5	0.2	0.5	2.4
10-430C	0.48	44.83	138.5	2,401.1	692.6	36.6	8.8	4.5	7.3	1.1	0.2	0.3	1.7
10-430D	0.49	85.79	271.3	4,702.3	1,356.4	71.7	17.3	8.8	14.3	2.2	0.3	0.7	3.4
10-430E	0.56	86.66	310.8	5,387.6	1,554.1	82.2	19.8	10.1	16.4	2.5	0.4	0.8	3.9
10-430F	0.10	377.97	243.1	4,214.2	1,215.6	64.3	15.5	7.9	12.9	1.9	0.3	0.6	3.1
10-430G	0.50	125.89	401.3	6,956.0	2,006.6	106.1	25.6	13.0	21.2	3.2	0.5	1.0	5.0
10-430H	0.49	33.18	104.9	1,817.8	524.4	27.7	6.7	3.4	5.5	0.8	0.1	0.3	1.3
10-430I	0.59	32.61	123.5	2,140.1	617.3	32.7	7.9	4.0	6.5	1.0	0.2	0.3	1.6
10-430J	0.43	532.36	1,486.0	25,757.2	7,430.0	393.0	94.8	48.0	78.6	11.9	1.8	3.7	18.7
10-430K	0.48	337.06	1,035.6	17,950.3	5,178.0	273.9	66.0	33.5	54.8	8.3	1.3	2.6	13.0
10-430L	0.45	84.4	244.7	4,241.7	1,223.6	64.7	15.6	7.9	12.9	2.0	0.3	0.6	3.1
10-430M	0.54	75.94	264.9	4,592.3	1,324.7	70.1	16.9	8.6	14.0	2.1	0.3	0.7	3.3
10-430N	0.44	26.43	75.5	1,308.1	377.3	20.0	4.8	2.4	4.0	0.6	0.1	0.2	0.9
10-430O	0.00	109.53	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-430P	0.00	229.12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-430Q	0.10	8.03	5.2	89.5	25.8	1.4	0.3	0.2	0.3	0.0	0.0	0.0	0.1
10-430R	0.47	150.32	452.0	7,834.7	2,260.0	119.5	28.8	14.6	23.9	3.6	0.6	1.1	5.7
10-430S	0.10	5.15	3.3	57.4	16.6	0.9	0.2	0.1	0.2	0.0	0.0	0.0	0.0
10-430T	0.46	262.47	771.8	13,377.1	3,858.8	204.1	49.2	25.0	40.8	6.2	1.0	1.9	9.7

2008 SUMMER POLLUTANT LOADINGS BY OUTFALL

2008 SUMMER POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (06/01/08 - 08/31/08)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Summer Median Event Mean Concentration			9.0	156	45	2.38	0.574	0.291	0.476	0.072	0.011	0.023	0.113
Precipitation (meters)	**0.207772**												
10-430U	0.47	431.37	1,303.7	22,597.8	6,518.6	344.8	83.1	42.2	69.0	10.4	1.6	3.3	16.4
10-430V	0.46	329.11	984.0	17,056.6	4,920.2	260.2	62.8	31.8	52.0	7.9	1.2	2.5	12.4
10-440A	0.46	23.18	68.3	1,184.0	341.5	18.1	4.4	2.2	3.6	0.5	0.1	0.2	0.9
10-440B	0.49	34.23	108.5	1,880.7	542.5	28.7	6.9	3.5	5.7	0.9	0.1	0.3	1.4
10-440C/D	0.00	56	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-440E	0.51	831.25	2,749.6	47,659.2	13,747.8	727.1	175.4	88.9	145.4	22.0	3.4	6.9	34.5
10-440F	0.46	538.85	1,595.2	27,649.6	7,975.8	421.8	101.7	51.6	84.4	12.8	2.0	4.0	20.0
10-450A	0.00	343.67	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-450B	0.52	3.41	11.3	196.4	56.7	3.0	0.7	0.4	0.6	0.1	0.0	0.0	0.1
10-450C	0.59	55.64	212.5	3,683.9	1,062.7	56.2	13.6	6.9	11.2	1.7	0.3	0.5	2.7
10-450D	0.45	4.62	13.4	231.8	66.9	3.5	0.9	0.4	0.7	0.1	0.0	0.0	0.2
10-450E	0.44	3.2	9.1	157.7	45.5	2.4	0.6	0.3	0.5	0.1	0.0	0.0	0.1
10-450F	0.46	158.55	468.5	8,121.5	2,342.7	123.9	29.9	15.1	24.8	3.7	0.6	1.2	5.9
10-450G/H	0.48	75.02	231.9	4,019.0	1,159.3	61.3	14.8	7.5	12.3	1.9	0.3	0.6	2.9
10-450I	0.49	243.64	769.8	13,343.9	3,849.2	203.6	49.1	24.9	40.7	6.2	0.9	1.9	9.7
10-450J	0.49	17.16	53.6	928.8	267.9	14.2	3.4	1.7	2.8	0.4	0.1	0.1	0.7
10-450K	0.58	37.01	137.9	2,390.3	689.5	36.5	8.8	4.5	7.3	1.1	0.2	0.3	1.7
10-450L	0.51	213.41	693.3	12,017.4	3,466.6	183.3	44.2	22.4	36.7	5.5	0.9	1.7	8.7
10-460	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460A	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460B	0.52	7.29	24.2	420.0	121.2	6.4	1.5	0.8	1.3	0.2	0.0	0.1	0.3
10-460C/D/F	0.00	159.87	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460E	0.49	231.41	735.1	12,741.6	3,675.5	194.4	46.9	23.8	38.9	5.9	0.9	1.8	9.2
10-460F	0.49	14.75	46.9	813.6	234.7	12.4	3.0	1.5	2.5	0.4	0.1	0.1	0.6
10-460G	0.51	79.66	261.7	4,536.8	1,308.7	69.2	16.7	8.5	13.8	2.1	0.3	0.7	3.3
10-460H	0.48	12.35	38.1	660.1	190.4	10.1	2.4	1.2	2.0	0.3	0.0	0.1	0.5
10-460I	0.00	72.26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460J	0.46	5.36	16.0	277.1	79.9	4.2	1.0	0.5	0.8	0.1	0.0	0.0	0.2
10-460K	0.36	5.48	12.7	219.8	63.4	3.4	0.8	0.4	0.7	0.1	0.0	0.0	0.2
10-460L	0.46	3.5	10.4	180.8	52.2	2.8	0.7	0.3	0.6	0.1	0.0	0.0	0.1
10-460M	0.48	9.55	29.4	509.6	147.0	7.8	1.9	1.0	1.6	0.2	0.0	0.1	0.4
10-460N	0.45	3.85	11.1	193.2	55.7	2.9	0.7	0.4	0.6	0.1	0.0	0.0	0.1
10-460O	0.45	4.15	12.1	209.9	60.6	3.2	0.8	0.4	0.6	0.1	0.0	0.0	0.2
10-460P	0.45	4.34	12.6	217.7	62.8	3.3	0.8	0.4	0.7	0.1	0.0	0.0	0.2
10-460Q	0.56	19.73	71.6	1,241.0	358.0	18.9	4.6	2.3	3.8	0.6	0.1	0.2	0.9
10-460R	0.00	51.51	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460S	0.56	233.54	847.7	14,693.4	4,238.5	224.2	54.1	27.4	44.8	6.8	1.0	2.1	10.6
10-465	0.10	8.56	5.5	95.4	27.5	1.5	0.4	0.2	0.3	0.0	0.0	0.0	0.1
10-470	0.38	25.6	62.8	1,089.3	314.2	16.6	4.0	2.0	3.3	0.5	0.1	0.2	0.8
10-480	0.58	39.66	148.0	2,565.5	740.0	39.1	9.4	4.8	7.8	1.2	0.2	0.4	1.9
10-485	0.00	7.27	0.1	2.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-490	0.43	150.96	421.0	7,296.7	2,104.8	111.3	26.8	13.6	22.3	3.4	0.5	1.1	5.3
10-500A	0.26	26.21	44.2	766.9	221.2	11.7	2.8	1.4	2.3	0.4	0.1	0.1	0.6
10-500B	0.46	8.48	25.1	435.2	125.5	6.6	1.6	0.8	1.3	0.2	0.0	0.1	0.3
10-500C	0.44	111.36	311.8	5,405.4	1,559.2	82.5	19.9	10.1	16.5	2.5	0.4	0.8	3.9
10-500D	0.24	3.83	5.9	101.7	29.3	1.6	0.4	0.2	0.3	0.0	0.0	0.0	0.1
10-500E	0.53	23.34	79.9	1,385.6	399.7	21.1	5.1	2.6	4.2	0.6	0.1	0.2	1.0
10-500F	0.49	12.04	38.2	662.9	191.2	10.1	2.4	1.2	2.0	0.3	0.0	0.1	0.5
10-500G	0.00	112.94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-505	0.10	7.85	5.0	87.5	25.2	1.3	0.3	0.2	0.3	0.0	0.0	0.0	0.1
10-510	0.51	62.36	204.0	3,536.5	1,020.1	54.0	13.0	6.6	10.8	1.6	0.3	0.5	2.6
10-520	0.00	139.98	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-530	0.45	116.15	336.8	5,837.6	1,683.9	89.1	21.5	10.9	17.8	2.7	0.4	0.8	4.2
10-540	0.12	53.9	41.1	711.7	205.3	10.9	2.6	1.3	2.2	0.3	0.1	0.1	0.5
10-550	0.46	25.83	76.4	1,324.5	382.1	20.2	4.9	2.5	4.0	0.6	0.1	0.2	1.0
10-560A/B	0.44	600.63	1,690.2	29,297.4	8,451.2	447.0	107.8	54.7	89.4	13.5	2.1	4.2	21.2
10-570A	0.54	14.64	51.2	887.6	256.0	13.5	3.3	1.7	2.7	0.4	0.1	0.1	0.6
10-570B	0.44	228.18	640.7	11,105.3	3,203.4	169.4	40.9	20.7	33.9	5.1	0.8	1.6	8.0
10-580	0.45	73.39	211.9	3,672.6	1,059.4	56.0	13.5	6.9	11.2	1.7	0.3	0.5	2.7
10-600	0.48	89.24	277.6	4,811.8	1,388.0	73.4	17.7	9.0	14.7	2.2	0.3	0.7	3.5
10-610	0.46	25.6	75.5	1,308.3	377.4	20.0	4.8	2.4	4.0	0.6	0.1	0.2	0.9
10-620	0.00	9.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-630A	0.10	6.24	4.0	69.6	20.1	1.1	0.3	0.1	0.2	0.0	0.0	0.0	0.1
10-630B	0.45	4.68	13.5	234.8	67.7	3.6	0.9	0.4	0.7	0.1	0.0	0.0	0.2
10-630C	0.48	96.03	298.4	5,172.8	1,492.2	78.9	19.0	9.6	15.8	2.4	0.4	0.7	3.7
10-630D	0.45	6.37	18.4	319.6	92.2	4.9	1.2	0.6	1.0	0.1	0.0	0.0	0.2
10-630E	0.45	8.52	24.7	427.5	123.3	6.5	1.6	0.8	1.3	0.2	0.0	0.1	0.3
10-630F	0.54	17.56	61.0	1,057.7	305.1	16.1	3.9	2.0	3.2	0.5	0.1	0.2	0.8
10-630G	0.45	5.9	17.1	296.0	85.4	4.5	1.1	0.6	0.9	0.1	0.0	0.0	0.2
10-630H	0.30	25.63	49.9	865.5	249.7	13.2	3.2	1.6	2.6	0.4	0.1	0.1	0.6
10-630I	0.47	12.48	37.3	647.1	186.7	9.9	2.4	1.2	2.0	0.3	0.0	0.1	0.5
10-630J	0.55	14.69	52.3	906.8	261.6	13.8	3.3	1.7	2.8	0.4	0.1	0.1	0.7
10-630K	0.47	95.29	290.1	5,028.3	1,450.5	76.7	18.5	9.4	15.3	2.3	0.4	0.7	3.6
10-630L	0.52	100.42	336.5	5,833.3	1,682.7	89.0	21.5	10.9	17.8	2.7	0.4	0.8	4.2
10-630M	0.50	11.71	37.4	648.3	187.0	9.9	2.4	1.2	2.0	0.3	0.0	0.1	0.5
10-630N	0.45	8.45	24.5	424.0	122.3	6.5	1.6	0.8	1.3	0.2	0.0	0.1	0.3
10-630O	0.36	5.77	13.5	234.2	67.6	3.6	0.9	0.4	0.7	0.1	0.0	0.0	0.2

2008 SUMMER POLLUTANT LOADINGS BY OUTFALL

2008 SUMMER POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (06/01/08 - 08/31/08)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Summer Median Event Mean Concentration			9.0	156	45	2.38	0.574	0.291	0.476	0.072	0.011	0.023	0.113
Precipitation (meters)	**0.207772**												
10-630P/Q	0.00	67.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-630R	0.33	83.89	180.2	3,123.8	901.1	47.7	11.5	5.8	9.5	1.4	0.2	0.5	2.3
10-630S	0.22	37.02	51.8	897.2	258.8	13.7	3.3	1.7	2.7	0.4	0.1	0.1	0.6
10-630T	0.56	7.72	27.9	484.2	139.7	7.4	1.8	0.9	1.5	0.2	0.0	0.1	0.4
10-630U	0.52	115.42	388.4	6,731.5	1,941.8	102.7	24.8	12.6	20.5	3.1	0.5	1.0	4.9
10-630V	0.11	33.85	23.0	398.5	115.0	6.1	1.5	0.7	1.2	0.2	0.0	0.1	0.3
10-630W	0.47	23.68	72.2	1,250.7	360.8	19.1	4.6	2.3	3.8	0.6	0.1	0.2	0.9
10-630X	0.44	14.78	42.1	729.0	210.3	11.1	2.7	1.4	2.2	0.3	0.1	0.1	0.5
10-630Y	0.00	112.03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-630Z	0.47	45.66	138.3	2,396.7	691.4	36.6	8.8	4.5	7.3	1.1	0.2	0.3	1.7
10-640	0.46	258.18	759.5	13,165.2	3,797.7	200.9	48.4	24.6	40.2	6.1	0.9	1.9	9.5
10-650	0.56	19.53	70.0	1,212.9	349.9	18.5	4.5	2.3	3.7	0.6	0.1	0.2	0.9
10-660	0.46	306.37	912.9	15,824.1	4,564.6	241.4	58.2	29.5	48.3	7.3	1.1	2.3	11.5
10-670	0.45	137.88	398.5	6,907.6	1,992.6	105.4	25.4	12.9	21.1	3.2	0.5	1.0	5.0
10-680	0.46	707.95	2,088.0	36,191.7	10,439.9	552.2	133.2	67.5	110.4	16.7	2.6	5.2	26.2
10-690	0.50	70.63	227.3	3,939.6	1,136.4	60.1	14.5	7.3	12.0	1.8	0.3	0.6	2.9
10-700	0.46	222.07	663.3	11,497.2	3,316.5	175.4	42.3	21.4	35.1	5.3	0.8	1.7	8.3
10-710	0.33	29.95	64.2	1,112.4	320.9	17.0	4.1	2.1	3.4	0.5	0.1	0.2	0.8
10-720A	0.44	15.77	45.0	779.7	224.9	11.9	2.9	1.5	2.4	0.4	0.1	0.1	0.6
10-720B	0.48	422.18	1,308.3	22,677.7	6,541.7	346.0	83.4	42.3	69.2	10.5	1.6	3.3	16.4
10-720C	0.43	26.35	72.8	1,261.5	363.9	19.2	4.6	2.4	3.8	0.6	0.1	0.2	0.9
10-720D	0.46	22.95	67.2	1,164.9	336.0	17.8	4.3	2.2	3.6	0.5	0.1	0.2	0.8
10-720E	0.46	18.39	53.9	934.4	269.5	14.3	3.4	1.7	2.9	0.4	0.1	0.1	0.7
10-720F	0.48	317.75	980.7	16,998.4	4,903.4	259.3	62.5	31.7	51.9	7.8	1.2	2.5	12.3
10-720G	0.00	13.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-720H	0.45	4.55	13.2	228.3	65.9	3.5	0.8	0.4	0.7	0.1	0.0	0.0	0.2
10-720I	0.45	87.27	250.3	4,339.2	1,251.7	66.2	16.0	8.1	13.2	2.0	0.3	0.6	3.1
10-720J	0.36	3.71	8.5	147.8	42.6	2.3	0.5	0.3	0.5	0.1	0.0	0.0	0.1
10-720K	0.55	32.76	115.7	2,005.6	578.5	30.6	7.4	3.7	6.1	0.9	0.1	0.3	1.5
10-720L	0.45	4.57	13.2	229.3	66.1	3.5	0.8	0.4	0.7	0.1	0.0	0.0	0.2
20-010	0.42	93.99	253.8	4,399.3	1,269.0	67.1	16.2	8.2	13.4	2.0	0.3	0.6	3.2
20-020	0.44	15.09	42.6	738.0	212.9	11.3	2.7	1.4	2.3	0.3	0.1	0.1	0.5
20-030	0.45	7.95	23.0	398.9	115.1	6.1	1.5	0.7	1.2	0.2	0.0	0.1	0.3
20-040	0.37	6.79	16.3	282.2	81.4	4.3	1.0	0.5	0.9	0.1	0.0	0.0	0.2
20-050	0.00	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-060	0.45	5.91	17.1	296.5	85.5	4.5	1.1	0.6	0.9	0.1	0.0	0.0	0.2
20-070	0.44	39.07	111.4	1,931.4	557.1	29.5	7.1	3.6	5.9	0.9	0.1	0.3	1.4
20-080	0.45	33.72	98.3	1,704.6	491.7	26.0	6.3	3.2	5.2	0.8	0.1	0.2	1.2
20-090	0.55	9.95	35.4	613.2	176.9	9.4	2.3	1.1	1.9	0.3	0.0	0.1	0.4
20-100	0.10	0.99	0.6	11.0	3.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-110	0.24	216.04	333.4	5,779.0	1,667.0	88.2	21.3	10.8	17.6	2.7	0.4	0.8	4.2
20-120	0.47	10.22	30.7	532.6	153.6	8.1	2.0	1.0	1.6	0.2	0.0	0.1	0.4
20-130	0.45	16.12	46.7	808.8	233.3	12.3	3.0	1.5	2.5	0.4	0.1	0.1	0.6
20-140	0.44	2.97	8.4	146.1	42.2	2.2	0.5	0.3	0.4	0.1	0.0	0.0	0.1
20-150	0.45	14.48	41.9	726.5	209.6	11.1	2.7	1.4	2.2	0.3	0.1	0.1	0.5
20-160	0.54	3.21	11.2	193.4	55.8	3.0	0.7	0.4	0.6	0.1	0.0	0.0	0.1
20-170	0.37	4.94	11.8	205.2	59.2	3.1	0.8	0.4	0.6	0.1	0.0	0.0	0.1
20-180	0.51	5.3	17.3	299.1	86.3	4.6	1.1	0.6	0.9	0.1	0.0	0.0	0.2
20-190	0.45	1.35	3.9	67.7	19.5	1.0	0.2	0.1	0.2	0.0	0.0	0.0	0.0
20-200	0.45	13.84	40.1	694.4	200.3	10.6	2.6	1.3	2.1	0.3	0.0	0.1	0.5
20-210A	0.44	92.9	262.5	4,549.9	1,312.5	69.4	16.7	8.5	13.9	2.1	0.3	0.7	3.3
20-210B	0.50	620.78	2,014.7	34,922.2	10,073.7	532.8	128.5	65.1	106.6	16.1	2.5	5.1	25.3
20-220	0.46	26.38	78.2	1,356.0	391.1	20.7	5.0	2.5	4.1	0.6	0.1	0.2	1.0
20-230	0.00	21.46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-240	0.48	30.06	93.2	1,614.8	465.8	24.6	5.9	3.0	4.9	0.7	0.1	0.2	1.2
20-250	0.57	6.28	23.1	400.3	115.5	6.1	1.5	0.7	1.2	0.2	0.0	0.1	0.3
20-260	0.60	3.5	13.5	234.1	67.5	3.6	0.9	0.4	0.7	0.1	0.0	0.0	0.2
20-270	0.48	42.81	131.3	2,275.4	656.4	34.7	8.4	4.2	6.9	1.1	0.2	0.3	1.6
20-280	0.54	8.98	31.0	538.1	155.2	8.2	2.0	1.0	1.6	0.2	0.0	0.1	0.4
20-290	0.00	4.98	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21-010	0.45	49.49	142.7	2,473.4	713.5	37.7	9.1	4.6	7.5	1.1	0.2	0.4	1.8
40-010	0.45	719.17	2,073.0	35,931.4	10,364.8	548.2	132.2	67.0	109.6	16.6	2.6	5.2	26.0
40-020	0.45	15.36	44.5	770.6	222.3	11.8	2.8	1.4	2.4	0.4	0.1	0.1	0.6
40-030	0.42	51.02	137.1	2,376.3	685.5	36.3	8.7	4.4	7.3	1.1	0.2	0.3	1.7
40-040	0.43	65.39	182.6	3,165.5	913.1	48.3	11.6	5.9	9.7	1.5	0.2	0.5	2.3
40-050	0.45	10.28	29.8	515.8	148.8	7.9	1.9	1.0	1.6	0.2	0.0	0.1	0.4
40-060	0.45	3.2	9.3	160.6	46.3	2.4	0.6	0.3	0.5	0.1	0.0	0.0	0.1
40-070	0.38	7.98	19.4	336.6	97.1	5.1	1.2	0.6	1.0	0.2	0.0	0.0	0.2
40-080	0.41	60.51	159.0	2,755.2	794.8	42.0	10.1	5.1	8.4	1.3	0.2	0.4	2.0
40-090	0.46	20.65	61.7	1,070.3	308.7	16.3	3.9	2.0	3.3	0.5	0.1	0.2	0.8
40-100	0.00	20.35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40-110	0.44	2.61	7.5	129.1	37.3	2.0	0.5	0.2	0.4	0.1	0.0	0.0	0.1
40-120	0.44	65.87	185.7	3,218.8	928.5	49.1	11.8	6.0	9.8	1.5	0.2	0.5	2.3
40-130	0.45	35.01	101.8	1,763.8	508.8	26.9	6.5	3.3	5.4	0.8	0.1	0.3	1.3
40-140	0.35	125.46	280.6	4,864.1	1,403.1	74.2	17.9	9.1	14.8	2.2	0.3	0.7	3.5
40-150	0.47	24.31	74.1	1,284.0	370.4	19.6	4.7	2.4	3.9	0.6	0.1	0.2	0.9
40-160	0.49	30.99	98.5	1,708.1	492.7	26.1	6.3	3.2	5.2	0.8	0.1	0.2	1.2

2008 SUMMER POLLUTANT LOADINGS BY OUTFALL

2008 SUMMER POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (06/01/08 - 08/31/08)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Summer Median Event Mean Concentration			9.0	156	45	2.38	0.574	0.291	0.476	0.072	0.011	0.023	0.113
Precipitation (meters)	**0.207772**												
40-170	0.00	194.89	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40-180	0.54	16.8	58.2	1,008.4	290.9	15.4	3.7	1.9	3.1	0.5	0.1	0.1	0.7
40-190	0.53	65.53	222.9	3,863.3	1,114.4	58.9	14.2	7.2	11.8	1.8	0.3	0.6	2.8
40-200	0.46	24.75	73.6	1,275.8	368.0	19.5	4.7	2.4	3.9	0.6	0.1	0.2	0.9
40-210	0.54	17.26	60.5	1,048.5	302.5	16.0	3.9	2.0	3.2	0.5	0.1	0.2	0.8
40-220	0.47	100.58	302.4	5,242.4	1,512.2	80.0	19.3	9.8	16.0	2.4	0.4	0.8	3.8
40-230	0.44	13.78	39.4	683.4	197.1	10.4	2.5	1.3	2.1	0.3	0.0	0.1	0.5
40-240	0.00	340.86	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40-250	0.60	1.15	4.4	76.9	22.2	1.2	0.3	0.1	0.2	0.0	0.0	0.0	0.1
40-260	0.45	3.49	10.1	175.1	50.5	2.7	0.6	0.3	0.5	0.1	0.0	0.0	0.1
40-270	0.45	9.59	27.8	481.2	138.8	7.3	1.8	0.9	1.5	0.2	0.0	0.1	0.3
40-280	0.53	12.76	43.2	748.2	215.8	11.4	2.8	1.4	2.3	0.3	0.1	0.1	0.5
40-290	0.51	13.73	45.2	783.8	226.1	12.0	2.9	1.5	2.4	0.4	0.1	0.1	0.6
40-300	0.52	10.38	34.8	603.0	173.9	9.2	2.2	1.1	1.8	0.3	0.0	0.1	0.4
40-310	0.45	97.86	284.9	4,938.7	1,424.6	75.3	18.2	9.2	15.1	2.3	0.4	0.7	3.6
40-320	0.60	9.43	36.4	630.8	182.0	9.6	2.3	1.2	1.9	0.3	0.0	0.1	0.5
40-330	0.59	15.34	58.5	1,013.7	292.4	15.5	3.7	1.9	3.1	0.5	0.1	0.1	0.7
40-340	0.53	35.27	120.9	2,095.7	604.5	32.0	7.7	3.9	6.4	1.0	0.1	0.3	1.5
40-350	0.60	8.99	34.7	601.4	173.5	9.2	2.2	1.1	1.8	0.3	0.0	0.1	0.4
40-360	0.60	8.09	31.2	541.2	156.1	8.3	2.0	1.0	1.7	0.2	0.0	0.1	0.4
40-370	0.58	12.41	46.2	800.4	230.9	12.2	2.9	1.5	2.4	0.4	0.1	0.1	0.6
40-380	0.39	24.92	63.1	1,093.1	315.3	16.7	4.0	2.0	3.3	0.5	0.1	0.2	0.8
40-390	0.58	5.72	21.3	369.9	106.7	5.6	1.4	0.7	1.1	0.2	0.0	0.1	0.3
40-400	0.10	1.07	0.7	11.9	3.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41-010	0.38	94.73	230.0	3,986.5	1,150.0	60.8	14.7	7.4	12.2	1.8	0.3	0.6	2.9
41-020	0.00	14.89	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41-030	0.50	60.47	195.3	3,384.4	976.3	51.6	12.5	6.3	10.3	1.6	0.2	0.5	2.5
41-040	0.57	35.59	131.2	2,273.7	655.9	34.7	8.4	4.2	6.9	1.0	0.2	0.3	1.6
41-050	0.60	10.48	40.4	701.1	202.2	10.7	2.6	1.3	2.1	0.3	0.0	0.1	0.5
41-060	0.60	2.95	11.4	197.3	56.9	3.0	0.7	0.4	0.6	0.1	0.0	0.0	0.1
51-010	0.45	29.63	86.0	1,491.0	430.1	22.7	5.5	2.8	4.5	0.7	0.1	0.2	1.1
51-020	0.45	4.55	13.2	228.3	65.9	3.5	0.8	0.4	0.7	0.1	0.0	0.0	0.2
52-010	0.28	45.29	80.5	1,395.4	402.5	21.3	5.1	2.6	4.3	0.6	0.1	0.2	1.0
52-020	0.45	6.09	17.6	305.6	88.1	4.7	1.1	0.6	0.9	0.1	0.0	0.0	0.2
52-030	0.45	7.18	20.8	360.2	103.9	5.5	1.3	0.7	1.1	0.2	0.0	0.1	0.3
52-040	0.41	4.54	12.1	209.2	60.4	3.2	0.8	0.4	0.6	0.1	0.0	0.0	0.2
52-050	0.44	15.3	42.8	742.1	214.1	11.3	2.7	1.4	2.3	0.3	0.1	0.1	0.5
52-060	0.10	3.22	2.1	35.9	10.4	0.5	0.1	0.1	0.1	0.0	0.0	0.0	0.0
52-070	0.42	86.94	236.7	4,102.0	1,183.3	62.6	15.1	7.7	12.5	1.9	0.3	0.6	3.0
52-080	0.24	8.08	12.6	218.0	62.9	3.3	0.8	0.4	0.7	0.1	0.0	0.0	0.2
52-090	0.45	4.89	14.2	245.3	70.8	3.7	0.9	0.5	0.7	0.1	0.0	0.0	0.2
52-100A/B	0.27	11.89	20.4	353.5	102.0	5.4	1.3	0.7	1.1	0.2	0.0	0.1	0.3
52-110	0.45	8.84	25.4	440.0	126.9	6.7	1.6	0.8	1.3	0.2	0.0	0.1	0.3
52-120	0.45	14.74	42.7	739.5	213.3	11.3	2.7	1.4	2.3	0.3	0.1	0.1	0.5
52-130	0.31	7.18	14.5	252.0	72.7	3.8	0.9	0.5	0.8	0.1	0.0	0.0	0.2
53-010	0.45	7.03	20.3	352.7	101.7	5.4	1.3	0.7	1.1	0.2	0.0	0.1	0.3
53-020	0.28	12.38	22.0	381.5	110.0	5.8	1.4	0.7	1.2	0.2	0.0	0.1	0.3
53-030	0.44	11.37	32.0	553.8	159.8	8.4	2.0	1.0	1.7	0.3	0.0	0.1	0.4
53-040	0.45	2.78	8.0	139.5	40.2	2.1	0.5	0.3	0.4	0.1	0.0	0.0	0.1
53-050	0.45	13.66	39.5	685.4	197.7	10.5	2.5	1.3	2.1	0.3	0.0	0.1	0.5
53-060	0.45	20.37	59.0	1,022.0	294.8	15.6	3.8	1.9	3.1	0.5	0.1	0.1	0.7
53-070	0.45	4.89	14.2	245.3	70.8	3.7	0.9	0.5	0.7	0.1	0.0	0.0	0.2
53-080	0.39	5.81	14.7	255.4	73.7	3.9	0.9	0.5	0.8	0.1	0.0	0.0	0.2
53-090	0.46	59.59	176.0	3,050.7	880.0	46.5	11.2	5.7	9.3	1.4	0.2	0.4	2.2
53-100	0.00	107	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
53-110	0.38	4.59	11.4	197.0	56.8	3.0	0.7	0.4	0.6	0.1	0.0	0.0	0.1
53-120A/B	0.46	129.79	380.4	6,593.1	1,901.9	100.6	24.3	12.3	20.1	3.0	0.5	1.0	4.8
53-130	0.45	5.02	14.5	251.9	72.7	3.8	0.9	0.5	0.8	0.1	0.0	0.0	0.2
53-140	0.45	6.36	18.4	319.1	92.0	4.9	1.2	0.6	1.0	0.1	0.0	0.0	0.2
53-150	0.48	90.4	281.3	4,876.4	1,406.7	74.4	17.9	9.1	14.9	2.3	0.3	0.7	3.5
53-160	0.47	252.19	766.9	13,293.3	3,834.6	202.8	48.9	24.8	40.6	6.1	0.9	1.9	9.6
53-170	0.36	6.39	14.8	257.1	74.2	3.9	0.9	0.5	0.8	0.1	0.0	0.0	0.2
53-180	0.10	8.09	5.2	90.2	26.0	1.4	0.3	0.2	0.3	0.0	0.0	0.0	0.1
53-190	0.30	11.41	22.1	382.3	110.3	5.8	1.4	0.7	1.2	0.2	0.0	0.1	0.3
54-010A/B	0.44	84.93	237.7	4,119.9	1,188.4	62.9	15.2	7.7	12.6	1.9	0.3	0.6	3.0
54-040A/B	0.49	255.14	812.3	14,079.4	4,061.4	214.8	51.8	26.3	43.0	6.5	1.0	2.0	10.2
54-050	0.17	9.27	10.4	179.7	51.8	2.7	0.7	0.3	0.5	0.1	0.0	0.0	0.1
54-060	0.44	32.13	90.8	1,573.6	453.9	24.0	5.8	2.9	4.8	0.7	0.1	0.2	1.1
54-070	0.36	60.8	140.2	2,430.8	701.2	37.1	8.9	4.5	7.4	1.1	0.2	0.4	1.8
54-080A/B/C	0.46	414.26	1,218.0	21,111.9	6,090.0	322.1	77.7	39.4	64.4	9.7	1.5	3.1	15.3
54-090	0.10	3.55	2.3	39.6	11.4	0.6	0.1	0.1	0.1	0.0	0.0	0.0	0.0
54-100A/B	0.60	114.24	437.7	7,587.5	2,188.7	115.8	27.9	14.2	23.2	3.5	0.5	1.1	5.5
54-110	0.45	24.55	71.1	1,231.7	355.3	18.8	4.5	2.3	3.8	0.6	0.1	0.2	0.9
54-120	0.46	62.08	182.5	3,162.8	912.3	48.3	11.6	5.9	9.7	1.5	0.2	0.5	2.3
54-130	0.10	1.07	0.7	11.9	3.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
54-140A/B	0.41	113.01	296.5	5,139.9	1,482.7	78.4	18.9	9.6	15.7	2.4	0.4	0.7	3.7
54-150	0.45	55.34	158.5	2,747.7	792.6	41.9	10.1	5.1	8.4	1.3	0.2	0.4	2.0

2008 SUMMER POLLUTANT LOADINGS BY OUTFALL

2008 SUMMER POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (06/01/08 - 08/31/08)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Summer Median Event Mean Concentration			9.0	156	45	2.38	0.574	0.291	0.476	0.072	0.011	0.023	0.113
Precipitation (meters)	**0.207772**												
54-160	0.60	2.62	10.1	175.3	50.6	2.7	0.6	0.3	0.5	0.1	0.0	0.0	0.1
54-170	0.59	8.08	30.9	535.7	154.5	8.2	2.0	1.0	1.6	0.2	0.0	0.1	0.4
54-180	0.60	2.82	10.9	188.6	54.4	2.9	0.7	0.4	0.6	0.1	0.0	0.0	0.1
54-190	0.10	2.2	1.4	24.5	7.1	0.4	0.1	0.0	0.1	0.0	0.0	0.0	0.0
54-200	0.10	2.13	1.4	23.7	6.9	0.4	0.1	0.0	0.1	0.0	0.0	0.0	0.0
54-210	0.10	1.14	0.7	12.7	3.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55-010	0.60	14.98	57.8	1,002.1	289.1	15.3	3.7	1.9	3.1	0.5	0.1	0.1	0.7
55-020	0.60	189.58	726.9	12,599.8	3,634.6	192.2	46.4	23.5	38.4	5.8	0.9	1.8	9.1
56-010	0.60	67.62	261.0	4,523.6	1,304.9	69.0	16.6	8.4	13.8	2.1	0.3	0.7	3.3
57-010	0.53	26.1	89.6	1,552.4	447.8	23.7	5.7	2.9	4.7	0.7	0.1	0.2	1.1
57-020	0.00	142	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57-030	0.45	18.22	52.7	914.1	263.7	13.9	3.4	1.7	2.8	0.4	0.1	0.1	0.7
57-040	0.35	39.88	89.5	1,551.6	447.6	23.7	5.7	2.9	4.7	0.7	0.1	0.2	1.1
57-050	0.45	7.9	22.9	396.4	114.3	6.0	1.5	0.7	1.2	0.2	0.0	0.1	0.3
57-060	0.46	26.11	77.7	1,346.2	388.3	20.5	5.0	2.5	4.1	0.6	0.1	0.2	1.0
57-070	0.45	81.33	236.0	4,090.3	1,179.9	62.4	15.1	7.6	12.5	1.9	0.3	0.6	3.0
57-080	0.42	5.54	15.1	261.1	75.3	4.0	1.0	0.5	0.8	0.1	0.0	0.0	0.2
57-090	0.47	77.77	234.8	4,069.3	1,173.8	62.1	15.0	7.6	12.4	1.9	0.3	0.6	2.9
57-100A/B	0.47	313.43	952.4	16,508.7	4,762.1	251.9	60.7	30.8	50.4	7.6	1.2	2.4	12.0
57-110	0.54	21.6	75.1	1,302.4	375.7	19.9	4.8	2.4	4.0	0.6	0.1	0.2	0.9
57-120A/B/C	0.00	65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57-130	0.10	1.16	0.7	12.9	3.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57-140	0.10	1.55	1.0	17.3	5.0	0.3	0.1	0.0	0.1	0.0	0.0	0.0	0.0
57-150	0.43	35.68	99.1	1,717.0	495.3	26.2	6.3	3.2	5.2	0.8	0.1	0.2	1.2
57-160	0.10	1.89	1.2	21.1	6.1	0.3	0.1	0.0	0.1	0.0	0.0	0.0	0.0
61-010	0.55	2.86	10.1	175.9	50.7	2.7	0.6	0.3	0.5	0.1	0.0	0.0	0.1
62-010	0.45	27.84	81.0	1,403.3	404.8	21.4	5.2	2.6	4.3	0.6	0.1	0.2	1.0
63-010	0.45	388.79	1,130.7	19,598.9	5,653.5	299.0	72.1	36.6	59.8	9.0	1.4	2.8	14.2
63-020	0.00	11.91	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
64-100	0.45	24.92	72.1	1,249.1	360.3	19.1	4.6	2.3	3.8	0.6	0.1	0.2	0.9
64-110	0.45	6.01	17.4	301.5	87.0	4.6	1.1	0.6	0.9	0.1	0.0	0.0	0.2
64-120	0.45	16.04	46.4	804.8	232.1	12.3	3.0	1.5	2.5	0.4	0.1	0.1	0.6
64-130	0.45	2.44	7.1	122.4	35.3	1.9	0.5	0.2	0.4	0.1	0.0	0.0	0.1
65-010	0.00	18.97	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65-020	0.53	38.46	130.9	2,269.1	654.5	34.6	8.3	4.2	6.9	1.0	0.2	0.3	1.6
70-010	0.46	6.23	18.4	318.6	91.9	4.9	1.2	0.6	1.0	0.1	0.0	0.0	0.2
70-015	0.45	11.69	33.8	586.5	169.2	8.9	2.2	1.1	1.8	0.3	0.0	0.1	0.4
70-020	0.45	37.55	108.7	1,884.0	543.5	28.7	6.9	3.5	5.7	0.9	0.1	0.3	1.4
70-025	0.00	3.67	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-030	0.45	13.48	39.0	675.8	194.9	10.3	2.5	1.3	2.1	0.3	0.0	0.1	0.5
70-035	0.45	4.53	13.1	227.3	65.6	3.5	0.8	0.4	0.7	0.1	0.0	0.0	0.2
70-040	0.45	2.42	7.0	121.4	35.0	1.9	0.4	0.2	0.4	0.1	0.0	0.0	0.1
70-045	0.00	0.26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-050	0.45	17.41	50.4	873.5	252.0	13.3	3.2	1.6	2.7	0.4	0.1	0.1	0.6
70-055	0.46	333.43	995.4	17,253.7	4,977.0	263.2	63.5	32.2	52.6	8.0	1.2	2.5	12.5
70-060	0.45	3.53	10.2	177.1	51.1	2.7	0.7	0.3	0.5	0.1	0.0	0.0	0.1
70-065	0.45	1.89	5.5	94.8	27.4	1.4	0.3	0.2	0.3	0.0	0.0	0.0	0.1
70-070	0.45	5.8	16.8	291.0	83.9	4.4	1.1	0.5	0.9	0.1	0.0	0.0	0.2
70-075	0.43	5	13.9	240.5	69.4	3.7	0.9	0.4	0.7	0.1	0.0	0.0	0.2
70-080	0.46	11.96	35.5	616.0	177.7	9.4	2.3	1.1	1.9	0.3	0.0	0.1	0.4
70-085	0.45	229.48	660.2	11,442.8	3,300.8	174.6	42.1	21.3	34.9	5.3	0.8	1.7	8.3
70-090	0.45	18.57	53.8	931.7	268.8	14.2	3.4	1.7	2.8	0.4	0.1	0.1	0.7
70-095	0.45	9.99	28.9	501.2	144.6	7.6	1.8	0.9	1.5	0.2	0.0	0.1	0.4
70-100	0.45	9.64	27.9	483.7	139.5	7.4	1.8	0.9	1.5	0.2	0.0	0.1	0.4
70-105	0.45	1.63	4.7	81.8	23.6	1.2	0.3	0.2	0.2	0.0	0.0	0.0	0.1
70-110	0.45	18.13	52.5	909.6	262.4	13.9	3.3	1.7	2.8	0.4	0.1	0.1	0.7
70-115	0.45	3.71	10.7	186.1	53.7	2.8	0.7	0.3	0.6	0.1	0.0	0.0	0.1
70-120	0.45	4.22	12.2	211.7	61.1	3.2	0.8	0.4	0.6	0.1	0.0	0.0	0.2
70-125	0.00	5.04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-130	0.49	34.29	108.9	1,887.5	544.5	28.8	6.9	3.5	5.8	0.9	0.1	0.3	1.4
70-135	0.45	7.46	21.6	374.3	108.0	5.7	1.4	0.7	1.1	0.2	0.0	0.1	0.3
70-140	0.60	0.78	3.0	52.2	15.1	0.8	0.2	0.1	0.2	0.0	0.0	0.0	0.0
70-145	0.60	9.19	35.5	614.8	177.3	9.4	2.3	1.1	1.9	0.3	0.0	0.1	0.4
70-150	0.45	4.51	13.1	226.3	65.3	3.5	0.8	0.4	0.7	0.1	0.0	0.0	0.2
70-155	0.45	2.05	5.9	102.9	29.7	1.6	0.4	0.2	0.3	0.0	0.0	0.0	0.1
70-160	0.45	2.95	8.5	148.0	42.7	2.3	0.5	0.3	0.5	0.1	0.0	0.0	0.1
70-165	0.45	27.77	80.4	1,393.3	401.9	21.3	5.1	2.6	4.3	0.6	0.1	0.2	1.0
70-170	0.45	23.74	68.7	1,191.1	343.6	18.2	4.4	2.2	3.6	0.5	0.1	0.2	0.9
70-175	0.46	30.89	90.8	1,574.7	454.2	24.0	5.8	2.9	4.8	0.7	0.1	0.2	1.1
70-180	0.45	1.14	3.3	57.2	16.5	0.9	0.2	0.1	0.2	0.0	0.0	0.0	0.0
70-185	0.45	1.53	4.4	76.8	22.1	1.2	0.3	0.1	0.2	0.0	0.0	0.0	0.1
70-190	0.17	15.04	16.6	288.6	83.2	4.4	1.1	0.5	0.9	0.1	0.0	0.0	0.2
70-195	0.45	46.02	133.9	2,321.5	669.7	35.4	8.5	4.3	7.1	1.1	0.2	0.3	1.7
70-200	0.45	31.52	91.2	1,581.4	456.2	24.1	5.8	2.9	4.8	0.7	0.1	0.2	1.1
70-205	0.45	1.39	4.0	69.7	20.1	1.1	0.3	0.1	0.2	0.0	0.0	0.0	0.1
70-210	0.45	3.58	10.4	179.6	51.8	2.7	0.7	0.3	0.5	0.1	0.0	0.0	0.1
70-215	0.45	5.93	17.2	297.5	85.8	4.5	1.1	0.6	0.9	0.1	0.0	0.0	0.2

2008 SUMMER POLLUTANT LOADINGS BY OUTFALL

2008 SUMMER POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (06/01/08 - 08/31/08)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Summer Median Event Mean Concentration			9.0	156	45	2.38	0.574	0.291	0.476	0.072	0.011	0.023	0.113
Precipitation (meters)	**0.207772**												
70-220	0.45	4.54	13.1	227.8	65.7	3.5	0.8	0.4	0.7	0.1	0.0	0.0	0.2
70-225	0.45	4.99	14.4	250.4	72.2	3.8	0.9	0.5	0.8	0.1	0.0	0.0	0.2
70-230	0.45	4.72	13.7	236.8	68.3	3.6	0.9	0.4	0.7	0.1	0.0	0.0	0.2
70-235	0.45	5.04	14.6	252.9	72.9	3.9	0.9	0.5	0.8	0.1	0.0	0.0	0.2
70-240	0.45	4.52	13.1	226.8	65.4	3.5	0.8	0.4	0.7	0.1	0.0	0.0	0.2
70-245	0.44	9.98	28.2	488.5	140.9	7.5	1.8	0.9	1.5	0.2	0.0	0.1	0.4
70-250	0.48	41.27	128.0	2,219.5	640.2	33.9	8.2	4.1	6.8	1.0	0.2	0.3	1.6
70-255	0.45	45.37	131.4	2,277.0	656.8	34.7	8.4	4.2	6.9	1.1	0.2	0.3	1.6
70-260	0.46	24.9	73.3	1,270.8	366.6	19.4	4.7	2.4	3.9	0.6	0.1	0.2	0.9
70-265A/B	0.00	183.65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-270	0.45	4.66	13.5	233.8	67.4	3.6	0.9	0.4	0.7	0.1	0.0	0.0	0.2
70-275	0.45	4.28	12.4	214.7	61.9	3.3	0.8	0.4	0.7	0.1	0.0	0.0	0.2
70-280	0.45	9.39	27.2	471.9	136.1	7.2	1.7	0.9	1.4	0.2	0.0	0.1	0.3
70-285	0.45	19.03	55.0	953.7	275.1	14.6	3.5	1.8	2.9	0.4	0.1	0.1	0.7
70-290	0.45	2.37	6.8	117.9	34.0	1.8	0.4	0.2	0.4	0.1	0.0	0.0	0.1
70-295	0.45	7.18	20.8	360.2	103.9	5.5	1.3	0.7	1.1	0.2	0.0	0.1	0.3
70-300	0.10	0.4	0.3	4.5	1.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-305	0.45	12.68	36.4	630.5	181.9	9.6	2.3	1.2	1.9	0.3	0.0	0.1	0.5
70-310	0.00	5.25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-315	0.30	5.79	11.2	193.7	55.9	3.0	0.7	0.4	0.6	0.1	0.0	0.0	0.1
70-320	0.44	2.32	6.6	113.6	32.8	1.7	0.4	0.2	0.3	0.1	0.0	0.0	0.1
70-325	0.00	2.35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-330	0.47	279.41	846.6	14,674.3	4,233.0	223.9	54.0	27.4	44.8	6.8	1.0	2.1	10.6
70-335	0.45	1.99	5.8	99.8	28.8	1.5	0.4	0.2	0.3	0.0	0.0	0.0	0.1
70-340	0.39	22.25	56.3	976.0	281.5	14.9	3.6	1.8	3.0	0.5	0.1	0.1	0.7
70-345	0.45	3.81	11.0	191.2	55.1	2.9	0.7	0.4	0.6	0.1	0.0	0.0	0.1
70-350	0.49	314.4	999.3	17,320.8	4,996.4	264.3	63.7	32.3	52.9	8.0	1.2	2.5	12.5
70-355	0.45	1.29	3.7	64.7	18.7	1.0	0.2	0.1	0.2	0.0	0.0	0.0	0.0
70-360	0.45	131.96	385.8	6,687.1	1,929.0	102.0	24.6	12.5	20.4	3.1	0.5	1.0	4.8
70-365	0.45	6.7	19.4	336.2	97.0	5.1	1.2	0.6	1.0	0.2	0.0	0.0	0.2
70-370	0.44	3.75	10.7	185.2	53.4	2.8	0.7	0.3	0.6	0.1	0.0	0.0	0.1
70-375	0.47	7.1	21.6	374.1	107.9	5.7	1.4	0.7	1.1	0.2	0.0	0.1	0.3
70-380	0.45	14.4	41.7	722.5	208.4	11.0	2.7	1.3	2.2	0.3	0.1	0.1	0.5
70-385	0.45	14.97	43.3	751.1	216.7	11.5	2.8	1.4	2.3	0.3	0.1	0.1	0.5
70-390	0.46	58.11	173.2	3,001.3	865.8	45.8	11.0	5.6	9.2	1.4	0.2	0.4	2.2
70-395	0.43	57.19	158.0	2,738.8	790.0	41.8	10.1	5.1	8.4	1.3	0.2	0.4	2.0
70-400	0.44	9.67	27.3	473.1	136.5	7.2	1.7	0.9	1.4	0.2	0.0	0.1	0.3
70-405	0.25	7.16	11.5	199.6	57.6	3.0	0.7	0.4	0.6	0.1	0.0	0.0	0.1
70-410	0.43	5.8	16.0	277.3	80.0	4.2	1.0	0.5	0.8	0.1	0.0	0.0	0.2
70-415	0.45	120.75	352.6	6,111.6	1,763.0	93.2	22.5	11.4	18.6	2.8	0.4	0.9	4.4
70-420	0.45	16.99	49.2	852.4	245.9	13.0	3.1	1.6	2.6	0.4	0.1	0.1	0.6
70-425	0.51	20.63	67.8	1,175.3	339.0	17.9	4.3	2.2	3.6	0.5	0.1	0.2	0.9
70-430	0.10	6.19	4.0	69.0	19.9	1.1	0.3	0.1	0.2	0.0	0.0	0.0	0.0
70-435	0.10	9.16	5.9	102.1	29.5	1.6	0.4	0.2	0.3	0.0	0.0	0.0	0.1
70-440	0.50	34.48	110.2	1,909.5	550.8	29.1	7.0	3.6	5.8	0.9	0.1	0.3	1.4
70-445	0.45	5.6	16.2	281.0	81.0	4.3	1.0	0.5	0.9	0.1	0.0	0.0	0.2
70-450	0.45	2.65	7.7	133.0	38.4	2.0	0.5	0.2	0.4	0.1	0.0	0.0	0.1
70-455	0.00	2.66	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-460	0.45	2.67	7.7	134.0	38.6	2.0	0.5	0.2	0.4	0.1	0.0	0.0	0.1
70-465	0.45	2.58	7.5	129.4	37.3	2.0	0.5	0.2	0.4	0.1	0.0	0.0	0.1
70-470	0.38	8.55	21.1	366.1	105.6	5.6	1.3	0.7	1.1	0.2	0.0	0.1	0.3
70-475	0.46	229.14	678.5	11,760.4	3,392.4	179.4	43.3	21.9	35.9	5.4	0.8	1.7	8.5
70-480	0.60	0.31	1.2	20.7	6.0	0.3	0.1	0.0	0.1	0.0	0.0	0.0	0.0
70-485	0.45	13.36	38.7	670.3	193.4	10.2	2.5	1.3	2.0	0.3	0.0	0.1	0.5
70-490	0.47	48.75	147.2	2,551.2	735.9	38.9	9.4	4.8	7.8	1.2	0.2	0.4	1.8
70-495	0.45	7.74	22.4	388.3	112.0	5.9	1.4	0.7	1.2	0.2	0.0	0.1	0.3
70-500	0.45	0.56	1.6	28.1	8.1	0.4	0.1	0.1	0.1	0.0	0.0	0.0	0.0
70-505	0.41	8.12	21.5	372.7	107.5	5.7	1.4	0.7	1.1	0.2	0.0	0.1	0.3
70-510	0.45	41.82	121.4	2,105.1	607.2	32.1	7.7	3.9	6.4	1.0	0.1	0.3	1.5
70-515	0.47	62.73	189.6	3,286.7	948.1	50.1	12.1	6.1	10.0	1.5	0.2	0.5	2.4
70-520	0.45	6.05	17.5	303.5	87.6	4.6	1.1	0.6	0.9	0.1	0.0	0.0	0.2
70-525	0.45	6.23	18.0	312.6	90.2	4.8	1.2	0.6	1.0	0.1	0.0	0.0	0.2
70-530	0.45	1.67	4.8	83.8	24.2	1.3	0.3	0.2	0.3	0.0	0.0	0.0	0.1
70-535	0.45	30.24	87.7	1,520.7	438.7	23.2	5.6	2.8	4.6	0.7	0.1	0.2	1.1
70-540	0.21	5.1	7.0	121.4	35.0	1.9	0.4	0.2	0.4	0.1	0.0	0.0	0.1
70-545	0.45	1.89	5.5	94.8	27.4	1.4	0.3	0.2	0.3	0.0	0.0	0.0	0.1
70-550	0.26	1.3	2.2	37.5	10.8	0.6	0.1	0.1	0.1	0.0	0.0	0.0	0.0
70-555	0.45	1.73	5.0	86.8	25.0	1.3	0.3	0.2	0.3	0.0	0.0	0.0	0.1
70-560	0.45	3.33	9.6	167.1	48.2	2.5	0.6	0.3	0.5	0.1	0.0	0.0	0.1
70-565	0.24	16.63	25.7	446.0	128.7	6.8	1.6	0.8	1.4	0.2	0.0	0.1	0.3
70-570	0.45	1.23	3.6	61.7	17.8	0.9	0.2	0.1	0.2	0.0	0.0	0.0	0.0
70-575	0.45	15.39	44.5	771.4	222.5	11.8	2.8	1.4	2.4	0.4	0.1	0.1	0.6
70-580	0.43	119.93	334.6	5,800.5	1,673.2	88.5	21.3	10.8	17.7	2.7	0.4	0.8	4.2
71-010	0.10	1.12	0.7	12.5	3.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
71-020	0.45	14.05	40.7	704.9	203.3	10.8	2.6	1.3	2.2	0.3	0.1	0.1	0.5
71-030	0.45	28.58	83.2	1,441.8	415.9	22.0	5.3	2.7	4.4	0.7	0.1	0.2	1.0
71-040	0.22	20.93	29.5	512.2	147.7	7.8	1.9	1.0	1.6	0.2	0.0	0.1	0.4

2008 SUMMER POLLUTANT LOADINGS BY OUTFALL

2008 SUMMER POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (06/01/08 - 08/31/08)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Summer Median Event Mean Concentration			9.0	156	45	2.38	0.574	0.291	0.476	0.072	0.011	0.023	0.113
Precipitation (meters)	**0.207772**												
71-050	0.46	120.42	354.8	6,149.1	1,773.8	93.8	22.6	11.5	18.8	2.8	0.4	0.9	4.5
71-060	0.45	3.11	9.0	156.0	45.0	2.4	0.6	0.3	0.5	0.1	0.0	0.0	0.1
71-070	0.00	386.63	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
71-080	0.46	101.79	298.7	5,178.3	1,493.7	79.0	19.1	9.7	15.8	2.4	0.4	0.8	3.8
71-090	0.45	6.5	18.6	322.9	93.1	4.9	1.2	0.6	1.0	0.1	0.0	0.0	0.2
71-100	0.10	1.99	1.3	22.2	6.4	0.3	0.1	0.0	0.1	0.0	0.0	0.0	0.0
72-010	0.18	17.32	19.5	338.1	97.5	5.2	1.2	0.6	1.0	0.2	0.0	0.0	0.2
72-020	0.40	24.7	62.8	1,088.2	313.9	16.6	4.0	2.0	3.3	0.5	0.1	0.2	0.8
72-030	0.10	5.25	3.4	58.5	16.9	0.9	0.2	0.1	0.2	0.0	0.0	0.0	0.0
72-040	0.42	166.54	446.2	7,734.3	2,231.1	118.0	28.5	14.4	23.6	3.6	0.6	1.1	5.6
72-050	0.10	5.16	3.3	57.5	16.6	0.9	0.2	0.1	0.2	0.0	0.0	0.0	0.0
72-060	0.36	113.04	263.0	4,558.9	1,315.1	69.6	16.8	8.5	13.9	2.1	0.3	0.7	3.3
72-070	0.10	2.21	1.4	24.6	7.1	0.4	0.1	0.0	0.1	0.0	0.0	0.0	0.0
72-080	0.60	4.74	18.3	317.1	91.5	4.8	1.2	0.6	1.0	0.1	0.0	0.0	0.2
72-090	0.45	68.71	197.6	3,425.7	988.2	52.3	12.6	6.4	10.5	1.6	0.2	0.5	2.5
72-100	0.46	68.32	203.5	3,526.8	1,017.4	53.8	13.0	6.6	10.8	1.6	0.3	0.5	2.6
72-110	0.10	3.22	2.1	35.9	10.4	0.5	0.1	0.1	0.1	0.0	0.0	0.0	0.0
72-120	0.45	62.98	182.3	3,159.9	911.5	48.2	11.6	5.9	9.6	1.5	0.2	0.5	2.3
72-130	0.46	58.06	170.4	2,954.0	852.1	45.1	10.9	5.5	9.0	1.4	0.2	0.4	2.1
72-140	0.10	10.19	6.6	113.6	32.8	1.7	0.4	0.2	0.3	0.1	0.0	0.0	0.1
72-150	0.10	4.76	3.1	53.1	15.3	0.8	0.2	0.1	0.2	0.0	0.0	0.0	0.0
72-160	0.10	4.55	2.9	50.7	14.6	0.8	0.2	0.1	0.2	0.0	0.0	0.0	0.0
73-010	0.44	20.76	58.6	1,015.9	293.0	15.5	3.7	1.9	3.1	0.5	0.1	0.1	0.7
73-020	0.44	57.47	163.6	2,835.9	818.0	43.3	10.4	5.3	8.7	1.3	0.2	0.4	2.1
73-030	0.10	21.56	13.9	240.4	69.3	3.7	0.9	0.4	0.7	0.1	0.0	0.0	0.2
74-010	0.48	44.39	136.7	2,369.0	683.4	36.1	8.7	4.4	7.2	1.1	0.2	0.3	1.7
74-020	0.45	4.41	12.8	221.3	63.8	3.4	0.8	0.4	0.7	0.1	0.0	0.0	0.2
75-005	0.45	12.39	35.8	620.9	179.1	9.5	2.3	1.2	1.9	0.3	0.0	0.1	0.4
75-010	0.60	3.65	14.1	244.2	70.4	3.7	0.9	0.5	0.7	0.1	0.0	0.0	0.2
75-020	0.45	1.53	4.4	76.8	22.1	1.2	0.3	0.1	0.2	0.0	0.0	0.0	0.1
75-030	0.45	8.38	24.3	420.4	121.3	6.4	1.5	0.8	1.3	0.2	0.0	0.1	0.3
75-040	0.45	14.74	42.7	739.5	213.3	11.3	2.7	1.4	2.3	0.3	0.1	0.1	0.5
76-010	0.46	907.31	2,707.0	46,922.0	13,535.2	715.9	172.6	87.5	143.2	21.7	3.3	6.8	34.0
76-020	0.46	88.62	259.8	4,502.4	1,298.8	68.7	16.6	8.4	13.7	2.1	0.3	0.7	3.3
76-030	0.45	7.55	21.9	378.8	109.3	5.8	1.4	0.7	1.2	0.2	0.0	0.1	0.3
76-040	0.19	4.67	5.6	96.9	28.0	1.5	0.4	0.2	0.3	0.0	0.0	0.0	0.1
76-050	0.00	2.39	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81-010	0.10	31.17	20.0	347.5	100.2	5.3	1.3	0.6	1.1	0.2	0.0	0.1	0.3
82-010	0.49	23.53	73.6	1,276.5	368.2	19.5	4.7	2.4	3.9	0.6	0.1	0.2	0.9
82-020	0.45	73.45	214.9	3,724.6	1,074.4	56.8	13.7	6.9	11.4	1.7	0.3	0.5	2.7
82-030	0.45	90.04	263.3	4,564.7	1,316.7	69.6	16.8	8.5	13.9	2.1	0.3	0.7	3.3
82-040	0.46	98.49	293.9	5,094.2	1,469.5	77.7	18.7	9.5	15.5	2.4	0.4	0.7	3.7
83-010	0.45	6.59	19.1	330.6	95.4	5.0	1.2	0.6	1.0	0.2	0.0	0.0	0.2
83-015	0.45	0.99	2.9	49.7	14.3	0.8	0.2	0.1	0.2	0.0	0.0	0.0	0.0
83-020	0.43	85.96	240.4	4,166.9	1,202.0	63.6	15.3	7.8	12.7	1.9	0.3	0.6	3.0
83-025	0.45	51.23	148.3	2,570.3	741.4	39.2	9.5	4.8	7.8	1.2	0.2	0.4	1.9
83-030	0.60	0.82	3.2	54.9	15.8	0.8	0.2	0.1	0.2	0.0	0.0	0.0	0.0
83-040	0.10	1.08	0.7	12.0	3.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83-050	0.45	40.4	117.3	2,032.5	586.3	31.0	7.5	3.8	6.2	0.9	0.1	0.3	1.5
83-060	0.45	10.05	29.1	504.2	145.5	7.7	1.9	0.9	1.5	0.2	0.0	0.1	0.4
83-070	0.10	1.19	0.8	13.3	3.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83-080	0.48	178.63	546.3	9,469.0	2,731.4	144.5	34.8	17.7	28.9	4.4	0.7	1.4	6.9
83-090	0.41	9.16	24.1	418.5	120.7	6.4	1.5	0.8	1.3	0.2	0.0	0.1	0.3
84-010	0.47	21.56	65.2	1,130.6	326.1	17.2	4.2	2.1	3.4	0.5	0.1	0.2	0.8
85-010	0.10	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SUMMER SEASONAL SUM (kg)			**86,887.34**	**1,506,047.21**	**434,436.70**	**22,976.87**	**5,541.48**	**2,809.36**	**4,595.37**	**695.10**	**107.16**	**218.18**	**1,090.92**

Appendix A7: Pollutant Loadings, Part F) 2008 Summer Pollutant Loadings by Outfall
Source: Minneapolis Park and Recreation Board

2008 FALL POLLUTANT LOADINGS BY OUTFALL

2008 FALL POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (09/01/08 - 12/31/08

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Fall Median Event Mean Concentration			7.0	70	39	1.74	0.497	0.427	0.294	0.083	0.016	0.012	0.102
Precipitation (meters)	**0.153**												
10-010	0.43	113.55	75.5	755.0	420.7	18.8	5.4	4.6	3.2	0.9	0.2	0.1	1.1
10-020	0.45	7.81	5.4	54.2	30.2	1.3	0.4	0.3	0.2	0.1	0.0	0.0	0.1
10-030	0.10	4.05	0.6	6.2	3.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-040	0.45	167.42	115.3	1,153.1	642.4	28.7	8.2	7.0	4.8	1.4	0.3	0.2	1.7
10-050	0.46	114.18	80.1	801.1	446.3	19.9	5.7	4.9	3.4	0.9	0.2	0.1	1.2
10-060	0.60	10.5	9.7	97.1	54.1	2.4	0.7	0.6	0.4	0.1	0.0	0.0	0.1
10-070	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-080	0.38	30.66	18.1	180.6	100.6	4.5	1.3	1.1	0.8	0.2	0.0	0.0	0.3
10-090A	0.00	0.85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-090B	0.00	1.48	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-090C	0.54	12.77	10.7	106.6	59.4	2.6	0.8	0.7	0.4	0.1	0.0	0.0	0.2
10-090D	0.00	4.68	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-100	0.36	1392.1	778.2	7,782.5	4,335.9	193.4	55.3	47.5	32.7	9.2	1.8	1.3	11.3
10-110	0.47	300.11	215.8	2,157.9	1,202.3	53.6	15.3	13.2	9.1	2.6	0.5	0.4	3.1
10-120A/B	0.44	372.78	250.1	2,500.8	1,393.3	62.2	17.8	15.3	10.5	3.0	0.6	0.4	3.6
10-130	0.45	336.46	234.1	2,341.4	1,304.5	58.2	16.6	14.3	9.8	2.8	0.5	0.4	3.4
10-140a	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-140a,b	0.58	220.65	195.7	1,956.9	1,090.3	48.6	13.9	11.9	8.2	2.3	0.5	0.3	2.9
10-150	0.47	157.15	113.6	1,135.6	632.7	28.2	8.1	6.9	4.8	1.3	0.3	0.2	1.7
10-160	0.00	17	0.1	0.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-170	0.50	176.01	136.5	1,365.1	760.6	33.9	9.7	8.3	5.7	1.6	0.3	0.2	2.0
10-180	0.45	284.26	195.1	1,951.0	1,087.0	48.5	13.9	11.9	8.2	2.3	0.5	0.3	2.8
10-190	0.59	14.58	13.3	133.0	74.1	3.3	0.9	0.8	0.6	0.2	0.0	0.0	0.2
10-200	0.40	42.44	26.0	259.7	144.7	6.5	1.8	1.6	1.1	0.3	0.1	0.0	0.4
10-210	0.49	98.32	74.5	744.9	415.0	18.5	5.3	4.5	3.1	0.9	0.2	0.1	1.1
10-220	0.56	18.83	16.2	162.3	90.4	4.0	1.2	1.0	0.7	0.2	0.0	0.0	0.2
10-230	0.47	235.02	171.2	1,712.2	954.0	42.6	12.2	10.4	7.2	2.0	0.4	0.3	2.5
10-240	0.51	103.83	82.2	822.1	458.0	20.4	5.8	5.0	3.5	1.0	0.2	0.1	1.2
10-250	0.49	242.96	183.1	1,830.6	1,019.9	45.5	13.0	11.2	7.7	2.2	0.4	0.3	2.7
10-260	0.56	23.77	20.4	204.1	113.7	5.1	1.4	1.2	0.9	0.2	0.0	0.0	0.3
10-270	0.47	72.45	52.9	529.1	294.8	13.2	3.8	3.2	2.2	0.6	0.1	0.1	0.8
10-280	0.44	55.08	37.7	376.8	209.9	9.4	2.7	2.3	1.6	0.4	0.1	0.1	0.5
10-290	0.10	6.83	1.1	10.5	5.9	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0
10-300	0.36	17.74	9.9	98.6	54.9	2.5	0.7	0.6	0.4	0.1	0.0	0.0	0.1
10-310	0.47	60.29	43.9	438.8	244.5	10.9	3.1	2.7	1.8	0.5	0.1	0.1	0.6
10-320	0.45	341.99	238.1	2,381.2	1,326.7	59.2	16.9	14.5	10.0	2.8	0.6	0.4	3.5
10-330	0.35	21.61	11.7	117.1	65.2	2.9	0.8	0.7	0.5	0.1	0.0	0.0	0.2
10-340	0.45	20.74	14.4	144.2	80.4	3.6	1.0	0.9	0.6	0.2	0.0	0.0	0.2
10-350	0.60	28.16	26.0	259.9	144.8	6.5	1.8	1.6	1.1	0.3	0.1	0.0	0.4
10-360	0.59	29.02	26.5	265.1	147.7	6.6	1.9	1.6	1.1	0.3	0.1	0.0	0.4
10-370	0.59	14.46	13.1	131.4	73.2	3.3	0.9	0.8	0.6	0.2	0.0	0.0	0.2
10-380	0.45	14.38	9.9	98.7	55.0	2.5	0.7	0.6	0.4	0.1	0.0	0.0	0.1
10-390	0.49	41.97	31.9	318.9	177.7	7.9	2.3	1.9	1.3	0.4	0.1	0.1	0.5
10-400A	0.10	1.07	0.2	1.6	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-400B	0.47	17.66	12.8	128.4	71.5	3.2	0.9	0.8	0.5	0.2	0.0	0.0	0.2
10-400C	0.57	50.25	43.8	438.2	244.1	10.9	3.1	2.7	1.8	0.5	0.1	0.1	0.6
10-410A	0.50	46.22	35.5	354.6	197.6	8.8	2.5	2.2	1.5	0.4	0.1	0.1	0.5
10-410B	0.32	21.29	10.4	103.8	57.8	2.6	0.7	0.6	0.4	0.1	0.0	0.0	0.2
10-410C	0.53	22.8	18.5	185.5	103.3	4.6	1.3	1.1	0.8	0.2	0.0	0.0	0.3
10-410D	0.60	27.34	25.3	252.9	140.9	6.3	1.8	1.5	1.1	0.3	0.1	0.0	0.4
10-410E	0.58	256.04	227.1	2,270.8	1,265.1	56.4	16.1	13.9	9.5	2.7	0.5	0.4	3.3
10-410F	0.59	37.92	34.4	343.8	191.5	8.5	2.4	2.1	1.4	0.4	0.1	0.1	0.5
10-420A	0.27	23.05	9.7	96.8	53.9	2.4	0.7	0.6	0.4	0.1	0.0	0.0	0.1
10-420B	0.00	10.06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-420C	0.00	7.42	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-420D	0.00	20.73	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-420E	0.59	127.89	115.7	1,156.7	644.4	28.8	8.2	7.1	4.9	1.4	0.3	0.2	1.7
10-430A	0.00	8.14	0.0	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-430B	0.53	54.72	45.1	450.6	251.1	11.2	3.2	2.7	1.9	0.5	0.1	0.1	0.7
10-430C	0.48	44.83	33.2	331.9	184.9	8.3	2.4	2.0	1.4	0.4	0.1	0.1	0.5
10-430D	0.49	85.79	65.0	650.0	362.2	16.2	4.6	4.0	2.7	0.8	0.2	0.1	0.9
10-430E	0.56	86.66	74.5	744.8	414.9	18.5	5.3	4.5	3.1	0.9	0.2	0.1	1.1
10-430F	0.10	377.97	58.3	582.5	324.6	14.5	4.1	3.6	2.4	0.7	0.1	0.1	0.8
10-430G	0.50	125.89	96.2	961.6	535.7	23.9	6.8	5.9	4.0	1.1	0.2	0.2	1.4
10-430H	0.49	33.18	25.1	251.3	140.0	6.2	1.8	1.5	1.1	0.3	0.1	0.0	0.4
10-430I	0.59	32.61	29.6	295.8	164.8	7.4	2.1	1.8	1.2	0.4	0.1	0.0	0.4
10-430J	0.43	532.36	356.1	3,560.6	1,983.7	88.5	25.3	21.7	15.0	4.2	0.8	0.6	5.2
10-430K	0.48	337.06	248.1	2,481.4	1,382.5	61.7	17.6	15.1	10.4	2.9	0.6	0.4	3.6
10-430L	0.45	84.4	58.6	586.3	326.7	14.6	4.2	3.6	2.5	0.7	0.1	0.1	0.9
10-430M	0.54	75.94	63.5	634.8	353.7	15.8	4.5	3.9	2.7	0.8	0.1	0.1	0.9
10-430N	0.44	26.43	18.1	180.8	100.7	4.5	1.3	1.1	0.8	0.2	0.0	0.0	0.3
10-430O	0.00	109.53	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-430P	0.00	229.12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-430Q	0.10	8.03	1.2	12.4	6.9	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0
10-430R	0.47	150.32	108.3	1,083.0	603.4	26.9	7.7	6.6	4.5	1.3	0.3	0.2	1.6
10-430S	0.10	5.15	0.8	7.9	4.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
10-430T	0.46	262.47	184.9	1,849.2	1,030.3	46.0	13.1	11.3	7.8	2.2	0.4	0.3	2.7

2008 FALL POLLUTANT LOADINGS BY OUTFALL

2008 FALL POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (09/01/08 - 12/31/08

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Fall Median Event Mean Concentration			7.0	70	39	1.74	0.497	0.427	0.294	0.083	0.016	0.012	0.102
Precipitation (meters)	**0.153**												
10-430U	0.47	431.37	312.4	3,123.8	1,740.4	77.6	22.2	19.1	13.1	3.7	0.7	0.5	4.6
10-430V	0.46	329.11	235.8	2,357.8	1,313.7	58.6	16.7	14.4	9.9	2.8	0.5	0.4	3.4
10-440A	0.46	23.18	16.4	163.7	91.2	4.1	1.2	1.0	0.7	0.2	0.0	0.0	0.2
10-440B	0.49	34.23	26.0	260.0	144.8	6.5	1.8	1.6	1.1	0.3	0.1	0.0	0.4
10-440C/D	0.00	56	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-440E	0.51	831.25	658.8	6,588.2	3,670.6	163.8	46.8	40.2	27.7	7.8	1.5	1.1	9.6
10-440F	0.46	538.85	382.2	3,822.2	2,129.5	95.0	27.1	23.3	16.1	4.5	0.9	0.6	5.6
10-450A	0.00	343.67	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-450B	0.52	3.41	2.7	27.2	15.1	0.7	0.2	0.2	0.1	0.0	0.0	0.0	0.0
10-450C	0.59	55.64	50.9	509.3	283.7	12.7	3.6	3.1	2.1	0.6	0.1	0.1	0.7
10-450D	0.45	4.62	3.2	32.0	17.9	0.8	0.2	0.2	0.1	0.0	0.0	0.0	0.0
10-450E	0.44	3.2	2.2	21.8	12.1	0.5	0.2	0.1	0.1	0.0	0.0	0.0	0.0
10-450F	0.46	158.55	112.3	1,122.7	625.5	27.9	8.0	6.8	4.7	1.3	0.3	0.2	1.6
10-450G/H	0.48	75.02	55.6	555.6	309.5	13.8	3.9	3.4	2.3	0.7	0.1	0.1	0.8
10-450I	0.49	243.64	184.5	1,844.6	1,027.7	45.9	13.1	11.3	7.7	2.2	0.4	0.3	2.7
10-450J	0.49	17.16	12.8	128.4	71.5	3.2	0.9	0.8	0.5	0.2	0.0	0.0	0.2
10-450K	0.58	37.01	33.0	330.4	184.1	8.2	2.3	2.0	1.4	0.4	0.1	0.1	0.5
10-450L	0.51	213.41	166.1	1,661.2	925.5	41.3	11.8	10.1	7.0	2.0	0.4	0.3	2.4
10-460	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460A	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460B	0.52	7.29	5.8	58.1	32.4	1.4	0.4	0.4	0.2	0.1	0.0	0.0	0.1
10-460C/D/F	0.00	159.87	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460E	0.49	231.41	176.1	1,761.3	981.3	43.8	12.5	10.7	7.4	2.1	0.4	0.3	2.6
10-460F	0.49	14.75	11.2	112.5	62.7	2.8	0.8	0.7	0.5	0.1	0.0	0.0	0.2
10-460G	0.51	79.66	62.7	627.1	349.4	15.6	4.5	3.8	2.6	0.7	0.1	0.1	0.9
10-460H	0.48	12.35	9.1	91.3	50.8	2.3	0.6	0.6	0.4	0.1	0.0	0.0	0.1
10-460I	0.00	72.26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460J	0.46	5.36	3.8	38.3	21.3	1.0	0.3	0.2	0.2	0.0	0.0	0.0	0.1
10-460K	0.36	5.48	3.0	30.4	16.9	0.8	0.2	0.2	0.1	0.0	0.0	0.0	0.0
10-460L	0.46	3.5	2.5	25.0	13.9	0.6	0.2	0.2	0.1	0.0	0.0	0.0	0.0
10-460M	0.48	9.55	7.0	70.4	39.2	1.8	0.5	0.4	0.3	0.1	0.0	0.0	0.1
10-460N	0.45	3.85	2.7	26.7	14.9	0.7	0.2	0.2	0.1	0.0	0.0	0.0	0.0
10-460O	0.45	4.15	2.9	29.0	16.2	0.7	0.2	0.2	0.1	0.0	0.0	0.0	0.0
10-460P	0.45	4.34	3.0	30.1	16.8	0.7	0.2	0.2	0.1	0.0	0.0	0.0	0.0
10-460Q	0.56	19.73	17.2	171.6	95.6	4.3	1.2	1.0	0.7	0.2	0.0	0.0	0.2
10-460R	0.00	51.51	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460S	0.56	233.54	203.1	2,031.2	1,131.6	50.5	14.4	12.4	8.5	2.4	0.5	0.3	3.0
10-465	0.10	8.56	1.3	13.2	7.4	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0
10-470	0.38	25.6	15.1	150.6	83.9	3.7	1.1	0.9	0.6	0.2	0.0	0.0	0.2
10-480	0.58	39.66	35.5	354.6	197.6	8.8	2.5	2.2	1.5	0.4	0.1	0.1	0.5
10-485	0.00	7.27	0.0	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-490	0.43	150.96	100.9	1,008.7	562.0	25.1	7.2	6.2	4.2	1.2	0.2	0.2	1.5
10-500A	0.26	26.21	10.6	106.0	59.1	2.6	0.8	0.6	0.4	0.1	0.0	0.0	0.2
10-500B	0.46	8.48	6.0	60.2	33.5	1.5	0.4	0.4	0.3	0.1	0.0	0.0	0.1
10-500C	0.44	111.36	74.7	747.2	416.3	18.6	5.3	4.6	3.1	0.9	0.2	0.1	1.1
10-500D	0.24	3.83	1.4	14.1	7.8	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0
10-500E	0.53	23.34	19.2	191.5	106.7	4.8	1.4	1.2	0.8	0.2	0.0	0.0	0.3
10-500F	0.49	12.04	9.2	91.6	51.1	2.3	0.7	0.6	0.4	0.1	0.0	0.0	0.1
10-500G	0.00	112.94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-505	0.10	7.85	1.2	12.1	6.7	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0
10-510	0.51	62.36	48.9	488.9	272.4	12.2	3.5	3.0	2.1	0.6	0.1	0.1	0.7
10-520	0.00	139.98	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-530	0.45	116.15	80.7	807.0	449.6	20.1	5.7	4.9	3.4	1.0	0.2	0.1	1.2
10-540	0.12	53.9	9.8	98.4	54.8	2.4	0.7	0.6	0.4	0.1	0.0	0.0	0.1
10-550	0.46	25.83	18.3	183.1	102.0	4.6	1.3	1.1	0.8	0.2	0.0	0.0	0.3
10-560A/B	0.44	600.63	405.0	4,050.0	2,256.4	100.7	28.8	24.7	17.0	4.8	0.9	0.7	5.9
10-570A	0.54	14.64	12.3	122.7	68.4	3.0	0.9	0.7	0.5	0.1	0.0	0.0	0.2
10-570B	0.44	228.18	153.5	1,535.1	855.3	38.2	10.9	9.4	6.4	1.8	0.4	0.3	2.2
10-580	0.45	73.39	50.8	507.7	282.9	12.6	3.6	3.1	2.1	0.6	0.1	0.1	0.7
10-600	0.48	89.24	66.5	665.2	370.6	16.5	4.7	4.1	2.8	0.8	0.2	0.1	1.0
10-610	0.46	25.6	18.1	180.8	100.8	4.5	1.3	1.1	0.8	0.2	0.0	0.0	0.3
10-620	0.00	9.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-630A	0.10	6.24	1.0	9.6	5.4	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0
10-630B	0.45	4.68	3.2	32.5	18.1	0.8	0.2	0.2	0.1	0.0	0.0	0.0	0.0
10-630C	0.48	96.03	71.5	715.1	398.4	17.8	5.1	4.4	3.0	0.8	0.2	0.1	1.0
10-630D	0.45	6.37	4.4	44.2	24.6	1.1	0.3	0.3	0.2	0.1	0.0	0.0	0.1
10-630E	0.45	8.52	5.9	59.1	32.9	1.5	0.4	0.4	0.2	0.1	0.0	0.0	0.1
10-630F	0.54	17.56	14.6	146.2	81.5	3.6	1.0	0.9	0.6	0.2	0.0	0.0	0.2
10-630G	0.45	5.9	4.1	40.9	22.8	1.0	0.3	0.2	0.2	0.0	0.0	0.0	0.1
10-630H	0.30	25.63	12.0	119.6	66.7	3.0	0.8	0.7	0.5	0.1	0.0	0.0	0.2
10-630I	0.47	12.48	8.9	89.4	49.8	2.2	0.6	0.5	0.4	0.1	0.0	0.0	0.1
10-630J	0.55	14.69	12.5	125.4	69.8	3.1	0.9	0.8	0.5	0.1	0.0	0.0	0.2
10-630K	0.47	95.29	69.5	695.1	387.3	17.3	4.9	4.2	2.9	0.8	0.2	0.1	1.0
10-630L	0.52	100.42	80.6	806.4	449.3	20.0	5.7	4.9	3.4	1.0	0.2	0.1	1.2
10-630M	0.50	11.71	9.0	89.6	49.9	2.2	0.6	0.5	0.4	0.1	0.0	0.0	0.1
10-630N	0.45	8.45	5.9	58.6	32.7	1.5	0.4	0.4	0.2	0.1	0.0	0.0	0.1
10-630O	0.36	5.77	3.2	32.4	18.0	0.8	0.2	0.2	0.1	0.0	0.0	0.0	0.0

2008 FALL POLLUTANT LOADINGS BY OUTFALL

2008 FALL POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (09/01/08 - 12/31/08

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Fall Median Event Mean Concentration			7.0	70	39	1.74	0.497	0.427	0.294	0.083	0.016	0.012	0.102
Precipitation (meters)	**0.153**												
10-630P/Q	0.00	67.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-630R	0.33	83.89	43.2	431.8	240.6	10.7	3.1	2.6	1.8	0.5	0.1	0.1	0.6
10-630S	0.22	37.02	12.4	124.0	69.1	3.1	0.9	0.8	0.5	0.1	0.0	0.0	0.2
10-630T	0.56	7.72	6.7	66.9	37.3	1.7	0.5	0.4	0.3	0.1	0.0	0.0	0.1
10-630U	0.52	115.42	93.1	930.5	518.4	23.1	6.6	5.7	3.9	1.1	0.2	0.2	1.4
10-630V	0.11	33.85	5.5	55.1	30.7	1.4	0.4	0.3	0.2	0.1	0.0	0.0	0.1
10-630W	0.47	23.68	17.3	172.9	96.3	4.3	1.2	1.1	0.7	0.2	0.0	0.0	0.3
10-630X	0.44	14.78	10.1	100.8	56.1	2.5	0.7	0.6	0.4	0.1	0.0	0.0	0.1
10-630Y	0.00	112.03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-630Z	0.47	45.66	33.1	331.3	184.6	8.2	2.4	2.0	1.4	0.4	0.1	0.1	0.5
10-640	0.46	258.18	182.0	1,819.9	1,013.9	45.2	12.9	11.1	7.6	2.2	0.4	0.3	2.7
10-650	0.56	19.53	16.8	167.7	93.4	4.2	1.2	1.0	0.7	0.2	0.0	0.0	0.2
10-660	0.46	306.37	218.7	2,187.5	1,218.7	54.4	15.5	13.3	9.2	2.6	0.5	0.4	3.2
10-670	0.45	137.88	95.5	954.9	532.0	23.7	6.8	5.8	4.0	1.1	0.2	0.2	1.4
10-680	0.46	707.95	500.3	5,003.0	2,787.4	124.4	35.5	30.5	21.0	5.9	1.2	0.8	7.3
10-690	0.50	70.63	54.5	544.6	303.4	13.5	3.9	3.3	2.3	0.6	0.1	0.1	0.8
10-700	0.46	222.07	158.9	1,589.3	885.5	39.5	11.3	9.7	6.7	1.9	0.4	0.3	2.3
10-710	0.33	29.95	15.4	153.8	85.7	3.8	1.1	0.9	0.6	0.2	0.0	0.0	0.2
10-720A	0.44	15.77	10.8	107.8	60.0	2.7	0.8	0.7	0.5	0.1	0.0	0.0	0.2
10-720B	0.48	422.18	313.5	3,134.9	1,746.6	77.9	22.3	19.1	13.2	3.7	0.7	0.5	4.6
10-720C	0.43	26.35	17.4	174.4	97.2	4.3	1.2	1.1	0.7	0.2	0.0	0.0	0.3
10-720D	0.46	22.95	16.1	161.0	89.7	4.0	1.1	1.0	0.7	0.2	0.0	0.0	0.2
10-720E	0.46	18.39	12.9	129.2	72.0	3.2	0.9	0.8	0.5	0.2	0.0	0.0	0.2
10-720F	0.48	317.75	235.0	2,349.8	1,309.2	58.4	16.7	14.3	9.9	2.8	0.5	0.4	3.4
10-720G	0.00	13.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-720H	0.45	4.55	3.2	31.6	17.6	0.8	0.2	0.2	0.1	0.0	0.0	0.0	0.0
10-720I	0.45	87.27	60.0	599.8	334.2	14.9	4.3	3.7	2.5	0.7	0.1	0.1	0.9
10-720J	0.36	3.71	2.0	20.4	11.4	0.5	0.1	0.1	0.1	0.0	0.0	0.0	0.0
10-720K	0.55	32.76	27.7	277.2	154.5	6.9	2.0	1.7	1.2	0.3	0.1	0.0	0.4
10-720L	0.45	4.57	3.2	31.7	17.7	0.8	0.2	0.2	0.1	0.0	0.0	0.0	0.0
20-010	0.42	93.99	60.8	608.1	338.8	15.1	4.3	3.7	2.6	0.7	0.1	0.1	0.9
20-020	0.44	15.09	10.2	102.0	56.8	2.5	0.7	0.6	0.4	0.1	0.0	0.0	0.1
20-030	0.45	7.95	5.5	55.1	30.7	1.4	0.4	0.3	0.2	0.1	0.0	0.0	0.1
20-040	0.37	6.79	3.9	39.0	21.7	1.0	0.3	0.2	0.2	0.0	0.0	0.0	0.1
20-050	0.00	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-060	0.45	5.91	4.1	41.0	22.8	1.0	0.3	0.3	0.2	0.0	0.0	0.0	0.1
20-070	0.44	39.07	26.7	267.0	148.8	6.6	1.9	1.6	1.1	0.3	0.1	0.0	0.4
20-080	0.45	33.72	23.6	235.6	131.3	5.9	1.7	1.4	1.0	0.3	0.1	0.0	0.3
20-090	0.55	9.95	8.5	84.8	47.2	2.1	0.6	0.5	0.4	0.1	0.0	0.0	0.1
20-100	0.10	0.99	0.2	1.5	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-110	0.24	216.04	79.9	798.9	445.1	19.9	5.7	4.9	3.4	0.9	0.2	0.1	1.2
20-120	0.47	10.22	7.4	73.6	41.0	1.8	0.5	0.4	0.3	0.1	0.0	0.0	0.1
20-130	0.45	16.12	11.2	111.8	62.3	2.8	0.8	0.7	0.5	0.1	0.0	0.0	0.2
20-140	0.44	2.97	2.0	20.2	11.3	0.5	0.1	0.1	0.1	0.0	0.0	0.0	0.0
20-150	0.45	14.48	10.0	100.4	56.0	2.5	0.7	0.6	0.4	0.1	0.0	0.0	0.1
20-160	0.54	3.21	2.7	26.7	14.9	0.7	0.2	0.2	0.1	0.0	0.0	0.0	0.0
20-170	0.37	4.94	2.8	28.4	15.8	0.7	0.2	0.2	0.1	0.0	0.0	0.0	0.0
20-180	0.51	5.3	4.1	41.3	23.0	1.0	0.3	0.3	0.2	0.0	0.0	0.0	0.1
20-190	0.45	1.35	0.9	9.4	5.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0
20-200	0.45	13.84	9.6	96.0	53.5	2.4	0.7	0.6	0.4	0.1	0.0	0.0	0.1
20-210A	0.44	92.9	62.9	629.0	350.4	15.6	4.5	3.8	2.6	0.7	0.1	0.1	0.9
20-210B	0.50	620.78	482.8	4,827.5	2,689.6	120.0	34.3	29.4	20.3	5.7	1.1	0.8	7.0
20-220	0.46	26.38	18.7	187.4	104.4	4.7	1.3	1.1	0.8	0.2	0.0	0.0	0.3
20-230	0.00	21.46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-240	0.48	30.06	22.3	223.2	124.4	5.5	1.6	1.4	0.9	0.3	0.1	0.0	0.3
20-250	0.57	6.28	5.5	55.3	30.8	1.4	0.4	0.3	0.2	0.1	0.0	0.0	0.1
20-260	0.60	3.5	3.2	32.4	18.0	0.8	0.2	0.2	0.1	0.0	0.0	0.0	0.0
20-270	0.48	42.81	31.5	314.5	175.2	7.8	2.2	1.9	1.3	0.4	0.1	0.1	0.5
20-280	0.54	8.98	7.4	74.4	41.4	1.8	0.5	0.5	0.3	0.1	0.0	0.0	0.1
20-290	0.00	4.98	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21-010	0.45	49.49	34.2	341.9	190.5	8.5	2.4	2.1	1.4	0.4	0.1	0.1	0.5
40-010	0.45	719.17	496.7	4,967.0	2,767.3	123.5	35.3	30.3	20.9	5.9	1.2	0.8	7.2
40-020	0.45	15.36	10.7	106.5	59.4	2.6	0.8	0.6	0.4	0.1	0.0	0.0	0.2
40-030	0.42	51.02	32.8	328.5	183.0	8.2	2.3	2.0	1.4	0.4	0.1	0.1	0.5
40-040	0.43	65.39	43.8	437.6	243.8	10.9	3.1	2.7	1.8	0.5	0.1	0.1	0.6
40-050	0.45	10.28	7.1	71.3	39.7	1.8	0.5	0.4	0.3	0.1	0.0	0.0	0.1
40-060	0.45	3.2	2.2	22.2	12.4	0.6	0.2	0.1	0.1	0.0	0.0	0.0	0.0
40-070	0.38	7.98	4.7	46.5	25.9	1.2	0.3	0.3	0.2	0.1	0.0	0.0	0.1
40-080	0.41	60.51	38.1	380.9	212.2	9.5	2.7	2.3	1.6	0.5	0.1	0.1	0.6
40-090	0.46	20.65	14.8	148.0	82.4	3.7	1.1	0.9	0.6	0.2	0.0	0.0	0.2
40-100	0.00	20.35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40-110	0.44	2.61	1.8	17.9	9.9	0.4	0.1	0.1	0.1	0.0	0.0	0.0	0.0
40-120	0.44	65.87	44.5	444.9	247.9	11.1	3.2	2.7	1.9	0.5	0.1	0.1	0.6
40-130	0.45	35.01	24.4	243.8	135.8	6.1	1.7	1.5	1.0	0.3	0.1	0.0	0.4
40-140	0.35	125.46	67.2	672.4	374.6	16.7	4.8	4.1	2.8	0.8	0.2	0.1	1.0
40-150	0.47	24.31	17.7	177.5	98.9	4.4	1.3	1.1	0.7	0.2	0.0	0.0	0.3
40-160	0.49	30.99	23.6	236.1	131.6	5.9	1.7	1.4	1.0	0.3	0.1	0.0	0.3

2008 FALL POLLUTANT LOADINGS BY OUTFALL

2008 FALL POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (09/01/08 - 12/31/08

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Fall Median Event Mean Concentration			7.0	70	39	1.74	0.497	0.427	0.294	0.083	0.016	0.012	0.102
Precipitation (meters)	**0.153**												
40-170	0.00	194.89	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40-180	0.54	16.8	13.9	139.4	77.7	3.5	1.0	0.9	0.6	0.2	0.0	0.0	0.2
40-190	0.53	65.53	53.4	534.1	297.5	13.3	3.8	3.3	2.2	0.6	0.1	0.1	0.8
40-200	0.46	24.75	17.6	176.4	98.3	4.4	1.3	1.1	0.7	0.2	0.0	0.0	0.3
40-210	0.54	17.26	14.5	144.9	80.8	3.6	1.0	0.9	0.6	0.2	0.0	0.0	0.2
40-220	0.47	100.58	72.5	724.7	403.8	18.0	5.1	4.4	3.0	0.9	0.2	0.1	1.1
40-230	0.44	13.78	9.4	94.5	52.6	2.3	0.7	0.6	0.4	0.1	0.0	0.0	0.1
40-240	0.00	340.86	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40-250	0.60	1.15	1.1	10.6	5.9	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0
40-260	0.45	3.49	2.4	24.2	13.5	0.6	0.2	0.1	0.1	0.0	0.0	0.0	0.0
40-270	0.45	9.59	6.7	66.5	37.1	1.7	0.5	0.4	0.3	0.1	0.0	0.0	0.1
40-280	0.53	12.76	10.3	103.4	57.6	2.6	0.7	0.6	0.4	0.1	0.0	0.0	0.2
40-290	0.51	13.73	10.8	108.4	60.4	2.7	0.8	0.7	0.5	0.1	0.0	0.0	0.2
40-300	0.52	10.38	8.3	83.4	46.4	2.1	0.6	0.5	0.4	0.1	0.0	0.0	0.1
40-310	0.45	97.86	68.3	682.7	380.4	17.0	4.8	4.2	2.9	0.8	0.2	0.1	1.0
40-320	0.60	9.43	8.7	87.2	48.6	2.2	0.6	0.5	0.4	0.1	0.0	0.0	0.1
40-330	0.59	15.34	14.0	140.1	78.1	3.5	1.0	0.9	0.6	0.2	0.0	0.0	0.2
40-340	0.53	35.27	29.0	289.7	161.4	7.2	2.1	1.8	1.2	0.3	0.1	0.0	0.4
40-350	0.60	8.99	8.3	83.1	46.3	2.1	0.6	0.5	0.3	0.1	0.0	0.0	0.1
40-360	0.60	8.09	7.5	74.8	41.7	1.9	0.5	0.5	0.3	0.1	0.0	0.0	0.1
40-370	0.58	12.41	11.1	110.6	61.6	2.8	0.8	0.7	0.5	0.1	0.0	0.0	0.2
40-380	0.39	24.92	15.1	151.1	84.2	3.8	1.1	0.9	0.6	0.2	0.0	0.0	0.2
40-390	0.58	5.72	5.1	51.1	28.5	1.3	0.4	0.3	0.2	0.1	0.0	0.0	0.1
40-400	0.10	1.07	0.2	1.6	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41-010	0.38	94.73	55.1	551.1	307.0	13.7	3.9	3.4	2.3	0.7	0.1	0.1	0.8
41-020	0.00	14.89	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41-030	0.50	60.47	46.8	467.8	260.7	11.6	3.3	2.9	2.0	0.6	0.1	0.1	0.7
41-040	0.57	35.59	31.4	314.3	175.1	7.8	2.2	1.9	1.3	0.4	0.1	0.1	0.5
41-050	0.60	10.48	9.7	96.9	54.0	2.4	0.7	0.6	0.4	0.1	0.0	0.0	0.1
41-060	0.60	2.95	2.7	27.3	15.2	0.7	0.2	0.2	0.1	0.0	0.0	0.0	0.0
51-010	0.45	29.63	20.6	206.1	114.8	5.1	1.5	1.3	0.9	0.2	0.0	0.0	0.3
51-020	0.45	4.55	3.2	31.6	17.6	0.8	0.2	0.2	0.1	0.0	0.0	0.0	0.0
52-010	0.28	45.29	19.3	192.9	107.5	4.8	1.4	1.2	0.8	0.2	0.0	0.0	0.3
52-020	0.45	6.09	4.2	42.2	23.5	1.0	0.3	0.3	0.2	0.1	0.0	0.0	0.1
52-030	0.45	7.18	5.0	49.8	27.7	1.2	0.4	0.3	0.2	0.1	0.0	0.0	0.1
52-040	0.41	4.54	2.9	28.9	16.1	0.7	0.2	0.2	0.1	0.0	0.0	0.0	0.0
52-050	0.44	15.3	10.3	102.6	57.2	2.5	0.7	0.6	0.4	0.1	0.0	0.0	0.1
52-060	0.10	3.22	0.5	5.0	2.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
52-070	0.42	86.94	56.7	567.0	315.9	14.1	4.0	3.5	2.4	0.7	0.1	0.1	0.8
52-080	0.24	8.08	3.0	30.1	16.8	0.7	0.2	0.2	0.1	0.0	0.0	0.0	0.0
52-090	0.45	4.89	3.4	33.9	18.9	0.8	0.2	0.2	0.1	0.0	0.0	0.0	0.0
52-100A/B	0.27	11.89	4.9	48.9	27.2	1.2	0.3	0.3	0.2	0.1	0.0	0.0	0.1
52-110	0.45	8.84	6.1	60.8	33.9	1.5	0.4	0.4	0.3	0.1	0.0	0.0	0.1
52-120	0.45	14.74	10.2	102.2	57.0	2.5	0.7	0.6	0.4	0.1	0.0	0.0	0.1
52-130	0.31	7.18	3.5	34.8	19.4	0.9	0.2	0.2	0.1	0.0	0.0	0.0	0.1
53-010	0.45	7.03	4.9	48.8	27.2	1.2	0.3	0.3	0.2	0.1	0.0	0.0	0.1
53-020	0.28	12.38	5.3	52.7	29.4	1.3	0.4	0.3	0.2	0.1	0.0	0.0	0.1
53-030	0.44	11.37	7.7	76.6	42.7	1.9	0.5	0.5	0.3	0.1	0.0	0.0	0.1
53-040	0.45	2.78	1.9	19.3	10.7	0.5	0.1	0.1	0.1	0.0	0.0	0.0	0.0
53-050	0.45	13.66	9.5	94.7	52.8	2.4	0.7	0.6	0.4	0.1	0.0	0.0	0.1
53-060	0.45	20.37	14.1	141.3	78.7	3.5	1.0	0.9	0.6	0.2	0.0	0.0	0.2
53-070	0.45	4.89	3.4	33.9	18.9	0.8	0.2	0.2	0.1	0.0	0.0	0.0	0.0
53-080	0.39	5.81	3.5	35.3	19.7	0.9	0.3	0.2	0.1	0.0	0.0	0.0	0.1
53-090	0.46	59.59	42.2	421.7	235.0	10.5	3.0	2.6	1.8	0.5	0.1	0.1	0.6
53-100	0.00	107	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
53-110	0.38	4.59	2.7	27.2	15.2	0.7	0.2	0.2	0.1	0.0	0.0	0.0	0.0
53-120A/B	0.46	129.79	91.1	911.4	507.8	22.7	6.5	5.6	3.8	1.1	0.2	0.2	1.3
53-130	0.45	5.02	3.5	34.8	19.4	0.9	0.2	0.2	0.1	0.0	0.0	0.0	0.1
53-140	0.45	6.36	4.4	44.1	24.6	1.1	0.3	0.3	0.2	0.1	0.0	0.0	0.1
53-150	0.48	90.4	67.4	674.1	375.6	16.8	4.8	4.1	2.8	0.8	0.2	0.1	1.0
53-160	0.47	252.19	183.8	1,837.6	1,023.8	45.7	13.0	11.2	7.7	2.2	0.4	0.3	2.7
53-170	0.36	6.39	3.6	35.5	19.8	0.9	0.3	0.2	0.1	0.0	0.0	0.0	0.1
53-180	0.10	8.09	1.2	12.5	6.9	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0
53-190	0.30	11.41	5.3	52.8	29.4	1.3	0.4	0.3	0.2	0.1	0.0	0.0	0.1
54-010A/B	0.44	84.93	57.0	569.5	317.3	14.2	4.0	3.5	2.4	0.7	0.1	0.1	0.8
54-040A/B	0.49	255.14	194.6	1,946.3	1,084.4	48.4	13.8	11.9	8.2	2.3	0.5	0.3	2.8
54-050	0.17	9.27	2.5	24.8	13.8	0.6	0.2	0.2	0.1	0.0	0.0	0.0	0.0
54-060	0.44	32.13	21.8	217.5	121.2	5.4	1.5	1.3	0.9	0.3	0.1	0.0	0.3
54-070	0.36	60.8	33.6	336.0	187.2	8.4	2.4	2.0	1.4	0.4	0.1	0.1	0.5
54-080A/B/C	0.46	414.26	291.8	2,918.4	1,626.0	72.5	20.7	17.8	12.3	3.5	0.7	0.5	4.3
54-090	0.10	3.55	0.5	5.5	3.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
54-100A/B	0.60	114.24	104.9	1,048.9	584.4	26.1	7.4	6.4	4.4	1.2	0.2	0.2	1.5
54-110	0.45	24.55	17.0	170.3	94.9	4.2	1.2	1.0	0.7	0.2	0.0	0.0	0.2
54-120	0.46	62.08	43.7	437.2	243.6	10.9	3.1	2.7	1.8	0.5	0.1	0.1	0.6
54-130	0.10	1.07	0.2	1.6	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
54-140A/B	0.41	113.01	71.1	710.5	395.9	17.7	5.0	4.3	3.0	0.8	0.2	0.1	1.0
54-150	0.45	55.34	38.0	379.8	211.6	9.4	2.7	2.3	1.6	0.5	0.1	0.1	0.6

2008 FALL POLLUTANT LOADINGS BY OUTFALL

2008 FALL POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (09/01/08 - 12/31/08

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Fall Median Event Mean Concentration			7.0	70	39	1.74	0.497	0.427	0.294	0.083	0.016	0.012	0.102
Precipitation (meters)	**0.153**												
54-160	0.60	2.62	2.4	24.2	13.5	0.6	0.2	0.1	0.1	0.0	0.0	0.0	0.0
54-170	0.59	8.08	7.4	74.0	41.3	1.8	0.5	0.5	0.3	0.1	0.0	0.0	0.1
54-180	0.60	2.82	2.6	26.1	14.5	0.6	0.2	0.2	0.1	0.0	0.0	0.0	0.0
54-190	0.10	2.2	0.3	3.4	1.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
54-200	0.10	2.13	0.3	3.3	1.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
54-210	0.10	1.14	0.2	1.8	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55-010	0.60	14.98	13.9	138.5	77.2	3.4	1.0	0.8	0.6	0.2	0.0	0.0	0.2
55-020	0.60	189.58	174.2	1,741.7	970.4	43.3	12.4	10.6	7.3	2.1	0.4	0.3	2.5
56-010	0.60	67.62	62.5	625.3	348.4	15.5	4.4	3.8	2.6	0.7	0.1	0.1	0.9
57-010	0.53	26.1	21.5	214.6	119.6	5.3	1.5	1.3	0.9	0.3	0.0	0.0	0.3
57-020	0.00	142	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57-030	0.45	18.22	12.6	126.4	70.4	3.1	0.9	0.8	0.5	0.1	0.0	0.0	0.2
57-040	0.35	39.88	21.4	214.5	119.5	5.3	1.5	1.3	0.9	0.3	0.0	0.0	0.3
57-050	0.45	7.9	5.5	54.8	30.5	1.4	0.4	0.3	0.2	0.1	0.0	0.0	0.1
57-060	0.46	26.11	18.6	186.1	103.7	4.6	1.3	1.1	0.8	0.2	0.0	0.0	0.3
57-070	0.45	81.33	56.5	565.4	315.0	14.1	4.0	3.4	2.4	0.7	0.1	0.1	0.8
57-080	0.42	5.54	3.6	36.1	20.1	0.9	0.3	0.2	0.2	0.0	0.0	0.0	0.1
57-090	0.47	77.77	56.3	562.5	313.4	14.0	4.0	3.4	2.4	0.7	0.1	0.1	0.8
57-100A/B	0.47	313.43	228.2	2,282.1	1,271.5	56.7	16.2	13.9	9.6	2.7	0.5	0.4	3.3
57-110	0.54	21.6	18.0	180.0	100.3	4.5	1.3	1.1	0.8	0.2	0.0	0.0	0.3
57-120A/B/C	0.00	65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57-130	0.10	1.16	0.2	1.8	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57-140	0.10	1.55	0.2	2.4	1.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57-150	0.43	35.68	23.7	237.3	132.2	5.9	1.7	1.4	1.0	0.3	0.1	0.0	0.3
57-160	0.10	1.89	0.3	2.9	1.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
61-010	0.55	2.86	2.4	24.3	13.5	0.6	0.2	0.1	0.1	0.0	0.0	0.0	0.0
62-010	0.45	27.84	19.4	194.0	108.1	4.8	1.4	1.2	0.8	0.2	0.0	0.0	0.3
63-010	0.45	388.79	270.9	2,709.3	1,509.4	67.3	19.2	16.5	11.4	3.2	0.6	0.5	3.9
63-020	0.00	11.91	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
64-100	0.45	24.92	17.3	172.7	96.2	4.3	1.2	1.1	0.7	0.2	0.0	0.0	0.3
64-110	0.45	6.01	4.2	41.7	23.2	1.0	0.3	0.3	0.2	0.0	0.0	0.0	0.1
64-120	0.45	16.04	11.1	111.2	62.0	2.8	0.8	0.7	0.5	0.1	0.0	0.0	0.2
64-130	0.45	2.44	1.7	16.9	9.4	0.4	0.1	0.1	0.1	0.0	0.0	0.0	0.0
65-010	0.00	18.97	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65-020	0.53	38.46	31.4	313.7	174.8	7.8	2.2	1.9	1.3	0.4	0.1	0.1	0.5
70-010	0.46	6.23	4.4	44.0	24.5	1.1	0.3	0.3	0.2	0.1	0.0	0.0	0.1
70-015	0.45	11.69	8.1	81.1	45.2	2.0	0.6	0.5	0.3	0.1	0.0	0.0	0.1
70-020	0.45	37.55	26.0	260.4	145.1	6.5	1.8	1.6	1.1	0.3	0.1	0.0	0.4
70-025	0.00	3.67	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-030	0.45	13.48	9.3	93.4	52.0	2.3	0.7	0.6	0.4	0.1	0.0	0.0	0.1
70-035	0.45	4.53	3.1	31.4	17.5	0.8	0.2	0.2	0.1	0.0	0.0	0.0	0.0
70-040	0.45	2.42	1.7	16.8	9.4	0.4	0.1	0.1	0.1	0.0	0.0	0.0	0.0
70-045	0.00	0.26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-050	0.45	17.41	12.1	120.7	67.3	3.0	0.9	0.7	0.5	0.1	0.0	0.0	0.2
70-055	0.46	333.43	238.5	2,385.1	1,328.8	59.3	16.9	14.5	10.0	2.8	0.6	0.4	3.5
70-060	0.45	3.53	2.4	24.5	13.6	0.6	0.2	0.1	0.1	0.0	0.0	0.0	0.0
70-065	0.45	1.89	1.3	13.1	7.3	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0
70-070	0.45	5.8	4.0	40.2	22.4	1.0	0.3	0.2	0.2	0.0	0.0	0.0	0.1
70-075	0.43	5	3.3	33.2	18.5	0.8	0.2	0.2	0.1	0.0	0.0	0.0	0.0
70-080	0.46	11.96	8.5	85.2	47.4	2.1	0.6	0.5	0.4	0.1	0.0	0.0	0.1
70-085	0.45	229.48	158.2	1,581.8	881.3	39.3	11.2	9.6	6.6	1.9	0.4	0.3	2.3
70-090	0.45	18.57	12.9	128.8	71.8	3.2	0.9	0.8	0.5	0.2	0.0	0.0	0.2
70-095	0.45	9.99	6.9	69.3	38.6	1.7	0.5	0.4	0.3	0.1	0.0	0.0	0.1
70-100	0.45	9.64	6.7	66.9	37.3	1.7	0.5	0.4	0.3	0.1	0.0	0.0	0.1
70-105	0.45	1.63	1.1	11.3	6.3	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0
70-110	0.45	18.13	12.6	125.7	70.1	3.1	0.9	0.8	0.5	0.1	0.0	0.0	0.2
70-115	0.45	3.71	2.6	25.7	14.3	0.6	0.2	0.2	0.1	0.0	0.0	0.0	0.0
70-120	0.45	4.22	2.9	29.3	16.3	0.7	0.2	0.2	0.1	0.0	0.0	0.0	0.0
70-125	0.00	5.04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-130	0.49	34.29	26.1	260.9	145.4	6.5	1.9	1.6	1.1	0.3	0.1	0.0	0.4
70-135	0.45	7.46	5.2	51.7	28.8	1.3	0.4	0.3	0.2	0.1	0.0	0.0	0.1
70-140	0.60	0.78	0.7	7.2	4.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
70-145	0.60	9.19	8.5	85.0	47.3	2.1	0.6	0.5	0.4	0.1	0.0	0.0	0.1
70-150	0.45	4.51	3.1	31.3	17.4	0.8	0.2	0.2	0.1	0.0	0.0	0.0	0.0
70-155	0.45	2.05	1.4	14.2	7.9	0.4	0.1	0.1	0.1	0.0	0.0	0.0	0.0
70-160	0.45	2.95	2.0	20.5	11.4	0.5	0.1	0.1	0.1	0.0	0.0	0.0	0.0
70-165	0.45	27.77	19.3	192.6	107.3	4.8	1.4	1.2	0.8	0.2	0.0	0.0	0.3
70-170	0.45	23.74	16.5	164.7	91.7	4.1	1.2	1.0	0.7	0.2	0.0	0.0	0.2
70-175	0.46	30.89	21.8	217.7	121.3	5.4	1.5	1.3	0.9	0.3	0.1	0.0	0.3
70-180	0.45	1.14	0.8	7.9	4.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
70-185	0.45	1.53	1.1	10.6	5.9	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0
70-190	0.17	15.04	4.0	39.9	22.2	1.0	0.3	0.2	0.2	0.0	0.0	0.0	0.1
70-195	0.45	46.02	32.1	320.9	178.8	8.0	2.3	2.0	1.3	0.4	0.1	0.1	0.5
70-200	0.45	31.52	21.9	218.6	121.8	5.4	1.6	1.3	0.9	0.3	0.1	0.0	0.3
70-205	0.45	1.39	1.0	9.6	5.4	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0
70-210	0.45	3.58	2.5	24.8	13.8	0.6	0.2	0.2	0.1	0.0	0.0	0.0	0.0
70-215	0.45	5.93	4.1	41.1	22.9	1.0	0.3	0.3	0.2	0.0	0.0	0.0	0.1

2008 FALL POLLUTANT LOADINGS BY OUTFALL

2008 FALL POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (09/01/08 - 12/31/08

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Fall Median Event Mean Concentration			7.0	70	39	1.74	0.497	0.427	0.294	0.083	0.016	0.012	0.102
Precipitation (meters)	**0.153**												
70-220	0.45	4.54	3.1	31.5	17.5	0.8	0.2	0.2	0.1	0.0	0.0	0.0	0.0
70-225	0.45	4.99	3.5	34.6	19.3	0.9	0.2	0.2	0.1	0.0	0.0	0.0	0.1
70-230	0.45	4.72	3.3	32.7	18.2	0.8	0.2	0.2	0.1	0.0	0.0	0.0	0.0
70-235	0.45	5.04	3.5	35.0	19.5	0.9	0.2	0.2	0.1	0.0	0.0	0.0	0.1
70-240	0.45	4.52	3.1	31.3	17.5	0.8	0.2	0.2	0.1	0.0	0.0	0.0	0.0
70-245	0.44	9.98	6.8	67.5	37.6	1.7	0.5	0.4	0.3	0.1	0.0	0.0	0.1
70-250	0.48	41.27	30.7	306.8	170.9	7.6	2.2	1.9	1.3	0.4	0.1	0.1	0.4
70-255	0.45	45.37	31.5	314.8	175.4	7.8	2.2	1.9	1.3	0.4	0.1	0.1	0.5
70-260	0.46	24.9	17.6	175.7	97.9	4.4	1.2	1.1	0.7	0.2	0.0	0.0	0.3
70-265A/B	0.00	183.65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-270	0.45	4.66	3.2	32.3	18.0	0.8	0.2	0.2	0.1	0.0	0.0	0.0	0.0
70-275	0.45	4.28	3.0	29.7	16.5	0.7	0.2	0.2	0.1	0.0	0.0	0.0	0.0
70-280	0.45	9.39	6.5	65.2	36.3	1.6	0.5	0.4	0.3	0.1	0.0	0.0	0.1
70-285	0.45	19.03	13.2	131.8	73.5	3.3	0.9	0.8	0.6	0.2	0.0	0.0	0.2
70-290	0.45	2.37	1.6	16.3	9.1	0.4	0.1	0.1	0.1	0.0	0.0	0.0	0.0
70-295	0.45	7.18	5.0	49.8	27.7	1.2	0.4	0.3	0.2	0.1	0.0	0.0	0.1
70-300	0.10	0.4	0.1	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-305	0.45	12.68	8.7	87.2	48.6	2.2	0.6	0.5	0.4	0.1	0.0	0.0	0.1
70-310	0.00	5.25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-315	0.30	5.79	2.7	26.8	14.9	0.7	0.2	0.2	0.1	0.0	0.0	0.0	0.0
70-320	0.44	2.32	1.6	15.7	8.7	0.4	0.1	0.1	0.1	0.0	0.0	0.0	0.0
70-325	0.00	2.35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-330	0.47	279.41	202.9	2,028.5	1,130.2	50.4	14.4	12.4	8.5	2.4	0.5	0.3	3.0
70-335	0.45	1.99	1.4	13.8	7.7	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0
70-340	0.39	22.25	13.5	134.9	75.2	3.4	1.0	0.8	0.6	0.2	0.0	0.0	0.2
70-345	0.45	3.81	2.6	26.4	14.7	0.7	0.2	0.2	0.1	0.0	0.0	0.0	0.0
70-350	0.49	314.4	239.4	2,394.4	1,334.0	59.5	17.0	14.6	10.1	2.8	0.6	0.4	3.5
70-355	0.45	1.29	0.9	8.9	5.0	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0
70-360	0.45	131.96	92.4	924.4	515.0	23.0	6.6	5.6	3.9	1.1	0.2	0.2	1.3
70-365	0.45	6.7	4.6	46.5	25.9	1.2	0.3	0.3	0.2	0.1	0.0	0.0	0.1
70-370	0.44	3.75	2.6	25.6	14.3	0.6	0.2	0.2	0.1	0.0	0.0	0.0	0.0
70-375	0.47	7.1	5.2	51.7	28.8	1.3	0.4	0.3	0.2	0.1	0.0	0.0	0.1
70-380	0.45	14.4	10.0	99.9	55.6	2.5	0.7	0.6	0.4	0.1	0.0	0.0	0.1
70-385	0.45	14.97	10.4	103.8	57.8	2.6	0.7	0.6	0.4	0.1	0.0	0.0	0.2
70-390	0.46	58.11	41.5	414.9	231.1	10.3	2.9	2.5	1.7	0.5	0.1	0.1	0.6
70-395	0.43	57.19	37.9	378.6	210.9	9.4	2.7	2.3	1.6	0.4	0.1	0.1	0.6
70-400	0.44	9.67	6.5	65.4	36.4	1.6	0.5	0.4	0.3	0.1	0.0	0.0	0.1
70-405	0.25	7.16	2.8	27.6	15.4	0.7	0.2	0.2	0.1	0.0	0.0	0.0	0.0
70-410	0.43	5.8	3.8	38.3	21.4	1.0	0.3	0.2	0.2	0.0	0.0	0.0	0.1
70-415	0.45	120.75	84.5	844.8	470.7	21.0	6.0	5.2	3.5	1.0	0.2	0.1	1.2
70-420	0.45	16.99	11.8	117.8	65.7	2.9	0.8	0.7	0.5	0.1	0.0	0.0	0.2
70-425	0.51	20.63	16.2	162.5	90.5	4.0	1.2	1.0	0.7	0.2	0.0	0.0	0.2
70-430	0.10	6.19	1.0	9.5	5.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0
70-435	0.10	9.16	1.4	14.1	7.9	0.4	0.1	0.1	0.1	0.0	0.0	0.0	0.0
70-440	0.50	34.48	26.4	264.0	147.1	6.6	1.9	1.6	1.1	0.3	0.1	0.0	0.4
70-445	0.45	5.6	3.9	38.8	21.6	1.0	0.3	0.2	0.2	0.0	0.0	0.0	0.1
70-450	0.45	2.65	1.8	18.4	10.2	0.5	0.1	0.1	0.1	0.0	0.0	0.0	0.0
70-455	0.00	2.66	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-460	0.45	2.67	1.9	18.5	10.3	0.5	0.1	0.1	0.1	0.0	0.0	0.0	0.0
70-465	0.45	2.58	1.8	17.9	10.0	0.4	0.1	0.1	0.1	0.0	0.0	0.0	0.0
70-470	0.38	8.55	5.1	50.6	28.2	1.3	0.4	0.3	0.2	0.1	0.0	0.0	0.1
70-475	0.46	229.14	162.6	1,625.7	905.8	40.4	11.5	9.9	6.8	1.9	0.4	0.3	2.4
70-480	0.60	0.31	0.3	2.9	1.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-485	0.45	13.36	9.3	92.7	51.6	2.3	0.7	0.6	0.4	0.1	0.0	0.0	0.1
70-490	0.47	48.75	35.3	352.7	196.5	8.8	2.5	2.2	1.5	0.4	0.1	0.1	0.5
70-495	0.45	7.74	5.4	53.7	29.9	1.3	0.4	0.3	0.2	0.1	0.0	0.0	0.1
70-500	0.45	0.56	0.4	3.9	2.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-505	0.41	8.12	5.2	51.5	28.7	1.3	0.4	0.3	0.2	0.1	0.0	0.0	0.1
70-510	0.45	41.82	29.1	291.0	162.1	7.2	2.1	1.8	1.2	0.3	0.1	0.0	0.4
70-515	0.47	62.73	45.4	454.3	253.1	11.3	3.2	2.8	1.9	0.5	0.1	0.1	0.7
70-520	0.45	6.05	4.2	42.0	23.4	1.0	0.3	0.3	0.2	0.0	0.0	0.0	0.1
70-525	0.45	6.23	4.3	43.2	24.1	1.1	0.3	0.3	0.2	0.1	0.0	0.0	0.1
70-530	0.45	1.67	1.2	11.6	6.5	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0
70-535	0.45	30.24	21.0	210.2	117.1	5.2	1.5	1.3	0.9	0.2	0.0	0.0	0.3
70-540	0.21	5.1	1.7	16.8	9.3	0.4	0.1	0.1	0.1	0.0	0.0	0.0	0.0
70-545	0.45	1.89	1.3	13.1	7.3	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0
70-550	0.26	1.3	0.5	5.2	2.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-555	0.45	1.73	1.2	12.0	6.7	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0
70-560	0.45	3.33	2.3	23.1	12.9	0.6	0.2	0.1	0.1	0.0	0.0	0.0	0.0
70-565	0.24	16.63	6.2	61.7	34.4	1.5	0.4	0.4	0.3	0.1	0.0	0.0	0.1
70-570	0.45	1.23	0.9	8.5	4.8	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0
70-575	0.45	15.39	10.7	106.6	59.4	2.7	0.8	0.7	0.4	0.1	0.0	0.0	0.2
70-580	0.43	119.93	80.2	801.8	446.7	19.9	5.7	4.9	3.4	1.0	0.2	0.1	1.2
71-010	0.10	1.12	0.2	1.7	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
71-020	0.45	14.05	9.7	97.4	54.3	2.4	0.7	0.6	0.4	0.1	0.0	0.0	0.1
71-030	0.45	28.58	19.9	199.3	111.0	5.0	1.4	1.2	0.8	0.2	0.0	0.0	0.3
71-040	0.22	20.93	7.1	70.8	39.4	1.8	0.5	0.4	0.3	0.1	0.0	0.0	0.1

2008 FALL POLLUTANT LOADINGS BY OUTFALL

2008 FALL POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (09/01/08 - 12/31/08

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Fall Median Event Mean Concentration			7.0	70	39	1.74	0.497	0.427	0.294	0.083	0.016	0.012	0.102
Precipitation (meters)	**0.153**												
71-050	0.46	120.42	85.0	850.0	473.6	21.1	6.0	5.2	3.6	1.0	0.2	0.1	1.2
71-060	0.45	3.11	2.2	21.6	12.0	0.5	0.2	0.1	0.1	0.0	0.0	0.0	0.0
71-070	0.00	386.63	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
71-080	0.46	101.79	71.6	715.8	398.8	17.8	5.1	4.4	3.0	0.8	0.2	0.1	1.0
71-090	0.45	6.5	4.5	44.6	24.9	1.1	0.3	0.3	0.2	0.1	0.0	0.0	0.1
71-100	0.10	1.99	0.3	3.1	1.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72-010	0.18	17.32	4.7	46.7	26.0	1.2	0.3	0.3	0.2	0.1	0.0	0.0	0.1
72-020	0.40	24.7	15.0	150.4	83.8	3.7	1.1	0.9	0.6	0.2	0.0	0.0	0.2
72-030	0.10	5.25	0.8	8.1	4.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
72-040	0.42	166.54	106.9	1,069.2	595.7	26.6	7.6	6.5	4.5	1.3	0.2	0.2	1.6
72-050	0.10	5.16	0.8	8.0	4.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
72-060	0.36	113.04	63.0	630.2	351.1	15.7	4.5	3.8	2.6	0.7	0.1	0.1	0.9
72-070	0.10	2.21	0.3	3.4	1.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72-080	0.60	4.74	4.4	43.8	24.4	1.1	0.3	0.3	0.2	0.1	0.0	0.0	0.1
72-090	0.45	68.71	47.4	473.6	263.8	11.8	3.4	2.9	2.0	0.6	0.1	0.1	0.7
72-100	0.46	68.32	48.8	487.5	271.6	12.1	3.5	3.0	2.0	0.6	0.1	0.1	0.7
72-110	0.10	3.22	0.5	5.0	2.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72-120	0.45	62.98	43.7	436.8	243.4	10.9	3.1	2.7	1.8	0.5	0.1	0.1	0.6
72-130	0.46	58.06	40.8	408.3	227.5	10.2	2.9	2.5	1.7	0.5	0.1	0.1	0.6
72-140	0.10	10.19	1.6	15.7	8.8	0.4	0.1	0.1	0.1	0.0	0.0	0.0	0.0
72-150	0.10	4.76	0.7	7.3	4.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
72-160	0.10	4.55	0.7	7.0	3.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
73-010	0.44	20.76	14.0	140.4	78.2	3.5	1.0	0.9	0.6	0.2	0.0	0.0	0.2
73-020	0.44	57.47	39.2	392.0	218.4	9.7	2.8	2.4	1.6	0.5	0.1	0.1	0.6
73-030	0.10	21.56	3.3	33.2	18.5	0.8	0.2	0.2	0.1	0.0	0.0	0.0	0.0
74-010	0.48	44.39	32.7	327.5	182.5	8.1	2.3	2.0	1.4	0.4	0.1	0.1	0.5
74-020	0.45	4.41	3.1	30.6	17.0	0.8	0.2	0.2	0.1	0.0	0.0	0.0	0.0
75-005	0.45	12.39	8.6	85.8	47.8	2.1	0.6	0.5	0.4	0.1	0.0	0.0	0.1
75-010	0.60	3.65	3.4	33.8	18.8	0.8	0.2	0.2	0.1	0.0	0.0	0.0	0.0
75-020	0.45	1.53	1.1	10.6	5.9	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0
75-030	0.45	8.38	5.8	58.1	32.4	1.4	0.4	0.4	0.2	0.1	0.0	0.0	0.1
75-040	0.45	14.74	10.2	102.2	57.0	2.5	0.7	0.6	0.4	0.1	0.0	0.0	0.1
76-010	0.46	907.31	648.6	6,486.3	3,613.8	161.2	46.1	39.6	27.2	7.7	1.5	1.1	9.5
76-020	0.46	88.62	62.2	622.4	346.8	15.5	4.4	3.8	2.6	0.7	0.1	0.1	0.9
76-030	0.45	7.55	5.2	52.4	29.2	1.3	0.4	0.3	0.2	0.1	0.0	0.0	0.1
76-040	0.19	4.67	1.3	13.4	7.5	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0
76-050	0.00	2.39	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81-010	0.10	31.17	4.8	48.0	26.8	1.2	0.3	0.3	0.2	0.1	0.0	0.0	0.1
82-010	0.49	23.53	17.6	176.5	98.3	4.4	1.3	1.1	0.7	0.2	0.0	0.0	0.3
82-020	0.45	73.45	51.5	514.9	286.9	12.8	3.7	3.1	2.2	0.6	0.1	0.1	0.8
82-030	0.45	90.04	63.1	631.0	351.6	15.7	4.5	3.8	2.7	0.7	0.1	0.1	0.9
82-040	0.46	98.49	70.4	704.2	392.3	17.5	5.0	4.3	3.0	0.8	0.2	0.1	1.0
83-010	0.45	6.59	4.6	45.7	25.5	1.1	0.3	0.3	0.2	0.1	0.0	0.0	0.1
83-015	0.45	0.99	0.7	6.9	3.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83-020	0.43	85.96	57.6	576.0	320.9	14.3	4.1	3.5	2.4	0.7	0.1	0.1	0.8
83-025	0.45	51.23	35.5	355.3	198.0	8.8	2.5	2.2	1.5	0.4	0.1	0.1	0.5
83-030	0.60	0.82	0.8	7.6	4.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
83-040	0.10	1.08	0.2	1.7	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83-050	0.45	40.4	28.1	281.0	156.5	7.0	2.0	1.7	1.2	0.3	0.1	0.0	0.4
83-060	0.45	10.05	7.0	69.7	38.8	1.7	0.5	0.4	0.3	0.1	0.0	0.0	0.1
83-070	0.10	1.19	0.2	1.8	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83-080	0.48	178.63	130.9	1,309.0	729.3	32.5	9.3	8.0	5.5	1.6	0.3	0.2	1.9
83-090	0.41	9.16	5.8	57.9	32.2	1.4	0.4	0.4	0.2	0.1	0.0	0.0	0.1
84-010	0.47	21.56	15.6	156.3	87.1	3.9	1.1	1.0	0.7	0.2	0.0	0.0	0.2
85-010	0.10	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FALL SEASONAL SUM (kg)			**20,818.97**	**208,189.71**	**115,991.41**	**5,175.00**	**1,478.15**	**1,269.96**	**874.40**	**246.85**	**48.48**	**34.80**	**303.36**

Comparision of Seasonal-based Loadings and Annual-based Outfall Loadings

Season	Precipitation meters	Precipitation inches	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Winter/snowmelt Median Event Mean Concentration			58.0	197	4488	13.60	3.42	2.000	1.280	0.590	0.030	0.011	0.214
Precipitation	**0.064**	**2.52**											
Winter/snowmelt Season Sum (kilograms)			172,500	585,905	13,347,935	40,448	10,172	5,948	3,807	1,755	90	34	636
Spring Median Event Mean Concentration			13.0	139	83.0	4.24	1.130	0.496	0.494	0.060	0.010	0.015	0.054
Precipitation	**0.144**	**5.65**											
Spring Season Sum (kilograms)			86,687	926,881	553,461	28,273	7,535	3,307	3,294	400	69	101	361
Summer Median Event Mean Concentration			9.0	156	45.0	2.38	0.574	0.291	0.476	0.072	0.011	0.023	0.113
Precipitation	**0.208**	**8.18**											
Summer Season Sum (kilograms)			86,887	1,506,047	434,437	22,977	5,541	2,809	4,595	695	107	218	1,091
Fall Median Event Mean Concentration			7.0	70.0	39.0	1.74	0.497	0.427	0.294	0.083	0.016	0.012	0.102
Precipitation	**0.153**	**6.03**											
Fall Season Sum (kilograms)			20,819	208,190	115,991	5,175	1,478	1,270	874	247	48	35	303
Summation of Seasan Totals (kilograms)	**0.568**	**22.38**	366,893	3,227,023	14,451,824	96,873	24,726	13,335	12,571	3,097	315	387	2,391
Mean Flow Weighted Mean Concentration - all 2008 sites			25	148	507	3.22	0.966	0.582	0.486	0.139	0.016	0.028	0.132
Precipitation	**0.568**	**22.38**											
ANNUAL SUMMATION (kilograms)			660,330	3,909,151	13,391,485	85,050	25,515	15,372	12,837	3,671	431	740	3,487
ANNUAL POLLUTANT LOADINGS BY RECEIVING WATER (kilograms)			730,508	4,324,608	25,296,023	94,089	28,227	17,006	14,201	4,062	476	818	3,857

CITY OF MINNEAPOLIS
STORMWATER MANAGEMENT ORDINANCE SUMMARY

Ordinance: In 1999 the Minneapolis City Council amended Title 3 of the Minneapolis Code of Ordinances, relating to Air Pollution and Environmental Protection, by adding Chapter 54, entitled "*Stormwater Management*". The Chapter 54 ordinance establishes requirements for projects with land disturbing activities on sites greater than one (1) acre, including phased or connected actions, and for existing stormwater devices.

Goals: The purpose of this ordinance is to minimize negative impacts of stormwater runoff rates, volumes and pollutants on Minneapolis lakes, streams, wetlands, and the Mississippi River by guiding future significant development and redevelopment activity, and by assuring long-term effectiveness of existing and future stormwater management constructed facilities. The Chapter 54 ordinance specifies that stormwater management standards be set according to the receiving water body, and the table below lists discharge requirements by receiving water. The standards include but are not limited to:

- For discharges to the Mississippi River, reductions of suspended solids
- For discharges to streams, reductions of suspended solids and controlled rate of runoff
- For discharges to lakes, reduction of suspended solids and reduction in nutrients
- In addition, for discharges to areas prone to flooding and areas with infrastructure limitations, controlled rate of runoff

Minneapolis Development Review: Stormwater Management Plans are required for all construction projects on sites greater than 1 acre in size. These plans are reviewed through the Minneapolis Development Review process. Responsibility for ongoing operation and maintenance is one component of the Stormwater Management Plan.

Registration: Stormwater devices shall be registered with the City of Minneapolis Department of Regulatory Services, with an annual permit being required for each registered stormwater device.

Stormwater 'Buyout' for off-site management, in lieu of on-site treatment: This option is reserved for only those sites that demonstrate that performance of on-site stormwater management is not feasible. With approval of the City Engineer, the Chapter 54 Ordinance allows developers to contribute to the construction of a regional stormwater facility in lieu of on-site treatment/management. Final plan approval is conditional on payment received.

For the complete text of the *Chapter 54 Ordinance* requirements, see the Minneapolis Storm and Surface Water Management web site:
http://www.ci.minneapolis.mn.us/stormwater/regulatory-controls-and-enforcement.asp

Receiving Waters	Total Discharge Requirements
All receiving waters	70% removal of total suspended solids
Brownie Lake	10% phosphorus load reduction
Cedar Lake	40% phosphorus load reduction
Lake of the Isles	20% phosphorus load reduction
Lake Calhoun	30% phosphorus load reduction
Lake Harriet	20% phosphorus load reduction
Powderhorn Lake	30% phosphorus load reduction
Lake Hiawatha	42% phosphorus load reduction
Lake Nokomis	25% phosphorus load reduction
Loring Park Pond	0% phosphorus load increase
Webber Pond	0% phosphorus load increase
Wirth Lake[1]	30% phosphorus load reduction
Spring Lake	30% phosphorus load reduction
Crystal Lake[2]	30% phosphorus load reduction
Diamond Lake	30% phosphorus load reduction
Grass Lake	30% phosphorus load reduction
Birch Pond	0% phosphorus load increase
Ryan Lake	30% phosphorus load reduction
Other wetlands	30% phosphorus load reduction
Mississippi River	70% removal of total suspended solids
Minneapolis streams	No increase in rate of runoff from site

[1] Wirth Lake is not within the limits of the City of Minneapolis
[2] Crystal Lake in located in Robbinsdale, but receives run-off from Minneapolis

City of Minneapolis

Erosion Control Site Inspection Form

Inspector: _____

Site Plan ID	DATE	TIME

PROJECT

LOCATION

Site Status ☐ Open Site ☐ Complete – needs Final Inspection, permanent vegetation

Please check items that apply and inspector add site specific notations for all work items (All work items shall be completed within 24 hours (1 day) or permits may be revoked and/or Site Shut Down) (MCO 52.290):

☐ Failed or maintenance required perimeter controls; silt fence, bio filter, other_____

☐ Failed or maintenance required rock construction entrance

☐ Failed or maintenance required inlet protection device(s)

☐ Clean streets, sidewalks or paved surfaces of sediment

☐ Other

☐ Comments: _____

_____

_____

If erosion or sediment loss is extreme and posing an environmental concern contact the **Public Works Erosion Control Inspector at 612-673-2738**

Site Contact:_____ Site Phone:_____

Site Supervisor Signature: _____

REV 5/09

Source: Minneapolis Public Works – Surface Water & Sewers

Impacts of Erosion and Sediment from Construction Sites

Each year 80 million tons of sediment from construction sites enters our lakes, streams and rivers. On an acre for acre usage, construction sites export sediment at 20 to 1,000 times the rate of other land uses.[1]

"***Erosion***" is the displacement of soil.
Once it has been displaced, it is considered to be "***Sediment***".

It is essential that construction projects prevent sediment from leaving the site. Minimizing erosion in the first place, through control techniques and good planning/phasing, is often key. Examples of activities that cause erosion include rain falling on unprotected slopes that have been cleared of vegetation, or driving on unprotected areas. Once erosion has occurred, sediment can become suspended in stormwater runoff, and it is extremely difficult to remove. Surface water runoff from vegetated areas generally does not exceed 10 to 20 percent of the rainfall. Without vegetation, surface water runoff is considerably higher.

- Excavating and clearing vegetation at the construction site increases the volume and velocity of the runoff and erosion. Attached to the sediment are fertilizers, pesticides, heavy metals, and oil and grease.
- Sediment suspended in runoff blocks sunlight needed by aquatic plants, reduces survival rates for fish eggs, interferes with fish breeding habits, and clogs and damages fish gills.[2]
- Phosphorus and nitrogen in fertilizer can stimulate overgrowth of aquatic plants resulting in the depletion of dissolved oxygen[3] and fish kills.
- Pesticides, metals, and oil and grease not only accumulate in the bottom of lakes, streams, and rivers but also in plants and other aquatic organisms.[4]
- Sediment also can build up in storm sewers, catch basins, and other storm drainage devices which will then require additional maintenance.[5]

Simple and easy-to-install and easy-to-maintain erosion control and sediment control devices can be found at the following web site:

Urban Small Sites Best Management Practice Manual, Chapter 3:
http://www.metrocouncil.org/environment/Watershed/bmp/manual.htm

For information on erosion control, or with additional questions, see the Minneapolis Erosion & Sediment Control section website: http://www.ci.minneapolis.mn.us/stormwater/erosioncontrol/index.asp or call (612) 673-2738.

---

[1] *Environmental Assessment for Proposed Effluent Guidelines and Standards for the Construction and Development Category.* United States Environmental Protection Agency. June 2002. Page 2-2.
http://www.epa.gov/guide/construction/envir/C&D_Envir_Assessmt_proposed.pdf

[2] *Construction Site Soil Erosion and Sediment Control.* Illinois Environmental Protection Agency. March 1999.

[3] *What's Your WQ-IQ?* Larimer County Engineering Department. July 2002.
http://www.co.larimer.co.us/engineering/NPDES/july2002web.pdf

[4] *Environmental Assessment for Proposed Effluent Guidelines and Standards for the Construction and Development Category.* United States Environmental Protection Agency. June 2002. Page 2-11 and 2-13.
http://www.epa.gov/guide/construction/envir/C&D_Envir_Assessmt_proposed.pdf

[5] 6. *Construction Site Soil Erosion and Sediment Control.* Illinois Environmental Protection Agency. March 1999.

52.100. Erosion and Sediment Control Plan. Land disturbance activities which are in excess of either five thousand (5,000) square feet or five hundred (500) cubic yards of earth moved require an erosion and sedimentation control plan approved by the City Engineer. These plans shall be drawn to an appropriate scale and shall include sufficient information to evaluate the environmental characteristics of the affected areas, the potential impacts of the proposed grading on water resources, and measures proposed to minimize soil erosion and off-site sedimentation. The owner/developer shall perform all clearing, grading, drainage, construction, and development in strict accordance with the approved plan. In addition, the following information shall be included in any plan:

1. An indication of the scale used.
2. The name, address and telephone number of the developer, permit holder or responsible party of the property where the land disturbing activity is proposed.
3. A signed statement on the plan by the owner, developer, and contractor that all clearing, grading, construction, or development will be done pursuant to the plan.
4. Suitable contours for the existing and proposed topography.
5. The proposed grading or land disturbance activity including and specific limits of disturbance.
6. Clear and definite delineation of any areas of vegetation or trees to be saved.
7. Construction entrance, including details and location.
8. Standard Minneapolis Erosion Control Notes
9. Existing and proposed storm drainage system.
10. Erosion and sediment control provisions to minimize on-site erosion and prevent off-site sedimentation, including provisions to preserve topsoil and limit disturbance.
11. Design details for both temporary and permanent erosion control structures including inlet protection.
12. Construction of perimeter erosion control devices where need to prevent sediment from leaving the site.
13. Details of temporary and permanent stabilization measures to be implemented following initial soil disturbance or re-disturbance. This stabilization shall be completed within fourteen (14) days of disturbance.
14. Specifications for implementation and maintenance of final erosion control structures.
15. Removal of temporary erosion control devices after site has been stabilized.
16. The City Engineer may require any additional information or data deemed appropriate and/or may impose such conditions thereto as may be deemed necessary to ensure compliance with the provisions of this chapter, the Manual of Standards, or the preservation of public health and safety.

Also see http://www.ci.minneapolis.mn.us/government/ordinances.asp for complete listing of all plan sheet requirements.

The applicant may propose the use of any erosion and sediment control techniques in a Final Plan, provided such techniques are effective and approved by Minneapolis Public Works Surface Water & Sewers

MINNEAPOLIS STANDARD EROSION CONTROL NOTES (May 1, 2009)
(Include on Plan)

1) Contractor must call for a pre-construction meeting 48 hours prior to any land disturbances 612-673-2738. Failure to do so may result in the revocation of permit and a stop work order being issued.

2) Install perimeter erosion control at the locations shown on the plans prior to beginning construction. (Hay bales are not an acceptable perimeter control)

3) Before beginning construction, install a temporary rock construction entrance at each point where vehicles exit the construction site. Use 2 inch or greater diameter rock in a layer at least 6 inches thick across the entire width of the entrance. Extend the rock entrance at least 50 feet into the construction zone. Use a geo-textile fabric beneath the aggregate in order to prevent migration of soil into the rock from below

4) Remove all soils and sediments tracked or otherwise deposited onto public and private pavement areas. Removal shall be on a daily basis when tracking occurs. Sweeping may be ordered by at any time if conditions warrant. Sweeping shall be maintained throughout the duration of the construction and done in a manner to prevent dust being blown to adjacent properties.

5) Install inlet protection at all public and private catch basin inlets, which receive runoff from the disturbed areas. Catch basin inserts are required in undisturbed areas that receive runoff from disturbed areas. NOTE: Hay bales or filter fabric wrapping the grates are not effective or an acceptable form of inlet protection.

6) Locate soil or dirt stockpiles no less than 25 feet from any public or private roadway or drainage channel. If remaining for more than seven days, stabilize the stockpiles by mulching, vegetative cover, tarps, or other means. Control erosion from all stockpiles by placing silt barriers around the piles. Temporary stockpiles located on paved surfaces must be no less than two feet from the drainage/gutter line and shall be covered if left more than 24 hours.

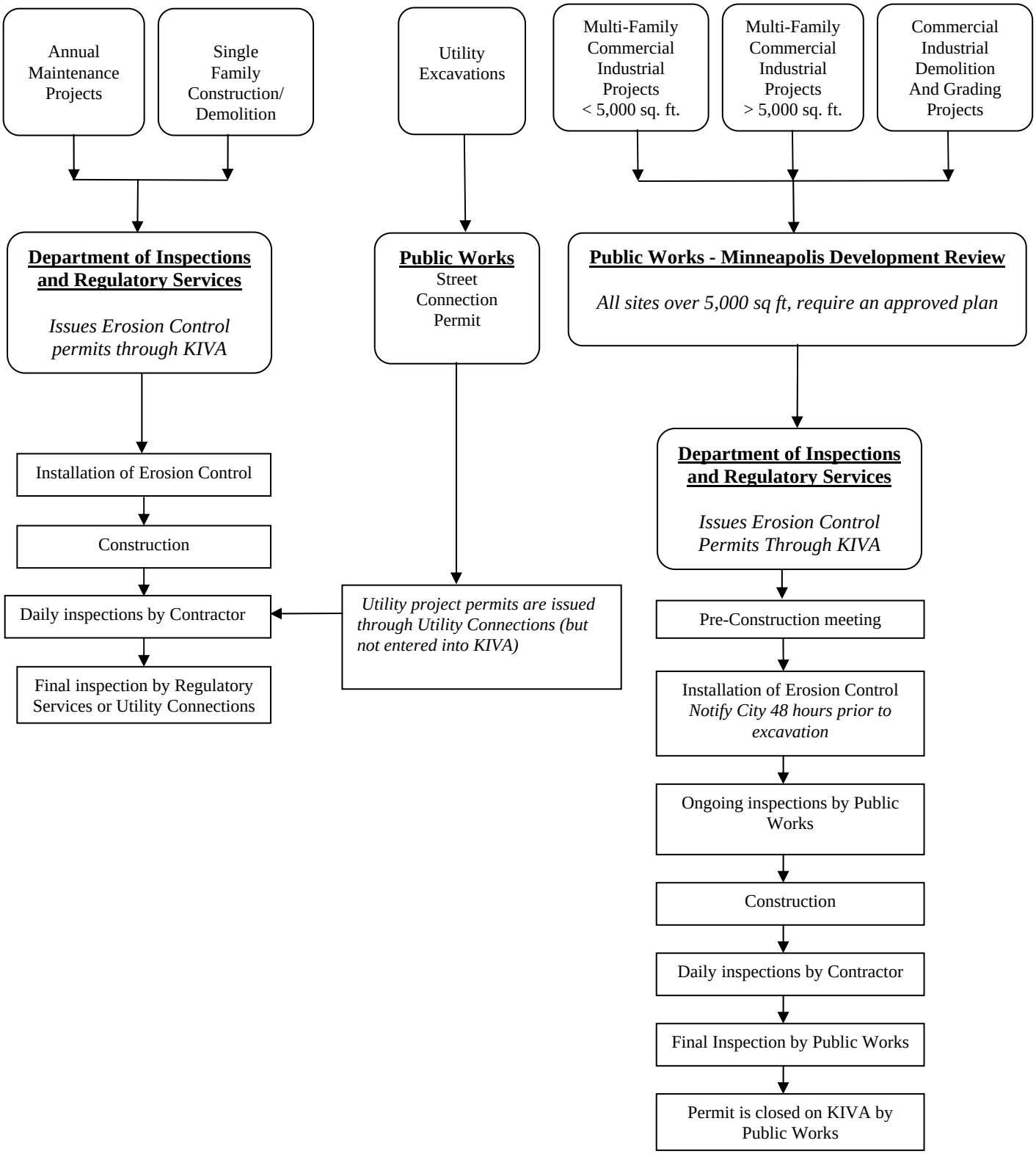
7) Maintain all temporary erosion and sediment control devices in place until the contributing drainage area has been stabilized. Inspect temporary erosion and sediment control devices on a daily basis and replace deteriorated, damaged, or rotted erosion control devices immediately.

8) Temporarily or permanently stabilize all construction areas which have been finish-graded, and all areas in which grading or site building construction operations are not actively underway against erosion due to rain, wind and running water within 7-14 days. Use seeding and mulching, erosion control matting, and/or sodding and staking in green space areas. Application of gravel base on areas to be paved recommended minimizing erosion potential.

9) Remove all temporary synthetic, structural, non-biodegradable erosion and sediment control devices after the site has undergone final stabilization and permanent vegetation has been established, minimum vegetation establishment is 70% cover, maintain all temporary erosion control devices until 70% established cover is achieved.

10) Ready mixed concrete and concrete batch plants prohibited within the public right of way, designate concrete mixing/washout locations in the erosion control Plan. Under no circumstances may washout water drain onto the public right of way or into the public storm sewer.

CITY OF MINNEAPOLIS
EROSION CONTROL PERMITTING PROCESS
APRIL 1, 2009



Source: Minneapolis Public Works – Surface Water & Sewers

Erosion & Sediment Control 2008 Fee Schedule

		Fees – prior to April 1, 2008	Fees - Effective April 1, 2008
Erosion and sediment control plan review and inspection fees (utilities):			
Per lineal foot disturbed	**91.910 Table A**	$0.13	$0.14
Minimum fee	**91.40**	$63.25	$65.75
Erosion and sediment control plan review and inspection fees (Multi-family, commercial, and industrial):			
500 square feet or less	**91.910 Table B**	No fee	No fee
501 square feet or more	**91.910 Table B**	$321.00	$333.75
676 square feet or less detached garage	**91.910 Table C**	No fee	No fee
Erosion and sediment control plan review and inspection fees (Single-Family Residential):			
500 square feet or less	**91.910 Table C**	No fee	No fee
501 to 3,000 square feet	**91.910 Table C**	$97.00	$101.00
3,001 square feet or more	**91.910 Table C**	$97.00	$101.00
3,001 square feet or more, for each additional 1,000 square feet	**91.910 Table C**	$31.00	$32.25
Erosion and sediment control plan review and inspection fees (Demolition Only):			
Single-family residential	**91.910 Table D**	$97.00	$101.00
All others	**91.910 Table D**	$194.00	$201.75
Erosion and sediment control plan review and inspection fees (Maintenance Projects):			
Annual permit	**91.910 Table E**	$321.00	$333.75
Other Inspections and fees:			
Inspection outside of normal business hours (Minimum charge 2 hours or total hourly cost to City, whichever is the greatest.)	**91.910 Table E**	$97.00 per hour	$101.00 per hour

Erosion Control Inlet Protection Products & Links

This list of manufactured BMP's may provide guidance for erosion control protection on existing storm drain inlets. Minneapolis Public Works Department does not endorse or approve the listed products for a specific application. Compliance with Chapter 52 of the Minneapolis Code *(Erosion and Sediment Control Ordinance)* is determined by the conditions found upon inspection. Additionally hay bales are not an approved means of inlet protection and are not approved as a BMP for construction projects in the City of Minneapolis.

Type A

Inlet protection to be utilized around field inlets until permanent stabilization methods has been established. Inlet protection Type A may also be utilized on pavement inlets before installation of curb and gutter or pavement.

- *Road Drain* – WIMCO, Shakopee, MN (952) 445-4071
- *Stream Guard* - Foss Environmental, Seattle, WA
- *Erosion Control Shroud* - Royal Concrete Pipe, Stacy, MN
- *Silt Sack* - ACF Environmental, Richmond, VA
- *Stream Guard* (sediment only) - Foss Environmental, Seattle, WA
- *Verti*Pro* - Alpine Stormwater Management, Grove City, OH

Type B

Inlet protection will be utilized without curb heads.

- *Dandybag* - Dandy Products, Grove City, OH

Type C

Inlet protection will be utilized on street inlets with curb heads.

- *Beaver Dam* - Dandy Products, Grove City, OH
- *Road Drain Curb and Gutter* - WIMCO, Shakopee, MN (952) 445-4071
- *Silt Screen* - Alpine Stormwater Management, Grove City, OH

Type D

Inlet protection to be utilized at culvert inlets until permanent stabilization methods has been established.

Erosion Control Inlet Protection Products & Links

Product Web Links:

General

http://www.suntreetech.com/products/

http://www.emeraldseedandsupply.com/erosioncontrol/

http://www.stormwater-products.com/

Grate Inlet Protection

http://www.suntreetech.com/products/

http://stormdrainfilters.com/

Curb Inlet Protection

http://www.acfenvironmental.com/display_category.php?cid=72

http://www.dandyproducts.com/

Inlet Inserts

http://www.suntreetech.com/products/

http://www.siltsaver.com/

Minneapolis Erosion and Sediment Control Reference Guide

Additional materials for compliance to Minneapolis Chapter 52 Erosion and Sediment Control Ordinance provided by Minneapolis erosion and sediment control inspections. The list below contains web page information of additional source data for erosion control design, products, certifications, educational opportunities, and other government agency requirements. This is not a complete listing of non-profits or government agency sites, but provides the user a starting point in locating additional information about erosion and sediment control.

The information contained in the web pages is intended to serve as a resource guide and Minneapolis does not guarantee the content of the web pages. Each site is unique and may need to provide additional erosion and sediment controls to remain compliant.

Chapter 52 Erosion and Sediment Control for Land Disturbance Activities has been in effect since June 15, 1996. Site location or size may require additional erosion control permits from other agencies (MCWD, MPCA) or work in right of ways under the jurisdiction of other permitting authorities (MnDOT, Hennepin County, Metropolitan Council), to name a few, there may be other required permits that must be issued and not listed here, the contractor/owner is responsible to have all required permits clearly posted on site during normal working hours.

Metropolitan Council Erosion and Sediment Control / Stormwater Management:

http://www.metrocouncil.org/environment/Watershed/bmp/manual.htm - BMP Manual

Minnesota Pollution Control Agency (MPCA)

http://www.pca.state.mn.us/water/index.html

http://www.pca.state.mn.us/rulesregs/index.html - Rules and regulations

http://www.pca.state.mn.us/water/stormwater/stormwater-rules.html - Rule making changes pages

http://www.pca.state.mn.us/water/stormwater/stormwater-c.html - NPDES permit info

http://www.pca.state.mn.us/water/stormwater/stormwater-c.html#factsheets - Fact sheets and guidance tools

http://www.pca.state.mn.us/water/pubs/sw-bmpmanual.html - Protecting water quality in Urban Areas Manual

MnDOT

http://www.dot.state.mn.us/environment/erosioncontrol/index.html - Erosion Control

http://www.dot.state.mn.us/environment/erosioncontrol/specs.html - Standard specifications

http://www.dot.state.mn.us/environment/erosioncontrol/app_products_sources.html - Approved products and sources – erosion control

http://www.dot.state.mn.us/environment/erosioncontrol/seedmixes.html - Seed mixes

http://www.dot.state.mn.us/environment/tech_memos.html#erosion - Technical memorandums

American Public Works Association (APWA)

http://www.apwa.net - Several stormwater available publications, erosion control, etc.

City of Minneapolis

http://www.ci.minneapolis.mn.us/stormwater/ - Minneapolis Stormwater web page

http://www.ci.minneapolis.mn.us/public-works/plates-home.asp - Standard Plates

http://www.ci.minneapolis.mn.us/stormwater/classroom-resources/erosioncontrollinks.asp - Development Standard Erosion and Sediment Control Notes

http://www.ci.minneapolis.mn.us/cityhall/laws/ordinances/ - Minneapolis ordinances

Minnesota Erosion Control Association (MECA)

http://www.mnerosion.org/ - Training and development non-profit organization promoting erosion and sediment control, listings of vendor resources for erosion and sediment control, etc.

Minnehaha Creek Watershed District

http://www.minnehahacreek.org/permit_req.php

http://www.minnehahacreek.org/permit_process.php - Permit application process

http://www.minnehahacreek.org/rules.php - Rules

http://www.minnehahacreek.org/bmps.php - Best management practices

http://www.minnehahacreek.org/permit_links.php - Permit links for other agencies

University of Minnesota

http://www.erosion.umn.edu/ - Erosion and sediment control certification program

http://www.mnltap.umn.edu/resources/erosion.html - Local Technical Assistance Program

US EPA

http://www.epa.gov/owow/nps/roadshwys.html - Non-point source pollution

http://cfpub1.epa.gov/npdes/pubs.cfm?program_id=6 - US EPA Publications

http://cfpub1.epa.gov/npdes/docs.cfm?document_type_id=3&view=Fact%20Sheets%20and%20Outreach%20Materials&program_id=6&sort=name - Fact sheets and outreach materials

Board of Water and Soil Resources (BWSR)

http://www.bwsr.state.mn.us/

Minnesota Department of Natural Resources (DNR)

http://www.dnr.state.mn.us/index.html

United States Army Corps of Engineers (St Paul District)

http://www.mvp.usace.army.mil/

Certified Professionals in Erosion and Sediment Control (CPESC)

http://www.cpesc.net/ - A national certification training program for erosion & sediment control design and inspection

International BMP Database

http://www.bmpdatabase.org/ - Database of Best Management Practices

International Erosion Control Association (IECA)

http://www.ieca.org/ - Global views and training sessions for ESC

Construction Industry Compliance Assistance

http://www.cicacenter.org/ - EPA regulations, water, air, hazardous materials, links to state permits and requirements.

Chapter 54 Stormwater Management Plan Submittal Checklist

1) A cover sheet stamped and signed by a professional engineer, indicating that all plans and supporting documentation have been reviewed and approved, certifying the submitted plans comply with the requirements of the ordinance.
2) A narrative summary of the stormwater plan.
3) Maps of existing and proposed watersheds, sub-watersheds, Tc/Tt[1] flow paths, soil types, hydrologic soil groups, land uses/cover type and runoff curve numbers within the site and draining into the site from adjacent properties.
4) Location of existing and proposed stormwater discharge points.
5) Delineation and labeling of all proposed impervious areas and accompanying area computations in tabular form.
6) Pre-development, pre-settlement and post-development hydrology data for each watershed, including both peak flows and volume. All assumptions used in developing the input parameters shall be clearly stated and cross-referenced to the maps.
7) Final design drawings of all proposed stormwater BMPs with sufficient clarity for those responsible for site grading, including:
   A) Plan views showing the proposed BMP locations, in combination with the site plan map.
   B) Detailed cross-sections and profiles for each BMP showing critical design features, side slopes, structures, soil profiles and elevations, including seasonal water table.
   C) Detailed drawings or material specifications for inlets or outlets.
8) Detailed construction notes explaining necessary procedures for proper implementation of the plan, including planting and landscaping specifications, timing and sequencing of construction and any temporary measures needed to protect BMPs during the construction phase.
9) Detailed construction inspection plan, outlining the critical elements in the plan that need to be surveyed or inspected by a representative of the project engineer and the timing and notification requirements involved. (identification of responsible party).
10) Final operations and maintenance plan in accordance with ordinance requirements. For more information on stormwater BMP forms, please visit this website: http://www.ci.minneapolis.mn.us/stormwater/fee/bmp-forms.asp
11) Hydraulic data summaries for all proposed pipes or channels.
12) Location and dimensions of proposed drainage easements. Easements must be recorded to preserve major stormwater flow paths, specify maintenance responsibilities, restrict buildings/structures and prevent any grading, filling or other activities that might obstruct flow.
13) BMP design data for each proposed BMP, showing how it complies with applicable technical standards and the requirements of the Chapter 54

[1] Time of Concentration / Time of Travel

City of Minneapolis Development Review
Water Resources and Sewers Site Plan Check List

Site plans will not be approved without the following items:

- Detail complete site drainage (including rooftops and interior drains) through contours or spot elevations. Stormwater may not run over the public sidewalk, into the sanitary sewer or onto adjacent properties.

- Show all proposed, existing or abandoned storm drains and sanitary sewers, including pipe size and material. All abandoned connections must be cut and plugged at the main and curb per city requirements.

- Erosion & Sediment Control Plan is required for all sites disturbing more than 5,000 square feet: http://www.ci.minneapolis.mn.us/stormwater/classroom-resources/erosioncontrollinks.asp

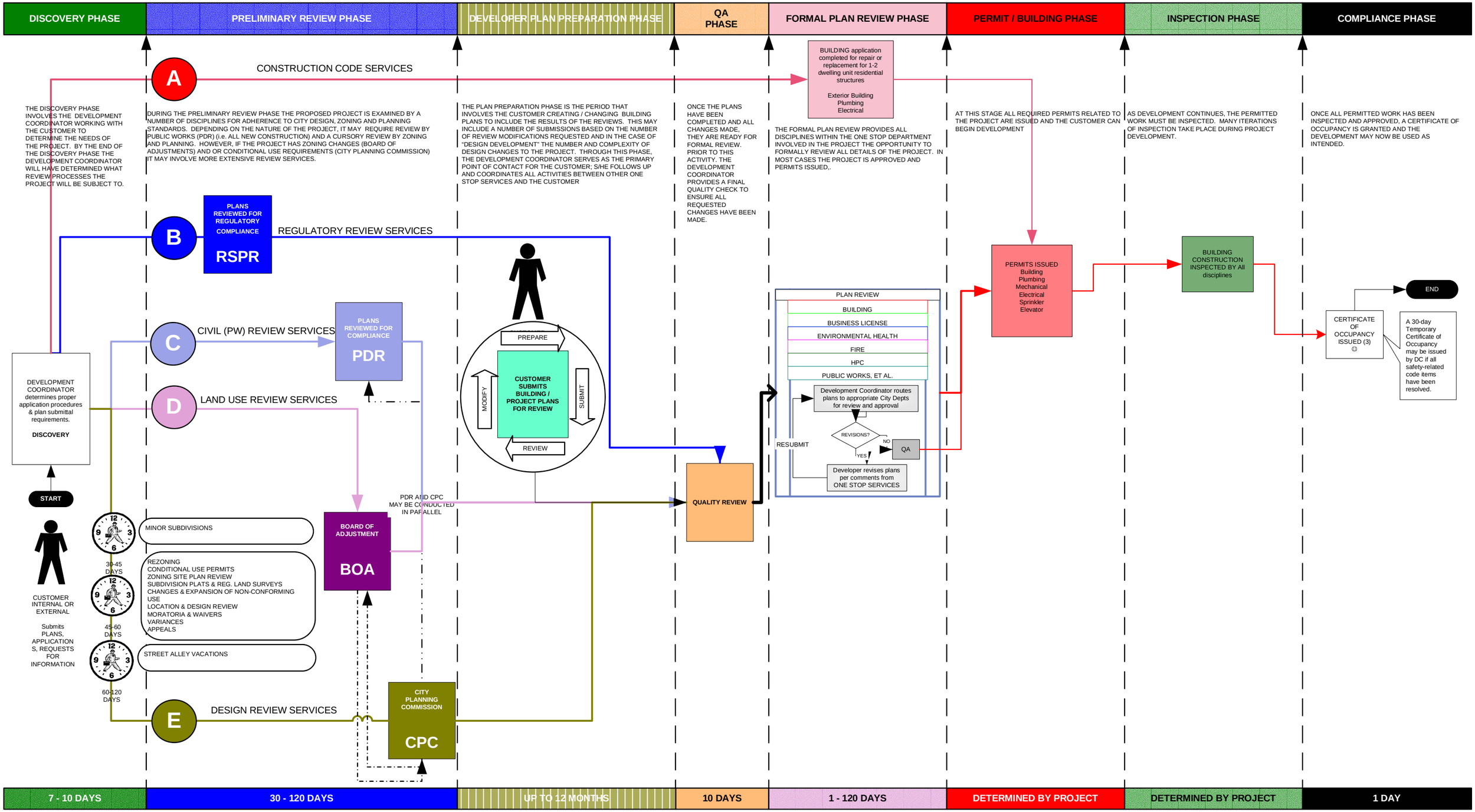
- Public or private storm drains and sanitary sewers in the public right-of-way adjacent to the development site.

- Compliance with Chapter 54 of the Minneapolis Code of Ordinances *Stormwater Management.* Projects on sites over one acre must provide a stormwater management report that includes design details of all BMP's, calculations, inspection, operations and maintenance plans.[1] http://www.ci.minneapolis.mn.us/stormwater/fee/requirements_chapter54.asp.

- Additional items may be requested depending on site characteristics, proximity to identified flood areas and infrastructure constraints.

For further information contact on Water Resource related requirements please contact:
Paul Chellsen, Supervising Engineering Technician II
Minneapolis Public Works, Surface Water and Sewers Division
(612) 673-2406 or cellular (612) 597-4468
paul.chellsen@ci.minneapolis.mn.us

[1] Low Impact Development (LID) techniques are encouraged on all new and redevelopment projects. These techniques use natural vegetation and small-scale treatment systems to treat and infiltrate stormwater runoff close to where it originates. By reducing impervious surfaces property owners will reduce the amount of stormwater runoff generated and provide for a reduction in their stormwater utility fee. LID practices include but are not limited to Green Roofs, Bioretention, Pervious or Paving, Trees and soil amendments. For more information on Stormwater design and low impact development please visit: http://proteus.pca.state.mn.us/water/stormwater/stormwater-manual.html#current



MINNEAPOLIS DEVELOPMENT REVIEW SERVICES

PROJECT	DESCRIPTION	FILENAME	PREPARED BY
MINNEAPOLIS DEVELOPMENT REVIEW	MDR PROCESSES - ROADMAP	ROADMAP 11X17.VSD	M. S. ALLEN
PROCESS ID	REVISED	PAGE	DATE
PROCESS ROADMAP	2/6/2007	1 OF 12	2/7/2005

Source: Minneapolis Development Review

2007R-652

RESOLUTION
Of the
CITY OF MINNEAPOLIS

By Ostrow

Designating the utility rates for …, …, stormwater, …effective on and after January 1, 2008.

[EXCERPT]

Resolved by The City Council of The City of Minneapolis:

Stormwater Rate

The stormwater rate, subject to the provisions in Chapter 510, of the Minneapolis Code of Ordinances, is imposed on each and every Single-Family Residential Developed Property, Other Residential Developed Property, Non-Residential Developed Property, and Vacant Property, other than Exempt Property, and the owner and non-owner users, and is hereby set as follows:

(a) The Equivalent Stormwater Unit (ESU) rate is ten dollars and twenty-six cents ($10.26). The ESU measurement is 1,530 square feet of impervious area.

(b) The stormwater rate imposed on Single-Family Residential Developed Properties shall be categorized into three tiers based on the estimated amount of impervious area as follows:

Tier	ESU	Stormwater Charge
High	1.25	$ 12.83
Medium	1.00	$ 10.26
Low	.75	$ 7.70

(c) Stormwater charges for all other properties will be based on the following calculation:

(Gross Lot Size in sq.ft. X Runoff Coeficient) ÷ 1,530 sq. ft.= # of ESU

# of ESU X $ 10.26 = Monthly Fee

The runoff coefficient assumed for each land use category is shown below:

Source: Resolution dated December 12, 2007, Minneapolis City Council Official Proceedings

LAND USE	Coefficient Applied
Bar-Rest.-Entertainment	0.75
Car Sales Lot	0.95
Cemetery w/Monuments	0.20
Central Business District	1.00
Common Area	0.20
Garage or Misc. Res.	0.55
Group Residence	0.75
Ind. Warehouse-Factory	0.90
Industrial railway	0.85
Institution-Sch.-Church	0.90
Misc. Commercial	0.90
Mixed Comm.-Res-Apt	0.75
Multi-Family Apartment	0.75
Multi-Family Residential	0.40
Office	0.91
Parks & Playgrounds	0.20
Public Accommodations	0.91
Retail	0.91
Single Family Attached	0.75
Sport or Rec. Facility	0.60
Utility	0.90
Vacant Land Use	0.20
Vehicle Related Use	0.90

Adopted 12/12/2007

Source: Resolution dated December 12, 2007, Minneapolis City Council Official Proceedings

CHAPTER 510. STORMWATER MANAGEMENT SYSTEM AND OPERATION OF A STORMWATER UTILITY

510.10. **Definitions.** In addition to the words, terms and phrases elsewhere defined in this chapter, the following words, terms and phrases as used in this chapter shall have the following meanings:

Bonds means revenue or general obligation bonds, notes, loans or other debt obligations heretofore or hereafter issued to finance the costs of improvements and/or operations and maintenance.

Building permit means a permit issued by the director of inspections that permits construction of a structure.

City means City of Minneapolis, Minnesota.

City council means governing body of the city.

Costs of capital improvements means costs incurred in providing capital improvements to the stormwater management system or any portion thereof including, without limitation, the cost of alteration, enlargement, extension, improvement, construction, reconstruction, testing and development of the stormwater management system; insurance premiums for insurance taken out and maintained during construction, professional services and studies connected thereto; principal and interest on bonds heretofore or hereafter issued, acquisition of real and personal property by purchase, lease, donation, condemnation or otherwise for the stormwater management system or for its protection; and costs associated with purchasing equipment, computers, furniture, etc., that are necessary for the operation of the system or the utility.

Debt service means an amount equal to the sum of (i) all interest payable on bonds during a fiscal year, plus (ii) any principal installments payable on the bonds during that fiscal year.

Developed property means real property, other than undisturbed property; provided that, property used for agricultural uses, upon which no dwelling unit is located, shall not constitute developed property for purposes of this chapter.

Director means the city engineer/director of the public works department for the City of Minneapolis or the director's designee.

Dwelling unit means one or more rooms, designed, occupied or intended for occupancy as a separate living quarter, with a single complete kitchen facility, sleeping area and bathroom provided within the unit for the exclusive use of a single household.

Equivalent stormwater unit (ESU) means a unit of measure that is equal to the average impervious area of single-family residential developed property that falls within the medium class, with a single-family detached dwelling unit located thereon and within the city's limits, as established by city council resolution or ordinance, as provided for herein.

Equivalent stormwater unit rate or *ESU rate* means the storm sewer charge imposed on single-family residential developed property within the medium class, as established by city council resolution or ordinance, as provided herein.

Exempt property means public rights-of-way, public trails, public streets, public alleys, public sidewalks, railroad tracks that are not in railroad yards, and also means public lands and/or easements upon which the stormwater management system is constructed and/or located.

Fiscal year means a twelve-month period commencing on the first day of January of any year or such other twelve-month period adopted as the fiscal year of the city.
Impervious area means the number of square feet of hard surface areas that either prevent or retard the entry of water into the soil matrix, as it entered under natural conditions as undisturbed property, and/or cause water to run off the surface in greater quantities or at an increased rate of flow from that present

under natural conditions as undisturbed property, including, but not limited to, roofs, roof extensions, driveways, pavement and athletic courts.

Other residential developed property means developed property upon which two (2) or more family and/or multi-family dwellings are located.

Non-residential developed property means developed property other than single residential developed property and other residential developed property.

Operating budget means the annual stormwater utility operating budget adopted by the city for the succeeding fiscal year.

Operations and maintenance means, without limitation, the current expenses, paid or secured, of operation, maintenance, repair and minor replacement of the system, as calculated in accordance with generally accepted accounting practice. This shall include, without limiting the generality of the foregoing, cost of studies related to the operation of the system; costs of the study performed heretofore in relation to establishing storm sewer charges for the stormwater utility and other start up costs of the stormwater utility; costs related to the national pollutant discharge elimination system permit study, application, negotiation and implementation, including public education and outreach, as mandated by federal and state laws and regulations and the costs of obtaining and complying with all other permits required by law, insurance premiums, administrative expenses, equipment costs, including professional services, labor costs and the cost of materials and supplies used for current operations.

Revenues means all rates, fees, assessments, rentals or other charges or other income received by the stormwater utility in connection with the management and operation of the system, including amounts received from the investment or deposit of monies in any fund or account, as calculated in accordance with generally accepted accounting practices.

Runoff coefficients means those numbers approved by the city council that are used to estimate the impervious area for each non-single family classified property. A list of the coefficients used for the city is found in Table 1 that is incorporated herein.

Single-family residential developed property means developed property upon which single-family detached dwellings are located.

Stormwater charge means a charge authorized by this chapter, Minnesota Statutes 2004, Section 444.075, and other applicable law, and further as set forth in resolution or ordinance heretofore or hereafter adopted or hereafter amended by the city council, which is established to pay operation and maintenance, costs of capital improvements, debt service associated with the stormwater management system and other costs included in the operating budget.

Stormwater management system, *sewer system* or *system* means storm sewers that exist at the time the ordinance codified in this chapter is adopted or that are hereafter established and all appurtenances necessary in the maintaining and operating of the same, including, but not limited to pumping stations; enclosed storm sewers; outfall sewers; surface drains; street, curb and alley improvements associated with storm or surface water improvements; natural and manmade wetlands; channels; ditches; rivers; streams; wet and dry bottom basins; pocket ponds; multiple pond systems; settling basins; infiltration trenches or basins; filter systems; bio-retention areas; dry or wet swales; grass channels; roof top detention; skimming devices; grit chambers and other flood control facilities; and works for the collection, transportation, conveyance, pumping, treatment, controlling, storing, managing, and disposing storm or surface water or pollutants originating from or carried by storm or surface water.

Stormwater utility or *utility* means the utility created by this chapter to operate, maintain and improve the stormwater management system and for all other purposes set forth in this chapter.

Undisturbed property means real property that has not been altered from its natural condition in a manner that disturbed or altered the topography or soils on the property to the degree that the entrance of water into the soil matrix is prevented or retarded.

Vacant land means real property upon which there is no structure, as shown in the records of the city assessor's office, which is not designed for or regularly used for commercial residential purposes, and which is not used in connection with another piece of property. Vacant land includes undisturbed property and land with no building used as a community garden. (2004-Or-132, § 1, 11-5-04)

510.20. Creation of stormwater utility. Pursuant to the provisions of Minnesota Statutes 2004, Section 444.075, the city's general home rule powers, its nuisance powers, police powers and all other authorized powers, the city council does establish a stormwater utility and stormwater management system and declares its intention to operate, construct, maintain, repair and replace the stormwater management system and operate the stormwater utility. (2004-Or-132, § 1, 11-5-04)

510.30. Findings and determinations. The city finds that the elements of the stormwater management system that provides for the collection, conveyance, detention/retention, treatment and release of stormwater, the reduction of hazard to property and life resulting from stormwater runoff, improvement in general health and welfare through reduction of undesirable stormwater conditions and improvement to the water quality in the storm and surface water system and its receiving waters are of benefit and provide services to all property within the city. It is further found, determined and declared that this chapter is in furtherance of and implements the goals and strategies of the local surface water management plan, the annual Combined Sewer Overflow (CSO) report and the city's National Pollutant Discharge Elimination System (NPDES) permit. (2004-Or-132, § 1, 11-5-04)

510.40. Administration. The stormwater utility, under the supervision of the director, shall have the power to:

(1) Administer the acquisition, design, construction, maintenance, operation, extension and replacement of the stormwater management system, including real and personal property that is or will become a part of or protect the system.

(2) Prepare regulations, as needed, to implement this chapter, and forward those regulations to the city council for consideration and adoption, and adopt those procedures, as are desirable, to implement adopted regulations or to carry out other responsibilities of the utility.

(3) Administer and enforce this chapter and all regulations, guidelines and procedures adopted relating to the design, construction, maintenance, operation and alteration of the stormwater management system, including, but not limited to, the flow rate, volume, quality and/or velocity of the stormwater conveyed thereby.

a. Advise the city council on matters relating to the stormwater management system.

b. Develop and review plans concerning creation, design, construction, extension and replacement of the system and make recommendations to the city council related thereto.

c. Inspect private systems, as necessary, to determine the compliance of those systems with this chapter and any regulations adopted pursuant hereto.

d. Make recommendations to the city council concerning the adoption of ordinances, resolutions, guidelines and regulations to protect and maintain water quality within the stormwater management system in compliance with water quality standards established by state, county, regional and/or federal agencies, as now adopted or hereafter adopted or amended.

e. Analyze the cost of services and benefits provided by the stormwater management system and the structure of fees, service charges, fines and other revenues of the stormwater utility at least once each year.

f. Make recommendations to the city council concerning the cost of service and benefits provided by the stormwater management system and structure of fees, service charges, fines and other revenues of the stormwater utility.

g. Analyze the appropriateness of providing credits against the stormwater charge for owners of property who employ structural or non-structural best management practices or other stormwater management practices on-site that significantly reduce the quantity or improve the quality of stormwater run-off from their property that enters the system and make recommendations to the city council regarding the provision of these credits.

h. Administer programs established pursuant hereto or pursuant to ordinances, resolutions, regulations or guidelines hereafter adopted by the city council that provide for credits and/or incentives that reduce stormwater charges imposed against properties. (2004-Or-132, § 1, 11-5-04)

510.50. Operating budget. The city shall, as part of its annual budget process, adopt an operating budget for the stormwater utility for the next following fiscal year. The operating budget shall be prepared in conformance with the state budget law, city policy and generally accepted accounting practices. The initial operating budget commences January 1, 2005, and ends December 31, 2005. (2004-Or-132, § 1, 11-5-04)

510.60. Stormwater charge. (a) *Stormwater charge established*. Subject to the provisions of this chapter, there is imposed on each and every single-family residential developed property, other residential developed property and non-residential developed property, and vacant property, other than exempt property, and the owner and non-owner users thereof, a stormwater charge. In the event the owner and non-owner user of a particular developed property are not the same, the liability for the owner and non-owner user for the stormwater charge attributable to the developed property shall be joint and several liability. This stormwater charge shall be determined and set by the provisions of this chapter in accordance with the ESU and ESU rate, which is established by ordinance or resolution of the city council and which may be amended from time to time by the city council.

(1) *Stormwater charge for single-family residential developed property.* Three (3) classes of single-family residential developed property are established to account for the wide range of the amount of impervious area that exists on individual single-family residential developed properties in the city. The three (3) single-family customer classes are based on statistical sampling of estimated impervious area as developed from the city assessor's single-family residential developed real estate property records which includes: foundation square footage, garage stalls, estimation of driveway square footage and foundation square footage of any outbuildings/other improvements. Classification of the single-family residential developed customer class properties into the three (3) customer classes is made based on estimated impervious area. Single-family residential developed properties will be assigned to one of three (3) single-family residential customer classes. The three (3) single-family residential customer classes are as follows:

a. Single-family residential developed property/high -- greater than one thousand five hundred seventy-eight (1,578) square feet of estimated impervious area.
b. Single-family residential developed property/medium -- equal to or greater than one thousand four hundred eighty-five (1,485) square feet and less than or equal to one thousand five hundred seventy-eight (1,578) square feet of estimated impervious area.
c. Single-family residential developed property/low -- less than one thousand four hundred eighty-five (1,485) square feet of estimated impervious area.

The stormwater charge for each of these classes shall be as follows:

TABLE INSET:

High.....	1.25 % of an ESU
Medium.....	1 ESU
Low.....	.75 % of an ESU

In the event of a newly constructed dwelling unit, the charge for the stormwater charge attributable to that dwelling unit shall commence upon the issuance of the building permit for that dwelling unit.

(2) *Stormwater charge for other residential developed property* . The stormwater charge for other residential developed property shall be the ESU rate multiplied by the numerical factor obtained by multiplying the gross area of a property by the runoff coefficient for the other residential developed property, as set forth in Table 1 (the actual coefficient will be defined at the time of the annual rate adoption) and then dividing the above product by the ESU, as this ESU is

established by City Council resolution or ordinance ((gross square footage X runoff coefficient)/ESU = ## ESU). In the event of a newly constructed dwelling unit, the stormwater charge attributable to that dwelling unit shall commence upon the issuance of the building permit for that dwelling unit.

(3) *Stormwater charge for non-residential developed property.* The stormwater charge for non-residential developed property shall be the ESU rate multiplied by the number of ESU's for each individual non-residential developed property. The number of ESU's for each individual non-residential developed property shall be obtained by multiplying the gross area of each individual property by the runoff coefficient for the customer class that is the most similar to the use to which that individual non-residential developed property is currently being put, as set forth in Table 1 (the actual coefficient will be defined at the time of the annual rate adoption) and then dividing the above product by the ESU, as this ESU is established by city council resolution or ordinance ((gross square footage X runoff coefficient)/ESU = ## ESU)). The minimum stormwater charge for any non-residential developed property shall be in an amount equal to that of one (1) ESU. In the event of newly developed non-residential developed property, the stormwater charge attributable to that development shall commence upon the issuance of the building permit. In the event of additional development to property that is already developed property, the charge for the stormwater charge attributable to that additional development shall commence upon the issuance of the building permit.

(4) *Stormwater charge for vacant property.* The stormwater charge for vacant property shall be the ESU rate multiplied by the number of ESU's for each individual vacant property. The number of ESU's for each individual vacant property shall be obtained by multiplying the gross area of each individual property by the runoff coefficient for the vacant property class, as set forth in Table 1 (the actual coefficient will be defined at the time of the annual rate adoption) and then dividing the above product by the ESU, as this ESU is established by city council resolution or ordinance ((gross square footage X runoff coefficient)/ESU = ## ESU)). There is no minimum stormwater charge for vacant property.

(b) *Stormwater charge calculation*. The director shall initially, and from time to time, determine the class of residential developed property into which each individual residential developed property falls to establish the stormwater charge, based on the impervious area of the parcel as shown in the single-family records maintained by the city assessor's office. The stormwater charge for other residential developed property, for non-residential developed property, and for vacant property in the city shall be calculated as provided for subsection (a)(2), (3) & (4). The director shall make the initial calculation with respect to existing other residential developed property, non-residential developed property, and vacant property and may from time to time change this calculation from the information and data deemed pertinent by the director. With respect to property proposed to be non-residential developed property, the applicant for development approval shall submit square footage impervious area calculations, in accordance with the submission requirements for the application being submitted, as set forth in the applicable section of Title 20 of this Code.

(c) *Stormwater charge credit*. A system of credits, which may reduce the stormwater charge that is imposed, as provided for above, is hereby established. A credit shall be granted for developed or undeveloped property pursuant to the rules provided for herein. The director shall, pursuant to the rules provided for herein, grant a credit to those owners or non-owner users of properties, against which stormwater charges are imposed, who employ structural or non-structural best management practices or other stormwater management practices on-site that significantly reduce the quantity or significantly improve the quality of stormwater run-off from their property that enters the system. The director shall propose rules providing guidelines for the awarding of credits. The council shall approve, or approve as modified, these rules for the awarding of credits. The rules shall be consistent with this section. A credit also shall be granted in a percentage amount set by said city council pursuant to the rules for properties with respect to which a final plan or final plat has been approved or other final development approval has been granted by the city, on or before the effective date of this ordinance, which requires the construction of an on-site structural or non-structural best management practices or other stormwater management practices that significantly reduce the quantity or improve the quality of stormwater run-off from their property that enters the system, provided that, the practices are constructed and/or operational within one (1)year from the date of the applicable final approval. The credit shall begin in the fiscal year that the practice becomes operational. The credit for the first year, however, shall be prorated to reflect the

number of months of the first fiscal year that the practices are operational, where appropriate. (2004-Or-132, § 1, 11-5-04)

510.70. Appeal procedure. (a) Owners of residential developed property, non-residential developed property or vacant property, with respect to which a stormwater charge has been imposed, that disagree:

(1) With the class into which their single-family residential developed property is placed;
(2) With the calculation of the stormwater charge;
(3) With whether their property is benefited by the stormwater utility; or
(4) With whether their property is entitled to a credit or the continuation of a credit or on the amount of a credit;

may appeal the calculation or finding to a designee of the director by giving written notice of the appeal to the director at the director's customary offices within the (10) days of notice of that determination.

The director's designee assigned to hear such appeal shall not be a person that is regularly assigned to utility billing or the stormwater utility. Appeals from the calculation or finding to the designee of the director, as delineated herein above are separate and distinct from the billing complaint procedures established by Sections 509.920 and 509.930 of this Code.

(b) The director's designee shall give written notice of the time and place for the review requested, pursuant to subsection (a) hereof, to the appealing owner or non-owner user. The review shall be held within fifteen (15) days of receipt by the director of the written appeal. In addition to any oral presentation, appellant shall state all grounds supporting the appeal in writing, attaching any exhibits, such as photographs, drawings or maps and affidavits that support the claim. In addition, the appellant shall submit a land survey prepared by a registered surveyor showing dwelling units, total property area, type of surface material and impervious area, as appropriate, and any other information that the director shall designate in writing to the appellant. The director may waive the submission of a land survey, if director determines that the survey is not necessary to make a determination on the appeal.

(c) The burden of proof shall be on the appellant to demonstrate, by clear and convincing evidence, that the determination of the director, from which the appeal is being taken, is erroneous.

(d) The filing of a notice of appeal shall not stay the imposition, calculation or duty to pay the stormwater charge. The appellant shall pay the stormwater charge, as stated in the billing.

(e) Within fifteen (15) days of the review, the director's designee shall send a written copy of the designee's decision to the appellant with a copy to the director.

(f) If the appellant believes this decision is in error, the appellant may file a written request for a review by the city council based on the written record by filing a request with the city clerk with a copy to the director. The request for review shall be reviewed based on the written record by a committee or subcommittee of the city council, or by a person appointed by the city council, or any designated combination thereof, within thirty (30) days of the filing of the request. The report of the committee, subcommittee and/or other reviewer shall be referred to the full council and be acted upon by the full council within thirty (30) days of the review. The decision of the city council on appeal is subject to judicial review, as provided by the laws of the state.

(g) If the director's designee's determines, upon appeal, that appellant should not pay a charge, pay a charge amount less than the amount appealed from, receive a credit or receive a greater credit than the credit appealed from or the city council, upon appeal, so determines, the city shall issue a check to the appellant in the appropriate amount within ten (10) days of the date of the applicable decision, provided the charge has, as required herein, been paid by the appellant. (2004-Or-132, § 1, 11-5-04)

510.80. Stormwater charge collection.(a) The stormwater charge shall be billed and collected by the city. The stormwater charge shall be shown as a separate item on the billing from the sewer utility charge levied and assessed pursuant to Section 511.290. In the event the owner and non-owner of a particular developed property are not the same, the liability for the owner and non-owner user for the stormwater charge attributable to the developed property shall be joint and severable. The same administrative procedures for special assessments shall be applied to the stormwater charge, as are applied for water use under Chapter 509 of this Code.

(b) Pursuant to Minnesota Laws 1973, Chapter 320, whenever payment remains in default for a stormwater charge, the city council may annually levy an assessment equal to the unpaid costs, including penalty and interest against each developed property that is not exempt property and upon which the stormwater charge is unpaid. (2004-Or-132, § 1, 11-5-04)

510.90. Stormwater fund. Stormwater charges collected by the city shall be paid into a fund that is hereby created and shall be known as the "Stormwater Fund." This fund shall be used for the purpose of paying costs of capital improvements, administration of the stormwater utility, operation and maintenance and debt service of the stormwater management system and to carry out all other purposes of the utility. (2004-Or-132, § 1, 11-5-04)

510.100. Equivalent stormwater unit (ESU) rate. The ESU and the ESU rate that is used to determine the charge for each class of residential developed property, other residential developed property, non-residential developed property, and vacant property shall be as established in an ordinance or a resolution heretofore adopted or hereafter adopted by the city council, and as thereafter amended. (2004-Or-132, § 1, 11-5-04)

510.110. Severability. In the event that any portion or section of this chapter is determined to be invalid, illegal or unconstitutional by a court of competent jurisdiction, the decision shall in no manner affect the remaining portions or sections of this chapter, which shall remain in full force and effect.

Table 1 - Ordinance

TABLE INSET:

LAND USE	RANGE
Bar - Rest.- Entertainment	**.60--.75**
Car Sales Lot	**.60--.95**
Cemetery w/Monuments	**.10--.25**
Central Business District	**.85--1.00**
Common Area	**.10--.25**
Garage or Misc. Residential	**.30--.55**
Group Residence	**.60--.75**
Industrial Warehouse- Factory	**.50--.90**
Industrial Railway	**.50--.90**
Institution- School.- Church	**.60--.95**
Misc. Commercial	**.60--.95**
Mixed Commercial- Residential - Apt.	**.60--.75**
Multi-Family Apartment	**.60--.75**
Multi-Family Residential	**.35--.50**
Office	**.60--.95**
Parks & Playgrounds	**.10--.25**
Public Accommodations	**.60--.95**
Retail	**.60--.95**
Single Family Attached	**.60--.75**
Single Family Detached	**ESU**
Sport or Recreation Facility	**.60--.95**
Utility	**.50--.90**
Vacant Land Use	**.10--.25**
Vehicle Related Use	**.60--.90**

(2004-Or-132, § 1, 11-5-04; 2005-Or-102, § 1, 11-4-05)

Minneapolis Stormwater Utility Fee

Frequently Asked Questions

What is Stormwater?

Stormwater is runoff from a rainstorm or melting snow. City landscapes - unlike forests, wetlands, and grasslands that trap water and allow it to filter slowly into the ground - contain great areas of rooftops and impermeable asphalt and concrete surfaces that prevent water from seeping into the ground. Because of this, large amounts of water accumulate above the surface. Instead of soaking into the soil, much of this water will run off our properties and streets, drain into storm sewers, and be discharged into our lakes, rivers and streams.

Why is it important to manage stormwater?

Minneapolis, like other communities, needs to manage stormwater to protect people's homes and properties, the environment, lakes, streams, rivers. If this is not done, stormwater will cause flooding, pooling, erosion and pollution. Heavy rains that flood streets and yards can result in property damage. Stormwater runoff also picks up pollutants and debris from streets, parking lots, rooftops and yards carries the the pollutants into our streams, rivers and lakes.

What is the stormwater utility fee on my bill?

The stormwater utility fee pays for the City's stormwater system and annual maintenance costs. This helps to prevent and correct stormwater runoff problems throughout Minneapolis. All properties within the city limits, with very limited exceptions, are charged a monthly stormwater utility fee. This fee had existed in the past, but prior to 2005 had been included as part of a combined sanitary sewer/stormwater fee. By establishing a separate stormwater charge based on impervious area, the current system divides stormwater fees fairly among owners of different property types and charges only for the estimated demand that each property would place on the system.

How does the City's stormwater credit program encourage helpful environmental practices?

The stormwater fee incorporates opportunities for property owners to reduce their stormwater bill by taking environmentally friendly steps. Stormwater utility fee reductions, also called credits, are available to those who are using or installing stormwater management tools/practices on their properties. Installing rain gardens or other materials, such as pervious pavers, allows stormwater to soak into the ground, rather than run into storm sewers.

How can I get a stormwater credit on my utility bill?

Credit guidelines and application forms can be found on the on the City of Minneapolis stormwater web site. If you need additional information, please contact 612-673-2965.

How is the stormwater fee calculated?

The stormwater utility fee is charged on a per unit basis. Each ESU (**E**quivalent **S**tormwater **U**nit) is 1,530 square feet of impervious area on a property. The impervious area is estimated based on the size of the property, as well as the land use category. Single family properties are billed using one of the following rates:

High	1.25 ESU	$13.46
Medium	1.00 ESU	$10.77
Low	.75 ESU	$8.08

All other properties are billed as follows: (Gross Lot Size in square ft. X Runoff Coefficient) / 1,530 square ft = # of ESU's

What is impervious area: Surfaces where water can not flow through freely.

Examples of impervious surfaces include, but are not limited to the following:

- Building rooftops
- Driveways
- Sidewalks
- Parking lots
- Other paved areas

Impervious area may also include gravel and dirt areas that are compacted by frequent vehicular traffic or the frequent use of heavy equipment.

City of Minneapolis

Environmental Emergency Preparedness

Spill Response Protocol

1) Report to the State Duty Officer/911 Emergency Communications.

2) Assessment of the site/incident, determination of Incident Action Plan (IAP).

3) Secure appropriate City/ State/ Federal resources, as well as private contractors, for implementation of IAP.

4) Oversight of site incident remediation and recovery activities.

5) Investigation/determination of causation, potential penalties, and future prevention measures.

CITY OF MINNEAPOLIS
PUBLIC WORKS DEPARTMENT
Street Maintenance Division
Standard Operating Procedure for Vehicle Related Spills (VRS)
June 1, 2006

The purpose of this document is to provide detailed standard operating procedures for the clean up of VRS sites and the management/disposal of the impacted spill debris.

DEFINITION of TERMS:

MPCA: Minnesota Pollution Control Agency

MEM: Minneapolis Environmental Management (also historically known as Minneapolis Pollution Control)

MSMD: Minneapolis (Public Works) Street Maintenance Division

VRM: Vehicle Related Material: Petroleum products or other vehicle fluids that are inherently related to vehicular operations. This does not include materials that are being transported by a vehicle, unless the material is clearly labeled as being one of the aforementioned products.

VT: Volumetric Threshold: Minnesota has a 5 gallon minimum quantity for reporting petroleum spills. Spill of all other chemical or material in any quantity is reportable.

Spill debris: Sand that has been placed to absorb VRM and subsequently recovered for disposal.

Scenario Number 1: MPCA informs MEM of a VRS

The driver of a vehicle involved in a spill is responsible for notifying the MPCA Duty Officer, if the VT is exceeded. The Duty Officer will immediately notify the MPCA Emergency Response Unit. If the spill is of the size and nature that the Emergency Response Unit determines should be handled by MEM, the MPCA will notify MEM and provide them with the details relating to the spill incident. The MEM representative will make a determination based on the information provided by the MPCA on how to proceed, and if appropriate (typically VRM in manageable quantities), contacts MSMD.

The MSMD will dispatch personnel with appropriate equipment to apply sand to the spill site. The sand will be given a period of time in which to absorb the VRM. The sand (spill debris) will then be removed by means of a street sweeper, and deposited at the established disposal site in a designated VRM spill debris pile. If a secondary sanding is required, the procedure will remain the same.

Since the volume of the spill is greater than 5 gallons, a Hazardous Material Spill Data form (see Appendix A) must be completed as soon as possible (i.e. within 24 hours or the next business day). The completed form will be sent to the MEM as soon as possible. A final report on the action(s) taken will be sent to the MPCA from MEM.

Spill Debris Pile Management

Arrangements for disposal of the spill debris pile will be a collaborative effort by the MSMD and the Engineering Laboratory. As the spill debris pile reaches a size that becomes difficult to manage within the boundaries of the disposal site, the Engineering Laboratory will be contacted. The spill debris pile will be mechanically blended and the Laboratory will select representative samples for laboratory analysis, as required by MPCA regulations. The sampling and testing will require approximately one week to complete. After receiving the laboratory analysis data, the spill debris will be disposed of in a manner pre-approved by the MPCA and the Minneapolis Procurement Division.

Scenario Number II: The MSMD discovers a VRS

MSMD personnel discover a spill or are informed of a potential VRM spill from sources other than MEM or MPCA. After arriving at the scene, they will determine whether the incident is a VRM spill, (possibly from a vehicle collision, a spill from a labeled container, etc.) and will determine if the volume of the spill is greater than the VT (5 gallons).

- Less than 5 gallons: If the spill quantity is judged to be less than 5 gallons, no contact with MEM is necessary. Sand will be applied and the procedure will continue as described in Scenario I (i.e. subsequent sanding/sweeping and stockpiling into the spill debris pile). A Hazardous Materials Spill Data form must be completed for record and documentation purposes and retained at MSMD, but is not to be sent to MEM.

- 5 gallons or more: If the MSMD representative determines that a volume of 5 gallons or more of VRM has been spilled, MSMD must contact MEM or MPCA. The same procedures for clean up and reporting (using the Hazardous Material Spill Data form) as in Scenario I will be followed. This form must be sent to MEM.

For both cases, the disposal of the VRM spill debris pile is as detailed in Scenario I.

Potential Modification to Scenario I and II

Regulatory officials may require separate stockpiling of spill debris from specific spill incidents. Separate sampling and laboratory analysis will be required in these cases. This may also be requested to create a distinct tracking mechanism of a given spill of significant quantities and/or from a billable source. This scenario will be determined on a case-by-case basis. The process for disposal will be the same as previous scenarios.

Scenario Number III: The MSMD becomes aware of a spill of unknown material or composition

The MSMD shall contact MEM before taking any action to clean up a spill of unknown composition. MEM will manage these spills through their contracts with private entities specializing in these activities, or manage and coordinate the cleanup with the MSMD. If MEM cannot be contacted, the MPCA Duty Officer should be contacted immediately.

ADDITIONAL INFORMATION

1. Currently the disposal site for spill debris is at the Linden Yard site. The material shall be placed in two 20 cubic-yard leak-proof roll-off containers with a counter-balanced lockable lids at the City Site.

2. List of Potential Contacts:

- **Minnesota Pollution Control Agency (MPCA)**
  Duty Officer: 651-649-5451; 24 hours a day, seven days a week
- **Minneapolis Environmental Management (MEM**)
  Steve Kennedy: 612-685-8528 (work)
  Tom Frame: 612-673-8501 (work)
  Gayle Prest: 612-673-2931 (work)
  Emergency after-hours contacts:
  Tom Frame: 612-754-0762
  Gayle Prest: 612-827-1984
- **Engineering Laboratory**
  Kevin Danen: 673-5627 (work)
  Joe Klejwa: 673-5608 (work)
  Paul Urseth: 673-5622 (work)
- **Minneapolis Street Maintenance Division (MSMD)**
  Steve Collin: 673-5720 (work)
  John Wargin: 673-5720 (work)
  24 hours a day, seven days a week: 673-5720

3. MSMD will be responsible for any billing of outside parties for services rendered for the clean up/disposal of a spill event. The MSMD, MEM and the Engineering Laboratory will develop a system for tracking cost associated with these operations. This information will be distributed, as it becomes available.

4. This is a statement of policies and procedures, which will be revised and updated, as new information becomes available.

CITY OF MINNEAPOLIS - STREET DEPARTMENT

OIL AND HAZARDOUS MATERIAL SPILL DATA

DATE OF REPORT	TIME OF REPORT	NAME & ADDRESS OF RESPONSIBLE PARTY
DATE OF INCIDENT	TIME OF INCIDENT	
TYPE OF POLLUTANT	QUANTITY	CAUSE OF SPILL
PRECISE LOCATION		PERSON MAKING REPORT/PHONE NUMBER
AREAS AFFECTED		PARTY REPORTING SPILL TO STREET DEPT.
PROBABLE FLOW DIRECTION	SOIL TYPE	OTHERS CONTACTED: MPLS. PCA_____ MN PCA_____ FIRE DEPT_____ POLICE_____ OTHER_____
WATERS POTENTIALLY AFFECTED		
EFFECTS OF SPILL/ IMMEDIATE DANGER TO HUMAN LIFE, PROPERTY		PROXIMITY OF WELLS, SEWER, BASEMENTS
ACTION TAKEN TO DATE		IS THIS FIRST NOTICE REGARDING SPILL?
CONTAINMENT OF SPILL		WHO SHOULD BE CONTACTED FOR FURTHER INFORMATION? PHONE NO.
CLEAN-UP TO DATE: MATERIAL USED_____ LOADER USED_____ TRUCKS USED_____ PICK-UP TRUCK USED_____ MACHINE SWEEPER USED_____ LABOR: FOREMAN HOURS_____ SR. MAINT. MAN_____ JR. MAINT. MAN_____ OTHER_____		COMMENTS?

ORIGINAL: When job completed, send immediately to Street Accounting.
COPY 1 : Send to Street Accounting with daily time when labor/eq. first used.
COPY 2 : PCA NOTIFICATION COPY - send immediately(first available interoffice mailing) to Tom Frame, Licenses – Environmental Management, PSC, Room 414

STREET JOB#_____

LABOR COST $_____
EQUIP COST $_____
MAT'L COST $_____
TOTAL COST $_____

Appendix A33
Source: Minneapolis Public Works – Street Maintenance

June, 2004

SPECIFICATION FOR DISPOSAL OF SPILL DEBRIS FROM VEHICLE RELATED SPILLS

City of Minneapolis
Department of Public Works

DEFINITIONS:

VRM: Vehicle Related Material: Petroleum products and other vehicle fluids that are inherently related to vehicular operations. This does not include materials that are being transported by a vehicle, unless the material is clearly labeled as being one of the aforementioned products.

SPILL DEBRIS: Sand that has been placed to absorb VRM and subsequently recovered for disposal.

CONTRACT PERIOD: The contract period shall be from July 1, 2004 to June 30, 2007.

SCOPE:

These specifications cover the loading, transportation and disposal of spill debris from a central site located within the City of Minneapolis. The "Contractor" for the purposes of this specification, refers to a permitted landfill facility that has been approved by the appropriate regulatory agencies.

GENERAL:

The City of Minneapolis expects to generate an estimated 500 cubic yards of spill debris during the contract period. This quantity is only an estimate of the City's requirement for said contract period, and may be increased or reduced in any amount without any adjustment in unit price. The primary source of this material is from the results of clean-up operations following vehicular collisions or accidental discharge from vehicles.

The spill debris will consist primarily of sand used to absorb VRM from City streets, as well as plastic sheeting used during the storage process. The Contractor will be required to transport and dispose of all such materials that have been stored at the City facility. The only acceptable disposal method for the spill debris shall be placement into or used as daily cover at a certified and fully permitted landfill facility.

SCOPE OF SERVICES:

The Contractor shall:

Provide two (2) 20 cubic-yard leak-proof roll-off containers with a counter-balanced lockable lid for the duration of the contract period at the City of Minneapolis Linden Yard Site, or any other designated site within the City of Minneapolis. The City of Minneapolis will provide Contractor access to this container throughout the contract period.

When a container is filled with spill debris, the City of Minneapolis will mechanically blend the material in the container and perform sampling and laboratory analysis in accordance with Minnesota Pollution Control Agency Guidance Documents. Any additional analyses required by the Contractor shall be stated in the proposal.

The City of Minneapolis will forward all pertinent analytical laboratory results to the Contractor.

The Contractor shall state in the proposal, the length of time needed, following receipt of the laboratory test results, before the full container is transported to the Contractors facility.

The City of Minneapolis will contact the Contractor, once a roll-off container is full and sampling/ analyses has begun. It shall be the responsibility of the Contractor to provide a replacement container for subsequent and interim spill debris storage. There must be, at all times, adequate space in a container available for the storage of spill debris at the City of Minneapolis facility.

The Contractor shall obtain all proper permits and manifests for the loading, transporting, and disposal of the spill debris. The contractor shall load and haul all such material to an approved disposal site. The

disposal method shall be approved by the appropriate regulatory agency(s). The Contractor shall provide documentation of all required approvals to the City of Minneapolis prior to acceptance of the material. The Contractor shall also provide the City with any and all documentation required by regulatory agencies, following the disposal of the spill debris.

CONTENT OF PROPOSALS:

The following required information shall accompany each bid:

Location of landfill site.
Cost per ton of material for disposal, utilizing the aforementioned 20 cubic-yard roll-off containers.
Cost per ton of material for disposal when the material is stockpiled without the use of a roll-off container. (Minimum stockpile being 10 tons)
The cost per ton for Superfund/CERCLA indemnification (include limits).
Cost per day for two (2) 20 cubic-yard leak-proof roll-off containers with a counter-balanced lockable lid at the Minneapolis site.
Cost for the option, at the sole discretion of the city, of extending this agreement for each of two additional years.
List of subcontractors and functions.
Qualification and experience of Contractor and all subcontractors

The bid will be based on a per ton (2000 pound) basis, which will include all transportation, permitting and regulatory cost. All loads shall be weighed on scales certified by the State of Minnesota

GENERAL TERMS AND CONDITIONS:

The following are the general terms and conditions, supplemental to those contained elsewhere in these specifications, which responding Contractors must comply with in order to be consistent with the requirements for the specification. Any deviation from these or any other stated requirements must be listed as exceptions on the bid sheet.

Once the bid forms are submitted in response to these specifications, they become the property of the City of Minneapolis, whether or not the bid is accepted. The City shall have the right to use any ideas presented in any bid submitted.

Representatives of the City of Minneapolis will review all bids received. An interview may be part of the evaluation process. Factors, upon which the proposal will be judged include, but are not limited to, the following:

Residual risk to the City of Minneapolis following disposal.
Expressed understanding of the project objective.
Cost of disposal.
Project work plan, including level of detail.
Qualification of both the Contractors assigned personnel, and subcontractors.

CITY'S RIGHTS:

The City reserves the right to reject any or all proposals or parts of proposals, to accept part or all of proposal on the basis considerations other than lowest cost, and to create a project of lesser or based on the component prices submitted. The City also reserves the right to cancel the Agreement without penalty, if circumstances arise which prevent the City from completing the project. In addition, the City reserves the right to re-bid for any phase of this work.

HOLD HARMLESS:

The Contractor agrees to defend, indemnify and hold harmless the City, its officer and employees, from any liabilities, claims, damages, costs, judgments, and expenses, including attorney's fees, resulting directly or indirectly from an act or omission of the contractor, it's employees, agents or employees of subcontractors, in the performance of this contract or by reason of the failure of the contractor to fully perform, in any

respect, all of its obligation under this contract.

The City agrees to defend and hold harmless insofar as the law allows the Contractor, its officers and employees, from any liabilities, claims, damages, cost, judgements, and expenses, including attorney's fees, resulting directly or indirectly from an act or omission of the City or its employees in the performance under this contract or by reason of the failure of the city to fully perform its obligations under this contract.

INTEREST OF MEMBERS OF CITY:

The Contractor represents and agrees that no member of the governing body, officer, employee or agency of the City has any interest, financial or otherwise, direct or indirect, in the Agreement.

EQUAL OPPORTUNITY STATEMENT:

Contractor agrees to comply with the provisions of all applicable federal, state and City of Minneapolis statutes, ordinances and regulations pertaining to civil rights and nondiscrimination including without limitation Minnesota Statute, Section 181.59 and Chapter 363 and Minneapolis code of Ordinances, Chapter 139, incorporated herein by reference.

AFFIRMATIVE ACTION:

Persons who are authorized to enter into contractual relationships with the City are encouraged to review the City's policies on Affirmative Action.

NON-DISCRIMINATION:

The Contractor will not discriminate against any employee or applicant for employment because of race, color, creed, religion, ancestry, sex, national origin, affectional preference, disability, age, marital status or status regard to public assistance or as a disabled veteran or veteran of the Vietnam era. Such prohibition against discrimination shall include, but no limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation and section for training, including apprenticeship.

The Contractor shall agree to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the City, setting forth this nondiscrimination clause. In addition, the Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment with regard to race, creed, religion, ancestry, sex, national origin, affectional preference, disability, age, marital status or status wit regard to public assistance or status as a disabled veteran or veteran of the Vietnam era, and comply in all other aspects with the requirements of the Minneapolis Code, Chapter 139.

CONTRACT INCORPORATION OF PROPOSAL CONTENTS:

The contents of the proposal and any clarifications or modification to the contract thereof submitted by the successful proposer may, at the City's option, become part of the Agreement obligation and be incorporated by reference into the ensuing contract.

=

INSURANCE:

This agreement shall be effective only upon the approval by the City of acceptable evidence of the insurance detailed below. Such insurance secured by the Contractor shall be issued by insurance companies acceptable to the City and admitted in Minnesota. The insurance specified may be in a policy or policies of insurance, primary or excess. Such insurance shall be in force on the date of the execution of the agreement and shall remain continuously in force for the duration of the contract period.

The Contractor and its subcontractors shall secure and maintain the following insurance:

a) Worker's Compensation insurance that meets the statutory obligations with Coverage B – Employer's Liability limits of at least $100,000 each accident, $500,000 disease – policy limit

and $100,000 disease each employee.

b) Commercial General Liability insurance with limits of at least $500,000 general aggregate, $500,000 products – completed operations $500,000 personal and advertising injury, $500,000 each occurrence $50,000 fire damage, and $5,000 medical expense any one person. The policy shall be on an "occurrence" basis, shall include contractual liability coverage and the City shall be named an additional insured.

c) Commercial Automobile Liability insurance covering all owned, non-owned and hired automobiles with limits of at least $500,000 per accident.

Acceptance of the insurance by the City shall not relieve, limit or decrease the liability of the Contractor. Any policy deductible or retention shall be the responsibility of the Contractor. The Contractor shall control any special unusual hazards and be responsible for any damages that result from those hazards. The City does not represent that the insurance requirements are sufficient to protect the Contractor's interest or provide adequate coverage.

Evidence of coverage is to be provided on a City provided Certificate or Insurance. A thirty- (30) day written notice is required if the policy is canceled, not renewed or materially changed.

The Contractor shall require all of its subcontractors to comply with this provision.

The Contractor shall not assign any interest in the Agreement, and shall not transfer any interest in the same (whether by assignment or novation) without the prior written approval of the City, provided, however, that claims for money due or to become due to the contractor may be assigned to a bank, trust company or other financial institution, or to a Trustee in Bankruptcy without such approval. Notice to any such assignment or transfer shall be furnished promptly to the City.

COMPLIANCE REQUIREMENTS

All Contractors hired by the City of Minneapolis are required to abide by the regulations of the Americans with Disabilities Act of 1990 (ADA) which prohibits discrimination against individuals with disabilities. The Contractor will not discriminate against any employee or applicant for employment because their disability and will take affirmative action to insure that all employment practices are free from such discrimination. Such employment practices include but are not limited to the following: Hiring, promotion, demotion, transfer, recruitment, or recruitment advertising, layoff, discharge, compensation and fringe benefits, classification referral and training. The ADA also requires contractor associated with the City of Minneapolis to provide qualified applicants and employees with disabilities with reasonable accommodations that do not impose undue hardship. Contractors also agree to post in conspicuous areas accessible to employees and applicants, notices of their policy on nondiscrimination.

In the event the Contractor's noncompliance with the nondiscrimination clauses of this agreement, this agreement may be cancelled, terminated, or suspended, in whole or part, and the Contractor may be declared ineligible by the Minneapolis City Council from any further

Grit Chambers
Cleaned and Inspected 2008

Grit ID	Location	Route	Date Inspected	Date Cleaned
1	UPTON AVE N & 53RD AVE N	N	6/11/08	
1	UPTON AVE N & 50TH AVE N	N	11/21/08	
2	RUSSELL AVE N & 53RD AVE N	N	6/11/08	6/11/08
2	RUSSELL AVE N & 53RD AVE N	N	11/21/08	
3	SHERIDAN AVE N, N OF 52ND AVE N	N	5/20/08	5/20/08
3	SHERIDAN AVE N, N OF 52ND AVE N	N	11/21/08	
4	RUSSELL AVE N NORTH OF 52ND AVE N	N	6/11/08	
4	RUSSELL AVE N NORTH OF 52ND AVE N	N	11/21/08	
5	PENN AVE N & 52ND AVE N	N	6/11/08	
5	PENN AVE N & 52ND AVE N	N	11/19/08	
6	PENN AVE N & 52ND AVE N	N	6/11/08	
6	PENN AVE N & 52ND AVE N	N	11/19/08	
7	OLIVER AVE N & 52ND AVE N	N	5/19/08	5/19/08
7	OLIVER AVE N & 52ND AVE N	N	11/18/08	
8	NEWTON AVE N & SHINGLE CREEK	N	6/11/08	
8	NEWTON AVE N & SHINGLE CREEK	N	11/18/08	
9	OLIVER AVE N & 51ST AVE N	N	5/12/08	5/12/08
9	OLIVER AVE N & 51ST AVE N	N	11/17/08	
10	MORGAN AVE N & 51ST AVE N	N	5/14/08	5/14/08
10	MORGAN AVE N & 51ST AVE N	N	11/16/08	
11	KNOX AVE N & 51ST AVE N	N	5/19/08	5/19/08
12	KNOX AVE N & 50TH AVE N	N	5/19/08	5/19/08
12	KNOX AVE N & 50TH AVE N	N	11/16/08	
13	IRVING AVE N & 50TH AVE N	N	6/11/08	
13	IRVING AVE N & 50TH AVE N	N	11/17/08	
14	JAMES AVE N, NORTH OF 49TH AVE N	N	5/12/08	5/12/08
14	JAMES AVE N, NORTH OF 49TH AVE N	N	11/16/08	
15	21ST AVE N & 1ST ST N	N	7/8/08	7/9/08
15	21ST AVE N & 1ST ST N	N	11/13/08	
16	XERXES AVE N & 14TH AVE N	N	6/16/08	10/31/08
16	XERXES AVE N & 14TH AVE N	N	11/19/08	
17	XERXES AVE N & GLENWOOD AVE	N	6/12/08	6/12/08
17	XERXES AVE N & GLENWOOD AVE	N	11/13/08	
18	MORGAN AVE N & CHESNUT AVE	N	6/13/08	6/13/08
18	MORGAN AVE N & CHESNUT AVE	N	11/24/08	
19	GIRARD AVE NO & CURRIE AVE NO	N	11/24/08	
21	LAKE OF THE ISLES PKWY & LOGAN AVE	SW	5/5/08	5/6/08
21	LAKE OF THE ISLES PKWY & LOGAN AVE	SW	7/15/08	
22	W 22ND ST & JAMES AVE S	SW	4/22/08	4/22/08
22	W 22ND ST & JAMES AVE S	SW	6/9/08	6/9/08
22	W 22ND ST & JAMES AVE S	SW	7/15/08	
23	YARD SUMPS, 26TH & HIAWATHA	S	1/15/08	
24	DREW AVE S & W LAKE ST	SW	5/5/08	5/29/08
25	EXCELSIOR BLVD & MARKET PL	SW	6/2/08	
25	EXCELSIOR BLVD & MARKET PLAZA	SW	7/15/08	
26	W LAKE ST & ALDRICH AVE S	SW	6/25/08	
26	W LAKE ST & ALDRICH AVE S	SW	7/15/08	
27	W 32ND ST & BRYANT AVE S	SW	6/4/08	6/4/08
27	W 32ND ST & BRYANT AVE S	SW	7/15/08	
28	W 33RD ST & HOLMES	SW	5/14/08	5/30/08
28	W 33RD ST & HOLMES AVE S	SW	7/15/08	
29	W 33RD ST & GIRARD AVE S	SW	6/10/08	6/17/08
29	W 33RD ST & GIRARD AVE S	SW	7/15/08	
30	YORK AVE S & W LAKE CALHOUN PARKWAY	SW	5/14/08	
30	YORK AVE S & W LAKE CALHOUN PARKWAY	SW	6/13/08	6/13/08
30	YORK AVE S & W LAKE CALHOUN PARKWAY	SW	7/20/08	
31	CHOWEN AVE S & W 41ST ST	SW	5/20/08	
31	CHOWEN AVE S & W 41ST ST	SW	7/20/08	
33	E 43RD ST & PARK AVE S	SW	6/9/08	6/9/08
33	E 43RD ST & PARK AVE S	SW	7/21/08	

Grit Chambers
Cleaned and Inspected 2008

Grit ID	Location	Route	Date Inspected	Date Cleaned
34	W 44TH ST & LAKE HARRIET PARKWAY	SW	6/25/08	
34	W 44TH ST & W LAKE HARRIET PARKWAY	SW	7/21/08	
35	E 44TH ST & OAKLAND AVE S	SW	6/4/08	6/4/08
35	E 44TH ST & OAKLAND AVE S	SW	7/21/08	
36	E 46TH ST & 31ST AVE S	S	5/27/08	5/27/08
36	E 46TH ST & 31ST AVE S	S	4/30/08	4/30/08
36	E 46TH ST & 31ST AVE S	S	7/29/08	
36	E 46TH ST & 31ST AVE S	S	11/4/08	11/5/08
37	46TH AVE S & GODFREY RD	S	4/7/08	5/1/08
38	W 47TH ST & YORK AVE S	SW	5/20/08	
38	W 47TH ST & YORK AVE S	SW	7/21/08	
39	W 47TH ST & WASHBURN AVE S	SW	5/20/08	
39	W 47TH ST & WASHBURN AVE S	SW	7/21/08	
40	W 47TH ST & LAKE HARRIET PARKWAY	SW	6/16/08	6/17/08
40	W 47TH ST & LAKE HARRIET PARKWAY	SW	7/22/08	
41	W 48TH ST & YORK AVE S	SW	5/20/08	
41	W 48TH ST & YORK AVE S	SW	7/22/08	
42	QUEEN AVE S & LAKE HARRIET PKWY	SW	6/25/08	
42	QUEEN AVE S & LAKE HARRIET PARKWAY	SW	7/22/08	
43	16TH AVE S & E MINNEHAHA PKWY	S	4/30/08	4/30/08
43	16TH AVE S & E MINNEHAHA PKWY	S	8/5/08	8/21/08
44	SHERIDAN AVE S & W 50TH ST	SW	5/21/08	
44	SHERIDAN AVE S & W 50TH ST	SW	6/18/08	6/18/08
44	SHERIDAN AVE S & W 50TH ST	SW	7/22/08	
45	JAMES AVE S & MINNEHAHA CREEK	SW	6/25/08	
45	JAMES AVE S & MINNEHAHA CREEK	SW	7/22/08	
46	MORGAN AVE S & W 53RD ST	SW	6/9/08	6/9/08
46	MORGAN AVE S & W 53RD ST	SW	7/29/08	
47	E 55TH ST & PORTLAND AVE S	SW	5/21/08	5/29/08
47	E 55TH ST & PORTLAND AVE S	SW	11/5/08	11/5/08
48	E 56TH ST & PORTLAND AVE S	SW	5/29/08	5/29/08
48	E 56TH ST & PORTLAND AVE S	SW	11/5/08	11/5/08
49	E 57TH ST & PORTLAND AVE S	SW	5/21/08	
49	E 57TH ST & PORTLAND AVE S	SW	5/29/08	5/29/08
49	E 57TH ST & PORTLAND AVE S	SW	11/4/08	11/4/08
50	E 58TH ST & PORTLAND AVE S	SW	5/21/08	5/30/08
50	E 58TH ST & PORTLAND AVE S	SW	11/4/08	11/4/08
51	GIRARD AVE S BETWEEN W 59TH ST & W 60TH ST	SW	5/29/08	6/2/08
51	GIRARD AVE S BETWEEN W 59TH ST & W 60TH ST	SW	7/29/08	
52	E 59TH ST & 12TH AVE S	S	4/3/08	4/8/08
52	E 59TH ST & 12TH AVE S	S	7/25/08	8/18/08
52	E 59TH ST & 12TH AVE S	S	11/4/08	11/19/08
53	GIRARD AVE S & W 60TH ST	SW	6/2/08	6/2/08
53	GIRARD AVE S & W 60TH ST	SW	7/29/08	
54	GIRARD AVE S, W 60TH ST - DUPONT AVE S	SW	6/24/08	
54	GIRARD AVE S, W 60TH ST - DUPONT AVE S	SW	7/30/08	7/31/08
55	GRASS LAKE TERRACE, GIRARD TO JAMES AVE S	SW	6/24/08	
55	GRASS LAKE TERRACE, GIRARD TO JAMES AVE S	SW	8/5/08	8/5/08
56	GRASS LAKE SERVICE ROAD BEHIND #6035 JAMES AVE S	SW	6/2/08	6/2/08
56	GRASS LAKE SERVICE ROAD BEHIND #6035 JAMES AVE S	SW	7/29/08	
57	GRASS LAKE SERVICE ROAD BEHIND #6077 JAMES AVE S	SW	6/2/08	6/2/08
57	GRASS LAKE SERVICE ROAD BEHIND #6077 JAMES AVE S	SW	7/29/08	
58	GRASS LAKE SERVICE ROAD BEHIND #1416 W 61ST ST	SW	6/2/08	6/2/08
58	GRASS LAKE SERVICE ROAD BEHIND #1416 W 61ST ST	SW	7/29/08	
59	W 61ST ST & GRASS LAKE SERVICE ROAD	SW	6/24/08	
59	W 61ST ST & GRASS LAKE SERVICE ROAD	SW	8/5/08	8/5/08
60	IRVING AVE S & W 61ST ST	SW	6/25/08	
60	IRVING AVE S & W 61ST ST	SW	7/23/08	7/23/08
61	E RIVER RD & CECIL ST	E	5/27/08	
61	E RIVER ROAD @ CECIL ST	E	11/18/08	

Grit Chambers
Cleaned and Inspected 2008

Grit ID	Location	Route	Date Inspected	Date Cleaned
62	HIAWATHA PARK REFECTORY TURN-A-ROUND	S	4/3/08	4/4/08
62	HIAWATHA PARK REFECTORY TURN-A-ROUND	S	7/23/08	
63	33RD AVE N & 1ST ST N/RAILROAD TRACKS	N	6/17/08	
63	33RD AVE N & 1ST ST N/RAILROAD TRACKS	N	11/24/08	
64	26TH AVE N & PACIFIC (N TRANSFER STATION)	N	6/17/08	
64	26TH AVE N & PACIFIC (N TRANSFER STATION)	N	12/10/08	
65	SOUTH TRANSFER STATION	S	1/15/08	5/28/08
65	SOUTH TRANSFER STATION	S	7/25/08	8/12/08
65	SOUTH TRANSFER STATION	S	11/3/08	11/19/08
66	MAPLE PLACE & EAST ISLAND	E	6/2/08	
66	MAPLE PLACE @ E ISLAND AVE	E	11/18/08	
67	DELASALLE DR & E ISLAND	E	5/27/08	
67	DELASALLE DR & E ISLAND	E	11/19/08	
68	W ISLAND - 300' S OF MAPLE PLACE	E	6/2/08	
68	W ISLAND - 300' S OF MAPLE PLACE	E	11/19/08	
69	EASTMAN AVE & W ISLAND	E	6/2/08	
69	EASTMAN AVE & W ISLAND	E	11/19/08	
70	ROYALSTON & 5TH AVE N	N	6/17/08	
70	ROYALSTON & 5TH AVE N	N	12/10/08	
71	THE MALL & E LAKE OF THE ISLES	SW	6/25/08	
71	THE MALL & E LAKE OF THE ISLES	SW	9/17/08	9/17/08
72	S OF 37TH AVE NE & ST ANTHONY PKWY	E	6/4/08	
72	S OF 37TH AVE NE & ST ANTHONY PARKWAY	E	11/18/08	
73	4552 KNOX AVE N (IN ALLEY BEHIND)	N	5/14/08	5/14/08
73	4552 KNOX AVE N (IN ALLEY BEHIND)	N	11/24/08	
73	4552 KNOX AVE N (IN ALLEY BEHIND)	N	12/10/08	
74	STEVENS AVE S 300' S OF MINNEHAHA CREEK	SW	6/4/08	6/4/08
74	STEVENS AVE S 300' S OF MINNEHAHA CREEK	SW	7/31/08	
76	MARKET PLAZA & EXCELSIOR BLVD	SW	6/5/08	6/5/08
76	MARKET PLAZA & EXCELSIOR BLVD	SW	7/31/08	
77	ALLEY - 38TH TO 39TH ST & NICOLLET TO BLAISDELL AVE	SW	5/19/08	5/19/08
77	ALLEY - 38TH TO 39TH ST & NICOLLET TO BLAISDELL AVE	SW	7/31/08	
78	SHINGLE CREEK WETLAND - W SIDE	N	6/10/08	6/10/08
78	SHINGLE CREEK WETLAND - W SIDE	N	11/24/08	
78	SHINGLE CREEK WETLAND - W SIDE	N	12/10/08	
79	SHINGLE CREEK WETLAND - EAST SIDE	N	5/21/08	5/21/08
79	SHINGLE CREEK WETLAND - EAST SIDE	N	11/24/08	
79	SHINGLE CREEK WETLAND - EAST SIDE	N	12/10/08	
80	WOODLAWN BLVD & E 50TH ST	S	4/3/08	4/4/08
80	WOODLAWN BLVD & E 50TH ST	S	8/4/08	
80	WOODLAWN BLVD & E 50TH ST	S	11/3/08	11/18/08
81	WOODLAWN BLVD & E 53RD ST	S	5/28/08	5/28/08
81	WOODLAWN BLVD & E 53RD ST	S	7/28/08	
81	WOODLAWN BLVD & E 53RD ST	S	11/3/08	11/20/08
82	12TH AVE S & POWDERHORN TERRACE	S	5/19/08	5/19/08
82	12TH AVE S & POWDERHORN TERRACE	S	7/23/08	
82	12TH AVE S & POWDERHORN TERRACE	S	10/15/08	10/16/08
83	13TH AVE S & POWDERHORN TERRACE	S	5/19/08	5/19/08
83	13TH AVE S & POWDERHORN TERRACE	S	10/15/08	10/16/08
84	3421 15TH AVE S (180' W OF CL)	S	4/7/08	5/5/08
84	3421 15TH AVE S (180' W OF CL)	S	7/21/08	
85	3329 14TH AVE S	S	5/6/08	5/21/08
85	3329 14TH AVE S	S	8/12/08	
86	13TH AVE S & E 35TH ST	S	4/29/08	5/5/08
86	13TH AVE S & E 35TH ST	S	8/12/08	
87	3318 10TH AVE S	S	5/22/08	5/22/08
87	3318 10TH AVE S	S	7/28/08	
88	ACROSS THE STREET FROM 702, NO. BD. VAN WHITE BLVD.	N	5/6/08	5/6/08
89	ACROSS THE STREET FROM 706, NO. BD. VAN WHITE BLVD.	N	5/6/08	5/6/08
90	10TH AVE. NO. & ALDRICH AVE. NO. (S.W.C.)	N	4/15/08	4/15/08

Grit Chambers
Cleaned and Inspected 2008

Grit ID	Location	Route	Date Inspected	Date Cleaned
91	SO. BD. VAN WHITE BLVD., 200' SO. OF 8TH AVE. NO.	N	5/7/08	5/7/08
91	SO. BD. VAN WHITE BLVD., 200' SO. OF 8TH AVE. NO.	N	11/26/08	
92	ACROSS THE STREET FROM 701, SO. BD. VAN WHITE BLVD.	N	5/7/08	5/7/08
92	ACROSS THE STREET FROM 701, SO. BD. VAN WHITE BLVD.	N	11/26/08	12/8/08
93	SO. BD. VAN WHITE BLVD., 250' SO. OF 10TH AVE. NO	N	6/23/08	6/23/08
93	SO. BD. VAN WHITE BLVD., 250' SO. OF 10TH AVE. NO.	N	11/26/08	12/10/08
94	10TH AVE. NO. & NO. BD. VAN WHITE BLVD. (S.W.C.)	N	5/8/08	5/8/08
94	10TH AVE. NO. & NO. BD. VAN WHITE BLVD. (S.W.C.)	N	11/26/08	12/3/08
95	WEST SIDE OF ALDRICH AVE. NO. & 9TH AVE. NO.	N	5/8/08	5/8/08
95	WEST SIDE OF ALDRICH AVE. NO. & 9TH AVE. NO.	N	11/26/08	11/26/08
96	8TH AVE. NO. & NO. BD. VAN WHITE BLVD. (N.E.C.)	N	4/15/08	4/15/08
96	8TH AVE. NO. & NO. BD. VAN WHITE BLVD. (N.E.C.)	N	11/26/08	12/4/08
97	29TH AVE. & LOGAN AVE. - NO. STORM WATER DET. POND (E & W)	N	5/9/08	5/9/08
98	MALMQUIST LN. & HUMBOLDT NO.	N	6/23/08	
99	SHINGLE CREEK DR. & HUMBOLDT NO.	N	5/14/08	5/14/08
100	SO. OF 49TH AVE. NO. & HUMBOLDT NO.	N	5/15/08	5/15/08
101	NO. OF 49TH AVE. NO. & HUMBOLDT NO.	N	6/16/08	6/16/08
110	W. CALHOUND PARKWAY 100' NO. OF RICHFIELD RD.	SW	6/3/08	6/3/08
110	W. CALHOUND PARKWAY 100' NO. OF RICHFIELD RD.	SW	8/21/08	
110	W. CALHOUND PARKWAY 100' NO. OF RICHFIELD RD.	SW	9/18/08	9/18/08
111	RICHFIELD RD. NEAR W. CORNER OF THE PARKING LOT	SW	6/3/08	6/3/08
111	RICHFIELD RD. NEAR W. CORNER OF THE PARKING LOT	SW	8/21/08	
111	RICHFIELD RD. NEAR W. CORNER OF THE PARKING LOT	SW	9/18/08	9/18/08
112	W. 36TH ST. 30' W. OF CALHOUN PARKWAY	SW	6/3/08	6/3/08
112	W. 36TH ST. 30' W. OF CALHOUN PARKWAY	SW	8/21/08	
112	W. 36TH ST. 30' W. OF CALHOUN PARKWAY	SW	9/18/08	9/18/08
113	20' EAST OF VAN WHITE MEM. BLVD (N.B.) AND 5TH AVE N (1016 - 5TH AVE N)	N	5/6/08	5/6/08
113	20' EAST OF VAN WHITE MEM. BLVD (N.B.) AND 5TH AVE N (1016 - 5TH AVE N)	N	11/26/08	12/9/08
114	DUPONT AVE. NO. & 4TH AVE. NO.	N	5/5/08	5/5/08
114	DUPONT AVE. NO. & 4TH AVE. NO.	N	11/26/08	12/9/08
115	VAN WHITE MEMORIAL BLVD (S.B.) & 4TH AVE N	N	11/12/08	11/12/08
116	400' NORTH (60' INTO POND) VAN WHITE MEM. BLVD (S.B.) AND 4TH AVE N	N	11/12/08	11/12/08
117	300' NORTH (WEST SIDE) OF VAN WHITE MEM. BLVD (S.B.) AND 4TH AVE N	N	5/2/08	5/2/08
117	300' NORTH (WEST SIDE) OF VAN WHITE MEM. BLVD (S.B.) AND 4TH AVE N	N	6/30/08	6/30/08
118	200' NORTH (POND SIDE) OF VAN WHITE MEM. BLVD (S.B.) AND 10TH AVE N	N	6/23/08	6/23/08
118	200' NORTH (POND SIDE) OF VAN WHITE MEM. BLVD (S.B.) AND 10TH AVE N	N	11/26/08	12/2/08
119	11TH AVE N AND VAN WHITE BLVD (N.B.)	N	6/23/08	6/23/08
120	VAN WHITE MEM. BLVD (S.B.) (160' so. of fremont ave. no. on the e. side of the street)	N	4/30/08	4/30/08
120	VAN WHITE MEM. BLVD (S.B.) (160' so. of fremont ave. no. on the e. side of the street)	N	11/26/08	
121	50' NORTH (EAST SIDE) OF VAN WHITE MEM. BLVD (S.B.) AND FREMONT AVE N	N	4/28/08	4/28/08
121	50' NORTH (EAST SIDE) OF VAN WHITE MEM. BLVD (S.B.) AND FREMONT AVE N	N	11/26/08	
122	MINNEHAHA PARKWAY @ 39TH AVE S N SIDE OF PKWY	S	4/14/08	4/16/08
122	MINNEHAHA PARKWAY @ 39TH AVE S N SIDE OF PKWY	S	11/5/08	11/18/08
123	COLUMBUS AVE S SOUTH OF E 37TH ST REROUTE - no as-builts	SW	5/2/08	5/2/08
123	COLUMBUS AVE S SOUTH OF E 37TH ST REROUTE - no as-builts	SW	8/21/08	
124	COLUMBUS AVE S - CHICAGO AVE S ALLEY - no as-builts	SW	6/2/08	6/2/08
124	COLUMBUS AVE S - CHICAGO AVE S ALLEY - no as-builts	SW	8/21/08	
125	COLUMBUS AVE S ACROSS FROM #3644 - no as-builts	SW	5/2/08	5/2/08
125	COLUMBUS AVE S ACROSS FROM #3644 - no as-builts	SW	8/21/08	
126	E 37TH ST AND COLUMBUS S - no as-builts	SW	6/2/08	6/2/08
126	E 37TH ST AND COLUMBUS S - no as-builts	SW	8/21/08	
127	E 37TH ST AND COLUMBUS S - no as-builts	SW	6/2/08	6/2/08
127	E 37TH ST AND COLUMBUS S - no as-builts	SW	8/21/08	
128	W 27TH ST AND LAKE OF THE ISLES PKWY - no as-builts	SW	8/21/08	
129	YARD SUMPS, 26TH AND HIAWATHA	S	1/16/08	
129	YARD SUMPS, 26TH AND HIAWATHA	S	7/21/08	
129	YARD SUMPS, 26TH AND HIAWATHA	S	11/5/08	
130	YARD SUMPS, 26TH AND HIAWATHA	S	1/16/08	
130	YARD SUMPS, 26TH AND HIAWATHA	S	7/21/08	
130	YARD SUMPS, 26TH AND HIAWATHA	S	11/5/08	

Grit Chambers
Cleaned and Inspected 2008

Grit ID	Location	Route	Date Inspected	Date Cleaned
131	YARD SUMPS, 26TH AND HIAWATHA	S	1/16/08	
131	YARD SUMPS, 26TH AND HIAWATHA	S	7/21/08	
131	YARD SUMPS, 26TH AND HIAWATHA	S	11/5/08	
132	YARD SUMPS, 26TH AND HIAWATHA	S	1/16/08	
132	YARD SUMPS, 26TH AND HIAWATHA	S	7/21/08	
132	YARD SUMPS, 26TH AND HIAWATHA	S	11/5/08	
133	ALLEY DRY WELL, BETWEEN HUMBOLDT/IRVING AVE S AND W 25TH ST/26TH ST, no as-builts	SW	5/29/08	
133	ALLEY DRY WELL, BETWEEN HUMBOLDT/IRVING AVE S AND W 25TH ST/26TH ST, no as-builts	SW	6/16/08	6/16/08
133	ALLEY DRY WELL, BETWEEN HUMBOLDT/IRVING AVE S AND W 25TH ST/26TH ST, no as-builts	SW	10/10/08	
134	W 22ND ST @ E LAKE OF THE ISLES BLVD, no as-builts	SW	6/4/08	6/4/08
134	W 22ND ST @ E LAKE OF THE ISLES BLVD, no as-builts	SW	6/18/08	6/18/08
134	W 22ND ST @ E LAKE OF THE ISLES BLVD, no as-builts	SW	10/10/08	
135	CHICAGO AVE S BETWEEN WASHINGTON AVE S AND 2ND ST S - no as-builts	E	3/19/08	
136	111 22ND AVE N (ALLEY BETWEEN 1ST ST N AND 2ND ST N AT VACATED 21ST AVE N)	N	7/10/08	7/10/08
137	W 44TH ST @ LAKE HARRIET PKWY EAST (Installed on existing 54" Concrete Pipe)	SW	6/25/08	
137	W 44TH ST @ LAKE HARRIET PKWY EAST (Installed on existing 54" Concrete Pipe)	SW	10/10/08	
138	EWING AVE S BETWEEN W. FRANKLIN AVE AND W 22ND ST - Pending as-built info	SW	5/28/08	
138	EWING AVE S BETWEEN W. FRANKLIN AVE AND W 22ND ST - Pending as-built info	SW	10/10/08	
139	EWING AVE S @ W FRANKLIN AVE - Pending as-built info	N	5/13/08	5/13/08
140	E LAKE ST WEST OF 14TH AVE S (Hennepin County const. Lake St.)	S	4/8/08	
141	W LAKE ST EAST OF 14TH AVE S (Hennepin County const. Lake St.)	S	4/8/08	4/10/08
142	18TH AVE S SOUTH OF E LAKE ST (Hennepin County const. Lake St.)	S	4/8/08	4/9/08
142	18TH AVE S SOUTH OF E LAKE ST (Hennepin County const. Lake St.)	S	11/19/08	11/26/08
143	LONGFELLOW AVE S SOUTH OF E LAKE ST (Hennepin County const. Lake St.)	S	4/8/08	4/9/08
143	LONGFELLOW AVE S SOUTH OF E LAKE ST (Hennepin County const. Lake St.)	S	11/19/08	11/26/08
144	31ST AVE S NORTH OF E LAKE ST (Hennepin County const.. Lake St.)	S	4/8/08	4/10/08
145	Cedar)	S	4/9/08	4/30/08
146	10/31/07) (service pending)	S	1/18/08	
146	10/31/07) (service pending)	S	4/9/08	
147	AVE EXTENDED (added 10/31/07) (service pending)	S	1/18/08	
147	AVE EXTENDED (added 10/31/07) (service pending)	S	4/9/08	
148	(Hennepin Co. Construction) (added 11/1/07) (service pending)	S	1/18/08	
148	(Hennepin Co. Construction) (added 11/1/07) (service pending)	S	4/9/08	
	Grit chambers # 20, 102,103,104,105, 106,107 and 149 are not maintained by the City and were not inspected			

Outfalls Inspected 2008

Outfall ID	Route	Location	Date Inspected
10-012	E	N end of Nicollet Island in channel	7/18/2008
10-035	E	W side of Nicollet Island; Island Ave and Grove St at River	7/16/2008
10-060	E	St. Anthony Pkwy & 36th Ave NE	7/16/2008
10-100	E	Marshall St (31st Ave NE)	7/16/2008
10-110	N	Dowling Ave N (At River)	12/23/2008
10-130	E	27th Ave NE (Monroe St NE)	7/16/2008
10-140B	E	Lowry Ave NE (At River) South	7/15/2008
10-180	E	22nd Ave NE (Grand St NE)	7/14/2008
10-190	N	27th Ave N (Mill St N)	12/23/2008
10-200	E	Marshall St NE (18th Ave NE)	7/14/2008
10-210	N	26th Ave N (Mill St N)	12/23/2008
10-250	E	12th Ave NE (Vacated)	7/7/2008
10-270	E	10th Ave NE	7/7/2008
10-300	E	8th Ave NE	7/7/2008
10-310	E	Ramsey St NE (extension)	6/17/2008
10-330	N	W River Pkwy approx. 500' SE of 4th Ave N	2/6/2008
10-340	N	W River Pkwy at 1st Ave N (extended)	2/6/2008
10-380	N	W River Pkwy at 2nd Ave S (extended)	2/6/2008
40-060	N	100' N of 5th Av N @ Thomas Av N	6/24/2008
40-070	N	S of Thomas Av N @ Inglewood St N	6/26/2008

Comments Or Repairs Needed: needs to be trenched out, put filter fabric outside of grate and rocked
Work Done: Repairs completed 11/5/2008

40-080	N	Thomas Av N (N of Chestnut Av N)	6/24/2008
40-100	N	Queen Av N -S of 2nd Av N	12/23/2008
40-110	N	Oliver Av N - S of 2nd Av N	12/23/2008
40-140	N	Morgan Av N extended (S of Bassett Creek)	12/23/2008
40-150	N	Irving Av N	12/23/2008
43-010	N	N shore of lake	1/29/2008
43-020	N	E shore of lake	1/29/2008
43-030	N	Kenwood Pkwy and Summit (extended)	1/29/2008

Comments Or Repairs Needed: outfall flair needs mud work
Work Done: Repair hold in cement, cemented around pipe - completed 10/28/2008

53-090	SW	West 21st St @ Lake of the Isles Blvd	6/4/2007

Comments Or Repairs Needed: Carryover from previous year
Re-rod grate needs removal and replacement

54-110	SW	W. Calhoun Pwky at Rose Lane	6/25/2008
54-120	SW	W. Calhoun Pwky at Ivy Lane	6/25/2008
54-130	SW	W. Calhoun Pwky approx. '200' N of W 32nd St	6/25/2008
54-140	SW	W. Calhoun Pwky at Market Place (extended)	6/25/2008
57-010	SW	E. Harriet Pwky at 43rd St	12/19/2008
57-020	SW	E. Harriet Pwky at 44th St	12/19/2008
57-030	SW	E. Harriet Pwky at Kings Highway	12/19/2008
57-040	SW	E. Harriet Pwky at W 47th St	12/19/2008
57-050	SW	Harriet Pwky at Morgan Av S	12/19/2008
57-060	SW	Harriet Pwky at Oliver Ave S.	12/19/2008

Outfalls Inspected 2008

Outfall ID	Route	Location	Date Inspected
57-070	SW	W. Harriet Pwky @ Queen Av S	12/19/2008
57-080	SW	W. Harriet Pwky @ Russel Av S	12/19/2008
57-090	SW	W. Harriet Pwky @ Thomas Av S	12/19/2008
57-100	SW	W. Harriet Pwky @ W. 47th St	12/19/2008
57-110	SW	W. Harriet Pwky @ W.46th St (extended)	12/19/2008
57-120	SW	W. Harriet Pwky @ W. 44th St.	12/19/2008
57-130	SW	W. Harriet Pwky @ approx. 400' N of W 44th St	12/19/2008
57-140	SW	W. Harriet Pwky @ approx. 500' S W 42nd St	12/19/2008
57-160	SW	Lake Harriet Pkwy approx. 50' N of W 42nd St	12/19/2008
70-250	S	34th Av S '150 N of E M' haha Pkwy (s bank)	7/11/2007

Comments Or Repairs Needed: Carryover from previous year
Area over pipe 50' south of outlet needs repair

70-255	SW	Harriet Av S @ W M' haha Pkwy (north bank)	6/25/2008
70-260	SW	Gladstone Av S (ext) @ W M haha Pkwy (north bank)	12/19/2008
70-265A	SW	Pleasant Av S @ W M'haha Pkwy (south bank)	12/19/2008
70-270	SW	Pratt St and M'haha Pkwy (extends to n bank)	11/20/2008
70-275	SW	W M 'haha Pkwy 250' W of Nicollet Ave S (east bank)	11/20/2008
70-280	SW	W M' haha Pkwy 300' S of Valley View (north bank)	11/20/2008
70-285	SW	Nicollet Ave S at Minnehaha Pkwy (north bank)	11/20/2008

Comments Or Repairs Needed: needs major repair
Work Done: None in 2008

70-290	SW	E M' haha Pkwy 300' E of Nicollet Ave S (n bank)	11/20/2008
70-295	SW	E Minnehaha Pkwy 50' W of Stevens Av S (south bank)	11/20/2008
70-300	SW	E Minnehaha Pkwy 50' W of Stevens Av S (south bank)	11/20/2008
70-305	SW	E Minnehaha Pkwy at Luverne Av S (north bank)	11/20/2008
70-310	SW	E Minnehaha Pkwy at 3rd Av S (north bank)	12/19/2008
70-315	SW	E Minnehaha Pkwy at 200' W of Tarrymore Av S (S bank)	12/19/2008
70-320	SW	E Minnehaha Pkwy at E 50th St (north Bank)	12/19/2008
70-325	SW	E Minnehaha Pkwy at 5th Av S (north bank)	12/19/2008
70-330	SW	E Minnehaha Pkwy at 5th Av S (north bank)	12/19/2008
70-335	SW	E Minnehaha Pkwy at 100' W of Portland Av S (s bank)	12/19/2008
72-050	S	E Nokomis Pkwy @ 54th St (extended)	6/25/2008
72-060	S	E Nokomis Pkwy E 56th St	6/25/2008
72-070	S	Cedar Av S 500' N of Nokomis Pkwy	6/25/2008
72-080	S	W Nokomis Pkwy 500' W of Cedar Av S	6/25/2008

Comments Or Repairs Needed: corrugated pipe is badly deteriorated
Work Done: none in 2008

72-090	S	Edgewater Blvd at Nokomis Lane	6/25/2008
72-100	S	Edgewater Blvd 50' W of Nokomis Lane	6/25/2008
72-120	S	E Nokomis Pkwy at 54th St	6/23/2008
72-130	S	Cedar Av S at E 52nd St	6/23/2008
72-140	S	E Nokomis Pkwy at Parking Lot on NW Shore	6/23/2008
72-150	S	Nokomis Pkwy at Parking Lot on N Shore	6/23/2008
72-160	S	W Nokomis Pkwy 500' S of Minnehaha Creek	6/23/2008
73-010	S	E 61st St @ Bloomington Av S	12/19/2008

Outfalls Inspected 2008

Outfall ID	Route	Location	Date Inspected
73-020	S	E 61st St @ Bloomington Av S	12/19/2008
73-030	S	North Shore of Taft Lake	12/19/2008
74-010	S	Hwy 62 at NW Shore of Mother Lake	12/19/2008
74-020	S	59 1/2 St E at 26th Ave S	12/19/2008
75-005	S	Highway 62 @ SW shore of Wetland	12/19/2008

City of Minneapolis
2009 Stormwater Education and Outreach Program Budget

Mississippi Watershed Management Organization (MWMO) Ongoing collaboration on multicultural public outreach tools	$16,000
Minneapolis Park & Recreation Board (MPRB) Outreach Activities Stormwater education at two to three community/neighborhood events per week. Active learning stormwater education programs at recreation centers and along Mississippi River. Pre-event Public Service Announcements (PSAs). Canines For Clean Water pilot project development. Provide touring multilingual electronic kiosks. Interpretive panels at key stormwater sites – production and installation. Stormwater programs and projects for Earth Day event.	$56,500
Minneapolis Park & Recreation Board (MPRB) Monitoring Activities NPDES Permit and BMP Monitoring.	$167,500
Minneapolis/Metro Blooms Program Rain garden educational workshops. Affordable on-site consultation for rain gardens. Utility bill education inserts.	$44,000
Electronic Kiosk Updates	$8,000
Contractor to be determined Interpretive panels at key stormwater sites – research and design	$16,000
Public Works Staff & Administration Stormwater education and outreach program development, development of maps and publications, website development	$95,000
Total	**$403,000.00**

Source: Minneapolis Public Works – Surface Water and Sewers May 2009

NPDES Stormwater Permit
Monitoring Budget

					Actual	Estimate			
					2008	**2009**	**2010**	**2011**	**2012**
Labor	*Hours (actual for 2008)*	*UNIT COST*	*FRINGE*	*EXTENSION*					
Water quality specialists	1,800	$26.61	$12.45	$70,308.00					
Environmental intern	350	$14.46	$2.06	$5,782.00					
Environmental manager	100	$37.90	$8.50	$4,640.00					
		Labor subtotal			80,730	100,000	102,500	105,063	107,689
		Equipment and supplies			14,615	27,000	27,675	28,367	29,076
		Lab analyses			9,088	25,000	25,625	26,266	26,922
		PROGRAM SUBTOTAL			**104,433**	**152,000**	**155,800**	**159,695**	**163,687**
		Contingency	10%			15,200	15,580	15,970	16,369
		PROGRAM TOTAL			**104,433**	**167,200**	**171,380**	**175,665**	**180,056**
		MPRB	**25%**		**26,108**	**41,800**	**42,845**	**43,916**	**45,014**
		MPLS	**75%**		**78,325**	**125,400**	**128,535**	**131,748**	**135,042**

Source: Minneapolis Park and Recreation Board

Environmental Services NPDES Expenditures (2003 - 2013)

Environmental Services NPDES Expenditures (2003-2013)

Year	FTE	Wages	Fringes	Total
2003	4	$488,762.14	$108,377.35	$597,139.49
2004	4.5	$486,472.38	$117,106.73	$603,579.11
2005	4.5	$513,986.73	$131,662.51	$645,649.24
2006	4.5	$520,498.00	$147,081.87	$667,579.87
2007	4.5	$494,800.66	$133,798.56	$628,599.22
2008	4.5	$529,129.00	$152,947.00	$682,076.00
2009	4.5	$556,642.00	$184,169.00	$740,811.00
2010	4.5	$567,774.84	$221,002.80	$788,777.64
2011	4.5	$579,130.34	$265,203.36	$844,333.70
2012	4.5	$590,712.94	$318,244.03	$908,956.98
2013	4.5	$602,527.20	$381,892.84	$984,420.04

2003, 2004, 2005, 2006, 2007, and 2008 are actual expenditures
2003, 2004, 2005, 2006, 2007, and 2008 are actual staff levels
2009 is current staffing level working on NPDES programs at the start of the year
2009 wages and fringes are budgeted
2010, 2011, 2012, and 2013 wages assume a 2% increase
2010, 2011, 2012, and 2013 fringes assume a 20% increase
2010, 2011, 2012, and 2013 fringes assumes no staffing level changes
Costs include labor, administration and fringe
Costs do not include contractual services, operating costs, equipment, etc.

Source: Minneapolis Regulatory Services

Street Maintenance Costs and Budget

(NPDES activities: Roadways and Illicit Discharges)

Code	Activity	2008 Actual	2009 Budget	2010 Budget	2011 Budget	2012 Budget	2013 Budget
CL05	Spring Clean up	1,610,068	1,658,371	1,708,122	1,759,365	1,812,146	1,866,511
CL10	Summer Sweeping	1,513,428	1,558,831	1,605,596	1,653,763	1,703,376	1,754,478
CL15	Fall Clean up	1,905,963	1,963,142	2,022,036	2,082,698	2,145,178	2,209,534
CL20	Storm Water Activity	5,445	5,608	5,776	5,950	6,128	6,312
CL25	Sweep Loop & Bus Dist	249,495	256,979	264,689	272,629	280,808	289,233
CL45	Misc. Street Sweep	45,501	46,866	48,272	49,720	51,212	52,748
CL55	Clean Paved Cntr Islnd	29,160	30,035	30,936	31,864	32,820	33,805
CL145	WFU- Sweeping	192,763	198,545	204,502	210,637	216,956	223,465
	Subtotal	5,551,823	5,718,378	5,889,929	6,066,627	6,248,626	6,436,084
CL60	Mach. Sweep Alleys	269,192	277,267	285,585	294,153	302,978	312,067
	Subtotal	269,192	277,267	285,585	294,153	302,978	312,067
CL70	Clean CB's & Drains	45,151	46,505	47,901	49,338	50,818	52,342
CL30	Flood Control	0	0	0	0	0	0
	Subtotal	45,151	46,505	47,901	49,338	50,818	52,342
CL35	Special Events	22,732	23,414	24,117	24,840	25,586	26,353
CL90	Misc. (storms)	106,353	109,544	112,830	116,215	119,702	123,293
CL75	Waste Disposal	313,367	322,768	332,451	342,425	352,698	363,279
CL80	Dump Maint.	144,447	148,780	153,244	157,841	162,576	167,454
CL01	Supervision	18,877	19,443	20,026	20,627	21,246	21,883
A09	Work Comp Claims	0	0	0	0	0	0
CL08	HVSL (JV from Admin.)	359,496	370,281	381,389	392,831	404,616	416,754
CL83	Misc. Expense	12,853	13,238	13,635	14,044	14,466	14,900
CL95	Debris Pick Up	501,191	516,227	531,714	547,665	564,095	581,018
	Other Tasks	17,269	17,787	18,321	18,871	19,437	20,020
	Subtotal	1,496,586	1,541,483	1,587,728	1,635,360	1,684,420	1,734,953
	TOTAL	**7,362,751**	**7,583,634**	**7,811,143**	**8,045,477**	**8,286,841**	**8,535,446**
	Percent change from prev. year	21%	3%	3%	3%	3%	3%

Source: Minneapolis Public Works - Street Maintenance

DRAFT

3/31/2009

NPDES 5-Year Budget
Stormwater Management System Construction, Operations and Maintenance

	2009	2010	2011	2012	2013
Storm Drain Operation and Control					
Maintenance					
CIPP Lining Storm	$ 37,132	$ 38,245	$ 39,393	$ 40,575	$ 41,792
Storm Drain Cleaning	$ 769,153	$ 792,227	$ 815,994	$ 840,474	$ 865,688
Storm MSA	$ 190,962	$ 196,691	$ 202,592	$ 208,669	$ 214,929
Storm CSA	$ 148,526	$ 152,982	$ 157,571	$ 162,298	$ 167,167
Storm STH	$ 26,523	$ 27,318	$ 28,138	$ 28,982	$ 29,851
Minor Repair	$ 196,267	$ 202,154	$ 208,219	$ 214,466	$ 220,900
Major Repair/ Emergencies	$ 424,360	$ 437,091	$ 450,204	$ 463,710	$ 477,621
Special Jobs	$ 212,180	$ 218,545	$ 225,102	$ 231,855	$ 238,810
Park Board Storm	$ 79,567	$ 81,954	$ 84,413	$ 86,945	$ 89,553
Capital Improvements	$ 5,500,000	$ 7,000,000	$ 7,500,000	$ 7,000,000	$ 7,000,000
SUBTOTAL	**$ 7,584,668**	**$ 9,147,208**	**$ 9,711,624**	**$ 9,277,973**	**$ 9,346,312**
Structural Controls Maintenance and Operation					
Maintenance					
Grit Chambers	$ 265,225	$ 273,182	$ 281,377	$ 289,819	$ 298,513
Outfalls	$ 100,786	$ 103,809	$ 106,923	$ 110,131	$ 113,435
Pump Stations	$ 185,658	$ 191,227	$ 196,964	$ 202,873	$ 208,959
Holding Ponds	$ 222,789	$ 229,473	$ 236,357	$ 243,448	$ 250,751
Capital Improvements	$ 250,000	$ 250,000	$ 250,000	$ 500,000	$ 500,000
SUBTOTAL	**$ 1,024,457**	**$ 1,047,691**	**$ 1,071,621**	**$ 1,346,270**	**$ 1,371,658**
Dedicated Overhead					
Maintenance					
Admin	$ 396,776	$ 408,679	$ 420,940	$ 433,568	$ 446,575
Yard / Shop	$ 143,221	$ 147,518	$ 151,943	$ 156,501	$ 161,196
Capital Improvements					
Admin	$ 477,405	$ 491,727	$ 506,479	$ 521,673	$ 537,324
Yard / Shop	$ 371,315	$ 382,454	$ 393,928	$ 405,746	$ 417,918
SUBTOTAL	**$ 1,388,717**	**$ 1,430,378**	**$ 1,473,290**	**$ 1,517,489**	**$ 1,563,013**
TOTAL MAINTENANCE	**$ 3,399,122**	**$ 3,501,096**	**$ 3,606,129**	**$ 3,714,312**	**$ 3,825,742**
TOTAL CAPITAL IMPR	**$ 6,598,720**	**$ 8,124,182**	**$ 8,650,407**	**$ 8,427,419**	**$ 8,455,242**
TOTAL	**$ 9,997,842**	**$ 11,625,277**	**$ 12,256,536**	**$ 12,141,732**	**$ 12,280,984**

Source: Minneapolis Public Works - Surface Water and Sewers

City of Minneapolis
Flood Mitigation Program 2008 Costs Six Year Budget
($Thousands)

Project Description	Project No.	2008 Actual Expenditures	2009 Appropriation	2010 Proposed	2011 Proposed	2012 Proposed	2013 Proposed	2014 and Beyond
W 54th St – Boulevard retention & porous pavement	PV043	$455						
Flood Area 21 – Bloomington Pond	SW034							
City Funding					$446			
Other Funding: Minnehaha Creek Water shed District					$4,393			
Flood Area 22 – Sibley Field	SW033							
City Funding			$500			$278		
Other Funding: USEPA			$840					
Other Funding: Minnehaha Creek Water shed District			$873			$2,734		
Flood Area 29/30 – W 52nd St & Chowen Ave S to Lake Harriet	SW018							
City Funding				$900	$1,052			
Other Funding: Minnehaha Creek Water shed District				$2,388	$5,525			
Lake Hiawatha Blue Water Partnership Project [1.]	SW031	$137						
I-35W Storm Tunnel Reconstruction	SW032							
City Funding								$37,134
Other Funding: Minnesota Department of Transportation								$36,000
Flood Area 5 – Victory Memorial Parkway to 40th Ave N to Girard Ave N to 30th Ave N	SW038		$2,754					$13,900

1. Project is fully funded at $3,548,000 for 2009 construction, which is on hold pending an agreement with the Minneapolis Park and Recreation Board for use of golf course ponds.

Source: Minneapolis Public Works – Surface Water & Sewers

Activities & Responsible Departments, by Section of Report

Structural Controls Maintenance and Operation	*Responsible department:* Public Works Surface Water & Sewers Division
	Activities: Inspect controls (grit chambers, ponds, pump stations, other controls) at least 2 times a year. Adjust inspection frequency after 2 years to prevent pollutants being conveyed to the receiving water. Inspect 20% of outfalls on a rotating basis. Perform maintenance and repairs as needed, or provide a schedule for work required. Document inspection results, date, prior weather conditions, sediment storage and capacity remaining
Storm Sewer System Operation and Quality Control	*Responsible department:* Public Works Surface Water & Sewers Division
	Activities: Maintain all facilities or systems in good working order and operate as efficiently as possible. Provide adequate operating staff to insure compliance with the conditions of this permit.
Disposal of Removed Substances from Structural Controls	*Responsible department:* Public Works Surface Water & Sewers Division
	Activities: Dispose of removed substances in a way to prevent pollution and comply with applicable regulations. Document quantity of removed substances and categorize by structural control source, type of substance, and season.
New Developments and Construction	*Responsible department:* Regulatory Services Environmental Management, and Public Works Surface Water & Sewers Division
	Activities: Use a planning process (site plan review) to regulate construction, and require erosion control and stormwater management.
Roadways	*Responsible department:* Public Works Transportation Maintenance & Repair Division
	Activities: Sweep at least twice a year. Document frequency, methods, quantity of material picked up (categorize by season and/or material), disposal of materials. Use known practices to minimize runoff of deicing materials from application and handling activities. Document quantity of materials used each year. Minimize runoff of deicing materials from storage – document location and condition of all storage facilities, planned improvements.
Flood Control	*Responsible department:* Public Works Surface Water & Sewers Division
	Activities: Design flood control projects to minimize the impacts on the water quality of the receiving water. When planning repairs, improvements, or changes for flood control devices, evaluate the feasibility of retrofitting the existing devices to provide additional pollutant removal from stormwater discharges.
Pesticides and Fertilizers	*Responsible department:* Minneapolis Park & Recreation Board
	Activities: Implement a city wide education program regarding the proper application of pesticides and fertilizers. Conduct a pilot project to investigate the use of pesticides and fertilizers on City facilities.
Illicit Discharges and Improper Disposal to Storm Sewer System	*Responsible department:* Regulatory Services Environmental Management, Public Works Transportation Maintenance & Repair Division, Public Works Surface Water & Sewers Division
	Activities: Provide appropriate control measures for non-stormwater discharges. Conduct field screening annually in 20% of the drainage areas. Prohibit disposal of motor vehicle fluids & household chemical wastes. Report number of spills and unauthorized discharges that occurred and the response to the spills. Educate staff regarding the duty to notify the Department of Public Safety Duty Officer. Adopt notification protocol for response and containment of materials.
Storm Sewer Design for New Construction	*Responsible department:* Public Works Surface Water & Sewers Division
	Activities: Design & construct new storm drain and BMPs to capture runoff and pollutants.
Public Education	*Responsible department:* Public Works Surface Water & Sewers Division
	Activities: Conduct a public education program to promote, publicize, and facilitate the proper management of stormwater discharges.
Public Participation Process	*Responsible department:* Public Works Surface Water & Sewers Division
	Activities: Adopt a process to allow for public input into the development of priorities and activities necessary to maintain compliance with this permit. Conduct a public hearing or other meeting where the opportunities for public testimony is available prior to annual report submittal & notify all governmental entities with jurisdiction over activities related to stormwater management in the area. Include a formal resolution from the City Council adopting the report with a summary of the public input received and the City's response.
Coordination with Other Governmental Entities	*Responsible department:* Public Works Surface Water & Sewers Division
	Activities: Submit an annual report by June 1 of each year describing how the different governmental entities are cooperating and coordinating efforts in managing stormwater related activities in the drainage area including goals for each cooperative effort, where and how the activity will be performed, & schedule for implementation.
Stormwater Monitoring	*Responsible department:* Minneapolis Park and Recreation Board
	Activities: Conduct runoff monitoring. Provide analysis of data collected.

Source: Minneapolis Public Works - Surface Water & Sewers Division