

PRIMARY SOURCES - Land Use		Area (Acres)	Impervious Cover %	Concentrations				Annual Loading Rates				Annual Load			
All	Watershed			TN mg/l	TP mg/l	TSS mg/l	FC MPN/100ml	TN lb/acre	TP lb/acre	TSS lb/acre	FC # billion/acre	TN lb/year	TP lb/year	TSS lb/year	FC # billion/year
Residential	Arthur Manor	202.38	24.55	2.2	0.4	100	20000	274	308,690	1,221	222	55,516	62,472,631		
	Chester Heights Park	240.12	25.37	2.2	0.4	100	20000	282	317,053	1,488	271	67,652	76,129,577		
	Lake Innisfree	246.44	25.14	2.2	0.4	100	20000	280	314,717	1,516	276	68,922	77,559,213		
	Pelham Lake	263.75	33.07	2.2	0.4	100	20000	352	395,978	2,042	371	92,809	104,439,111		
	Reservoir Three	278.44	28.08	2.2	0.4	100	20000	306	344,816	1,877	341	85,319	96,010,546		
	Reservoir Two	54.54	27.50	2.2	0.4	100	20000	301	338,934	361	66	16,427	18,485,474		
	Scarsdale Park	217.32	25.16	2.2	0.4	100	20000	280	314,954	1,338	243	60,824	68,445,808		
	Secor Lane	300.42	28.73	2.2	0.4	100	20000	312	351,529	2,065	375	93,846	105,606,210		
	Sprague Terminal Canal	205.22	44.19	2.2	0.4	100	20000	453	510,044	2,046	372	93,015	104,671,162		
	Twin Lakes Park	196.31	29.99	2.2	0.4	100	20000	324	364,470	1,399	254	63,581	71,549,048		
	Vernon Park	262.39	41.54	2.2	0.4	100	20000	429	482,865	2,477	450	112,590	126,699,030		
	Wolfs Lane Park	161.13	35.05	2.2	0.4	100	20000	370	416,338	1,312	238	59,614	67,084,601		
	Commercial	Arthur Manor	15.5	30.39	2	0.32	75	20000	246	298	102	16	3,807	4,627	
Chester Heights Park		74	43.34	2	0.32	75	20000	334	406	659	105	24,723	30,047		
Lake Innisfree		69.7	50.99	2	0.32	75	20000	386	470	718	115	26,931	32,730		
Pelham Lake		14.11	41.32	2	0.32	75	20000	320	389	121	19	4,519	5,493		
Reservoir Three		53.16	60.48	2	0.32	75	20000	451	548	640	102	23,987	29,152		
Reservoir Two		9	48.78	2	0.32	75	20000	371	451	89	14	3,341	4,061		
Scarsdale Park		7.9	30.00	2	0.32	75	20000	243	295	51	8	1,919	2,333		
Secor Lane		17.7	45.59	2	0.32	75	20000	350	425	165	26	6,186	7,518		
Sprague Terminal Canal		116.7	79.69	2	0.32	75	20000	583	708	1,813	290	67,979	82,617		
Twin Lakes Park		5.5	60.91	2	0.32	75	20000	454	552	67	11	2,498	3,036		
Vernon Park		55.8	71.33	2	0.32	75	20000	525	638	782	125	29,314	35,627		
Wolfs Lane Park		32.56	68.34	2	0.32	75	20000	505	614	438	70	16,440	19,980		
Roadway		Arthur Manor	59.59	100	3	0.5	150	20000	1443	877	1,719	287	85,962	52,237	
	Chester Heights Park	88.54	100	3	0.5	150	20000	1443	877	2,554	426	127,724	77,614		
	Lake Innisfree	82.03	100	3	0.5	150	20000	1443	877	2,367	394	118,333	71,907		
	Pelham Lake	114.5	100	3	0.5	150	20000	1443	877	3,303	551	165,173	100,371		
	Reservoir Three	116.38	100	3	0.5	150	20000	1443	877	3,358	560	167,885	102,019		
	Reservoir Two	34.38	100	3	0.5	150	20000	1443	877	992	165	49,595	30,137		
	Scarsdale Park	62.1	100	3	0.5	150	20000	1443	877	1,792	299	89,583	54,437		
	Secor Lane	110.41	100	3	0.5	150	20000	1443	877	3,185	531	159,273	96,785		
	Sprague Terminal Canal	151.85	100	3	0.5	150	20000	1443	877	4,381	730	219,053	133,112		
	Twin Lakes Park	67.16	100	3	0.5	150	20000	1443	877	1,938	323	96,882	58,872		
	Vernon Park	145.62	100	3	0.5	150	20000	1443	877	4,201	700	210,065	127,650		
	Wolfs Lane Park	71.59	100	3	0.5	150	20000	1443	877	2,065	344	103,273	62,756		
	Industrial	Arthur Manor	0.86	3.24	2.5	0.4	120	20000	61	46	1	0	52	40	
Chester Heights Park		0.00	0.00	2.5	0.4	120	20000	96	73	-	-	-	-		
Lake Innisfree		1.56	27.72	2.5	0.4	120	20000	61	46	2	0	95	72		
Pelham Lake		2.48	69.76	2.5	0.4	120	20000	364	276	19	3	902	685		
Reservoir Three		0	0.00	2.5	0.4	120	20000	823	625	-	-	-	-		
Reservoir Two		0	0.00	2.5	0.4	120	20000	61	46	-	-	-	-		
Scarsdale Park		0	0.00	2.5	0.4	120	20000	61	46	-	-	-	-		
Secor Lane		0	0.00	2.5	0.4	120	20000	61	46	-	-	-	-		
Sprague Terminal Canal		141.96	86.22	2.5	0.4	120	20000	61	46	180	29	8,623	6,550		
Twin Lakes Park		0	0.00	2.5	0.4	120	20000	1003	762	-	-	-	-		
Vernon Park		30.71	87.46	2.5	0.4	120	20000	61	46	39	6	1,865	1,417		
Wolfs Lane Park		2.23	89.69	2.5	0.4	120	20000	212	1017	47	8	2,268	1,723		
Park		Arthur Manor	5.14	0.58					100	12	10	1	514	62	
	Chester Heights Park	19.45	2.05					100	12	39	4	1,945	233		
	Lake Innisfree	117.34	5.68					100	12	235	23	11,734	1,408		
	Pelham Lake	58.10	5.34					100	12	116	12	5,810	697		
	Reservoir Three	113.64	3.23					100	12	227	23	11,364	1,364		
	Reservoir Two	168.42	1.15					100	12	337	34	16,842	2,021		
	Scarsdale Park	8.86	0.42					100	12	18	2	886	106		
	Secor Lane	13.43	7.29					100	12	27	3	1,343	161		
	Sprague Terminal Canal	61.69	24.80					100	12	123	12	6,169	740		
	Twin Lakes Park	109.51	0.20					100	12	219	22	10,951	1,314		
	Vernon Park	26.72	6.62					100	12	53	5	2,672	321		
	Wolfs Lane Park	13.97	1.42					100	12	28	3	1,397	168		
	Open Water	Arthur Manor	0.053	0					155	12	1	0	8	-	
Chester Heights Park		1.71	0					155	12	22	1	265	-		
Lake Innisfree		60.95	0					155	12	780	30	9,447	-		
Pelham Lake		4.80	0					155	12	61	2	743	-		
Reservoir Three		21.54	0					155	12	276	11	3,339	-		
Reservoir Two		9.713	0					155	12	124	5	1,506	-		
Scarsdale Park		0	0					155	12	-	-	-	-		
Secor Lane		0	0					155	12	-	-	-	-		
Sprague Terminal Canal		9.69	0					155	12	124	5	1,502	-		
Twin Lakes Park		1.26	0					155	12	16	1	195	-		
Vernon Park		1.42	0					155	12	18	1	220	-		
Wolfs Lane Park		5.82	0					155	12	74	3	902	-		
Active Construction															
Vacant Lots															
Total		5217.28	45.70					532.48	187913.38	59,860	9,941	2,778,122	980,396,610		

Partitioning Coefficients for Rural and Forest Land				
Pollutant	TN	TP	TSS	FC
Fraction as Storm Load	50%	70%	90%	100%

Watershed Data	
Annual Rainfall (inches)	49.77
Watershed Area (acres)	5217

Future Structural Stormwater Management Practices Loading Calculations

Watershed	Bioretention	Regenerative Stormwater Conveyance	Pond/Wetland System		
Pelham Lake	2.38	2.65	2.23		
Reservoir Three	2.56	3.89	8.12		
Reservoir Two			0.23		
Secor Lane	0.40				
Sprague Terminal Canal	4.44		2.95		
Vernon Park	2.07				
Wolfs Lane Park	1.45	0.10			

Structural Stormwater Management Practices

Watershed	Impervious Area Captured		Efficiency		
All	(Acres)				
BMP Type		TN	TP	TSS	Bacteria
Pond/Wetland System	13.53	30%	40%	80%	50%
Filtration Bioretention	13.30	30%	40%	80%	70%
Regenerative Stormwater Conveyance	6.64	30%	40%	80%	70%
10% Private Impervious as Bioretention	99.64	30%	40%	80%	70%
30% Public Impervious Land as Bioretention	66.66	30%	40%	80%	70%
Total	199.77	30%	40%	80%	69%
Treatability	Capture Discount (D1)	Design Discount (D2)	Maintenance Discount (D3)		
0.084	0.9	1	1		

"Undiscounted" Load Reductions - Do Not Account for Discount Factors or Treatability

	N (lbs/year)	P (lbs/year)	TSS (lbs/year)	Bacteria(billion/year)
Structural Stormwater Management Practices	17,957.87	3,976.23	2,222,497.57	672,998,446.45
Total Load Reduction	17,957.87	3,976.23	2,222,497.57	672,998,446.45

Load Reduction from Existing Practices - Including Discounts (lbs/year)

	N (lbs/year)	P (lbs/year)	TSS (lbs/year)	Bacteria(billion/year)
Structural Stormwater Management Practices	1,354	300	167,579	50,744,997
Total Reduction	1,354	300	167,579	50,744,997

Future Management Practices

Street Sweeping								
Sweeper Type	Streets Swept (Acres)			Parking Lots Swept (acres)	Efficiencies - Residential		Efficiencies - Other roads	
	Residential	Other Streets			Nutrients	TSS	Nutrients	TSS
Mechanical	0			0	24%	30%	4%	5%
Regenerative Air	0	0		0	51%	64%	18%	22%
Vacuum Assisted	0	444		0	62%	78%	63%	79%
Sweeping Frequency (M=monthly, W = Weekly)	0	W		M				
Total Street Area (acres)	0	0		0				
Technique Discount	1							

151.85

Land Reclamation		Watershed						Annual Load			
Watershed	Land Use	Fraction Implemented		TN lb/acre/year	TP lb/acre/year	TSS lb/acre/year	FC # billion/acre/year	TN lb/year	TP lb/year	TSS lb/year	FC # billion/year
		Existing Subwatershed Acres	None								
			1								
Lake Innisfree	Commercial	69.7	0.41	10.3	1.6	386	470	4.2	0.7	158.8	193.0011277
Pelham Lake		14.11	1.53	8.5	1.4	320	389	13.1	2.1	489.4	594.8029518
Reservoir Three		53.16	0.90	12.0	1.9	451	548	10.8	1.7	404.7	491.8987385
Sprauge Terminal Canal		116.7	0.35	15.5	2.5	583	708	5.5	0.9	205.6	249.9186482
Vernon Park		55.8	0.36	14.0	2.2	525	638	5.1	0.8	190.7	231.7659321
Wolf Lake Park		32.56	0.01	13.5	2.2	505	614	0.1	0.0	3.0	3.681817864
Wolf Lake Park	Industrial	2.23	0.00	21.2	3.4	1017	772	0.1	0.0	4.2	3.167196737
Pelham Lake	Parks	58.103	0.10	2.0	0.2	100	12	0.2	0.0	9.5	1.14
Reservoir Three		113.644	2.44	2.0	0.2	100	12	4.9	0.5	244.1	29.286
Vernon Park		26.724	0.13	2.0	0.2	100	12	0.3	0.0	12.5	1.5
Wolf Lake Park		13.966	0.26	2.0	0.2	100	12	0.5	0.1	26.2	3.1476
Pelham Lake	Residential	263.75	0.52	7.7	1.4	352	395978	4.0	0.7	183.0	205908.3896
Reservoir Three		278.44	0.04	6.7	1.2	306	344816	0.3	0.1	12.6	14171.9345
Sprauge Terminal Canal		205.22	0.34	10.0	1.8	453	510044	3.4	0.6	154.1	173414.8479
Wolf Lake Park		161.13	0.00	8.1	1.5	370	416338	0.0	0.0	0.2	223.5737043
Lake Innisfree	Roadways	82.03	0.02	28.9	4.8	1443	877	0.7	0.1	35.9	21.82731535
Pelham Lake		114.5	0.03	28.9	4.8	1443	877	0.8	0.1	41.0	24.89541188
Reservoir Three		116.38	0.07	28.9	4.8	1443	877	2.1	0.4	106.7	64.86832674
Sprauge Terminal Canal		151.85	0.01	28.9	4.8	1443	877	0.2	0.0	8.9	5.434913862
Vernon Park		145.62	0.36	28.9	4.8	1443	877	10.2	1.7	512.1	311.1926486
Wolf Lake Park		71.59	0.07	28.9	4.8	1443	877	2.1	0.4	106.7	64.86832674
5% of Roads Conversion to Street Tree Planting (Scenario 4)			22.23	28.9	4.8	1443	877	642.4	106.7	32077.9	19495.71
20% of Parking Lots at Schools			5.12	28.9	4.8	1443	877	148.0	24.6	7388.2	4490.24
TOTAL CURRENT LOAD								859.0	142.2	42376.1	420001.1
Land Use		Acres Created						Annual Load			
Land Use	Forest	Acres Created		TN lb/acre/year	TP lb/acre/year	TSS lb/acre/year	FC # billion/acre/year	TN lb/year	TP lb/year	TSS lb/year	FC # billion/year
			35.30	2.5	0.2	100	12				
REVISED FORESTED LOAD								88.2	7.1	3,529.9	423.6
REDUCTION IN LOAD								790.5	139.0	39,811.9	758,386.5

"Undiscounted" Load Reductions - Do Not Account for Discount Factors or Treatability					
	N (lbs/year)	P (lbs/year)	TSS (lbs/year)	Bacteria(billion/year)	
Street Sweeping	5,405.00	1,351.00	508,330.00	-	
Structural Stormwater Management Practices	17,079.01	3,895.53	2,150,692.89	672,992,546.07	
Land Reclamation	790.49	138.97	39,811.94	758,386.50	

"Discounted" Load Reductions for Future Management Practices				
	N (lbs/year)	P (lbs/year)	TSS (lbs/year)	Bacteria(billion/year)
Street Sweeping	5,405	1,351	508,330	0
Structural Stormwater Management Practices	1,354	300	167,579	50,744,997
Land Reclamation	790	139	39,812	758,387
Total Reduction	7,550	1,790	715,721	51,503,384

Future Land Use - NOT Updated for Reductio		
Watershed		Area (Acres)
All		
Residential		
	Arthur Manor	202.4
	Chester Heights Park	240.1
	Lake Innisfree	246.4
	Pelham Lake	263.2
	Reservoir Three	278.4
	Reservoir Two	54.5
	Scarsdale Park	217.3
	Secor Lane	300.4
	Sprague Terminal Canal	204.9
	Twin Lakes Park	196.3
	Vernon Park	262.4
	Wolfs Lane Park	161.1
Commercial		
	Arthur Manor	15.5
	Chester Heights Park	74.0
	Lake Innisfree	69.3
	Pelham Lake	12.6
	Reservoir Three	52.3
	Reservoir Two	9.0
	Scarsdale Park	7.9
	Secor Lane	17.7
	Sprague Terminal Canal	116.3
	Twin Lakes Park	5.5
	Vernon Park	55.4
	Wolfs Lane Park	32.6
Roadway		
	Arthur Manor	59.6
	Chester Heights Park	88.5
	Lake Innisfree	82.0
	Pelham Lake	114.5
	Reservoir Three	116.3
	Reservoir Two	34.4
	Scarsdale Park	62.1
	Secor Lane	110.4
	Sprague Terminal Canal	151.8
	Twin Lakes Park	67.2
	Vernon Park	145.3
	Wolfs Lane Park	71.5
Industrial		
	Arthur Manor	0.9
	Chester Heights Park	0.0
	Lake Innisfree	1.6
	Pelham Lake	2.5
	Reservoir Three	0.0
	Reservoir Two	0.0
	Scarsdale Park	0.0
	Secor Lane	0.0
	Sprague Terminal Canal	142.0
	Twin Lakes Park	0.0
	Vernon Park	30.7
	Wolfs Lane Park	2.2
Park		
	Arthur Manor	5.1
	Chester Heights Park	19.5
	Lake Innisfree	117.8
	Pelham Lake	60.2
	Reservoir Three	114.7
	Reservoir Two	168.4
	Scarsdale Park	8.9
	Secor Lane	13.4
	Sprague Terminal Canal	62.4
	Twin Lakes Park	109.5
	Vernon Park	27.4
	Wolfs Lane Park	14.1
Open Water		
	Arthur Manor	0.1
	Chester Heights Park	1.7
	Lake Innisfree	61.0
	Pelham Lake	4.8
	Reservoir Three	21.5
	Reservoir Two	9.7
	Scarsdale Park	0.0
	Secor Lane	0.0
	Sprague Terminal Canal	9.7
	Twin Lakes Park	1.3
	Vernon Park	1.4
	Wolfs Lane Park	5.8
Total Watershed Area (Should be same as total)		5217

Discounts and Treatability- Structural SW Practices				
	T	D1	D2	D3
Structural Stormwater Management Practices	0.084	0.9	1.0	1.0

"Discounted" Load Reductions				
	N (lbs/year)	P (lbs/year)	TSS (lbs/year)	Bacteria(billion/year)
Existing Stormwater Management Practices	0	0	0	0
Structural Stormwater Management Practices	1,354	300	167,579	50,744,997
Total Reduction	1,354	300	167,579	50,744,997

Discounts and Treatability - Future Practices				
	T	D1	D2	D3
Street Sweeping	1.00	1.00	1.00	1.00
Structural Stormwater Management Practices	0.08	1.00	0.90	1.00
Land Reclamation	1.00	1.00	1.00	1.00

"Discounted" Load Reductions for Future Management Practices				
	N (lbs/year)	P (lbs/year)	TSS (lbs/year)	Bacteria(billion/year)
Street Sweeping	5405	1351	508330	0
Structural Stormwater Management Practices	1,354	300	167,579	50,744,997
Land Reclamation	790	139	39,812	758,387
Total Reduction	7,550	1,790	715,721	51,503,384

Existing Loads					
	Area (acres)	TN lb/year	TP lb/year	TSS lb/year	Fecal Coliform billion/year
URBAN SOURCES					
Urban Land	4,384	56,930	9,739	2,688,366	980,388,015
RURAL SOURCES					
Parks	716	1,433	143	71,629	8,595
Open Water	117	1,497	58	18,127	-
TOTAL LOAD	5,217	59,860	9,941	2,778,122	980,396,610
Storm Load		57,646	9,839	2,752,832	980,396,610
Non-Storm Load		2,213	101	25,290	0

Loads with Future Practices					
	Area (acres)	TN lb/year	TP lb/year	TSS lb/year	Fecal Coliform billion/year
URBAN SOURCES					
Urban Land	4,379	44,019	6,608	1,467,570	928,923,439
RURAL SOURCES					
Parks	721	1,433	143	71,629	8,595
Open Water	117	1,497	58	18,127	-
TOTAL LOAD	5,217	46,949	6,810	1,557,326	928,932,035
Storm Load		44,736	6,751	1,539,198	928,932,035
Non-Storm Load		2,213	59	18,127	0

Appendix G: WTM Load Reduction Results using Site-Specific Recommendations Restoration Scenarios

Summary of All Loads					
		TN lb/year	TP lb/year	TSS lb/year	Bacteria billion/year
Existing	Total	59,859.6	9,940.6	2,778,122.0	980,396,610.4
	Storm	57,646.3	9,839.1	2,752,831.9	980,396,610.4
	Non-Storm	2,213.2	101.5	25,290.1	-
With Future Practices	Total	46,949.0	6,809.8	1,557,325.7	928,932,034.6
	Storm	44,735.8	6,751.0	1,539,198.3	928,932,034.6
	Non-Storm	2,213.2	58.8	18,127.4	-

Target Load Reductions	Amount of Storm Load to be Reduced	Amount Reduced by Proposed Practices	Difference
30% TN	17,293.89	7,471.00	9,822.89
10% Bacteria	98,039,661.04	51,901,997.00	46,137,664.00