

Appendix E:
List of BMP Sites in the Waukegan Watershed

E.1.

Waukegan Prioritized Sites

Site	Location	Subwatershed	Land Use	Issues	Recommendations	Impact rating	Sediment (t/yr)	Phosphorus (lbs/yr)	Phosphorus (kg/yr)	BMP Cost Estimate	BMP Annual Maintenance Cost Estimate	10-yr Cost	10-yr Cost for TP Removed (\$/kg)	Cost	Technical Level
1-09 C	Waukegan St. (W of site 1-09 B)	Reservoir Brook	Town Road	Bare soil- adjacent parking lot, winter sand	Remove winter sand early spring, reseed bare soil and thinning grass on adjacent property	Low	15.8	13.4	6.1	\$575	\$75	\$1,325	\$218	Low	Low
2-07	100 Winona Shores Road	Forest Hill	Town Road	Slight to moderate ditch erosion (will get worse with big storms), slight road shoulder erosion, lots of winter sand	Vegetate ditch or armor with stone, vegetate shoulder	Low	13.8	13.8	6.3	\$1,150	\$50	\$1,650	\$264	Medium	Low
1-21	Waukegan ditches from Rt. 104 to bottom of hill at Wall Street	Pollard Shores	Town Road	Moderate to severe ditch erosion, moderate road shoulder erosion, winter sand	Vegetate ditch, reshape ditch, install sediment pools, vegetation mats or riprap	High	12.6	10.7	4.9	\$2,000	\$250	\$4,500	\$927	Medium	Medium
2-08	Picket Fence & Winona (across from cemetery)	Saywood Brook	State and Private Road Intersection	Severe ditch erosion at one point along road, ditch turnout is plugged- will take out road at some point, moderate surface erosion, bare soil	Change ditch cross-section & remove plug and/or stabilize new ditch, install detention pond?	Medium	17.9	17.9	8.1	\$3,625	\$250	\$6,125	\$754	High	High
1-08 A	Waukegan Swimming Bath House Parking Lot	Town Beach	Municipal/ Public	Moderate surface erosion, slight road shoulder erosion, bare soil in parking area, winter sand- snow dump area with lots of snow and winter sand adjacent to catchbasin that outlets directly to lake.	Add new surface material to parking area (crushed stone?) to prevent movement of sand, vegetate shoulder, Re-seed grassed areas, armor catchbasin outlet at beach and create plunge pool.	Medium	10.5	8.9	4.0	\$1,260	\$300	\$4,260	\$1,055	Medium	Medium
2-03 B	Rd ditch near 28 Forest Hill Rd	Forest Hill	Town Rd	Moderate surface erosion, moderate ditch erosion, moderate road shoulder erosion, bare soil, winter sand	Armor ditch with stone, install check dams, vegetate shoulder	Medium	8.9	8.9	4.0	\$2,400	\$500	\$7,400	\$1,833	High	High
2-05	Other side of 36 Forest Hill	Forest Hill	Town Road	Moderate surface erosion, moderate ditch erosion, moderate road shoulder erosion, bare soil, winter sand	Armor ditch with stone, install check dams, add another cross culvert and divert to level spreader	Medium	8	8	3.6	\$4,100	\$300	\$7,100	\$1,957	High	High
2-02	Robin Way	Western Shore	Town Unpaved road	Moderate surface erosion, moderate ditch erosion, moderate road shoulder erosion, bare soil	Armor ditch with stone, vegetate shoulder, remove railroad ties and direct to a vegetated swale	Medium	5.2	5.2	2.4	\$3,600	\$150	\$5,100	\$2,162	Medium	Medium
1-06	Waukegan St.	Town Beach	Town Road	Slight surface erosion, slight road shoulder erosion, bare soil, shoreline erosion from ice action, road sediment into catch basin and ditch along railroad tracks that outfalls directly to the lake	Vegetate shoulder, remove winter sand, redirect water from culvert away from lake and install a detention basin.	Low	6.3	5.4	2.4	\$3,000	\$250	\$5,500	\$2,245	High	High
1-04	84 Red Gate Lane	Eastern Shore	Town Unpaved Road	Severe surface erosion, severe ditch erosion, severe road shoulder erosion, bare soil, lots of winter sand	Armor inlet/outlet, install ditch and armor with stone, install turnouts, vegetate shoulder, Pave road?	High	1.6	1.6	0.7	\$3,150	\$250	\$5,650	\$7,785	High	High

E.1.

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2-06	Indian Trail Rd & Chapman Point	Saywood Brook	Town/Private Unpaved Road	General gravel road maintenance, poor crown, bare soil, moderate surface erosion, winter sand, wrong aggregate mix?	Build-up road/add new surface material, reshape crown, vegetate shoulder	Medium	18	18	8.2	\$8,300	\$2,500	\$33,300	\$4,079	High	High
2-24	Mayo Farms Cottages + Campground	Mayo Shores	Commercial	Slight road shoulder erosion, winter sand, undercut streambank with erosion and lack of vegetation, fields mowed to streambank	Vegetate shoulder, establish buffer	High	1.2	1.2	0.5	\$5,000	\$100	\$6,000	\$11,023	High	Medium
1-02 A	Next to 110 Water St-culvert/crossing upstream	Eastern Shore	Town Road	Moderate surface erosion, moderate road shoulder erosion, bare soil, streambank erosion, winter sand. Stormwater from Rd has created gullies toward crossing/stream, small stream flows to Waukewan- lots of inputs from winter sand and road shoulder	Vegetate shoulder, reshape ditch and armor with stone, install turnouts away from stream into woods, reseed bare soil & thinning grass	High	0.7	0.7	0.3	\$2,075	\$250	\$4,575	\$14,409	Medium	High
1-02 B	Next to 110 Water St. (downstream side)	Eastern Shore	Town Road	Moderate surface erosion, moderate road shoulder erosion, lots of winter sand, streambank erosion	Vegetate ditch, reshape ditch and armor with stone, install turnouts away from stream, reseed bare soil & thinning grass	High	0.7	0.6	0.3	\$1,475	\$250	\$3,975	\$14,606	Medium	High
1-22	Red Gate Road	Eastern Shore	Town Unpaved Road	Moderate surface erosion, undersized ditches on either side of road, moderate road shoulder erosion, winter sand, gravel road that slopes towards the lake	install turnouts, install ditch, buildup road with new surface material.	High	2.5	2.5	1.1	\$13,720	\$500	\$18,720	\$16,508	High	High
1-17	Rt. 104 stream crossing, Reservoir Brook, upstream	Reservoir Brook	State Road	slight surface erosion, unstable inlet/outlet (top erosion headwall), moderate ditch erosion	armor inlet/outlet, vegetate ditch, armor ditch with stone, reshape ditch	Low	0.4	0.4	0.2	\$1,300	\$100	\$1,000	\$5,512	Medium	Medium
1-07	Waukewan St. next to beach area (south end)	Town Beach	Town Road	Moderate surface erosion, shoreline erosion	Install runoff diverter (waterbar), or create infiltration and sediment capture with stone, add to buffer, reseed bare soil and thinning grass	Medium	0.6	0.5	0.2	\$1,100	\$100	\$2,100	\$9,259	Medium	Low
1-09 A	Stream Crossing West of Beach area, Waukewan St.	Reservoir Brook	Town Road	Unstable inlet, severe ditch erosion, moderate to severe road shoulder erosion, bare soil, winter sand, severe undercut streambank with lack of vegetation and erosion	Armor inlet of large road crossing, stabilize road shoulder/ditch to prevent undercutting, vegetate shoulder on upstream side, and add to buffer on downstream side of crossing.	Medium	1.2	1.2	0.5	\$3,280	\$200	\$5,280	\$9,700	High	Medium

E.1.

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1-19 A	Reservoir St between 20 and 22	Reservoir Brook	Town Road	Moderate to severe surface erosion, unstable outlet, clogged culvert, slight to moderate road shoulder erosion, bare soil, winter sand	Armor outlet, vegetate ditch, reshape ditch, vegetate shoulder, work with owner to clean/vegetate bank	High	0.4	0.4	0.2	\$2,550	\$100	\$3,550	\$19,566	Medium	Medium
1-24 A	Waukewan Street next to 107 (stream crossing)	Birch Hill	Town Road	Moderate surface erosion, unstable inlet/outlet, moderate road shoulder erosion	Armor inlet/outlet, vegetate shoulder around streambank	Medium	0.3	0.3	0.1	\$1,000	\$50	\$1,500	\$11,023	Medium	Medium
2-10	On RR tracks off Winona on Snake River by sign C41	Snake River	RR ROW	Continued historic sand movement, monitor in the future, lots of sand in channel, moderate surface erosion (deposition in stream at crossing), delta in stream	Armor inlet/outlet? Stabilize bare/eroding soils at crossing, vegetate slopes	Medium	1.2	1.2	0.5	\$5,000	\$100	\$6,000	\$11,023	High	High/Low
1-13	Wall Street culvert	Western Shore	Town Road	Moderate surface erosion, moderate road shoulder erosion, gravel road deposits lots of sediment into stream at crossing, stormwater from Waukewan Street flows to this spot and into ditch/drainage	Vegetate shoulder, water retention swales, create fore bays to trap sediment from eroding road shoulder and ditch,	High	1.2	1.2	0.5	\$2,900	\$500	\$12,900	\$23,700	High	High
1-18	Rt. 104 Reservoir Brook crossing	Reservoir Brook	State Road	Unstable outlet, broken culvert, undersized culvert, delta in stream	Armor outlet, enlarge culvert	High	0.6	0.4	0.2	\$4,500	\$0	\$4,500	\$24,802	High	High
2-01	9 Winona Shores (on rd)	Western Shore	Town Road	Slight surface erosion, slight road shoulder erosion, bare soil, road drainage intermittent, culvert under road, erosion of both shoulders	Vegetate shoulder (downstream and upstream)	Low	0.4	0.4	0.2	\$1,000	\$50	\$1,500	\$8,267	Medium	Low
1-08 C	RR tracks behind beach bath house on Waukewan St.	Town Beach	RR ROW	Slight to moderate ditch erosion, unknown pipes draining to ditch eroding slope above, lots of water in ditches.	Armor inlet/outlet (place stone at pipe outlets), armor ditch with stone, investigate pipes from adjacent residence.	Low	0.4	0.4	0.2	\$850	\$100	\$1,850	\$10,196	Medium	Low
1-02 C	Next to 108 + 110 Water St.	Eastern Shore	Residential	Undercut shoreline, lack of shoreline vegetation, inadequate shoreline vegetation, shoreline erosion	Mulch/erosion control mix, establish buffer, add to buffer	Medium	0.5	0.4	0.2	\$2,390	\$50	\$2,890	\$15,928	Medium	Low
1-19 B	Reservoir Rd Stream Crossing	Reservoir Brook	Residential	Slight to moderate surface erosion, bare soil, undercut shore line with lack of/inadequate shoreline vegetation	Mulch/erosion control mix, water retention swales (lots of parked vehicles and equipment on property), establish buffer, add to buffer, reseed bare soil and thinning soil	Medium	0.7	0.7	0.3	\$4,800	\$50	\$5,300	\$16,692	High	Medium

E.1.

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1-23	Bonney Shore Road	Perkins Cove	Private Road	Moderate surface erosion, moderate ditch erosion, slight road shoulder erosion, winter sand	Vegetate and/or armor ditches, line turnouts/ sediment capturing basins so they can be cleaned out	Medium	1.8	1.8	0.8	\$4,000	\$1,000	\$14,000	\$17,147	High	Medium
1-03 A	Next to 87/88 Red Gate Lane (culvert)	Eastern Shore	Town Road	Sever surface erosion, unstable inlet, crushed/broken inlet, severe ditch erosion, severe road shoulder erosion, winter sand, gravel Rd - poor surface material and no crown	Replace culvert, reshape ditch and armor ditch with stone, install turnouts and check dams, Build up/add new surface material (gravel) to road or pave, reshape to crown.	High	0.8	0.6	0.3	\$7,330	\$250	\$9,830	\$36,119	High	High
1-15	23 Wall Street on Road	Western Shore	Town Road	Moderate surface erosion, unstable inlet/outlet, culvert slightly crushed, moderate road shoulder erosion, sediment from road into stream ditch	armor inlet/outlet, replace/enlarge/lengthen culvert, vegetate ditch or armor with stone, vegetate shoulder	High	0.5	0.5	0.2	\$5,720	\$250	\$8,220	\$36,244	High	High
2-17	Saywood Brook @ Waukegan Road (Winona Rd intersection)	Saywood Brook	State Road	Slight road shoulder erosion, undercut streambank (slightly), inadequate shoreline vegetation	Vegetate shoulder, investigate origin of pipe that outlet from property to the stream, vegetate shoulder/stabilize near culverts	Low	0.4	0.4	0.2	\$1,920	\$50	\$2,420	\$13,338	Medium	Low
1-01	Across from 72 Water St.	Eastern Shore	Town Road	Moderate surface erosion, moderate road shoulder erosion, bare soil. Lots of bare soil drains to catch basin and outfalls directly at lake across the st.	Vegetate Shoulder, install detention basin and direct flow away from lake, stabilize cleared lot and road shoulder	Medium	0.9	0.8	0.4	\$5,000	\$250	\$7,500	\$20,668	High	High
1-03 B	88 Red Gate Lane	Eastern Shore	Driveway	Slight surface erosion, bare soil	Armor inlet/outlet, install runoff diverters- direct runoff away from stream and into the woods	Low	0.2	0.2	0.1	\$1,160	\$25	\$1,410	\$15,543	Medium	Low
1-03 C	84 Red Gate Lane	Eastern Shore	Driveway	Slight surface erosion, bare soil	Armor inlet/outlet, install runoff diverters	Low	0.2	0.2	0.1	\$1,160	\$25	\$1,410	\$15,543	Medium	Low
1-16	Wall Street culvert	Western Shore	Town Road	moderate surface erosion, moderate to severe ditch erosion, moderate road shoulder erosion, road sediment into stream-heavy inputs	Armor inlet/outlet, enlarge culvert, armor ditch and create turnouts vegetate shoulder.	High	0.2	0.2	0.1	\$2,750	\$250	\$5,250	\$57,871	High	Medium
1-05	74 Red Gate Lane	Eastern Shore	Town Road	Moderate surface erosion, unstable outlet, partially buried/clogged culvert, moderate ditch erosion, moderate road shoulder erosion, bare soil	Armor inlet and outlet, remove clog and clean out culvert, install ditch and armor with stone, install turnouts away from crossing, vegetate road shoulder, install plunge pool to slow flow down slope	High	0.3	0.3	0.1	\$5,470	\$250	\$7,970	\$58,570	High	High

E.1.

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1-08 B	Catchbasin at corner of RR tracks and Waukewan St.	Town Beach	Town Road	Slight surface erosion, slight to moderate ditch erosion, lots of winter sand, slight road shoulder erosion	Armor ditch with stone and vegetate shoulder to prevent movement of sediment to catchbasin that outlets at beach. Remove winter sand.	Low	0.2	0.2	0.1	\$875	\$125	\$2,125	\$23,424	Medium	Medium
1-12	Catch basin outlet to Waukewan at bend in Waukewan St.(at Wall St corner)	Pollard Shores	Town Road	Slight surface erosion, slight road shoulder erosion, lots of sediment into drainage ditch	install armored ditch, vegetate shoulder	Low	0.1	0.1	0.0	\$675	\$50	\$1,175	\$25,904	Low	Low
1-14	Wall Street culvert # 2	Western Shore	Town Road	Moderate surface erosion, moderate road shoulder erosion, road sediment into stream from gravel road	Vegetate ditch, vegetate shoulder, install detention basin and water retention swales to capture sediment	Medium	0.4	0.4	0.2	\$2,900	\$500	\$7,900	\$43,541	High	High
2-03 A	28 Forest Hill Road (driveway)	Forest Hill	Driveway (paved)	Moderate surface erosion, bare soil, winter sand build-up in riprap ditch along driveway	Install turnouts, clean out sediment from riprap ditch (and other debris), vegetate shoulder, reseed bare soil and thinning grass	Medium	0.1	0.1	0.0	\$1,500	\$50	\$2,000	\$44,092	Medium	Low
1-11	At bend of Waukewan St. near Wall St. (un-named stream crossing)	Pollard Shores	Town Road	Moderate surface erosion, slight road shoulder erosion, undercut streambank (upstream), lots of road sediment from sanding, pipe (green pvc) outlet in down-stream side from yard across st.	Install ditch near crossing headwalls and armor with stone, install turnout, vegetate/stabilize shoulder	Medium	0.2	0.2	0.1	\$1,675	\$250	\$4,175	\$46,022	Medium	Medium
1-20	Right branch of Sawmill Shores	Perkins Cove	Town Road	Slight road shoulder erosion	Vegetate shoulder	Low	0.1	0.1	0.0	\$1,200	\$50	\$1,700	\$37,479	Medium	Low
2-09	Saywood Brook on Seminole Road (culvert under RR tracks where it goes under the road)	Saywood Brook	RR ROW?	Undersized culvert on the downstream side, probably more water than used to be there and eroding downstream bank, large amount of eroded debris	Either replace culvert or armor bank	Medium	0.2	0.2	0.1	\$6,000	\$0	\$6,000	\$66,139	High	Medium
1-24 B	Stream Crossing near 107 Waukewan St (buffer)	Birch Hill	Residential	Undercut shoreline with lack of/inadequate vegetation	Establish buffer, add to buffer	Low	0.1	0.1	0.0	\$1,920	\$50	\$2,420	\$53,352	Low	Low
1-09 B	Culvert West of Site 1-09 A near driveway of #82 Waukewan St.	Reservoir Brook	Town Road, Driveway	Slight surface erosion, unstable inlet, slight to moderate ditch erosion, slight road shoulder erosion, bare soil, winter sand	Armor inlet, vegetate shoulder, establish buffer	Low	0.1	0.1	0.0	\$1,680	\$250	\$4,180	\$92,153	Medium	Low
2-22	Snake River crossing inlet to Waukewan	Snake River	State Road	Winter sand, moderate road shoulder erosion, lack of shoreline vegetation, stormwater created gully has eroded slope towards water carrying trash etc.	Create curbing to direct flow away from lake and to a detention area, stabilize shoreline/road shoulder, establish buffer	High	0	0	0.0	\$2,130	\$100	\$3,130	n/a	Medium	High

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2-04	36 Forest Hill	Forest Hill	Town road	unstable inlet/outlet, hanging culvert into plunge pool with eroded bank, bare soil	armor inlet and outlet, Install plunge pool at outlet, vegetate shoulder	Low	0	0	0.0	\$1,875	\$100	\$2,875	n/a	Medium	Medium
2-23	Waukewan Rd, driveway adjacent w/ cut wood	Otter Pond	State Road	Slight ditch erosion, winter sand, slight road shoulder erosion, unknown source of water drains directly to lake	Vegetate shoulder, establish buffer	Low	0	0	0.0	\$480	\$50	\$980	n/a	Low	Low
1-10 A	Waukewan St. next to Carder Lane (see photo for utility pole)	Birch Hill	Town Road	Unstable inlet/outlet, slight road shoulder erosion, bare soil, winter sand	Armor inlet/outlet, vegetate shoulder, reseed bare soil and thinning grass	Low	0.1	0	0.0	\$700	\$75	\$1,450	n/a	Medium	Low
1-10 B	House next to Carder Ln on Waukewan St.	Birch Hill	Residential	Lack of streambank vegetation, inadequate vegetation, mowed close to streambanks	Establish buffer, add to buffer	Low	0	0	0.0	\$960	\$25	\$1,210	n/a	Medium	Low