

Town of Caroline
Cayuga Lake Watershed

	Best Management Practices (BMP)	Existing Means of Implementation (law, regulation, practice, etc)	Degree of Implementation
			(2-fully, 1-partially, 0-not at all, n/a-not applicable)
1-01	Identify retrofit opportunities		0
1-02	Identify habitat and natural conveyance system restoration opportunities		0
1-03	Establish retention/detention areas		0
1-04	Acquire additional land for locating treatment facilities		0
1-05	Encourage homeowners to place compost piles away from waterbodies and roadways		0
1-06	Encourage proper use and disposal of lawn and other household chemicals	Practice: Tompkins County Solid Waste Management Program handles household hazardous waste	2
1-07	Institute turf management practices on golf courses and parks and recreation areas		0
1-08	Undertake storm drain stenciling	Practice: Cayuga Lake Watershed Network, Cayuga Lake Watershed Intermunicipal Organization	2
1-09	Encourage volunteer programs, such as adopt-a-highways and adopt-a-stream, etc.	Practice: Cayuga Lake Watershed Network, Cayuga Lake Watershed Intermunicipal Organization, Friends of Fall Creek, Friends of Six Mile Creek, Six Mile Creek Monitoring, Cayuga Lake Defense Fund and SLAP-5 all active	2
1-10	Include high percentage of indigenous plants in new landscaping on privately-owned properties (excluding arboretums, horticultural gardens, and sites requiring turf grasses)	Subdivision Law, Appendix A, "Design Guidelines," A-2(4): [procedure for review]: Will a vegetative buffer be maintained adjacent to wetlands and surface waters, including creeks, streams, springs, lakes and ponds? If not, will such a vegetative buffer of native species be created?	1
1-11	Encourage water conservation		0
1-12	Develop outreach programs targeted at specific problems related to water quality management & resource conservation	Practice: FL/LOWPA, the Finger Lakes Institute, county SWCD, Cornell Cooperative Extension and local watershed groups listed above each develop programs	2
1-13	Encourage proper control of pet wastes		0
1-14	Encourage continued operation of private storm water runoff control structures		0
1-15	Discourage feeding of waterfowl		0

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1-16	Discourage the introduction of exotic aquatic species (Eurasian water milfoil, zebra mussels, water chestnut, etc)	Practice: Finger Lakes Institute "Weeds Watch Out" program, as well as other initiatives by CCE, SWCD, and other local watershed groups	2
1-17	Encourage continued (periodic) operation and maintenance of private septic disposal systems	Practice: SLAP-5 has conducted extensive education and outreach throughout the Finger Lakes region regarding proper operation and maintenance of septic systems, along with county CCE's, SWCD's and other pertinent groups	2
1-18	Effective and consistent application and enforcement of stormwater regulations & requirements		0
1-19	Require certification of existing on site septic systems for property transfers or building expansions.	Charter and Code of Tompkins County NY, Sanitary Code: inspections during any constructin activity (bldg expansion, new facility, etc.)	2
1-20	Require entire property (existing as well as proposed) to be included in stormwater analysis/calculation.		0
1-21	Minimize the amount of land disturbed and the duration of disturbance		0
1-22	Preserve natural features and conform substantially with the natural boundaries and alignment of waterbodies	Subdivision Law, Appendix A, "Design Guidelines," A-2(5): [procedures for review] Does the design of the subdivision incorporate existing hedgerows and tree lines between fields or meadows, and minimize impacts on large woodlands (greater than 5 acres), especially those containing many mature trees or significant wildlife habitat? See also A-2(12): Will the proposed subdivision maintain the rural character of the community by incorporating roads that follow the natural topography?	2
1-23	Retain and protect trees and other natural vegetation on and near disturbed sites	Subdivision Law, Appendix A, "Design Guidelines," A-2(2): [procedure for review] Will the propesd subdivision preserve and maintain mature woodlands, existing fields, pastures, and meadows and create sufficient buffer areas to minimize conflicts between residential and agricultural uses?	2
1-24	Account for topography and soil type in efforts to minimize erosion potential	Subdivision Law, Appendix A, "Design Guidelines," A-2(1): [procedure for review] Will the proposed subdivision protect all floodplains, wetlands, and steep slopes from clearing, grading, filling, or construction...?	2
1-25	Maintain runoff rates similar to pre-construction levels		0

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1-26	Minimize the creation of impervious areas		0
1-27	Control increased runoff caused by changed surface conditions to minimize the danger of flooding, erosion, sedimentation and pollutants entering waterbodies prior to, during and after construction		0
1-28	Use temporary vegetation and mulching to protect exposed and critical areas during development		0
1-29	Redistribute topsoil within the boundaries of the disturbed land for seeding and planting		0
1-30	Stabilize disturbed soils as soon as possible		0
1-31	Minimize the use of cut and fill operations. Conform such operations to topography and soils to minimize erosion potential and adequately accommodate runoff	Subdivision Law, Appendix A, "Design Guidelines," A-2(1): [procedure for review] Will the proposed subdivision protect all floodplains, wetlands, and steep slopes from clearing, grading, filling, or construction...?	2
1-32	Use appropriate solid and hazardous waste generation and disposal practices including source controls and recycling		0
1-33	Encourage construction site management techniques which include the proper handling and disposal of pesticides and petroleum products and containers		0
1-34	Ensure proper operation and maintenance of runoff management facilities		0
1-35	Target training for contractors, inspectors and zoning and planning officials.	Practice: When practical	2
1-36	Require tree surveys and/or cutting plans.		0
1-37	Develop priority list for BMP's - use of vegetative low areas for retention/infiltration.		0
1-38	Encourage cluster development.		0
1-39	Require connection to and/or extension of existing water & sewer if project is within 500 feet of existing infrastructure		0
1-40	Enact limits on driveway grades.		0

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1-41	For redevelopment, employ regulations that provide for technologically advanced (on and off) site wastewater treatment systems to optimize efficiencies and address "challenging" sites		0
1-42	Implement Federal/State Stormwater (SPDES) Phase II requirements	Practice: rules for Pre/Post Construction facilitated by county SWCD and Tompkins County PlanningDept: an MS4 Community	2
2-01	Consider potential water quality impacts when selecting silviculture system (yarding system, site preparation, pesticides employment, etc)		0
2-02	Consider harvesting practices		0
2-03	Seasonal preference for logging operations		0
2-04	Have specialists (geologist, soil scientist, geotechnical engineer, wildland hydrologist) review plans in high erosion hazard areas		0
2-05	Preplan harvest areas, skid trails, and access so as to be on stable soils, avoiding steep gradients, multiple stream crossings, poor drainage areas, etc.		0
2-06	Limit grades of access roads.		0
2-07	Require stabilization of roads/drives to forestry site.		0
2-08	Employ natural topography and contour for design of road network		0
2-09	Require stormwater controls for increased runoff from ground cover modification		0
2-10	Consider site restoration		0
2-11	Use Agricultural Environmental Management (AEM)	Practice: Active and administered by county SWCD; projects are prioritized each year based on local needs and EPF funding	2
2-12	Require farms seeking agricultural value assessment to participate in AEM		0
3-01	Develop an operation and maintenance program for existing modified streams that includes identification of opportunities and actions to restore habitat and the physical and chemical characteristics of these streams.		0

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3-02	Improve stream quality by controlling instream sedimentation and selectively clearing debris		0
3-03	Establish or reestablish riparian buffers		0
3-04	Prevent animal wastes from entering waterbodies		0
3-05	Attempt vegetative stabilization before undertaking structural measures		0
3-06	Design and construct shore erosion control facilities, in accordance with an erosion and sedimentation control plan, in areas where marsh creation and soil bioengineering are ineffective or where existing protection methods are being flanked or are falling		0
3-07	Schedule the periodic maintenance of sediment control measures, and inspect and repair them as needed in conformance with established schedule.		0
3-08	Protect streambanks through direct nonstructural means, such as new vegetation or protection of existing vegetation; direct structural means, such as revetments and bulkheads; indirect nonstructural means, such as regulating irrigation near streambanks or rerouting overbank drainage; or indirect structural means, such as deflecting channel flow away from streambanks with dikes, board fences and gabions	Subdivision Law, Appendix A, "Design Guidelines," A-2(4): [procedure for review] Will a vegetative buffer be maintained adjacent to wetlands and surface waters, including creeks, streams, springs, lakes and ponds? If not, will such a vegetative buffer of native species be created?	2
3-09	Use setbacks to minimize disturbance of land adjacent to streambanks and shorelines		0
3-10	Prevent discharges to waterbodies in amounts that would adversely affect the taste, color or odor of the waters, or would impair the waters for their best usages		0
3-11	Consider wetlands and riparian areas and their non-point source (nps) control potential on a watershed scale		0

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3-12	Identify existing functions of those wetland and riparian areas with significant nps control potential when implementing nps management practices. Do not alter wetlands or riparian areas to improve their water quality at the expense of their other functions		0
3-13	Conduct permitting, licensing, certification and nonregulatory nps pollution activities in a manner that protects wetland functions		0
3-14	Special zoning considerations to protect wetland areas		0
3-15	Use appropriate pretreatment practices such as vegetated systems or detention or retention basins to prevent adverse impacts to wetland functions that affect nps pollution abatement from hydrologic changes, sedimentation, or contaminants		0
3-16	All projects should require wetlands certification.		0
4-01	Clean maintenance areas regularly preferably by vacuuming to remove trash, sandings, paint chips, etc.		n/a
4-02	Prevent residue from being carried into surface waters by performing abrasive blasting within plastic tarp enclosures on windless days or within spray booths		n/a
4-03	Provide proper disposal/recycling facilities to marina patrons, preferably covered receptacles		n/a
4-04	Establish fish cleaning areas, and implement rules governing the conduct of fish cleaning operations		n/a
4-05	Educate boaters on the importance of proper fish cleaning practices		n/a
4-06	Implement fish composting where appropriate		n/a
4-07	Store materials in areas impervious to the type of material stored. Build curbs, berms, or other barriers around the areas to contain spills		n/a
4-08	Use separate, clearly labeled containers for the disposal of oil, gasoline, antifreeze, diesel, kerosene, and mineral spirits		n/a

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4-09	Target outreach programs about proper disposal at marina patrons through the use of signs, mailings, and other means		n/a
4-10	Promote the use in bilges of oil-absorbing materials, and replace them as necessary, preferably recycling, or disposing of them in accordance with petroleum disposal regulation		n/a
4-11	Use a container under the air vent while refueling inboard tanks if the tank vents are not equipped with a fuel/air separator		n/a
4-12	Prohibit in-water hull scraping or any underwater process to remove paint from boat hulls		n/a
4-13	Wash the boat hull above the waterline by hand, using only necessary amounts of detergents and cleaning compounds that are phosphate-free and biodegradable		n/a
4-14	Prohibit the use of detergents and cleaning compounds containing ammonia, sodium hypochloride, chlorinated solvents, petroleum distillates, alcohol, or lye		n/a
4-15	Educate individuals about the importance of trash reduction and recycling through: interpretive and instructional signs placed at marinas and boat-launching sites, pamphlets or flyers, newsletters, inserts in billings, meetings and presentations, workshops, and certification programs		n/a
4-16	Inspect pumpout facilities regularly, and repair them, if practical, under a maintenance contract with a competent contractor		n/a
4-17	Add language to slip lease agreements mandating the use of pumpout facilities and specifying penalties for failure to comply		n/a
4-18	Place dye tablets in holding tanks to identify and discourage illegal disposal		n/a
4-19	Prohibit motorized vessels from areas (define areas) that contain important shallow-water habitats		n/a

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4-20	Establish and enforce no-wake zones to decrease turbidity and reduce erosion potential from boat wakes		n/a
4-21	Design and site marinas to maximize exchange of marina basin water. Limit basins and channels with square corners that tend to trap flotsam, and place dock structures in a manner that promotes circulation		n/a
4-22	Perform a preconstruction assessment, which includes a water quality monitoring and modeling methodology, to predict post-construction water quality conditions		n/a
4-23	Monitor water quality during construction to protect ambient water quality to the maximum practicable extent		n/a
4-24	Develop a marina siting policy to discourage development in areas containing important habitat designated by local, State, or federal agencies		n/a
4-25	Conduct surveys and employ rapid bioassessment techniques to assess historic habitat function (e.g. spawning, nursery, and migration pathways) and potential impacts to these and other biological functions and resources		n/a
4-26	Encourage the redevelopment or expansion of existing marina facilities that have demonstrated minimal environmental impacts instead of developing new marina facilities		n/a
4-27	Consider alternative sites with minimal potential environmental impacts when the use of previously disturbed sites is not feasible		n/a
4-28	Minimize disturbance of indigenous vegetation in the riparian area		n/a
4-29	Use soil bioengineering or plants, wherever conditions allow, to restore damaged habitat along shorelines and streambanks		n/a

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4-30	Use properly designed and constructed engineering practices that minimize shoreline disturbance in areas where soil bioengineering and plants are ineffective		n/a
4-31	Use appropriate shore erosion control methods, such as returns or return walls, in areas where existing protection methods are being flanked or are falling		n/a
4-32	Plan and design all steambank, shoreline, and navigation structures so that they do not transfer erosion energy to or otherwise cause visible loss of surrounding streambanks or shorelines		n/a
4-33	Locate and design fuel stations so that spills can be contained in a limited area		n/a
4-34	Design and install underground fuel storage tanks according to State regulations, including the provision of detection systems and automatic fuel tank and pump leak shut-offs		n/a
4-35	Provide aboveground fuel tanks and fueling areas with a curbed or diked storage area to handle containment volumes meeting State (and local) codes and inspect regularly		n/a
4-36	Use preferred pumpout systems: fixed-point, portable, dedicated slipside, and pumpout boats		n/a
4-37	Design onsite wastewater treatment systems to specifically handle waste from vessels		n/a
4-38	Post pumpout facility location and regulations at the marina. Charge fees that encourage rather than discourage facility use. Consider offsetting the cost of maintaining pumpout facilities by fuel sales where these facilities are conveniently located in close proximity to one another		n/a
4-39	Restrict boat repair and maintenance activities to clearly marked designated areas to prevent debris from falling into the water and preventing invasive species		n/a

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4-40	Secure all fueling facilities and storage areas with appropriate shut-off devices and security locks and inspect regularly		n/a
4-41	Design fueling stations with spill containment equipment that is stored in a clearly marked location, accessible to work and storage areas. Post emergency phone numbers in a prominent location		n/a
4-42	Design a spill contingency plan		n/a
4-43	Inspect and maintain all containment berms or devices in accordance with State regulations. Investigate immediately signs of leakage or spillage, and undertake cleanup in accordance with applicable best management practices		n/a
4-44	Have a trained operator present and prepared to respond to accidental spills		n/a
4-45	Maintain daily inventory records to identify abnormal loss or gain of liquid		n/a
4-46	Prohibit the cleaning of hoses, fittings, pumps, and other accessory equipment on piers, docks or adjacent upland to prevent runoff into the marina basin or other surface or groundwater		n/a
4-47	Create and/or maintain a dedicated fund for maintenance in the case of government-owned facilities		n/a
4-48	Restrict the operation of pumpout facilities to trained marina personnel only		n/a
5-01	Conduct road and bridge maintenance (de-icing material usage and storage, pothole repair, bridge washing, scraping and painting, etc) according to best management practices	Practice: Supervisor is aware of the need for basic BMPs, which are used when feasible...salt storage, hydroseeding, etc	1
5-02	Conduct right-of-way activities (mowing, brush removal, pesticide and fertilizer use, etc) - according to best management practices	Practice: hydroseeding is performed after ditch cleaning, no chemicals are ever used; however, ditch maintenance typically takes place during wet seasons, although operators are cautious when near waterbodies	1

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5-03	Include high percentage of indigenous plants in new landscaping on public-owned properties (excluding arboretums, horticultural gardens, and site requiring turf grasses)	Practice: Soil and Water Conservation District supplies a variety of indigenous plants free of charge that slow erosion to land owners. See also Subdivision Law, Appendix A, "Design Guidelines," A-2(4): re: vegetative buffers adjacent to wetlands and surface waters	2
5-04	Implement a regular inspection and maintenance plan of existing structures	Practice: Few such structures in town; where present, inspections occur as necessary	1
5-05	Develop and identify erosion/sediment control areas (examples include steep slopes, easily erodible soils, and nearby sensitive areas) and retrofit opportunities		0
5-06	Require percentage of roads to be tested with non-ice and non-sand de-icing.	Practice: "Ice-be-gone" which is a salt alternative has been used in the town	1
5-07	Minimize the amount of land disturbed and the duration of disturbance	Practice: General operating procedure	2
5-08	Preserve natural features and conform substantially with the natural boundaries and alignment of waterbodies	Practice: General Highway Dept. operating procedure. See also Subdivision Law, Appendix A, "Design Guidelines," A-2(5): [procedure for review] Does the design of the subdivision incorporate existing hedgerows and tree lines between fields or meadows, and minimize impacts on large woodlands (greater than 5 acres), especially those containing many mature trees or significant wildlife habitat? See also A-2(12): [procedure for review] Will the proposed subdivision maintain the rural character of the community by incorporating roads that follow the natural topography?	2
5-09	Retain and protect trees and other natural vegetation on and near disturbed sites	Practice: General Highway Dept. operating procedure. See also Subdivision Law, Appendix A, "Design Guidelines," A-2(2): [procedure for review] Will the proposed subdivision preserve and maintain mature woodlands, existing fields, pastures, and meadows and create sufficient buffer areas to minimize conflicts between residential and agricultural uses?	2
5-10	Retain additional runoff sites		0
5-11	Minimize the creation of impervious areas		0

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5-12	Treat increased runoff caused by changed surface conditions to minimize the danger of flooding, erosion and pollutants entering waterbodies prior to, during and after construction	Practice: Geotextiles and silt fencing have been used in an effort to retain soil and increase vegetative cover	2
5-13	Use temporary vegetation and mulching to protect exposed and critical areas during development	Practice: Soil and Water Conservation Dist. performs hydroseeding upon request See Also Subdivision Law, Appendix A, "Design Guidelines," A-2(4) [as written under BMP#1-28]	2
5-14	Redistribute topsoil within the boundaries of the disturbed land for seeding and planting	Practice: General operating procedure	2
5-15	Stabilize disturbed soils as soon as possible	Practice: General operating procedure	2
5-16	Minimize the use of cut and fill operations. Conform such operations to topography and soils to minimize erosion potential and adequately accommodate runoff	Subdivision Law, Appendix A, "Design Guidelines," A-2(1): [procedure for review] Will the proposed subdivision protect all floodplains, wetlands, and steep slopes from clearing, grading, filling, or construction...?	2
5-17	Control erosion and sedimentation prior to, during and after site preparation and construction	Practice: General operating procedure w/soil stabilization techniques	2
5-18	Require long term stormwater management plan.		0
5-19	Require long term sedimentation control & maintenance.		0
5-20	Target existing public holdings, such as parks, for removing unnecessary impervious surfaces		0
5-21	Incorporate New York State Department of Transportation design and guidance documents, standard specifications, and procedural manuals (<i>Highway Design Manual, Environmental Procedures Manual, Maintenance Guidelines, etc</i>) into local laws and operating procedures		0
5-22	Ensure application of appropriate solid and hazardous waste generation and disposal practices including source controls and recycling	Practice: Basic, routine controls are in place	1
5-23	Ensure proper operation and maintenance of runoff management facilities	Practice: [there are only two catch basins in the town]	2
5-24	Participate in Cornell Local Roads Program activities and training	Practice: Supervisor participates regularly	2

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5-25	Target training programs at highway officials, contractors, construction workers, inspectors, zoning and planning officials	Practice: When practical	2
5-26	Target training and outreach programs about the proper handling of materials, leakage and spill prevention and spill response procedures at maintenance staff and workers	Practice: several employees are trained firemen and know how to proceed accordingly	2
6-01	Conduct regular inspections of OWTS at a frequency adequate to determine failure and undertake required maintenance		0
6-02	Institute setback guidelines		0
6-03	Promulgate plumbing codes that require practices that are compatible with OWTS		0
6-04	Target outreach programs at homeowners, contractors and developers	Practice: Cornell Cooperative Extension, Soil and Water Conservation District, Cayuga Lake Network, Cayuga Lake I/O all conduct education and outreach programs	2
6-05	Inspection of all OWTS at property transfer or within 1 year prior to transfer	Charter and Code of Tompkins County NY, Sanitary Code: inspections during any construction activity (bldg expansion, new facility, etc.)	2
6-06	Require all properties within 500' of municipal service to connect.		0
6-07	Set goals for effluent limits (nitrogen, phosphorous, BOD, etc)		0