

Table 5.4 Stony/Paint Creek Action Matrix

	Goals & Objectives Addressed	Pollutants Addressed	Uses Addressed	Sources Addressed	Causes Addressed	Estimated Cost	Evaluation Methods and Status	Level of Effort/Interim Milestones	Stony/Paint Subbasins (See Appendix C)
Plans & Policies									
1. Identify facilitating body, organizational structure, and decision-making mechanism for the subwatershed group.	1-A	All	All	All	All	Minimal; costs to host meetings can be shared by communities; communication can be primarily via email.	Documentation of progress, including formalization of the group, meeting minutes.	Attendance at meetings and participation by Stony/Paint Subwatershed Group	All
2. Obtain community commitments of support for operation of and participation in subwatershed group.	1-A	All	All	All	All	Minimal; costs can be shared by participating entities.	Resolutions of support from governing bodies.	Representatives pass resolutions and/or continue participation	All
3. Establish a mechanism for the subwatershed group to research, report on, and pursue financing options.	1-B	All	All	All	All	Minimal; costs can be shared by participating entities.	Documentation of efforts in meeting minutes, including number of grants pursued.	Staff and CRWC send emails on grant notifications; provide handouts at meetings	All
4. Foster relationships and coordinate efforts with other subwatershed groups.	1-C	All	All	All	All	Minimal; costs can be shared by participating entities.	Documentation of efforts in meeting minutes.	Staff across subwatersheds attend meetings of difference groups	All
5. Participate in regional planning efforts.	1-C	All	All	All	All	Minimal; costs can be shared by participating entities.	Documentation of efforts in meeting minutes.	Attendance at meetings and participation by Stony/Paint Subwatershed Group	All
6. Collaborate with the Clinton River Area of Concern Public Advisory Council (PAC) and participate in Remedial Action Plan updates.	1-C	All	All	All	All	Minimal; costs can be shared by participating entities.	Documentation of efforts in meeting minutes.	Attendance at meetings and participation by Stony/Paint Subwatershed Group	All
14. Develop comprehensive sanitary sewer infrastructure plans.	3-A, 3-B, 3-C	Bacteria, nutrients	Fishery, aquatic life & wildlife, recreation	Failing septic systems, illicit connections	Improper construction / maintenance	\$5,000-\$20,000 Master Plan	Completed Master Plan	5 subshed representatives have existing plans; 1 community planned in 5 years	All Oakland County subbasins; SC-B; SC-C; SC-F; SC-G
15. Develop and implement local Storm Water Master Plans, including stormwater management ordinances and maintenance programs (see also Action 15 under Development / Redevelopment Regulations and Design Standards & Maintenance Practices).	2-B, 3-A, 3-B, 3-C, 3-D, 3-E, 3-F, 4-A; 8-A; 8-B; 8-C; 8-D	Hydrology, sediment, nutrients, bacteria	Navigation, fishery, aquatic life & wildlife, recreation, riparian corridor, preservation of habitats / open space / threatened & endangered (T&E) species	Stormwater runoff, decreased groundwater recharge, streambanks, flow fluctuations, construction site runoff, failing septic systems, residential fertilizer use, illicit connections	Increased impervious surfaces, removal of vegetation, poor storm water management practices, improper erosion and sedimentation controls	Using existing templates tailor to individual community needs. \$2,000 - \$12,000 depending on level of detail.	Completed ordinance / design standards	5 existing/ongoing; 5 planned in 5 years; 2 planned long-term	All

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22. Develop and implement a long-term monitoring strategy. (2-part program consisting of using volunteer monitoring and long-term sampling programs).	2-A, 2-B, 3-A, 3-B, 3-C, 3-D, 3-E, 3-G, 4-A; 8-A; 8-B; 8-C; 8-D	All	Navigation, fishery, aquatic life & wildlife, recreation, riparian corridor, preservation of habitats / open space / T&E species	All	All	Volunteer monitoring \$15,000 annually; long-term water quality sampling program \$200,000; long-term modeling efforts \$150,000	Volunteer monitoring ongoing-track progress; long-term dependent on funding availability.	Subwatershed wide~150 sq.miles	Subbasins with tributaries-All SC; PC-A; PC-B; PC-E; PC-J; PC-L
28. Inventory natural features and develop Natural Resource Protection Plans.	2-A, 2-B, 3-A, 3-B, 3-C, 3-D, 3-E, 3-F, 4-A, 5-A, 6-A, 7-A; 8-D	Hydrology, sediment, elevated temperature, nutrients, bacteria	All	Stormwater runoff, decreased groundwater recharge, streambanks, flow fluctuations, construction site runoff, low flow, residential fertilizer use	Increased impervious surfaces, removal of vegetation, lack of buffer	~\$15,000-\$50,000 per community depending on size and whether field surveys are utilized.	Plan is prepared and utilized during site planning review processes. Oakland Township has completed this process. Rochester has virtually no remaining natural areas that are not already under protection.	Subwatershed wide~150 sq.miles	All
36. Develop a Stony/Paint Green Infrastructure Plan	2-A, 2-B, 3-A, 3-B, 3-C, 3-D, 3-E, 3-F, 4-A, 5-A, 6-A, 7-A; 8-D	Hydrology, sediment, elevated temperature, nutrients, bacteria	All	Stormwater runoff, decreased groundwater recharge, streambanks, flow fluctuations, construction site runoff, low flow, residential fertilizer use	Increased impervious surfaces, removal of vegetation, lack of buffer	Staff time from Oakland County and community participation. \$100/hour with approximately 80 hours/community	Overall map is created as a guiding document for long-term planning efforts	8 communities in OC to support OC efforts to prepare map.	All
37. Participate in and promote the Southeast Michigan Greenways Network and related county trail and greenway development projects.	2-A, 2-B, 3-E, 3-F, 5-A, 7-A	Hydrology, sediment, nutrients	Fishery, aquatic life & wildlife, recreation, riparian corridor	Stormwater runoff, streambanks, flow fluctuations, construction site runoff	Increased impervious surfaces, removal of vegetation, poor storm water management practices, removal of vegetation, improper erosion and sedimentation controls	Staff time to attend meetings regarding potential projects.	Documentation of efforts in meeting minutes, including grants pursued.	All communities supporting these efforts by providing comments/input on proposed projects.	All
40. Review existing data regarding the presence of PCBs and mercury in Stony Creek Lake, Lake Orion and Lakeville Lake and develop Total Maximum Daily Load plans to restore as required under Clean Water Act Section 303(d).	3-G	Organic chemicals, heavy metals	Fishery, aquatic life & wildlife, recreation	Lake sediments, atmospheric deposition	Historic contamination	Costs have not been developed.	TMDL plans developed and implemented	Not yet determined	TMDL areas

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41. Gather and evaluate current and historic fisheries data and establish fisheries restoration targets.	3-A, 3-B, 3-D, 3-E, 4-A; 8-D	Hydrology, sediment, nutrients, elevated temperature, salt	Fishery, aquatic life & wildlife, recreation	Stormwater runoff, decreased groundwater recharge, road-stream crossings, road ditches, streambanks, flow fluctuations, construction site runoff, low flow	Increased impervious surfaces, removal of vegetation, poor stormwater management practices, poor road / bridge maintenance, improper erosion and sedimentation controls, impoundments	Staff time to attend meetings regarding potential projects, commenting on studies and surveys.	Data is collected and restoration targets/potential actions are implemented. Completed MDNR report reviewed	Studies ongoing by MDNR, Trout Unlimited, CRWC. Completed MDNR Report	Critical Area Subbasins
42. Encourage communities and county agencies to incorporate fisheries restoration measures into local plans, ordinances, and standards.	2-B, 4-A	Hydrology, sediment, nutrients, elevated temperature, salt	Fishery, aquatic life & wildlife, recreation	Stormwater runoff, decreased groundwater recharge, road-stream crossings, road ditches, streambanks, flow fluctuations, construction site runoff, low flow	Increased impervious surfaces, removal of vegetation, poor stormwater management practices, poor road / bridge maintenance, improper erosion and sedimentation controls, impoundments	Costs may be included as part of other ordinance development (Action 15, 36)	Reference to fisheries incorporated into other documents	Communities along Critical Area corridor	Critical Area Subbasins
44. Inventory existing access points and recreation opportunities to identify gaps and needed improvements.	2-A, 2-B, 5-A	Hydrology, elevated temperature	Navigation, fishery, aquatic life & wildlife, recreation, riparian corridor, preservation of habitats / open space / T&E species	Stormwater runoff	Conversion to other land uses, increased impervious surfaces	Cost based on preparation of recreation master plan. \$10,000-\$30,000.	Plan includes recreational opportunities and amenities in master plan.	Communities prepare master plan	Critical Area Subbasins
45. Evaluate opportunities to expand recreation access through acquisition and conservation easements and integrate these opportunities into local recreation plans.	2-A, 2-B, 3-A, 3-B, 3-C, 3-D, 3-E, 3-F, 4-A, 5-A, 7-A;8-A;8-D	All	Navigation, fishery, aquatic life & wildlife, recreation, riparian corridor, preservation of habitats / open space / T&E species	Stormwater runoff	Conversion to other land uses, increased impervious surfaces	Cost associated with time to identify parcels and incorporate on overall subshed map (\$10,000-\$20,000); property acquisition variable costs.	Communities/counties incorporate into local plans; funding opportunities identified and procured for property acquisition.	2 counties/7 municipalities	Critical Area Subbasins
47. Identify and prioritize prime farmland for protection.	6-A	Hydrology	Agricultural use, historic character	Stormwater runoff	Conversion to other land uses, increased impervious surfaces	Review agricultural lands; draft and finalize recommendations. 80-120 hours @ \$100-\$150/hour (consultant). Costs are per community, but could be reduced through joint effort.	Communities/counties develop recommendations to protect farmland, develop prioritized list.	3 communities	SC-B; SC-G; SC-C; SC-F; SC-H; SC-I; SC-J; SC-L; SC-N; SC-O; PC-I; PC-J; PC-K; PC-Q

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48. Integrate farmland protection priorities into community master plans and ordinances.	6-A, 7-A	Hydrology	Agricultural use, historic character	Stormwater runoff	Conversion to other land uses, increased impervious surfaces	Review agricultural lands; draft and finalize recommendations. 80-120 hours @ \$100-\$150/hour (consultant). Costs are per community, but could be reduced through joint effort.	Communities/counties develop recommendations to protect farmland, priorities are integrated into plans/ordinances.	2 communities within 5 years	SC-B; SC-G; SC-C; SC-F; SC-H; SC-I; SC-J; SC-L; SC-N; SC-O; PC-I; PC-J; PC-K; PC-Q
49. Support farmland preservation programs.	6-A, 7-A	Hydrology	Agricultural use, historic character	Stormwater runoff	Conversion to other land uses, increased impervious surfaces	Cost associated with supporting current preservation programs by providing comment/input.	Communities pass resolutions and/or incorporate support for farmland preservation into local plans.	3 communities	SC-B; SC-G; SC-C; SC-F; SC-H; SC-I; SC-J; SC-L; SC-N; SC-O; PC-I; PC-J; PC-K; PC-Q
52. Integrate historic preservation goals into community master plans.	7-A		Historic character		Conversion to other land uses, lack of public knowledge	Review agricultural lands; draft and finalize recommendations. 80-120 hours @ \$100-\$150/hour (consultant). Costs are per community, but could be reduced through joint effort.	Communities initiate project and develop recommendations, historic preservation goals will be integrated into master plans.	12 communities total	All
52B. Explore opportunities to develop historic preservation ordinances.	7-A		Historic character		Conversion to other land uses, lack of public knowledge	component of above costs	community develops ordinance	12 communities total	All
Development / Redevelopment Regulations									
12. Review land use planning and management practices to promote Low Impact Development (LID).	3-A, 3-B, 3-C, 3-E, 3-F, 4-A8-A;8-D	Hydrology, sediment, elevated temperature, nutrients, bacteria, heavy metals	Fishery, aquatic life & wildlife, recreation, riparian corridor, agricultural use, preservation of habitats / open space / T&E species, historic character	Stormwater runoff, decreased groundwater recharge, road-stream crossings, flow fluctuations, construction site runoff	Increased impervious surfaces, removal of vegetation, poor stormwater management practices, improper erosion and sedimentation controls, lack of buffer, improper construction / maintenance	Research planning and management practices; review local plans; draft and finalize recommendations. 80-120 hours @ \$100-\$150/hour. Costs are per community	Communities incorporate LID practices into the site plan planning process; maintain imperviousness	5 permittees currently preparing; 2 within 5 years;	All

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13. Reduce directly connected impervious surfaces through the implementation of Low Impact Development Plans.	2-B, 3-A, 3-B, 3-C, 3-E, 3-F, 4-A	Hydrology, sediment, elevated temperature, nutrients, bacteria, heavy metals	Fishery, aquatic life & wildlife, recreation, riparian corridor, agricultural use, preservation of habitats / open space / T&E species, historic character	Stormwater runoff, decreased groundwater recharge, road-stream crossings, flow fluctuations, construction site runoff	Increased impervious surfaces, removal of vegetation, poor stormwater management practices, improper erosion and sedimentation controls, lack of buffer, improper construction / maintenance	Costs associated with staff/consultant review of site plans, storm water plans and engineering plans.	Implementation of ordinances that impact directly connected impervious surfaces.	5 permittees currently implementing; 4 communities to implement in 5 years.	All
15. Develop and implement local Storm Water Master Plans, including stormwater management ordinances and maintenance programs (see also Action 15 under Plans/Policies and Design Standards & Maintenance Practices).	2-B, 3-A, 3-B, 3-C, 3-D, 3-E, 3-F, 4-A; 8-A; 8-B; 8-C; 8-D	Hydrology, sediment, elevated temperature, nutrients, bacteria, heavy metals	Fishery, aquatic life & wildlife, recreation, riparian corridor, agricultural use, preservation of habitats / open space / T&E species	Stormwater runoff, streambanks, flow fluctuations, construction site runoff	Increased impervious surfaces, removal of vegetation, poor storm water management practices, removal of vegetation, improper erosion and sedimentation controls	Using existing templates tailor to individual community needs. \$2,000 - \$12,000 depending on level of detail.	Completed ordinance / design standards	5 existing/ongoing; 5 planned in 5 years; 2 planned long-term	All
54. Implement soil erosion and sedimentation control (SESC) ordinances or standards.	2-A, 2-B, 3-A, 3-B, 3-C, 3-E, 3-F, 4-A; 8-D	Sediment, nutrients	Fishery, aquatic life & wildlife, recreation, riparian corridor, preservation of habitats / open space / T&E species	Stormwater runoff, streambanks, construction site runoff, road runoff	Increased impervious surfaces, poor stormwater management practices, removal of vegetation, improper erosion and sedimentation controls	\$2,000 - \$10,000 cost to review/update/prepare ordinance	Counties and selected communities implementing ordinance	Sufficient staff for enforcement	All
55. Develop or modify private road ordinances or standards to incorporate impervious surface reduction techniques.	2-A, 2-B, 3-A, 3-B, 3-B, 3-C, 3-E, 3-F, 4-A	Hydrology	Fishery, aquatic life & wildlife, recreation, riparian corridor, preservation of habitats / open space / T&E species	Stormwater runoff, road-stream crossings, roadside ditches, construction site runoff	Increased impervious surfaces, poor stormwater management practices, removal of vegetation, improper erosion and sedimentation controls	\$2,000 - \$10,000 cost to review/update/prepare ordinance	Counties and selected communities implementing ordinance	7 permittees	SC-B; SC-C; SC-F; SC-H; SC-I; SC-J; SC-L; SC-N; SC-O; PC-F; PC-E; PC-H; PC-C; PC-G; PC-I; PC-L; PC-P
25. Implement local fertilizer ordinances, standards, or guidelines.	2-A, 2-B, 3-B, 3-D, 3-E	Nutrients	Fishery, aquatic life & wildlife, recreation	Stormwater runoff, residential fertilizer use	Removal of vegetation, lack of buffer, improper or over-application of fertilizers	\$2,000-\$5,000 cost to review/draft ordinance	Adoption of ordinance/guidelines	Adoption of ordinance and/or implementation of guidelines by 4 permittees in 5 years	All
27. Implement on-site sewage disposal system ordinances and/or maintenance programs.	2-A, 2-B, 3-A, 3-B, 3-C, 3-D, 3-E, 3-F; 8-A; 8-D	Bacteria, nutrients	Fishery, aquatic life & wildlife, recreation	Failing septic systems, illicit connections	Improperly maintained or failing on-site sewage disposal systems	Research and develop rules and technical guidelines for property owners. 80-120 hours @ \$100-\$150/hour (consultant). \$3,000 legal review and \$10,000 per year for coordination of program.	Counties initiate development of the ordinance and adopts. Macomb County has adopted a time-of-sale ordinance.	County to implement ordinance	All with current osds

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29. Develop water resource and natural feature protection ordinances (includes Natural Features Setback Ordinance, Resource Protection Overlay District, Wetlands Ordinance, Tree/Woodland Preservation Ordinance, Steep Slope Ordinance, Weed Ordinance).	2-A, 2-B, 3-A, 3-B, 3-C, 3-D, 3-E, 3-F, 4-A; 8-A; 8-D	Hydrology, sediment, elevated temperature, nutrients, bacteria, metals, pesticides	Fishery, aquatic life & wildlife, recreation, riparian corridor, preservation of habitats / open space / T&E species	Stormwater runoff, decreased groundwater recharge, streambanks, flow fluctuations, construction site runoff, road runoff	Increased impervious surfaces, removal of vegetation, poor stormwater management practices, improper erosion & sedimentation control	Using existing templates tailor to individual community needs. \$2,000 - \$12,000 per ordinance depending on level of detail.	Municipalities are in various stages of adopting/updating these types of ordinances.	Various levels of effort depending on ordinance and municipality.	All
Design Standards and Maintenance Practices									
15. Develop and implement local Storm Water Master Plans, including stormwater management ordinances and maintenance programs (see also Action 15 under Plans/Policies and Development/Redevelopment Regulations).	2-B, 3-A, 3-B, 3-C, 3-D, 3-E, 3-F, 4-A; 8-A; 8-B; 8-C; 8-D	Hydrology, sediment, elevated temperature, nutrients, bacteria	Fishery, aquatic life & wildlife	Stormwater runoff from developed areas, streambanks, flow fluctuations, construction site runoff, road runoff	Increased impervious surfaces, removal of vegetation, poor storm water management practices, removal of vegetation, improper erosion and sedimentation controls	Using existing templates tailor to individual community needs. \$2,000 - \$12,000 depending on level of detail.	Completed ordinance / design standards	5 existing/ongoing; 5 planned in 5 years; 2 planned long-term	All
16. Establish detention basin maintenance programs.	2-B, 3-A, 3-B, 3-C, 3-D, 3-E, 3-F, 4-A; 8-D	Hydrology, sediment, elevated temperature, nutrients, bacteria	Fishery, aquatic life & wildlife, recreation	Stormwater runoff, flow fluctuations, construction site runoff, residential fertilizer use	Increased impervious surfaces, removal of vegetation, poor stormwater management practices, removal of vegetation, improper erosion and sedimentation controls, improper or over-application of fertilizers	Incorporate maintenance requirements into ordinance and/or standards; actual maintenance varies; \$1,000 - \$30,000 depending on needs	Community includes a section within the Stormwater Management Ordinance that requires detention basin maintenance both during construction and after appropriate long-term owners take over responsibility for the basin; creates a final draft through a series of input meetings, and adopts it.	All communities implementing Action 15.	
17. Establish detention basin retrofit and enhancement programs.	2-B, 3-A, 3-B, 3-C, 3-D, 3-E, 3-F, 4-A; 8-D	Hydrology, sediment, elevated temperature, nutrients, bacteria	Fishery, aquatic life & wildlife, recreation	Stormwater runoff, flow fluctuations, construction site runoff, residential fertilizer use	Increased impervious surfaces, removal of vegetation, poorly maintained basins, improper or over-application of fertilizers	Costs variable depending on work involved. \$5,000-\$100,000 per basin	Number of basins enhanced; pollutants addressed and quantity.	Identify basins in need of retrofitting in developed areas. Identify funding mechanisms.	PC-A; PCB; PC-C; PC-D; PC-E; PC-F; PC-G; PC-H; SC-A; SC-E; SC-J; SC-D

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18. Develop and implement native vegetation guidelines.	2-A, 2-B, 3-A, 3-B, 3-C, 3-D, 4-A	Hydrology, sediment, elevated temperature, nutrients, bacteria	Fishery, aquatic life & wildlife, recreation, riparian corridor, preservation of habitats / open space / T&E species	Stormwater runoff; road-stream crossings, streambanks, construction site runoff, residential fertilizer use, waterfowl	Increased impervious surfaces, removal of vegetation, poor stormwater management practices, improper erosion and sedimentation controls, improper or over-application of fertilizers, lack of buffer	\$2,000-\$5,000 per community; may be incorporated into landscape or storm water ordinance	Community implements guidelines into storm water BMP review process and other areas as feasible.	2 permittees ongoing; 2 permittees planned within 5 years; 2 permittees long-term	PC-A;PC-E; PC-D; PC-B; PC-F;PC-G; PC-E; PC-E SC-A; SC-D; SC-G; SC-H
19. Establish street sweeping and catch basin cleaning programs.	2-A, 2-B, 3-A, 3-B, 3-C, 3-D, 3-F, 3-G, 4-A; 8-D	Sediment, nutrients, heavy metals	Fishery, aquatic life & wildlife, recreation	Stormwater runoff, road runoff	Increased impervious surfaces, removal of vegetation, poor stormwater management practices, removal of vegetation, improper erosion and sedimentation controls	\$50,000 Per year lease; \$31/hour operator for 150 days/year; \$250 - \$1000 per catch basin insert	Miles of streets swept or parking lot areas; # of catch basins cleaned; amount of material captured (pounds, tons or number of truckloads).	7 permittees ongoing; 3 implement long-term	All
20. Identify and eliminate illicit discharges.	3-A, 3-B, 3-B, 3-C, 3-G, 4-A	Elevated temperature, bacteria, nutrients, organic compounds, heavy metals	Fishery, aquatic life & wildlife, recreation	Illicit connections	Improper design / maintenance, historic contamination	Approximately \$1,000 per streammile for investigation; correction varies dramatically depending on nature of problem. Communities should coordinate efforts with counties and/or may wish to contract with counties.	Community/county implements IDEPs	Consistent with IDEPS	All
57. Improve soil erosion inspection and enforcement practices.	2-A, 2-B, 3-A, 3-B, 3-C, 3-E, 3-F, 4-A; 8-A; 8-B; 8-C; 8-D	Sediment, elevated temperature, nutrients	Fishery, aquatic life & wildlife, recreation	Construction site runoff, road runoff	Increased impervious surfaces, removal of vegetation, poor stormwater management practices, improper erosion and sedimentation controls, improper or over-application of fertilizers	Increased staffing and enforcement - approximately \$50,000 per year.	Community/county expands inspection/enforcement program. Track number of complaints/violations and enforcement actions.	Staff increased	All
58. Work with county road commissions to improve maintenance of unpaved roads.	2-B, 3-A, 3-B, 3-C, 3-D, 3-E, 3-F, 4-A; 8-D	Hydrology, sediment, elevated temperature, nutrients	Fishery, aquatic life & wildlife, recreation	Stormwater runoff, road-stream crossings, streambanks, construction site runoff, road runoff	Increased impervious surfaces, removal of vegetation, poor stormwater management practices, removal of vegetation, improper erosion and sedimentation controls	\$10,000-\$20,000 to research, conduct meetings and evaluate BMP alternatives. Prepare guidance for implementation by counties and communities as applicable	Road commissions review and revise practices. Coordinate with local communities on road improvements. Sensitive areas are targeted for special consideration. List of practices will be reviewed and improved.	Counties/communities initially convene in meetings and long-term alternatives are implemented.	Critical Subbasins priority.

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59. Prioritize and implement streambank stabilization projects. (See 5.4b for breakdown of specific tasks)	2-A, 2-B, 3-A, 3-B, 3-C, 3-D, 3-E, 3-F, 4-A	Hydrology, sediment, elevated temperatures, nutrients	Navigation, fishery, aquatic life & wildlife, recreation, riparian corridor, preservation of habitats / open space / T&E species	Stormwater runoff, streambanks, flow fluctuations, construction site runoff, low flow, residential fertilizer use	Increased impervious surfaces, removal of vegetation, poor stormwater management practices, removal of vegetation, improper erosion and sedimentation controls	Bioengineering costs range from \$20 - \$120 per lineal foot; road crossings may require structural improvements at higher costs; additional stream surveys at \$3,000 per stream mile.	Road crossings ranked thru existing surveys; other areas to survey; document lineal footage of streambank stabilized and address flow reduction upstream. Pounds of sediment reduced from stabilization will be reported.	3 high priority road crossing areas within 5 years.	Road Xing : SC-E; SC-H; PC-A; PC-H; PC-E
50. Identify applicable Generally Accepted Agricultural Management Practices (GAAMPs) and develop a dissemination plan to distribute this information to local farmers.	2-A, 2-B, 3-A, 3-B, 3-C, 6-B; 8-D	Sediment, elevated temperature, nutrients, bacteria, pesticides	Fishery, aquatic life & wildlife, recreation, riparian corridor, preservation of habitats / open space / T&E species	Stormwater runoff, agricultural fertilizer use, livestock in stream, pesticide use	Removal of vegetation, improper erosion and sedimentation controls, improper or over-application of fertilizers / pesticides, lack of buffer	Review practices and develop recommendations. 80-120 hours @ \$100-\$150/hr (consultant).	GAAMPs are identified and disseminated to farmers; number of farmers reached; monitoring results.	3 communities within 5 years	SC-A; SC-D; SC-G; SC-E; PC-B; PC-D; PC-F; SC-J; SC-O; PC-I; PC-J; PC-K; PC-L; PC-P
24. Encourage golf course management programs that protect water quality.	2-A, 2-B, 3-A, 3-B, 3-C, 3-D, 3-E, 3-F, 4-A, 5-A	Hydrology, sediment, elevated temperature, nutrients, bacteria, pesticides	Navigation, fishery, aquatic life & wildlife, recreation, riparian corridor, preservation of habitats / open space / T&E species	Stormwater runoff, flow fluctuations, fertilizer use, waterfowl	Increased impervious surfaces, removal of vegetation, poor stormwater management practices, impoundments, improper or over-application of fertilizers	Varies depending on activity (may include workshops, mailings, site visits).	Golf courses develop and implement management programs.	2 counties/2 communities existing; 1 community within 5-yrs; 3 communities long-term	Subbasins with golf courses
31. Prevent and remove stream obstructions utilizing appropriate management techniques.	2-A, 2-B, 3-A, 3-D, 3-E, 3-F, 4-A	Hydrology, sediment, elevated temperatures, nutrients, bacteria	Navigation, fishery, aquatic life & wildlife, recreation, riparian corridor, preservation of habitats / open space / T&E species	Stormwater runoff, streambanks, flow fluctuations	Increased impervious surfaces, removal of vegetation, poor stormwater management practices	Community staff at \$60/hour; equipment costs range from \$80 - \$150/hour. Some projects may also be completed by volunteers with community oversight.	Project sites are prioritized and projects completed. Measure: number of sites restored, monitoring results.	2 communities planned within 5 years; 1 existing program; 1 long-term program	subbasins in critical areas
30. Identify, prioritize and implement projects to construct, restore, protect and enhance wetlands.	2-A, 2-B, 3-A, 3-B, 3-C, 3-D, 3-E, 3-F, 4-A	Hydrology, sediment, elevated temperature, nutrients, bacteria, metals, pesticides	Fishery, aquatic life & wildlife, recreation, riparian corridor, preservation of habitats / open space / T&E species	Stormwater runoff, decreased groundwater recharge, streambanks, flow fluctuations, construction site runoff, road runoff, fertilizer use	Increased impervious surfaces, removal of vegetation, poor stormwater management practices, improper erosion & sedimentation control, improper or over-application of fertilizers	Prioritize based on Stony Creek RAM; conduct RAM in Paint Creek; \$50,000	Wetland maps with priority areas; Measure acres of wetlands enhanced/constructed/protected or restored	Paint Creek subshed wide ~ 70 sq. miles to conduct RAM; prepare priority map for both	Critical area subbasins first priority

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	Goals & Objectives Addressed	Pollutants Addressed	Uses Addressed	Sources Addressed	Causes Addressed	Estimated Cost	Evaluation Methods and Status	Level of Effort/Interim Milestones	Stony/Paint Subbasins (See Appendix C)
32. Identify, prioritize & implement projects to restore and enhance instream habitat.	2-A, 2-B, 3-A, 3-E, 3-F, 4-A, 5-A	Hydrology, sediment, elevated temperature	Fishery, aquatic life & wildlife	Stormwater runoff, streambanks, flow fluctuations, construction site runoff, low flow	Increased impervious surfaces, removal of vegetation, poor stormwater management practices, impoundments	Costs may be incorporated into the streambank stabilization activities; vary depending on type and size of project	Sites are identified and prioritized; number of sites/amount of stream habitat restored; monitoring results	Set priorities within 2 years; determine number of projects to implement in 5-yr time frame and construct. Coordinate with streambank priorities	Critical area subbasins first priority
36. Develop a Stony/Paint Green Infrastructure Plan.	2-A, 2-B, 3-A, 3-B, 3-C, 3-D, 3-E, 3-F, 4-A, 5-A, 6-A, 7-A; 8-D	Hydrology, sediment, elevated temperature, nutrients, bacteria	All	Stormwater runoff, decreased groundwater recharge, streambanks, flow fluctuations, construction site runoff, low flow, residential fertilizer use	Increased impervious surfaces, removal of vegetation, lack of buffer	Costs associated with staff meetings and map preparation by county.	Plan is prepared	OC coordinating with OC communities in 5-year time frame to prepare plan.	All
38. Develop and implement household hazardous waste collection programs.	3-G	Organic chemicals, heavy metals, pesticides	Fishery, aquatic life & wildlife, recreation	Residential use	Improper disposal	Costs vary depending on whether municipalities are participating in a partnership or establishing their own program.	Community develops and implements the program.	Reference ongoing Public Education Programs	Reference ongoing Public Education Programs
39. Work with local and/or county agencies to research and implement BMP road de-icing techniques.	3-G	Salt	Fishery, aquatic life & wildlife, recreation	Road runoff	Improper or over-application	Requires adjustment of application rates and recalibration of equipment. Calcium chloride \$20/land mile extra, CMA \$65 / lane mile extra compared with salt.	Community / county reviews and modifies practices.	Majority of subshed representatives to coordinate with county as applicable on identifying BMP techniques.	Critical area subbasins first priority
43. Work with local, regional, and state organizations and agencies to implement fishery restoration projects.	4-A	Hydrology, sediment, nutrients, elevated temperature, salt	Fishery, aquatic life & wildlife, recreation	Stormwater runoff, decreased groundwater recharge, road-stream crossings, road ditches, streambanks, flow fluctuations, construction site runoff, low flow	Increased impervious surfaces, removal of vegetation, poor stormwater management practices, poor road / bridge maintenance, improper erosion and sedimentation controls, impoundments	Costs vary depending on type of project. Labor and materials may be donated.	Number of restoration projects completed.	Communities/counties supporting efforts	Critical areas subbasins priority
EDUCATION AND STEWARDSHIP									
7. Promote and/or participate in existing watershed education and outreach events, such as River Day and Clinton Clean-Up.	2-A	All	All	All	All	Costs vary depending on the type of activity; material donations can often be obtained from local businesses for special events.	Number of events; number of participants; outcome of stewardship project (e.g. quantity of trash collected, miles of stream cleaned).	Reference ongoing Public Education Programs	Reference ongoing Public Education Programs

Table 5.4 Stony/Paint Creek Action Matrix

	Goals & Objectives Addressed	Pollutants Addressed	Uses Addressed	Sources Addressed	Causes Addressed	Estimated Cost	Evaluation Methods and Status	Level of Effort/Interim Milestones	Stony/Paint Subbasins (See Appendix C)
8. Promote and/or participate in the watershed education and outreach activities of local organizations as outlined in community and county Public Education Plans.	2-A	All	All	All	All	Costs vary depending on the type of activity.	Number of events; number of participants; for workshops, pre-/post-surveys can be used to evaluate learning.	Reference ongoing Public Education Programs	Reference ongoing Public Education Programs
9. Promote and participate in the Clinton River Watershed Council's stormwater education program, as outlined in community Public Education Plans.	2-A	All	All	All	All	\$10,000-\$11,000 per year for entire subwatershed; cost for each community is based on land area and population size. Additional in-kind services to be provided by communities, such as newsletters, cable TV coverage, etc.	Number of events; number of participants; pre-/post-surveys; monitoring results.	Reference ongoing Public Education Programs	Reference ongoing Public Education Programs
10. Develop and/or implement an education strategy targeted at riparian landowners.	2-A	All	All	Stormwater runoff, streambanks, flow fluctuations, residential fertilizer use, failing septic systems, waterfowl	Increased impervious surfaces, removal of vegetation, poor stormwater management practices, improper erosion and sedimentation controls, improper or over-application, lack of buffer, improper construction / maintenance, lack of homeowner education	~3,000 riparian parcels in the Stony Creek subwatershed; costs may include mailings (\$500-\$1000), workshops, stewardship projects, etc.	Number of activities; number of participants; pre-/post-surveys; monitoring of riparian areas.	Reference ongoing Public Education Programs	Reference ongoing Public Education Programs
11. Promote and/or participate in education opportunities for land use decision-makers offered by the organizations identified in Action 8.	2-B	All	All	All	All	Varies by activity. Costs may be offset by attendance fees.	Number of activities; number of participants; pre-/post-surveys.	Reference ongoing Public Education Programs	Reference ongoing Public Education Programs
21. Educate staff and contractors on "good housekeeping" practices, including proper fleet and service yard maintenance practices and landscaping activities.	2-A, 2-B, 3-A, 3-B, 3-C, 3-G; 8-D	Hydrology, sediment, nutrients, elevated temperature, organic chemicals, heavy metals & pesticides, salt	Fishery, aquatic life & wildlife, recreation, riparian corridor, preservation of habitats / open space / T&E species	Stormwater runoff, fertilizer use, road runoff	Increased impervious surfaces, poor stormwater management practices, removal of vegetation, lack of buffer, improper design / maintenance	Varies by activity; may include workshops, brochures, etc.	Number / type of programs / materials distributed; documentation of changes in practices.	Reference ongoing Public Education Programs	Reference ongoing Public Education Programs

Table 5.4 Stony/Paint Creek Action Matrix

	Goals & Objectives Addressed	Pollutants Addressed	Uses Addressed	Sources Addressed	Causes Addressed	Estimated Cost	Evaluation Methods and Status	Level of Effort/Interim Milestones	Stony/Paint Subbasins (See Appendix C)
56. Implement soil erosion and sedimentation control education programs.	2-A, 2-B, 3-A, 3-B, 3-E, 3-F; 8-B; 8-C; 8-D	Sediment, elevated temperature, nutrients	Fishery, aquatic life & wildlife, recreation, riparian corridor, preservation of habitats / open space / T&E species	Stormwater runoff, construction site runoff, road runoff	Increased impervious surfaces, removal of vegetation, poor storm water management practices improper erosion and sedimentation controls	Varies by type of education activity. Training - 40-80 hours at \$100/hr to prepare and coordinate workshop. Brochure printing - \$0.25 - \$1 each.	Number of activities; number of individuals reached; quantify of materials distributed.	Reference ongoing Public Education Programs	Reference ongoing Public Education Programs
23. Implement lawn care education programs for residents and businesses.	2-A, 2-B, 3-A, 3-B, 3-E, 3-F; 8-D	Elevated temperature, nutrients	Fishery, aquatic life & wildlife, recreation, riparian corridor, preservation of habitats / open space / T&E species	Stormwater runoff, streambanks, residential fertilizer & pesticide use	Increased impervious surfaces, removal of vegetation, poor stormwater management practices, lack of buffer, improper or over-application of fertilizers / pesticides	Varies by type of education activity. Training - 40-80 hours at \$100/hr to prepare and coordinate workshop. Brochure printing - \$0.25 - \$1 each. <i>Source: Adapted from Middle One Rouge River Subwatershed</i>	Number of activities; number of individuals reached; quantify of materials distributed; pre-/post-survey results; monitoring results.	Reference ongoing Public Education Programs	Reference ongoing Public Education Programs
26. Implement an animal and pet waste management program.	2-A, 2-B, 3-C, 3-E, 3-F	Sediment, nutrients, bacteria	Fishery, aquatic life & wildlife, recreation, riparian corridor	Stormwater runoff, waterfowl, livestock in stream, pets	Removal of vegetation, improper disposal of pet waste, unrestricted access	Brochure printing: \$0.25 - \$1 each. Border Collie program - 80-120 hours @ \$100-\$150/hr to develop. Once in place requires 20-40 hrs/month. Park / common area signage additional.	Number of individuals reached / personal observation; quantity of materials distributed; pre-/ post-survey results; monitoring results.	Reference ongoing Public Education Programs	Reference ongoing Public Education Programs
33. Continue and expand litter and debris cleanup efforts.	2-A, 2-B, 3-B, 3-C, 3-D, 3-E, 3-F, 4-A, 5-A	Nutrients, bacteria, organic chemicals, heavy metals	Fishery, aquatic life & wildlife, recreation	Stormwater runoff	Increased impervious surfaces, removal of vegetation, poor stormwater management practices	Volunteer labor and donated materials and supplies can keep costs to a minimum.	Number of sites / length of stream cleaned; number of participants; quantify of debris removed.	Reference ongoing Public Education Programs	Reference ongoing Public Education Programs
34. Promote and participate in stewardship efforts coordinated by local organizations such as those listed in Action 8.	2-A, 2-B, 3-A, 3-B, 3-C, 3-D, 3-E, 3-F, 4-A, 5-A, 6-A, 6-B, 7-A; 8-D	All	All	All	All	Volunteer labor and donated materials and supplies can keep costs to a minimum.	Number of activities; number of participants	Reference ongoing Public Education Programs	Reference ongoing Public Education Programs
35. Encourage residential stormwater management practices.	2-A, 2-B, 3-A, 3-B, 3-C, 3-D, 3-E, 3-F, 4-A, 5-A, 6-A, 6-B, 7-A; 8-D	Hydrology, sediment, nutrients	Fishery, aquatic life & wildlife, recreation, riparian corridor, preservation of habitats / open space / T&E species	Stormwater runoff	Increased impervious surfaces, removal of vegetation, poor stormwater management practices	Examples include rain barrels (\$100-250 each) and raingardens (\$250 - \$1,000).	Number of residents implementing practices; survey results.	2 counties/6 communities initiating; 3 communities within 5 years	All

Table 5.4 Stony/Paint Creek Action Matrix

	Goals & Objectives Addressed	Pollutants Addressed	Uses Addressed	Sources Addressed	Causes Addressed	Estimated Cost	Evaluation Methods and Status	Level of Effort/Interim Milestones	Stony/Paint Subbasins (See Appendix C)
46. Enhance recreational opportunities by coordinating with local and regional agencies, offering interpretive and educational programs and events.	2-A, 5-A	Hydrology, sediment, nutrients, elevated temperatures	Fishery, aquatic life & wildlife, recreation, riparian corridor, preservation of habitats / open space / T&E species	Stormwater runoff	Increased impervious surfaces, conversion to other land uses	Varies by activity.	Number of activities / participants; type of improvements.	Communities identify opportunities prior to implementation	All
51. Create an information clearinghouse and distribute information on historic sites in the watershed.	7-A		Historic character		Conversion to other land uses	Costs can be minimal if conducted by volunteers. Brochures - \$0.25 - \$1 each.	Clearinghouse is developed and information distributed. Rochester Hills Museum at Van Hoosen Farms offers extensive	1 county; 4 communities existing programs	Subbasins with historic sites
53. Coordinate with local volunteer organizations to promote preservation and interpretation of historic resources.	7-A		Historic character		Conversion to other land uses	Costs for programming can be minimal if conducted by volunteers. Brochures - \$0.25 - \$1 each.	Number of activities, number of participants, quantity of materials distributed. Rochester Hills Museum at Van Hoosen Farm and Rochester-Avon Historical Society offer a variety of programs.	1 county; 4 communities existing programs	Subbasins with historic sites