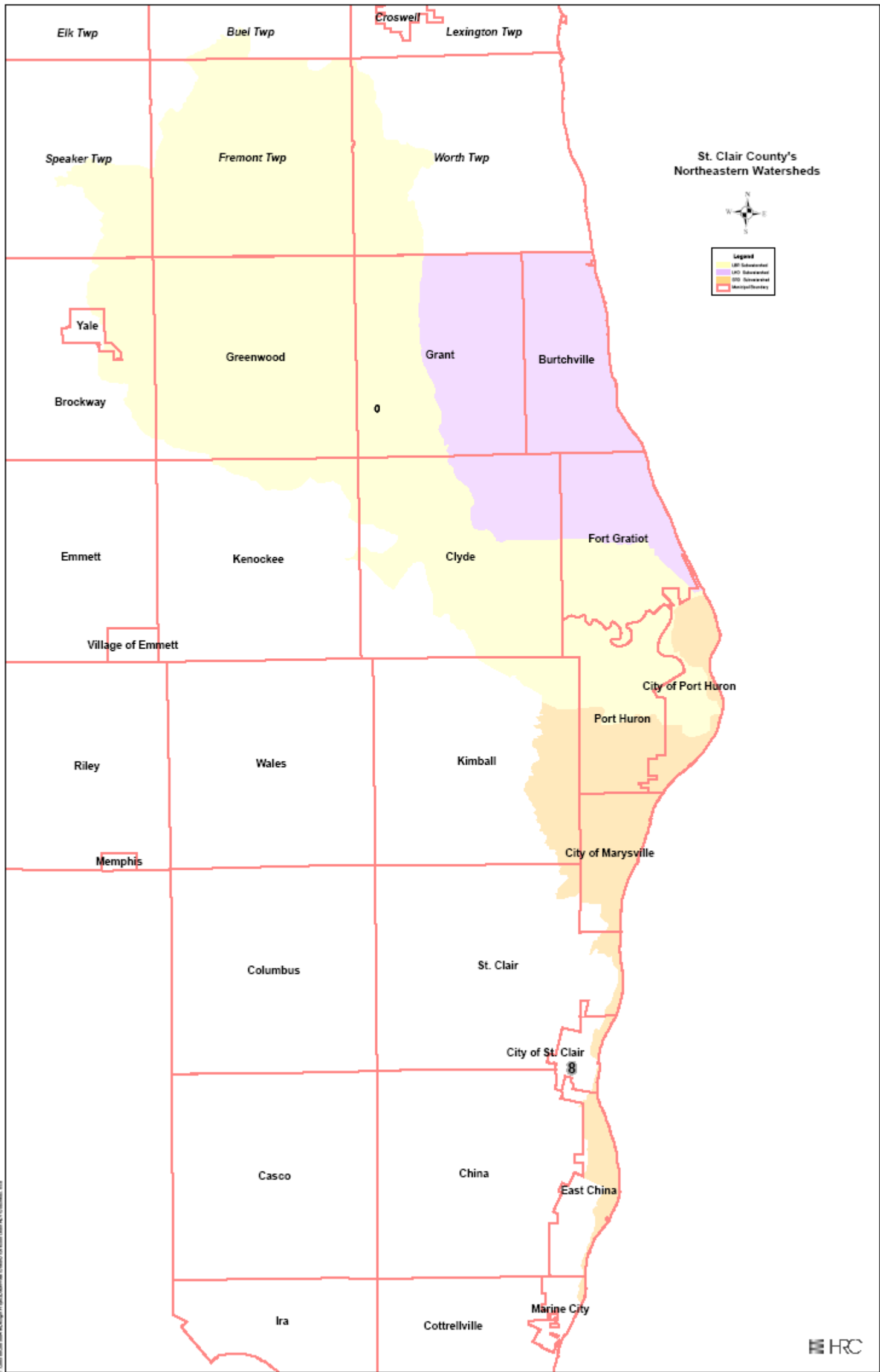


St. Clair County's Northeastern Watersheds Watershed Management Plan



November, 2006



Acknowledgements

St. Clair County's Northeastern Watersheds Watershed Management Plan (NEW WMP) was prepared by the NEW Watershed Advisory Group (WAG) composed of the following primary Phase II stormwater regulated communities, schools, and agencies within the NEW:

Primary Participating Agencies:

- St. Clair County Health Department
- St. Clair County Drain Commissioner
- St. Clair County Road Commission
- St. Clair County Department of Public Works
- St. Clair County Metropolitan Planning Commission
- St. Clair County Parks and Recreation Commission
- St. Clair County Environmental Services

Primary Participating Communities:

- Burtchville Township
- Clyde Township
- East China Township
- Fort Gratiot Township
- Kimball Township
- City of Marine City
- City of Marysville
- City of Port Huron
- Port Huron Township
- City of St. Clair
- St. Clair Township

Primary Participating Schools:

- East China School District
- St. Clair County Community College

Additional Input and Guidance provided by the following Non-participating or Secondary Communities and Agencies:

- Brockway Township
- Buel Township
- City of Yale
- Fremont Township
- Grant Township
- Greenwood Township
- Kenockee Township
- Michigan Department of Environmental Quality
- Michigan State University-Extension
- Natural Resources Conservation Service
- Southeast Michigan Council of Governments

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Resource Directory

Enclosed Compact Disc (CD)

Abbreviations and Acronyms

AOC	Area of Concern
BMP	Best Management Practice
BOD	Biological Oxygen Demand
BPAC	Binational Public Advisory Council
cfs	cubic feet per second
COD	Chemical Oxygen Demand
CSO	Combined Sewage Overflow
DO	dissolved oxygen
EPA	U.S. Environmental Protection Agency
FCA	Fish Consumption Advisory
GLEAS	Great Lakes Environmental Assessment Section (now known as the Surface Water Assessment Section [SWAS])
IDEP	Illicit Discharge Elimination Plan
IJC	International Joint Commission
LBR	Lower Black River
LHD	Lake Huron Direct Drainage
LID	Low-Impact Development
LUST	Leaking Underground Storage Tank
MCL	Maximum Contaminant Level
MDEQ	Michigan Department of Environmental Quality
MDNR	Michigan Department of Natural Resources
MDPH	Michigan Department of Public Health
MEP	Maximum Extent Practicable

MS4	Municipal Separate Storm Sewer System
NEW	Northeastern Watersheds
NHD	National Hydrography Dataset
NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List
NRCS	Natural Resources Conservation Service
OSDS	Onsite Sewage Disposal System
OSHA	Occupational Safety and Health Administration
PCBs	Polychlorinated biphenyls
PEP	Public Education Plan
ppb	parts per billion
ppm	parts per million
PAHs	Polynuclear Aromatic Hydrocarbons
PPP	Public Participation Plan
RAP	Remedial Action Plan
SCCHD	St. Clair County Health Department
SCCDC	St. Clair County Drain Commissioner
SCCDPW	St. Clair County Department of Public Works
SCCMPC	St. Clair County Metropolitan Planning Commission
SCC NEW	St. Clair County's Northeastern Watersheds
SCCRC	St. Clair County Road Commission
SEMCOG	Southeast Michigan Council of Governments
SOD	Sediment Oxygen Demand
SRD	St. Clair River Direct Drainage
SSO	Sanitary Sewer Overflow

STEPL	Spreadsheet Tool for Estimating Pollutant Load
SWPPI	Storm Water Pollution Prevention Initiative
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
TOC	Total Organic Carbon
TSS	Total Suspended Solids
VOCs	Volatile Organic Compounds
WAG	Watershed Advisory Group
WMP	Watershed Management Plan
WQS	Water Quality Standards
WWTP	Waste Water Treatment Plant
USLE	Universal Soil Loss Equation

Glossary of Terms

Anthropogenic	A condition or occurrence that is the result of, or is influenced by, human activity.
Area of Concern	Areas of the Great Lakes where there is known impairment of a beneficial water use. The St. Clair River has been listed as an area of concern because of pollutants such as bacteria, heavy metals and toxic organics which have come from municipal and industrial discharges, urban and rural runoff, combined sewer overflows and contaminated sediments.
Baseflow	Sustained, low flow in a stream; groundwater discharge is the source of baseflow in most places.
Beneficial Use	A use for the Great Lakes system for aquatic organisms, wildlife and humans (i.e. habitat, swimming, drinking water, food, aesthetics, etc.). There are 14 beneficial uses for water.
Benthic	Refers to plants or animals that live on the bottom of lakes, streams, or oceans.
Best Management Practice	A structural, managerial or vegetative practice which aims to reduce the amount of nonpoint source pollution that reaches surface water and groundwater resources, as well as aids in the protection of other natural resources.
Bioaccumulation	The biological sequestering of a substance at a higher concentration than that at which it occurs in the surrounding environment or medium. It is also the

	process whereby a substance enters organisms through the gills, epithelial tissues, dietary, or other sources.
Bi-National Public Advisory Council	Council appointed to advise the RAP Team on key aspects of the Remedial Action Plan Preparation and Adoption including the goals of the plan, problems to be addressed, planning methodology, public involvement program, technical data, remedial action alternatives, planning recommendations and adoption, plan implementation, plan funding and methods of enforcement.
Biota	Living organisms.
Closed LUST Site	A location where a release has occurred from an underground storage tank system, and where corrective actions have been completed to meet the appropriate land use criteria.
Combined Sewer Overflow	Discharges of untreated sewage and stormwater released directly into surface waters, including lakes and rivers, during heavy rainfall, when the sewers have reached their capacity.
Confluence	Point at which two or more watercourses intersect.
Critical Area	That part of the watershed that is contributing a majority of the pollutants and is having the most significant impacts on the waterbody.
Designated Use	Recognized uses of water established by state and federal water quality programs.
Desired Use	Additional uses for land and water resources as defined by stakeholders in the watershed.
Discharge	Rate of fluid flow passing a given point at a given moment in time, expressed as volume per unit of time (i.e. cubic feet per second [ft ³ /sec]).
<i>E. coli</i>	Bacterium used as an indicator of the presence of waste from humans and other warm-blooded animals.
Eutrophication	The process by which water becomes enriched with plant nutrients, most commonly by phosphorus and nitrogen.
Erosion	The process by which soil particles are dislodged by the action of wind, water, ice, or gravity and set in motion.
Groundwater	The subsurface water supply in the saturated zone below the water table.
Headwaters	The origin and upper reaches of a river or stream.
Invertebrate	An animal having no backbone or spinal column.
Impervious	A surface through which little or no water will move.

Infiltration	The penetration of water through the ground surface into subsurface soil or the penetration of water from the soil into sewer or other pipes through defective joints, connections, or manhole walls.
Low-Impact Development	A method of development that aims to protect the pre-development hydrologic regime through protection of natural resources and promotion of stormwater management facilities that promote infiltration of stormwater runoff to the maximum extent practicable.
Managerial Controls	Control measures or practices that usually involve the use of programs related to training and education of local stakeholders that promote pollution prevention and stormwater management principles.
Maximum Contaminant Level (MCL)	Maximum permissible level of a contaminant in water that is delivered to any user of a public water system. MCLs are enforceable standards established by the U.S. Environmental Protection Agency.
Nonpoint Source Pollution	Pollution caused when rain, snowmelt, or wind carry pollutants off the land and into waterbodies.
Nutrient	Element or compound essential for animal and plant growth. Common nutrients in fertilizer include nitrogen, phosphorus, and potassium.
Open LUST Site	A location where a release has occurred from an underground storage tank system, and where corrective actions have not been completed to meet the appropriate land use criteria. An open LUST site may have more than one confirmed release.
Part 201 Sites	Sites of environmental contamination which are areas known to be contaminated with any one of a combination of hazardous substances that either are or may be injurious to human health or the environment. These substances may include industrial or municipal wastes, pesticides, solvents, and other organic chemicals and heavy metals that can impact surface water, soil, and groundwater.
Part 213 Sites	Leaking underground storage tank sites.
Permit	An authorization, license, or equivalent control document issued by the EPA or an approved state agency to implement the requirements of an environmental regulation.
Pesticide	A chemical applied to crops, rights-of-way, lawns, or residences to control weeds, insects, fungi, nematodes, rodents, or other “pests”.
Phosphorus	A nutrient essential for growth that can play a key role in stimulating aquatic growth in lakes and streams.

Point Source Discharge	Any discrete, quantifiable industrial/municipal discharge (air and/or water) from an outfall, pipe, conduit, lined ditch/channel, or tunnel, which discharges directly to a body of water. Discharges could include: <ul style="list-style-type: none"> • Storm water runoff from developed areas of industrial sites/activities • Urban storm runoff • Spills • Combined sewer overflows • Residential discharges • Landfill leachate systems
Pollutant	Any substance of such character and in such quantities that when it reaches a body of water, soil, or air, it contributes to the degradation or impairment of its usefulness or renders it offensive.
Polychlorinated Biphenyls (PCBs)	A mixture of chlorinated derivatives of biphenyl, marketed under the trade name Aroclor with a number designating the chlorine content (such as Aroclor 1260). PCBs were used in transformers and capacitors for insulating purposes and in gas pipeline systems as a lubricant. Further sale for new use was banned by law in 1979.
Polynuclear Aromatic Hydrocarbons (PAHs)	A class of organic compounds with a fused-ring aromatic structure. PAHs result from incomplete combustion of organic carbon (including wood), municipal solid waste, and fossil fuels, as well as from natural or anthropogenic introduction of uncombusted coal and oil.
Remedial Action Plan	Plan that embodies a systematic and comprehensive ecosystem approach to restoring and protecting beneficial uses.
Riparian	Person who lives along or holds title to the shore area of a lake or bank of a river or stream.
Riparian Corridor	Areas bordering streams, lakes, rivers, and other watercourses. These areas have high water tables and support plants requiring saturated soils during all or part of the year.
Runoff	Excess rainwater or snowmelt that is transported to streams by overland flow, tile drains, or ground water.
Sediment	Soil, sand, and minerals which can take the form of bedload, suspended, or dissolved material.
Sedimentation	The process by which detached particles generated by erosion are allowed to settle elsewhere on the land or in streams, lakes, and wetlands.

Soil Erosion	The wearing away of land surface by wind or water. Erosion occurs naturally from weather or runoff but can be intensified by land-clearing practices related to farming, residential, or industrial development, road building, or clear-cutting.
St. Clair County Drain Commission	Provides for the health, safety and welfare of St. Clair County citizens. The protection of surface waters, the environment and to promote the long-term environmental and economic sustainability by providing stormwater management, flood control, development review and water quality programs.
St. Clair County Health Department	The health department is overseeing the development and implementation of St. Clair County’s Northeastern Watersheds Watershed Management Plan and provides services for water sample testing, enforcement of public health laws, permit issuance for wells and septics, and land evaluations. The department also monitors public swimming pools and bathing beaches for water quality compliance.
Stakeholder	Any organization, governmental entity, or individual that has a stake in or may be affected by a given approach to environmental regulation, pollution prevention, or energy conservation.
Storm Drain (Storm Sewer)	A slotted opening leading to an underground pipe or an open ditch that carries surface runoff.
Stormwater	Runoff from a rainstorm, snow melt runoff, and surface runoff and drainage.
Structural Controls	Control measures or practices that usually involve the use of “brick and mortar” technologies to address stormwater runoff quantity and quality.
Surface Water	All water naturally open to the atmosphere (rivers, lakes, streams, reservoirs, wetlands, impoundments, and seas).
Suspended Solids or Sediment	Particles of rock, sand, soil, and organic detritus carried in suspension in the water column, in contrast to sediment that moves on or near the streambed.
Tile Drain	A buried perforated pipe designed to remove excess water from soils.
Topography	The physical features of a surface area including relative elevations and the position of natural and man-made features.
Tributary	A river or stream that flows into a larger river or stream.
Vegetative Controls	Control measures or practices that usually involve the use of cropping systems, permanent grass, or other vegetative cover to reduce erosion and sedimentation.

Volatile Organic Compounds (VOCs)	Organic chemicals that have a high vapor pressure relative to their water solubility. VOCs include components of gasoline, fuel oils, and lubricants, as well as organic solvents, fumigants, some inert ingredients in pesticides, and some by-products of chlorine disinfection.
Water Quality	The biological, chemical, and physical conditions of a waterbody, often measured by its ability to support life.
Watershed	The geographic region within which water drains into a particular river, stream, or body of water. Watershed boundaries are defined by the ridges separating watersheds.
Wetland	An area that is regularly saturated by surface or groundwater and subsequently is characterized by a prevalence of vegetation adapted for life in saturated soil conditions. Examples include swamps, fens, bogs, and marshes.
Windshield Survey	Conducting an inventory of the watershed via a motorized vehicle.