WASHINGTON COUNTY NONPOINT SOURCE WATER QUALITY STRATEGY

Version 4, 2024

Previous Versions: 1992, 1996, 2007

Photo Credit: Korey Evarts, District Technician. Drone Photo of Kernel Acres Farm Pond

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Under the Direction of: Washington County Soil and Water Conservation District

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INTRODUCTION OF COUNTY WATER RESOURCES

Surface Water

Washington County, New York is nestled between the Adirondack Mountains of New York State and the Green Mountains of Vermont. Hydrologically speaking this location puts the county in a highly diverse setting of major drainage basins and waterbodies which have both statewide and regional significance.

The county is split almost equally in half by two major watersheds. Lands in the northern portion of the county flow to the Lake Champlain watershed while those in the south flow to the Hudson River watershed. Variations in terrain also reflect many of these differences. Streams in the north tend to be more mountainous and steeper. Those in the south tend to be less steep in comparison. Many of the watershed within the county traverse both county and state lines, which can challenge management considerations and actions. This can also be a benefit as there are typically more resources available by working collaboratively with other jurisdictions. The county is very diverse in both landscape and land use. From agriculture to MS4's, forests to small dense communities, steep cliffs to flat fields, many challenges are posed for protecting and improving water quality.

Surface waters also share diverse usage across the county. Drinking water and recreation are two of the highest ranking uses in the Water Resources survey conducted for this Strategic Plan. Fisheries, agriculture, wetlands and aesthetics also rank high. While not as high ranking in usage, local industrial businesses that have a significant economic impact, also rely on many surface waters. A wide variety of concerns arise when it comes to surface waters. Concerns vastly differ across the county, as well as from one particular surface water to another. Based on an open-ended question in the Water Resources survey, public view is most concerned in the categories of contamination, invasive species, recreation, and land use. Over the past few years, aquatic invasive species management has been heavily pushed by many groups and funding sources. Results of this can be seen across the county. Boat washing stations, weed collection boxes, staffed checks at launches, education signage, aquatic vegetation surveys, physical removal, and other efforts are prolific in the fight to reduce spread and established populations. Recently, harmful algal blooms have become more of a concern, and are regularly kept track of by the NYS DEC. There has also been a push to increase road-stream crossing sizes as these crossings are replaced. This allows for several benefits to surface waters, such as proper sediment carrying capacity, improved aquatic organism passage, and less chance of catastrophic failure or flooding during large rain events. Riparian buffer protection and establishment have also been heavily promoted by different organizations nation-wide over various land uses.

Hudson River

More than half of the southern portion of the county is bordered on the west by the Hudson River. Nearly one-third of the state contributes to the drainage of this waterbody. The Fort Edward and Hudson Falls area of the watershed is vastly different from many other areas in the county. Both villages are considered MS4's and are highly regulated. It is also home to both past and present industrial complexes. Due to high demand for employees, these areas are densely populated and contain many roads, parks, and impervious surfaces. A majority of this area drains directly to the Hudson River or the Champlain Canal watersheds. Due to a history of several large mills, much of the river has been contaminated by both point and nonpoint pollution sources. Efforts since regulations have been established have helped to prevent the health of the river from degrading more. Agriculture is the predominate land use across the watershed, with both large and small dairy farms being the main focus.

One of the more well-known sub watersheds of the Hudson River is the Battenkill. It serves as a nationally acclaimed cold-water fishery. Originating in the Vermont highlands, the Battenkill watershed drains a considerable amount of acreage in the southern portion of the county before reaching the Hudson River. Starting in the 1990's, the focus on this watershed has mushroomed into an active, broad-based cooperative effort to evaluate and enhance the quality of this unique resource.

The Hoosic River originates in the Vermont highlands. The river drains a considerable amount of land in Washington and Rensselaer Counties in New York and Bennington County in Vermont. In Washington County, a majority of the land in White Creek and Cambridge drain to the Hoosic River. Water quality assessments are regularly conducted by the Hoosic River Watershed Association, with the most recent assessments showing a slightly impacted water quality based on benthic macroinvertebrate communities.

The White Creek originates in the mountains of Vermont, passing through a predominantly agricultural valley and through downtown Salem before meeting up with Black Creek and emptying into the Battenkill. Many sections of White Creek have been negatively impacted by human use, including several crossings of both roads and railway, long stretches along roads and railway, and berms intended to protect agricultural fields. This currently causes many issues with downstream flooding, especially during heavy rainfalls in short periods of time.

Black Creek originates in the northern portion of Hebron and features many wetlands. The creek is a valuable recreational resource where many people fish. Black creek is also the host of USGS monitoring station. The station collects information such as levels of nitrates, sulfates, chloride, and many other parameters. This information is posted for public viewing by the USGS.

The Owl Kill is the primary outlet for Lake Lauderdale and outlets to the Hoosic River near Eagle Bridge. The northernmost half of the Owl Kill runs through the Town of Cambridge, where Camden Creek meets it. It is in Cambridge where White Creek, as well as Little White Creek, converges with the Owl Kill, before meeting with the Hoosic River.

Moses Kill is a 22-mile-long tributary into the Hudson River. Big Creek in the Town of Hartford is the source of Moses Kill. It makes its way through Argyle and empties into the Hudson in Fort Edward. Along its route in Argyle, there are dams dating back to the 1760s, which were used to support small mills at the time.

Several ponds and lakes dot the southern portion of the county. These serve as homesites, provide recreational opportunities for both public and private usage, and public drinking water supplies. Water quality concerns among many of these lakes and ponds stem from nutrient loading and weed growth. Some of the lakes support large communities and can be densely developed. Septic system concerns have arisen in recent years as older systems are beginning to fail. The largest population occurs on Cossayuna Lake. It is intensely developed and valued for its recreational potential for both public and private use. It is also a valued warm water fishery. Efforts are actively in progress to reduce both the nutrients entering the lake and weed populations. Summit Lake is another valued warm water fishery and serves as a secondary drinking water supply for the Town of Argyle. Increased development has raised many water quality concerns. Lake Lauderdale is home to another lake community with public access that has been affected by heavy weed growth. Other larger waterbodies in these areas include Carter Pond, Hedges Lake, and Scott Lake.

Lake Champlain

Halfway Creek originates within the Luzerne Mountains in Warren County, passes through Glens Falls, and meanders its way through Fort Ann to drain into the Champlain Canal. Urban runoff, mainly from Glens Falls but also the Village of Fort Ann, and agricultural nutrient loading are concerns as identified in the PWL. Much

of the Washington County segment of Halfway Creek traverses predominantly agricultural land in mainly dairy farm production. The watershed consists of several ponds and steep streams that flow through mainly forested landscapes to the north and predominately agricultural and recreational use (golf courses, campsites, and activity centers) to the south. Hadlock and Copeland Ponds are developed, with some development also on Lake Nebo. Hadlock Pond is a man-made reservoir, owned by the Town of Fort Ann, and was formed in the late 1800's. It is fed primarily by Bishop Brook. Sly Pond and The Three Ponds are utilized by the Boy Scouts of America as Camp Wakpominee.

The Mettawee River originates from Dorset Peak in the Green Mountains of Vermont. It flows through a wide variety of landscapes before entering Washington County in Granville. Historically and currently, many quarries dot the landscape in this area, mostly for slate. The area is known for high quality, colored slates. A majority of the Town of Granville drains to the watershed. The Indian River is a major tributary to the Mettawee River. A wide variety of mills, including grist, saw, hemp, and wool mills have used waterpower from the river for power. The watershed contains at least one public water supply and one wastewater treatment plant. After passing through the Village of Granville, the river traverses a predominantly agricultural and forested landscape before draining into the Champlain Canal in Whitehall. This area is home to one of the active Amish populations within the county. Beef, dairy, and sheep farms are also common along this stretch of the Mettawee River.

Poultney River originates in Vermont between Tinmouth and Spoon Mountains and flows 40 miles through a wide variety of landscapes. About half of the river length forms the state boundary between New York and Vermont. As with many areas in the region, there is a rich history that has grown around the Poultney River, especially mills, dams, cave inhabitation, and military movement. Many unique geological formations can also be found throughout the watershed. The watershed within New York is minimally developed, agricultural, forested, or wetland. The northern portions of the Towns of Whitehall and Hampton make up the drainage area for the river, and include many wetlands, including several significant marshes. Near the confluence with Lake Champlain's South Bay, much of the area is prime wetlands. This area is sometimes referred to as East Bay, as it used to be much deeper and wider in the 1700's. Sediment quickly filled in much of the bay, creating what is now marshlands. These wetlands host a wide variety and large populations of aquatic wildlife that is not found commonly in the area. This area is actively managed and protected by major landholders such as The Nature Conservancy and the state of Vermont (Ward Marsh Wildlife Management Area). The Audubon Society has also recognized the area as an Important Bird Area. This wetland area has been recognized by both New York and Vermont as an important resource. Much of the information provided comes from websites for The Nature Conservancy and the Ward Marsh Wildlife Management Area, as well as a 1992 document from the Vermont Agency of Natural Resources that defined the Lower Poultney River an Outstanding Resource Water.

South Bay is a very popular warm water fishing and ice fishing destination for locals and tourist alike. To accommodate fishers, a pier off NYS Route 22 provides handicap accessible fishing opportunities for all, a state operated boat launch and parking, and easy access for ice fishing. South Bay is relatively shallow, with depths ranging from a few feet to just under 20 feet. The north end of South Bay is bounded by the Delaware and Hudson Railroad, where it outlets to Lake Champlain. Major waters that feed into South Bay include Mount Hope, Spectacle, Greenland, and Pike Brooks, as well as Crossett, Bumps, Spectacle, Greenland, Fishbrook, Lapland, Mud and Thurber Ponds. The surrounding watershed supports a wide variety of land uses, including agriculture, forest, rock quarries, and residential. Both shores have some development right on the water.

The Champlain Canal is one of the two major canals in Washington County. It runs from the Town of Whitehall down to where it meets the Hudson River in Fort Edward. Since the launch of the Empire State Trail in 2017, many through hikers and bikers have had the opportunity to witness the historic Champlain Canal and will

continue to visit for years to come. With many access sites throughout the county, the canal has become very popular for paddling and fishing, as well. The Hudson River Greenway Water Trail allows paddlers to float their way down the canal from the Adirondack Park at the north end of Washington County all the way to Battery Park in Manhattan. There are still functional and active locks, including Lock C-12 in Whitehall, which lowers boats 15 feet into Lake Champlain.

Lake George, the Queen of Lakes, shares its shoreline with neighboring Warren and Essex Counties before draining to Lake Champlain. Much of the Washington County coastline is sparse in comparison, with much of the watershed in State Forest Preserve. This is largely in part due to steep slopes, bedrock, access and regulations set by the Adirondack Park Agency (APA). Small communities have formed in a few locations along the coastline, including Kattskill Bay, Pilot Knob, Huletts Landing, Gull Bay, and Glenburnie, as well as small clusters that extend from these. Major tributaries that feed into the Lake include Butternut, Shelving Rock, Sucker, and Clark Hollow Brooks. The area is highly prized as a tourist destination, and supports trails, boating access, swimming, fishing, and hunting. Town and County owned and maintained parks create availability for public access the east side of the Lake, along with several areas of state land. It is also classified by the NYS DEC as a Class AA Special, which is the highest level of classification. Much of the watershed is forested, with developments typically occurring on the shorelines. Several miles of trails and shelters exist on state owned lands, allowing for a wide variety of recreational uses.

Ground Water

Even with many diverse surface water resources, it is apparent that many public water supplies rely on ground water. Rural, private water supplies also rely on ground water sources. The evaluation and protection of the counties ground water resources are much more complex than that of surface water, however, a high priority has been placed on the detection and prevention of nonpoint source pollution. Since many of the threats to ground water originate at the surface, many of the same surface water management principles can be applied. Due to the complex transport process, a more detailed assessment of pollutant and water movement is necessary prior to management.

Focus has mainly been placed on educating and conveying information to industries, businesses, and landowners on the safe disposal of hazardous and toxic substances. Recent years have seen an increase in the promotion of lawn mowing guides, such as recommended grass length and reducing the amount of fertilizer used.

Public awareness of where their water is coming from has been of growing interest. This may be linked to more recent events, such as toxins being found in water supplies of neighboring counties. These toxins have various sources, both nearby and farther away, that affect the drinking quality.

Changing climate conditions have also been a cause of concern for ground water resources. While droughts are not uncommon, recent years have seen more prolonged periods with little to no rain to recharge this valuable resource. This has stressed many ground water sources for extended periods. Water bans, such as limiting washing vehicles and watering lawns, have been more prevalent during these times to help ensure that drinking water is continually available. To the opposite extent, flooding has also become more of a concern. Many storms have produced large amounts of rain in short periods of time. When this happens, much of the runoff is lost to surface water as the infiltration rates are highly exceeded. This loss due to runoff does not allow ground water sources to properly recharge.

Mapped aquifers can be found in every town, except Putnam, throughout the county. The northern portion of the county only has a few mapped aquifers while the southern portion has many. These typically occur in the

valleys or near other water bodies. Aquifer sizes vary greatly. Over half are considered kame, kame terrace, kame moraine, outwash or alluvium. Unconfined mid yield makes up the next largest type, with lacustrine or eolian and unconfined high yield making up the remainder.

Water Quality Factors

Land Use

Washington County is well known for the large amount of farming done within its borders. About 28% of the county's land coverage is utilized for pasture or cropland. Farms are widespread throughout the middle and southern end of the county. There are farms located in the northern end, however, far less compared to the rest of the county. About 55% of the land in the county is forested land, most of which is within the northern end of the county, within the towns of Fort Ann, Whitehall, Dresden, and Putnam. There is a smaller but dense area of forested land to the south within the towns of Cambridge, White Creek, and Jackson. Much of the rest of the county is farmland and open lands. Many of these farm fields abut up to the edges of many of the waterbodies within the county, including the nutrient filtering wetlands surrounding some of these waterbodies. There are four significant wetlands within Washington County: Tamarack Swamp, Juniper Swamp, Eldridge Swamp, and Carter's Pond Recreational Area. Wetlands and forested areas protect surface and groundwaters from excess nutrients and common pollutants. Vegetative buffers ranging from grassland plants to full grown trees have multiple benefits to aquatic ecosystems and water quality. Shade provided by these buffers cool surface waters and plant material and insects falling from the vegetation provides food sources for fish and other aquatic organisms. The buffers also create terrestrial habitat, providing nesting areas and food sources for many bird species. For these reasons, there is a heavy emphasis on agricultural environmental management within the county.

Municipal Separate Storm Sewer System (MS4)

Developed areas account for almost 7% of land use within the Washington County, the most density of which is in Hudson Falls, Kingsbury, and Fort Edward. Within Washington County there are 5 "Regulated Small MS4" communities, which are: Village of Fort Edward, Town of Fort Edward, Village of Hudson Falls, Town of Kingsbury, and Washington County DPW. MS4 communities must implement stormwater regulations defined by New York State DEC, with the goal of reducing the volume of pollutants swept into freshwater resources by stormwater runoff. The Washington County Stormwater Management Plan can be found in Appendix 6.

Committee Responsibility and Accountability

In 1979 the Washington County SWCD was designated by the County Board of Supervisors as lead agency in matters of nonpoint source water quality management (see Resolution #177 in Appendix XX).

In compliance with this designation, the WQCC will operate under the direction of the SWCD Board of Directors, which in turn is ultimately accountable to the County Board of Supervisors.

In order to ensure this direction and accountability, at least one Supervisor representative of the SWCD Board and one other member of the Washington County Board of Supervisors will sit on the WQCC.

All appointments, documents, and allocations, either monetary or in-kind in nature, will also be reviewed and approved by the SWCD Board.

The Chairmanship of the WQCC will also be the responsibility of the SWCD Board and sub-committee members will be appointed from a list of willing, qualified volunteers.

Appendices 2 and 3 contain a directory of the Committee and a list agencies and individuals involved in this cooperative effort.

Goals and Objectives

The overall goal of the strategy is to establish a cooperative local effort, which will identify, assess, and address nonpoint source water quality and quantity concerns in Washington County. This will include an ongoing effort to re-evaluate water resources and monitor the effects and benefits of implementing the strategy. This strategy establishes the structure and function of the Water Quality Coordinating Committee, identifies the major water quality concerns for Washington County, and utilized those concerns to lay the foundation for priority projects the WQCC will commit its time to running. Projects are all aimed at mitigating water quality issues within Washington County. The strategy establishes the framework for building and running these projects and will be reassessed as time progresses.

The secondary goal is to coordinate and implement multi-level informational education programs that emphasize the principles of nonpoint source pollution and the impacts it has on Washington County's water resources. Community involvement and understanding of water quality issues are important to successfully solving these issues. Consulting community members provides information on the general attitudes and concerns of the public regarding water resources. By offering educational opportunities for community members to better understand issues concerning waterbody health, a motivated and invested community will be cultivated. Community members with vested interest in Washington County water resources is a motivated and active community, eager to lend assistance for improving and conserving water quality and quantity. It is important to stress that water quality stewardship can be done in many ways, whether it be from home or through an organization, it is accessible by all citizens.

Major Objectives

Objective	Actions	Who	When	Progress	Date Updated
Maintain a cooperative effort at the local level to address concerns which affect the quality and quantity of surface and ground water resources in and around Washington County	Maintain at least a three-member Executive Committee with representation from various agencies involved to provide general guidance and leadership	• Ashley Leemans (WCSWCD) • TBD • TBD • TBD			
	Maintain a well rounded WQCC comprised of diverse individuals involved with water quality issues at various levels of government, natural resource agencies, and special interest groups	• Executive Committee			
	Appoint sub-committees as needed to address key issues and responsibilities	• Executive Committee			

Projects

Project Name	Goals and Objectives	Resources and Funding Sources	Anticipated Timeframe	Description
Portable Skidder Bridges for Stream Crossings	• Build and rent/auction off skidder bridges for forester, logger, and homeowner use. • Prevent excess erosion from forestry/logging activities when crossing rivers and streams.	• LCBP • WQIP • USFS? • The Glens Falls Foundation • https://www.morningagclips.com/cccd-accepting-bids-on-newly-built-skidder-bridge/	2026 – Ongoing	Logging operations use a wide variety of approved methods for crossing streams. Skidder bridges are a great option for many crossings and prevent excess erosion and sediment from reaching critical water resources. There is currently a lack of access for portable skidder bridges in Washington County. Programs in the past have been very successful, however, have since retired their program.
Drinking Water Awareness	• Enable Washington County residents to test their drinking water by: ○ Sharing the cost of drinking water tests at an ELAP certified lab.	• Part B • The Glens Falls Foundation • Alfred Z Solomon Trust • NACD? • Part C	TBD	With the towns of Hudson Falls and Fort Edward historically impacted by PCB contamination in the Hudson River, safe drinking water is important for many Washington County residents.
Watershed Planning	• Assist lake communities to create watershed plans which will assist them in getting access to the Septic System Replacement Program	• TBD	TBD	Washington County does not lack water resources and many smaller lake communities have not yet been granted access to the Septic System Replacement system. Creating Watershed Plans for these communities will assist them in accessing this program.
Stream and Lake Monitoring and Mapping	• Build a database of stream and lake/pond results to establish current	• Part B • The Glens Falls Foundation	2023 – Ongoing	The WQCC will conduct sampling and testing of streams and lakes to inform

• Lab sample Testing • WAVE	water quality trends within the county.	• Alfred Z Solomon Trust • AEM		decisions for water quality improvement projects. Results and trends will also be used to guide AEM strategic planning.
Forest Road Improvement Project, Rural Roads Active Management Project (RRAMP) and NAACC	• Identify areas of excessive erosion on rural roads and forest roads and/or river crossings within the county. • Complete erosion mitigation projects along roadsides and river crossings.	• Forest Roads/RRAMP CWICNY funds • WQIP	2024 – Ongoing	WCSWCD is involved in CWICNY. One of CWICNY's goals is to mitigate erosion issues within the Champlain Watershed to reduce the amount of sediment entering waterways. NAACC is utilized to identify, monitor, and replace failing river crossings which can cause erosion and flooding issues as well as prevent aquatic organisms from being able to pass through.
Shoreline Evaluation Program and Homeowner Stormwater BMPs	• Promote landowner water quality stewardship. • Reduce shoreline erosion and nutrient loading into county waterbodies.	• The Glens Falls Foundation • Alfred Z Solomon • Part C – Landowner Assistance	Spring of 2025 – Ongoing	Washington County is home to many important waterbodies, many of which have residents along the shorelines. While many community members are educated on best management practices (BMPs) for shoreline friendly living, they may need assistance implementing some of the larger projects, such as buffer plantings, lined ditches, or pervious pavements. This program is meant to evaluate properties on shorelines and aid homeowners to install BMPs at little to no cost.

Stream Wise	• Promote landowner water quality stewardship. • Reduce shoreline erosion and nutrient loading into county waterbodies.	• LCBP • https://streamwisechamplain.org/about/	Spring 2025 – Ongoing	"Stream Wise engages streamside property owners in the Lake Champlain basin to enhance and protect vegetated stream buffers, increasing flood resiliency and benefiting water quality and natural habitat." https://streamwisechamplain.org/about/ Stream Wise was created by and managed by the Lake Champlain Basin Program.
Rural and Urban Green Infrastructure for Climate Resilience	• Create more green spaces within the county which will provide aesthetic functions as well as stormwater mitigation functions. • Form initiatives for urban agriculture. • Implement climate and flood resilient best management practices throughout the county. • Promote biodiversity and ecosystem services throughout the county. • Implementation of a Master Rain Gardener Program	• WQIP • Urban and Community Forestry Program Cost Share Grants • Environmental Justice Community Impact Grant Program • Urban Waters Small Grants	2025 – Ongoing	Washington County is dominated by agricultural lands. The county could benefit from the addition of green infrastructure which will mitigate stormwater runoff issues as well as provide aesthetic green spaces for community members to enjoy. Climate and flood resilience is becoming more and more important, and our food systems, economy, and ecosystem services depend upon our ecosystem's ability to adapt to climate change and increased flooding.
Education and Outreach: • Septic Talks • Manure Application Workshops • Harmful Algal	• Engage Community members. • Encourage water quality stewardship throughout the county.	• LCBP Education Grants • Part C? • Part B?	2025 – Ongoing	Providing public educational opportunities on water quality is important for engaging community members and encouraging them to

Bloom Education • Cover Crop and Soil Health Outreach • Interseeder demonstrations				become active water quality stewards.

RESOLUTION

Resolution No. 177 Nov. 20, 1979

Introduced by Mr. Perry

TITLE: Designation of Agency to Protect the State's Water Resources

WHEREAS, the NYS Department of Environmental Conservation has statewide responsibility for water quality planning and will need local agencies to be in charge of the program locally, and

WHEREAS, the Washington County Soil and Water Conservation District has carried on a program of erosion and sediment control and water quality management by developing and implementing plans with individuals and units of government over the past 34 years, and

WHEREAS, the recommendations of citizens and technical personnel was that the Washington County Soil and Water Conservation District be designated as the responsible agency for erosion and sediment control and water quality management on potential non-point pollution sources such as streambanks, construction, forestry, mined land, roadbanks, and agriculture; now, therefore, be it

RESOLVED, that the Washington County Board of Supervisors as the local planning, management, and implementing agency to protect the state's water resources from the above mentioned sources of non-point water pollution.

Washington County Water Quality Coordinating Committee Accomplishments to Date

December 1990:

First meeting was held to coordinate agencies and organizations in the county having responsibility and concerns for water resources.

1991-1992:

Development and adoption of the Washington County Water Quality Strategy for nonpoint source water resource concerns

1993-1996:

Sponsored and secured funding for various information/education programs, including:

- Countywide school outreach for New York State Water Week
- Battenkill Watershed and River Corridor Inventory
- Mettawee River Stabilization Inventory
- Summit Lake Aquatic Plant Inventory
- County nonpoint source pollution control project tours
- County water resource maps
- Stormwater and storm sewer stenciling for six 4-H clubs
- Village water tasting contests
- County fair displays
- Urban Erosion and Sediment Control Workshops for highway superintendents, contractors, and consultants

1997-1999:

Coordinated the following events and activities:

- New York State Source Water Assessment workshops for municipal water systems
- Watershed inventory and planning for Cossayuna Lake
- Comprehensive bi-county plan for Halfway Creek Watershed
- Ranking and guidance for numerous projects submitted under the NYS Clean Air-Clean Water Bond Act and the Environmental Protection Fund
- Countywide tour of complete water quality project
- Secured and administered several mini grants to fund committee activities and pilot projects.

March, 1999:

Merged WQCC with the Washington County Local Working Group. The LWG was formed to prioritize funding areas for USDA cost-share programs such as Environmental Quality Incentive Program (EQIP).

2000-2002:

WQCC/LWG focused primarily on the prioritization of county watersheds and water quality projects for the purpose of various state and federal grant application and ongoing mini grants.

- Cossayuna Lake Shoreline and Septic Monitoring- $5,000
- Battenkill River Cleanup- $2,500 over 3 cleanup days

- Agricultural Pesticides "Clean Sweep 1" Collection Day- $15,000 for countywide pesticides collection day sponsored by and held at the Washington County Municipal Center

2003

WQCC Mini-Grants:

- Battenkill Cleanup- 55-gallon drums placed at "hot spots" along the river in the Towns of Salem and Jackson for trash collection May through November
- Ag Pesticides Clean Sweep 2 Collection Day- $15,000

Prioritized the following grant projects:

- White Creek/ Salem Aquifer
- Mettawee Riparian Buffer
- Wood Creek AEM Planning
- Poultney-Mettawee BMP Implementation
- Cossayuna Lake Sediment Basin
- Halfway Creek AEM Implementation

Activities also included:

- Special forum was held in Salem on issues and recommendation for White Creek
- Compiled data for NYS-DEC Hudson River Basin 2003 Priority Waterbody List update

2004-2005:

- Battenkill Cleanup: During the life of this project (2000-2004), 10 truckloads of trash have been removed from the watershed and its shoreline.
- Washington-Warren MS4 Stormwater Management Training: Conducted workshop for local officials, focusing on Phase 2 Stormwater rules and regulations for MS4s and construction sites, with a pictorial presentation on techniques and systems for stormwater management.
- Ninth Annual Adirondack Waterfest: Event held in July at Rogers Island Visitors Center in Fort Edward. Played the lead role in planning, coordinating and implementing the event, which attracted 1,000 visitors and included 31 exhibitors from various water-related businesses and organizations.
- Champlain Watershed Improvement Coalition of NY Legislative Tour: WQCC members co-organized this tour with Warren County SWCD and WQCC. It included 5 stops in Washington County to look at both agricultural and non-agricultural water quality improvement projects in the Towns of Fort Ann, Granville, and Whitehall
- MS4 Grants and Community Assistance: Co-authored a funding application with Warren County to assist MS4 communities with DEC Phase 2 Stormwater compliance. In addition, several meetings were held with MS4 communities and Washington County DPW to develop MS4 compliance strategies.

2006-2007

Continued work on implementing agricultural nonpoint source grants, including:

- Lake Champlain Water Chestnut Harvesting
- Two in Halfway Creek watershed
- Village of Salem/ White Creek
- Poultney- Mettawee watershed

2007

- County Water Quality Strategy Revision: A sub-committee completed the revision of the Washington County Water Quality Strategy.

2019

- Two meetings held that discussed various water quality topics and trainings
    - Harmful Algal Blooms
    - Soil Compaction and Health
    - Manure Applicator Training
    - Farm Plans and Manure Spreading, panel discussion

2020

- Kick off meeting held to start updating the Washington County Water Quality Strategy

2021

- County Water Quality Strategy updates progress forward, with the completion of a survey open to all of Washington County that brought in over 200 responses.
- Three wells of the Town of Salem Public Water District tested negative for the presence of PFOAs.

Survey

A survey was distributed electronically to individuals that spend time within Washington County in early spring 2021. A total of 205 responses were collected across most major watersheds. An example of the survey has been included in Appendix 6. The results collected are used to help the WQCC form their goals and objectives. While responses are based on opinion and are specific to certain areas, these results have shown where there may be opportunity for the WQCC to potentially focus efforts on the objectives. Some confusions may have also arisen in responses to which watershed participants spent the most time in (Question 1 and 2). This may be for a few reasons, such as lack of knowing their watershed and confusing or duplicate names. While the survey was in distribution, toxic contaminates from a landfill were found in drinking water in a neighboring county, which may have elevated awareness and concerns to drinking water. Data may be skewed toward one particular watershed in the overall survey results, as over half the responses came from one watershed. There are also several seemingly repeat responses, as if the submit button was hit multiple times for the same responder.

Results are summarized below for each question, based on the responses returned covering the entire county. Percentages are rounded.

Section 1: Background Information

Basic, non-identifying background information was collected to determine if different areas perceived water quality and quantity issues differently as well as to ensure inputs from around the county were heard.

- Which major watershed do you spend the most time in?
    - Lake Champlain 11.5%, Hudson River 71.4%, unknown 18.8%
    - Unknown may be high due to spending significant time within both watersheds.
- If known, which sub watersheds do you spend the most time in? Top three choices are displayed.
    - Major sub watershed responses

        - Lake Champlain
            - Lake George 42%
            - Mettawee River 16%
            - Lake Champlain 13%
        - Hudson River
            - Cossayuna Lake 36%
            - Battenkill 20%
            - Hoosic River 13%
- Which activities best describe your use of Washington County's watersheds? Reported total percentage of listed categories.
    - Overall
        - Residential Status (Total % of these categories): Vacation/ camp 34%, Reside (more than one acre) 23%, Reside (less than one acre) 16%, Work 13%, Own a business 7%, Farm 7%
        - Activities: Swimming 24%, Fishing 22%, Hike 16%, Manually powered watercraft 15%, Power watercraft 15%, Hunting 4%, Trail riding (non-motorized) 3%, Trail riding (motorized) 1%
        - Other responses reported: winter sports, walking, road cycling, bird watching, gardening, and tubing.
    - Lake Champlain
        - Residential Status: Work 32%, Reside (more than one acre) 27%, Vacation/ camp 14%, Own a business 11%, Farm 11%, Reside (less than one acre) 5%
        - Activities: Hike 22%, Power watercraft 15%, Fishing 15%, Swimming 15%, Manually powered watercraft 12%, Hunting 7%, Trail riding (non-motorized) 7%, Trail riding (motorized) 7%
    - Hudson River
        - Residential Status (Total % of these categories): Vacation/ camp 30%, Reside (more than one acre) 22%, Reside (less than one acre) 20%, Work 13%, Own a business 8%, Farm 7%
        - Activities: Fishing 23%, Swimming 22%, Hike 18%, Manually powered watercraft 15%, Power watercraft 14%, Hunting 4%, Trail riding (non-motorized) 3%
- What is the source of your drinking water?
    - Overall: Drilled well 60%, Public 18%, Bottled 12%, Dug well 10%, Artesian well 4%, Surface water 2%, Spring 1%, Point well 1%, Unknown 1%
    - Lake Champlain: Drilled well 46%, Dug well 17%, Bottled and public 13%, Artesian, spring, and surface water 4%
    - Hudson River: Drilled well 57%, Public 21%, Dug well 10%, Bottled 5%, Artesian 4%, Point well and spring 1%
- What is your main concern about the water quality and/or quantity about the watershed in which you spend the most time in Washington County?
    - This was an open-ended question that participants could tell exactly what their concerns were. These concerns were grouped into similar categories for presentation.
        - Contamination 23%, Invasive species 15%, Recreation 7%, Land use 7%, Fish populations 6%, Drinking water 6%, Quality 5%, Sewage 5%, Harmful algae blooms 4%, Health 3%, Flood management 2%, Climate change 1%, Industrial 1%, Quantity 1%, Buffers 1%, Funding 0%, Soils 0%

Section 2: Water Uses- Please rank how you feel water resources are utilized within the watersheds you spend the most time. Uses are considered how often the water resource is used. Top two percentages of uses reported per ranking.

- Overall:
  - Highest uses: Recreation 40%, Drinking water 35%
  - 2nd highest uses: Recreation 27%, Drinking water 15%
  - 3rd highest uses: Wetlands 14%, Aesthetic and warm water fisheries 13%
  - 4th highest uses: Wetlands 20%, Cold water fisheries and Groundwater 11%
  - 5th highest uses: Aesthetic 15%, Groundwater 14%
- Lake Champlain:
  - Highest uses: Drinking water 65%, Agriculture and recreation 15%
  - 2nd highest uses: Recreation 35%, Drinking water 20%
  - 3rd highest uses: Recreation 40%, Cold water fisheries 20%
  - 4th highest uses: Wetlands 30%, Warm water fisheries 20%
  - 5th highest uses: Aesthetic, cold water fisheries, and wetlands 20%, Agriculture 15%
- Hudson River
  - Highest uses: Recreation 37%, Drinking water 35%
  - 2nd highest uses: Recreation 26%, Warm water fisheries 19%
  - 3rd highest uses: Agriculture, groundwater and warm water fisheries 13%. Aesthetic and wetlands 12%
  - 4th highest uses: Agriculture 19%, Wetlands 18%
  - 5th highest uses: Groundwater 17%, Recreation 13%

Section 3: Water Needs- Please rank how you feel water resources are needed within the watersheds you spend the most time. Consider how the county would be impacted if the resource was impaired to a point in which it was no longer usable.

- Overall:
  - Highest needs: Drinking water 48%, Recreation 23%
  - 2nd highest needs: Recreation 19%, Wetlands 14%
  - 3rd highest needs: Wetlands 20%, Agriculture 17%
  - 4th highest needs: Agriculture 15%, Recreation 14%
  - 5th highest needs: Recreation 17%, Aesthetic 15%
- Lake Champlain:
  - Highest needs: Drinking water 70%, Agriculture 15%
  - 2nd highest needs: Recreation 30%, Drinking water 20%
  - 3rd highest needs: Agriculture 26%, Recreation and warm water fisheries 16%
  - 4th highest needs: Recreation 21%, Coldwater fisheries, industrial, and warm water fisheries 16%
  - 5th highest needs: Wetlands 33%, Aesthetic, cold water fisheries, and public utilities 11%
- Hudson River:
  - Highest needs: Drinking water 46%, Recreation 18%
  - 2nd highest needs: Recreation 16%, Groundwater and wetlands 14%
  - 3rd highest needs: Wetlands 22%, Agriculture 18%
  - 4th highest needs: Agriculture 18%, Recreation 15%
  - 5th highest needs: Recreation 19%, Aesthetic 14%

Section 4: Water Quantity- Please select which cause you feel effects the following issues the most. Reported are top three picked choices.

- Deficiencies in public water supply
    - Overall: Regular or irregular contamination 30%, Structural failure of aging systems 25%, Increase in amount of people served 13%
    - Lake Champlain: Structural failure of aging systems 37%, Poor watershed management 21%, Regular or irregular contamination 21%
    - Hudson River: Regular or irregular contamination 28%, Structural failure of aging systems 28%, Increase in amount of people served 13%
- Excessive moisture on agricultural land
    - Overall: Runoff from adjacent lands 26%, Improper land management 25%, Weather patterns- heavy rain over short time 19%
    - Lake Champlain: Poorly drained soils 40%, Weather patterns- heavy rain over short time 25%, Improper land management and runoff from adjacent lands tied at 15%
    - Hudson River: Improper land management 33%, Runoff from adjacent lands 23%, Weather patterns- heavy rain over short time 18%
- Moisture deficiency on agricultural land
    - Overall: Weather patterns- drought 42%, Improper land management 26%, Poor soil health 13%
    - Lake Champlain: Weather patterns- drought 50%, Poor soil health 23%, Excessively drained soil 14%
    - Hudson River: Weather patterns- drought 43%, Improper land management 34%, Poor soil health 12%
- Stream and river flooding
    - Overall: Intense rain events over short time frame 37%, Rapid runoff from land use changes 29%, Improper culverts 9%
    - Lake Champlain: Intense rain events over short time frame 50%, Rapid runoff from land use changes 21%, Channel restriction 13%
    - Hudson River: Intense rain events over short time frame 36%, Rapid runoff from land use changes 32%, Reduced channel capacity 10%
- Urban and municipal flooding
    - Overall: Ineffective stormwater management 33%, Intense rain events over short time frame 22%, Aged stormwater structures 16%
    - Lake Champlain: Intense rain events over short time frame 29%, Aged stormwater structures 21%, Ineffective stormwater management 21%
    - Hudson River: Ineffective stormwater management 37%, Intense rain events over short time frame 20%, Rapid runoff from land use changes 17%

Section 5: Water Quality- Please select which pollutant source you feel contributes to the contaminate the most. Reported are top three picked choices.

- Nutrients
    - Overall: Fertilizers 24%, Septic systems 23%, Cropland where manure is spread 15%
    - Lake Champlain: Septic Systems 28%, Urban runoff 19%, Fertilizers and waste water treatment plants tied at 14%
    - Hudson River: Fertilizers 30%, Septic systems 17%, Cropland where manure is spread 15%
- Nutrients

    - Overall: Septic systems 23%, Animal operations 23%, Cropland where manure is spread 21%
    - Lake Champlain: Urban runoff 28%, Animal operations, cropland where manure is spread and septic systems tied at 17%
    - Hudson River: Animal operations 29%, Septic systems 21%, Cropland where manure is spread 20%
- Sediment
    - Overall: Road runoff 20%, Land use changes 19%, Streambanks 13%
    - Lake Champlain: Land use changes 25%, Road runoff 19%, Mining operations and urban runoff tied at 13%
    - Hudson River: Land use changes 23%, Road runoff 22%, Streambanks 16%
- Pesticides
    - Overall: Cropland (large scale) 38%, Lawns/landscaping 36%, Urban runoff 6%
    - Lake Champlain: Lawns/ landscaping 63%, Cropland (large scale) 21%
    - Hudson River: Cropland (large scale) 38%, Lawns/ landscaping 36%, Golf courses 8%
- Toxic chemicals
    - Overall: Industrial waste 22%, Road runoff 19%, Boat launches 16%
    - Lake Champlain: Discarded household chemicals 35%, Discarded petroleum products 20%, Road runoff 15%
    - Hudson River: Industrial waste 32%, Road runoff 20%, Boat launches 14%

Appendices

Appendix 1: Watersheds

Name	HUC-12	Town
West Branch Black Creek	020200030101	Hebron
		Salem
White Creek	020200030102	Hebron
		Salem
Black Creek	020200030103	Argyle
		Greenwich
		Hartford
		Hebron
		Salem
Terry Brook	020200030204	Salem
Green River- Batten Kill	020200030205	Jackson
		Salem
Steele Brook- Batten Kill	020200030206	Jackson
		Salem
Whitaker Brook	020200030301	Argyle
		Greenwich
		Hebron
Fly Creek	020200030302	Cambridge
		Easton
		Greenwich
		Jackson
Batten Kill	020200030303	Argyle
		Easton
		Greenwich
		Jackson
		Salem
Hudson River Champlain Canal	020200030503	Fort Edward
		Kingsbury
Glens Falls Feeder Canal- Hudson River	020200030506	Fort Edward
		Kingsbury
Moses Kill	020200030507	Argyle
		Fort Edward
		Hartford
		Hebron
Slocum Creek- Hudson River	020200030508	Argyle
		Easton
		Fort Edward
		Greenwich
Little White Creek	020200030703	White Creek
Walloomsac River	020200030704	White Creek
White Creek	020200030901	Jackson
		White Creek
Owl Kill	020200030902	Cambridge
		Jackson
		White Creek
Wampecack Creek	020200031001	Cambridge
		Easton
Nipmoose Brook- Hoosic River	020200031002	Cambridge
		White Creek
McAuley Brook- Hudson River	020200031101	Easton
Mill Hollow Brook- Hudson River	020200031104	Easton

Name	HUC-12	Town
Hadlock Pond	041504010102	Fort Ann
Halfway Creek	041504010103	Fort Ann
		Kingsbury
Wood Creek- Lake Champlain Canal	041504010104	Fort Ann
		Granville
		Hartford
		Kingsbury
Lake Champlain Canal	041504010105	Fort Ann
		Granville
		Hartford
		Whitehall
Wells Brook- Mettawee River	041504010203	Granville
Indian River	041504010204	Granville
		Hebron
Mettawee River	041504010205	Fort Ann
		Granville
		Hampton
		Whitehall
Finel Hollow Brook- Poultney River	041504010302	Hampton
		Whitehall
Mud Brook- Poultney River	041504010305	Hampton
		Whitehall
Poultney River- Head of Lake Champlain	041504010307	Hampton
		Whitehall
Mount Hope Brook- South Bay Creek	041504080101	Dresden
		Fort Ann
South Bay	041504080102	Dresden
		Fort Ann
		Whitehall
Mill Brook	041504080103	Dresden
		Putnam
Charter Brook- Lake Champlain	041504080104	Dresden
		Putnam
Headwaters Lake George	041504080201	Fort Ann
Indian Brook- Lake George	041504080203	Dresden
		Fort Ann
Sabbath Day Point- Lake George	041504080204	Dresden
		Fort Ann
Outlet Lake George	041504080205	Dresden
		Putnam

Appendix 2: Directories

WQCC Directory

Washington County Soil & Water Conservation District
Water Quality Coordinating Committee: Executive Committee

WQCC Chair
John Dickinson
SWCD Co-Chairman
johndickinson76@gmail.com

Committee Coordinator
Ashley Leemans
District Technician
(518) 692-9940 ext. 113
Ashley.Leemans@ny.nacdnet.net

WQCC Member at Large
Sherri Slater
SWCD Board Member
greenosherri@aol.com

WQCC Member at Large
TBD

SWCD Directory

Washington County Soil & Water Conservation District

Corrina Aldrich
District Manager
(518) 692-9940 ext. 123
Corrina.Aldrich@ny.nacdnet.net

Lori Sheehan
Office Manager
(518) 692-9940 ext. 101
Lori.Sheehan@ny.nacdnet.net

Bob Kalbfliesh
District Technician
(518) 692-9940 ext. 116
Bob.Kalbfliesh@ny.nacdnet.net

Amber Luke
District Technician
(518) 692-9940 ext. 117
Amber.Luke@ny.nacdnet.net

Ashley Leemans
District Technician
(518) 692-9940 ext. 113
Ashley.Leemans@ny.nacdnet.net

Korey Evarts
District Technician
(518) 692-9940 ext. 108
Korey.Evarts@ny.nacdnet.net

Appendix 3: Partners (Current and Projected) **In Progress**

Organizations:
Agricultural Stewardship Association
Battenkill Alliance
Battenkill Conservancy
BOCES
Capital Region Partnership for Invasive Species Management
Cossayuna Lake Improvement Association
Cornell Cooperative Extension
Feeder Canal Alliance
Grassland Bird Trust
Hadlock Pond Association
Hoosic River Watershed Association
Hudson Crossing Park
Lake Champlain Basin Program
Lake Champlain – Lake George Regional Planning Board
Lake George Park Commission
Lake George Association
Mud U
NYS Department of Agriculture and Markets
NYS Department of Environmental Conservation
Pember Museum and Library
Summit Lake Association
Trout Unlimited
USDA Natural Resources Conservation Service
Washington County Planning and Community Development

Individuals:
Bob Bombard
Jared Woodcock
Pamela Landi
Jacob Fetterman
Erin Vennie-Vollrath

Appendix 4: Index of Acronyms

ACC	Adirondack Community College
CCE	Cornell Cooperative Extension
CWICNY	Champlain Watershed Improvement Coalition of NY
DEC	Department of Environmental Conservation
DOH	Department of Health
EC	Executive committee
FC	Finance committee
FSA	Farm Service Agency
LA	Lake associations
LC/LG RPB	Lake Champlain/ Lake George Regional Planning Board
NAACC	North Atlantic Aquatic Connectivity Collaborative
NRCS	Natural Resources Conservation Service
P&CD	Washington County Planning & Community Development
PS	Private sector
PWL	Priority Waterbody List
RC&D	Resource Conservation & Development
RRAMP	Rural Roads Active Management Program
SWCD	Soil and Water Conservation District
SIG	Special interest groups
USGS	United States Geological Survey
WCSWCD	Washington County Soil and Water Conservation District
WQCC	Water Quality Coordinating Committee

Appendix 5: Definitions

Alluvium – Aquifers generally composed of clay, silt, sand, gravel or similar unconsolidated material deposited by running water.

Aquifer – A body of permeable rock which can contain or transmit groundwater.

Drought – A prolonged period of abnormally low rainfall, leading to a shortage of water.

Eolian – Sediments are wind deposited materials that consist primarily of sand or silt-sized particles.

Flood – An overflowing of a large amount of water beyond its normal confines, especially over what is normally dry land.

Groundwater – The water present beneath Earth's surface.

Kame – A glacial landform, an irregularly shaped hill or mound composed of sand, gravel and till that accumulates in a depression on a retreating glacier and is then deposited on the land surface with further melting of the glacier.

Kame terrace – A terrace of stratified sand and gravel deposited by streams between a glacier and an adjacent valley wall.

Kame moraine – Deposits of stratified drift laid down at an ice margin in the arcuate shape of a moraine.

Lacustrine – A plain formed due to the past existence of a lake and its accompanying sediment accumulation.

Municipal Separate Storm Sewer System (MS4) – A federally mandated program through the Clean Water Act to control stormwater runoff and protect water quality.

Outwash – Expansive, generally flat areas that are dominated by braided rivers, occurring in front if actively melting glaciers.

"Regulated Small MS4" – a designation given by NYSDEC, the communities have to implement Phase II Stormwater Regulations by January 2008

Surface water – The water that collects on the surface of the ground, including but not limited to lakes, streams, and rivers.

Unconfined aquifer – An aquifer where the rock is directly open at the surface of the ground and groundwater is directly recharged, for example by rainfall or snow melt.

Appendix 6: Survey Example

Dear Washington County Water Resource User,

Thank you for taking the time to participate in our Water Resource survey! Your response will assist the Washington County Water Quality Coordinating Committee (WQCC) determine the focus of our future projects. The WQCC was formed in 1990 to bring local water quality agencies and organizations together as a group to address water quality concerns across the county. Over the past 30 years, the WQCC has successfully brought education to a wide variety of audiences, assisted in the removal of trash and hazardous waste, completed numerous inventories, helped in developing plans and implementing several projects.

The survey is completely anonymous. If you do not feel comfortable answering any part of the survey, please feel free to skip that section. In the first part of the survey, we ask for you to provide some basic background information to better understand how water resources are used. In the Countywide Uses and Needs section, please rank how you feel water resources are utilized and needed on a countywide basis. Uses are considered how often the water resource is used while the need considers how significantly the county may be impacted if we lost that resource. Next, the Countywide Quantity portion asks about different water quantity issues seen across the county, from excessive water to not enough. Each issue has its own set of possible causes that should also be ranked. The Countywide Contaminates and Sources asks about which pollutants you feel effect the county water sources the most, and which specific source you feel contribute to this. All rankings will be considered as #1 being the highest priority. Also keep in mind that, besides the background information, this is for countywide. While you consider your rankings, remember the vast diversity that occurs in Washington County, both land type and land use. We have steep mountains, rolling farm fields, historic cities, and quaint villages. This may be a good excuse to get out of the house and take a tour of our beautiful county!

Please reach out or return responses by DATE to:

Laura Generous c/o Washington County Water Quality Committee
Washington County Soil and Water Conservation District
Natural Resource Conservation Technician
2530 NYS Route 40, Greenwich, NY 12834
districttechnician2@washingtoncountyswcd.org
518-692-9940 ext 126

Again, thank you for your time and your response!

Washington County Water Quality Coordinating Committee

Background Information

Which major watershed* do you spend the most time in?

____ Lake Champlain ____ Hudson River ____ Unknown

If known, which subwatersheds do you spend time in for purposes other than travelling?

____ Lake Champlain ____Lake George _____ Big Creek
____ Champlain Canal ____ Halfway Brook ____ South Bay
____ Mettawee River ____ Poultney River

____ Hudson River ____ White Creek ____ Battenkill ____ Hoosic River ____ Owl Kill ____ Cossayuna Lake

____ Summit Lake ____ Lake Lauderdale

____ Other _____ ____ Unknown

Of the selected watershed, which activities best fit your usage?

____ Reside (less than one acre) ____ Own a business

____ Reside (more than one acre) ____ Hike

____ Work ____ Manually powered watercraft

____ Vacation/ Camp ____ Power watercraft

____ Fishing ____ Hunting

____ Swimming ____ Farm

____Trail riding (bike, horse, etc.,) ____ Trail riding (snowmobile, ATV, etc.,)

____ Other _____

What is the source of your drinking water?

____ Public ____ Drilled well ____ Dug well ____ Surface water

____ Artesian well ____Spring ____ Other _____ ____ Unknown

What is your main concern about the water quality or quantity about the watershed you spend the most time?

_____

_____

_____

*A watershed is defined as an area of land that drains all it's water to a specific location. If a raindrop falls on the ground, where does it ultimately end up?

Please prioritize by numbering from 1-15, with #1 being the most critical. Keep in mind this is for the county as a whole.

Countywide Water Uses and Needs

Uses Needs

___ ____ Public drinking water supplies- groundwater/surface water

___ ___ Private drinking water supplies- groundwater/surface water

___ ___ Recreation- direct contact such as swimming

___ ___ Recreation- indirect contact such as boating, fishing

___ ___ Wetlands- natural flood control, sediment basins, filter areas

___ ___ Wetlands- maintaining as unique environment, habitat

___ ___ Cold water fisheries- sustainable populations of trout, salmon

___ ___ Warm water fisheries- sustainable populations of bass, pike, panfish, etc.

___ ___ Agriculture consumption- irrigation, livestock water, milk processing

___ ___ Aquaculture- impoundments for private or commercial fish & bait production

___ ___ Transportation- navigability of certain waters, such as the Champlain Canal

___ ___ Public utilities- hydroelectric facilities

___ ___ Industrial- power source or cooling for industry

___ ___ Aesthetic effect- scenic beauty and desirability, tourism

___ ___ Other: _____

Please prioritize each issue by numbering from 1-5, with #1 being the most critical. Then prioritize the possible causes for each issue, with #1 being the most critical. Keep in mind this is for the county as a whole.

Countywide Water Quantity

Issue

_____ Deficiencies in public water supply

Possible Causes

_____ Obsolescence of old supply systems
_____ Poor watershed management
_____ Regular contamination
_____ Structural failure of aging systems
_____ Increase in amount of people services
_____ Drought

_____ Excessive moisture on ag land

_____ Poorly drained soils
_____ Weather patterns- heavy rain over short time
_____ Runoff from adjacent lands

_____ Poor soil health
_____ Improper land management

_____ Moisture deficiency on ag land

____ Weather patterns- drought
_____ Specialty crops with greater water needs
_____ Excessively drained soils
_____ Poor soil health
_____ Improper land management

_____ Stream and river flooding

_____ Rapid runoff from land use changes
_____ Channel restriction (blockages)
_____ Reduced channel capacities (gravel bars)
_____ Erosion
_____ Intense rain events over short time

_____ Urban and municipal flooding

_____ Rapid runoff from land use changes
_____ Ineffective stormwater management
_____ Aged stormwater structures
_____ Poor drainage
_____ Poor siting of development
_____ Intense rain events over short time
_____ Stream crossing size limitations
_____ Wildlife causes

Please prioritize by numbering the Contaminants from 1-6, then rank the Possible Sources, with #1 being the most critical. Keep in mind this is for the county as a whole. Continues onto second page.

Existing and Potential Water Quality Contaminants and Sources

Type of Contaminant	Possible Sources
_____ Nutrients (phosphorous, nitrogen, etc.,)	_____ Erosion _____ Septic systems _____ Urban runoff _____ Wastewater treatment plants _____ Animal production (barnyard) _____ Industrial discharges _____ Cropland where manure is spread _____ Pasture _____ Fertilizers (
_____ Bacteria	_____ Septic systems _____ Animal operations _____ Cropland where manure is spread _____ Pasture _____ Wastewater treatment plants

_____ Urban runoff
_____ Wildlife
_____ Beaches

_____ Sediment

_____ Cropland
_____ Construction activities
_____ Streambanks
_____ Forestry and logging activities
_____ Urban runoff
_____ Pasture
_____ Mining operation
_____ Water access points
_____ Land use change
_____ Recreational trails
_____ Boat launches

Type of Contaminate | Possible Sources

_____ Pesticides

_____ Cropland
_____ Golf courses
_____ Lawns/ Landscaping
_____ Waste disposal sites
_____ Orchards
_____ Vineyards
_____ Forestry
_____ Urban runoff
_____ Irrigation return flows

_____ Toxic Chemicals

_____ Discarded petroleum products
_____ Discarded household chemicals
_____ Industrial waste
_____ Landfill leachate
_____ Urban runoff
_____ Boat launches

Appendix 7: Washington County Stomrwater Pollution Management Plan

Department of Public Works
Highways Solid Waste Engineering

Willy F. Grimmke, P.E. – Superintendent
Kyle M. Vanderwater – Public Works Manager

MS4 STORMWATER MANAGEMENT PLAN

BACKGROUND: The MS4 (Municipal Separate Storm Sewer System) is a federally mandated program through the Clean Water Act to control stormawater runoff and protect water quality. In New York State this program is under the auspices of the NYS Department of Environmental Conservation (DEC). An MS4 is a conveyance system (such as roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels or storm drains) that is designed for collecting or conveying stormwater, not a combined sewer and not part of a publicly owned treatment system.

There are currently eight "Regulated Small MS4" communities in the Lake Champlain - Lake George area: Town of Fort Edward, Village of Fort Edward, City of Glens Falls, Village of Hudson Falls, Town of Kingsbury, Warren County DPW, Town of Queensbury and Washington County DPW. As "Regulated Small MS4s", a designation given by NYSDEC, the communities have to implement Phase II Stormwater Regulations by January 2008. The Storm Water Phase II program is designed to improve the Nation's waterways by reducing the quantity of pollutants that stormwater picks up and carries into storm sewers, ditches, etc. during storm events. This includes implementing their individual Stormwater Management Programs (SWMP).

This SWMP must address six minimum control measures (MCM's) that include identifiable goals and management practices required to achieve them. These ix minimum measures include:

1. Public Education and Outreach
2. Public Involvement and Participation
3. Illicit Discharge Detection and Elimination
4. Construction Site Runoff Control
5. Post-Construction Runoff Control
6. Pollution Prevention and Good Housekeeping

Washington County has been working towards this goal of developing and implementing their MS4 Stormwater Management Plan by January 8, 2008. *(Assistance in developing the Plan has come from a number of partners from the Greater Glens Falls Urbanized Area MS4's)*

COUNTY MUNICIPAL CENTER – BLDG A * 383 BROADWAY * FORT EDWARD, NY 12828
TEL. 518-746-2440 FAX 518-746-2441

Public Education and Outreach

Washington County SWMP needs a variety of partners, including citizens, to help reach goals and make sure that people take some responsibility to see that our local water bodies are protected. People need to see how their actions on the land can contribute to water pollution problems and then to learn actions to protect water quality.

As part of the ongoing public education and outreach program, posters and numerous educational brochures have been placed in the Washington County Municipal Building. These materials explain the effect of stormwater runoff on water bodies, some pollutants that might be in this runoff and their sources, and provide useful information as to what steps citizens can take to reduce the amount of polluted runoff on our water bodies. When necessary, more materials will be sought out to replenish supplies.

Educational displays and handouts have been and will continue to be provided and displayed annually at the Washington County Fairgrounds during fair week.

Public Involvement and Participation

To encourage public involvement and participation, programs are to be developed so that citizens can become a partner in furthering the goals of the MS4 program. Departments have gone about achieving this goal through different activities that individuals and/or groups have participated in such as "Adopt-A-Highway" or "Clean-Up Day" events. Departments will continue to involve citizens in the future to continue to reduce pollutants of concern in stormwater.

The MS4 is required to identify and publish the name of a contact person for the Stormwater Management Program. This info will be published on the Washington County website.

Illicit Discharge and Detection

While stormwater runoff contributes pollutants to waterways, significant amounts have been found to come from illicit and/or inappropriate discharges, direct or indirect, to the MS4. Therefore Washington County has developed a program to detect and eliminate inadequately treated discharges. A policy and local law has been passed to prohibit these illicit discharges in the MS4. However, the county defers to the local governments on stormwater ordinances and code enforcement as the limits of the current MS4 areas. Washington County has prepared mapping and will continue to map outfall discharge locations and watershed areas for its MS4. Again, education and partnerships are key elements in the MS4 program and its pursuit towards it goals.

Construction Site Stormwater Runoff Control

Washington County defers to Town and Village governments on stormwater ordinances and code enforcement in the current MS4 areas for construction sites that disturb one acre or more. Nevertheless department foreman have been instructed in erosion and sediment control and actively employ best management practices in erosion and sediment control management on all construction sites regardless of size and/or location throughout the county. Training workshops for DPW crews on erosion and sediment controls are given annually as part of its own "Safety Day" event.

Post-Construction Site Stormwater Runoff Control

Washington County defers to Town and Village governments on stormwater ordinances and code enforcement in the current MS4 areas for construction sites that disturb one acre or more. The discharge of pollutants from development or redevelopment can be a post-construction problem. Washington County departmental procedures in this management plan include the inspections and monitoring of their own construction sites.

Pollution Prevention/Good Housekeeping

The Stormwater Management Program attempts to address all sources of water pollution from stormwater. This section focuses on municipal operations and maintenance activities that might contribute pollutants to nearby waterbodies and to develop and implements to reduce/prevent this from happening.

The DPW maintains a wash area for degreasing equipment that includes settling tanks and grease traps, and discharges to the sewer district. Annual employee training covers good housekeeping practices for maintenance at our fueling systems, storage and handling of road salt and containment and cleanup of hazardous spills in the right-of-way.

Buildings and Grounds department maintains parking areas throughout the Municipal Buildings complex. Trash, grass clippings, tree and shrubbery debris, etc. removal are ongoing good housekeeping practices. Maintaining, mowing, and inspections of the retention basins on the municipal building site are also ongoing or continuing.