Section 6
Local Initiatives & Funding Opportunities

The future of our rivers, streams, wetlands and estuaries are closely linked to land use decisions made on both a public and private scale. Because so much land is privately owned, private landowners play a major role in protecting waters of the state through conservation and various land use management options. This section explores various options for protecting water resources and includes general information as it relates to local initiatives planning and funding opportunities.

6.1 Local Initiatives

Local initiatives to protect water resources is essential to any community because people within the immediate area can make decisions that affect changes in their own communities. Working at the local level, local organizations and agencies can combine professional expertise in a watershed. Involving a wide array of people in water resource projects brings together a wide range of knowledge and interests and encourages others to become involved and invested in protecting water resources. It also allows the community to holistically understand the challenges and opportunities of different efforts and initiatives. Working in coordination across jurisdictional and agency lines can open the door for more funding opportunities. More diversified funding allows local entities to do more work and be involved in more activities.

The collaboration of local efforts is key to water quality improvements. There are good examples of local agencies and groups using these cooperative strategies throughout the state with specific groups identified in the watershed chapters. The Division of Water Resources' (DWR) Basin Planning Branch (BPB) applauds and supports the foresight and proactive response of local watershed groups and local governments to protect and manage water resources.

6.2 Citizen Science & Water Quality Monitoring

In citizen science, the public participates voluntarily "in the scientific process, addressing real-world problems in ways that may include formulating research questions, conducting scientific experiments, collecting and analyzing data, interpreting results, making new discoveries, developing technologies and applications, and solving complex problems" (CitizenScience.gov, 2018). The need for a citizen science program to monitor water quality across North Carolina was highlighted during a Water Education Summit in 2014 when a panel was discussing successful volunteer biomonitoring programs and the opportunities a statewide program could provide. With funding made possible by the Z. Smith Reynolds Foundation, the North Carolina Aquatic Data Hub (NCADH) was founded. The NCADH is a new initiative connecting aquatic monitoring efforts across the state in order to better understand water quality in areas the state does not monitor. Lead by the New River Conservancy the initiative has brought together multiple nonprofit groups as well as state and local resource agencies to develop a statewide citizen-led monitoring program which could enhance knowledge of water quality in an era of decreased government funding for such programs (NCADH, 2018).

6.2.1 Volunteer Water Information Network (VWIN)

One example of citizen science is the Volunteer Water Information Network (VWIN). Working with the Environmental Quality Institute (EQI), a nonprofit environmental laboratory, VWIN provides chemical and physical monitoring on nearly 160 stream, river and lake sites in 10 counties in Western North Carolina. Samples are taken by community volunteers who are trained on how to collect water quality samples which makes this community-led program cost effective. Several sites are sampled in the Watauga River basin. Data was provided by the Watauga Riverkeeper for inclusion in the basin plan. Where applicable, VWIN data was included as supporting documentation.

6.2.2 MountainTrue – Watauga Riverkeeper

In January 2015, three western North Carolina environmental and conservation nonprofits joined forces to become MountainTrue. At its core, MountainTrue aims to have a stronger influence on policy at all levels of governments, build a strong organization while increasing geographic reach, and strengthen grassroots engagement with a broad audience. MountainTrue currently covers 23 counties in western North Carolina and focuses on sensible land use, restoring public forests, protecting water quality, and promoting clean energy.

MountainTrue is home to the Watauga Riverkeeper. The riverkeeper, along with dedicated volunteers, strive to monitor and protect water quality throughout the region. The group also works with communities in the basin and local and state governments to educate citizens on water quality protection. Local activities supported by the Watauga Riverkeeper include:

- Weekly bacteria sampling at popular swimming and recreational areas. Results are available on a free app (Swim Guide) to keep the public informed of potential water quality concerns.
- Using information collected by the public to track and identify areas impacted by nonpoint source pollution and/or stormwater runoff (Muddy Water Watch).
- In partnership with EQI, collects monthly chemical and physical parameters with results published on the Western North Carolina Interactive Water Quality Map to inform citizens about changes to water quality.
- Conducts benthic surveys twice a year to track macroinvertebrate health. Results are published in the Stream Monitoring Information Exchange network through EQI.
- Supports the Shade Your Stream program which works to improve and restore riparian buffers on private properties and individual landowners who live along streambanks.

Information provided by the Watauga Riverkeeper is just one example of information needed in developing a basin plan. Stakeholders throughout the region and across the state can provide information on local water quality concerns, watershed activities, and issues affecting water availability. The information provided by various stakeholders is captured in watershed specific chapters as well as general chapters as it relates to water resources.

6.3 Growth Management & Land Use Planning

Growth management can be defined as the application of strategies and practices that help achieve sustainable urban development and redevelopment while also conserving environmental qualities and features. Growth management tools range from on-the-ground best management practices (BMPs) such

as stormwater wetlands, cisterns and vegetated (riparian) buffers to establishing water, wastewater and/or stormwater authorities.

Several resources are available for protecting and managing water resources and include information about how to incorporate management strategies into existing and new development or changes in land use. Some examples include:

Watershed Academy: The Watershed Academy is available online through the Environmental Protection Agency's (EPA) website. Online training modules, webcasts and publications are available for review.

Center for Watershed Protection (CWP): The Center for Watershed Protection (CWP), also referred to as the Center, is a nonprofit organization dedicated to research and education on the impacts of land use on watersheds throughout the nation. Several articles, reports, etc. are available through an online watershed library (OWL).

Low Impact Development (LID) Center: The Low Impact Development (LID) Center is a nonprofit national research organization that focuses on sustainable stormwater management solutions. Several projects are available for review.

Stormwater Design Manual: The Stormwater Design Manual, developed by the North Carolina Division of Energy, Mineral and Land Resources (DEMLR), is a technical guidance document about implementing the rules pertaining to post-construction stormwater measures. The companion manual, Stormwater Control Measure (SCM) Credit Document, includes the state's estimation of each SCM's effectiveness in protecting hydrology and removing pollutants.

Green Growth Toolbox (GGT): The Green Growth Toolbox (GGT) is a technical assistance tool designed to help communities conserve high quality habitats as municipalities continue to grow. The toolbox is the result of a cooperative, non-regulatory effort led by the Wildlife Diversity program of the North Carolina Wildlife Resources Commission (WRC). A handbook, GIS dataset, training workshops and technical assistance are available for review and download.

6.4 Funding Opportunities

The Use Restoration Watershed (URW) Program was established by DWR to restore the beneficial uses of impaired waters of the state while also ensuring that protective measures are in place to prevent future degradation. Several guidance documents are available online including factsheets about watershed planning and how to develop a watershed plan. The program also has a list of financial resources available through federal, state and private entities. Examples of financial resources include Nonpoint Source Section 319 Grant, Clean Water Management Trust Fund (CWMTF), Water Resources Development Grant (WRDG), Z. Smith Reynolds Foundation, and voluntary cost share programs managed by the North Carolina Department of Agriculture & Consumer Services (NCDA&CS) Division of Soil & Water Conservation (DSWC). Additional information about each of these funding sources can be found on the program's website.

6.4.1 North Carolina Agriculture Cost Share Program (ACSP)

The North Carolina Agriculture Cost Share Program (ACSP) is administered by the Division of Soil and Water Conservation (DSWC) in the NC Department of Agriculture & Consumer Services (NCDA&CS). It is managed by the local soil and water conservation district (SWCD). The program was established in 1984

to help reduce nonpoint source runoff and provide guidance to owners and producers on ways to improve their on-farm management of BMPs. The local SWCD reviews and identifies priorities on an annual basis and calls upon federal, state, local, non-profit, non-government and natural resource groups for technical, financial, planning and implementation support to restore, enhance and/or maintain natural resources through their jurisdictional area. BMPs include vegetative, structural or management systems that can improve the efficiency of farming operations while reducing the potential impacts to surface water and/or groundwater.

Applications for cost share assistance through ACSP are ranked based on resource concerns identified by the SWCD. If approved, applicants can be reimbursed up to 75 percent of a predetermined average cost for each BMP installed. The applicant is responsible for the remaining 25 percent of the costs which can include the use of existing material and labor (in-kind services) and/or monetary contributions. There are some cost share and acreage restrictions depending on the BMPs used, the type of operation involved, or policy set by the local SWCD or the North Carolina Soil and Water Conservation Commission (SWCC). Cost share incentive payments are also available to encourage the use of certain agronomic management practices.

Just over $839,000 was spent on BMPs in the Watauga River basin between 2004 and 2014. This amount includes the amount invested by the owner of the agricultural operation or producer. Each BMP installed has water quality benefits associated with it and tools are in place to calculate how many acres are affected, how much soil was saved, and the total amount of nitrogen and phosphorus saved. More information about the ACSP can be found on the DSWC website.

Table 6.1: Total Amount of Money Spent on BMPS and Calculated Water Quality Benefits (ACSP) 2004-2014 (DSWC, 2017)

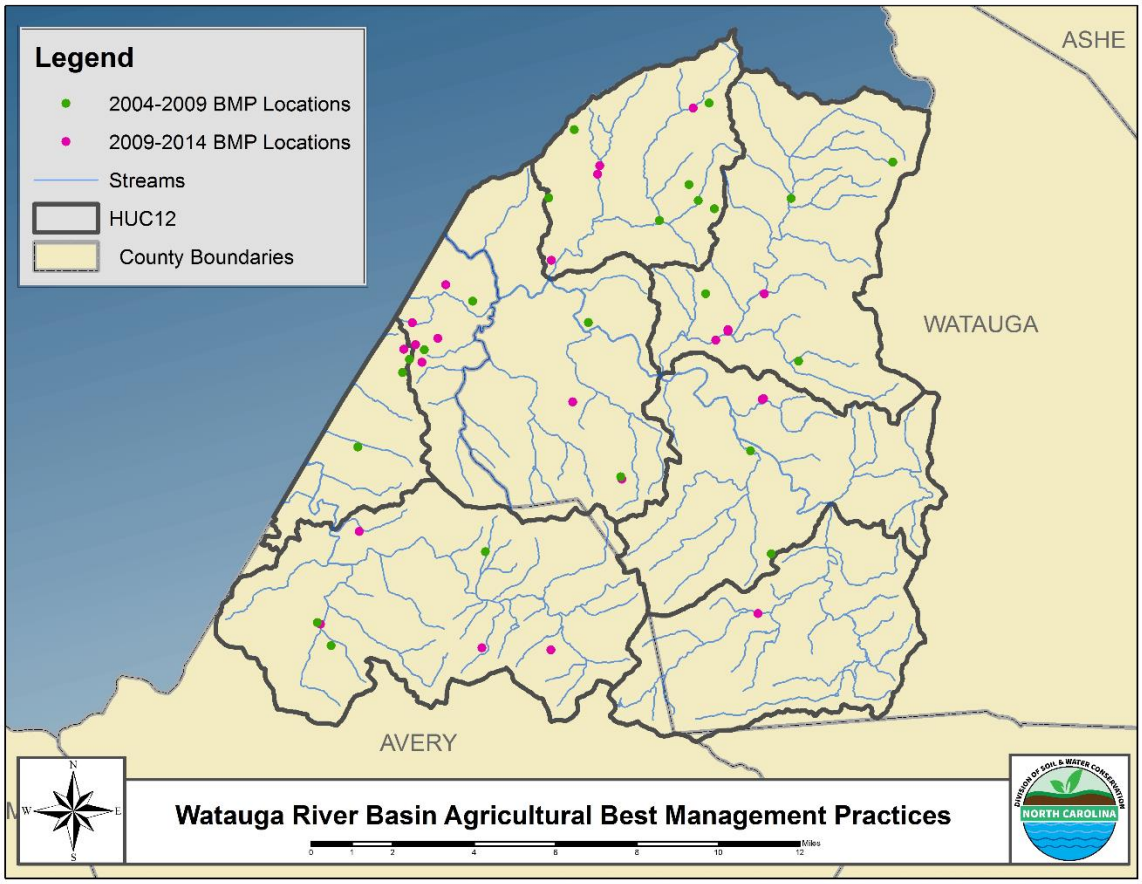
HUC Name	HUC 12	Total Cost BMPs Installed	Acres Affected	Nitrogen Saved (lbs)	Phosphorus Saved (lbs)	Soil Saved (tons)
Upper Elk River	60101030201	$114,574	384	95	68	93
Lower Elk River	60101030202	$10,733	32	57	29	25
Headwaters	60101030301	$798	0	50	30	0
Cove Creek	60101030302	$179,102	371	2,815	3,950	672
Dutch Creek	60101030303	$83,278	199	876	633	312
Beaverdam Creek	60101030304	$195,686	543	1,360	860	1,349
Beech Creek	60101030305	$255,022	684	1,112	533	226
	Totals	**$839,193**	**2,213**	**6,365**	**6,103**	**2,677**

Table 6.2: BMPs Installed in the Watauga River Basin Through the ACSP 2004-2014 (DSWC, 2017)

HUC Name	Stream Protection		Sediment/ Nutrient Reduction	Erosion/ Nutrient Reduction		Waste Management
	Linear Feet	Units	Acres	Linear Feet	Acres	Units
Upper Elk River	13,600	4	2	0	141	4
Lower Elk River	0	0	0	0	54	0
Headwaters	0	0	0	0	0	0
Cove Creek	30,000	8	10	0	52	0
Dutch Creek	0	8	0	4,800	18	4
Beaverdam Creek	25,716	8	4	0	68	5
Beech Creek	12,352	38	0	0	88	0
Totals	**81,668**	**66**	**16**	**4,800**	**421**	**13**

Stream Protection BMPs include livestock exclusion, stream crossings and heavy use areas. Sediment/Nutrient Reduction BMPs include riparian buffers. Erosion/Nutrient Reduction BMPs include conservation cover, cropland conversion to grass and diversions. Waste Management BMPs include feed/waste storage structures. More information about agricultural BMPs can be found in the ACSP BMP Manual.

Figure 6.1: Agricultural BMPs Installed Using ACSP Funds in the Watauga River Basin 2004-2014 (DSWC, 2017)



6.4.2 USDA – NRCS Environmental Quality Incentives Program (EQIP)

Through the Environmental Quality Incentives Program (EQIP), the Natural Resources Conservation Service (NRCS) provides financial assistance to cover costs associated with implementing conservation measures. NRCS also provides one-on-one help in planning, constructing and managing conservation measures. Common conservation practices include cover crops, timber or forest improvement, prescribed grazing and irrigation practices. In addition to EQIP, NRCS has funds available through the Conservation Stewardship Program (CSP). Information about financial assistance programs to help conserve natural resources on agricultural lands can be found on NRCS's webpage.

The Watauga County SWCD, USDA Natural Resource Conservation Service (NRCS) and the NC Cooperative Extension Service (NCCES) have identified Beaverdam Creek and Cove Creek as "high priority" areas for workshops geared towards the importance of riparian vegetation and BMP implementation. More information on water resource initiatives in each basin can be found in the watershed chapters.

6.4.3 Water Infrastructure

The Department of Environmental Quality's (DEQ) Division of Water Infrastructure (DWI) provides support to the State Water Infrastructure Authority (Authority). The nine-member Authority was created in 2013 under General Statute 159G-70. Six members of the Authority are appointed, two each by the Governor, the President Pro Tempore of the Senate and the Speaker of the House. Each of the six appointed members is required by statute to be knowledgeable about public, local government-owned water and wastewater infrastructure. The remaining three members are state employees designated by the positions they hold: the director of the DWI, the Secretary of Commerce, and the director of the Local Government Commission in the Office of State Treasurer. The Authority is an independent body with primary responsibility for awarding federal and state funds for water and wastewater infrastructure projects. In addition to awarding funding, the Authority is also responsible for developing a state water infrastructure master plan, recommending ways to maximize the use of available loan and grant funding resources, and recommending best and emerging utility management practices.

In 2017, the Authority developed North Carolina's Statewide Water and Wastewater Infrastructure Master Plan: The Road to Viability. The master plan presents the state's roadmap for viable water and wastewater utilities that safeguard public health, protect the environment, support vibrant communities, and encourage economic growth and development. The three key areas that require focus to move toward viability are in long-term infrastructure management, organizational management and financial management. The master plan also estimates statewide water and wastewater infrastructure needs, examines funding sources and their adequacy to meet the identified needs, and assesses the state's role in developing and funding water and wastewater infrastructure projects. The master plan applies broadly to owners and operators of water and wastewater utilities and systems that serve the public, and emphasizes that local elected officials, town and county managers, utility governing boards, customers and stakeholders, as well as the public, play key roles in achieving viable utilities.

6.4.3.1 Pilot Water Loss Program (DWI)

DWI, in partnership with the North Carolina Water Resources Research Institute (WRRI) and Cavanaugh Solutions, is offering a Pilot Water Loss Program at no cost to ten selected public utilities in North Carolina. The program will provide technical assistance to identify water loss using the M36 methodology used by the American Water Works Association (AWWA) for water audits and water loss control programs. The pilot program is scheduled to begin in the Fall of 2018.

Outcomes for each of the participating public utilities include:

- Validated M36 water audit and water loss profile.
- Gap analysis between current water loss and optimum water loss levels.
- Water loss target-setting for optimum economic and recovery potential.
- Recommendations for "next steps" in controlling water loss; and
- Verifying water loss numbers reported in the utility's local water supply plan (LWSP).

In addition to helping the selected public utilities in identifying water loss, the program will also benefit DWI by identifying shortcomings with how data is currently being collected and reported by public utilities and whether a statewide initiative to correctly document water loss is needed. Public utilities selected to participate in the 2018 pilot program include Blowing Rock, Elizabeth Town, Benson, Boone, Spruce Pine, Ramseur, Mayodan, Lumberton, and Burnsville. Results are expected to be available in the Fall of 2019.

6.5 References

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