U.S. Environmental Protection Agency, Region 4
Centers of Excellence for Watershed Management

2016 ANNUAL REPORT

CLEMSON UNIVERSITY
CENTER FOR WATERSHED EXCELLENCE

PREPARED BY
Katie Buckley
DIRECTOR

With valuable contributions from Dr. Cal Sawyer, Clemson University; Michael Griffin, Clemson Online; Karen Jackson, Charly McConnell, Kim Counts Morganello, and Guinn Wallover, Clemson Extension Service.
The Clemson University Center for Watershed Excellence [the Center], in partnership with the South Carolina Department of Health and Environmental Control (SC DHEC), Clemson University, and US Environmental Protection Agency (EPA) Region 4, seeks to utilize the diverse talent and expertise of Clemson University and through partnership in various geographic areas to provide hands-on, practical products and services to help communities identify watershed-based problems and develop and implement locally sustainable solutions. It is therefore a great honor to serve as an EPA-designated Center for Watershed Excellence with such a critical mission to serve in the long-term protection of this most vital resource.

The realization of the Center’s operations at Clemson University are demonstrated by the growth of several projects and services this past year, including microbial source tracking, volunteer monitoring, and technical trainings offered through a hybrid classroom. These successes are due to the many partnerships nurtured over the years with cities, counties, and University departments. As a collective of staff, agents, and faculty working towards long-term protection of our water resources, the credit goes to those who help build these courses, instruct commercial audiences, communicate with and understand the demands of a local resource manager, and recognize the value of teamwork towards the weaving of a fabric of resources that connect multiple audiences, often in advance of regulation. We can not thank them enough for their dedication and experience!

The needs of the Center are many to continue and expand these operations. Internal funding and support has been provided by Clemson University Public Service & Agriculture, the Clemson Extension Service, and Clemson Online to build these many efforts. Additional funding for staffing to meet growing programmatic requests is essential in 2017-2018 to stabilize the Center’s many projects.

This document has been produced to report on the calendar year 2016 efforts of the Center, designated as such by the EPA. The original Memorandum of Understanding (MOU) between named agencies was signed in June 2008. The Center was re-designated in June 2013 under a new five-year MOU with this same primary purpose.

This report and all products of the Center’s activities will be archived at www.clemson.edu/watershed to encourage greater awareness, involvement and partnerships developed through the Center and its agency partners.

Katie Buckley, Director

Calvin Sawyer, Ph.D., Associate Director
MEASURES OF SUCCESS (IV. SECTION I. MOU)

I. NUMBER & NAMES OF CLIENTS SUPPORTED

Carolina Clear Program
Carolina Clear (http://www.clemson.edu/carolinaclear) is a nationally award-winning program of the Clemson Extension Service and the Clemson University Center for Watershed Excellence. This comprehensive program works alongside 38 South Carolina communities and dozens of non-profit groups, colleges, universities, and agencies to inform and educate target audiences about water quality, water quantity, and the cumulative effects of stormwater. Utilizing lessons learned from marketing and social science research, Carolina Clear programming seeks to reduce barriers by addressing the special significance of South Carolina’s water resources and the role they play in the state’s economy, environmental health, and overall quality of life. Carolina Clear supports municipalities statewide through the operations of eight consortiums and program-wide resources and “educational infrastructure”. These consortiums collaborate locally to increase awareness and involvement in stormwater management and successfully comply with NPDES General Stormwater Permit requirements. The program seeks DHEC regulatory insights in its approach, operations, reporting, and overall counsel.

In 2015, there were approximately 4 million impacts documented statewide from programs including workshops and presentations to billboards and commercials.

Partnering communities that provide funding for personnel and resources to coordinate and lead activities of each consortium include the following, identified by regional effort:

- **Anderson and Pickens Counties Stormwater Partners** – participating communities include Pickens County, City of Central, City of Clemson, Clemson University, City of Easley, Town of Norris, City of Pickens, City of Liberty, Anderson County, City of Anderson, and the Town of Belton.

- **Ashley Cooper Stormwater Education Consortium** – participating communities include the counties of Berkeley, Charleston and Dorchester and the municipalities of Charleston, Folly Beach, Goose Creek, Isle of Palms, James Island, Lincolnville, North Charleston, Sullivan’s Island, Summerville, and the Town of Mount Pleasant.

- **Coastal Waccamaw Stormwater Education Consortium (co-lead)** – participating communities include the counties of Horry and Georgetown and the municipalities of Atlantic Beach, Surfside Beach, Conway, Myrtle Beach, Briarcliffe Acres, and North Myrtle Beach.

- **Florence Darlington Stormwater Consortium** - participating communities include the City of Florence, City of Darlington, Town of Timmonsville, Town of Quinby, Darlington County, and Florence County.

- **Lowcountry Stormwater Partners** - participating communities include Beaufort County, City of Beaufort, Town of Bluffton, Town of Hilton Head Island, and Town of Port Royal Sound.

- **Richland Countywide Stormwater Consortium** - participating communities include Richland County along with the municipalities Arcadia Lakes and Forest Acres.

- **Sumter Stormwater Solutions** – participating communities include Sumter County and the City of Sumter.
Specific target audiences, behaviors, and corresponding pollutants of concern of 2016 Carolina Clear outreach programming included the following:

- **Homeowner associations (HOAs) and neighborhoods** – phosphorus, nitrogen, sediment loss (indirectly, dissolved oxygen), pesticides, infrastructure clogging from yard debris and placement of debris, progressive stormwater pond management, resident Canada Goose population deterrents, shoreline vegetation and stabilization, increasing infiltration;

- **Stormwater pond owners and HOAs** – best practices for long-term stormwater pond function, increased awareness of ownership, shared benefits of the pond and shared maintenance responsibilities.

- **Homeowners and residential lawn care practices** – phosphorus, nitrogen, sediment loss (indirectly, dissolved oxygen), pesticides, increasing infiltration/ decreasing runoff, rainwater harvesting;

- **Restaurant managers and staff** – fats, oils, and grease;

- **Contractors** – combined practices for better erosion control and management of sediment loss;

- **Dog Waste** – proper pick up and disposal.

In 2016, these 4 million impacts were recorded by the Carolina Clear program and regional efforts through the following outreach vehicles:

- In-person workshops and presentations;

- Phone calls and office visits;

- Demonstration sites with educational signage showcasing rain gardens, bioretention basins, rain barrels, cisterns, constructed wetlands, floating wetlands, and vegetated shorelines;

- Community street, river, and beach clean ups;

- Storm drain marking and painting;

- Rain barrel art with schools and adult audiences;

- Rain barrel DIY workshops, as well as rain barrel sales;

- Shoreline restoration projects that include train-the-trainer model of working with teachers and instruction provided to students involved in re-vegetation projects;

- Water-focused fact sheet series for suburban and urban audiences, *SC WaterWays* ([http://www.clemson.edu/extension/hgic/water/resourcesstormwater](http://www.clemson.edu/extension/hgic/water/resourcesstormwater));

- Mass media including newspapers and newsletters, websites, regional e-news, commercials, radio interviews, and
The Carolina Yards program teaches low impact residential landscape practices that are low maintenance, can be low cost and are more environmentally friendly through 12 specific actions. This program’s updated resources were featured in the mass media campaign of 2013-2014; the supporting billboards with four activity messages continued to remain on display during the close of this campaign and while space remained available.

Social media, including multiple Facebook pages, the Carolina Yards Pinterest page, Clemson Stormwater Instagram, and the Carolina Clear YouTube Channel.

One of four billboard designs supporting the Carolina Yards program and its many resources to encourage environmentally responsible yard care. Messages supporting environmentally responsible yard actions included composting, installing shoreline buffers, rainwater harvesting, and mowing less frequently.

The 2015-2017 educational campaign focused on stormwater ponds and best management practices for ponds, in general. Five tips are provided in the commercial, filmed along the shoreline of a pond in Easley, SC. These five tips are raise your mower blade and mow less frequently; create a fertilizer and herbicide free zone along the perimeter of your pond; plant pond friendly, native plants to stabilize your shoreline; allow Canada Goose populations to migrate by not feeding them or other wildlife; use the results of a soil test to direct fertilizer use and minimize nutrients in runoff. This commercial is being aired on local television stations, cable programming, and community channels. Some areas include community segments featuring the weather forecaster at a stormwater pond introducing best practices with a Clemson Extension agent.
Co-Leadership of the NEW South Carolina Adopt-a-Stream Program

As a direct result of our collaborative Center of Excellence Memorandum of Understanding, as well as regular communication and interests in partnership, the Center has been asked to co-lead the South Carolina Adopt-a-Stream (SC AAS) program with SC DHEC. This initiative began because of the energy and findings of approximately 70 volunteer monitors collecting data at approximately 200 stations using the Georgia Adopt-A-Stream (GA AAS) program, directed by the Georgia Environmental Protection Division (GA EPD).

In 2016, many discussions and one summit was held to identify how to transition the efforts of dedicated volunteers, who have received assistance and training from Georgia EPD, to a South Carolina state-lead program. The summit, hosted by Clemson in October 2016, included representation from volunteer coordinators and supporting organizations, universities, and technical colleges; EPA Region 4 staff; SC DHEC staff; and Clemson University. Given the familiarity with the GA AAS program, its demonstrated successes, and its database utilities, SC decided to build this volunteer monitoring program in coordination with GA AAS so that resources could be shared and adapted to SC’s needs, expertise, river basins, partnerships, and funding mechanisms. An MOU was drafted between GA EPD, SC DHEC, and the Center in 2016 for signatures in 2017, marking an official program launch.

Enthusiasm has been exceptionally high, and the SC AAS program has grown in new areas with thanks to many partnerships and the continued support of trainers in both Georgia and South Carolina. Organizations and partners already active in SC AAS include the University of South Carolina-Upstate, Richland County, Upstate Forever, Pickens County, Anderson County, Anderson University, Greenville Technical College, Southern Wesleyan University, Save Our Saluda, the Engasser Family, Clemson University, and individuals.

In 2017, the following is expected:

- Launch the SC AAS database in its first phase, to include secure data entry, tracking and administration of volunteers and training needs, mobile-friendly application, and photo upload feature.
- The signed MOU formalizing collective efforts.
- Grant applications, requests for sponsorship, and other funding pursuits.
- Protocols, training tools, and procedures aligned with a draft Quality Assurance Project Plan.
- Much, much more!

WWW.SCADOPTASTREAM.ORG
Clemson University is “All In” for Stormwater Education and Involvement!

Now in the second year as an MS4 operator and third year in their partnership with the Center for Watershed Excellence and Clemson Extension Carolina Clear, Clemson University is busy evolving and expanding upon their stormwater education and involvement. Through stormwater presentations, rain barrel paintings, student fairs, and litter pick-ups with different student groups and clubs, the students at Clemson University have been raising stormwater awareness throughout campus. New projects underway include new, custom designed storm drain markers, which will be featured throughout campus. Additionally, students are actively monitoring waterways through the newly minted SC Adopt-A-Stream program.

Student internships are another avenue that is being used to increase stormwater involvement and affect the potential perspectives and career paths of these aspiring professionals. Projects of 2016 had a particular focus on building demonstration sites that teach the student about the practice, involve the student in the design process, and then are installed. Installation results are intended to improve water quality, favorably change the campus landscape and affect a new approach to stormwater treatment at Clemson University. Three student interns have already passed through this program. Demonstration sites that are installed to date include two floating treatment wetlands, which serve as educational tools; a bioswale was designed in 2016 and will hopefully be installed in 2017.

Communication is key not only amongst students, but also with faculty and staff. Participation among a variety of different committees on campus, including Solid Green, President’s Commission on Sustainability and CU Stormwater Advisory Group create an interconnectedness that includes stormwater as part of overall sustainability efforts.

As stormwater awareness continues to grow through projects and demonstration sites, Clemson University will hopefully become a model for other campuses and serve as a training ground for the state. The University participates as a member of the Anderson and Pickens Counties Stormwater Partners, the region’s stormwater education and involvement effort lead by Carolina Clear.
Multi-Agency Collaboration and Stakeholder Engagement
The Center maintains meaningful communication with the state’s environmental agencies:

1. In February 2016, a meeting was held with Bureau of Water Permit Compliance staff to discuss MS4 reporting and regional operations and objectives of the Carolina Clear program. Preparation of report documents and understanding of regional program expectations were priorities.

2. The Center for Watershed Excellence in partnership with the South Carolina Water Resources Center is working with SC Department of Natural Resources (DNR) and SC DHEC to facilitate the stakeholder engagement process of the state’s surface water availability assessment. This is the state’s first step in the development of the next State Water Plan.

   • The initial meeting in each basin introduced stakeholders to the model, the modeling team and agency personnel, the model’s utilities and limitations, and data being used in calibration of the model, specific to that basin. Feedback included suggestions or edits to data; information on infrastructure and local permits, including dams and interbasin transfers; questions related to climate variability predictions; concerns regarding calculations of safe yields, and more. Consistent information was collected from participants using iClickers.

   • The second meeting in each basin introduced the draft model. Breakout stations demonstrating model use under several scenarios were run concurrently with focus groups. Focus group sessions asked about training in the model, the individual’s expectation of use, the importance of this stakeholder process, major concerns, and more.

NEW! Technical Service in Microbial Source Tracking
The Center, in partnership with the Clemson University Plant Pathogen Detection Laboratory, has launched a new technical service, maximizing use of available quantitative polymerase chain reaction (qPCR) equipment. The laboratory has traditionally offered testing services for plants and honeybees, which are both part of regulatory inspections by the US Department of Agriculture. In 2016, a pilot was offered to identify best methods, paperwork, database and more to provide qPCR data using Bacteroides to provide greater information to communities and others to solve surface water bacteria concerns and impairments. In 2016, the laboratory successfully processed approximately 35 samples from two participating counties and fine-tuned its operations. This service is available to interested entities in South Carolina as well as neighboring states. Two clients (counties) are currently enrolled. Results include Bacteroides population and positive/negative results for human, bovine, swine, and dog markers.

More information on this effort can be found at www.clemson.edu/public/water/watershed/projects/qPCR.html. A press release announcing the official start of this technical service is expected in 2017. This service is being provided in support of the upcoming educational push on bacteria in our surface waters, scheduled for 2017-2019.
II. REPORT ON ANY CLIENT FEEDBACK COLLECTED

Feedback is received regularly through client communication, advisory board feedback, meetings with professional associations, and program evaluations. Information provided below includes major points of feedback from 2016 and some programmatic responses:

- The launch of previously-reported hybrid courses has been very well-received. Entities such as the SC Chapter of the American Society of Landscape Architects, SC Home Builder’s Association, and SC Chapter of the American Public Works Association are looking for more in-state professional development opportunities and trainings to offer to members; agencies including SC DHEC and DNR continue to send staff for professional development opportunities. Courses such as the Post Construction BMP Inspector training also have the potential to help regulators facilitate training consistency to meet permit requirements. Specific requests of 2015 included low impact development summits, green infrastructure case studies, and regulatory updates. Basic training has also been requested such as good housekeeping measures, the MS4 permit, and the Construction General Permit.

  - In 2016, a subcommittee successfully launched the Beyond the Silt Fence, a one-day hands-on training in the use of a combination of sediment and erosion control techniques throughout a construction site, so that the silt fence can be the last line of defense, but not the only line of defense. The course has been held three times in 2016, training more than 100 professionals. It has been a large success based on evaluations of knowledge gained and applied and will be continued offering of the Center and Carolina Clear.

- Advisory Board feedback from 2015 included positive comments about the hybrid course work as well. Two additional courses were discussed and actions taken in 2016.

  - Water Quality Sampling Methods was requested by communities that want to conduct their own sampling and properly train in-house staff to do so. Preparations for such a course began in 2015. An initial agenda and list of potential invited speakers has been prepared.

  - Partnerships are being established and initial preparations are underway for the next anticipated course on Stream Restoration.

- Discussions with the SC HomeBuilders Association and the engineering community have highlighted many needs in resources, training, and materials to further the use of green infrastructure. The Center and Carolina Clear annually install green infrastructure practices as demonstrations. This year included floating treatment wetlands,
rain gardens, vegetated shorelines, and bioretention cells. These are often used to develop technical workshops for
design engineers, accompanied by videos, and signage for the public. The next step in consideration for 2017-
2018 is a webinar series.

III. WATERSHED PLANS DEVELOPED (PARTNERSHIP)

Several watershed plans and watershed restoration efforts have been a focus of the Center for Watershed Excellence
and affiliated programs.

**Twelve Mile Creek, Golden Creek, and Eighteen Mile Creek**

To address regional stream impairments, Center for Watershed Excellence staff in collaboration with the Pickens County
Beautification & Environmental Advisory Committee, Clemson University Cooperative Extension, and other dedicated
project partners completed a management plan with the goal to reduce E.coli levels within the Lower Twelve Mile,
Eighteen Mile, and Golden Creek watersheds of the Upper Savannah River Basin. By providing an extensive evaluation
and analysis of the potential point and non-point bacterial pollutants, this watershed based plan provides insight and
best management strategies of reducing pollutants in critical areas to enhance quality of restoration and water quality
management. The primary goals of the process were to: 1) identify critical areas, pollutant loads and determine target-
ed reductions; 2) identify possible sources for technical and financial assistance; and 3) develop a completed water-
shed-based plan and work toward its implementation.

- Twelve Mile Creek is a popular recreational destination for paddlers since the removal of two dams has opened up
  about a two-mile stretch of whitewater within the 139 miles of streams in this watershed. This creek is well known
  to boaters, fishermen, and local residents because of the PCB contamination.

- The Twelve Mile Creek and Golden Creek watersheds are important to the water quality of Lake Hartwell because
  they come together before entering the lake near the Twelve Mile Beach public swimming area.

- Eighteen Mile Creek is a long and narrow watershed with about 130 stream miles and 360 acres of open water
  located within an arm of Lake Hartwell.

These subwatersheds include an interesting diversity of land use and cover: urban, suburban, industrial, commercial,
rural, forests. Six municipalities (Easley, Liberty, Norris, Central, Clemson, Pendleton and two universities (Clemson and
Southern Wesleyan) are partly located in these watersheds. Industries, landfills, wastewater treatment facilities, dog
parks, horse riding trails, a facility for dog, horse and cattle events, waterfowl ponds, a managed forest, and a commer-
cial nursery are also located in these watersheds.

The final version of the Twelve Mile, Golden and Eighteen Mile Creek watershed plan was officially accepted by SC
DHEC on November 7, 2016 and specifies a 10-year implementation schedule. Project milestones and measurable
goals include opportunities for interim assessment and subsequent refinement based on landowner participation, effec-
tiveness of deployed BMPs, and other potential obstacles.

**Cane and Little Cane Creek**

A proposal to develop a Watershed Management Plan to address bacteria impairments in the Cane Creek Watershed,
a 29-square mile watershed draining to Lake Keowee, has been submitted for 2016 Nonpoint Source Program fund-
ing. The proposal is led by partner, FOLKS, Friends of Lake Keowee Society. The success of this proposal is pending
funding clarification. It is proposed amongst partners that the development of this plan and the application of low cost watershed modeling tools serve as a model to address all contributing watersheds to this major water supply reservoir.

IV. WATERSHED PLANS IMPLEMENTED (PARTNERSHIP)

The Center through its Carolina Clear outreach programming and the Clemson Cooperative Extension Service have conducted the following efforts that relate to Watershed Restoration Plans or watershed management and implementation activities:

1. **Gills Creek Watershed**, Richland County, SC – in support of the reduction of bacteria loading to the creek and its tributaries,
   - Distributed dog waste materials to veterinary offices in the watershed.
   - Shorescaping workshop at Sesquicentennial State Park resulting in the installation of a 200 square feet buffer.
   - Presented an outdoor lesson on macroinvertebrates and ecosystems to Timmerman School children.
   - EnviroScape demonstration to students at A. C. Moore Elementary.
   - Stream sampling and macroinvertebrate lesson to students at A. C. Moore Elementary.
   - Monthly Adopt-a-Stream sampling in Pen Branch and Rocky Branch.

2. **Crane Creek Watershed**, Richland County, SC – in support of education and implementation towards bacteria, macroinvertebrate, and dissolved oxygen impairments,
   - Distributed dog waste materials to veterinary offices in the watershed.
   - Monthly Adopt-a-Stream sampling at Cumbess Creek.
   - Macroinvertebrate and habitat stressors presentation to Round Top Elementary School students.

V. DOCUMENTED WATER QUALITY IMPROVEMENTS

Though there were more than a dozen best management practices installed in 2016 across the state (cistern, rain gardens, floating treatment wetlands, erosion control demonstrations, educational signage, pet waste stations, and more), monitoring was not included in these activities. Therefore, there are no water quality improvements to report at this time.
time, though we believe that these efforts have directly improved water quality or quantity of runoff in specific conditions, such as rain events or season.

VI. IMPORTANT WORK NOT SPECIFIED ABOVE

1. Continued Efforts in Hybrid Learning
Hybrid learning offered in partnership with the Clemson Extension Service and CU Online, has been a significant success for the Center and has increased awareness of this effort of EPA, CU, and DHEC. These courses have been made possible, and effective, due to the collaboration and variety of expertise of Extension faculty, agents, external professionals, and a course coordinator. More information on each course team and details about each program can be found at www.clemson.edu/watershed.

Master Pond Manager Certification Course
Master Pond Manager (MPM), lead by Water Resources Clemson Extension Agent, Guinn Wallover, is designed to teach participants a wide range of pond management knowledge and skills. As a “hybrid” offering, this course incorporates self-paced lectures, discussions, quizzes, and more interaction, with a mandatory field day for in-person and hands-on learning with recognized experts. Course is structured in two tracks – stormwater and recreational ponds – and those who complete both tracks and pass the exam are certified as Master Pond Managers. The course was held twice in 2016, teaching 56 participants and certifying 14 professionals; 2017 will offer the course’s field days in the Beaufort area, where stormwater pond assistance has been highlighted as a critical watershed management outreach effort.

The Master Pond Manager program will be developing special topic courses to include advanced curriculum options for participants. In response to impacts felt in South Carolina from the 2015 and 2016 flood and hurricane events, the program team will be focusing their initial efforts on development of a Master Pond Manager special topics course in “Dam Maintenance.” Other future directions in special topics include curriculum in duck impoundment management, irrigation pond management, and saltwater impoundment management.

Post-Construction BMP Inspector Certification Course
This offering, lead by Dr. Dan Hitchcock, is purposed to train professionals in methods and strategies for conducting routine and thorough inspections of stormwater management practices. This is a five-week, self-paced online offering, with one mandatory field day for hands-on learning and inspections alongside recognized experts. Best management practices include wet and dry ponds, stormwater wetlands, bioretention and infiltration practices, manufactured devices, underground detention, swales and buffers, cisterns, and permeable materials. The course was offered twice in 2016, teaching 65 participants. It is in its fifth offering this spring 2017.

2. Hunnicutt Creek Creative Inquiry
Center Associate Director co-teaches a Creative Inquiry course (FNR 4730) entitled Vegetative Succession in Restored and Wetland and Stream Ecosystems: A Hunnicutt Creek Case Study. In June of 2013, a multi-disciplinary project was undertaken on the lower section of Hunnicutt Creek to restore and enhance selected areas as part of an approved
compensatory mitigation plan. Three hundred and ninety (390) linear feet of perennial stream were restored and activities undertaken to enhance approximately two (2) acres of jurisdictional wetland through conversion from emergent vascular to bottomland hardwood ecosystems. The Creative Inquiry project established a collaborative research effort designed to document the composition and status of vegetation for purposes of inventory, non-compliance based monitoring, and assessment of environmental conditions.

Nine (9) students were enrolled in 2016, which covers overlapping academic years. A poster created by the class won 3rd place at the Creative Inquiry Research Symposium in March, 2016. There were over 80 posters entered.

The course allows students to: 1) learn the theory and practice of ecological restoration; 2) participate in an active restoration project on the Clemson campus; 3) establish long-term vegetation monitoring plots; and, 4) collect and analyze data to assess the effectiveness of restoration activities in the Hunnicutt Creek watershed.

This undergraduate research effort builds on the larger Hunnicutt Creek Initiative taking place on campus. For additional project details including stream restoration overview, wetland enhancement efforts, invasive species research, student work and ecosystem monitoring, visit the project web site: http://www.clemson.edu/public/hunnicutt.

3. Participation in the SC Chapter for the International Erosion Control Association

Center Associate Director serves on the International Erosion Control Association Southeast Chapter Technical Advisory Committee. In that role he assists in organizing the technical program of the SC IECA Field Day each year at the TRI Denver Downs Research Facility. In 2016, 177 participants and 30 vendors attended the field day entitled New Products and Innovative Ideas. Technical presentations included Innovations in Soil Amendments, Engineered Soil Media, Organic Compost-Hunnicutt CI, and applied research updates from participating Clemson faculty involved with erosion control research.

4. The Carolina Rain Garden Initiative

The Carolina Rain Garden Initiative was launched in 2015 by Clemson Water Resources Extension Agent Kim Counts Morganello. The objective of this program is to increase the number of residential-scale “pocket” rain gardens present in SC. The program brings together new and existing resources that provide awareness and practical information on the practice, installation and maintenance of rain gardens.


The Master Rain Gardener hybrid course will be developed and piloted in 2017, to officially launch in winter of 2018. The Master Rain Gardener course will offer two tracks, one geared towards residential audiences such as Master Gardeners and Master Naturalist; the second track will focus on training professionals to install rain gardens and residential-scale rainwater harvesting systems. This certification course is looking to evaluate persons trained, skills gained, and resulting business growth opportunities.

As part of the Carolina Rain Garden Initiative, the Virtual Rain Garden was created to provide a step-by-step approach for rain garden design, installation, and maintenance. This series of 17 short videos guides the viewer through all aspects of rain gardening including site assessment, soil analysis, rain garden sizing, design, plant selection, maintenance and more.
View more of the Carolina Rain Garden Initiative’s features and resources at www.clemson.edu/extension/raingarden.