



Upper Neuse River Basin Association (UNRBA) Stage I Existing Development Interim Alternative Implementation Approach (IAIA)

Fiscal Year 2022-2023 Summary Report

Beginning in 2018, the UNRBA began exploring an alternative option for achieving compliance with Stage I existing development nutrient load reductions under the Falls Lake Rules. To overcome some of the obstacles present in the current Rules, the UNRBA and its stakeholders developed the Stage I Existing Development Interim Alternative Implementation Approach (IAIA) with the goal of protecting and improving water quality in the watershed and lake. The concept was originally suggested by environmental advocacy groups active in the watershed and engaged with the UNRBA and its efforts. The UNRBA worked with its members, representatives from environmental groups, conservation organizations, staff at DWR, other interest groups, and regulated entities to develop an alternative approach for meeting the Stage I Existing Development Rule. This compliance framework uses financial investment in eligible projects and activities that benefit water quality and quantity both for the lake and the watershed. This approach recognizes long-term benefits and emphasizes protecting lake uses and improving water quality in the watershed and lake. The engagement of local governments that represent both lake users and those areas that drain to the lake provides a critical link between upstream actions and downstream benefits. The [IAIA Program Document](#) (approved by the EMC in January 2021) and other materials are available [here](#).

Implementation of the IAIA's first year of effort began July 1, 2021 and ended June 30, 2022 (Fiscal Year (FY) 2021-2022). The second year of the program ended June 30, 2023 (FY 2022-2023). Participants submit annual reports to DWR following each fiscal year to assess individual compliance. Copies are provided to the UNRBA for summary reporting.

This report summarizes the minimum annual requirements for each participant and the funds allocated in the IAIA Program for FY2022-2023 (Table 1). Funds allocated during FY2021-2022 are also provided for tracking purposes. Each individual participant met or exceeded its minimum requirement over the combined two-year period. The exception is Durham County which received an Environmental Enhancement Grant to fund a portion of the Neal Middle School Bioretention Project. This lowered the funding required by the county in year two of IAIA. However, the full cost of that project along with future planned projects will make up the difference in future years. The funding requirement for FY2022-2023 has been collectively exceeded by approximately \$1.5 million. The funding requirement for FY2021-2022 was exceeded by approximately \$3.9 million.

Table 2 shows the fund allocations by type and number of projects for FY2022-2023. Table 3 lists the project descriptions and investment allocated for each individual project implemented during this period.



Table 1. FY2021-2022 and FY2022-2023 Investment Commitments and Allocations by IAIA Participant

Participant	Annual Funds Committed	FY2021-2022 Funds Allocated	FY2022-2023 Funds Allocated
City of Durham	\$337,587	\$960,268	\$1,750,824
City of Raleigh	\$466,081	\$1,745,485	\$740,000
Wake County	\$88,968	\$1,973,493	\$135,810
Person County	\$114,394	\$114,394	\$114,394
Granville County	\$100,453	\$100,453	\$100,453
Town of Hillsborough	\$34,221	\$41,871	\$58,730
Durham County	\$133,300	\$148,394	\$46,069
Town of Butner	\$23,393	\$23,393	\$23,393
Franklin County	\$19,058	\$19,058	\$19,058
City of Creedmoor	\$16,926	\$16,926	\$16,926
Town of Wake Forest	\$13,692	\$13,692	\$13,692
Town of Stem	\$11,605	\$11,605	\$11,605
Orange County	\$161,943	\$342,878	\$9,538
Grand Total	\$1,521,621	\$5,511,909	\$3,040,491

Table 2. Investment Allocations by Project Type for FY2022-2023

Project Type	Number of Projects	Funds Allocated
Green infrastructure and other best management practices (BMPs)	8	\$1,694,815
Land conservation	1	\$740,000
Illicit discharge detection and elimination	5	\$215,591
Stormwater control measures (State-approved SCMs)	6	\$175,197
Programmatic measures	3	\$89,210
Administrative costs associated with the participation in the IAIA	2	\$55,313
Stream and riparian buffer restoration and enhancement	4	\$53,060
Hydrilla removal and control	3	\$17,306
Total	32	\$3,040,491

Table 3. Project Descriptions and Funds Allocated for FY2022-2023

Project Descriptions	Funds Allocated
Repair and replacement of surcharging pump stations, sewer pipes, and appurtenances currently leaking sewage, which lead to illicit discharges.	\$23,393.00
Catch Basin Insert Pilot Study - SP-2021-01. Pilot study to install gross solid filter inserts into catch basins in downtown Durham. Multiple locations. Benefits include nutrients, gross solid and sediment reduction. Study complete, but City is undertaking ongoing maintenance of two catch basins from this study.	\$37,548.57
South Ellerbe Stormwater Restoration Professional Services. This project will create a combination of restored streams and a wetland that will provide a natural system for reducing and removing pollutants from an urban watershed, most of which was developed prior to the adoption of stormwater regulations. Nutrient reductions will be indicated in the phase 3 construction. Additional ecosystem service benefits will include flood reduction, native plantings, increased wildlife habitat, expanded green space, and educational opportunities.	\$902,023.07
Phase 2 of the South Ellerbe Stormwater Restoration and includes soil removal in preparation for Phase 3 of the construction project. Benefits include reduction of nutrients, sediment, and peak flow reduction. Nutrient reductions will be indicated in the phase 3 construction	\$634,937.30



City Department of Water Management funding of hydrilla monitoring and eradication to improve water quality in the Eno River, multiple locations. Benefits include improvements to aquatic life and reduction of invasive aquatic plants	\$4,447.80
Invasive vegetation management within the Falls Lake watershed to preserve riparian buffer function, multiple locations. This is a three-year contract. Benefits include improvements to buffer vegetation and reduction of invasive vegetation	\$17,848.00
Enhancement of City's tree canopy. 25 of 564 trees were planted in the Falls Lake watershed. Benefits include improvement of urban tree canopy in partnership with General Services. Multiple locations.	\$805.00
The City has entered into an interlocal agreement with the Durham and Soil and Water Conservation District and paid them \$90,000 for the implementation of residential retrofits. Upcoming reports will show where the projects are, and these will be reported on next year. Nutrient reductions are calculated using latest version of the SNAP tool.	\$90,000.00
Calculations based on Memorandum: Approval of Remedying Illicit Discharges Nutrient Reduction Practice, Zimmerman, NC DEQ DWR, 2017. Source specific eliminated load method for dry weather sanitary sewer overflows (SSOs). Ongoing response program implemented by Water Management and Public Works to identify, contain, and properly dispose of SSO discharges.	\$63,213.97
Repair and replacement of surcharging pump stations, sewer pipes, and appurtenances currently leaking sewage, which lead to illicit discharges.	\$16,926.00
In February 2021, Durham County contracted WK Dickson for assistance in developing its Nutrient Management Strategy for addressing the requirements of the Falls Lake Rules. In accordance with the County's Stormwater Guiding Principles of Compliance, Efficiency, Resiliency, and Environmental Justice, WK Dickson developed a project selection rubric. They then identified potential 15 potential project sites for nutrient reduction. Those sites were narrowed to 10. Field evaluation by WKD and County staff finalized 6 sites for further project development. At the end of FY2021-2022, projects have been developed for those 6 sites including bioretention, stream restoration, stormwater wetlands, RSC, and other practices. Construction cost estimates and project renderings were also developed. In FY2022-2023, those projects were brought to the County Board of Commissioners and the Neal Middle School Bioretention Project was selected. Additionally, the Whispering Pines Mobile Home Park Stream Restoration Project was also selected for LASII Grant Application.	\$41,620.97
Durham County's participation in the Aquatic Weed Control Program.	\$4,447.80
The Neal Middle School Bioretention Project was selected as the County's first stormwater project to be funded by the Stormwater Utility for compliance with the IAIA and nutrient removal targets. The project will treat approximately 4.5 acres of previously untreated impervious area at Neal Middle School at the corner of Wake Forest Highway and Baptist Rd in Durham County. The project will also incorporate a significant educational element and will be incorporated into the Science curriculum at Neal Middle. The County received \$225,000 in funding from the Environmental Enhancement Grant Program in the North Carolina Attorney General's Office. In FY2022-2023, the County published a request for proposals and WK Dickson was selected to design and manage construction of the project. Construction is scheduled for the summer of 2024.	Grant award delayed need for local government funds; future year will require local government funds
Repair and replacement of surcharging pump stations, sewer pipes, and appurtenances currently leaking sewage, which lead to illicit discharges.	\$100,453.00
Orange County Hydrilla Removal: Hydrilla removal was recently added to the list of eligible activities that would could towards jurisdictional investment in the IAIA. N & P reductions have yet to be assigned for hydrilla removal, so values are TBD. These efforts will be conducted throughout the Falls Lake watershed within Orange County so specific Lat/Long is not provided. Per Memorandum from DWR on 2/10/2022, hydrilla can lead to loss of recreational use of waters and increased flood duration and intensity from obstruction of waterways. It can also negatively impact water quality and harm aquatic life by depleting oxygen levels and can increase nutrients released from sediment. For those reasons, hydrilla containment and removal has been considered as likely benefitting water quality and quantity.	\$8,410.28
Gravelly Hill Middle School Stormwater Wetland Retrofit: Project is a retrofit of a relic sediment basin that was never removed during the construction of Gravelly Hill Middle School to a stormwater wetland with an outdoor classroom area and educational signage. We are only in the permitting / bid award phase of this project so total costs, N & P reductions, etc. are unknown at this time and TBD.	\$1,127.55
Architectural/engineering firm selected to begin work on the design of a new SW control measure at the Rock Athletic Complex; benefits are co-location of needed SW mitigation within existing parks & getting BMPs to determine nutrient loads & their mitigation requirements. RFP issued for complete design of the County Farm site and a project schedule towards constructing a passive recreational park with stormwater controls for IAIA compliance; Special Use Permit approved to convert the site into a park.	\$114,394.00
Repair and replacement of surcharging pump stations, sewer pipes, and appurtenances currently leaking sewage, which lead to illicit discharges.	\$11,605.00
Odie St GI Project - Design and construct stormwater green infrastructure treating impervious surface within the Odie Street Habitat for Humanity Neighborhood. Provides multiple benefits including nutrient reduction, peak flow attenuation, ecosystem benefits and includes an educational component to a historically underserved community.	\$24,459.71



CCP Cistern Project - Install an above ground cistern and associated appurtenances at the town's Cates Creek Park; water to be used for irrigation of plants and gardens within the park.	\$10,017.04
Eno River Hydrilla Management Project - Cost share for treating invasive hydrilla plant by the Eno River Hydrilla Management Task Force. Provides multiple benefits including nutrient reductions and aquatic habitat improvement.	\$4,447.80
Riverwalk Compost Blanket Project - Install compost blanket to alleviate erosion and increase infiltration on an eroded slope along Riverwalk Greenway. Project also provides native pollinator habitat.	\$593.64
Odie St Stabilization Project - Stabilize existing ephemeral/intermittent stream channel and plant riparian vegetation; while this is a separate project, it is part of the overall Odie Street/Habitat for Humanity project. Stabilizing the stream will reduce sediment and erosion, while stabilizing the roadbed along the channel.	\$15,711.85
Murray St and Turnip Patch Park Riparian Buffer Enhancement Project - plant additional trees and shrubs within the riparian buffer at these two town parks.	\$3,500.00
Wake County completed the design for retrofit of an existing dry detention to a bioretention and installation of a new linear bioretention at Northern Wake Fire Station #2. The 8.5 ac is located on a UT to Falls Lake. The project is in the Protected Area of Falls Lake and ~0.5mi outside of the Critical Area. Initial project construction pre-dated Falls Lake Rules. The SNAP tool estimates an 86% reduction of nitrogen and 88% reduction of phosphorous with installation of the two bioretention projects. Wake County will seek partnerships to assist with funding construction in FY2024-2025.	\$30,600.00
Stream and riparian buffer restoration and enhancement	\$16,000.00
WCES Watershed Management staff performed 76 inspections in Falls Lake Watershed in FY2022-2023 to ensure SCMs are functioning properly. Proper functioning SCMs are critical to maintaining water quality in Falls Lake. SCMs provide nutrient reduction and peak flow attenuation. In-kind funds are based upon the hourly rate for staff performing SCM inspections within the Falls Lake Watershed. Watershed investment reflects hours above and beyond 2006 hours.	\$23,062.00
WCES Wastewater Management staff respond to complaints and requests for investigation of malfunctioning septic systems. Complaint response is a top priority for WWM as malfunctioning systems present potential threats to both public health and water quality. In-kind funds are based upon the hourly rate for staff performing both septic complaint investigation/code case violations and septic repairs (Construction Authorization and Operation Permit) within the Falls Lake Watershed. Watershed investment reflects hours above and beyond 2006 hours.	\$63,118.00
Education and outreach programs at Blue Jay Point County Park (BJPCP) are ongoing.	\$3,030.00
01 Horse Creek Watershed Study	\$13,692.00
The project, known as the Newsome project, consists of 177 forested acres and approximately 5,000 linear feet of stream frontage along Camp Creek, which drains into Knapp of Reeds Creek before reaching Falls Lake. The Triangle Land Conservancy will hold the easement to property and will be responsible for the stewardship and monitoring requirements.	\$740,000.00
Design and permitting of stormwater control measures	\$19,058
Total	\$3,040,491