

RESIDENTIAL ASSESSMENT PILOT PROJECT

APRIL 30, 2023



TOWN OF CARRBORO • NC
STORMWATER DIVISION

PREPARED BY TOWN OF CARRBORO, PUBLIC WORKS DEPARTMENT STORMWATER DIVISION

Executive Summary

The purpose of this project was to offer residential stormwater assessment services to Carrboro residents as a step towards the longer term and bigger picture undertaking of creating a more resilient and watershed friendly community. This report provides the contextual background for the project along with efforts pursued by Stormwater Division staff to support the project and survey participants on the efficacy of the assessments they received. It is a companion to reports with details on the assessments and their results provided by the contractor that staff worked with, Feather Village Farm. Overall, the project was successful in piloting residential stormwater assessments and making progress towards strategic priorities related to identifying the potential for community scale stormwater retrofits and future incentives that the Town may wish to offer to residents.

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Background

Context

In both figurative and literal terms, we are at a watershed moment here in Carrboro, and beyond, when it comes to our relationship with the hydrologic cycle. In the past decade, residents have been increasingly affected by more frequent intense rain events. This reality has been an important driver for the work of Carrboro's Stormwater program since its inception in 2018. One overarching program goal has been and will continue to be to serve as a cog in the effort to build community-scale resilience to the new rainfall patterns associated with climate change. It is important at the same time to recognize that creating a more resilient community can and does go hand in hand with healthy local ecosystems. Surface water ecosystems in and downstream of Carrboro are stressed by human impacts. With a predominance of residential land use, restoring our creeks and Jordan Lake to a healthier condition will require better management of runoff from existing residential development.

This report presents the results of a project and one component of the program's resilience- and restoration-driven work. Its focus was reaching out to Carrboro residents and assessing their needs and interests in making improvements on their lots to both improve their own conditions in relation to rainfall and runoff but also to hold a lens to the community and watershed scale cumulative impacts of residential lot level landscaping choices. It is a companion to the report from the contractor the Town worked with that presents the detailed findings from working with residents to complete the assessments. It also follows on work that has been previously pursued as discussed below.

A consensus is emerging amongst those charting the course for urban stormwater management that *nature-based stormwater solutions* are foundational. (See link in Resources/References.) This term is synonymous with the term used in Carrboro's recently adopted Comprehensive Plan, *green stormwater infrastructure*, and is also aligned with the theory and practice of Low Impact Development (LID). This increasingly favored and emerging approach to stormwater management is an important foundation for the work pursued in this project. At a more granular level, questions emerge about how to best transition in the built environment to more of the nature-based and green practices that are called for. There are and will be many questions about how to proceed. Here are several questions that have motivated this project. What will/could residential green infrastructure look like for the Carrboro community? Stated slightly differently, what does resilience, or being "rain ready," look like in Carrboro? What are the next practical steps to take to move in this direction?

Preceding and Related Work

As referenced above, the Stormwater program has been focused on work that has led to this project since its inception. It is beyond this report's scope to fully detail previous efforts, but a brief summary is offered, and more details are available in Appendices and on the Stormwater program's website. An important point of reference is that the creation of Carrboro's Stormwater Utility was significantly motivated by recurring intense storms and their community impacts between 2012 and 2017. The wettest year on record was 2018 and included back-to-back tropical storms in the fall. One of the responses was to sponsor a RainReadySM study by the Center for Neighborhood Technology, which began in late 2019 and was completed in the spring of 2020. Staff have been following up on many of the recommendations provided in the study, with this project focusing on both providing helpful technical assistance to residents while also taking an incremental step towards a possible future new and longer term and more involved residential assistance program. Part of the efforts in 2020 and 2021 also involved review by the Stormwater Advisory Commission to help guide efforts. In 2022, a Request for Quotes (RFQ) was released and procurement pursued to obtain contractual assistance with making progress on recommendations from the RainReady study effort. An important Town initiative simultaneously occurring during this time frame was developing and adopting the Town's first Comprehensive Plan. The plan included an entire section devoted to Green Stormwater Infrastructure. Two of the priorities in that section were to recommend new financial incentives for businesses and income eligible residents and to develop a new "retrofit playbook." In 2023, the Town Council has identified these two efforts amongst a group of strategic priorities. The project presented herein is specifically seen as significantly informing both priorities.

Pilot Project

Implementation

The goal of the pilot project was to provide residents with the opportunity to have a professional assess their property and landscape and offer practical solutions. The following were required for an application (Appendix A) to be considered:

- Property within the town limits
- Single-family residence
- Applicant owned the property
- Concerns directly related to stormwater (drainage issues, eroding stream on property, etc.)

A webpage was created to help launch this pilot project. This included a summary, a link to the application, and FAQs to address predicted questions or concerns and to further clarify the specifics of the project. The goal was to ensure residents had an understanding of what qualified for the assessment before submitting an application. In addition, this served as an avenue to give a clear picture of what would be included in the assessment and what would not be included.

The process took place as follows:

1. A resident submitted an application for assessment, noting specific stormwater concerns on his or her private property.
2. Submitted applications were screened to ensure all requirements were met and requests were within the scope of the project.
3. The consultant received selected applications.
4. The consultant contacted the resident and set up a time for a site visit.
5. The consultant performed a technical assessment of the property as it related to drainage concerns.
6. The consultant prepared a report for the resident, which included recommendations for applicable management measures. (Details are available in the contractor’s companion report. See link in Resources/References.)

Timeline

The table below depicts the time frame for implementing the pilot project.

1/4/23	Website launched
1/5/23	Project publicizing begins (social media posts, educational flyer with applications online and hard copies available at Town Hall and Century Center, information kiosks, etc.)
	Application period opens
2/4/23	On-site assessments begin
3/15/23	Application period closes
2/22/23-3/22/23	On-site assessments take place
3/23/23-3/27/23	Follow-up survey disseminated to participants
4/16/23	Survey response initial deadline
4/15/23-4/30/23	Pilot project wraps up, report(s) completed
5/3/23	Consultant and staff present conclusions to Stormwater Advisory Commission

Outreach

Stormwater staff utilized social media (Twitter, Instagram, Facebook), online community messages, and community kiosks to advertise the project. Flyers were developed that included a paper application and QR codes that linked to the online information and application. They were available at Town Hall, Century Center, and Public Works, and were given to Feather Village Farm to distribute in person while performing assessments. Posters with a QR code to online information were placed at Town Hall, Century Center, Town Parks, and all ten Carrboro information kiosks. Postings were made on Nextdoor for Carrboro neighborhoods. Emails were sent to neighborhood HOAs and known neighborhood contacts for those without HOAs. Flyers were made available at outreach events and in-person staff site visits during the open application period.



Racial Equity Lens

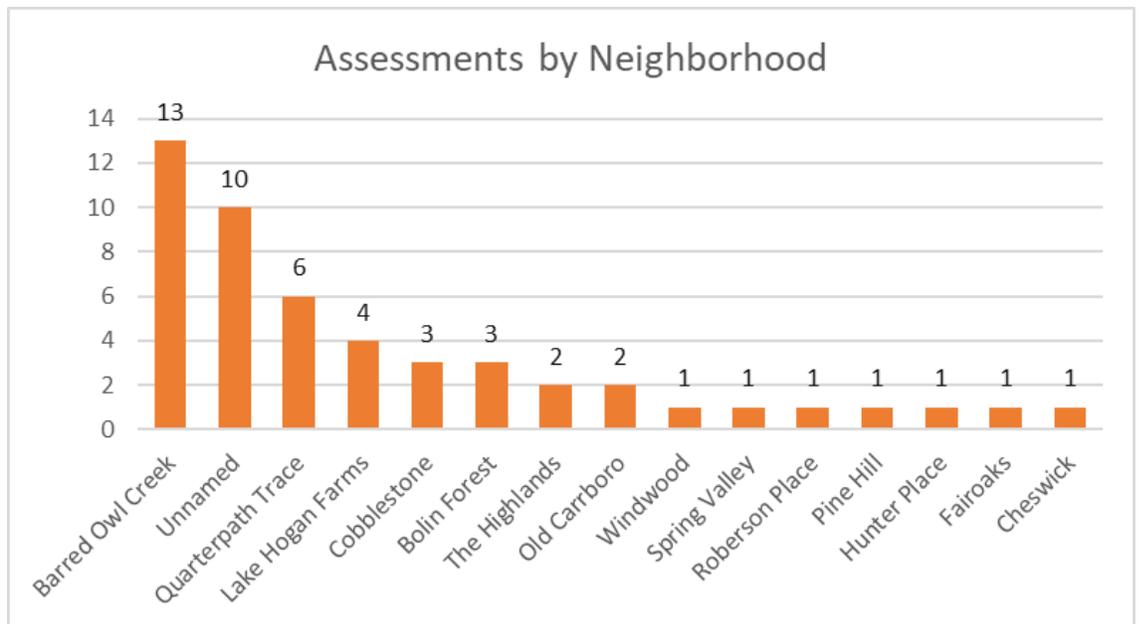
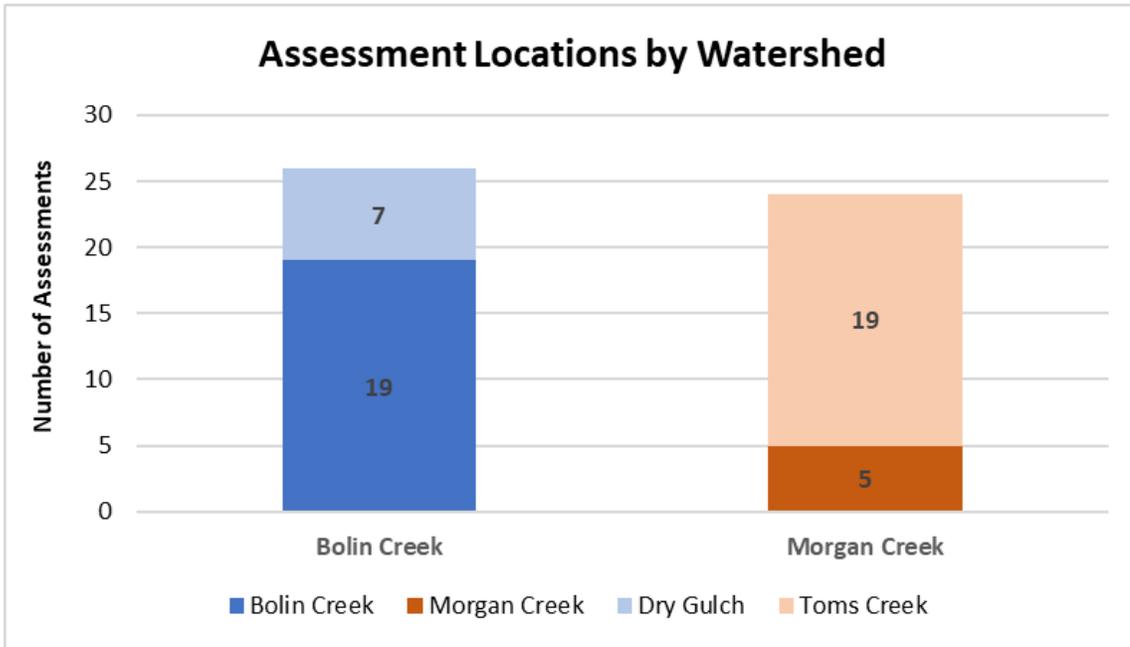
Racial equity has been identified as a pillar and priority for Carrboro. With this direction, efforts were pursued as part of this project to reach out to BIPOC and historically underrepresented residents to invite participation in the pilot project so that they could benefit from the technical assistance offered. The above outreach section discusses the general approach pursued. In addition, the following specific racial equity motivated steps were taken. First, the Town's Racial Equity Lens was developed and submitted for internal review. Second, Town staff in other departments and with community connections were contacted by Stormwater staff to assist with targeted racial equity-based outreach. Stormwater staff also specifically reached out to the Rogers-Eubanks Neighborhood Association (RENA), Empowerment, Inc., El Centro Hispano, and Community Home Trust to assist in recruiting participants. The graphics provided in the next section present the demographics of participants that resulted, and information is also provided on neighborhood participation.

Applications

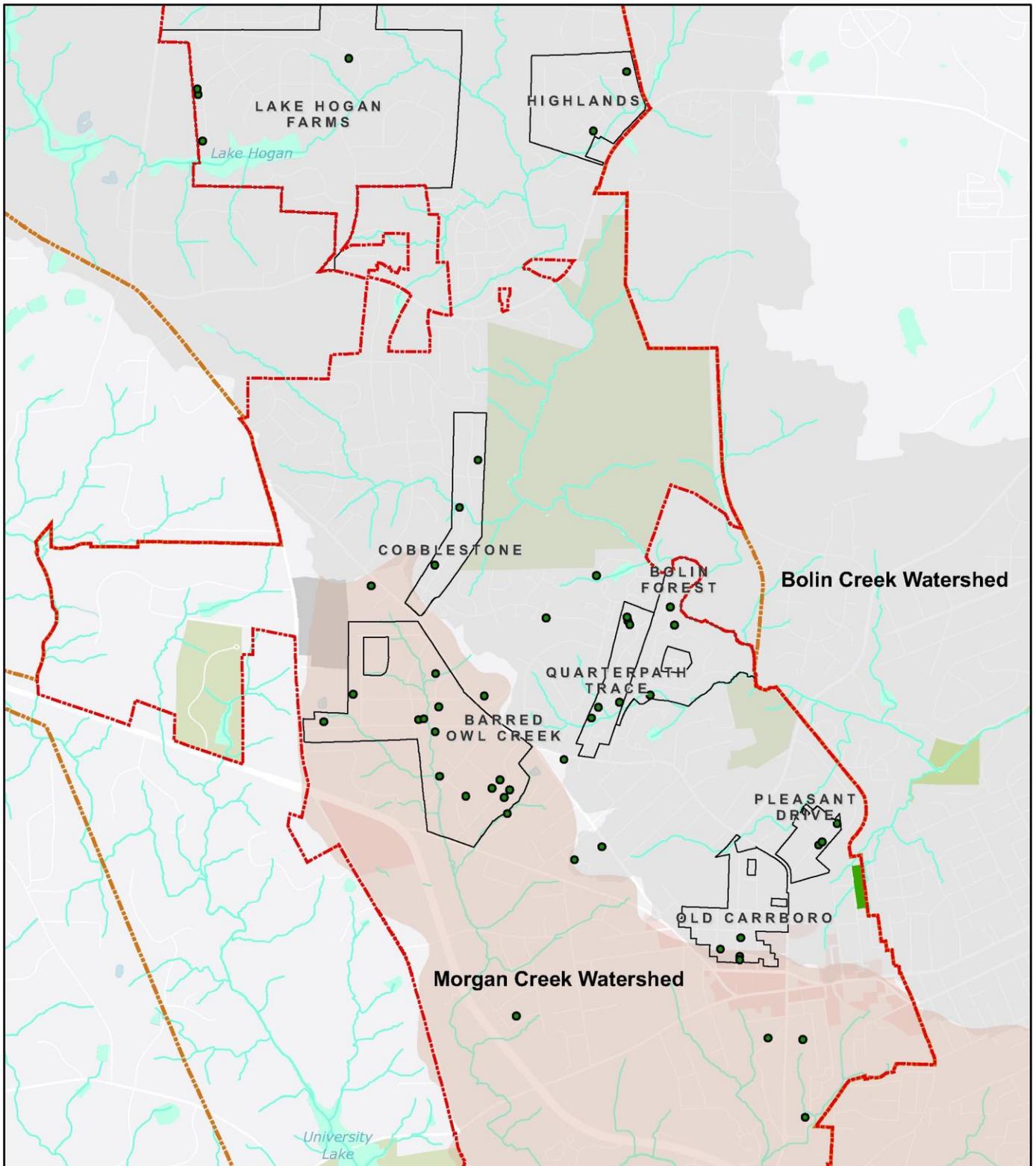
Geography

Assessment Locations: Watersheds and Neighborhoods

The charts and map in this section illustrate the locations of the residential assessments, by watershed (Bolin Creek or Morgan Creek) and by neighborhood. Both watersheds that fall in the Town limits were nearly equally represented as seen in the first chart. The second chart shows the assessments by neighborhood, and the map gives a spatial representation of both neighborhoods and watersheds.



Residential Assessment Locations




 TOWN OF CARRBORO
 301 W. Main St.
 Carrboro, NC 27510
 Created April 25, 2023

- RAPP Locations
- ▭ Neighborhoods
- ▬ Streams
- City Limits
- ▭ Morgan Creek Watershed
- ▭ Bolin Creek Watershed
- Planning Jurisdiction

THIS MAP IS NOT A CERTIFIED SURVEY
 NO RELIANCE MAY BE
 PLACED IN ITS ACCURACY
 The Town of Carrboro assumes no liability for damages
 caused by inaccuracies in this map
 or supporting data and makes no warranty, expressed or implied,
 as to the accuracy of the information presented.
 The fact of distribution does not constitute such a warranty.

Demographics

Property Value

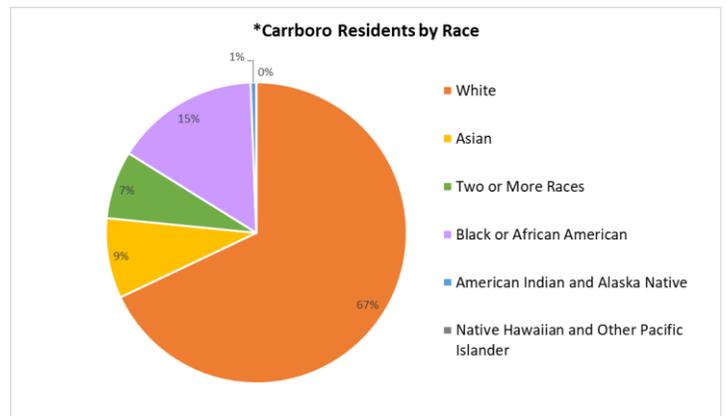
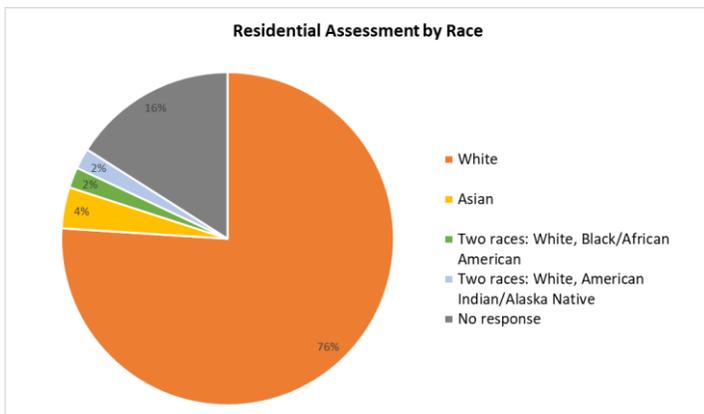
The US Census (2017-2021)* reports the average housing value in Carrboro as \$396,800. The average home value for the assessments was \$407,546. The chart below shows the distribution of the assessments in relation to the Census average. Regarding housing value, the assessments were representative of Carrboro’s housing values overall.



*United States Census Bureau, QuickFacts, Carrboro, NC

Race and Ethnicity

The charts below show Carrboro’s demographics first for residents participating in the project and then for Carrboro as a whole regarding race. When comparing race and ethnicity of participating residents with the demographics of Carrboro, some caution is needed. Data from the applicants and data from other sources were not always directly comparable since data gathered through the application and as part of the Census were not identical.



This table simplifies the data from both the assessments and Census but allows for a potentially more accurate comparison.

Race	*Carrboro Residents	Assessments
White	67%	76%
Black or African American	15%	0%
Asian	9%	4%
2 or more races	7%	4%
Unknown	NA	16%

The charts and the table show that discrepancies were not great overall, but it should be noted that more white homeowners applied than the percent of white residents in Carrboro, and Black or African American homeowners were not represented based on those who indicated race. It is important to note, however, that the Census data is for all Carrboro residents and is not broken down into race by homeownership. To truly compare the differences for race, it would be necessary to obtain information on Carrboro's homeownership based on race.

Regarding ethnicity, 24 applicants did not indicate Hispanic or Not Hispanic. Of the 26 applicants who gave a response, two indicated Hispanic for ethnicity.

**United States Census Bureau, QuickFacts, Carrboro, NC*

Assessments

After screening the applications to ensure requirements were met, Stormwater staff forwarded applications to Feather Village Farm (FVF) to work with residents to schedule and complete assessments. The scope of the assessments was constrained to on-site/on-lot improvements associated with the management of the residential landscape that could benefit the owner and also be consistent with community resilience and watershed restoration goals. Staff worked with FVF to identify eligible practices or measures to consider for each assessment. The companion report and presentation from FVF provide details of assessments along with summary results, benefits that could accrue, and recommendations for future work to build on this pilot project. (See link in Resources/References for contractor's report.)

Participant Survey

At the conclusion of the assessments, a survey was sent to the 50 residents who participated in the pilot project. Of the 50 participants, 29 submitted a completed survey by the deadline. The results reflected here are based on those 29 completed surveys. (Note: These survey results in this document are based on the 29 completed surveys received as of April 17, 2023. This document may be updated at a later date to reflect the submission of any additional surveys.)

Residents found the assessments to be helpful, including the on-site visit and the following report. On a scale of 1-5, with 5 being classified as Very Helpful, the average was 4.14 for the overall experience. Respondents also indicated a dedication to the bigger picture of stormwater concerns in Carrboro, including flood/climate resiliency and protecting local and downstream water bodies.

One of the goals of the survey was to further understand the stormwater issues residents may experience on their properties. While responses varied, there were commonalities. The list below depicts the most common concerns and how many of the 29 respondents indicated this as such.

- Water ponds and collects in my yard after rain events. (21)
- Runoff from adjacent properties is negatively impacting my property. (19)
- Water does not correctly drain away from my house and foundation. (17)

- The rainfall and runoff issues experienced on my property happen only after intense rain events. (15)
- The rainfall and runoff issues experienced on my property happen after normal rain events. (13)
- My yard (not including a stream channel) is eroding. (13)

A final goal of the survey was to gain an understanding of the likelihood that participants would implement the assessment recommendations and what obstacles might prevent implementation. Of the 29 respondents, 24 indicated that they were somewhat likely or very likely to implement some or all of the recommended practices. Of all the practices that were recommended, respondents indicated that they were most likely to pursue swales/regenerative conveyances, critical-area plantings, runoff conveyances, and backyard rain gardens.

Respondents indicated that the biggest obstacles to implementing the recommended practices were needing additional assistance with planning and design, finding applicable contractors, and financial assistance. When asked specifically about financial needs, respondents indicated the percent of cost share they would need to implement the practices. See the table below for responses.

Cost Share Needed for Implementation	Respondents
0%	5
25%	2
50%	6
75%	0
100%	1
Need More Information	13
Other	2

The results of this survey may help guide the Town of Carrboro's future efforts. If deemed feasible and useful, an additional survey may be sent to these same participants at a later date to gather data regarding actual implementation of the recommended practices.

See Appendix C for all survey results.

Summary of Results and Findings

In summary, the following outcomes were obtained by pursuing this project.

1. The project successfully realized the goal of providing 50 interested residents with assessments of their properties for potential enhancements.
2. Going into the project, the level of community interest as demonstrated by the number of applications was uncertain. The project therefore was informative in gaging and calibrating the demand that exists.
3. Helpful information was obtained both through the assessments and a survey of participants to guide efforts to identify retrofits and incentives to consider and design a future program for review that is also consistent with the Town and Comprehensive Plan's identified priorities.
4. In addition to technical assistance with drainage, different green stormwater infrastructure practices were identified and evaluated as potential enhancements. Amongst these, the assessments and survey responses indicated that five were seen as the most beneficial to pursue and with the highest likelihood of adoption: swales and regenerative conveyances, critical area plantings and erosion control, rain gardens, streambank protection and repair, and cisterns.
5. Demographically, fewer than hoped for BIPOC and especially Black residents applied for assessments. Regarding property value (based on property tax assessments), the profile of participants indicated a balanced representation.

6. Detailed and more technical findings are available in the contractor's companion report and presentation.

Recommendations

These are the next steps that are recommended and planned as follow-up to this project.

1. Stormwater staff will draft and present new residential assistance policy and program documents for review in FY24.
2. Presuming that there is interest in creating a program, staff will also provide recommendations for funding a program, including adjustments to the Stormwater Utility rate structure as part of preparing to move forward with the program.
3. Obtaining more participation by BIPOC residents could require an approach beyond what was able to be pursued as part of this project.
4. Some of the homes and yards assessed have drainage issues that are best addressed by adherence to basic building, grading, and landscaping practices and standards and compliance with land use regulations.
5. It is recommended that a follow-up contract with Feather Village Farm be executed in 2024 to provide support with the above recommendations based on skills and experience, performance on this project, and alignment of objectives and interests.

Resources/References

[Action Plan for Nature-Based Stormwater Strategies](#)

[Carrboro Comprehensive Plan](#)

[Flood Resilience | Carrboro, NC - Official Website](#)

[Toms Creek | Carrboro, NC - Official Website](#)

[RainReady Study \(pdf\)](#)

[Drainage and Flooding FAQs | Town of Carrboro, NC - Official Website](#)

[Stormwater FAQs | Town of Carrboro, NC - Official Website](#)

[Residential Assessment Pilot Project: Contractor Final Report \(pdf\)](#)

[Residential Assessment Pilot Project: Contractor Presentation \(pdf\)](#)

[United States Census Bureau, QuickFacts, Carrboro, NC](#)

Appendix A: Application

Application for Stormwater Residential Assessment Pilot Project

If you need assistance with this application, need a translator, or would like this application mailed to you through the postal service, please contact us at stormwater@carrboronc.gov or 919-913-2999.

Send the completed application to stormwater@carrboronc.gov or to the following address:

Town of Carrboro
Attn: Stormwater Division, Public Works Department
301 W. Main Street
Carrboro, NC 27510

*Indicates required fields

*First Name <input type="text"/>	*Last Name <input type="text"/>	Email <input type="text"/>	
*Street Address <input type="text"/>		Mailing Address (if different) <input type="text"/>	
*City <input type="text"/>	*State <input type="text"/>	*Zip <input type="text"/>	
*Phone <input type="text"/>	*Type (Circle) <input type="checkbox"/> Cell <input type="checkbox"/> Home <input type="checkbox"/> Work	Phone <input type="text"/>	Type (Circle) <input type="checkbox"/> Cell <input type="checkbox"/> Home <input type="checkbox"/> Work

Preferred Method of Contact (Circle one.)

- Phone call
- Text
- Email

Race

- White
- Black or African American
- American Indian or Alaska Native
- Asian
- Native Hawaiian or Other Pacific Islander
- Other (Please specify.)

Ethnicity

- Hispanic
- Not Hispanic

***Do you own your home?**

- Yes
- No

***Is your property in the Town limits?**

- Yes
- No
- I don't know.

Is there a stream on your property?

- Yes
- No
- I don't know.

Do you have an active land use or building permit

- Yes
- No
- I don't know.

Application for Stormwater Residential Assessment Pilot Project (cont'd)

***What property concerns would you like assessed? (Check all that apply.)**

- Flooding and drainage around house
- Yard flooding after heavy rains
- Persistent wet/poorly drained areas
- Managing runoff from rooftop, driveway, etc.
- Managing runoff entering or exiting property
- Installing a rain garden
- Streambank stabilization
- Riparian (streamside) improvements
- Managing erosion
- Rainwater harvesting
- Landscaping improvements (e.g., terracing, lawn conversion, soil enhancement, native plantings, invasive plant management)
- Other

Please provide a brief description of what you would like assessed.

If you are filling out this application on behalf of someone else, please fill out your information below.

First Name	Last Name	Phone
<input type="text"/>	<input type="text"/>	<input type="text"/>

Signature	Date
<hr/>	<hr/>

Appendix B: Recommended Practices

Practice	Narrative
Impervious to Pervious Surface Conversion	Impervious surfaces such as asphalt, concrete, brick, and stone prevent infiltration. Replacement of impervious materials with permeable pavement or vegetation increases infiltration and therefore reduces stormwater runoff and also reduces pollutant transport.
Permeable Pavement	Permeable pavement is an alternative to conventional concrete and asphalt paving materials that allows rapid infiltration of stormwater. Stormwater infiltrates into a porous paving material that temporarily stores water until the water infiltrates into underlying permeable soils or through an underground drain system. This practice is intended to reduce stormwater runoff rate and volume and pollution transport.
Disconnected Impervious Surface (DIS)	The practice of directing stormwater runoff from built-upon/impervious areas to properly sized, sloped, and vegetated areas. Both rooftops and paved areas can be disconnected with slightly differing designs. DIS is low cost and has been proven to reduce the volume and flows associated with stormwater runoff.
Backyard Rain Garden	A shallow depression in the ground that captures runoff from a driveway, roof, or lawn. This temporary storage slows down the runoff and allows it to soak into the ground, thereby preventing or reducing erosion, pollutant transport, and impacts to adjacent properties and downstream waterbodies. The word "backyard" has come into common use for this practice, but unless restricted in some way, these can be located elsewhere on the property.
Backyard Wetland	Like rain gardens, wetlands are shallow depressions that store runoff. They differ in that rain gardens dry out relatively quickly after rains, whereas wetlands remain saturated for extended periods of time and are therefore well suited to areas that are naturally wet. Plants that do well are somewhat different, otherwise, the same characteristics apply to these two practices.
Cisterns	Cisterns are above- or below-ground storage tanks that harvest rainwater. This collected rainwater can then be made available for irrigation and potentially other uses such as car washing. They are also intended to reduce stormwater runoff and reduce the use of domestic water. A cistern is much larger than a rain barrel which is only able to capture a small percentage of rooftop runoff.
Critical-Area Planting/Erosion Control	This practice is useful on erodible areas that are difficult to stabilize. This consists of the establishment of a durable and appropriate vegetative cover. Benefits include reduced soil erosion and sedimentation and improved water quality.
Riparian Buffer Enhancement	Hydrologic and/or vegetative improvements to streamside areas. Perennial, long-lived native vegetative cover (grass, shrubs, trees, or a combination of vegetation types) are established and expanded to improve water quality and through which water is conveyed in a dispersed manner and allowed to soak into the ground. Benefits may include reduced soil and bank erosion and nutrient delivery, sedimentation, pathogen contamination, and habitat improvement.

Practice	Narrative
Swale/Regenerative Conveyance	A swale is a channel that is shaped and graded to required and uniform dimensions and established with suitable vegetation (ex. perennial plants, grass). A regenerative conveyance is similar but has less uniformity in its shape and more natural stream channel features such as sinuosity, pools and riffles, and native vegetation. Benefits include reduced runoff, soil erosion, sedimentation, and pollution transport and improved water quality.
Runoff Conveyance	This practice uses drainage materials and devices to direct stormwater runoff away from a direct discharge point and divert it to another practice or naturally vegetated area capable of storing water and removing pollutants. This may be accomplished by grading and practices such as curb cuts, french drains, dry stream beds, earthen berms, and check dams.
Streambank Protection and Repair	This is the use of vegetation, potentially supplemented by light grading, to stabilize and protect stream and pond banks. This practice can be used to prevent the loss of land or damage to utilities, roads, buildings, or other facilities adjacent to the banks and to maintain the capacity of the channel, control channel meander, reduce sediment load causing downstream damages and pollution, or improve the stream for recreation or fish and wildlife habitat. This practice requires an environmental contractor knowledgeable of stream structure and able to design a plan or follow a plan completed by a qualified professional.
Stream Restoration	Stream restoration uses bioengineering practices, native and natural materials and vegetation, channel stability structures, along larger intermittent and perennial streams to restore the natural function of the stream corridor, and improve water quality by reducing sedimentation from streambanks erosion. Stream restoration work must be designed by a Professional Engineer with stream restoration experience and credentials and permitted through federal, state, and local agencies
Green Roof	A structurally reinforced roof in combination with an intensive (deep, small-area) or extensive (shallow, large area) planting arrangement that retains and slowly releases rain resulting in runoff reduction and water quality benefits.
Soil Restoration/Rehabilitation/Improvement	Physical soil loosening, ripping, tilling, subsoiling, aeration; amendment with compost/organic materials/biochar to create healthy soils with higher infiltration and water storage and less runoff and erosion; adjust pH values, or otherwise improve soil fertility or function; planting appropriate vegetation including plants with deeper root zones.

Appendix C: Follow-up Survey

FOLLOW-UP SURVEY RESULTS

STORMWATER RESIDENTIAL ASSESSMENT PILOT PROJECT

February–April 2023

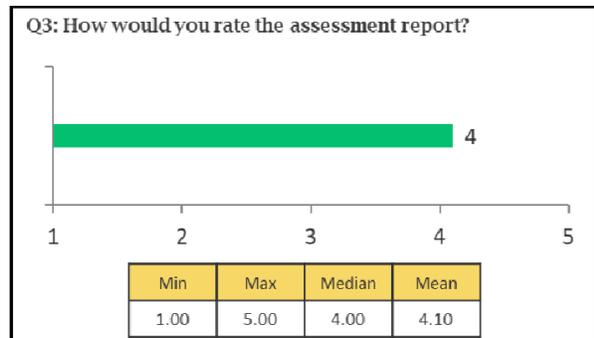
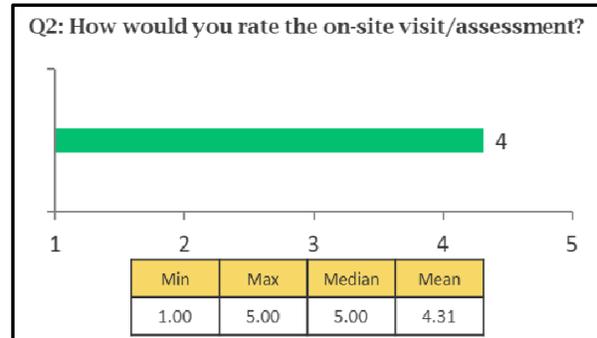
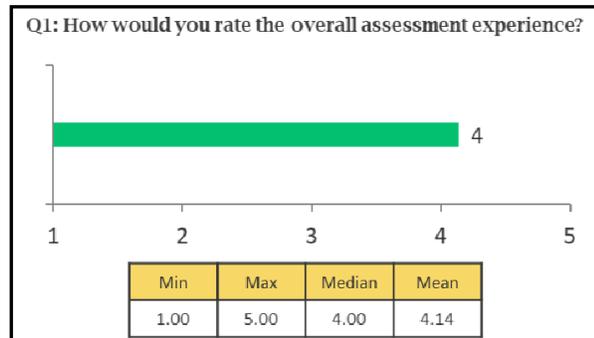
This survey was sent to the 50 residents who participated in the pilot project. The total response rate was 58-64%; 32 surveys were submitted, three of which were incomplete and therefore not included in the results. These results represent the 29 completed surveys, or 58% of the residents who received an assessment.

Note: These results are based on the 29 completed surveys received as of April 17, 2023. This document may be updated at a later date to reflect the submission of any additional surveys.

OVERALL EXPERIENCE

The purpose of the first three questions was to learn the resident's overall experience and also to understand the helpfulness of the report and the on-site assessment as separate entities.

1 = Very Unhelpful 2 = Somewhat Unhelpful 3 = Neutral/Unsure 4 = Somewhat Helpful 5 = Very Helpful

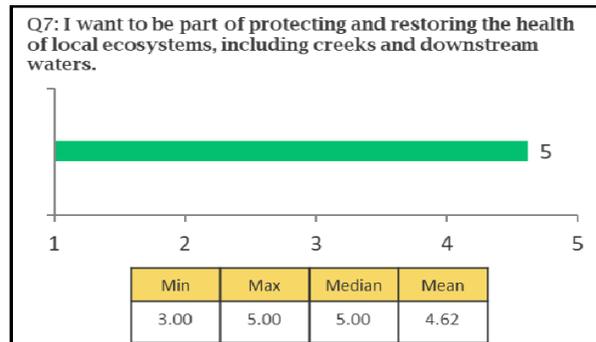
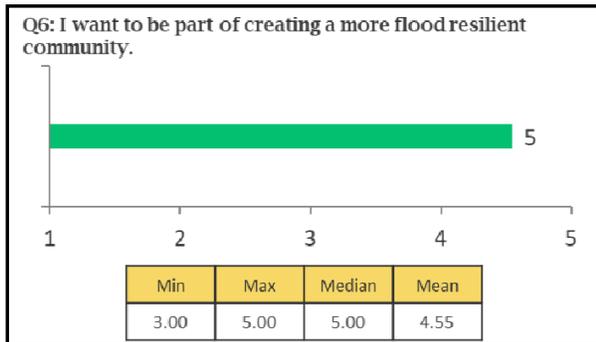
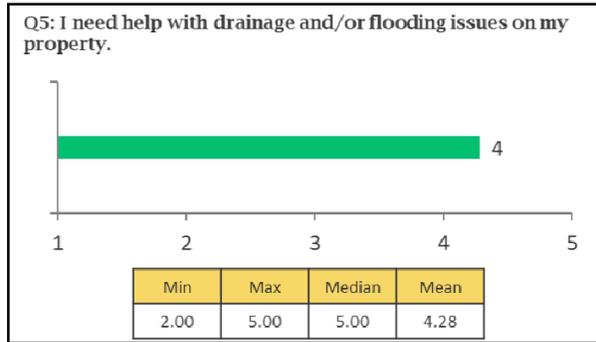
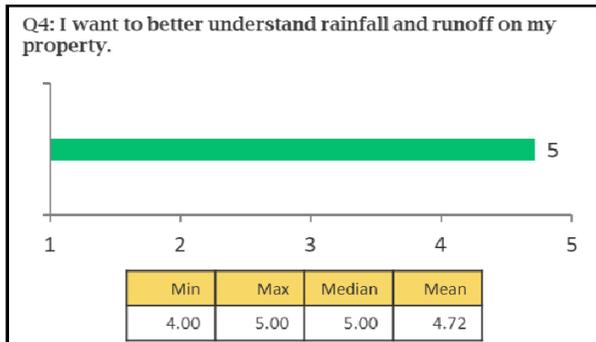


MOTIVATIONS

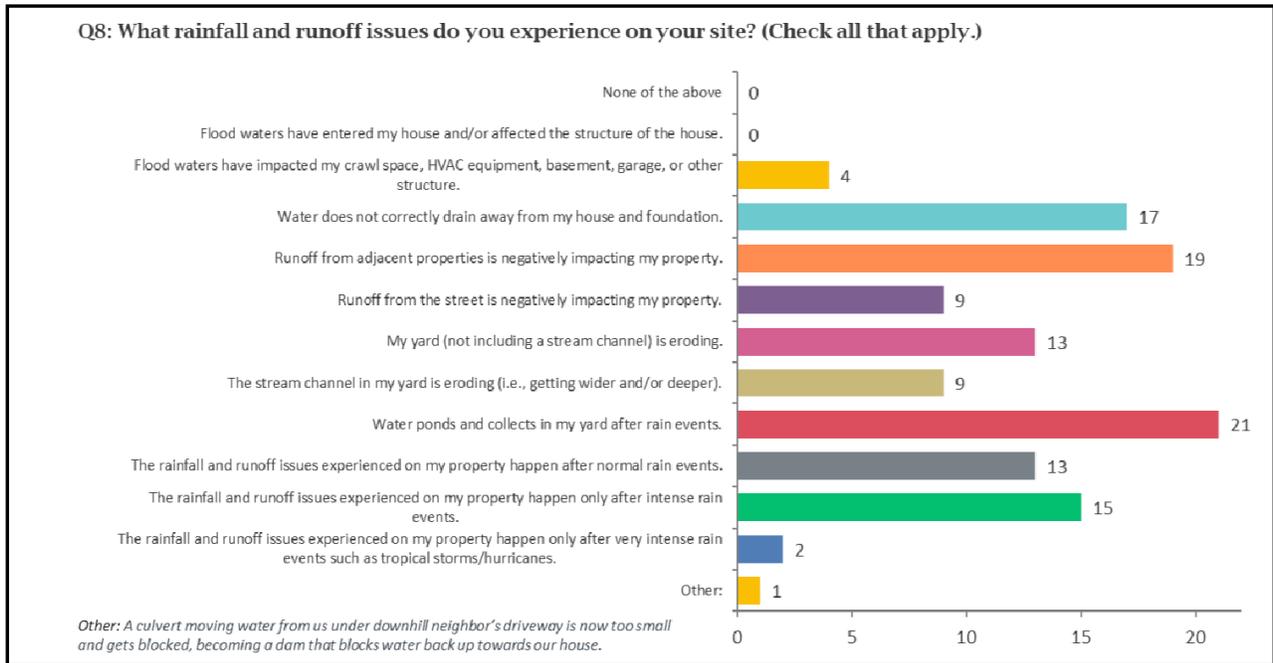
Questions 4-7 were asked in order to learn what other motivations might be driving residents in addition to the original concerns of stormwater issues on their properties.

Instructions: Please choose the best response for each statement regarding why you applied to the Residential Assessment Pilot Project. (Questions 4-7)

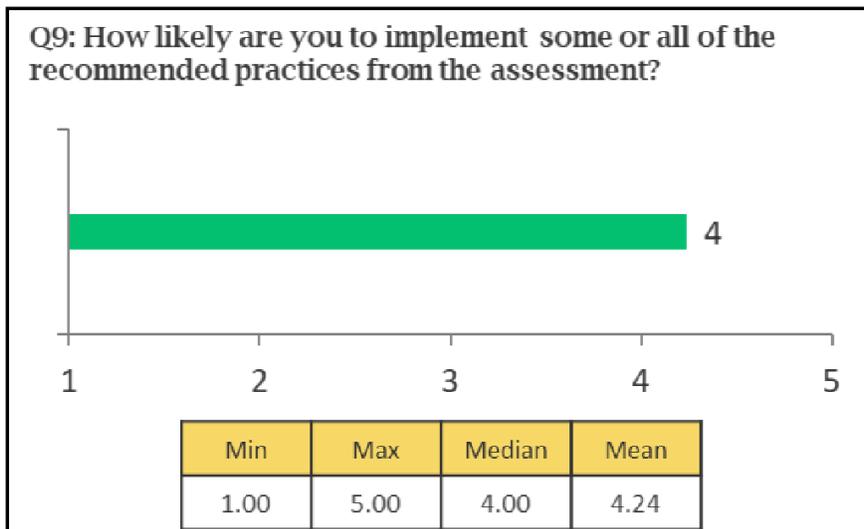
1 = Strongly Disagree 2 = Somewhat Disagree 3 = Neutral 4 = Somewhat Agree 5 = Strongly Agree



STORMWATER CONCERNS ON PROPERTY

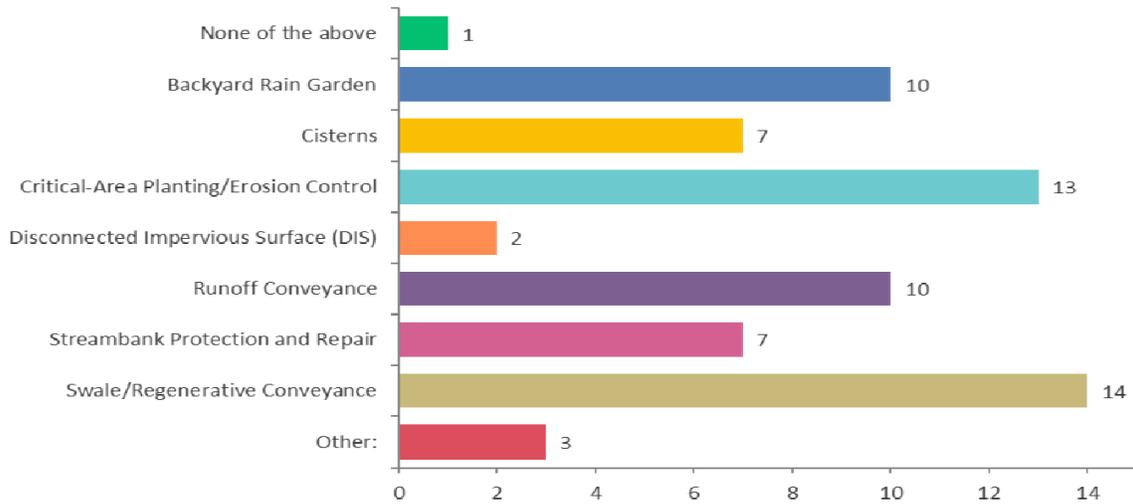


IMPLEMENTATION OF RECOMMENDATIONS



1 = Very Unlikely 2 = Somewhat Unlikely 3 = Unsure 4 = Somewhat Likely 5 = Very Likely

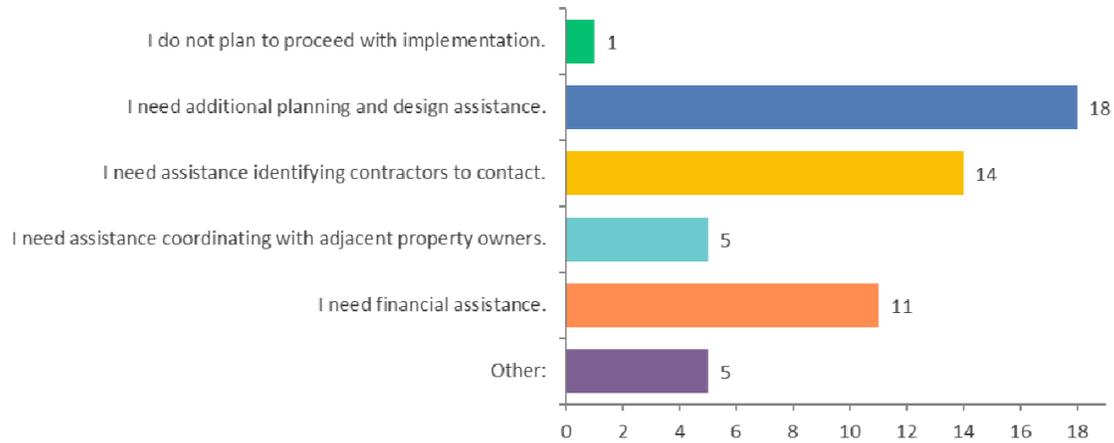
Q10: Which of the following do you plan to pursue as a result of the assessment? (Check all that apply.)



Other:

- Perhaps create a small pond that collects rain runoff
- Try to improve drainage on right border between properties
- We already plant deep rooted native plants and maximize tree absorption, but the deer population is so high that it has been difficult to do more.

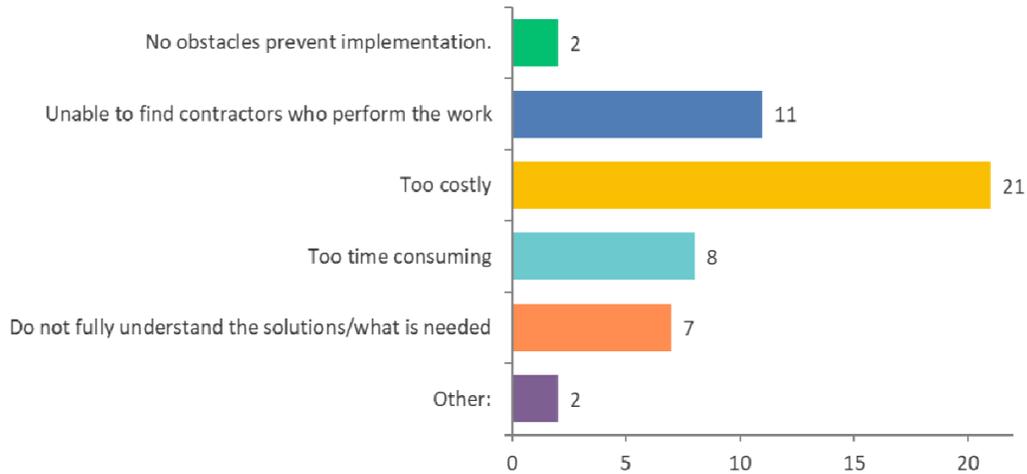
Q11: Which of the following best describes your needs to proceed with implementation? (Check all that apply.)



Other:

- I don't have a ton of cash to put into this project, but if I do it incrementally, I can cover it.
- need some more plant recommendations.
- We are doing all that we can: we replaced roof, enlarged gutters, piped water away from house to multiple areas, and are digging to slope away from house foundation. We cannot afford any further large projects now.
- None
- i plan to proceed

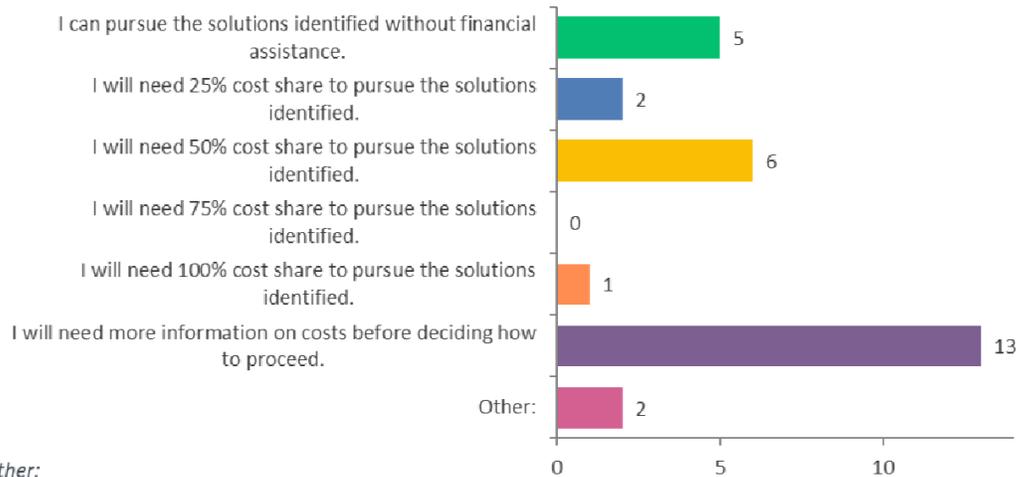
Q12: Which of the following obstacles could prevent implementation of the recommended practices? (Check all that apply.)



Other:

- Just need to know what and how much to plant in the wet area of my lot.
- physical difficulty of digging rain gardens

Q13: If financial issues are the biggest concern, which of the following would be necessary to implement these practices?

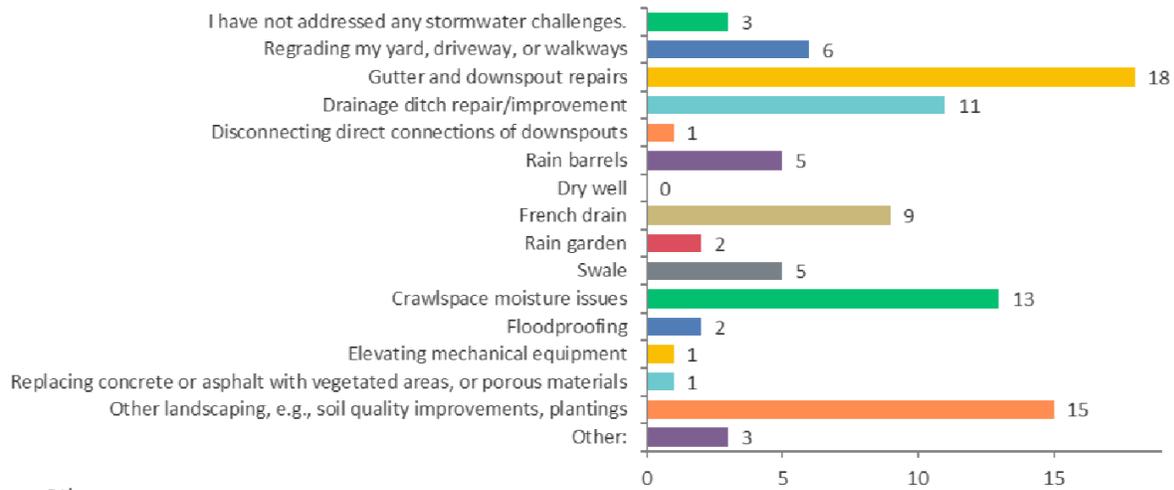


Other:

- I know there are people who need financial support more than I do.
- We have pursued what we can. If further big changes are needed, we could use help of some kind.

GENERAL INFORMATION

Q14: In the past, what stormwater challenges have you tried to address on your property? (Check all that apply.)



Other:

- *Our lot is lower than the lots to our west. We have had a berm built (with plantings) to direct the water away from our house to the rear of our lot. It is this rear area where we would like to put water-loving plants.*
- *Water ingress into crawlspace due to sump pump failures and possibly other issues.*
- *Trees and native plants (in cages) to absorb maximum water.*

Q15: In your opinion, which of the following best describes the responsibility regarding the stormwater challenges on your property?

