

Statement of the Problem Nags Head is a township within Dare County, North Carolina. Severe storm events, heavy rainfall, higher water tables, and increased urban development have led to storm water management issues in several neighborhoods, resulting in flooding, yard ponding, standing water in ditch networks, and subsequent property damage and environmental/health concerns. Limited government funding for infrastructure improvements contributes to the disconnect between public officials and residents seeking rapid-response solutions. Our project intended to:

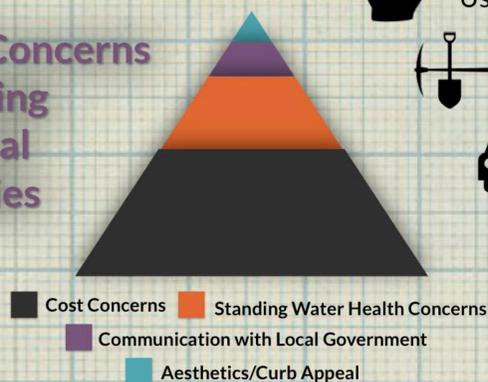
- Engage the local community to understand perceptions of storm water management issues
- Gather the voices of affected homeowners in order to facilitate better relationships between residents and public officials
- Elicit suggestions for remedies and acceptance levels of potential solutions
- Assist in the development and implementation of long-term, sustainable solutions

Initial Exploration: Contacting Community Members and Participant Observation

- Met with Town of Nags Head Board of Commissioners to determine neighborhood with the most severe problems
- Contacted residents via referrals, phone calls, and walks through the neighborhood
- Shadowed Town Engineer for expert input

Looking Ahead Dare County, North Carolina is a dynamic environment, and many neighborhoods have unique storm water management issues. This study design can be implemented in other locations to understand specific concerns. Additionally, the constantly evolving landscape of the barrier island region may require future reevaluation as conditions change.

Major Concerns Regarding Potential Remedies



Remedies Residents Considered Most Adoptable

- Use rain barrels in addition to wells for watering plants and lawns
- Maintain culverts and/or open neglected culverts or create new culverts under driveways
- Use pervious materials for new driveway enlargements/additions
- Create aesthetically pleasing swales—gentle slopes, not deep cuts
- Plant additional trees with roots that soak up water

Engaging Local Community Members to Improve Residential Storm Water Management in Nags Head, North Carolina

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We conducted face-to-face **Data Collection: Gathering Voices** interviews with Nags Head Acres residents. Questions required participants to express their own opinions, and pictures and pile sort cards aided in the recollection of past experiences. While contemplating potential solutions, many residents came to realize they may contribute to standing water in the neighborhood due to activities such as cutting down trees and filling ditches/swales. In addition, residents became aware of their different attitudes towards natural processes, as evident in their yard designs. Some prefer well maintained lawns and few trees, and others spend less effort on their yards, allowing trees to grow.

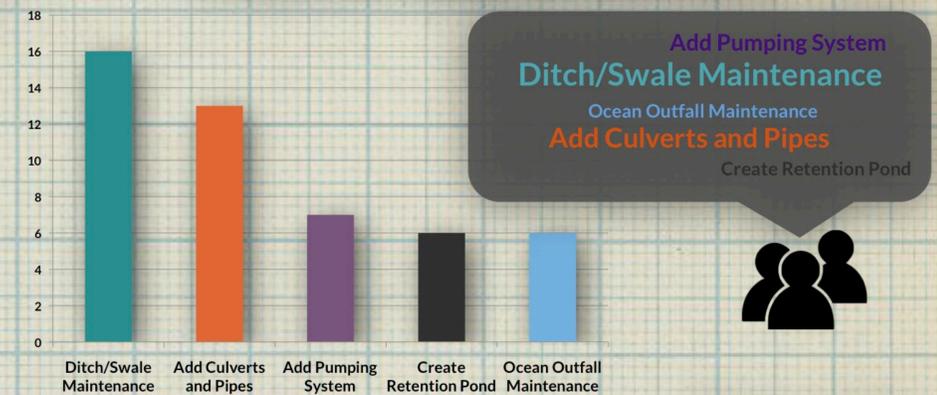
Factors Accounted For

- Location within neighborhood
- Gender
- Proportion of Lifetime lived in Dare County, NC
- Age



After transcribing interview notes, **Data Analysis** we identified patterns among responses, assigned keywords for each new idea, suggestion, or thought, compared all keywords, tallied the number of frequencies of re-occurrence among specific keywords, and looked for co-occurrences. The graph and word cloud below provide an example of how we represented data in our final report.

Frequently Suggested Remedies



Working with the realizations participants had during the project, we **Reporting** compiled our findings into a written report and infographic series for distribution to residents and Town of Nags Head officials. We provided a list of remedies participants considered most acceptable, with the central message that while working with local government, there are several solutions homeowners can implement starting in their own backyards.

