

Georgetown County Focus Group Meeting Notes

North Coast Resilience Project

July 26, 2018 @ 95 Centermarsh Lane, Pawleys Island, SC 28585

Goal: Utilize local knowledge and expertise to identify flood prone areas around the rivers in Georgetown County.

Outcome: Prioritized list of focus area and nature based projects to reduce flood potential.

North Coast Resilience Project Overview

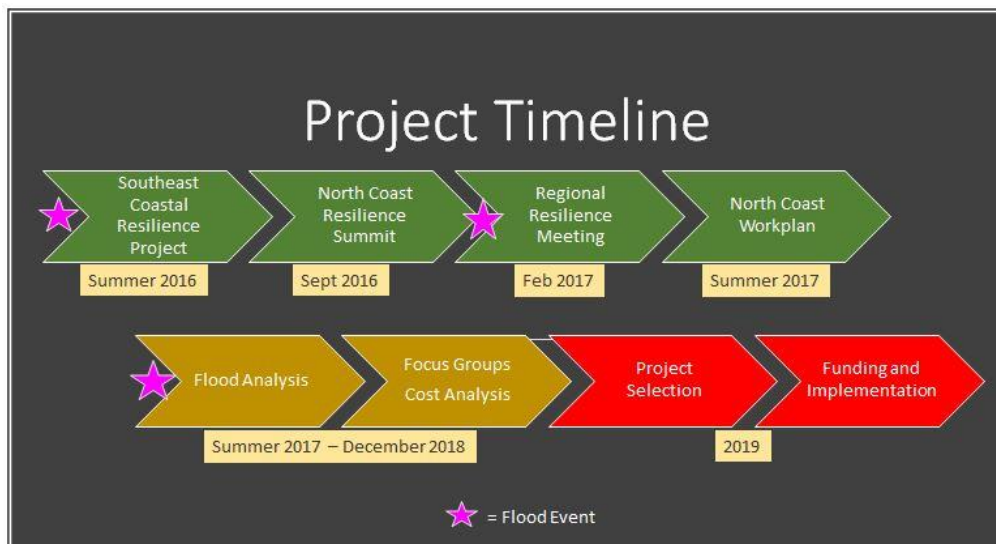
Initiated by TNC's regional program that provided training & a collaborative environment for communities in NC, SC, GA, & FL

North Coast Summit held in 2016. Steering Committee developed and flooding with an emphasis on riverine areas identifies as highest priority.

Work plan created during regional collaborative meeting in Feb 2017. Project goals included:

- Better understanding of localized flood risk
- ID opportunities to use nature based solutions to mitigate flood risk
- Provide shovel ready project ideas to municipalities
- Implement at least one on the ground project

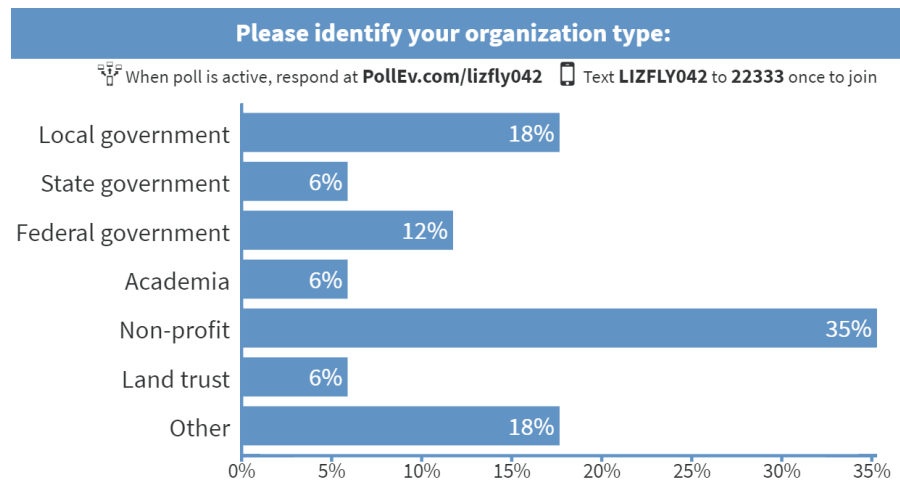
Below is a breakdown of the Project Timeline:



Green are completed actions, yellow are in progress, and red are future work. Pink stars indicate flood events: Flooding 2015; Hurricane Matthew 2016; Hurricane Irma 2017.

Georgetown County

A breakdown of the participants at the Georgetown County focus group meeting is presented below via Poll Everywhere with a full list of the attendees at the end of these notes.



Parcel level analysis is in process for Georgetown County by Geoscience Consultants, Inc. (Keil Schmid, RPG). The 2015-2016 Horry County lidar data was used for the Horry County results. However, the 2015-2016 Georgetown County lidar data was not available yet, so the results were developed from 2004 Georgetown County lidar data. Along with the difference in lidar data, Georgetown County had fewer river gauges than Horry County. To supplement the less data, Hurricane Matthew data and an assumed 50 year storm return (based off of FEMA's 100 year outline) were used to make up the statistical surface data. This was paired with the primary risk surface data to create a map. The final results for Georgetown County will be based on the 2015-2016 lidar data. The data supplementing will also be employed for Horry County, and therefore, there will be no difference between the two counties for the final maps. All data, plus supplemental info, will be posted on TNC's resilience website.

- Hindcasted maps developed using
 - Stream gages, primary source
 - Worst case scenarios, timing not considered
 - Tide station, primary source
 - High water marks, secondary source (includes ponding water)
 - Deployed sensors, secondary source
 - Product - Hindcasted water elevation surfaces using lidar data to compare with model
 - Note - No inclusion of waves (run-up) in coastal areas, only still water surge levels. May overestimate river flooding and underestimate coastal flooding and ponding in inland areas
- Predicted flood risk values developed using historic information (time series) from
 - Stream gages
 - Tide station
 - Modified with FEMA data and Hurricane Matthew depths (secondary)
 - Products developed from mean and standard deviations for each pixel and comparison to Digital Elevation Model (2004 at present in Georgetown – 2015-2016 lidar for final)

- Category 1 Risks: Developed from ensemble of SLOSH outputs for Georgetown and Horry counties. This "Emergency Planning" info was not used in predicted risk values, but is a stand-alone product.
- Analysis to be posted on TNC's resilience site as a Community Planner app under the Mapping Portal at @ <http://maps.coastalresilience.org/southcarolina/>
- Methodology will be posted to the site under the Projects pages at <http://coastalresilience.org/project/southcarolina/>

Clemson University (Marzieh Motallebi, PhD & Mustapha Alhassan, PhD) will be completing a cost analysis of projects identified during our meeting. Phase I of their work was presented to show example projects from Horry, Georgetown and similar communities with cost for a range of projects. Examples included floodplain restoration, stream restoration, purchased and constructed wetlands, land conservation, municipal planning, low impact development, federal & local buy outs, living shoreline oyster reef. The list of focus areas and projects identified during the meeting along with the cost estimates will be provided to the municipalities for use as future funding is solicited or becomes available.

- In order to complete a local and very specific cost analysis, the following data are required. If this data is not available, then similar projects will be studied from other areas and cost estimates will be based on those projects.

Acquisition / Initial cost

- Personnel / Staff
- Infrastructure, equipment, furniture, vehicle
- Meetings and special events
- Transportation
- Supplies and materials
- Utilities – electricity, water, communication, others
- Miscellaneous (Insurance, registration, etc.)

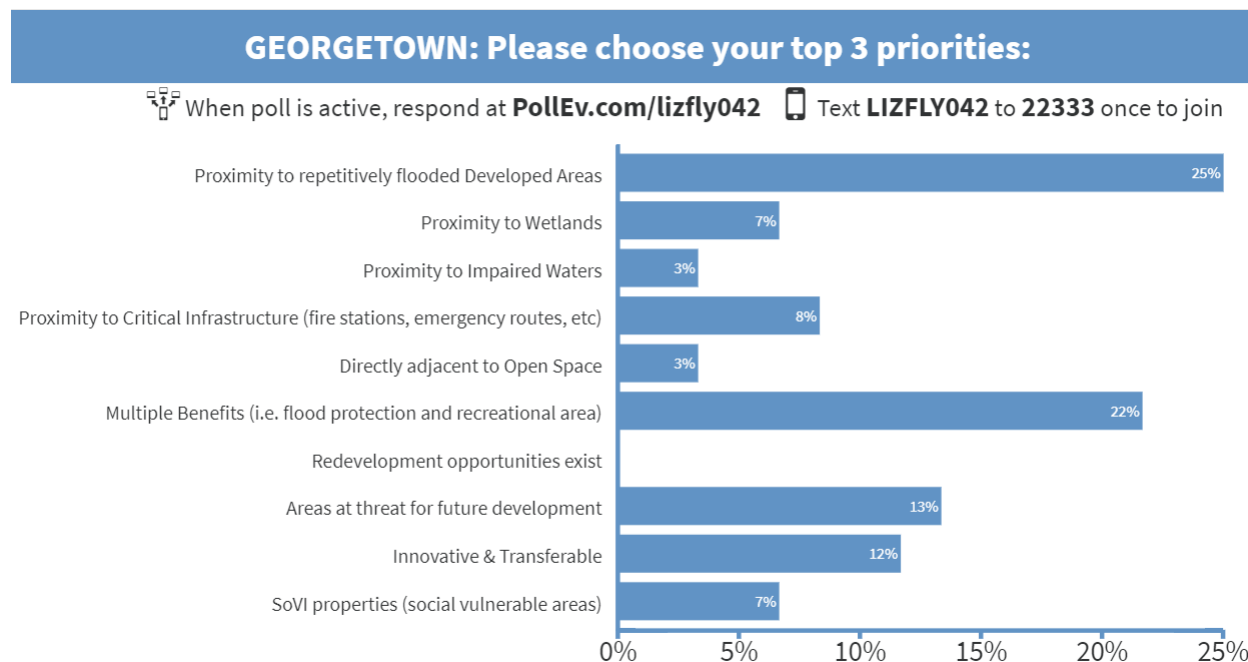
Operation and Maintenance cost

- Personnel / Staff
 - Infrastructure, equipment, furniture, vehicle
 - Meetings and special events
 - Transportation
 - Supplies and materials
 - Utilities – electricity, water, communication, others
 - Miscellaneous (Insurance, registration, etc.)
- The size/area, implementation costs, and operation & maintenance costs are used to find the Present Value of Costs and the Annualized Costs

Developing Priorities

The group determined the top priorities that were going to be used to identify the focus areas by reviewing the priorities that came from North Coast presentation at SC American Planning Association meeting (Nov 2017). The list was discussed and edits were made to remove, add and combine priorities.

Once the list was finalized, voting on top priorities was done via Poll Everywhere and the results are presented below.



The top 4 priorities were selected to use when identifying out focus areas during the break out group work that followed.

1. Proximity to repetitively flooded Developed Areas (25%)
2. Multiple Benefits (i.e. flood protection and recreational area (22%)
3. Areas at threat for future development (13%)
4. Innovative & Transferable (12%).

Focus Area Identification

Attendees were pre-selected to divide into three breakout groups and identify geographic focus areas using 2035 flood prediction maps and based on the top 4 selected priorities.

*yellow highlight represents the locations that received the greatest number of votes in the breakout group

Breakout Group 1: David Bishop

Sel Hemingway
Stephen Williams

Georgetown County – Administrator
Georgetown County – Public Works

Keil Schmid	Geoscience Consultants
Alison Cercy	Lowcountry Land Trust
Maeve Snyder	North Inlet – Winyah Bay NERR
Mark Caldwell	US Fish and Wildlife Service

1. Georgetown (Downtown)

- Most flooding
- Most people
- Engineered solution
- Rainfall and tidal problem
 - Oyster reef can help buffer storms but already has a good marsh

2. Andrews

- Heavy flooding
 - Black River backed up from coming upstream
 - Whole drainage goes to Black River out of Andrews, so when the river pushes back, you can't drain the town
 - Nothing to do with Hurricane Joaquin
 - Experience routine flooding because of drainage system
- Needs engineered solution for infrastructure
- Needs to be mapped

3. Garden City

4. Waccamaw River into Pawleys

5. South end of Pawleys

Other Notes:

- Wirekill Road- acts like a dam and shortens the time water goes back
- Keeping floodplain intact
- Does protecting land benefit public by lowering insurance rates?
- Acquiring wetlands
- Future developments
- Insufficient tidal gauging in lower watershed
- Opportunity is upstream, Georgetown is the end of the line, but it is hard to imagine a better situation (e.g. largely forested, impervious) than what is now Williamsburg County
- Much of the opportunities seem to require engineered solutions in Georgetown

Breakout Group 2: Joy Brown

Marzieh Motallebi	Clemson University
Pam Martin	Coastal Carolina University / Georgetown RISE
Cindy Grace	Georgetown County – Emergency Management Coordinator
Helen Rogers	Lowcountry Land Trust
Jennifer Plunket	North Inlet – Winyah Bay NERR
Rachel Hawes	The Nature Conservancy

*Focused mainly on social vulnerability when discussing projects

1. Front Street – City of Georgetown

- Closed streets
- Repetitive flooding
- Mix of business / residential buildings (on top) in area
- Visible
- Historic
- Economic impact to businesses
- Impacted by recent fire
- Could use an innovative project idea
- Conservation and preservation priority area
- Limited options with FEMA because historic district
- Insurance increases due to repetitive flood costs so the repairs have stopped – will bring down property value

2. West end – City of Georgetown

- Vulnerable populations (children, elderly, homeless, Spanish speaking)
 - Average age 27 years old & county average is 39 years old
- Dilapidated structures
- Heirs property not eligible for FEMA money
- Low income, SoVI
- Lack of movement to shelters
 - Some without transportation
 - Transport provided but unknown to those that need it
- Lack of government trust
- 2000 census: 20% of population with 1,740 residents

3. Town of Andrews

- Multiple flooding areas
- Bigger project for the whole town
- County doing big drainage project & have applied for HMGP grant funds
- Consider also applying for NOAA Resilience funds (recent RFP)

4. Crow Hill Drive – Santee River

- Flooding in heavy rain
- Lack of transport
- Highly vulnerable area (lower socioeconomic population)
- Lack of evacuation route options
 - A few of the evacuation routes flood
- Far from shelters (fire station is the only closest option)

5. Big Dam Swamp & Dunbar / Oatland

- Flooding in 2015 / 2016 storms (Hurricane Joaquin & Hurricane Matthew)
- Opposite side of river from Rocky Point
 - Parks & Recreation project
 - Boat landing
 - Encouraging minorities to use area

6. East Bay – City of Georgetown

- Homes by park

- More affluent residents
- Some historic
- Could be an alternative option to Front Street & West End
 - Potential match situation with a project in the lower income areas
- Recent EPA grant

7. Sampit

- Most impoverished part of the County
- High density of industries
- Low lying area

Breakout Group 3: Liz Fly

Michelle LaRocco	Georgetown County – Department of Public Services
Jim Westerhold	Horry – Georgetown Technical College
Seth Cook	Pee Dee Land Trust
Chris Hernandez	US Fish and Wildlife Service
Mustapha Alhassan	USGS (Clemson Cost Analysis)
Cara Schildtknecht	Waccamaw Riverkeeper

1. Rocky Point Area

- Investments being made
 - Rocky Point (462 acres, Winyah Rivers)
- Road closures and flood issues from riverine flooding in neighborhoods along river

2. Pennyroyal Road – Sampit River area

- Area was recently rezoned industrial
 - Future development threat
- Flood areas along the river

3. Highway 41 / Black River Crossing

- Evacuation route
- Causeway to the bridge closed due to flooding in 2015 and 2016

4. West end – City of Georgetown

- Flooding due to stormwater drainage / rainfall issues
- Age of infrastructure – older homes / buildings
- Less affluent

5. Town of Andrews

- Riverine and drainage (rainfall)
 - Known existing problems
- Need for a study to understand / map existing infrastructure
- Emergency evacuation shelter in Andrews (1 of 2 for the county)
- Buyout options?
- Opportunities for restoration post-buyout?

6. East Bay – City of Georgetown

- Tidal flooding issues
- More affluent

7. Pawleys Island Access Roads

- Tidal, sea level rise, drainage issues

Nature Based Project Identification

The group discussed the focus areas identified, their issues, and the potential projects that could be implemented. This list is being provided to Clemson so they can create a cost analysis that will be provided to Georgetown County.

Discussion highlighted three types of flooding issues: coastal flooding issues, riverine flooding issues, and storm drainage flooding issues.

1. ANDREWS:

- 10 votes
- Watershed analysis to determine what is underground, what is undersized and where are the reoccurring drainage blockages.
- Green infrastructure piloted in areas where runoff is a problem especially pervious surfaces where runoff is a problem – id critical areas via watershed analysis & use existing LID manual (<http://www.northinlet.sc.edu/lid/>).
- Land conservation in Williamsburg County to capture & hold water. Priority areas could be identified in watershed analysis.

2. WEST END – CITY OF GEORGETOWN:

- 10 votes
- Reservoir for storage capacity of water with public green recreation areas included
- Low Impact Development retrofits

3. FRONT STREET – CITY OF GEORGETOWN:

- 8 votes
- “Dutch design” – create areas where you let water in and live with it
- Retreat
- *Seawall & drain/pump system* – would there be a way to make this wall more “natural”?

4. PENNY ROYAL ROAD / SAMPIT:

- 6 votes
- Watershed analysis to identify causes of flooding & potential projects
- Land conservation in upstream area w/ public access
- Projects could be mixed use opportunities

5. ROCKY POINT AREA:

- 5 votes
- Land conservation (especially Pee Dee Land Trust)
 - Couple with recreation amenities & CRS value

6. EAST BAY – CITY OF GEORGETOWN:

- 2 votes
- Living shoreline reef (~4,000’ long) & engineered marsh

7. SOUTH END OF PAWLEYS:

- Marsh Management Plan (ex. Folly Beach)
- Oyster reef installation to protect causeway, reduce flooding, enhance water quality
- *Road elevation suggested for causeway*

8. CROW HILL / SANTEE RIVER:

- Retreat

9. WACCAMAW RIVER INTO PAWLEYS:

- *Projects not discussed in detail because not considered a repetitive flooding area*

10. GARDEN CITY:

- *Engineered solution needed*

11. BIG DAM SWAMP:

- *Projects not discussed in detail because not considered a repetitive flooding area*

12. HIGHWAY 51 BLACK RIVER CROSSING:

- *DOT road raising*

List of Attendees:

Mustapha Alhassan	Clemson University / US Geological Survey
Marzieh Motallebi	Clemson University
Pamela Martin	Coastal Carolina University
Jared T. Bramblett	Davis & Floyd - Engineer
Sel Hemingway	Georgetown County – Administrator
Michelle LaRocco	Georgetown County – Department of Public Services
Cindy Grace	Georgetown County – Emergency Management Division
Stephen Williams	Georgetown County – Department of Public Works
Keil Schmid	Geoscience Consultants
Jim Westerhold	Horry – Georgetown Technical College
Alison Cercy	Lowcountry Land Trust
Helen Rogers	Lowcountry Land Trust
Jennifer Plunket	North Inlet – Winyah Bay NERR
Maeve Snyder	North Inlet – Winyah Bay NERR
Seth Cook	Pee Dee Land Trust
David Bishop	The Nature Conservancy
Joy Brown	The Nature Conservancy
Liz Fly	The Nature Conservancy
Rachel Hawes	The Nature Conservancy
Eric Krueger	The Nature Conservancy
Mark Caldwell	US Fish and Wildlife Service
Chris Hernandez	US Fish and Wildlife Service
Craig Sasser	US Fish and Wildlife Service
Cara Schildtknecht	Waccamaw Riverkeeper