

City of Greenville Floodplain Management Program for Public Information

April 2020



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City of Greenville, North Carolina Program for Public Information (PPI)

Background

The Community Rating System (CRS) is a part of the National Flood Insurance Program (NFIP) that provides reductions to flood insurance premiums in participating communities. Communities participate in the CRS by earning credit for participating in activities intended to manage floodplains, reduce flood risk, and minimize flood vulnerability. Creating a Program for Public Information (PPI) to better inform the public on a range of flood-related topics is one way that communities can earn CRS credit. The City of Greenville (the "City") has been an active participant of the CRS since 1992. The City is currently rated as a Class 7 which rewards residents of the Special Flood Hazard Area (SFHA) with a 15 percent reduction in their flood insurance premiums. Non-SFHA policies (Standard X Zone policies) receive a 5 percent discount, and preferred risk policies receive no discount. To keep those discounts, communities must continue to implement their programs and provide status reports to the NFIP each year.

A PPI is an ongoing effort to prepare, implement, and monitor a range of public information activities. The objective of CRS credit for a PPI is to provide additional credit for comprehensive information programs that are designed to meet local needs, involve local stakeholders, and are monitored, evaluated, and revised to improve their effectiveness. The City has developed its PPI in accordance with the CRS credit criteria found within Activity 330 of the 2017 CRS Coordinator's Manual.

The City of Greenville, through various departments and in coordination with stakeholder groups and outside agencies, has already prepared multiple outreach messages to educate the public on the hazards associated with flooding. With advances in technology and greater familiarity with web-based services, the City has realized that mailing information directly to property owners may not be the most effective method to get certain messages across. The PPI planning process provided an opportunity for the City to consider other options for disseminating messages about the flood hazard to the community.

The following document reviews the planning process used for the development of this PPI and details the outreach strategies that comprise the City's public information program.

Step 1: Establish a PPI Committee

A PPI should assess all the community's needs for flood-related information and coordinate all the resources that can deliver information. It should recommend a range of activities that convey information to residents, businesses, tourists, school children, and other audiences in and around the community. It should have an objective review of what is being done and how public information activities could be improved. Therefore, a PPI needs to be developed by a committee that consists of members from both inside and outside local government. The committee could be an existing committee, such as a mitigation planning committee or advisory board, or a subcommittee of an existing group, as long as it meets the membership criteria found within Activity 330.

1.1 Membership and Stakeholders

The PPI Committee's membership must meet the following CRS criteria:

- There must be at least five people on the committee;
- There must be representation from the community's floodplain management office;
- There must be representation from the community's public information office (if one exists); and,
- At least half of the members must be from outside the local government ("stakeholders").

The CRS encourages the inclusion of stakeholders that are outside the local government in planning and conducting outreach projects. As outlined above, at least one-half of the members of the PPI committee must be representatives from outside the local government. These could be members of the public, representatives of key community organizations, and/or agencies and organizations that would likely implement the recommended outreach projects.

The participants comprising the PPI Committee for the City were selected in accordance with the above CRS criteria and included the following:

- 1. Daryl Norris, City of Greenville Engineering Department, Floodplain Manager
- 2. Eric Griffin, City of Greenville Fire/Rescue Chief /Emergency Manager
- 3. Jordan Anders, City of Greenville Public Information Office
- 4. Cassius Williams, State Farm Insurance
- 5. Jon Day, Jon Day & Associates (Real Estate)
- 6. Joni Torres, Cooperative Extension (Stakeholder)

The following City of Greenville staff members supported the Committee in an advisory capacity:

- 1. Billy Merrill, City of Greenville Engineering Department, Surveyor
- 2. Lisa Kirby, City of Greenville Engineering Department, Director
- 3. Kevin Mulligan, City of Greenville Public Works Department, Director

Committee Meetings

The PPI committee met three times during the planning process to complete the outreach program. During the planning process, the PPI Committee communicated through face-to-face meetings, email and telephone conversations. The meeting dates and topics discussed are detailed below in Table 1.

	Meeting Topic	Meeting Date
PPI #1	Assessment of the community's current public information needs and overview of the PPI planning process	8/22/2019

Table 1 – Summary of PPI Committee Meeting Dates

	Meeting Topic	Meeting Date
PPI #2	Assessment of the flood hazard, exposed buildings, flood insurance coverage, and identification of target audiences and areas. Define outreach messages and other potential outreach projects along with dissemination methods.	10/30/2019
PPI #3	Review the Draft PPI	2/11/2020

Goals for the PPI

The PPI committee developed three primary goals to guide the overall implementation of this document to better educate the public about the flood risks affecting the City and how to protect themselves as well as their homes and businesses from flood damage; and to understand the importance of obtaining and maintaining flood insurance.

Goal 1: Educate the public to recognize the risk associated with flooding and what individuals can do to reduce damage to property and save lives.

Goal 2: Promote the purchase of flood insurance to ensure greater protection of property within the City. **Goal 3:** Increase the preparedness capability of the public to respond to and recover from flood events.

Step 2: Assess the Community's Public Information Needs

The City of Greenville is located in Pitt County in the Coastal Plain of Eastern North Carolina and is part of the Greenville metropolitan area. As of 2017, according to the American Community Survey (ACS) 2013-2017 5-Year Estimates, the population was 90,347. Greenville has a total land area of 34.6 square miles as well as 0.75 square miles of water area. Based on this land area, the average population density is 2,610.7 people per square mile. According to ACS 2013-2017 5-Year Estimates, the median age in the City is 26.8. Approximately 5.6 percent of the population is under 5 years of age, and 9.6 percent of the population is over 65 years of age. The largest segment of the population (28.1 percent) is between 18 to 24 years old, most likely because the city is home to East Carolina University. An estimated 4.9 percent of the population is Hispanic or Latino; 6.4 percent of the population 5 years and over speak a language other than English at home.

Based on ACS 2013-2017 5-Year Estimates, of the 42,041 total housing units in Greenville, 87% were occupied and 13% were vacant. Of the occupied units, 66.5% were occupied by renters. Homeowners may be more likely than renters to make structural improvements or investments in their homes to protect themselves from flooding. It will therefore be important to balance outreach on flood protection measures with information on how to know your flood risk, prepare for flooding, and protect yourself and your family from flooding. Information on flood insurance options for both homeowners and renters will also be useful.

The median household income in the City of Greenville was \$36,496 in 2017 and the median gross rent was \$776. Of renters in the city, 55.8% were paying greater than 30% of their monthly income on rent. In the City, 34.1% of the population between 18 and 64 years of age were living in poverty as compared to 15.3% and 13.7% across the State of North Carolina and the Nation, respectively. Living in poverty may affect these residents' access to information.

Much of the northern portion of the City of Greenville, along the Tar River, falls within Zone AE of the Special Flood Hazard Area (SFHA). Additional areas of Zone AE are interspersed throughout the city along small streams, creeks, and swamps such as Fork Swamp, Green Mill Run, and Swift Creek, among others. Approximately 26.1% of the City of Greenville falls within Zone AE of the SFHA. The remainder of the City is classified as Zone X, or an area with a 0.2 percent chance of flooding in a given

year. In Pitt County, where the City of Greenville is located, the drainage system is made up of the Tar and Neuse Rivers and their many tributaries. The City's Stormwater Management Program is administered by the Engineering Department and utilizes a Stormwater Utility to fund projects meant to address surface water within Greenville. The fund provides for maintenance of the City's drainage system as well as protecting properties from flooding.

The topography of Greenville is relatively flat. Low-lying areas of Greenville are subject to periodic flooding from the Tar River, Green Mill Run, and their tributaries. The most severe flooding on the Tar River is usually due to heavy rains from tropical storms while creek flooding results primarily from local thunderstorms. While stream flooding may occur during any season, the most severe flooding is usually a result of abnormally high levels of precipitation or stream channel overflow. Particularly, this occurs following tropical storms and local thunderstorms in the spring and summer months.

According to data from the NOAA National Centers for Environmental Information, the average annual precipitation in Pitt County from 1960 to 2018 is over 50 inches. However, as shown in the graph on the following page, in recent years the area has consistently received more rainfall than this average, which may reflect a new normal. Additionally, from 1960 through 2018, average rainfall is trending upwards at a rate of 0.83" per decade. Thus, with greater rainfall flooding may become an increasing issue in the City of Greenville.



Source: NOAA National Centers for Environmental information, Climate at a Glance: U.S. Time Series, Precipitation, published February 2018, retrieved on June 21, 2018 from http://www.ncdc.noaa.gov/cag/

Flooding along the Tar River and other streams within the City is due to prolonged heavy rainfall or stream channel overflow. Inadequate main channels may prevent timely removal of accumulated surface water and lead to flooding. Major storms affecting the Greenville area reported by the Flood Insurance Study (FIS) for Pitt County and NOAA's National Centers for Environmental Information (NCEI) since 1999 include Hurricane Floyd (1999), Hurricane Isabel (2003), Tropical Storm Ernesto (2006), and Hurricane Matthew (2016), among others. Not only do hurricanes create floods, but they may cause erosion along the banks of rivers and streams. NCEI also reports numerous flood events associated with cold fronts,

thunderstorms, and excessive rain events. Some such events resulted from a combination of tropical depressions and other weather events.

2.1 Delineate Target Areas

In order to develop an effective local outreach program that raises public awareness about flood related issues, it is necessary to identify and assess the areas within the community that are considered to be flood-prone. The PPI Committee identified the following target areas and concluded that outreach projects should be directed to all properties (residential, commercial and public) within these areas:

Target Area #1: Special Flood Hazard Areas within the City

According to the FIS and Flood Insurance Rate Map (FIRM) prepared by FEMA, revised on July 7, 2014, approximately 26% of the City is located within a Special Flood Hazard Area (SFHA). Figure 1 reflects the mapped flood insurance zones for the City.

Table 2 is a summary table that shows the building count and improved value of parcels by FEMA flood zone. Based on this analysis, 1,302 buildings fall within the 1% annual chance floodplain and have a total value of \$177,538,359, which comprises 12.7% of the total building value in the City. Additionally, there are 240 buildings in the moderate risk zone with a value of \$34,634,573. Note: Building counts provide an estimate of structures at risk; however, the buildings may or may not be insurable.

Table 2 – Parcel Count by FEMA Flood Zone						
Flood Zone	Total Building Count	Improved Value				
Zone AE	1,302	\$177,538,359				
Zone X (Shaded)	240	\$34,634,573				
Zone X (Unshaded)	8,840	\$1,182,502,045				
Total	10,382	\$1,394,674,977				

Source: Pitt County GIS, FEMA DFIRM via NCFRIS



Figure 1 – Greenville Special Flood Hazard Areas

Target Area #2: Repetitive Loss Areas

An analysis of repetitive loss was completed to examine the number of repetitive loss properties in relation to FEMA flood zones and the extent to which these properties are insured. According to 2018 NFIP records, there are 17 repetitive loss properties in the City of Greenville, and these properties have received a total of \$1,079,287 in paid claims. However, five of these properties have since been mitigated. Of the remaining 12 repetitive loss properties, 67 percent are insured. Table 3 details FEMA flood zones, insurance coverage, and total payment by property for all repetitive loss properties in Greenville.

Flood	Mitigation		Buildi	Building Count		Total Building	Total	
Zone	Mitigated	Unmitigated	Insured	Uninsured	Losses	Payment	Content Payment	Total Paid
A10	Х			х	3	88,307.41	4,171.99	92,479.40
С	Х			Х	2	12,969.00	19,272.29	32,241.29
A07	Х			Х	2	18,241.50	0.00	18,241.50
A06	Х			Х	2	4,043.15	0.00	4,043.15
AE		Х	Х		4	450,393.82	4,569.36	454,963.18
AE		Х		Х	4	74,505.64	0.00	74,505.64
С	Х			х	4	21,375.53	4,160.10	25,535.63
A06		Х		х	3	20,276.26	0.00	20,276.26
А		Х	Х		3	26,075.43	104.78	26,180.21
AE		Х	Х		3	60,381.75	3,262.72	63,644.47
Х		Х		Х	2	20,449.91	1,806.65	22,256.56
С		Х	Х		2	30,266.72	0.00	30,266.72
Х		Х	Х		2	53,274.49	2,032.27	55,306.76
AE		Х	Х		2	14,203.74	0.00	14,203.74
AE		Х	Х		2	16,424.65	10,000.00	26,424.65
Х		Х		Х	2	15,630.28	0.00	15,630.28
A07		Х	Х		2	103,087.37	0.00	103,087.37
Total	5	12	8	9	44	\$1,029,906.65	\$49,380.16	\$1,079,286.81

Source: NFIP Repetitive Loss Data, 2018

Properties categorized as repetitive loss properties have a greater need for flood protection. Since FEMA wants communities to address their repetitive loss problems because of the large drain on the NFIP Fund, the PPI committee wanted to take further action to specifically target repetitive loss areas for outreach. The committee identified 9 repetitive loss areas within the City with a total of 48 properties. These designated areas consist of repetitive loss properties, historical claims properties, and properties without any past claims but with similar flood conditions to the repetitive loss areas in relation to the mapped floodplains. The details of the repetitive loss areas are included within the City's Repetitive Loss Area Analysis (RLAA).



Figure 2 – Repetitive Loss Properties and FEMA Flood Zones

It should be noted that several of the City's Repetitive Loss Areas, including Areas 1, 2, 3, and 9, correspond with known transportation flooding hot spots identified by the City of Greenville Engineering Department. These transportation flooding hot spots include areas that experience significant stormwater flooding related to transportation infrastructure development, including inadequately sized culverts and other stormwater drainage issues. These hot spot areas are shown in Figure 3.





Target Area #3: Shaded X Zone

Because floods can happen almost anywhere and outside of the 1% annual chance flood or high-risk Zones A/AE/AH, the PPI Committee wanted to make sure that a focus of flood preparedness extended beyond the boundaries of the SFHA. Specifically, the PPI committee wanted to focus flood outreach on the residents and business owners near the moderate risk Shaded X flood zone (500-yr floodplain), where

Nearly **1 in 5** past flood claims have been made outside the SFHA in X Zones.

properties may experience flooding but where insurance coverage and flood awareness is often lower than in high-risk zones. The mapped flood insurance zones for the City are shown in Figure 1. The Shaded X Zone accounts for 645 acres in Greenville, totaling 2.8% of the City's land area.

Target Area #4: Multi-Family Buildings

According to the American Community Survey 2017 5-Year Estimates, 66.5% of occupied housing in Greenville is renter-occupied. Renters are generally a more transient population than homeowners and, as a result, are less likely to be aware of the flood conditions of their area.

Much of the renter population in the City can be attributed to the presence of East Carolina University (ECU) and Pitt Community College (PCC). In the 2018-2019 academic year, enrollment at ECU was 28,718 students. During the 2017-2018 academic year, enrollment at PCC was 11,325 students. It is possible that

students would be less likely to purchase flood insurance coverage for their contents given affordability issues; however, no research to support this hypothesis could be found. Nonetheless, the PPI Committee concluded that these individuals may lack the information and awareness of flood hazards that homeowners and long-time residents may possess and felt it important to target students and renters to better inform them of their flood risks and the ways they can protect themselves.

The PPI committee assumed that the majority of multi-family housing in the City is renter-occupied and decided to target these properties as a way to reach students and renters.

Target Audience/Area #5: Real Estate Agents, Lenders, and Insurance Agents

This group plays an essential role in delivering information about flood insurance and flood risk to homeowners. The PPI committee will ensure that this group obtains essential knowledge and has the tools with which to communicate flood risk and insurance information to citizens.

Target Areas Summary

An analysis of the four target areas described above concluded the following which was considered in the formulation of messages for the PPI:

- 1. The entire city and all flood zones are subject to flooding, and the PPI should strive to reach all residents and businesses within the city, but especially those within the SFHA, which covers 26 percent of the city's total area.
- 2. Repetitive loss properties are distributed across flood zones with 35 percent of properties located outside of the SFHA in Zones C and X. One third of unmitigated repetitive loss properties are not insured.
- 3. There are 240 buildings located within the Shaded Zone X flood zone with an estimated value of \$34,634,573. These property owners need to be made aware that they are subject to flood risk and that flood insurance is available to them.
- 4. Over 66% of occupied housing is renter-occupied. Many of these renters are students. These individuals are likely less aware of their flood risks and should receive targeted information flood hazard information.
- 5. Transportation is an important consideration for flood-related outreach to all target areas insofar as it concerns evacuation. Greenville is located on US 264, which is the major evacuation route for Greenville residents to evacuate further inland. US 264 is also an important evacuate route for North Carolina's coastal areas during hazard events. Ensuring that residents understand that this is their evacuation route is important to include as an outreach message in this program.

2.2 Assess Flood Insurance Coverage

One valuable source of information on flood hazards is current flood insurance data for active policies and past claims. Flood insurance is required as a condition of federal aid for a mortgage or loan that is federally insured for a building located in a FEMA flood zone. NFIP data for the City was analyzed to examine the following points:

- 1. Where do active flood insurance policies exist?
- 2. Where have flood insurance claims been paid in the past?
- 3. How many buildings are exposed to the flood hazard versus how many buildings have coverage?
- 4. How does the average amount of coverage compare to the amount of expected flood damage from the 100-yr flood?

Figure 4 on the following page depicts the location of active flood insurance policies as of May 2018 in relation to FEMA flood zones and identifies general areas where there are policy gaps geographically. General areas of policy gaps are circled in yellow on the map and described below.

There is a significant concentration of polices throughout the AE Zone, but some gaps remain. Policy coverage could be increased along Fork Swamp and its branches in the southern portion of the City. Commercial areas of central Greenville near East Carolina University could also be targeted for flood insurance outreach. Finally, north of downtown in the Tar River floodplain, flood insurance coverage could be increased in the AE and Shaded X zones. In particular, properties in Zone X can be targeted for coverage with Preferred Risk Policies.



Figure 4 – Flood Insurance Policies in Force

Greenville has been a Regular participant in the NFIP since July 1978. The following tables reflect NFIP policy and claims data for the City categorized by structure type, flood zone, Pre-FIRM and Post-FIRM. The number of insurance policies, premiums, and insurance coverage are current as of September 30th, 2019. The last two columns in each table show the number of historic paid losses and their amounts since Greenville's entry into the NFIP.

Table 4 shows the number of current insurance policies by occupancy type. This includes the total premiums residents have paid for coverage, the total active coverage, and historic total paid losses and amounts. Approximately 65 percent of the active policies in Greenville are for single family residential homes.

Occupancy	Number of Policies in Force	Total Premium	Insurance in Force	Number of Closed Paid Losses	Total of Closed Paid Losses
Single Family	823	\$385,547	\$180,810,500	296	\$8,632,619.44
2-4 Family	160	\$69,122	\$19,965,600	93	\$3,932,602.50
All Other Residential	142	\$80,616	\$38,479,100	52	\$4,676,908.46
Non Residential	135	\$397,612	\$62,777,100	55	\$3,893,708.42
Total	1,260	\$932,897	\$302,032,300	496	\$21,135,838.82

Table 4 -	- NFIP Policy	and Claims Data	by Occupancy Type
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Source: FEMA Community Information System as of 09/30/2019

Table 5 provides information on insurance policies by flood zone. Over 50 percent of current insurance policies are located in the A01-30 and AE flood zones while almost 40 percent are preferred risk policies in the B, C, and X zones.

Flood Zone	Number of Policies in Force	Total Premium	Total Coverage	Number of Closed Paid Losses	Total of Closed Paid Losses			
A01-30 & AE Zones	640	\$645,007	\$136,876,800	393	\$18,420,257.98			
A Zones	0	\$0	\$0	9	\$182,056.84			
B, C & X Zone								
Standard	136	\$86,657	\$29,447,400	61	\$2,035,791.88			
Preferred	475	\$195,833	\$135,394,000	33	\$497,732.12			
Total	1,251	\$927,497	\$301,718,200	496	\$21,135,838.82			

Table 5 – NFIP Policy and Claims Data by Flood Zone

Source: FEMA Community Information System as of 09/30/2019

Table 6 shows insurance policy information for Pre-FIRM buildings by flood zone. A Pre-FIRM building, as defined by FEMA, is one in which construction or substantial improvements occurred either before December 31, 1974 or before the effective date of the community's initial Flood Insurance Rate Map (FIRM). In Greenville, this is the date of the initial FIRM, July 3, 1978. As of September 30, 2019, 321 Pre-FIRM buildings in the City of Greenville were insured. Table 6 shows that pre-FIRM buildings make up only 25.7% of active policies but account for over 52.6% percent of all paid claims.

Flood Zone	Number of Policies in Force	Total Premium	Total Coverage	Number of Closed Paid Losses	Total of Closed Paid Losses			
A01-30 & AE Zones	176	\$306,646	\$32,066,800	212	\$11,282,348.56			
A Zones	0	\$0	\$0	9	\$182,056.84			
B, C & X Zone	B, C & X Zone							
Standard	24	\$19,567	\$6,805,500	25	\$718,622.33			
Preferred	121	\$50,836	\$35,849,000	15	\$252,815.11			
Total	321	\$377,049	\$74,721,300	261	\$12,435,842.84			

Table 6 – NFIP Policy and	l Claims Data Pre-FIRM
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Source: FEMA Community Information System as of 09/30/2019

Table 7 breaks down the insurance policies of Post-FIRM buildings by flood zone. Post-FIRM buildings, as defined by FEMA, are buildings that were either constructed or substantially improved after December 31, 1974, or on or after the effective date of the community's initial FIRM, whichever is later; in the City of Greenville's case it is the date of the initial FIRM, which was July 3, 1978. Three-fourths of policies in Greenville (summarized in Table 5) are Post-FIRM buildings.

Flood Zone	Number of Policies in Force	Total Premium	Total Coverage	Number of Closed Paid Losses	Total of Closed Paid Losses		
A01-30 & AE Zones	464	\$338,361	\$104,810,000	180	\$7,070,145.64		
A Zones	0	\$0	\$0	0	\$0.00		
B, C & X Zone	B, C & X Zone						
Standard	112	\$67,090	\$22,641,900	36	\$1,317,169.55		
Preferred	354	\$144,997	\$99,545,000	18	\$244,917.01		
Total	930	\$550,448	\$226,996,900	234	\$8,632,232.20		

Table 7 – NFIP Policy and	Claims Data Post-FIRM
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Source: FEMA Community Information System as of 09/30/2019

Table 8 compares the policies in force with the number of buildings located within each flood zone and identifies the percent of buildings insured.

Flood Zone	Number of Policies in Force	Number of Buildings	% Insured
A01-30 & AE Zones*	640	1,302	49.2%
B, C & X Zone	611	9,080	6.7%
Total	1,251	10,382	12.0%

Table 8 – Percentage of Buildings Insured

Source: FEMA Community Information System as of 09/30/2019; North Carolina IRISK Database; FEMA DFIRM via NC FRIS

The notable statistic in Table 8 is that while there are 1,302 buildings located within the 1-percent-annualchance flood zone, less than half of these buildings carry an active flood insurance policy. Furthermore, only 6.7% of buildings within the X Zone are insured, but flooding is not limited to the 100-yr flood zones as evidenced by the fact that 19% of paid claims were made in the B, C, and X Zones, and six repetitive loss properties were in Zones C and X.

Table 9 compares number of buildings present, number of policies in force, total coverage and a calculation of the loss estimate value for the 100-year flood. The loss estimate was calculated using the NC IRISK database. Note that this loss estimate is for a modeled 1-percent annual chance flood and therefore available data did not include any flooding in B, C, or X Zones. However, these areas are not without flood risk; a flood greater than the modeled 1-percent annual chance flood would likely cause

damages in some of these areas. Additionally, this loss estimate does not account for possible damages from localized stormwater flooding.

Flood Zone	Number of Buildings	Number of Policies in Force	Building Value	Total Coverage	Loss Estimate
A01-30 & AE Zones	1,302	640	\$177,538,359	\$136,876,800	\$20,816,558
B, C & X Zone ¹	9,080	611	\$1,217,136,618	\$164,841,400	n/a
Total	10,382	1,251	\$1,394,674,977	\$301,718,200	\$20,816,558

Source: FEMA Community Information System as of 09/30/2019; North Carolina IRISK Database; FEMA DFIRM via NC FRIS

¹Loss estimates were based on flood depths for the 1-percent annual chance floodplain, so they could not be calculated for the B, C, and X Zones.

An analysis of existing flood insurance coverage for Zone AE shows that total coverage is less than total building value but exceeds the loss estimate for the 1%-annual-chance flood event. However, although overall coverage may exceed estimated losses, coverage is not uniformly applicable to losses; this statistic does not take into account the large number of uninsured properties in the City (50.8%) that would have no coverage in the event of a flood loss. Therefore, there is a need to increase the flood insurance coverage in the City by increasing the number of policyholders.

Additionally, while building coverage appears adequate, there may be a need to increase contents coverage, particularly since many residents are renters. An analysis of 2018 NFIP data showed active policies with building contents coverage totaling \$59,245,200. Over 38% of current active policies did not include contents coverage, and only 32 of the 1150 active policies in the community (2.8%) were contents only coverage.

Insurance Assessment Conclusions:

- 1. Throughout the entire community, 12% of buildings across all flood zones are covered by a flood insurance policy; therefore, 88% are not.
- 2. Only 6.7% of the buildings in the X Zones have a flood insurance policy and 77.7% of those policies are preferred risk policies. However, buildings in the X Zone account for 19.0% of past claims.
- 3. Pre-FIRM buildings make up only 25.7% of active policies but account for over 52.6% of all paid claims.

Insurance Assessment Recommendations:

- 1. Encourage property owners in Zone AE to retain a flood insurance policy, as these structures are at the highest risk for flooding.
- Encourage the purchase of Standard or Preferred Risk X Zone policies. Current active policies only cover 12.0% of all buildings in the City of Greenville including only 6.7% of the buildings in the X Zone.
- 3. Encourage the purchase of contents coverage for renters and homeowners who currently only have building coverage or no current coverage.

Repetitive Flooding: An analysis of repetitive loss was completed to examine the number of insured repetitive loss properties against FEMA flood zones. According to 2018 NFIP records, there are 12 unmitigated repetitive loss properties with a total payment of \$906,745.84. Of these unmitigated repetitive loss properties, one-third are uninsured. Table 3 details FEMA flood zones, insurance coverage, and total payment by property.

2.3 Determine Target Audiences

In addition to evaluating flooding problem spots to identify target areas, the PPI Committee considered the community's demographics and economic factors to identify target audiences. As of the 2017 Census population estimates, the City of Greenville ranked 10th in size in North Carolina. The City has added more than 9 percent in population since 2010.

These social and economic factors were considered by the PPI committee in identifying target audiences and ensuring that the right messages, tools, and resources were used to overcome obstacles. The committee also considered known flooding problems, such as localized stormwater flooding, and the already identified target areas in order to target audiences for outreach. The committee recognized that messages would need to be distributed in different forms and using different sources in order to reach all target audiences. The following groups have been identified as target audiences who need special messages on flood protection:

Target Audience #1: Spanish Speaking Population

Approximately 3.3% of the population in Greenville speaks Spanish and over a third of those Spanishspeakers having a low proficiency in English. The PPI committee recognized that providing Spanish materials and messaging targeted toward the Spanish-speaking population will ensure that this portion of the population does not miss important flood-related information due to a language barrier.

Target Audience #2: Elderly Population

Nearly 10% of the City's population is age 65 or older. Older individuals may face challenges in accessing information. Additionally, they may have difficulty evacuating during a flood event. The PPI Committee wanted to ensure that elderly individuals are well informed of their flood risk and of the resources available to help them.

Target Audience #3: HVAC Contractors

Elevating HVAC and electrical equipment and mechanical systems is a simple and effective mitigation measure to protect property and HVAC contractors need to know about any community happenings including regulations because they must ensure that HVAC units are properly elevated and have two feet of freeboard. The City will make sure this group is informed and equipped with the tools needed to properly install HVAC and mechanical equipment for property protection from flooding and to convey flood risk and the importance of property protection to residents.

Target Audience/Area #4: Real Estate Agents, Lenders, and Insurance Agents

This group plays an essential role in delivering information about flood insurance and flood risk to homeowners. The PPI committee will ensure that this group obtains essential knowledge and has the tools with which to communicate flood risk and insurance information to citizens.

2.4 Inventory of Other Public Information Efforts

A key part of developing a public information program is becoming aware of other public information activities targeted at City residents. The information in Table 10 came from past projects, staff research, and PPI Committee members. Knowing what messages are currently reaching the residents of the City is essential in determining what types of projects or messages are effective, which ones may need to be revised, and what new projects are necessary to encourage residents and businesses to adopt behaviors to protect their property and their lives and to make the City more resilient.

Organization	Project	Subject Matter	Frequency
Engineering Department	Flood Information website	Various flood-related topics; definitions; links to additional information	Year-Round
City of Greenville Planning & Development Services Department	Brochures	Brochures regarding various flood-related topics are located at 4 locations throughout the City	Year-Round
Pitt County Public Library	Various Publications	Various flood-related topics; locally pertinent documents	Year-Round
Pitt County	Floodplain Information website	Various flood-related topics; property protection measures; substantial damage rules; drainage system maintenance; natural and beneficial floodplain functions; etc.	Year-Round
North Carolina Emergency Management	ReadyNC website; Flood Risk Portal; Flood Risk Information System	Various flood-related topics; evacuation information; flood gage data; property risk; floodplain mapping information	Year-Round

Table 10 –	Fristing	Public	Information	Ffforts
	LAISUING	FUDIC	momation	LIIUIUS

Examples of Existing Outreach Projects



Step 3: Formulate Messages

After reviewing the Community Needs Assessment, the PPI Committee reviewed the existing outreach projects and their dissemination methods and developed the following priority messages. Table 11 summarizes each message and the desired outcome. Topics A through F are the CRS Activity 330 Priority Topics and Topics G through J are the additional topics identified by the PPI Committee.

The 10 topics below are covered by a variety of outreach projects which are listed in Table 12.

	Торіс	Message	Outcome(s)
А.	Know your	1. Your property is subject to flooding	Increase number of FIRM inquires
	flood hazard	2. Your property is in a repetitively flooded area	Reduce future repetitive loss properties
в.	Insure your	 You need to buy flood insurance; your homeowner's policy does not cover flood damage 	Increase number of flood insurance policies
	property	2.Buy renters contents insurance to protect your valuables from flood damage	Reduce damage to contents
C.	Protect yourself and your family	1 . Know the flood warning signals	Reduce rescues and deaths
	property	1.Elevate HVAC exterior units	Reduce number of flood damaged HVAC units
	from the hazard	2.Grant monies are available to elevate your home	Increase financial opportunities
		1.Get a permit before you start construction	Reduce citations/violations
Ε.	Build responsibly	2.Know the substantial damage rules	Reduce citations/violations
		3.Keep areas open (setbacks) between homes and property lines	Maintain proper drainage
F.	Protect	 Don't throw trash or debris in streams, channels, open bodies of water, or storm drains 	Reduce pollution and overbank flow
	natural floodplain	2.Report erosion control measures not working	Contain erosion on construction sites
	functions	3 .Don't disturb natural floodplain areas	Reduce grading, fill, and earth movement
G.	Hurricane Preparedness	 Prepare a safety checklist and an emergency supply kit 	Protect family and reduce damage
н.	Turn around, don't drown	1 . Don't drive through flooded streets	Reduce rescues and deaths
١.	Flood education	 Flood waters contain contaminants and other health hazards 	Reduce infections and injuries from flood cleanup activities
J.	Buy flood insurance in low risk flood zones	 Buy lower cost flood insurance outside of SFHA in X-Zone or C-Zone to protect your home 	Increase number of flood insurance policies including peace of mind coverage or Preferred Risk Policies

Table 11 – Messages	and	Desired	Outcomes
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Step 4: Identify Outreach Projects to Convey the Messages

The overall strategy is to make information available to target audiences in a manner that will encourage each audience to adapt behaviors to improve preparedness and decrease future flood damage. The PPI Committee identified 16 existing and new projects and initiatives to implement during 2020. These projects are organized by target area, audience, and message in Table 12.

In addition to projects that are implemented every year, the PPI Committee recommends Flood Response Projects which will be implemented during and after a flood. These projects are drafted and made ready for production and dissemination after a flood warning. These projects are listed at the end of Table 12.

Step 5: Examine Other Public Information Initiatives

The PPI Committee and City staff worked together to identify other Public Information Initiatives (PII) which provide additional information to citizens in the city and to improve access to information and services provided by the City. These PII projects are listed at the bottom of Table 12. These other public information initiatives include:

Activity 320: The City will continue to provide information on areas that are at risk to flooding. The City will also publicize Activity 320 on its updated website to encourage more map inquiry requests from the public. The service is also publicized in the updated Flood Protection Brochure See **PII #1**.

Activity 350: The City will update its website to provide information on each of the six CRS Priority Topics as well as the four Additional Topics developed by the Committee. The updated website will also include links to additional flood awareness and preparedness resources, including Floodsmart.gov, Pitt County Emergency Management, North Carolina Emergency Management, and FEMA. See **PII #2**.

Activity 360: The City will provide one-on-one advice about property protection and will make site visits to assess a property owner's site-specific flood conditions. This service of property protection advice and property protection after a site visit will be publicized on the City's website to increase requests for assistance by public. See **PII #3**.

Step 6: Implement, Monitor and Evaluate the Program

6.1 Adoption

This document will become effective when it is adopted by the City Council.

6.2 Evaluation

The PPI Committee and City staff will monitor the projects as they are developed, as well as the results. They will record inputs from PPI Committee members and suggestions from other City employees and stakeholders. That input will be sent by e-mail to committee members for consideration and evaluation.

The PPI Committee will meet annually to review the implementation of these projects and initiatives. At that time, the status of the projects and progress toward the outcomes will be discussed. The Committee will recommend to the appropriate City offices and the stakeholders who implement projects whether the projects should be changed or discontinued. The Committee will meet and review the outcomes of each activity to change, add, or approve them. Table 12 will be revised as needed. A report will be submitted to the City Council explaining the annual changes to the PPI projects, messages, and outcomes. The outcomes and revisions will be submitted as part of the City's annual recertification package to the CRS and submitted to the City Council for their review and consideration.

Target Area /	Topic(s)	Message(s)	Project(s)	Assignment	Schedule	Stakeholder		
Audience(s)	(See Table 11)	(See Table 11)		Assignment	Schedule	Stakenolder		
Outreach Projects								
	Topic A Know Your Flood Hazard Topic B Insure Your Property Topic C Protect Yourself and Your Family	A. 1, 2 B. 1, 2 C. 1	OP #1 Mail updated Flood Protection Brochure to all property owners in SFHA annually.	Engineering Department	Annually	N/A		
	Topic D Protect Your Property from the Hazard Topic E Build Responsibly Topic F Protect Natural Floodplain Functions	D. 1, 2 E. 1, 2, 3 F. 1, 2, 3	OP #2 Place the updated Flood Protection Brochure at 5 different locations which are listed on page 25.	Engineering Department	Year-Round	N/A		
	Topic G Hurricane Preparedness Topic H Turn Around Don't Drown Topic I Flood Education Topic J Buy Flood Insurance in Low Risk Zones	G. 1 H. 1 I. 1 J. 1	OP #3 Provide NFIP brochures on benefits of flood insurance at 5 different locations which are listed on page 25.	Engineering Department	Year-Round	FEMA (NFIP)/ Insurance Agents		
Target Area #1: Special Flood	Topic A Know Your Flood Hazard Topic D Protect Your Property from the Hazard Topic E Build Responsibly Topic F Protect Natural Floodplain Functions Topic H Turn Around Don't Drown Topic I Flood Education	A. 1, 2 D. 1, 2 E. 1, 2, 3	OP #4 Continue the Paint the Drain program to stencil flood awareness messages on stormwater inlets.	Engineering Department	Year-Round	ECU		
Hazard Area (SFHA)		F. 1, 2, 3 H. 1 I. 1	OP #5 Post signage indicating historical high-water marks along greenway trails and parks.	Recreation & Parks Department	Year-Round	N/A		
	Topic A Know Your Flood Hazard Topic D Protect Your Property from the Hazard Topic E Build Responsibly	A. 1 D. 1 E. 2	OP #6 Make an informational brochure educating homeowners and HVAC contractors on the need to elevate HVAC units for flood protection available at 5 different locations , listed on page 25.	Planning & Development Services Department	Year-Round	N/A		
			OP #7 Maintain Copies of Substantial Damage rules and regulations (flyer) at 5 different locations , listed on page 25.	Planning & Development Services Department	Year-Round	N/A		
Target Area #2: Repetitive Loss Areas	Topic A Know Your Flood Hazard Topic B Insure Your Property Topic C Protect Yourself and Your Family Topic D Protect Your Property from the Hazard Topic E Build Responsibly Topic F Protect Natural Floodplain Functions Topic G Hurricane Preparedness Topic H Turn Around Don't Drown Topic I Flood Education Topic J Buy Flood Insurance in Low Risk Zones	A. 1, 2 B. 1, 2 C. 1 D. 1, 2 E. 1, 2, 3 F. 1, 2, 3 G. 1 H. 1 I. 1 J. 1	OP #8 Mail updated Flood Protection Brochure to all property owners in Repetitive Loss Areas annually.	Engineering Department	Annually	N/A		

Table 12 – PPI Projects and Initiatives

Target Area / Audience(s)	Topic(s) (See Table 11)	Message(s) (See Table 11)	Project(s)	Assignment	Schedule	Stakeholder		
Outreach Projects								
Target Area #3: Zone X Target Area #4: Multi- Family Buildings (Renters)	Topic A Know Your Flood Hazard Topic B Insure Your Property Topic C Protect Yourself and Your Family Topic D Protect Your Property from the Hazard	A. 1, 2 B. 1, 2 C. 1 D. 1, 2	OP #3 also applies to this Target Area.	Engineering Department	Year-Round	FEMA (NFIP)/ Insurance Agents		
	Topic E Build Responsibly Topic F Protect Natural Floodplain Functions Topic G Hurricane Preparedness Topic H Turn Around Don't Drown Topic I Flood Education Topic J Buy Flood Insurance in Low Risk Zones	E. 1, 2, 3 F. 1, 2, 3 G. 1 H. 1 I. 1 J. 1	OP #9 Incorporate a topic from the updated 10-topic Flood Protection Brochure each month on the City's Twitter Account.	Public Information Office	Monthly	N/A		
	Topic A Know Your Flood Hazard Topic B Insure Your Property Topic C Protect Yourself and Your Family Topic D Protect Your Property from the Hazard Topic E Build Responsibly	A. 1, 2 B. 1, 2 C. 1 D. 1, 2 E. 1, 2, 3	OP #10 Mail the updated Flood Protection Brochure to residents of multi-family buildings.	Engineering Department	Annually	ECU & PCC		
	Topic F Protect Natural Floodplain Functions Topic G Hurricane Preparedness Topic H Turn Around Don't Drown Topic I Flood Education Topic J Buy Flood Insurance in Low Risk Zones	F. 1, 2, 3 G. 1 H. 1 J. 1	OP #4 also applies to this Target Area.	Engineering Department	Year-Round	ECU		
Spanish Speaking Population	Topic A Know Your Flood Hazard Topic B Insure Your Property Topic C Protect Yourself and Your Family Topic D Protect Your Property from the Hazard Topic E Build Responsibly	A. 1, 2 B. 1, 2 C. 1 D. 1, 2 E. 1, 2, 3	OP #11 Place a Spanish version of the updated Flood Protection Brochure at 5 different locations which are listed on page 25.	Engineering Department	Year-Round	N/A		
	Topic F Protect Natural Floodplain Functions Topic G Hurricane Preparedness Topic H Turn Around Don't Drown Topic I Flood Education Topic J Buy Flood Insurance in Low Risk Zones	F. 1, 2, 3 G. 1 H. 1 I. 1 J. 1	OP #12 Place a Spanish version of NFIP brochures on benefits of flood insurance and that insurance can be purchased in an X Zone at 5 different locations which are listed on page 25.	Engineering Department	Year-Round	FEMA (NFIP)		

Target Area / Audience(s)	Topic(s) (See Table 11)	Message(s) (See Table 11)	Project(s)	Assignment	Schedule	Stakeholder		
Outreach Projects								
Elderly Population	Topic A Know Your Flood Hazard Topic B Insure Your Property Topic C Protect Yourself and Your Family Topic D Protect Your Property from the Hazard Topic E Build Responsibly Topic F Protect Natural Floodplain Functions Topic G Hurricane Preparedness Topic H Turn Around Don't Drown Topic I Flood Education Topic J Buy Flood Insurance in Low Risk Zones	A. 1, 2 B. 1, 2 C. 1 D. 1, 2 E. 1, 2, 3 F. 1, 2, 3 G. 1 H. 1 I. 1 J. 1	OP #13 Give an annual presentation to the Council on Aging on the 10 topics in the updated Flood Protection Brochure.	Planning & Development Services Department	Year-Round	Council on Aging, NC Cooperative Extension		
HVAC Contractors	Topic A Know Your Flood Hazard Topic D Protect Your Property from the Hazard Topic E Build Responsibly	A. 1 D. 1 E. 2	OP #6 also applies to this Target Audience.	Planning & Development Services Department	Year-Round	N/A		
			OP #7 also applies to this Target Audience.	Planning & Development Services Department	Year-Round	N/A		
Real Estate Agents, Lenders, and Insurance Agents	Topic A Know Your Flood Hazard Topic B Insure Your Property Topic C Protect Yourself and Your Family Topic D Protect Your Property from the Hazard Topic E Build Responsibly Topic F Protect Natural Floodplain Functions Topic G Hurricane Preparedness Topic H Turn Around Don't Drown Topic I Flood Education Topic J Buy Flood Insurance in Low Risk Zones	A. 1, 2 B. 1, 2 C. 1 D. 1, 2 E. 1, 2, 3 F. 1, 2, 3 G. 1 H. 1 I. 1 J. 1	OP #14 Mail updated Flood Protection and NFIP brochures on the benefits of flood insurance to Real Estate Agents, Lenders, and Insurance Agents with the annual Activity 320 mailing.	Planning & Development Services Department	Year-Round	Real Estate, Lending, and Insurance Agents		
Entire Community	Topic A Know Your Flood Hazard Topic B Insure Your Property Topic C Protect Yourself and Your Family Topic D Protect Your Property from the Hazard	A. 1, 2 B. 1, 2 C. 1 D. 1, 2	OP #15 Provide a lesson using the Enviroscape model at a local school annually.	Engineering Department	Annually	Pitt County Schools		
	Topic B Protect Four Property from the nazard Topic E Build Responsibly Topic F Protect Natural Floodplain Functions Topic G Hurricane Preparedness Topic H Turn Around Don't Drown Topic I Flood Education Topic J Buy Flood Insurance in Low Risk Zones	E. 1, 2, 3 F. 1, 2, 3 G. 1 H. 1 J. 1	OP #16 Incorporate a topic from the updated 10-topic Flood Protection Brochure each month on the City's Facebook page.	Public Information Office	Monthly	Homeowners' Associations		

Target Area / Audience(s)	Topic(s) (See Table 11)	Message(s) (See Table 11)	Project(s)	Assignment	Schedule	Stakeholder	
Flood Response Projects							
Flooded property owners and residents	Topic A Know Your Flood Hazard Topic B Insure Your Property Topic C Protect Yourself and Your Family Topic D Protect Your Property from the Hazard Topic E Build Responsibly Topic F Protect Natural Floodplain Functions Topic G Hurricane Preparedness Topic H Turn Around Don't Drown Topic I Flood Education Topic J Buy Flood Insurance in Low Risk Zones	A. 1, 2 B. 1, 2 C. 1 D. 1, 2 E. 1, 2, 3 F. 1, 2, 3 G. 1 H. 1 I. 1 J. 1	FRP #1 Provide "After a Flood: The First Steps" brochure to flooded property owners which provides information on the dangers of flood water, listen for local warnings, don't drive through flooded streets, stay healthy (emotional stress), and cleaning up and repairing your home	Engineering Department	Ready to go before and after a flood	FEMA and American Red Cross	
			FRP #2 Provide copies of "Repairing your flooded home" FEMA 234 publication to flooded property owners which provides information on protecting your home from further damage, getting organized, drying out your flooded home, restoring utilities, clean up, rebuilding and preparing for the next flood.	Engineering Department	Ready to go	FEMA and American Red Cross	
			FRP #3 Provide information on the City's Substantial Damage rules	Planning & Development Services Department	Ready to go	N/A	
			FRP #4 Provide information on the need for a building permit and benefits of flood Insurance on the City's website and in local news	Planning & Development Services Department	Ready to go	FEMA/NFIP	
			FRP #5 Provide a copy of the updated 10-topic Flood Protection Brochure to residents after a flood	Public Information Office	Ready to go	N/A	
			FRP #6 Provide FEMA Increased Cost of Compliance Brochure	Planning & Development Services Department	Ready to go	N/A	
			FRP # 7 Flood Protection Brochure copies available to hand out before, during and after a flood	Engineering Department	Ready to go	N/A	
			FRP # 8 Homeowner's guide to cleaning up mold.	Planning & Development Services Department	Ready to go	EPA	
			Public Information Initiatives				
All City of Greenville Residents	Topic A Know Your Flood HazardA. 1, 2Topic B Insure Your PropertyB. 1, 2Topic C Protect Yourself and Your FamilyC. 1Topic D Protect Your Property from the HazardD. 1, 2Topic E Build ResponsiblyE. 1, 2, 3Topic F Protect Natural Floodplain FunctionsF. 1, 2, 3Topic G Hurricane PreparednessG. 1Topic I Flood EducationH. 1Topic J Buy Flood Insurance in Low Risk ZonesJ. 1	B. 1, 2 C. 1 D. 1, 2 E. 1, 2, 3 F. 1, 2, 3	PII #1 Publicize the Map Information Service (CRS Activity 320) on the updated Flood Brochure and on the City's website	Engineering Department	Year-Round	N/A	
			PII #2 Enhance website (Activity 350) to include updated information on the 6 Priority and 4 additional topics, and provide links to Floodsmart.gov, Pitt County Emergency Management, North Carolina Emergency Management, and FEMA	Engineering Department	Update Annually	NCEM and FEMA	
		I. 1	PII #3 Provide site visits and property protection advice (CRS Activity 360 PPA & PPV), and publicize this service on the City's website and in the updated Flood Protection Brochure	Engineering Department	Year-Round	N/A	

Five locations of brochures and flyers:

- 1. City Hall, 200 West Fifth St., Greenville, NC 27834
- 2. Planning and Development Services Department, Municipal Building, 201 W 5th St., Greenville, NC 27858
- 3. Engineering Department, 1500 Beatty St., Greenville, NC 27834
- 4. River Park North, 1000 Mumford Rd., Greenville, NC 27834
- 5. Sheppard Memorial Library, 530 Evans St., Greenville, NC 27858

End of Report