TOWN OF BLOXOM

TOWN PROFILE

Bloxom is located west of the central spine of the Eastern Shore in Accomack County. The Town was established in the early 1800s as a farming community. The railroad was constructed in 1884 and the Town experienced significant growth. By the early 1990s, Bloxom and become a major produce shipping point on the Eastern Shore. As farm labor needs decreased in the 1930s, the population of Bloxom began to decline. By 1952, the railroad had ceased passenger service and the Town's high school had closed. The Town was incorporated in 1951 and has evolved primarily into a residential community (*Bloxom Town Plan*, 2000).



Figure 1: Bloxom Context and Boundary Maps

SOCIO-ECONOMIC

Part of assessing hazards in relation to their risk is understanding the people affected. Not all people are affected equally. Some are affected by the factors that relating to their ability to understand risks posed by hazards, and some by their ability to remove themselves from harm's way. Those factors include age, mobility, income and the languages individuals speak and the languages in which individuals are able to access information.

DEMOGRAPHICS

Between 1980 and 2000 the community reached a maximum population of 407 in 1980 and a minimum of 357 in 1990 (Bloxom Town Plan, 2000). The population of Bloxom was 395 in 2000 and has remained fairly stable, being 387 in 2010 (US Census, 2000; US Census, 2010). The median age for residents in Bloxom in 2010 was 36.4 years, signifying a population just under the national average of 36.8 years (US Census, 2010). With a younger population, there are often less potential for high risk populations during an emergency situation due to physical hindrances in mobility.

Mayor Callander pointed out that Table 1, does not reflect the increase in the Haitian population in the Town, which he estimates to be approximately 1% and the Town's Haitian and Latino year-round population is increasing (personal communications, January 25, 2016). This is important, as different language (Spanish, French and/or Creole) outreach materials need to increasingly be made available.

Town representatives also pointed out that the estimated median household income level indicated in Table 1 is most likely too high (Mayor Callander, personal communication, January 25, 2016). Typically the lower a household income the less able they are to mitigate hazards by installing, updating, or renovating their properties.

Table 1: Bloxom Demographic Information

	2014***	2013**	2010*	2000****
Population	422	406	387	395
Median Age	35.5	35.0	36.4	37.7
Disability	15	14	NA	NA
Income				
Median Household Income	\$39,091	\$38,068	\$37,188	\$25,000
Poverty Level	10.9%	14.5%	13.3%	NA
Language				
Only English	91.7%	86.7%	92.8%	89.4%
Other	8.3%	13.3%	7.2%	10.6%
Spanish	8.3%	13.3%	7.2%	10.6%

Source: * U.S. Census 2010, ** American Community Survey 2009 – 2013, *** Annual Estimates of the Residential Population: 2010 – 2014, **** U.S. Census 2000

WORK FORCE

Employment patterns are important to examine for two reasons. It can help to identify concentrations of people for hazard information dissemination or hazard rescue and evacuation. It can also identify where disruptions in employment and income might occur in the aftermath of a disaster.

The town is primarily a residential community with the majority of employed residents commuting out of Town to work. NASA, Accomack County Schools, seafood industry, and Tyson and Perdue poultry processing plants are

several major employers located near Bloxom (Bloxom Town Plan, 2000), these are reflected in Table 2 below primarily in the manufacturing, education, and wholesale categories. These companies often have policies in place to mitigate the economic impact for both the company and the employees, however, long-term closures would have strong negative impacts on the Town.

Table 2: Bloxom Local Workforce Industry

Civilian Employed Population												
Industry	20:	14*	1* 201		201	10*	200	0**				
	Count	Percent	Count	Percent	Count	Percent	Count	Percent				
Agriculture, forestry, fishing/hunting, or mining	7	3.7%	25	10.3%	12	4.3%	15	8.8%				
Construction	7	3.7%	16	6.6%	14	5.0%	17	10.0%				
Manufacturing	23	12.2%	27	11.1%	10	3.6%	17	10.0%				
Wholesale trade	20	10.6%	18	7.4%	24	8.6%	9	5.3%				
Retail trade	36	19.1%	28	11.5%	48	17.1%	34	20.0%				
Transportation and warehousing, and utilities	13	6.9%	14	5.8%	21	7.5%	9	5.3%				
Information	0	0.0%	0	0.0%	19	6.8%	2	1.2%				
Finance, insurance, real estate, and rentals	0	0.0%	0	0.0%	6	2.1%	14	8.2%				
Professional, scientific, waste management	1	0.5%	4	1.6%	9	3.2%	8	4.7%				
Educational, health care, social services	19	10.1%	43	17.7%	71	25.4%	15	8.8%				
Arts, entertainment, recreation, food	13	6.9%	26	10.7%	40	14.3%	11	6.5%				
Public Administration	27	14.4%	19	7.8%	12	4.3%	13	7.6%				
Other	22	11.7%	23	9.5%	13	4.6%	6	3.5%				
TOTAL CIVILIAN EMPLOYED POPULATION	188	-	243	-	280	-	170	-				

Source: *American Community Survey, 2010 – 2014, **U.S. Census, 2000

BUSINESSES

Business data provides basic information used in projecting potential economic losses from business and employment disruption, along with wage losses to employees. It can also serve as an indicator of community recovery resources. Finally, it can help to prioritize restoration of utility and infrastructure functions following a high-intensity hazard.

Bloxom has stayed relatively stable with the small amount of businesses located in the town, keeping 10 establishments between 2009 and 2013. As shown in Table 3 below, the Town has seen growth in employees, with a 34% increase in the total employees within Bloxom, indicative of the success of the existing establishments. Knowing the number of people employed here aids rescue workers in the estimate of the dispersal of persons within the Town.

Table 3: Bloxom Business Establishment Types

Industry Code Description	Total Establishments							
	2013	2011	2009					
Construction	2	1	2					

Wholesale Trade	2	2	2
Retail Trade	1	2	2
Transportation and warehousing	0	0	1
Professional, Scientific, and Technical Services	1	1	1
Health Care and Social Assistance	2	1	1
Other Services (Except Public Admin)	2	1	1
Total, All Establishments	10	10	10
Total Employees	44	30	29

Source: Census Zip Code Business Patterns, 2013

BUILT INFRASTRUCTURE

Housing units, community facilities, and transportation are all important factors when considering hazard resiliency. They provide the social services necessary during hazardous scenarios, safe cover for those wanting to stay, and a way to leave towards safety.

HOUSING UNITS

Knowledge of a community's housing base contributes to hazard and vulnerability analysis by identifying how many homes are at risk.

Bloxom is predominantly residential. The number of housing units is most likely closer to the U.S. Census 2010 figure of 184, versus the 2014 overestimate, as there were two buildings razed and not rebuilt, about five houses renovated, and no major construction (Mayor Callander, personal communication, January 25, 2016). Out of these housing units, only 15% were vacant in 2010 (U.S. Census) and the majority of homes in Bloxom are in good condition, with the exception of some areas on the west side of Town (*Bloxom Town Plan*, 2000). There are two new homes (2,000ft² and 3,000ft²) currently under construction (Mayor Callander, personal communication, January 25, 2016).

Table 4: Bloxom Housing

	2014*	2010**	2000***
Total Housing Units	198	184	175
Occupied	170	156	160
Vacant	28	28	15
Owner-Occupied	118	112	119
Renter-Occupied	52	44	41
Median Housing Value	\$91,800	NA	NA

^{*} American Community Survey, 2009 – 2014, **U.S. Census 2010, *** U.S. Census 2000

TRANSPORTATION

Bloxom is served by a sufficient road system. Route 316 and 770 provide north-south access for the Town, and Route 187 provides east-west access. U.S. Route 13 is located two miles east of the town and provides regional access (*Bloxom Town Plan*, 2000). The Bay Coast Railroad also serves Bloxom, reflecting its early history as a major produce shipping point for the Eastern Shore. The Railroad could pose a potential hazard risk as it transports propane or could serve as an aid in evacuating residents during or following an emergency.

Vehicles available to households is one indicator of a household's ability to evacuate when necessary. Although ACS indicates that only 1 household is without access to a vehicle, Mayor Callander indicates that there are probably about 10 households without access to a vehicle (personal communication, January 25, 2016). However, for those in need of public transportation, Bloxom is on STAR Transit's silver, orange, gold, and blue lines with the stop being located at the Mini-Mart. The orange and gold are southbound, ending and Walmart and providing transfer opportunities for the southern routes that go as far south as Cape Charles. The silver takes riders as far as the Chincoteague municipal complex, where riders can transfer to the Pony Express, a seasonal circulator. Bloxom is actually the northern-most point on the blue line, but it is not the last stop. Riders can board in Bloxom and ride to Parksley, which is the last stop on the blue line.



Figure 2: STAR Transit Routes serving
Bloxom

Table 5: Bloxom Resident Vehicles

Vehicles Available	2014*	2010*	2000**
None	1	9	13
One	72	94	61
Two	66	74	52
Three or more	31	59	28

^{*} American Community Survey, 2009 – 2014, ** U.S. Census 2000

COMMERCIAL AREAS

The majority of commercial land is located along Bayside Drive and Shoremain Drive. Commercial land uses have previously included a florist shop, a grocery store, a go-cart race track, a used furniture store, a nursery, and a deli, but now are limited to the Mini-Mart and a hair stylist. The furniture business was destroyed by a fire in the last ten years, the go-cart track is now a soccer field, and the others have closed and not relocated (Mayor Callander, personal communication, January 25, 2016).

COMMUNITY FACILITIES

Community facilities are facilities required to support the services and functions provided by the Town government or in coordination with other public and private entities. These facilities enhance the overall quality of life for the Town and its citizens. It's important to note what facilities are available in case of a hazard, and it's important to make an inventory of facilities that could be affected by a hazard. Bloxom has a Town Hall, Town Hall Annex, the Police Department, and a Post Office. The Town of Bloxom does not have its own Public Works Department, but rather, relies on the County and private facilities in regards to water, drainage and road systems, parks, and boating facilities.

PUBLIC SAFETY

Police protection is provided by the Bloxom Police Department which currently has two cars and two part-time officers. The Bloxom Rescue Squad provides ambulance services. Fire protection is provided by the Bloxom Volunteer Fire Department (*Bloxom Town Plan*, 2000). The Fire Department is equipped with 2 full-time employees, many volunteers, 3 trucks (2 large sprayers and one high truck), brush truck, and 2 ambulances. All of these are capable of sourcing water from the refill pond behind the Firehouse. The Town Firehouse is equipped with a generator to supply back-up power in the event power is lost during a storm event.



Figure 3: The new Fire and Rescue Department under construction in 2011. The railroad is a vital and historic component of the Town and can be seen in the foreground. Photo by Curt Smith

Use of the Bloxom Town Hall pictured to the left in Figure 3 has been discontinued due to its condemnation, and the Town has been operating out of the Annex Police Department. The intent is to remodel the Police Department building, converting one bay into the Town Council chambers, as the Town plans to see he two aging police cars and purchase a single new vehicle (Mayor Callander, personal communications, January 25, 2016).



Figure 4: Bloxom Town Hall (Forefront) and Annex Police Department (behind)

WATER SUPPLY & SEWAGE DISPOSAL

Bloxom residents rely on private wells for potable water supply. In the past six years, there have been about 8 wells drilled to a deeper aquifer level than the existing wells, this is due to thought that the water level could be lowering. See the Natural Environment, Groundwater section on page 9 for more information.

Bloxom does not have a public sanitary sewer system, so sewage disposal is by septic systems. In addition, residential water supplies can be threatened by failing septic systems, which the majority of residences operate for

waste disposal. Under the Chesapeake Bay Preservation Act, septic tanks are required to have pump-out service at least every five years.

SOLID WASTE DISPOSAL

Solid waste disposal is the responsibility of individuals and businesses, who can take their refuse to an Accomack County convenience center. The closest convenience centers to Bloxom are located at Fisher's Corner to the south and Makemie Park to the north.

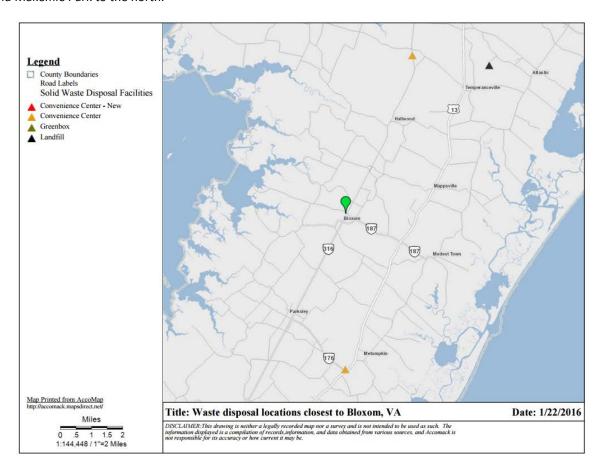


Figure 5: Locations of Waste Disposal Facilities near Bloxom

POWER AND COMMUNICATIONS INFRASTRUCTURE

The Town is serviced by multiple substations, none of which are located within Town limits, and thus are less likely to lose electric services. There has been a lease signed to have a broadband tower installed at the Town Hall/Annex Police Station, which will improve information access options for the residents.

PARKS AND RECREATION

Although there are no Town own parks, the Town has leased the Town Square area from Bay Coast Railroad for several decades, and use this area along the railroad for the annual Bloxom Family Fun Festival, the car show, and more. The Town would like to potentially use the highest ground of this area as a place for a pavilion that could also serve as the staging area, since the Town currently doesn't have a designated staging area location.

STORM WATER DRAINAGE

In 2010 the Town petitioned the County to have the drains dredged. They had to have notarized permission from every homeowner along the drainage, then the appropriate permits from the Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (USACE) were obtained. The ditches were finally serviced in 2012, with payment being made by Accomack County. Since that time there has been very little problem with drainage and the roads no longer have rushing water during and following rain events. A Nor'easter in November of 2013 and Hurricane Matthew September of 2016 are the only two events that have caused some minimal flooding (Mayor Callander, personal communications, January 25, 2016).

SCHOOLS

There are no schools within the Town of Bloxom.

CULTURAL RESOURCES

East of the railroad and behind the soccer field, 2.7 acres of land is being donated to the Town. This is previous property of Dr. Kerns, a historic figure on the Eastern Shore.

NATURAL ENVIRONMENT

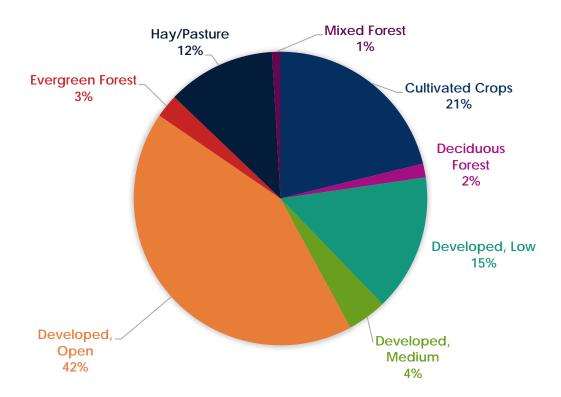
Bloxom lies within the Chesapeake Bay watershed and is drained by Muddy Creek and Guilford Church Branch, which drain the northern and southern parts of the Town, respectively. The elevation ranges from 15 feet to 35 feet with an average slope of 1%. This results in flooding due to poor drainage. Adding to the drainage problems are the soil types in Bloxom being largely hydric (*Bloxom Town Plan*, 1996).

LAND USE LAND COVER

Bloxom is mainly composed of low-density residential land uses. There is minimal agricultural land use in Town. Although the USGS data presented in Figure 5 indicates that 18% of the Town's land is cultivated crop, this is a vast overestimate, as only a portion of the eastern fringe of the Town property overlays agricultural fields, thus this must be representing the large grass yards and the Town Square area.

There is a small portion of wetlands within the Town. These non-tidal wetlands are located on the banks of Muddy Creek and Guildford Church Branch. There is also an area of non-tidal wetlands located to the east of Route 316. Wetlands are important to protect due to assisting with flood control and they serve as groundwater discharge and recharge areas (*Bloxom Town Plan*, 2000).

In the past, Bloxom has been limited in its development due to most of the soils being unsuitable for septic tank filter fields (*Bloxom Town Plan*, 2000), but new technologies in alternative (above ground) septic systems may change this.



Source: USGS. National Land Cover Dataset. 2011

Figure 6: Bloxom Land Use Land Cover Percentages

GROUNDWATER

The Town does not provide public water services, so all residents rely on individual private wells for their potable water supply. Most of the Town's water supply is withdrawn from the upper Yorktown aquifer. The Town lies slightly west of the important spine recharge area. Bloxom is located in Wellhead Protection Area C – Perdue Area. Major water withdrawers in this area are Perdue, the towns of Onancock and Parksley, and the Riverside Shore Rehabilitation Center. (*Bloxom Town Plan*, 2000). There have been a few times when the water has seemed to be low and wells have "sucked up sand" which most likely spurred the drilling of deeper wells in the last five years (Mayor Callander, personal communications, January 25, 2016).

HAZARD PREPAREDNESS & COMMUNITY CAPABILITIES

PREVIOUS HAZARD MITIGATION PLANS

Bloxom has participated in the hazard mitigation planning process since 2011. Bloxom has not updated their comprehensive plan since 1996.

Table 6: Town of Bloxom Hazard Mitigation Resources

	Ordinances, Plans, & Publications											Res	ourc	es, C	om	mittees						
Authority	Building Code	Chesapeake Bay Act	SWMP	Hazard Mitigation Plan	Comprehensive Plan	Zoning/Subdivision Ordinance	Storm Water Regulations	Transportation Infrastructure	Inundation Vulnerability Report	All Hazards Preparedness	Emergency Operations Plans	Mutual Aid	Agreements/Documents	Neighborhood Emergency Help	Viginia Hurricane Evacuation	Oil & HazMat Response Plan;	HazMat Commodity Flow	Ground Water Committee	Navigable Waterways Committee	Climage Adaptation Working	Group	ES Disaster Preparedness Coalition
Local					*	*																
County	*		*																			
Regional				*				*		*	*	*				*		*	*	*		*
State		*					*								*							
Federal		*																				

NATIONAL FLOOD INSURANCE PROGRAM & HAZARD MITIGATION GRANT PROGRAM

NFIP

The Town of Bloxom has no identified Special Flood Hazard area and does not participate in the NFIP, but has expressed an interest in joining NFIP. Town residents could be eligible for preferred rates.

HAZARD MITIGATION GRANT PROGRAM

The Town of Bloxom has not participated in the HMGP.

HAZARD PROFILE

Storm water flooding has the greatest and most frequent impact on the Town.

WIND

No parts of Town lie in the wind borne debris hazard area near the shoreline, but lies in the area that can have 84 mph sustained winds during a 1%-annual-chance storm event and in the 110-120 mph design wind zone (Accomack County Building Code). Because its elevation is slightly higher than the surrounding areas, it is slightly more susceptible to higher winds. Although there is no record of tornadoes affecting the Town, there is always a possibility of these unpredictable storms, and residents should be knowledgeable about the best course of action to take should conditions demand so.

Most of the residential areas, particularly east of the railroad tracks, are older and have mature trees in and around the homes. During a high wind event falling branches or trees may damage some structures. A new firehouse was constructed in 2011 and was designed to withstand gusts of at least 110mph.

COASTAL EROSION

Due to its inland positions, the Town is not at risk to coastal erosion.

COASTAL FLOODING

No portions of the Town lie within a Special Flood Hazard Area. The Town is within the X-zone, which is the 500-year floodplain, and is not likely to be affected by a 100-year flood. However, it is possible for the Town to be affected by a flood of that magnitude due to flat topography, an elevated water table, and poor drainage. Several small commercial areas are located in the center of the Town (Bloxom Town Plan, 2000).

STORM WATER FLOODING

Storm water flooding has traditionally had the greatest and most frequent impact on the Town. The Town lies on unsuitable soil for drainage and retains rainwater. During heavy rains the Town's roads historically flooded, and floodwaters have historically rushed down the main street in Town causing damage to property (Bloxom Town Plan, 2000), but not since the 2012 ditch maintenance described in the Storm Water Drainage section on page 7.

The location of the emergency ditch construction efforts are indicated by the blue line on Figure 6, which leads first to Guilford and Muddy Creeks and ultimately to the Beasley and then Chesapeake Bays. The Town does not finance the annual maintenance of ditches along roadways and relies on Accomack County and the Virginia Department of Transportation for ditch maintenance.

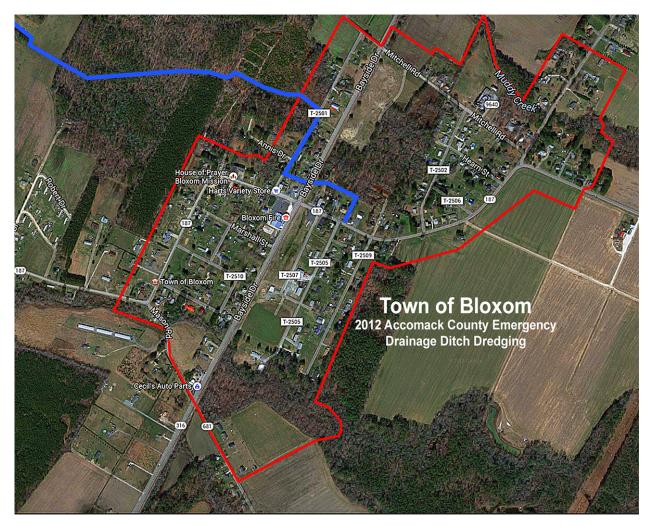


Figure 7: Town of Bloxom Emergency Ditch Dredging (Town boundary is red, Ditch is blue). Courtesy of Mayor Callander.

In specific instances, storm water has accumulated and caused flooding. Bloxom received a flood of this nature on September 3, 2003, just prior to Hurricane Isabel. A heavy rain occurred and water flowed to the railroad tracks, which acted as a dam, back flooding several homes. Figure 7 reveals the some of the damage incurred. Although the storm is called the Great Bloxom Flood of 2003, several areas were flooded including Bloxom, Clam, Guilford, Hallwood and Nelsonia. Although there were no estimates of the probability of the storm event, the entire 12-hour period including the initial storms in the afternoon would put this above the 100-year storm event level, which on the Eastern Shore is 7 to 8 inches in 12 hours. Persons who remember the Bloxom storm recall that the larger storm's rainfall occurred over approximately 2 hours, making this storm above the 100-year storm event. The 2-hour, 100-year storm on the Eastern Shore is between 4.5 and 5 inches of rain.



Figure 8: Greenhouse flooded in the Town of Bloxom on September 3, 2003. Photo by R. Scott Callander

In 2006, the railroad was actually washed out at Bayside Road close to the Mason Road intersection. Luckily since 2012 there has been very little flooding, although the ditches will require maintenance soon and then regularly in order to maintain this state. The area between Bull and Bayside at Marshall Street still flood some where the old railroad station and grainery were located (Mayor Callander, personal communications, January 25, 2016). Due to lingering standing water from hurricane Matthew, the Bloxom Family Fun Festival scheduled for the first weekend of October had to be canceled (see Figure 8). None of the ditches in the Town have year-round standing water.

Having reduced the chances of stormwater flooding reduces the risk to residents for well contamination, mosquito-borne illnesses, and property damages.



Figure 9: Figure 8: Town Square flooding October 1, 2016 prevented the annual Town Family fun Festival.

HAZARDS OF LOCAL SIGNIFICANCE

GROUND WATER CONTAMINATION

Bloxom faces a threat of ground water contamination from several major facilities in the vicinity. Major ground water withdrawers in the area are Perdue Foods, Byrd Foods, the Towns of Onancock and Parksley, and the Arcadia Nursing Center Home. The large withdrawals of ground water increase the possibility of water quality problems, including well interference, salt water intrusion, and deterioration of water quality. A liquid propane gas (LPG) storage facility with a capacity of 90,000 gallons was located on the east side of the Town. Town residents were concerned about the safety of these tanks and expressed concerns about similar facilities being located within the Town. The Town requested removal of the facility and now does not allow similar facilities to exist within the Town (Bloxom Town Plan, 2000, Verbal Communication with Town Officials, June 2011).

The residential wells in the Town are also potentially at risk of contamination from aboveground and underground petroleum storage tanks (AST and UST). Most homes in the Town are heated by oil, which is stored in these tanks. If not properly maintained, ASTs and USTs can pose a significant water quality risk to the Town. In addition, residential water supplies can also be threatened by failing septic systems, which the majority of residences operate for waste disposal. Bloxom Town Officials indicated that several residences on Back Street use lift stations that drain to a common drainfield located on the outskirts of the Town. If the integrity of the septic drain pipe is compromised in the future, it could pose a significant health risk to residential water supplies and surface water quality (Verbal Communication with Town Officials, June 2011).

WEATHER EXTREMES - SNOW AND ICE STORMS, DROUGHT, HEAT

Winter snow and ice storms have historically had adverse impacts on the Town including damage to trees and power lines and making roads impassable. A winter storm struck Bloxom in late December of 2010 creating blizzard-like whiteout conditions, extensive snow drifting that blocked roadways and compromised accessibility to and from the Town. Power losses were experienced and Town businesses were closed for days, creating potentially hazardous situations for residents and adverse impacts on the local economy.

The Town Firehouse is equipped with a generator to supply back-up power in the event power is lost during a storm event.

CRITICAL FACILITIES

The following table lists the critical facilities and their relative importance to the Town.

Table 7: Town of Bloxom critical facilities

Facility	НМР	НМР	НМР	Hazards	No of	Loss potential	Relocation	Retrofit
	2006	2011	2016		People		Potential	Potential
					Affected			
Bloxom Town	NA	Х	Х	Wind	422+	Major	No	Yes
Hall and				Stormwater		disruption		
Annex				Flooding				
Bloxom Fire &	NA	Х	Х	Wind	Town and	Devastating	No	Yes
Rescue				Stormwater	County			
Department				Flooding	Residents			

Post Office	NA	Х	Χ	Wind	600+	Major	Yes	Yes
				Stormwater		Disruption		
				Flooding				
Mini Mart	NA	-	Х	Wind	422+	Inconvenience	No	Yes
(Gas Station)				Stormwater				
				Flooding				
Town Square	NA	-	Х	Stormwater	600+	Inconvenience	No	Yes
				Flooding				

FINDINGS

- 1. The hazards expected to have the greatest impact on the Town are stormwater flooding and high wind events, which have been experienced throughout the Town's history. Other hazards facing the Town are groundwater contamination, ice storms, drought, tornadoes, and mosquito-borne disease.
- Although no part of the Town lies within any flood zone and there are no flood policies in the Town, however representatives have expressed interest in joining the NFIP so that residents may obtain flood insurance in case of severe storm water flooding.
- 3. Emergency maintenance and ditching in 2012 has alleviated the majority of stormwater flooding in the Town, however, this ditch needs regular maintenance, which it has not yet received.
- 4. Older construction and mature trees in residential areas increase risk from damages from wind and snow events, as branches are likely to come down causing secondary wind/snow damages and power outages.