

CITY OF JACKSONVILLE
Hazard Mitigation Plan
Annex 1
To the
Onslow County Hazard Mitigation Plan

Table of Contents

PREFACE (SEE ONSLOW COUNTY HMP)..... 6

I. INTRODUCTION..... 6

A. Background (See Onslow County HMP) 6

B. Purpose (See Onslow County HMP) 6

C. Scope (See Onslow County HMP)..... 6

D. Authority (See Onslow County HMP)..... 6

E. Participants in the Planning Process..... 6

F. The Planning Process..... 6

1. The Hazard Identification and Analysis Matrix 6

2. Vulnerability Assessment 6

3. Capability Assessment 7

4. Interim Conclusions 7

5. Values and Goals 8

6. Mitigation Strategies and Policies 8

7. Implementation Responsibilities..... 8

8. Monitoring, Evaluating, and Reporting Progress 8

9. Revisions and Updates..... 8

10. Plan Adoption 8

G. Adoption of the Plan	8
II. COMMUNITY VALUES AND GOALS	9
III. MITIGATION STRATEGIES AND POLICIES	11
A. Objectives.....	11
B. Mitigation Strategies.....	11
C. Mitigation Policies/Actions.....	14
1. Actions	14
2. Policies.....	17
D. Geographic Planning Area.....	18
IV. IMPLEMENTATION	18
A. Process.....	18
B. Funding Sources.....	19
V. MONITORING, EVALUATING, AND REPORTING PROGRESS	35
A. Monitoring.....	35
B. Evaluating.....	35
1. Benchmarks	35
2. Responsibility	35
C. Public Involvement	35
D. Reporting	35
VI. REVISIONS AND UPDATES	35

Appendixes

APPENDIX A: HAZARD IDENTIFICATION (SEE ONSLOW COUNTY HMP)...	36
A. Hurricanes	36
B. Tsunamis.....	36
C. Flooding	36
D. Nor'easter	36
E. Tornado/Extreme Storms.....	36
F. Drought/Heat Wave	36
G. Wildfire	36
H. Winter Storm/Freezes.....	37
I. Earthquake	37
J. Landslide.....	37
K. Dam/Levee Failure.....	Error! Bookmark not defined.
L. Volcano.....	37
APPENDIX B: VULNERABILITY ASSESSMENT.....	39
A. Narrative Summary:.....	39
1. Major Physical Features in the City of Jacksonville.....	39
2. Critical Facilities and Public Buildings	39
3. Community Exposure to all Hazards	40
4. Repetitive Loss Structures	40
5. Geographic Planning Areas and Demographics for Each Hazard	41
a. Documentation of Loss Estimates	41

- b. Geographic Planning Areas Process 41
- c. Geographic Planning Areas Hazards 41
- d. Geographic Planning Areas Present and Future Vulnerabilities..... 41
- 6. Geographic Planning Area Vulnerability Assessment,..... 41

APPENDIX C: CAPABILITIES ASSESSMENT.....43

- A. Existing Policies and Programs 46**
 - 1. CAMA Land Use Plan 46
 - 2. Zoning Ordinance 46
 - 3. Building Codes and Inspections 46
 - 4. Subdivision Ordinance..... 46
 - 5. Stormwater Management 46
 - 6. Soil Erosion and Sedimentation Control ordinance..... 46
 - 7. Floodplain Ordinance 46
 - 8. NFIP and Community Rating System (CRS) 47

Worksheets

- WORKSHEET #4: COMMUNITY GOALS 10**
- WORKSHEET # 5-1: GEOGRAPHIC PLANNING AREA POLICIES (CITY WIDE GPA)..... 20**
- WORKSHEET # 5-2: GEOGRAPHIC PLANNING AREA POLICIES (FLOODING GPA).....ERROR! BOOKMARK NOT DEFINED.**
- WORKSHEET # 5A: COMMUNITY MITIGATION POLICY SUMMARY..... 27**
- WORKSHEET #1: HAZARD IDENTIFICATION AND ANALYSIS MATRIX.... 38**

WORKSHEET #2: GEOGRAPHIC PLANNING AREA VULNERABILITY ASSESSMENT (CITY-WIDE GPA) 42

CITY OF JACKSONVILLE, NORTH CAROLINA WORKSHEET #2: GEOGRAPHIC PLANNING AREA VULNERABILITY ASSESSMENT (FLOODING GPA)..... 44

WORKSHEET #3: COMMUNITY CAPABILITY ASSESSMENT 48

Maps

CITY OF JACKSONVILLE, CITY LIMIT AND ETJ BOUNDARY MAP ..ERROR! BOOKMARK NOT DEFINED.

CITY OF JACKSONVILLE LAND USE MAP 52

CITY OF JACKSONVILLE ZONING MAP ERROR! BOOKMARK NOT DEFINED.

CITY OF JACKSONVILLE FLOOD ZONES MAP ERROR! BOOKMARK NOT DEFINED.

CITY OF JACKSONVILLE VITAL FACILITIES AND FLOODPLAIN MAP ERROR! BOOKMARK NOT DEFINED.

CITY OF JACKSONVILLE REPETITIVE DAMAGED AREAS MAP ERROR! BOOKMARK NOT DEFINED.

PREFACE (SEE ONSLOW COUNTY HMP)

I. INTRODUCTION

Background (See Onslow County HMP)

Purpose (*See Onslow County HMP*)

Scope (*See Onslow County HMP*)

Authority (*See Onslow County HMP*)

Participants in the Planning Process

The City of Jacksonville participated as part of Onslow County's Hazard Mitigation Plan Task Force. The City also established a committee consisting of representatives from Public Services Greg Meshaw, PE (Engineering), Deanna Young (Engineering), Tom Anderson, PLS (Engineering), Johnny Stiltner (Streets Division), Pete Deaver (Utilities Maintenance Superintendent), Allen Baker (Facilities Maintenance); Development Services, Danny Bryan (Code Enforcement Administrator), and Information Technology Services, Chris Contreras (GIS Services) . This group was the most knowledgeable in the types of actions that can be taken, and most have had experience responding during our community's natural disasters. Additionally, the Onslow County GIS Manager, and the Onslow County Tax Office provided assistance with mapping and property values. The plan was submitted to the City Manager and ultimately, the Jacksonville City Council for approval.

A public information meeting to discuss the need for hazard mitigation, the process being followed in the development of the Onslow County plan and the City of Jacksonville Annex was conducted on September 5, 2014 at the Onslow County Emergency Services Building. Attached are the meeting notices and the list of attendees.

In September of 2014, this Annex was reviewed by City staff and updated where necessary.

The Planning Process

1. The Hazard Identification and Analysis Matrix

In a number of meetings, the City of Jacksonville staff members named above prepared the Hazard Identification and Analysis Matrix, using the Onslow County-prepared matrix format. The City's committee, using the established countywide values, agreed upon the priority to which each of hazards should be assigned. The assigned priorities don't reflect what the committee felt was reality (e.g. tsunamis), but nevertheless laid out the relative impact each could have on our community. See Appendix A.

2. Vulnerability Assessment

Using Onslow County Tax Department data and City of Jacksonville insurance data, the City's committee developed the number of buildings

and property values in the various categories of the worksheet. The population data was developed using a household factor of **3.18 persons per household** (a figure from Development Services Department, based on the most recent census). For Future Conditions, a growth factor had been established by the State of North Carolina of **1.146** to take the City to the year 2010. Populations of Commercial buildings were determined by estimating that the average number of people populating a commercial establishment, which exist in all sizes city-wide, was 10 persons per building. For industrial, the average figure was estimated at 20 per site during any shift. For the hospitals, the estimates were based on the total number. For the hospitals, the estimates were based on the total number of employees estimated to be at work at any one time and the number of beds available. For schools, the actual populations were obtained from the Onslow County Board of Education. School replacement values also came from the Onslow County Board of Education. The current values of municipally owned buildings were also taken from current insurance policies.

For future conditions, review of the community's experience has dictated that no public offices would be built in flood prone areas. The number and value of future vacant lots are not predictable because future City Council annexation actions and annexation petitions from owners of property currently outside the City limits drive this factor.

City of Jacksonville infrastructure data was taken from information submitted for GASB 34. The replacement values were developed from calculations made by the Streets and Utilities Divisions of the Public Services Department.

STREETS:	\$180/LF
WATER LINES:	\$120/LF
SEWER LINES:	\$160/LF

3. Capability Assessment
4. All existing policies and programs that might lend support to hazard mitigation were examined and are listed in Worksheet #3, found in Appendix C. Their effectiveness, rationale, and other recommendations were discussed and agreed upon in committee meetings. Currently the capabilities available to the City are the CAMA Land Use Plan, the Jacksonville Zoning Ordinance, the Jacksonville Subdivision Ordinance, the Soil Erosion and Sedimentation Control Ordinance, the Flood Plain Ordinance and associated NFIP and Community Rating System, and the Building Codes and Inspections that are applied to all construction Interim Conclusions.

During the process of completing the worksheets, a public information meeting was held on October 14, 2009 at the Jacksonville City Hall to discuss the need for hazard mitigation, the process being followed in the

development of the Onslow County plan and the City of Jacksonville Annex. Three City employees were in attendance. No residents attended. A meeting notice was posted two weeks in advance at City Hall and printed in the Jacksonville Daily News for three days. See Attachment 1 to this annex for Public Information Meeting information. To this end, the community goals were established primarily to deal with hurricanes and their aftermath and the need to bring life back to normal as soon as possible.

5. Values and Goals

The City has always strived to minimize storm damage, personal injury, and to expedite cleanup after storms to minimize the stress of such storms and to bring life back to normal as soon as possible. To this end, all of the stated goals have existed for many years. At committee meetings, these goals were accepted as still being essential.

6. Mitigation Strategies and Policies

The mitigation strategies were determined by considering what was currently being done by and by additional strategies that the committee felt might be useful in accomplishing the goals.

7. Implementation Responsibilities

The responsible departments or individuals were agreed upon during the committee meetings at which the strategies were discussed and agreed upon.

8. Monitoring, Evaluating, and Reporting Progress

Most of the strategies were found to be ongoing activities or projects that have no beginning or end, programs that City departments are always trying to improve. Some were “budget sensitive” so they are tied into budget years.

9. Revisions and Updates

The City intends to have periodic reviews of the programs underway but also to have an annual evaluation in which to consider new ideas or make “midcourse corrections” in programs that were underway.

10. Plan Adoption

All responsible departments have been involved in the preparation and update of this Annex. The plan developed by staff will ultimately be submitted to the City Council as an annex to the Onslow County Hazard Mitigation Plan for adoption.

Adoption of the Plan

Spencer Lee, Deputy Chief of Jacksonville Fire & Emergency Services presented the City of Jacksonville Annex of the Onslow County Multi-jurisdictional Hazard Mitigation Plan to the Jacksonville City Council for

approval of the plan to be submitted to Onslow County Emergency Management, North Carolina Emergency Management (NCEM), and the Federal Emergency Management Agency (FEMA). Once the plan is approved by FEMA, the City of Jacksonville will ensure that proper public notification for public hearings according to the North Carolina General Statutes will be done. Then a resolution adopting the updated plan by the Jacksonville City Council will occur in the Spring of 2015.

II. COMMUNITY VALUES AND GOALS

The City of Jacksonville's predominant natural hazard is damage from hurricane winds and some associated flooding. To this end, the community goals were established primarily to deal with hurricanes and their aftermath. The City has always strived to minimize storm damage, personal injury, and to expedite cleanup after storms to minimize the stress of such storms and to return life back to normal as soon as possible. To this end, although unwritten, all of the stated goals have existed for many years.

Generally, the City's desire is to prevent loss of life and personal injury from all natural hazards. Further there is a desire on the part of all to minimize the damage to public infrastructure resulting from natural hazards. Public infrastructure (primarily sewage lift stations) is usually only affected by flooding and loss of electrical power. It is the desire of the City to educate the public in hazard mitigation so as to manage future development, reducing the vulnerability of private property to natural hazards. Further, a major desire is to expedite post-disaster cleanup, repair and construction. Finally, there is a desire to protect the fragile natural and scenic areas located along the New River and related tributaries.

The Community goals are tabulated in Worksheet #4.

WORKSHEET #4: COMMUNITY GOALS

Goal Category (General; Future Development; Existing Structures; Public Education & Outreach; Redevelopment; Natural Resource Protection	Goal Statements (Include source reference)	New or Existing Goal (Circle One)		Hazard Threat Addressed (type of hazard and/or location)
1. General	Reduce loss of life and personal injury from natural hazards.	new	Existingg	All Hazards
2. Existing Structures	Minimize the damage to public infrastructure resulting from natural hazards.	new	Existing	Flooding and Wind
3. Public Education & Outreach	Manage future development so that vulnerability of private property to natural hazards is reduced.	new	Existing	Flooding and Wind
4. General	Expedite post-disaster clean up, repair and construction.	new	Existing	Hurricane Damage
5. Natural Resource Protection	Protect the fragile natural and scenic areas located along the New River and our canals/creeks	new	Existing	Flooding

City of Jacksonville, North Carolina

III. MITIGATION STRATEGIES AND POLICIES

A. Objectives

The City of Jacksonville supports Onslow County in the attainment of its objectives and essentially has the same basic goals and objectives. (*See Onslow County HMP*)

Implementation Strategies	Objectives
1,2,8,9,10,13,14	Improve education and outreach to the community regarding flood hazards and flood mitigation.
6,14	Seek ways to reduce the Jacksonville Community Rating System (CRS) rating from Class 7 to a lower class. A lower class reduces flood insurance premiums.
5,6	Improve Stormwater drainage in Jacksonville
4,7,8,9,10,14,15	Support activities that will modify and make structures less susceptible to damage during natural hazard events
1,2,15	Access the resources and data available at the Planning and Inspections Departments of Onslow County relevant to the mitigation of natural hazards and meet with Onslow County annually to coordinate progress on Hazard Mitigation Plans.
3,11,12	Provide effective evacuation prior to natural hazard events

Mitigation Strategies

The following mitigation **strategies** have been adopted to achieve the stated objectives and goals. A number of these are similar to the strategies adopted by Onslow County (*See Onslow County HMP*).

1. Assist local real estate agents, insurance companies, banks and other lending institutions by notifying them of the availability of flood plain information. This program is ongoing and information is provided yearly. Although it applies to areas adjacent to flood hazard areas, the information is available city-wide. The Community Rating System (CRS) Coordinator will accomplish this on an annual basis.
2. Send a flood protection flyer to all property owners/residents living in or near a potential flood zone in Jacksonville through a community newsletter, utility

bill, or other document that is distributed to all residences. The flyer will include: general identification of local flood hazards, flood safety tips, general information regarding flood insurance, a list of potential property protection measures, a description of development work requiring flood plain development permits, and contact information for drainage system maintenance requests. Although the information campaign will target areas adjacent to flood hazard areas, the information is also available city-wide via the City's website and an electronic kiosk located at City Hall. The Community Rating System (CRS) Coordinator and Community Affairs Director are responsible for ensuring issuance of the flyer annually.

3. Maintain listing of streets that would be advised to evacuate in the event of a hurricane. When required, the Police and Fire Departments will provide evacuation assistance to those residents who are unable to leave on their own. This applies to residents of flood hazard areas along the New River and its related tributaries as well as to any residents requesting assistance. This program applies at all times and to all natural and man-made threats.
4. Continue to acquire and maintain backup generators for lift stations and water wells and to supply electricity to critical City facilities during periods of power outage. This applies city-wide. The City currently possesses 12 permanent diesel generators at various well sites; 5 permanent propane generators at each of the water tank sites; 7 portable diesel generators with ship-to-shore connectors for well sites and booster stations; 22 permanent generators at major lift stations; 5 portable generators; and 3 portable bypass pump generators (two 8-inch, one 4-in).
5. Continue to maintain ditches along streets to facilitate drainage. This is a City-wide program managed by the Streets Division wherever swales provide street drainage; this program is ongoing and includes routine ditch clearing, street sweepings, and catch basin cleaning. The City has funded capital projects that are intended to improve stormwater drainage in areas of the City where there is a significant history of flooding affecting multiple properties; the Parkwood Area Stormwater project greatly improved the stormwater drainage to a residential area, along with additional improvements to the water and sewer lines and some of the streets in the affected area.
6. Electrical panels are to be positioned above the floodplain at three sewer pumping stations. The Motor Control Cabinet (MCC) project identifies those panels and has upgraded and/or replaced 10 electrical panels, with an additional 5 to be replaced in FY15. Additionally, the following lift stations have been upgraded and/or replaced: Barrus, Bell Fork, and Brinson Creek.
7. The City replaced all SCADA equipment to improve communication at all wastewater pump stations in order to better monitor and analyze the impact of rainfall and flooding to the sewer system
8. The City utilizes NC state fire code requirements for securing LP tanks and aboveground fuel tanks in areas subject to flooding. The Fire & Emergency Services Department periodically inspects commercial properties for these and

other potential problems. This item is also addressed in periodic public awareness media regarding hurricanes and flooding.

9. The City utilizes the NC state building code requirements for new installations of mobile homes. The City has launched a single point effort for notification to mobile home occupants and has developed a multi-media effort to regularly make contact with mobile home occupants. This multi-media effort has included: announcements on the Jacksonville-Onslow Government Television Channel; notices and articles placed in the City's Utility Billing inserts; informational sessions included as part of the City program hosted by the City Manager and others on the Jacksonville-Onslow Government Television Channel; signing up occupants in and use of reverse 911 messaging system – ConnectCTY; and handouts to new mobile home permit holders through the City's Inspections Division. Handouts have been provided to 'in field' officers of the Inspections Division and to City Fire & Emergency Services and Police patrol for distribution to mobile home occupants as they come into contact with them. The responsibility for implementing the multi-media effort has been assigned to the City's Inspections Division in cooperation with City's Community Affairs Director.
10. The City utilizes NC state building code requirements to ensure adequate tie-down requirements for new installations and construction of accessory buildings greater than 144 square feet. The Building Inspections Division provides information regarding anchoring and tie-down requirements to local suppliers.
11. The City will address roads on private property incapable of accommodating emergency vehicles through a public awareness campaign. City GIS data does private roads in the City. These have been physically identified and evaluated for accessibility issues. This has been accomplished by the Fire Department.
12. The City will develop an evacuation strategy for hazardous material response. This is a project of the Fire & Emergency Services Department and is currently ongoing.
13. The City has a web site and kiosk that will display safety and flood information. This will apply city-wide and will cover all hazards. This is a project of the Public Services and ITS Departments and is an ongoing project.
14. The City will develop response scenarios for losses to water wells, water towers, wastewater pump stations, the land application site and other critical infrastructure as needed. This will be applied city-wide.
15. The City revised the Flood Prevention Ordinance during September, 2005 to ban and/or remove existing companies with hazardous material/junkyards out of the floodplains.
16. A courtesy review was provided by the State NFIP Coordinator's office and identified areas where Jacksonville could acquire additional CRS credit points. The CRS Coordinator applies for re-certification when improvements

are made. This action maintains the City's rating at the lowest possible number. Note: Since the inception of this Plan in 2004, the City's ISO rating has been reduced from a nine to a seven. It is the City's policy to reduce the rating further when possible and as budget considerations allow.

Mitigation Policies/Actions

In addition, the following mitigation strategies have been continuously implemented by the City of Jacksonville for many years: **(The following actions are all ongoing)**

1. Actions

a. To counter Rising Water / Flooding:

- Jacksonville deals with beaver dams as the need arises.
- The City falls under CAMA and has restored several wetlands sites.
- Jacksonville has participated in the NFIP since 1985 and the Community Rating System since its inception.
- Duties of the Flood Plain Administrator have been assigned.
- The Flood Damage Prevention Ordinance addresses freeboard.
- The White Oak River LIDAR mapping has been completed. New DFIRMS are available.
- Jacksonville addresses drainage issues as the need arises.
- Local news stations have sophisticated equipment to predict and accurately report weather. They are even able to pinpoint geographic areas. There is a special audible alert that precedes weather advisories.
- State building codes establish specifications for construction.
- State and CAMA buffer rules are enforced to improve the quality of storm water runoff.
- Maintain compliance with Erosion Control standards as set forth in Chapter 22 of the Jacksonville City Code.
- Jacksonville removes debris as soon as possible after a heavy storm event.
- Culverts, drains, and catch basins are kept free of debris.
- Jacksonville provides technical assistance to property owners regarding protecting their property.
- Jacksonville's ordinances have established laws, which address Base Flood Elevations.

- The City's NPDES Coastal Rules Stormwater permit became effective March 1, 2012. The requirements placed upon the City by this permit are intended to reduce adverse impacts to water quality and aquatic life. Nonetheless, compliance with the conditions of the permit requirements should help prevent increases in the frequency, duration and intensity of repetitive flooding. This benefit will be derived mostly from the requirement that the City administers a post-construction Stormwater Management Program directed at new development within the City's jurisdiction. The effectiveness of the post-construction Stormwater Management Program is to be covered annually by a report submitted to the State of North Carolina which documents the City's compliance with the terms of the permit.
- b. To counter High Winds:
- Jones-Onslow Electric Membership Cooperative and Duke Energy provide electric power to the community, along with a continuous program of tree trimming.
 - Mobile home owners are educated via the radio, television, reverse 911, and social media when severe weather is threatening.
 - The National Weather Service monitors and reports wind speeds and storm conditions.
 - Local news stations have sophisticated equipment to predict and accurately report weather. They are even able to pinpoint geographic areas. There is a special audible alert that precedes weather advisories.
 - Jacksonville removes debris as soon as possible after a high wind event utilizing city employees, volunteers, contractors, and other assistance. The City has a Debris Removal Contract in place in the event of a needed response.
- c. To counter Winter Storms:
- The National Weather Service monitors and reports winter storms.
 - Local news stations have sophisticated equipment to predict and accurately report weather. They are even able to pinpoint geographic areas. There is a special audible alert that precedes weather advisories.
 - Jacksonville clears roads on the city-maintained street system and assists the state on state-maintained highways. The city street department has a plan in place for clearing roadways covered in ice and snow in an organized manner. The City has

a Debris Removal Contract in place in the event of a needed response.

- County Health Department and DSS provide information on heating assistance.

d. To counter Wildfire:

- The NC Forestry Service has an ongoing wildfire education program.
- Fire risk is announced over the fire net during high risk periods. Periods of high fire risk are also typically reported by local news stations periodically.
- Emergency staff meets with the NC Forestry Service personnel at least yearly.

e. To counter Drought:

- The National Weather Service monitors and reports rainfall.
- Jacksonville has a water conservation plan in effect, which includes multiple levels of conservation based on draught severity.
- Local news stations have sophisticated equipment to predict and accurately report weather. They are even able to pinpoint geographical areas. There is a special audible alert that precedes weather advisories.

f. Miscellaneous / General:

- County Health Department and State Division of Social Services both provide educational information and information on resources.
- TV and radio stations continue to educate residents on various types of weather/hazard events and offer suggestions for addressing.
- Jacksonville zoning codes address nonconforming buildings.
- City has documentation on graves.
- Duties of code enforcement officer incorporate mitigation strategies.
- The Police Department and Fire & Emergency Services Department alert special needs populations of need to evacuate.
- Regulations exist and are enforced to prevent erosion of the land due to construction. The City has a strict sediment and erosion control enforcement regulations.

- County Schools continue to teach about and prepare children for disasters.
- The City Fire & Emergency Services Department has been sharing information and teaching about emergency preparedness efforts through community risk reduction programs.
- Mitigation strategies are incorporated into the environmental impact review of projects.

2. Policies

The **policies** that have been developed and that will be monitored and improved are shown below. They reinforce the mitigation strategies that are already being implemented and those that are planned.

- a. Make use of Jacksonville's flood plain, parcel data, and aerial photographs in digital format. The City is capable of overlaying this coverage on its Geographic Information System (GIS). This is an existing program.
- b. Ensure that Jacksonville maintains documents about flood insurance, flood protection, flood plain management, and natural and beneficial functions of flood plains. Many documents are available free of charge from the Federal Emergency Management Agency (FEMA). This is a continuation of work performed for the CRS program.
- c. Continue to stay current with all CRS reporting requirements to ensure continued program participation. Actively pursue activities that will lower our CRS rating.
- d. Continue to actively pursue state and federal grant funds to assist in the hazard mitigation recommendations included in the plan.
- e. Jacksonville will continue to encourage projects undertaken by the Jacksonville Police Department, Jacksonville Fire & Emergency Services Department, Public Services, Development Services and Parks and Receptions Departments that will lessen the vulnerability of the City and its residents to natural hazards.
- f. When projects are found to address hazard mitigation, the availability of state and federal grant funds are investigated that may assist the City with the cost. This is a continuation of current policy.
- g. Continue to update and use the existing City of Jacksonville Emergency Operations Plan.
- h. The City complies with State requirements for the wellhead protection program.
- i. Jacksonville is under Coastal Rules storm water regulations and has developed a storm water management plan in conjunction with the NPDES application.

- j. Jacksonville Fire & Emergency Services Department utilizes a records management system to accommodate the National Fire Information Reporting System.
- k. City staff will review current water conservation plan and compare to comprehensive water shortage response plan.
- l. The City has implemented a citizen education program on water conservation and distributes free water conservation kits to City water customers.
- m. The mitigation strategies are reviewed at least yearly to evaluate progress on the mitigation strategies selected and identify new strategies.
- n. City will evaluate the current building and development forms for evidence that they identify and address mitigation strategies.
- o. City will provide flood-proofing information to the owners/residents of the repetitive loss structures. Historically, and where applicable, the City will depend on Onslow County to provide relocation services.

Codes and adopted plans and how they will influence mitigation measures are listed below and described in Appendix C:

- CAMA Land Use Plan
- Zoning Ordinance
- Building Codes and Inspections
- Uniform Development Ordinance
- Stormwater Management
- Soil Erosion and Sedimentation Control Ordinance
- Floodplain Ordinance
- NFIP and Community Rating System

Geographic Planning Area

Two planning areas were established for hazard mitigation planning purposes. These were flood-prone areas and city-wide. Flooding only occurs near the New River, some of its tributaries, or areas very close to the FEMA-established flood zones. All other hazards could potentially occur city-wide.

IV. IMPLEMENTATION

B. Process

1. The Jacksonville portion of the Onslow County Hazard Mitigation Plan will be implemented through the delegation of assignments by the City Manager, and as specified within this plan. In the *Section III, Mitigation Strategies and Policies*, **16 mitigation actions** are listed and assigned to

specific departments or divisions. There are several established policies that also support the goals and objectives of the Hazard Mitigation Plan. These are shown on Worksheet #5A.

2. It will be the responsibility of the City Manager, as he/she sees fit, to ensure these actions are ultimately carried out no later than any target completion dates unless reasonable circumstances prevent their implementation (i.e. lack of funding availability). Otherwise the completion of each proposed mitigation action has been determined feasible within the timeframe allowed. It should be noted that a great many of these mitigation actions are intended to be ongoing without start or completion dates and are actually being accomplished as a normal part of a department's routine duties.

Funding Sources

The only funding currently identified are local funds obtained during the annual budgeting process. Should grant funding become available for projects such as these, they will be investigated and applied for.

**WORKSHEET # 5-1: GEOGRAPHIC PLANNING AREA POLICIES
(CITY-WIDE GPA)
Geographic Planning Area --- City-Wide**

<u>Policy</u>	Type(s) of Hazard This Policy will Target	<u>Funding</u> <small>(amount and source: local match required?)</small>	Responsible Party/Start & Completion Date	Benchmarks and Indicators of Progress (Monitoring and Evaluation)	<u>Priority</u> (high, medium, low)
Continue to actively pursue state and federal grant funds to assist in the hazard mitigation recommendations included in the plan.	All Hazards	City of Jacksonville General Fund	All departments review grant notifications as they become public, determining need and eligibility. Continual.	On-going, year-round activity	Medium
Jacksonville will continue to encourage projects undertaken by the Jacksonville Police Department, Jacksonville Fire & Emergency Services Department, Public Services, Development Services and Parks and Recreations Departments that will lessen the vulnerability of the City and its residents to natural hazards.	All Hazards	City of Jacksonville General Fund	All departments Continual.	As ideas come forth through networking, they are evaluated, and either the project is undertaken or funding is sought	Medium

<u>Policy</u>	Type(s) of Hazard This Policy will Target	<u>Funding</u> (amount and source: local match required?)	Responsible Party/Start & Completion Date	Benchmarks and Indicators of Progress (Monitoring and Evaluation)	<u>Priority</u> (high, medium, low)
When projects are found to address hazard mitigation, the availability of state and federal grant funds should be investigated that may assist the City with the cost. This is a continuation of current policy.	All Hazards	City of Jacksonville General Fund	All Departments Currently ongoing	As ideas come forth, they are evaluated, and either the project is undertaken or funding is sought	Medium
Continue to update and use the existing City Emergency Operations Plan.	All Hazards	City of Jacksonville General Fund	Emergency Management Coordinator Ongoing	Reviewed annually for necessary updates/changes, per policy	Medium
Fire & Emergency Services Department is utilizing a records management system to accommodate the National Fire Information Reporting System Continuation of existing program.	Wildfire	City of Jacksonville General Fund	Fire Department	Completed. Continuous monitoring to ensure current information.	Medium

<u>Policy</u>	Type(s) of Hazard This Policy will Target	Funding (amount and source: local match required?)	Responsible Party/Start & Completion Date	Benchmarks and Indicators of Progress (Monitoring and Evaluation)	Priority (high, medium, low)
City staff will review current water conservation plan and compare to comprehensive water shortage response plan.	Drought	City of Jacksonville Water and Sewer Fund	Public Services	Completed. 12 wells added to the Castle Hayne aquifer; completion of the Nano-Filtration Water Treatment Plant expandable to 8 mgd.	Low
City will reinforce citizen education program on water conservation to include distribution of free water conservation kits to City water customers.	Drought	City of Jacksonville Water and Sewer Fund	Public Services Annually, beginning in May and ending in November.	This is an ongoing, year-round activity.	Medium
The mitigation strategies will be reviewed at least yearly to evaluate progress on the mitigation strategies selected and identify new strategies.	All Hazards	City of Jacksonville General Fund	All	Annual review in July of activities, plans and proposed actions.	Medium
City will evaluate the current development forms for evidence that they address mitigation strategies.	All Hazards	City of Jacksonville General Fund	Development Services Code Inspections	Identify issues and revise forms	Medium

**WORKSHEET # 5-2: GEOGRAPHIC PLANNING AREA POLICIES
(FLOODING GPA)
Geographic Planning Area --- Flooding**

<u>Policy</u>	Type(s) of Hazard This Policy will Target	<u>Funding</u> (amount and source: local match required?)	Responsible Party/Start & Completion Date	Benchmarks and Indicators of Progress (Monitoring and Evaluation)	<u>Priority</u> (high, medium, low)
Make use of Jacksonville’s flood plain, parcel data, and aerial photographs in digital format. The City is capable of overlaying these coverages on its geographic information system (GIS). This is an existing program	Flooding	City of Jacksonville General Fund	ITS Currently ongoing	Work is performed in coordination with Onslow County GIS Department. Data is constantly checked for accuracy and completeness.	Medium

<u>Policy</u>	Type(s) of Hazard This Policy will Target	<u>Funding</u> (amount and source: local match required?)	Responsible Party/Start & Completion Date	Benchmarks and Indicators of Progress (Monitoring and Evaluation)	<u>Priority</u> (high, medium, low)
Ensure that Jacksonville maintains documents about flood insurance, flood protection, flood plain management, and natural and beneficial functions of flood plains. Many documents are available free of charge from the Federal Emergency Management Agency (FEMA). This is a continuation of work performed for the CRS program.	Flooding	City of Jacksonville General Fund	CRS Coordinator Currently Ongoing	<ol style="list-style-type: none"> 1. Annual Review of available documents 2. Maintaining the CRS rating 	Medium
Continue to stay current with all Community Rating System reporting requirements to ensure continued program participation. Actively pursue activities that will	Flooding	City of Jacksonville General Fund	CRS Coordinator	Annual evaluation and report submitted to ISO for CRS credit.	High

lower our CRS rating.					
<u>Policy</u>	Type(s) of Hazard This Policy will Target	<u>Funding</u> (amount and source: local match required?)	Responsible Party/Start & Completion Date	Benchmarks and Indicators of Progress (Monitoring and Evaluation)	<u>Priority</u> (high, medium, low)
Request courtesy review by the State NFIP Coordinator's office to identify areas where Jacksonville could acquire additional CRS credit points. Apply for CRS re-certification, if applicable.	Flooding	City of Jacksonville General Fund	CRS Coordinator	Determine if City Council is willing to commit additional time, personnel, and funds to a program that affects very few residents.	Low
Jacksonville remains in compliance with State wellhead protection requirements.	Flooding (Terrorism)	City of Jacksonville Water and Sewer Fund	Public Services Director	The City complies with State requirements for the wellhead protection program.	High

Policy	Type(s) of Hazard This Policy will Target	Funding (amount and source: local match required?)	Responsible Party/Start & Completion Date	Benchmarks and Indicators of Progress (Monitoring and Evaluation)	Priority (high, medium, low)
The requirements placed upon the City by its NPDES Coastal Rules Stormwater permit are intended to help prevent increases in the frequency, duration and intensity of repetitive flooding.	Flooding	City of Jacksonville Stormwater Fund: Funding will be provided by Stormwater fee charged to each property.	Engineering	NPDES Stormwater permit was issued on March 1, 2012.	Medium
Provide flood-proofing information to those owners/residents living in repetitive loss structures	Flooding	City of Jacksonville General Fund	Developmental Services	Currently acquiring information for distribution	Medium

WORKSHEET # 5A: COMMUNITY MITIGATION POLICY SUMMARY

<p><u>Policy</u> (Classify each a new initiative, a continuation and support of existing policies, or a recommended change to an existing policy.)</p>	<p>Geographic Planning Area</p>	<p>Type(s) of Hazard This Policy will Target</p>	<p><u>Funding</u> (Amount and source: local match required?)</p>	<p>Responsible Party/Start & Completion Date</p>	<p>Benchmarks and Indicators of Progress (Monitoring and Evaluation)</p>	<p><u>Priority</u> (High, medium, low)</p>
<p>Make use of Jacksonville’s flood plain, parcel data, and aerial photographs in digital format. The City is capable of overlaying this coverage on its geographic information system (GIS). This is an existing program</p>	<p>Flood Hazard Areas</p>	<p>Flooding</p>	<p>City of Jacksonville General Fund</p>	<p>ITS Currently ongoing</p>	<p>Work is performed in coordination with Onslow County GIS Department. Data is constantly checked for accuracy and completeness.</p>	<p>Medium</p>

<u>Policy</u>	Geographic Planning Area	Type(s) of Hazard This Policy will Target	<u>Funding</u> (Amount and source: local match required?)	Responsible Party/Start & Completion Date	Benchmarks and Indicators of Progress (Monitoring and Evaluation)	<u>Priority</u> (High, medium, low)
<p>Ensure that Jacksonville maintains documents about flood insurance, flood protection, flood plain management, and natural and beneficial functions of flood plains. Many documents are available free of charge from the Federal Emergency Management Agency (FEMA). This is a continuation of work performed for the CRS program.</p>	<p>Flood Hazard Areas</p>	<p>Flooding</p>	<p>City of Jacksonville General Fund</p>	<p>CRS Coordinator Currently Ongoing</p>	<ol style="list-style-type: none"> 1. Annual review of available documents. 2. Maintaining the City's CRS rating. 	<p>Medium</p>

<u>Policy</u>	Geographic Planning Area	Type(s) of Hazard This Policy will Target	<u>Funding</u> (Amount and source: local match required?)	Responsible Party/Start & Completion Date	Benchmarks and Indicators of Progress (Monitoring and Evaluation)	<u>Priority</u> (High, medium, low)
Continue to stay current with all Community Rating System reporting requirements to ensure continued program participation. Actively pursue activities that will lower our CRS rating.	Flood Hazard Areas	Flooding	City of Jacksonville General Fund	CRS Coordinator	Annual evaluation and report submitted to ISO for CRS credit.	High
Request courtesy review by the State NFIP Coordinator's office to identify areas where Jacksonville could acquire additional CRS credit points. Apply for CRS re-certification, if applicable.	Flood Hazard Areas	Flooding	City of Jacksonville General Fund	CRS Coordinator	Determine if City Council is willing to commit additional time, personnel, and funds to a program that affects very few residents.	Low

<u>Policy</u>	Geographic Planning Area	Type(s) of Hazard This Policy will Target	<u>Funding</u> (Amount and source: local match required?)	Responsible Party/Start & Completion Date	Benchmarks and Indicators of Progress (Monitoring and Evaluation)	<u>Priority</u> (High, medium, low)
Continue to actively pursue state and federal grant funds to assist in the hazard mitigation recommendations included in the plan.	City-Wide	All Hazards	City of Jacksonville General Fund	All departments review grant notifications as they become public, determining need and eligibility. Continually ongoing.	This is an ongoing activity, year-round	Medium
Jacksonville will continue to encourage projects undertaken by the Jacksonville Police Department, Jacksonville Fire Department, Public Services, Development Services and Recreation and Parks Departments that will lessen the vulnerability of the City and its residents to natural hazards.	City-Wide	All Hazards	City of Jacksonville General Fund	All departments Continually ongoing	As ideas come forth through networking, etc., they are evaluated, and either the project is undertaken or funding is sought.	Medium

<u>Policy</u>	Geographic Planning Area	Type(s) of Hazard This Policy will Target	<u>Funding</u> (Amount and source: local match required?)	Responsible Party/Start & Completion Date	Benchmarks and Indicators of Progress (Monitoring and Evaluation)	<u>Priority</u> (High, medium, low)
When projects are found to address hazard mitigation, the availability of state and federal grant funds should be investigated that may assist the City with the cost. This is a continuation of current policy.	City-Wide	All Hazards	City of Jacksonville General Fund	All Departments Currently ongoing	As ideas come forth through networking, etc., they are evaluated, and either the project is undertaken or funding is sought.	Medium
Continue to update and use the existing City Emergency Operations Plan.	City-Wide	All Hazards	City of Jacksonville General Fund	Emergency Management Coordinator Ongoing	The plan is reviewed annually. Changes are made as they are found necessary.	Medium
Jacksonville remains in compliance with the State wellhead protection requirements.	City-Wide County-Wide	Flooding (Terrorism)	City of Jacksonville Water and Sewer Fund	Development Services Director Public Services Director	Completion of study by consultant Budget Request Preparation of ordinances by Development Services and Public Services ensures compliance.	Low

<u>Policy</u>	Geographic Planning Area	Type(s) of Hazard This Policy will Target	<u>Funding</u> (Amount and source: local match required?)	Responsible Party/Start & Completion Date	Benchmarks and Indicators of Progress (Monitoring and Evaluation)	<u>Priority</u> (High, medium, low)
The requirements placed upon the City by its NPDES Coastal Rules Stormwater permit are intended to help prevent increases in the frequency, duration and intensity of repetitive flooding.	City-Wide	Flooding	City of Jacksonville Stormwater Fund:Funding will be provided by Storm-water fee charged to each property.	Engineering	Coastal Rules Stormwater permit was issued on March 1, 2012.	Medium
Fire Department is working on a computer system to accommodate the National Fire Information Reporting System Continuation of existing program.	City-Wide	Wildfire	City of Jacksonville General Fund	Fire Department	Recently completed. Continuous monitoring to insure current information.	Medium
City staff will review current water conservation plan and compare to comprehensive water shortage response plan.	City-Wide	Drought	City of Jacksonville Water and Sewer Fund	Public Services	Completed. The City has added 12 additional wells to the Castle Hayne aquifer, as well as the completion of the Nano-Filtration Water Treatment Plant that is expandable to 8 mgd.	Medium

<u>Policy</u>	<u>Geographic Planning Area</u>	<u>Type(s) of Hazard This Policy will Target</u>	<u>Funding</u> (Amount and source: local match required?)	<u>Responsible Party/Start & Completion Date</u>	<u>Benchmarks and Indicators of Progress</u> (Monitoring and Evaluation)	<u>Priority</u> (High, medium, low)
City will reinforce citizen education program on water conservation to include distribution of free water conservation kits to City water customers.	City-Wide	Drought	City of Jacksonville Water and Sewer Fund	Public Services Annually, beginning in May and ending in November.	This is an ongoing, year-round activity.	Medium
The mitigation strategies will be reviewed at least yearly to evaluate progress on the mitigation strategies selected and identify new strategies.	City-Wide	All Hazards	City of Jacksonville General Fund	All	Annual Review in July of activities, plans and proposed actions.	Medium
City will evaluate the current building and development forms for evidence that they identify and address mitigation strategies.	City-Wide	All Hazards	City of Jacksonville General Fund	Development Services Code Inspections	Identify issues and revise forms	Medium

<u>Policy</u>	Geographic Planning Area	Type(s) of Hazard This Policy will Target	<u>Funding</u> (Amount and source: local match required?)	Responsible Party/Start & Completion Date	Benchmarks and Indicators of Progress (Monitoring and Evaluation)	<u>Priority</u> (High, medium, low)
Provide flood proofing information to those owners/residents living in repetitive loss structures	City-Wide	Flooding	City of Jacksonville General Fund	Developmental Services Code Inspections	Currently acquiring information for distribution	Medium

V. MONITORING, EVALUATING, AND REPORTING PROGRESS

A. Monitoring

The Emergency Operations Coordinator will be responsible for monitoring the implementation of this hazard mitigation plan annex. The review will take place annually and the results will be reported to the City Manager.

B. Evaluating

1. Benchmarks

The new tasks will be reviewed according to the schedule established for their accomplishment. Those activities already and continuously underway will be evaluated on a semi-annual basis for continued effectiveness or viability.

2. Responsibility

a. Updating the Vulnerability Assessment

The vulnerability assessment will be annually reviewed and updated by the City Hazard Mitigation Committee established to prepare this plan.

b. Updating the Capability Assessment

The capability assessment will be annually reviewed and updated by the City Hazard Mitigation Committee established to prepare this plan.

C. Public Involvement

The plan will be annually presented to the Planning Board to discuss the continued viability of its various elements and to suggest corrections in direction. The plan will always be available on the City of Jacksonville web page and will be made available at the Onslow County Public Library for review. The City will always be receptive to public comment and recommended changes that may come from our residents.

D. Reporting

The plan maintenance report will be prepared annually for the City Manager, with the assistance of the City's Hazard Mitigation Committee. It will report, in writing, each of the measures underway or recommended, and report on the effectiveness of the measure and make recommendations for changes.

VI. REVISIONS AND UPDATES

The City Manager will review the plan maintenance report and present the findings to the City Council with recommendations for updates and revisions. As updates occur, the date, reason and responsible party should be noted. The entire plan will be updated on a five-year cycle and revisions submitted to the State Hazard Mitigation Officer and FEMA.

APPENDIX A: HAZARD IDENTIFICATION (SEE ONSLOW COUNTY HMP)

See attached Worksheet #1 for City of Jacksonville prioritization.

A. Hurricanes

According to NOAA historical track records, 104 hurricanes or tropical storm tracks have passed within a 75 mile radius of Jacksonville since 1842. This includes no (0) category 5, two (2) category 4, five (5) category 3, eleven (11) category 2, twenty-six (26) category 1, fifty-one (51) tropical storms and one (1) sub-tropical storm. Of the 104 recorded events 16 were direct hits in Onslow County and 24 have passed through Onslow County resulting in approximately \$611 million in property damages. No hurricane striking Jacksonville has ever caused a recorded death. Property damage from flooding and falling trees has occurred. The major expense to the community has been for the hauling off of tree debris after the storm.

Tsunamis

In recorded history, there have never been any reports of tsunamis striking eastern North Carolina, so this is not considered a statistically significant threat, even though the impact could be severe.

Flooding

True flooding in Jacksonville has been extremely rare, and usually only occurs in cases of extreme rains associated with a hurricane.

Nor'easter

The last recorded nor'easter causing any damage in Jacksonville was in March 1993. This damaged several roofs in commercial areas, and numerous signs.

Tornado/Extreme Storms

According to the National Environmental Satellite, Data, and Information Service (NESDIS), eight tornadoes have occurred within Jacksonville from October 8, 1996 through March 30, 2014. Most of these tornadoes were classified as a F0 which is the lowest classification on the Fujita Scale. Two (2) of these tornadoes were classified as F1 and one (1) was classified as F3 on the Fujita Scale. One of the tornadoes resulted in injuries and four resulted in property damage estimated at \$9.53 million.

Drought/Heat Wave

During the past 20 years, the effects of drought on the City of Jacksonville have been very minor. Public water supplies are drawn from deep well aquifers.

Wildfire

In Jacksonville, the City is susceptible to wildfires due to the proximity of Hoffman Forest to the northeast. There have been no serious wildfires reported within the last 20 years in the Jacksonville City limits.

Winter Storm/Freezes

Over the past 20 years, severe winter storms/freezes in Jacksonville seem to occur, on the average, every ten years. Less severe freezes occur almost every year but do not cause major problems.

Earthquake

In 2011, Jacksonville experienced tremors as a result of a 5.8 magnitude earthquake centered in Mineral, Virginia. There were no recorded damages in the City of Jacksonville or Onslow County. Local records and the NOAA: National Geophysical Data Center there is no recorded events of earthquake damages in Onslow County.

Landslide and Sinkhole

There is no recorded historical evidence of significant landslide activity in Jacksonville.

Although, there has been 1 recorded incident of a significant sinkhole in Onslow County in the Catherine Lake area, there have been no reported significant sinkholes that resulted in the loss of property in Jacksonville. There are multiple investigations of sinkholes throughout the city on an annual basis however; all reported incidents have been determined to be sinkholes related to drainage washout, collapsed culverts or rotting organic material.

Volcano

In recorded history, there has never been any evidence of a volcano, and therefore never an eruption.

This information is based on long discussions in the City's committee, memories of long-time City employees, data taken from the National Weather Service, NOAA and the recorded history of this area. Because resources are limited, the City has chosen to direct its efforts to mitigating damages caused by hurricanes, flooding, and nor'easters. These hazards boil down to high winds and flooding and their aftermath.

WORKSHEET #1: HAZARD IDENTIFICATION AND ANALYSIS MATRIX

Hazard	Category / Degree of Risk					PRI Score
	Probability	Impact	Spatial Extent	Warning Time	Duration	
Atmospheric Hazards						
Drought and Heatwave	Likely	Minor	Negligible	12-24 hrs	Less than 24 hrs	1.8
Severe Thunderstorm / Hail	Highly Likely	Minor	Small	Less than 6 hrs	Less than 6 hrs	2.4
Hurricane & Coastal Storm	Likely	Critical	Large	More than 24 hrs	Less than 24 hrs	2.9
Tornado	Likely	Minor	Small	Less than 6 hrs	Less than 6 hrs	2.1
Winter Storm	Possible	Minor	Large	More than 24 hrs	Less than 1 week	2.1
Geological Hazards						
Earthquake	Unlikely	Minor	Negligible	Less than 6 hrs	Less than 6 hrs	1.3
Landslide & Sinkhole	Possible	Minor	Negligible	Less than 6 hrs	Less than 6 hrs	1.6
Tsunami	Unlikely	Limited	Small	6-12 hrs	More than 1 week	2
Hydrologic Hazards						
Erosion	Highly Likely	Minor	Negligible	More than 24 hrs	More than 1 week	2.2
Dam & Levee Failure	Unlikely	Limited	Small	Less than 6 hrs	More than 1 week	2.1
Flood	Highly Likely	Limited	Moderate	6-12 hrs	Less than 1 week	3
Storm Surge	Likely	Limited	Moderate	More than 24 hrs	Less than 24 hrs	2.4
Other Natural Hazards						
Wildfire	Highly Likely	Minor	Small	Less than 6 hrs	Less than 24 hrs	2.5

APPENDIX B: VULNERABILITY ASSESSMENT

A. Narrative Summary:

The data in this appendix was taken from county tax maps, GIS and databases, City GIS mapping, insurance records, City facility databases and Federal Census data. Other data was taken from personal knowledge of the City's committee members, some of whom contributed in the original development of the information.

1. Major Physical Features in the City of Jacksonville

The City of Jacksonville is located in the center of Onslow County, in southeastern North Carolina and is surrounded by the unincorporated areas of Onslow County and Marine Corps Base Camp Lejeune. Jacksonville is located on the east bank of New River, approximately 22 miles above where the New River empties into the Atlantic Ocean. Brick Kiln Branch as well as Blue, Mill, Brinson, Edwards, Hemby, Thompson School, Cannon, and Chaney Creeks are tributaries of the New River that drain the City of Jacksonville and its environs. The off-base area of the City has an area of 18.9 square miles. There are approximately 154 miles of City streets, including 38 miles on the NCDOT road system.

Of the 18.9 square miles in the City, approximately 74.82% is designated as urban-developed. 53.40% of the urban-developed land is designated for residential. Approximately 25.18% of the total land in Jacksonville is designated as undeveloped land. This last category includes all undeveloped agricultural and forest lands, as well as water surfaces and is generally found around the periphery of the City.

2. Critical Facilities and Public Buildings

There is no exhaustive list regarding what should be considered a "critical facility." However, for purposes of this mitigation plan, The City of Jacksonville considers critical facilities to be those structures from which essential services and functions for the continuation of public safety actions and disaster recovery are performed or provided. These are facilities that are essential to the health, safety, and viability of the community.

The inventory of critical facilities has been compiled using best available data from the Onslow County Manager's office, the Jacksonville Police, Fire, and Public Services Departments. Where possible, they have been shown on the Vital Facilities Map of Jacksonville.

City of Jacksonville Municipal Facilities:

Type of Facility	Number
Public Safety	
Police Station	2
Fire Station	5
Communications Centers	3
Health Care	
Hospital	1
Urgent Care	4
Mental Health	2
Water Facilities	
Treatment Plant	1
Tanks/Towers	9
Wells	34
Waste Water Facilities	
Treatment Plant	1
Waste Water Pump Stations	46
Schools	
Post Secondary	3
High School	2
Middle School	3
Elementary	6
Preschool	??
Government Buildings	4
Emergency Shelters	3

3. Community Exposure to all Hazards

Only flooding can generally be considered site-specific, because it occurs in the areas adjacent to New River and major streams feeding New River. These are the areas most susceptible to flooding. All other hazards that Jacksonville may be subject to are not site-specific, but City-wide.

4. Repetitive Loss Structures

The National Flood Insurance Program lists 20 dwellings that are repetitive-loss structures in the City of Jacksonville. Fourteen of these were constructed prior to the development of the FEMA flood plain maps and the adoption of the Flood Hazard Management Ordinance and many of these still are still not located in the adopted flood plain maps. If there is a possibility that any of these can be relocated, raised, or otherwise removed from flooding hazards, the City of Jacksonville will depend upon Onslow County to provide that service as they have done in the past, following Hurricane Fran in 1996.

5. Geographic Planning Areas and Demographics for Each Hazard
 - a. Documentation of Loss Estimates
See Onslow County HMP
 - b. Geographic Planning Areas Process
The geographic planning areas were selected based on the types of hazards that have been experienced during the last fifty years and where the damage was located or could potentially be located.
 - c. Geographic Planning Areas Hazards
The actual hazards are also based on the experience of the community.
 - d. Geographic Planning Areas Present and Future Vulnerabilities
The only vulnerabilities that can be anticipated are along the river and its tributaries. These are the only fixed points where damage has occurred due to specific known events – flooding due to hurricanes.
6. Geographic Planning Area Vulnerability Assessment,
As described elsewhere, the primary hazard for which this community needs to plan for and does plan for are hurricanes and associated flooding. The major activities and public expenditures that are associated with these events are debris cleanup and disposal. Experience in this community has taught most to build high enough to avoid floodwaters. Public structures certainly observe this restriction except for those types of structures that must be in those locations (such as sewerage lift stations). In those cases, all possible precautions are taken to avoid or at least minimize damage and enable the facility to be quickly restored to operation.

Worksheet #2 (4 pages) follows:

**WORKSHEET #2: GEOGRAPHIC PLANNING AREA VULNERABILITY ASSESSMENT
(CITY-WIDE GPA)**

Geographic Planning Area: City of Jacksonville, North Carolina

Hazards: Drought/Heat Wave, Earthquake, Hurricanes and Coastal Flooding, Tornado/Extreme Storms, Tsunamis, and Nor'easters

Current Conditions				Potential Future Conditions (2020)		
Type of Development	Number of Existing Private Buildings	Current Value Structure Value	Current Number of People	Projected Number of Private Buildings (If developed under existing policies)	Projected Value	Projected Number of People
Single-Family Residential	10,520	\$711,163,079	29,772	12,203	\$824,935,651	34,534
Multi-Family Residential	75	\$63,898,918	2,953	86	\$73,270,759	3,384
Commercial	1433	\$316,211,475	14,330	1,641	\$362,109,582	16,410
Industrial	3	\$126,529	60	4	\$168,705	80
Other (Vacant)	Vacant Parcels 1122	Property Value \$35,811,861	0			
<u>Subtotal</u>						

City of Jacksonville, North Carolina

Worksheet #2, continued from previous page... (City-Wide)

Current Conditions				Potential Future Conditions (2020)		
Type of Development	Number of Existing Public Buildings and Critical Facilities	Current Replacement Value	Current Number of People	Projected Number of Public Buildings and Critical Facilities)	Projected Replacement Value	Projected Number of People
Sewage Treatment Plant	1	\$50,000,000	17	1	\$50,000,000	17
Sewer Lift Stations	46	\$10,144,785	0	47	\$10,894,785	0
Water Treatment Plant	1	\$23,491,168	12	1	\$23,491,168	12
Water Wells and Tanks	34	\$13,328,148	0	35	\$13,578,308	0
Hospital	2	\$22,501,431	576	2	\$103,000,000	650
Schools	11	\$101,999,104	7215	12	\$111,271,750	7871
Infrastructure (roads, bridges, drainage, etc.)	154.11 street miles 291.22 sewer miles 310 water miles 98 drainage miles	\$614,776,800	N/A	155 street miles 293 sewer miles 312 water miles 99 drainage miles	\$620,924,568	N/A
Police Station	1	\$4,249,161	127	1	\$22,793,160	127
Fire Station	5	\$4,077,030	89	5	\$16,702,500	89
Hazard Materials Facility	0	----	0	0	----	0
Government Offices	11	\$23,981,469	137	9	\$9,500,000	145
Emergency Shelter	0	N/A	0	0	N/A	0
Public Housing	0	----	0	0	----	0
Subtotal						
TOTAL:						

**CITY OF JACKSONVILLE, NORTH CAROLINA WORKSHEET #2: GEOGRAPHIC PLANNING AREA VULNERABILITY ASSESSMENT
(FLOODING GPA)**

Geographic Planning Area: City of Jacksonville, North Carolina, FLOOD HAZARD AREAS

Hazards: Flooding

Current Conditions				Potential Future Conditions (2020)		
Type of Development	Number of Existing Private Buildings	Current Value Structure Value	Current Number of People	Projected Number of Private Buildings (If developed under existing policies)	Projected Value	Projected Number of People
Single-Family Residential	812	\$59,275,419	2,298	931	\$67,962,334	2,634
Multi-Family Residential	121	\$15,524,833	342	138	\$17,706,008	392
Commercial	162	\$59,318,978	1,620	186	\$67,943,172	1,860
Industrial	1	\$23,762	20	1	\$27,089	20
Other (Vacant)	Vacant parcels 129	Property Value \$7,973,106	0			
<u>Subtotal</u>						

City of Jacksonville, North Carolina

Worksheet #2, continued from previous page... (Flooding)

Current Conditions				Potential Future Conditions (2020)		
Type of Development	Number of Existing Public Buildings and Critical Facilities	Current Replacement Value	Current Number of People	Projected Number of Public Buildings and Critical Facilities)	Projected Replacement Value	Projected Number of People
Sewage Treatment Plant	1	\$50,000,000	17	1	\$50,000,000	17
Sewer Lift Stations	46	\$10,145,785	0	47	\$10,894,785	0
Water Treatment Plant	1	\$23,491,168	12	1	\$23,491,168	12
Water Wells and Tanks	34	\$13,328,148	0	35	\$13,578,308	0
Hospital	0	----	0	0	----	0
Schools	0	----	0	0	----	0
Infrastructure (roads, bridges, drainage, etc.)	7.8 street miles 98 drainage miles	\$33,285,120	N/A	7.8 street miles 98 drainage miles	\$33,285,120	N/A
Police Station	0	----	0	0	----	0
Fire Station	1	\$1,500,000	4	0	----	0
Hazard Materials Facility	0	----	0	0	----	0
Government Offices	0	----	0	0	----	0
Emergency Shelter	0	----	0	0	----	0
Public Housing	0	----	0	0	----	0
Subtotal						
TOTAL:						

City of Jacksonville, North Carolina

APPENDIX C: CAPABILITY ASSESSMENT

A. Existing Policies and Programs

1. CAMA Land Use Plan

The CAMA Land Use Plan was last updated in January 1999. It was developed to protect natural resources and to insure effective and efficient use of infrastructure. This is formally adopted by the City Council and approved by the State.

2. Zoning Ordinance

The City of Jacksonville Zoning Ordinance protects property values and natural resources. This is formally adopted by the City Council.

3. Building Codes and Inspections

The City of Jacksonville has adopted the International Building Code, which provides many legislated requirements (tie-downs, straps, etc) for protecting buildings that must be installed during the initial construction. Although a state program, the City Council adopts these building standards.

4. Subdivision Ordinance

The City of Jacksonville Subdivision Ordinance addresses the suitability of land for development and provides for runoff control. This ordinance is adopted by the City Council.

5. Stormwater Management

The City's NPDES Coastal Rules Stormwater permit became effective March 1, 2012. The requirements placed upon the City by this permit are intended to reduce adverse impacts to water quality and aquatic life. Nonetheless, compliance with the conditions of the permit requirements should help lessen increases in the frequency, duration and intensity of repetitive flooding. This benefit will be derived mostly from the requirement that the City administer a post-construction Stormwater Management Program directed at new development within the City's jurisdiction. The effectiveness of the post-construction Stormwater Management Program is to be covered annually by a report submitted to the State of North Carolina which documents the City's compliance with the terms of the permit.

6. Soil Erosion and Sedimentation Control ordinance

The Soil Erosion and Sedimentation Control ordinance provides for the protection of channels and prevents the decrease in stream capacity, further reducing the chance for flooding. This is a local ordinance adopted by the City Council.

7. Floodplain Ordinance

The Floodplain Ordinance prevents development that could be damaged by flooding. It provides for a floodway area that will allow the maximum amount of floodwaters to pass through an area unimpeded. This is an ordinance adopted by the City Council.

8. NFIP and Community Rating System (CRS)

The NFIP and Community Rating System (CRS). These FEMA programs provide the opportunity for the community to decrease individual flood insurance premiums through a series of steps that the government is willing to take. These are voluntary programs that have been approved and adopted by the City Council.

B. Jurisdictional Capability

1. Legal

The legislative authority of the City Council, a local government is described in Appendix C, Paragraph A. Legal Capabilities, of the Onslow County Hazard Mitigation Plan.

2. Fiscal

Past history has shown that it is difficult for a municipality to obtain grants for these purposes through the approval process (e.g. a construction grant has taken almost seven years awaiting construction approval) so local funds are anticipated to be the source of funds for hazard mitigation. It is anticipated, however, that other grants will be forthcoming once this plan is approved and in place.

3. Political

The “local political climate” is difficult to assess. This is because, in Jacksonville, there is a municipal election every two years and each new Council has its own goals and desires. Beginning in 2009, the City has changed to Council terms of 4 years each. Due to existing term length of some incumbents, it will take 4 years to transition to the new term lengths. None of the past few City Councils have been interested in requirements unnecessarily restrictive to development so each proposed step or program must be presented and evaluated on its own merits. When true value or benefit is shown when compared to costs, Councils will support mitigation measures.

4. Technical

The City has the technical ability to develop the necessary ordinances, regulations or change existing rules to meet the needs of hazard mitigation. The City Council must approve any action related to this ability.

5. Institutional

The City has the professional staff to either accomplish the tasks shown or to contract the work to be done and monitored.

WORKSHEET #3: COMMUNITY CAPABILITY ASSESSMENT

Policies and Programs (ex. Zoning Ordinance)	Policy/Program Status (ex. Potential or Existing Policy/Program)	Document Reference (ex. Comprehensive Plan and page number)	Effectiveness of Mitigation (ex. Low, Medium, High)	Rationale for Effectiveness (ex. Low, because allows development in flood plain)	Recommendations for Incorporating Into Hazard Mitigation Strategy (ex. Amend ordinance to restrict development in floodplain, page III-4 of plan)
CAMA Land Use Plan	Existing	City of Jacksonville 1996 Land Use Plan Update Jan 29, 1999	High	Protect natural resources; insure effective and efficient use of infrastructure	Continue to enforce state standards
Zoning Ordinance	Existing	City of Jacksonville Zoning Ordinance	High	Protect property values, natural resources, and minimize hazards.	Continue to enforce City Ordinance
Building Codes and Inspections	Existing	North Carolina Building Code	High	Provides requirements that protect buildings	Continue to enforce State and City of Jacksonville standards
Subdivision Ordinance	Existing	City of Jacksonville Subdivision Ordinance	High	Addresses the suitability of land for development	Continue to enforce City standards

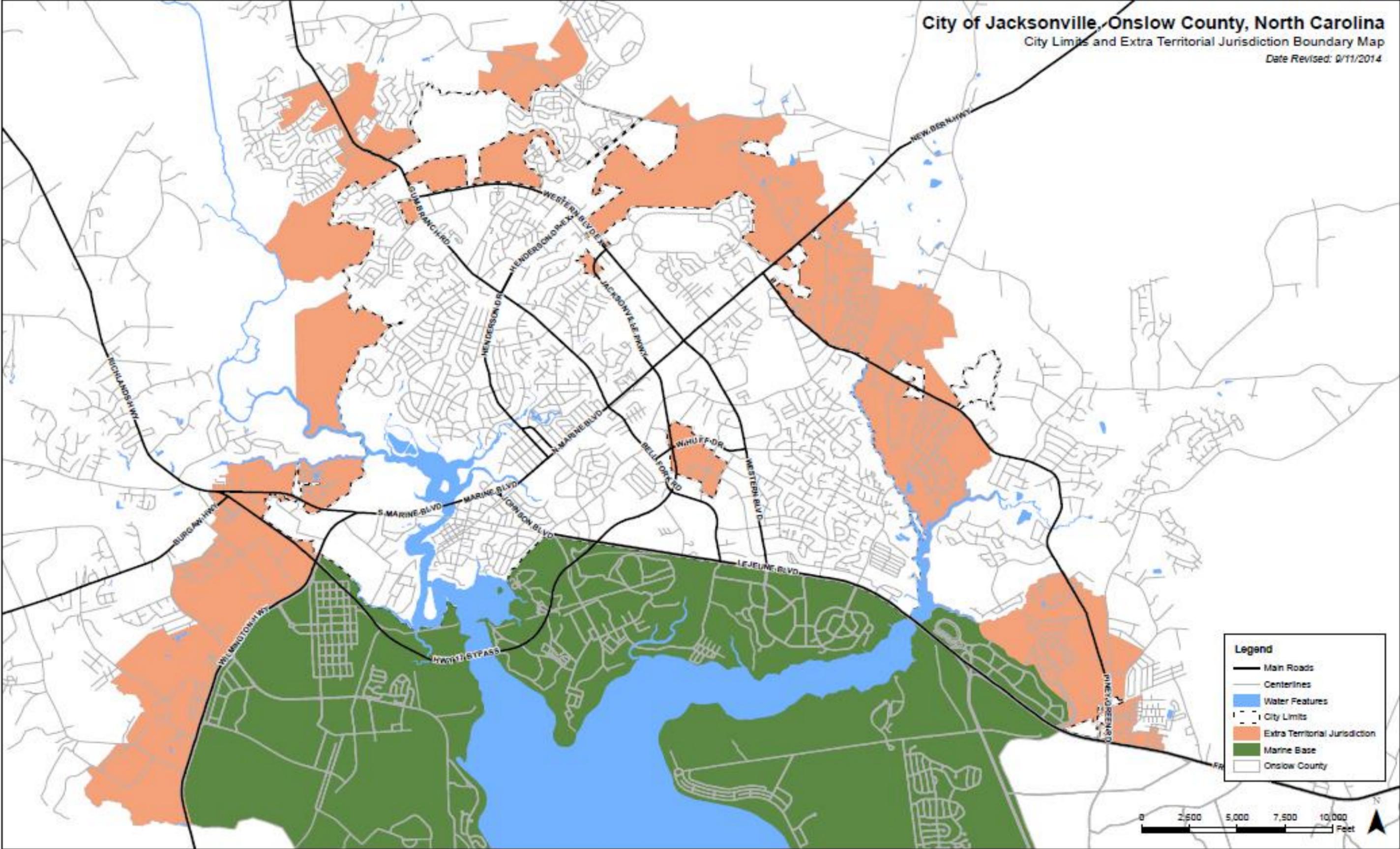
				and provides for runoff control.	
Stormwater Management	Existing	Development and administration of a stormwater management program is a requirement of the City's NPDES Coastal Rules Stormwater permit.	Medium	Maintenance of drain-ways reduces chance for blockages and the attendant flooding	NPDES permit issued March 1, 2012 with renewal in 5-years.
Policies and Programs (ex. Zoning Ordinance)	Policy/Program Status (ex. Potential or Existing Policy/Program)	Document Reference (ex. Comprehensive Plan and page number)	Effectiveness of Mitigation (ex. Low, Medium, High)	Rationale for Effectiveness (ex. Low, because allows development in flood plain)	Recommendations for Incorporating Into Hazard Mitigation Strategy (ex. Amend ordinance to restrict development in floodplain, page III-4 of plan)
Soil Erosion and Sedimentation Control Ordinance	Existing	Jacksonville City Code, Chapter 22, Sec. 22-1 to 22-23	Low	Low because it might only affect channel capacity	Continue to enforce state standards and City of Jacksonville standards
Floodplain Ordinance	Existing	City of Jacksonville Flood Damage Prevention Ordinance, dated Dec. 19, 1989	High	Addresses loss prevention related to flood events.	Increase minimum floor elevation to 5' above BFE and 1' above highest adjacent ground. In unmapped areas, increase floor elevation to 7' above highest adjacent ground.
NFIP and Community Rating System	Existing	2000 CRS Application	High	Addresses loss	Annually provide information for City

				prevention related to flood events	calendar.
--	--	--	--	--	-----------

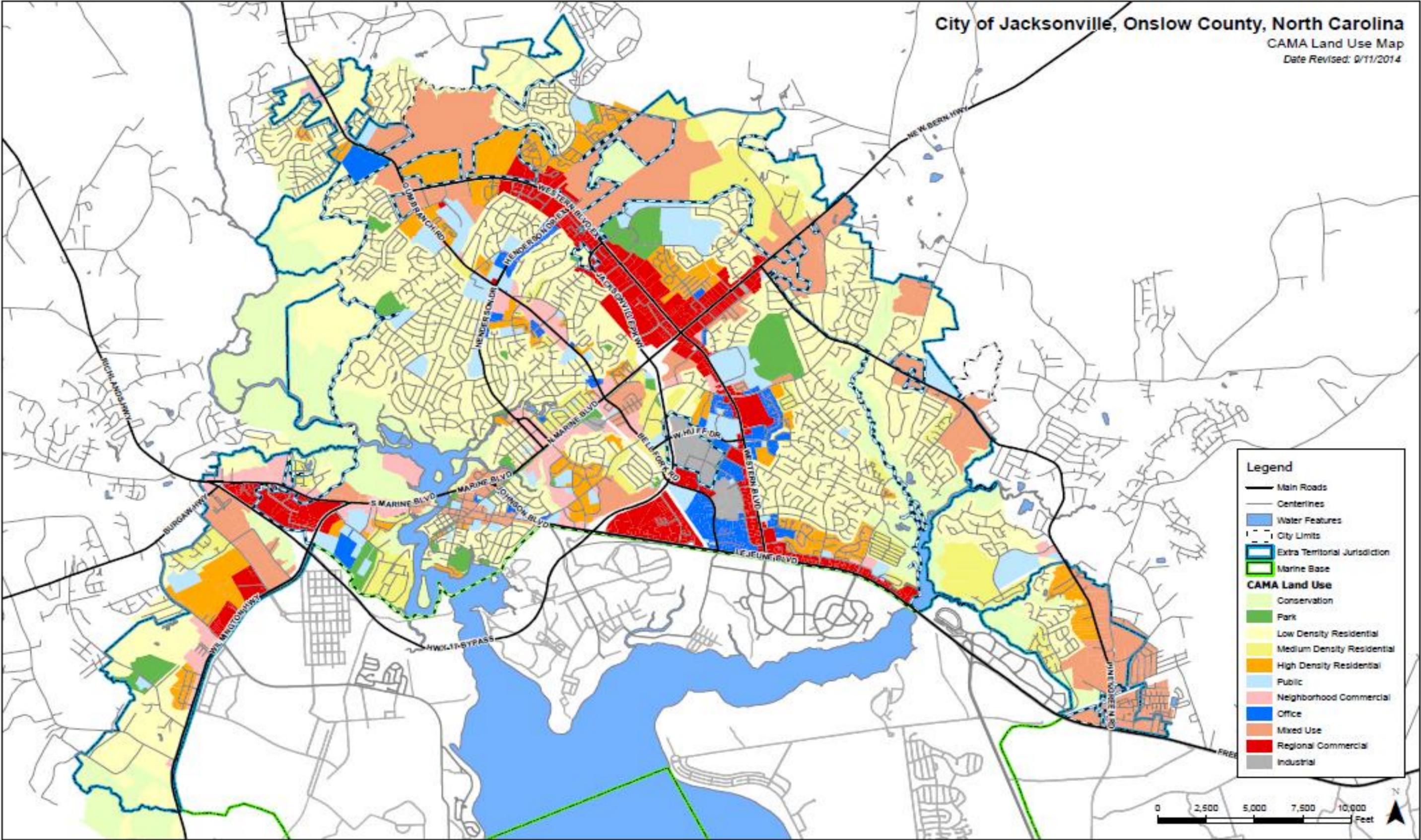
City of Jacksonville, Onslow County, North Carolina

City Limits and Extra Territorial Jurisdiction Boundary Map

Date Revised: 0/11/2014



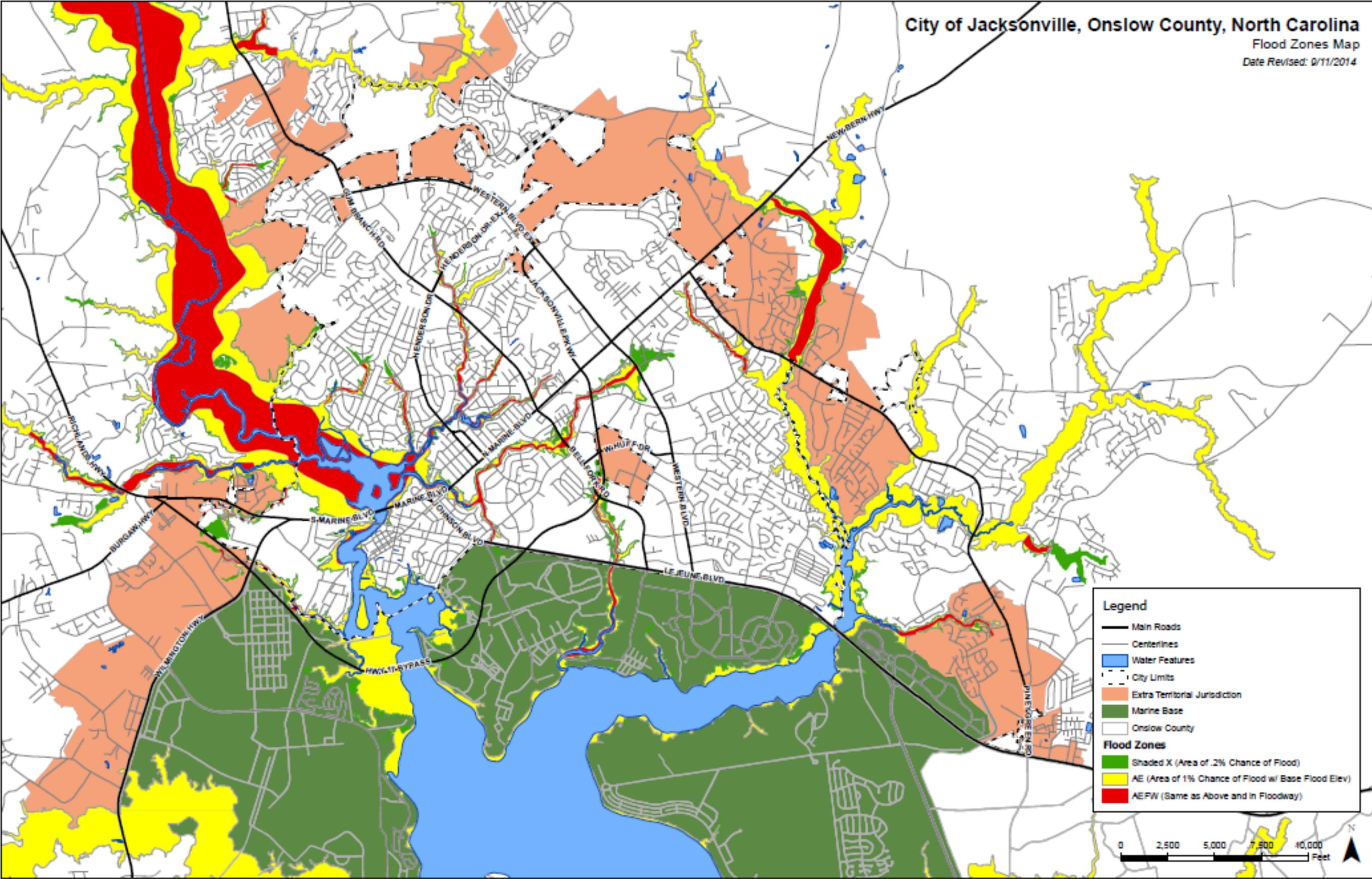
City of Jacksonville Land Use Map

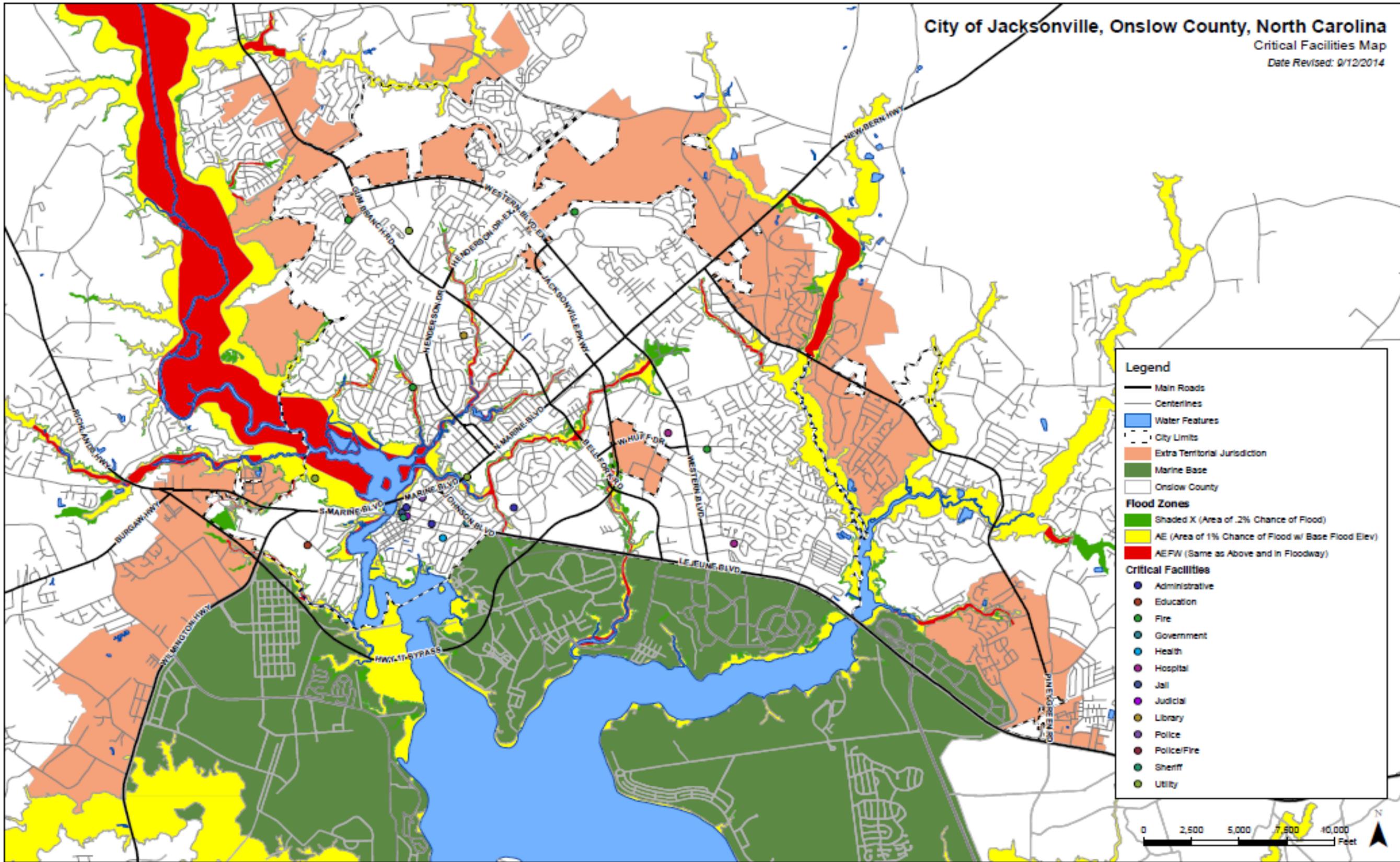


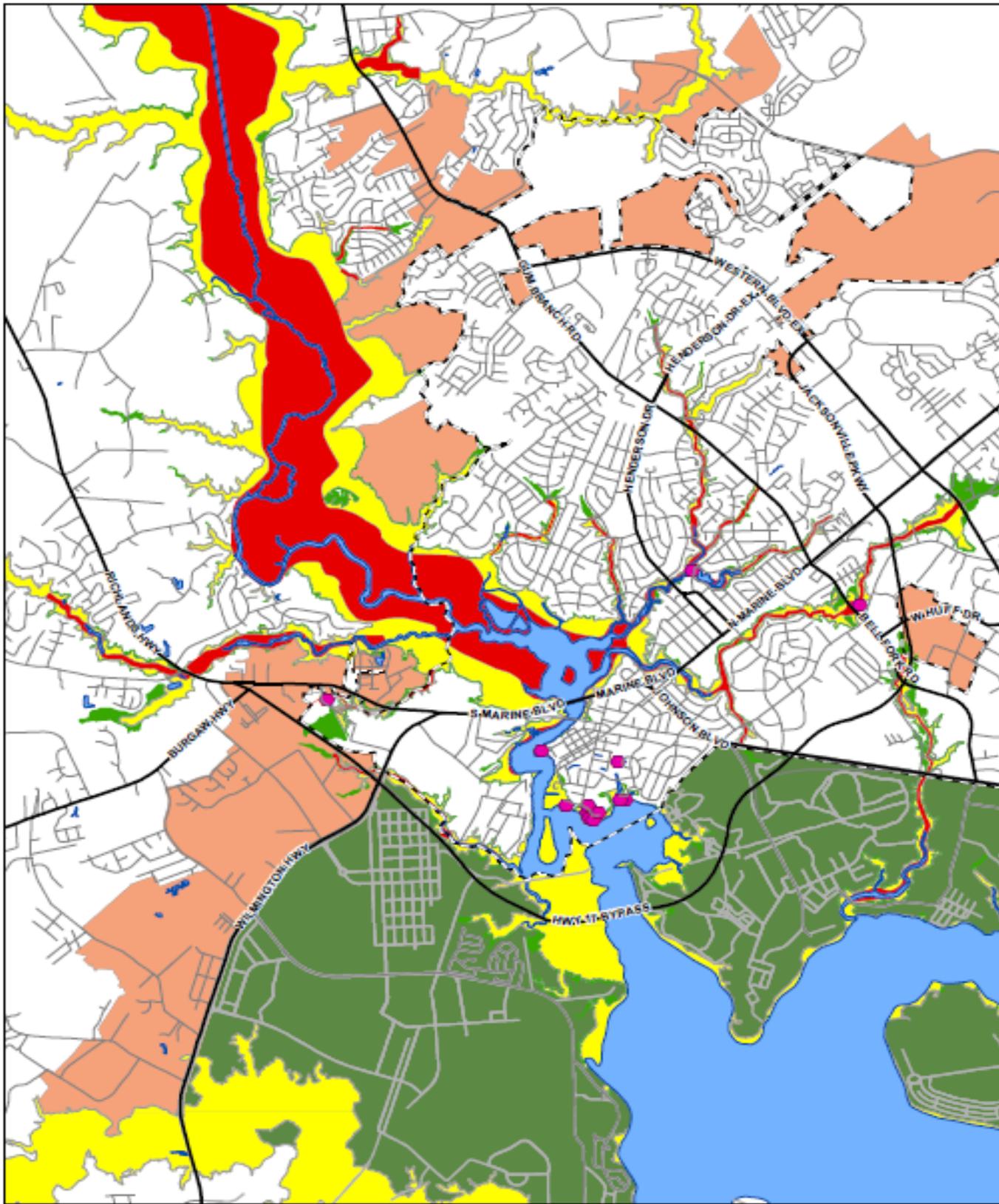
City of Jacksonville, Onslow County, North Carolina

Flood Zones Map

Date Revised: 9/11/2014







This Page Intentionally Left Blank