

Accomack-Northampton Planning District Commission

Application For

Community Flood Preparedness Fund

The Impacts of Climate Change on Crop Planning and Production: An Agricultural Study of the Eastern Shore

Jessica Steelman, Coastal Planner
Accomack-Northampton Planning District Commission
August 31, 2021



Contact Person (If different from authorized official): Jessica Steelman, Coastal Planner

Mailing Address (1): PO Box 417

Mailing Address (2): 23372 Front Street

City: Accomac **State:** VA **Zip:** 23301

Telephone Number: () **Cell Phone Number:** ()

Email Address:

Is the proposal in this application intended to benefit a low-income geographic area as defined in the Part 1 Definitions? Yes No

Categories (select applicable project):

Project Grants (Check All that Apply)

- Acquisition of property (or interests therein) and/or structures for purposes of allowing floodwater inundation, strategic retreat of existing land uses from areas vulnerable to flooding; the conservation or enhancement of natural flood resilience resources; or acquisition of structures, provided the acquired property will be protected in perpetuity from further development.
- Wetland restoration.
- Floodplain restoration.
- Construction of swales and settling ponds.
- Living shorelines and vegetated buffers.
- Structural floodwalls, levees, berms, flood gates, structural conveyances.
- Storm water system upgrades.
- Medium and large scale Low Impact Development (LID) in urban areas.
- Permanent conservation of undeveloped lands identified as having flood resilience value by *ConserveVirginia* Floodplain and Flooding Resilience layer or a similar data driven analytic tool.
- Dam restoration or removal.
- Stream bank restoration or stabilization.
- Restoration of floodplains to natural and beneficial function.
- Developing flood warning and response systems, which may include gauge installation, to notify residents of potential emergency flooding events.

Study Grants (Check All that Apply)

- Studies to aid in updating floodplain ordinances to maintain compliance with the NFIP or to incorporate higher standards that may reduce the risk of flood damage. This must include establishing processes for implementing the ordinance, including but not limited to, permitting, record retention, violations, and variances. This may include revising a floodplain ordinance when the community is getting new Flood Insurance Rate Maps (FIRMs), updating a floodplain ordinance to include floodplain setbacks or freeboard, or correcting issues identified in a Corrective Action Plan.
- Revising other land use ordinances to incorporate flood protection and mitigation goals, standards and practices.
- Conducting hydrologic and hydraulic studies of floodplains. Applicants who create new maps must apply for a Letter of Map Revision or a Physical Map Revision through the Federal Emergency Management Agency (FEMA). For example, a local government might conduct a hydrologic and hydraulic study for an area that had not been studied because the watershed is less than one square mile. Modeling the floodplain in an area that has numerous letters of map change that suggest the current map might not be fully accurate or doing a detailed flood study for an A Zone is another example.
- Studies and Data Collection of Statewide and Regional Significance.
- Revisions to existing resilience plans and modifications to existing comprehensive and hazard.
- Other relevant flood prevention and protection project or study.

Capacity Building and Planning Grants

- Floodplain Staff Capacity.
- Resilience Plan Development
 - Revisions to existing resilience plans and modifications to existing comprehensive and hazard mitigation plans.
 - Resource assessments, planning, strategies and development.
 - Policy management and/or development.
 - Stakeholder engagement and strategies.

Location of Project (Include Maps): Eastern Shore of Virginia (region-wide); map included in SOW Supporting Docs. p. 9

NFIP Community Identification Number (CID#):(See appendix

F 510001 and 510105

Is Project Located in an NFIP Participating Community? Yes No

Is Project Located in a Special Flood Hazard Area? Yes No

Flood Zone(s) (If Applicable): Both counties fall within Flood Zone X

Flood Insurance Rate Map Number(s) (If Applicable): See FIRM Index in SOW Supporting Docs. pg. 10-11

Total Cost of Project: \$73,000

Total Amount Requested \$65,594

Scoring Criteria for Studies

Virginia Department of Conservation and Recreation
Virginia Community Flood Preparedness Fund Grant Program

Applicant Name:		
Eligibility Information		
Criterion	Description	Check One
1. Is the applicant a local government (including counties, cities, towns, municipal corporations, authorities, districts, commissions, or political subdivisions created by the General Assembly or pursuant to the Constitution or laws of the Commonwealth, or any combination of these)?		
Yes	Eligible for consideration	✓
No	Not eligible for consideration	
2. Does the local government have an approved resilience plan and has provided a copy or link to the plan with this application?		
Yes	Eligible for consideration under all categories	✓
No	Eligible for consideration for studies, capacity building, and planning only	
3. If the applicant is <u>not a town, city, or county</u>, are letters of support from all affected local governments included in this application?		
Yes	Eligible for consideration	✓
No	Not eligible for consideration	
4. Has this or any portion of this project been included in any application or program previously funded by the Department?		
Yes	Not eligible for consideration	
No	Eligible for consideration	✓
5. Has the applicant provided evidence of an ability to provide the required matching funds?		
Yes	Eligible for consideration	✓
No	Not eligible for consideration	
N/A	Match not required	

Checklist All Categories

Virginia Department of Conservation and Recreation

Community Flood Preparedness Fund Grant Program

Scope of Work Narrative	
Supporting Documentation	Included
Detailed map of the project area(s) (Projects/Studies)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
FIRMette of the project area(s) (Projects/Studies)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Historic flood damage data and/or images (Projects/Studies)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
A link to or a copy of the current floodplain ordinance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Non-Fund financed maintenance and management plan for project extending a minimum of 5 years from project close	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
A link to or a copy of the current hazard mitigation plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
A link to or a copy of the current comprehensive plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Social vulnerability index score(s) for the project area from ADAPT VA's Virginia Vulnerability Viewer	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
If applicant is not a town, city, or county, letters of support from affected communities	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Completed Scoring Criteria Sheet in Appendix B, C, or D	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Budget Narrative	
Supporting Documentation	Included
Authorization to request funding from the Fund from governing body or chief executive of the local government	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Signed pledge agreement from each contributing organization	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

Scope of Work Narrative

Project Overview: The Accomack-Northampton Planning District Commission (A-NPDC) will contract an agricultural engineer (or comparable professional) to conduct a new rainfall study. This study will address adaptation impacts by meeting the community's need to assess the impact of intense rainfall and flooding upon the Eastern Shore's agriculture and food processing sector, assist in crop forecasting, examine how the growing zone is impacted, and inform production efforts. These efforts will aid in guiding future regional resilience plan development for flood mitigation within the agricultural sector. The goal is to improve action-oriented approaches to bolster flood preparedness that can be used as a planning tool by the Eastern Shore's agricultural sector and serve as a model state-wide. The region will use this study to develop a comprehensive Regional Resiliency Plan that will identify barriers to flood mitigation and promote equity across the sector, and ultimately build capacity through development of this planning tool.

Introduction: This is a regional study, encompassing the two counties of Virginia's Eastern Shore: Northampton County and Accomack County. Both counties are part of the federal floodplain management area of Virginia. Accomack County also participates in the Community Rating System (CRS), with a CRS Class rating of 6 for a 20% policy discount of the National Flood Insurance Program (NFIP); The Town of Cape Charles ranks as Class 8, for a 10% discount, as does the Town of Chincoteague, and the Town of Wachapreague.

The volume and distribution of precipitation is expected to change across the Chesapeake Bay watershed in the coming years as a result of the effect of climate change on coastal flooding through sea level rise, storm surge, and increases in intense rainfall during storms. The changing hydrologic conditions pose a great risk to crop planning, production, and processing on Virginia's Eastern Shore. The Eastern Shore is one of the state's largest agriculture and food processing sectors, and agriculture is the region's largest employer.

According to the Virginia Cooperative Extension, the total farm net revenue in 2018 was \$304.5 million with total cropland equaling 133,439 acres. Accomack County was ranked 4th largest producing county for poultry in the state, with sales averaging \$108 million. Accomack County also ranked as the largest soybean producing county in Virginia, with Northampton County ranking 4th largest with annual sales totaling \$26 million. Accomack County is also the largest corn producing county in Virginia, with 27,000 acres dedicated to corn crop production and annual sales averaging \$18 million. Virginia's wheat production is most prominent on the Eastern Shore, with Northampton County ranking as the largest wheat producer in the state and Accomack County ranking 2nd largest with 30,000 acres dedicated to wheat production and annual sales reaching \$11 million. Lastly, Northampton County is the 5th largest producer of plant nurseries in the state, bringing in annual sales of \$40 million.

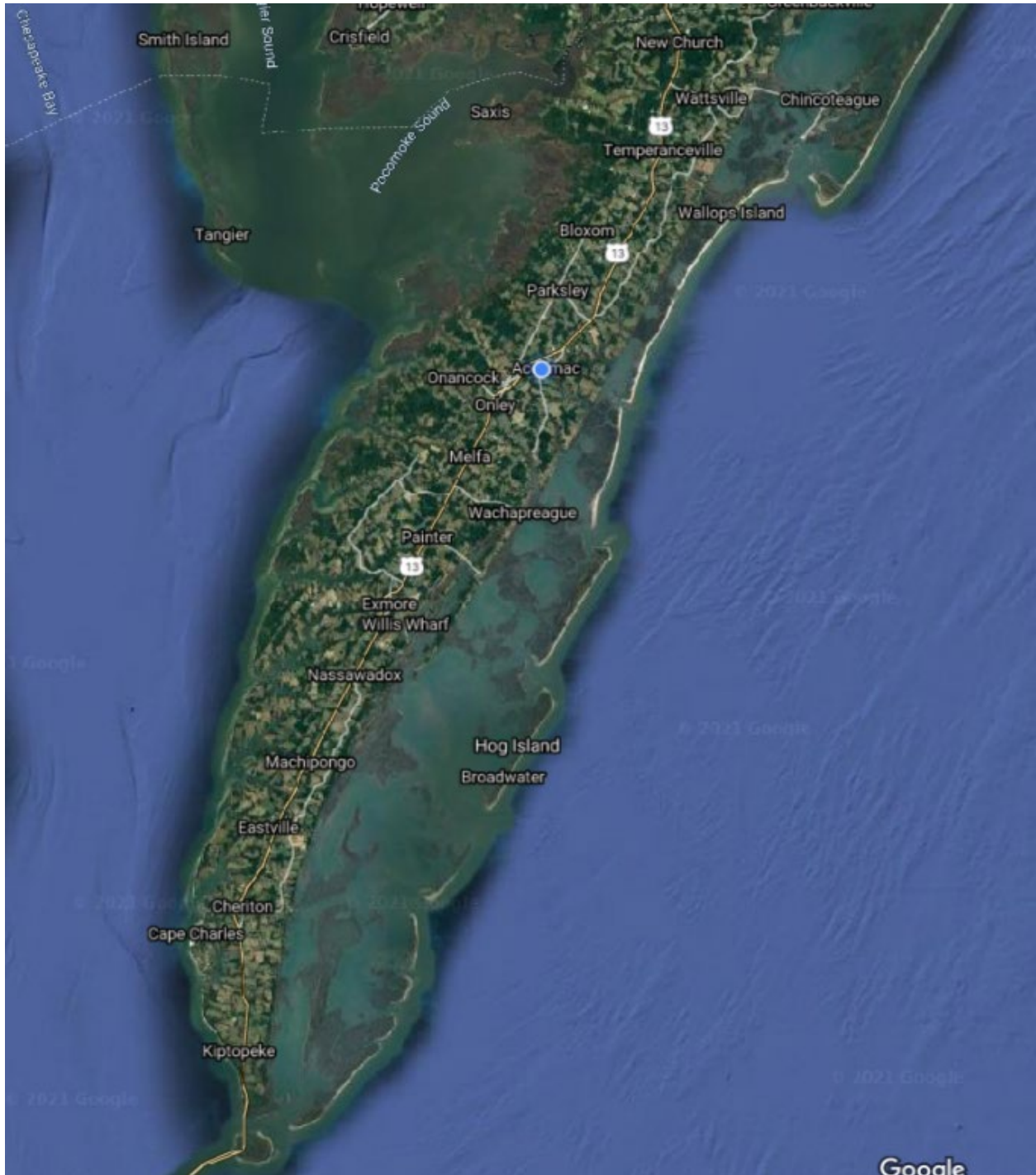
It is important to note that the Eastern Shore's primary crops of corn, soybeans and wheat are processed and consumed locally in its poultry production. In fact, the Eastern Shore is a net importer of these crops because the region cannot produce adequate grain supply to meet the poultry producers' demand. According to Emsi Q3 2021 data and additional data provided by Economic Development consultant Thomas P. Miller & Associates, the agriculture and food processing industry on the Eastern Shore met demand through recorded imports of \$57,518,700. Additionally, the region's agriculture sector was responsible for \$33,735,115 in exported sales and \$62,850,380 in Gross Regional Product.

A recent workshop conducted by Maryland Sea Grant, with funding from the National Science Foundation's Coastlines and People Program, titled *Coastal Farming Challenges* (Appendix A) resulted in significant, observed impacts on crop production attributed to sea level rise and flooding by the participants including, but not limited to: more standing water on the land, increase in wetland plants, flooding by seawater, more salt in soils, land no longer suitable for planting, reduction in crop productivity, and increased costs to manage land. These impacts revealed challenges such as land that formerly produced good yields may not do so due to being too wet, thereby becoming inefficient to farm, or by putting machinery at risk. While a possible land management option is to plant alternative crops, there are still unknowns such as these alternative crops or salt-tolerant versions of standard crops having low yield, limited markets, and possible need for new farm machinery. Other options that direct transformation of the land to an alternative, desired condition may limit practices farmers may use on the land and require farmers to restructure business models – both of which can be costly to farmers. In a low-income geographic area such as the Eastern Shore, these strategies along with some others, such as drainage ponds, catch basins, salty soil remediation and spillways to improve drainage are not feasible due to being cost-prohibitive and potentially not worth the investment on less productive lands. Farmers who participated in this workshop expressed a need for research on coastal agricultural issues, such as sea level rise and flooding. Additional research would include the development of cost-effective drainage options to reduce flooding and mapping of current and forecasted saltwater intrusion areas.

Study Scope:

- This is a *new* study that will use the [IDF data and modeling tool](#) to assess changing rainfall patterns. The study will identify various scenarios and propose mitigation steps under each scenario.
- As a baseline, the study will examine historic data to update precipitation rates, flood risks, and IDF information on a regional scale.
- Planning Tool: The study's baseline will be used for future master planning by developing a comprehensive approach to flood preparedness and resilience.
- Practical Tool: The study will provide a framework for future mitigation efforts and assist farmers in making crop planning decisions using the best available science.
- The study will perform a vulnerability analysis for crop planning, production, transportation, and storage. Other at-risk agricultural infrastructure may be included.
- The study will seek a region-specific approach, tailored to the needs of the individual communities.
- The A-NPDC and/or contractor will perform public outreach and education strategies in order to develop a community approach to resilience.
- The contractor will use the information obtained through public outreach to address the region's needs for economic resilience, equity, and community improvement.
- The study will perform data collection in support of future projects of regional significance.
- The study can be used as a long-range planning document to prioritize and improve the effectiveness of future resilience and economic development projects in the agricultural sector.

Supporting Documentation
Detailed Map of the Project Area



Historic Flood Damage Data

See Appendix D for Tables 1 & 2: Major 20th Century Storms affecting the Eastern Shore of Virginia and Tables 3 & 4: Major 21st Century Storms affecting the Eastern Shore of Virginia.

Further historical flood damage data dating back to pre-1564 can be viewed in The Eastern Shore of Virginia Hazard Mitigation Plan 2016 (linked below) on pages 5-7 of Chapter 1: Hazards on the Shore.



Flooding on Randolph Avenue, 3 ½ blocks from the Chesapeake Bay, in Cape Charles from one of the 1930s hurricanes. Photo Credit: U.S. Army Corps of Engineers Flood Plain Cape Charles Report



Flooding during the Ash Wednesday Storm of 1962. Photo printed in the Army Corp of Engineers Flood Plain Report for Wachapreague



Storm water flooding on U.S. Route 13 during Tropical Depression Ernesto in 2006. Photo Credit: Jay Diem, Eastern Shore News

Hazard Mitigation Plan 2016

<http://www.a-npdc.org/wp-content/uploads/2016/04/FullHMP2016.pdf>

Current Floodplain Ordinances

Accomack County –

https://library.municode.com/va/acomack_county/codes/code_of_ordinances?nodeId=CO_CH106ZO_ARTXVFLHAOVDI

Northampton County –

https://codelibrary.amlegal.com/codes/northamptoncounty/latest/northampton_va/0-0-0-16924

Comprehensive Plans

Accomack County –

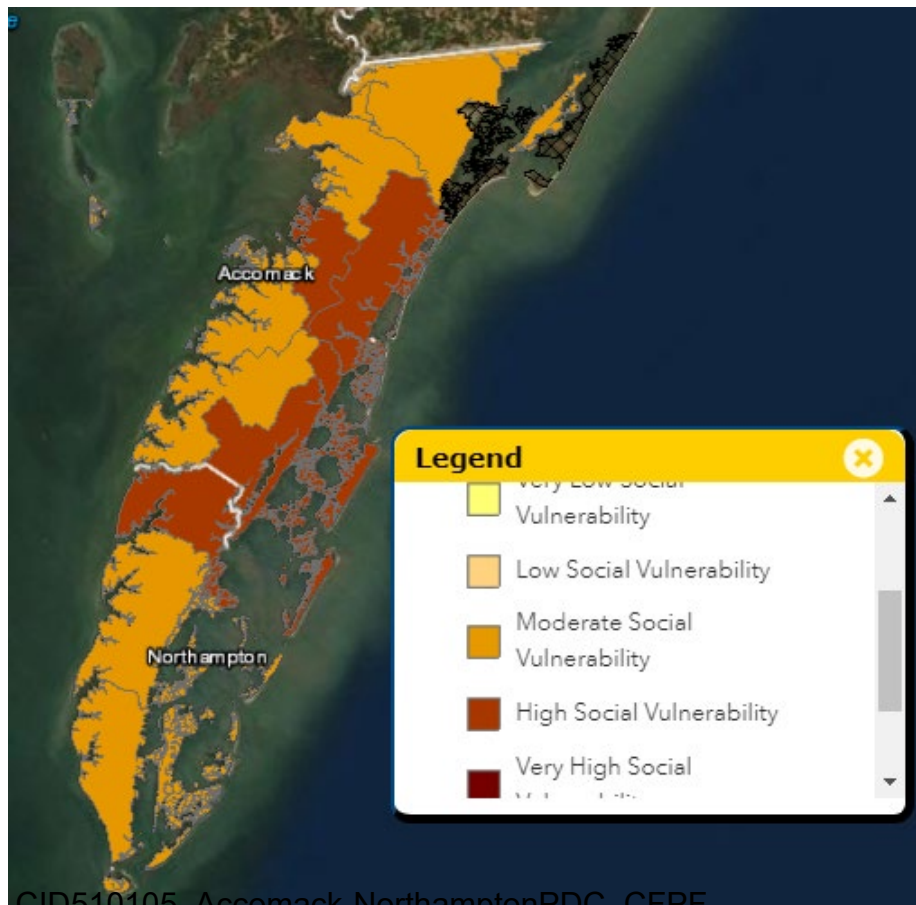
<https://www.co.accomack.va.us/home/showpublisheddocument/10669/636761702081200000>

Northampton County –

https://p1cdn4static.civillive.com/UserFiles/Servers/Server_14877142/File/!%20Want%20To%E2%80%A6/Volunteer/Comp%20Plan/Complete_Comp_Plan_Apr_2009.pdf

Social Vulnerability Scores

For the entire Eastern Shore Region, scores range from 0.3 – 1.3 (falling in either the moderate-social to high-social vulnerability categories).



Budget Narrative

The Eastern Shore Region, consisting of Accomack and Northampton counties, as represented by the Accomack-Northampton Planning District Commission (A-NPDC), qualifies as a *Low-Income Geographic Area* per the definitions in the CFPF Grant Manual, making the match requirement for this application 10% of total project budget. The estimated total project cost is \$73,000 with \$65,594 being requested from the Fund and cash funds (non-federal match) contribution of \$7,406. The source of match funds is the A-NPDC; a Pledge Agreement has been included as part of the application packet. See the tables below for a breakdown of the total project budget.

Budget Summary Worksheet			
Category	Federal Request	Non-Federal Match	Total
A. Personnel	\$ 7,677.00	\$ 4,344.00	\$ 12,021.00
B. Fringe	\$ 2,187.00	\$ 1,175.00	\$ 3,362.00
C. Supplies	\$ 2,000.00		\$ 2,000.00
D. Travel	\$ 357.00		\$ 357.00
E. Contractual	\$ 50,000.00		\$ 50,000.00
Total Direct Costs	\$ 62,221.00	\$ 5,519.00	\$ 67,740.00
G. Indirect Costs	\$ 3,373.00	\$ 1,887.00	\$ 5,260.00
Total	\$ 65,594.00	\$ 7,406.00	\$ 73,000.00

A. Personnel

Personnel Worksheet - Federal Costs				
Title	Name (or Vacant)	Annual Salary	Level of Effort (%)	Total Personnel Cost
Director of Planning	Anne Doyle	\$56,000	6%	\$3,360
Coastal Planner	Jessica Steelman	\$44,100	7%	\$3,087
Director of Admin	Sandy Taylor	\$61,500	2%	\$1,230
Total				\$7,677

Personnel Worksheet - Non-Federal Costs				
Title	Name (or Vacant)	Annual Salary	Level of Effort (%)	Total Personnel Cost
Director of Planning	Anne Doyle	\$56,000	5%	\$2,800
Coastal Planner	Jessica Steelman	\$44,100	3.5%	\$1,544
Total				\$4,344

B. Fringe - Fringe reflects current rate for agency – 28.49%

Fringe Worksheet - Federal Costs				
Name/Title (If Using Individual Fringe Rates)	Component	Rate (%)	Salary (amount carried down from the Total Personnel Cost from the Personnel)	Total Fringe Cost
	Health Insurance	14.30%	\$7,677	\$1,098
	FICA	7.65%	\$7,677	\$587
	Retirement/Life	4.20%	\$7,677	\$322
	Group Life	1.33%	\$7,677	\$102
	Unemployment Insurance	0.18%	\$7,677	\$14
	Leave Accruals	0.83%	\$7,677	\$64
Total		28.49%		\$2,187

Fringe Worksheet - Non-Federal Costs				
Name/Title (If Using Individual Fringe Rates)	Component	Rate (%)	Salary (amount carried down from the Total Personnel Cost from the Personnel)	Total Fringe Cost
	Health Insurance	14.30%	\$4,123	\$590
	FICA	7.65%	\$4,123	\$315
	Retirement/Life	4.20%	\$4,123	\$173
	Group Life	1.33%	\$4,123	\$55
	Unemployment Insurance	0.18%	\$4,123	\$7
	Leave Accruals	0.83%	\$4,123	\$34
Total		28.49%		\$1,175

C. Indirect Cost Rate - A-NPDC's Indirect Cost Rate agreement is with Health & Human Resources. The current approved agreement provides 34.2% on Salaries and Fringes.

Indirect Costs Worksheet			
Indirect Cost Rate (%)	Total Base Amount (Fed + Match)	Maximum Allowed Indirect Cost (Rate x Total Base)	Total Indirect Cost Included in Budget
34.20%	\$15,383	\$5,261	\$5,261

Indirect Costs Worksheet		
Federal Indirect Cost	Non-Federal Match Indirect Cost	Total Indirect Cost Included in Budget
\$3,373	\$1,887	\$5,260

APPENDICES

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COASTAL FARMING CHALLENGES WORKSHOP FINDINGS

A workshop funded by the National Science Foundation's Coastlines and People Program.

INTRODUCTION

Maryland Sea Grant and partners convened a series of workshops with coastal farmers and woodlot managers located in the Chesapeake and coastal bays region in Maryland and Virginia. The goal of the workshops was to learn about coastal farming challenges that farmers and woodlot managers may be experiencing due to sea level rise and to identify potential research and policy gaps affecting their ability to adapt to these changes.

WORKSHOP DESIGN

Twenty-five coastal farmers and woodlot managers participated in this project. Participants were recruited through existing agriculture networks (e.g. Land Grant Extension, US Department of Agriculture Natural Resources Conservation Service) and a local newspaper. Participants manage and/or own agricultural land ranging from 5 - 6,700 acres and produce a variety of crops (e.g. timber, corn, vegetables). Data were collected through three virtual 90-minute workshops, digital pre- and post-surveys, and phone interviews. The workshops included informative talks by experts about sea level rise and adaptation strategies for farmers, as well as discussion sessions for farmers and woodlot managers to voice their concerns and questions regarding adaptation. Participants shared their experiences and perspectives on changes to their land and potential management options to address landscape changes (Figure 1).

FINDINGS

IMPACTS AND MANAGEMENT

Participants' motivations to continue farming include sustaining their livelihood, continuing their family's legacy on the land, preserving cultural identity in the region, and/or furthering their own dreams and goals for the property.

Discussions during virtual workshops highlighted participants' current and planned land management strategies in response to sea level rise. These strategies vary depending on: the percentage of land affected by flooding and saltiness; the cost and effectiveness of available management techniques; perceived policy hurdles; and knowledge of the problem and available mitigation options. Some participants indicated they would like to continue managing land as they have been in the short term but expect to have to change their land management in the long term.

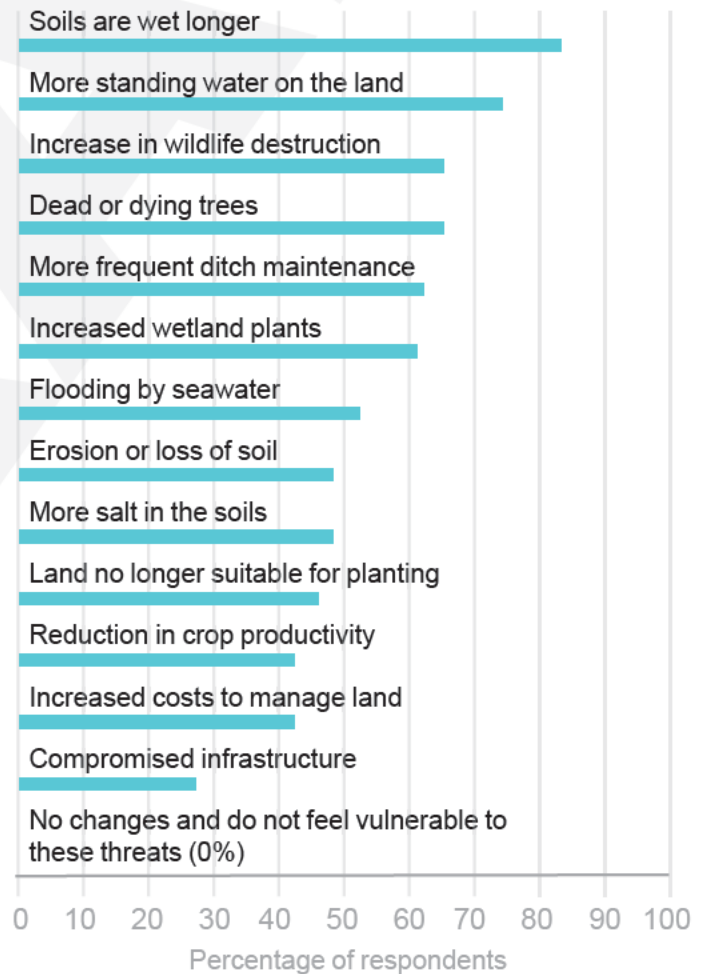


Figure 1. Reported observed impacts attributed to sea level rise and flooding by participants in the pre-survey.

APPENDIX A

Table 1. Summarized possible courses of action and participants' assessment of relevant challenges according to three broad categories of how participants might respond to landscape changes due to sea level rise and flooding.

		PREDOMINANT STRATEGIES		
		RESISTING CHANGES TO THE LAND	ACCEPTING CHANGE OF THE LAND	DIRECTING TRANSFORMATION OF THE LAND TO AN ALTERNATIVE, DESIRED CONDITION
LAND MANAGEMENT OPTIONS		Tide gates, dikes and berms, drainage ponds, catch basins, and spillways to improve drainage; salty soil remediation	Alternative crops (e.g. switch-grass, quinoa) and/or salt-tolerant crop varieties, ways to work around wet/salty areas, letting affected land go fallow	Actions that may allow for financial gain on otherwise unprofitable (i.e. flooded and/or salty) land and also contribute to environmental goals, such as conservation easements, hunting/recreation, ecotourism, carbon markets, and participation in programs that incentivize transition to wetlands
	CHALLENGES	Available methods sometimes fail, may be cost-prohibitive, or might not be worth investment on less productive lands	Areas that are too wet may not produce good yields, are inefficient to farm, or may put machinery at risk. Alternative crops and/or salt-tolerant versions of standard crops may also present challenges such as low yield, limited markets, or need for new farm machinery	Some options (e.g. easements) limit practices farmers may use on the land and require navigation of policy hurdles (e.g. paperwork, planting/maintenance requirements, liabilities). In addition, transitioning to alternative economic revenues is challenging due to the required restructuring of business models

RESEARCH AND POLICY GAPS

In the post-survey, participants (n=20) were asked to vote for three of 16 research and policy gaps (generated from workshop discussions and phone interviews) they felt should be addressed by agencies and/or research. The top topics were:

- Develop cost-effective drainage options to reduce flooding (8 votes)
- Map current and forecasted saltwater intrusion areas (7 votes)
- Develop carbon credit/carbon sequestration programs and markets (6 votes)

Other ranked topics (4 or 5 votes) included: affordable erosion control options; new markets for alternative and/or salt-tolerant crops; local timber markets/processing operations; address destructive wildlife; control *Phragmites sp.*; increase timely access to technical service providers; increase flexibility of USDA Conservation Reserve Program (CRP) including the Conservation Reserve Enhancement Program (CREP) lands' plant cover requirements.

Throughout this small pilot project, participants expressed interest in learning more about novel opportunities (e.g. carbon market, technological developments in flood control) and any policies, funding, or available science which could help maintain operations and/or transition to different land uses. Further, respondents thought technical service providers and boundary organizations could facilitate actions on policy and research gaps by “conveying coastal challenges of agriculture to policy makers” and “facilitating collaborations for research on coastal agricultural issues.”

CALL FOR COLLABORATION

Maryland Sea Grant is interested in collaborating further with farmers, woodlot managers, researchers, extension & outreach specialists, and policymakers to continue this initiative and help Maryland communities become more resilient to weather and climate hazards. Please contact Taryn Sudol at sudol@mdsg.umd.edu for more information or visit the website <https://bit.ly/MDSG-coastal-aqr> for workshop presentations and forthcoming project reports.





**EASTERN SHORE
SOIL AND WATER CONSERVATION DISTRICT**
22545 Center Parkway • Accomac, Virginia 23301-1330
(757) 787-0918



Jessica Steelman
Coastal Planner
Accomack-Northampton Planning District Commission



August 30, 2021

RE: Support for *The Impacts of Climate Change on Crop Planning and Production: An Agricultural Study of the Eastern Shore*

Dear Mrs. Steelman,

On behalf of the Eastern Shore Soil & Water Conservation District (ESSWCD), I fully support the efforts of the Accomack-Northampton Planning District Commission (A-NPDC) in seeking funding from the Community Flood Preparedness Fund for the purpose of conducting an agricultural study. This study will meet the community's need to assess the impact of intense rainfall and flooding upon the Eastern Shore's agricultural sector, examine how the growing zone is impacted, and inform crop planning and production efforts. The A-NPDC's goal is to develop a regional approach to bolster flood preparedness and resilience that can be used as a planning tool by the Eastern Shore's agricultural sector.

Furthermore, the study can act as a model state-wide as coastal regions continue to face an increasing amount of sea level rise and flood events.

Sincerely,

A handwritten signature in cursive script that reads "Robin Rich-Coates".

Robin Rich-Coates, Chair
Eastern Shore SWCD

Cc: Carmie Savage
District Manager
Eastern Shore Soil & Water Conservation District



Cc: Anne Doyle
Director of Planning
Accomack-Northampton Planning District Commission





COUNTY OF ACCOMACK
OFFICE OF THE COUNTY ADMINISTRATOR

23296 Courthouse Ave – Room 203 | P.O. Box 388 | Accomack, Virginia 23301
(757) 787-5700 | administration@co.accomack.va.us
www.co.accomack.va.us

Michael T. Mason, CPA
County Administrator

August 30, 2021

Jessica Steelman
Coastal Planner
Accomack-Northampton Planning District Commission

RE: Support for *The Impacts of Climate Change on Crop Planning and Production: An Agricultural Study of the Eastern Shore*

Dear Mrs. Steelman,

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Sincerely,

A handwritten signature in black ink, appearing to read "M. T. Mason".

Michael T. Mason, CPA
County Administrator

APPENDIX B



Board of Supervisors of Northampton County P.O. Box 66 • Eastville, Virginia 23347

BOARD OF SUPERVISORS

*L. Dixon Leatherbury, Chairman
M.E. "Betsy" Mapp, Vice Chairman
Oliver H. Bennett
John R. Coker
David W. Fauber*

Charles Kolakowski
County Administrator

PHONE: 757-678-0440
FAX: 757-678-0483

August 30, 2021

Ms. Jessica Steelman
Coastal Planner
Accomack-Northampton Planning District Commission



Re: Support for *The Impacts of Climate Change on Crop Planning and Production: An Agricultural Study of the Eastern Shore*

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If you have any questions, please advise.

Sincerely yours,

A handwritten signature in black ink, appearing to read "C. Kolakowski".

CHARLES KOLAKOWSKI
County Administrator



Cc: Anne Doyle, Director of Planning
Accomack-Northampton Planning District Commission



APPENDIX C



A-NPDC

ACCOMACK-NORTHAMPTON PLANNING DISTRICT COMMISSION
P.O. BOX 417 • 23372 FRONT STREET • ACCOMAC, VIRGINIA 23301
(757) 787-2936 • TOLL FREE (866) 787-3001 • FAX: (757) 787-4221
WEBSITE: www.a-npdc.org

Authorization to Request Funding

The Executive Director has authorized the submission of this grant application to the Community Flood Preparedness Fund for project titled *The Impacts of Climate Change on crop Planning & Production: An Agricultural Study of the Eastern Shore*.

Elaine Meil, Executive Director
Name & Title

Accomack-Northampton Planning District Commission
Organization

Elaine Meil
Signature

Date 8/31/2021

Cc: Anne Doyle
Director of Planning
Accomack-Northampton PDC



Cc : Jessica Steelman
Coastal Planner
Accomack-Northampton PDC



APPENDIX D



A-NPDC

ACCOMACK-NORTHAMPTON PLANNING DISTRICT COMMISSION
P.O. BOX 417 • 23372 FRONT STREET • ACCOMAC, VIRGINIA 23301
(757) 787-2936 • TOLL FREE (866) 787-3001 • FAX: (757) 787-4221
WEBSITE: www.a-npdc.org

Pledge Agreement

I, Elaine Meil, on behalf of the Accomack-Northampton Planning District Commission (A-NPDC), hereby pledge and agree to provide in-kind match to defray the cost of staff management of the study for project titled *The Impacts of Climate Change on Crop Planning & Production: An Agricultural Study of the Eastern Shore*, the sum of \$7,406.00.

I agree to make a future contribution for the purpose of satisfying this pledge and the CFPF application requirements and further agree that this pledge will be satisfied during the agreement period.

Authorized Representative & Applicant Organization Information:

Elaine Meil, Executive Director
Accomack-Northampton Planning District Commission
PO Box 417/23372 Front Street
Accomac, VA 23301
(757) 787-2936

This pledge was made by:

Elaine Meil, Executive Director

Name & Title

Accomack-Northampton Planning District Commission

Organization

Elaine Meil

Signature

Date 8/31/2021

The foregoing pledge is gratefully acknowledged and accepted, and its terms are hereby agreed to by:

Name & Title

Organization

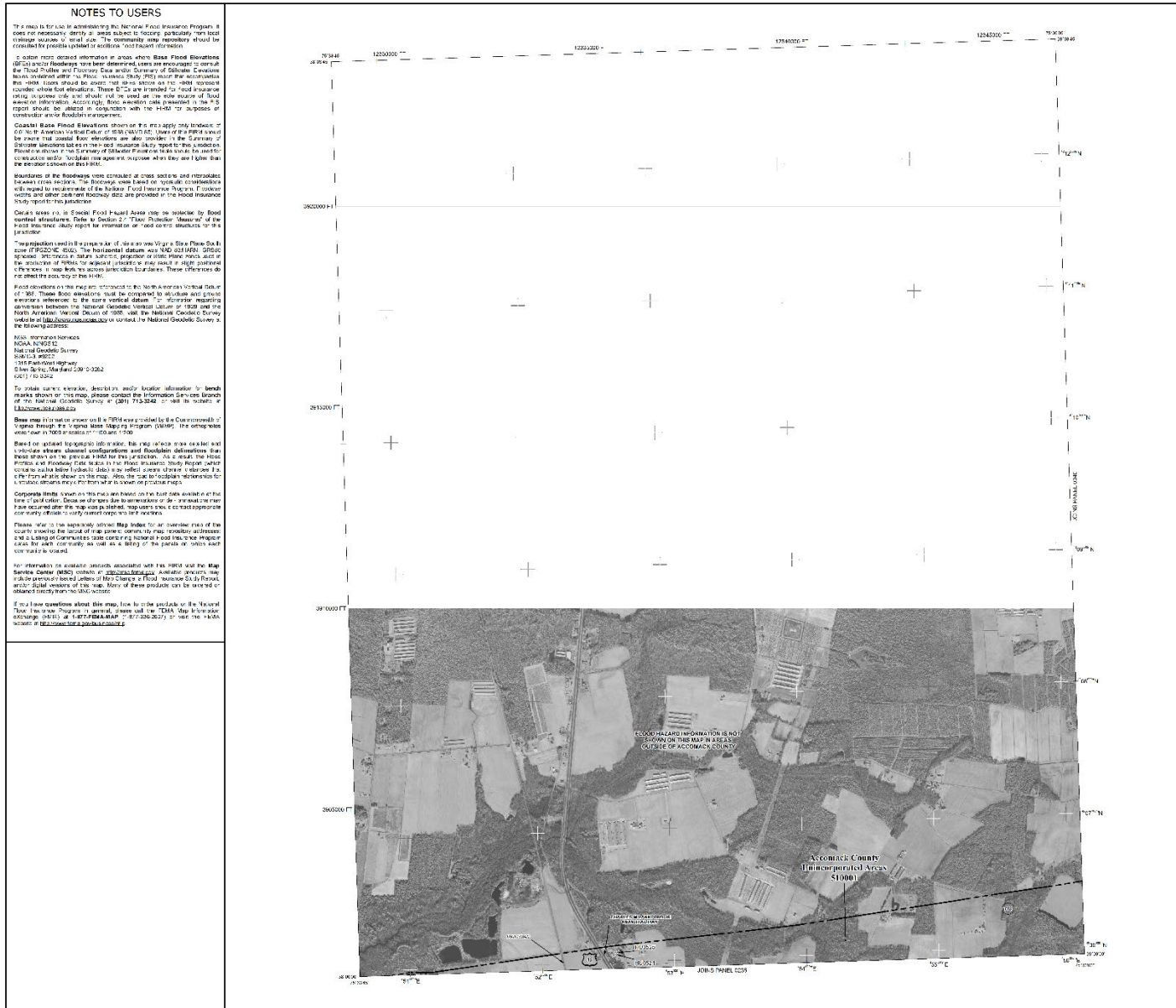
Signature

Date _____

Cc: Anne Doyle
Director of Planning
Accomack-Northampton PDC

Cc : Jessica Steelman
Coastal Planner
Accomack-Northampton PDC

APPENDIX E



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO FLOODING

COASTAL FLOOD HAZARD AREAS

OTHER FLOOD HAZARD AREAS

WATER BODIES

ROADS

RAILROADS

UTILITY LINES

BOUNDARIES

PROPERTY LINES

ADDITIONAL INFORMATION

MAP SCALE: 1" = 1000'

MAP NUMBER: 51001C020G

MAP REVISION: MAY 10, 2015

Federal Emergency Management Agency

PANEL 02020G

FIRM

FLOOD INSURANCE RATE MAP

ACCOMACK COUNTY, VIRGINIA AND INCORPORATED AREAS

PANEL 20 OF 965

FOR MORE DETAILS FROM THESE PANELS, VISIT: www.fema.gov

CONTACT:

ACCOMACK COUNTY: 1 800 862 6127

MAP NUMBER: 51001C020G

MAP REVISION: MAY 10, 2015

Federal Emergency Management Agency

APPENDIX E

NOTES TO USERS

It is recommended that users be advised that the National Flood Insurance Program does not necessarily verify its areas subject to flooding, particularly non-flood storage basins or wetlands. The information shown represents what is currently available (updated or additional) flood hazard information.

For other more detailed information on areas where Basic Flood Elevations (BFEs) are shown, users are encouraged to contact the Flood Profile and Inventory Data and Survey of Delaware. Elevation data for other areas not shown on this map should be obtained from the local flood protection authority for flood insurance purposes. Flood insurance policyholders should be advised that the BFEs shown on this map are for informational purposes only and are not to be used for flood insurance purposes. Flood insurance policyholders should be advised that the BFEs shown on this map are for informational purposes only and are not to be used for flood insurance purposes.

Coastal Flood Elevations shown on this map apply only to areas of 1/2 foot from mean high tide (MHT) and are not to be used for flood insurance purposes. Flood elevations are also provided in the form of 5-foot BFEs in areas where the Flood Profile and Inventory Data and Survey of Delaware shows the Survey of Delaware. Elevation data should be used for flood insurance purposes. Flood insurance policyholders should be advised that the BFEs shown on this map are for informational purposes only and are not to be used for flood insurance purposes.

Coastal Flood Elevations shown on this map apply only to areas of 1/2 foot from mean high tide (MHT) and are not to be used for flood insurance purposes. Flood elevations are also provided in the form of 5-foot BFEs in areas where the Flood Profile and Inventory Data and Survey of Delaware shows the Survey of Delaware. Elevation data should be used for flood insurance purposes. Flood insurance policyholders should be advised that the BFEs shown on this map are for informational purposes only and are not to be used for flood insurance purposes.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures, such as Section 2.0 of the Flood Profile and Inventory Data and Survey of Delaware.

The population and the population of this map was taken from the 2000 Census (2000 Census) and the horizontal datum was NAD 83 (1983). Vertical datum is Mean Sea Level (MSL) (1988). The vertical datum used for the population data is Mean Sea Level (MSL) (1988). The vertical datum used for the population data is Mean Sea Level (MSL) (1988).

This map was prepared by the National Flood Insurance Program (NFIP) and the Flood Profile and Inventory Data and Survey of Delaware. The map was prepared by the National Flood Insurance Program (NFIP) and the Flood Profile and Inventory Data and Survey of Delaware. The map was prepared by the National Flood Insurance Program (NFIP) and the Flood Profile and Inventory Data and Survey of Delaware.

NOAA, NIMS 2.0
Map of Special Areas
151 1st Street, NE
Silver Spring, Maryland 20910-2282
(301) 713-2367

To obtain a text description, description, or location information for beach marks shown on this map, please contact the Information Services Branch of the National Oceanic and Atmospheric Administration (NOAA) or visit the website at www.nmfs.gov.

Base map information shown on this map was provided by the Department of the Interior, United States Geological Survey (USGS). The information was obtained from a 2001 street map at 1:50,000 scale.

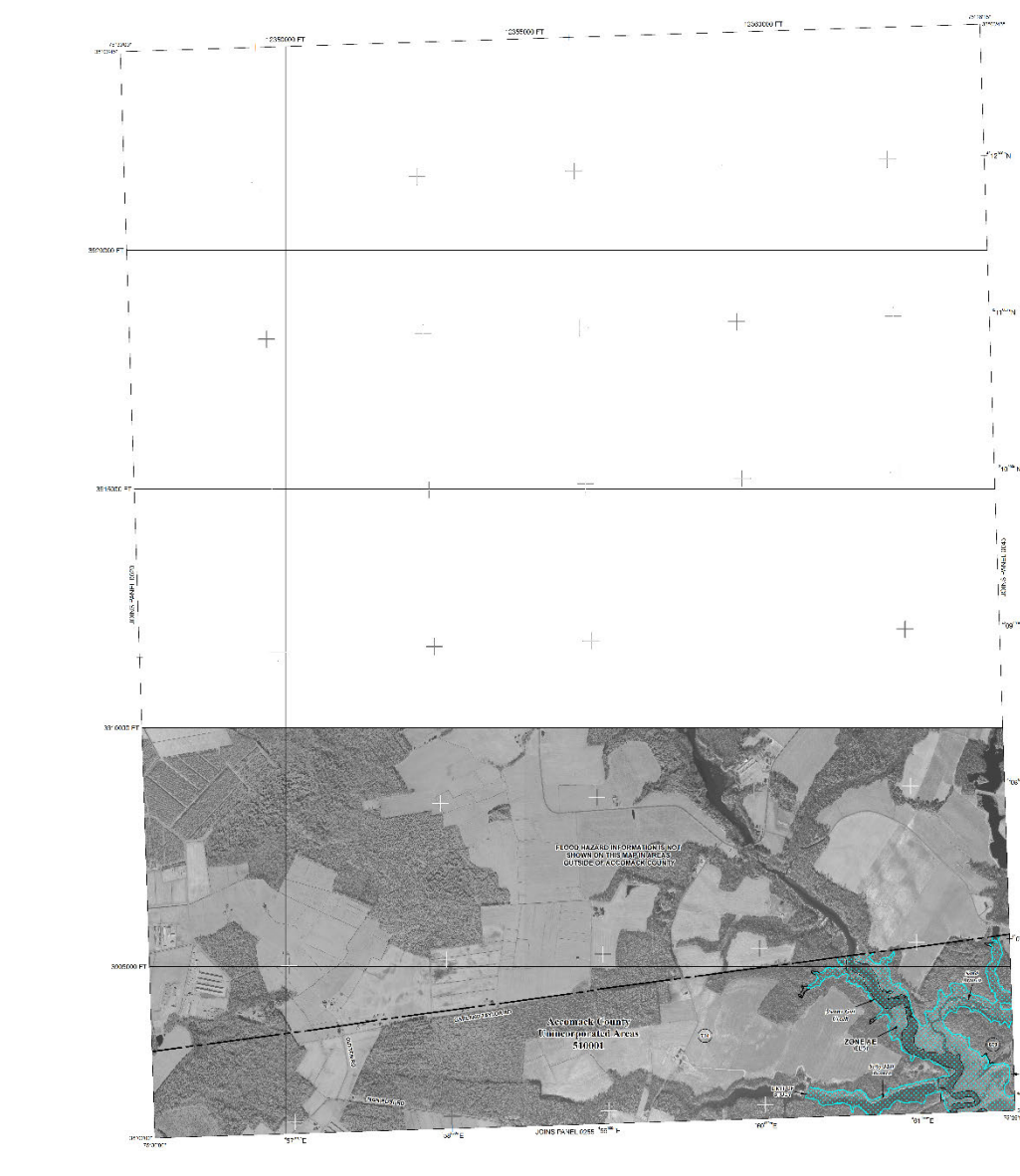
Based on current information, the map shows some areas and some areas shown on this map are not shown on the map. The map shows some areas and some areas shown on this map are not shown on the map. The map shows some areas and some areas shown on this map are not shown on the map.

Corporation, this map is not to be used for flood insurance purposes. The map shows some areas and some areas shown on this map are not shown on the map. The map shows some areas and some areas shown on this map are not shown on the map.

Please note that the accuracy of the map may vary from an estimate map of the map. The map shows some areas and some areas shown on this map are not shown on the map. The map shows some areas and some areas shown on this map are not shown on the map.

This information is provided for informational purposes only. The map shows some areas and some areas shown on this map are not shown on the map. The map shows some areas and some areas shown on this map are not shown on the map.

If you have questions about this map, how to use it, or if the map shows some areas and some areas shown on this map are not shown on the map. The map shows some areas and some areas shown on this map are not shown on the map.



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO DEDUPLICATION BY THE NATIONAL FLOOD INSURANCE PROGRAM

The National Flood Insurance Program (NFIP) does not insure property in Special Flood Hazard Areas (SFHAs) that are subject to de-duplication. The following areas are subject to de-duplication:

- Zone AE: Areas of Moderate Flooding
- Zone AH: Areas of High Flooding
- Zone AN: Areas of Very High Flooding
- Zone AV: Areas of Extreme Flooding
- Zone VE: Areas of Very High Storm Surge Flooding
- Zone VE2: Areas of Extreme Storm Surge Flooding

OTHER FLOOD AREAS

- Zone X: Areas of Special Flood Hazard Insurance
- Zone B: Areas of Very High Flooding
- Zone C: Areas of High Flooding
- Zone D: Areas of Moderate Flooding
- Zone E: Areas of Very High Flooding
- Zone F: Areas of High Flooding
- Zone G: Areas of Moderate Flooding
- Zone H: Areas of Very High Flooding
- Zone I: Areas of High Flooding
- Zone J: Areas of Moderate Flooding
- Zone K: Areas of Very High Flooding
- Zone L: Areas of High Flooding
- Zone M: Areas of Moderate Flooding
- Zone N: Areas of Very High Flooding
- Zone O: Areas of High Flooding
- Zone P: Areas of Moderate Flooding
- Zone Q: Areas of Very High Flooding
- Zone R: Areas of High Flooding
- Zone S: Areas of Moderate Flooding
- Zone T: Areas of Very High Flooding
- Zone U: Areas of High Flooding
- Zone V: Areas of Moderate Flooding
- Zone W: Areas of Very High Flooding
- Zone X: Areas of High Flooding
- Zone Y: Areas of Moderate Flooding
- Zone Z: Areas of Very High Flooding

COASTAL BARRIER REQUIREMENTS SYSTEM (CBRS) AREAS

- CBRS: Coastal Barrier Requirements System Areas
- CBRS-1: Coastal Barrier Requirements System Area 1
- CBRS-2: Coastal Barrier Requirements System Area 2
- CBRS-3: Coastal Barrier Requirements System Area 3
- CBRS-4: Coastal Barrier Requirements System Area 4
- CBRS-5: Coastal Barrier Requirements System Area 5
- CBRS-6: Coastal Barrier Requirements System Area 6
- CBRS-7: Coastal Barrier Requirements System Area 7
- CBRS-8: Coastal Barrier Requirements System Area 8
- CBRS-9: Coastal Barrier Requirements System Area 9
- CBRS-10: Coastal Barrier Requirements System Area 10

OTHER FEATURES

- Property: Buildings, Highways, Railroads, etc.
- Water Features: Rivers, Lakes, etc.
- Topographic Features: Contours, etc.
- Other: Dikes, etc.

MAP SCALE 1" = 1000'

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0040G

FIRM FLOOD INSURANCE RATE MAP

ACCOMACK COUNTY, VIRGINIA AND INCORPORATED AREAS

PANEL 10 OF 965

DATE MAP REVISED FOR THIS PANEL: 1/18/11

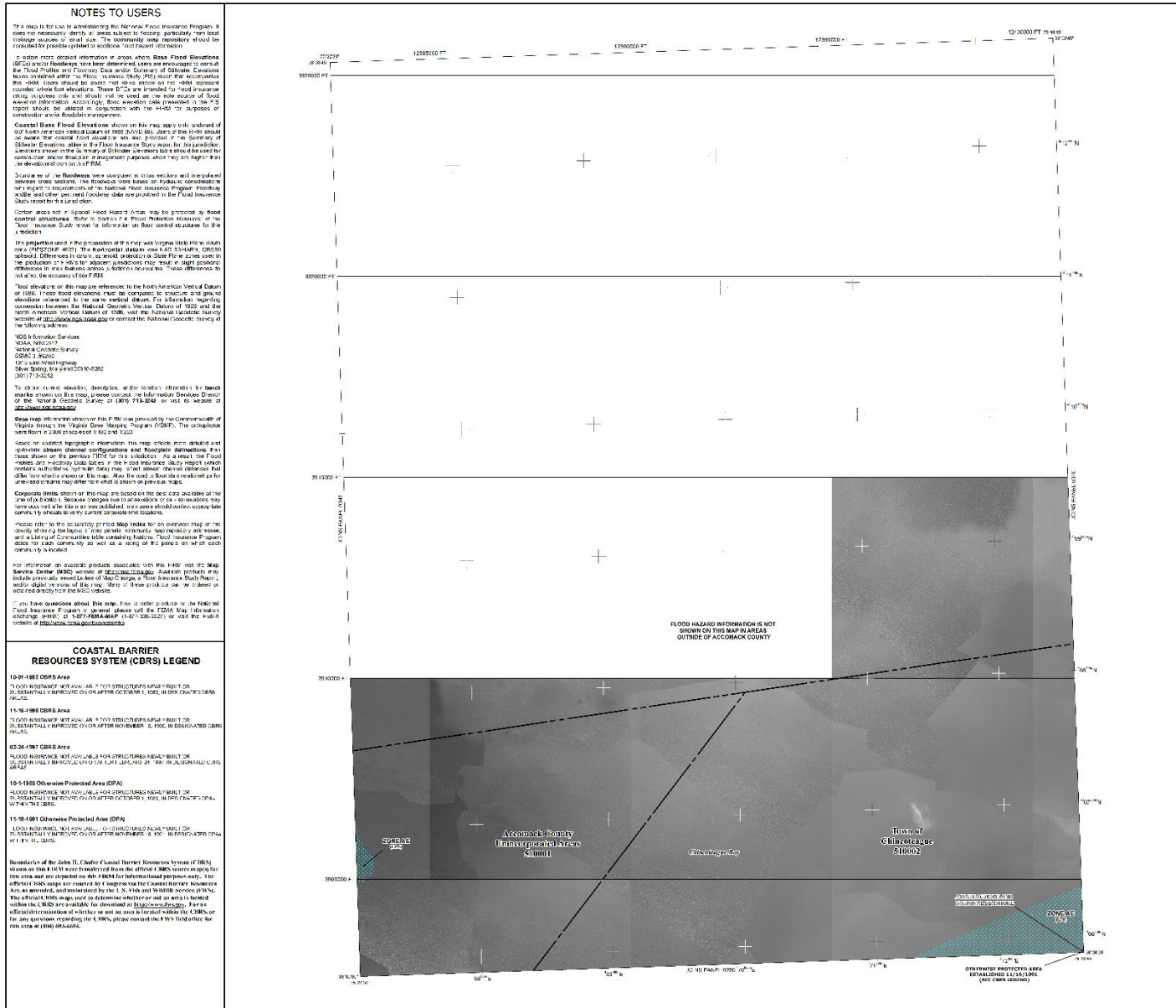
COUNTY:	ACCOMACK COUNTY
CENSUS:	10000000
SCALE:	1" = 1000'
DATE:	MAY 10, 2015

MAP NUMBER 51001C0040G

MAP REVISED MAY 10, 2015

Federal Emergency Management Agency

APPENDIX E



NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not constitute a guarantee, warranty, or endorsement of any product or service by the Government. The information shown here is for informational purposes only and is not intended to be used for any other purpose.

Other more detailed information is shown where Base Flood Elevations (BFEs) are shown. These elevations were determined using the Flood Hazard Analysis and Mapping Act of 2004 (FEMA 558) and the Flood Hazard Analysis and Mapping Act of 2004 (FEMA 558) and the Flood Hazard Analysis and Mapping Act of 2004 (FEMA 558).

Coastal Barrier Resources System (CBRS) areas are shown on this map. These areas are subject to flooding from storm surge and are generally located along the Atlantic coast. The CBRS areas are shown on this map in shaded areas.

Special Flood Hazard Areas (SFHAs) are shown on this map. These areas are subject to flooding from the 1% Annual Chance Flood. The SFHAs are shown on this map in various colors and patterns.

Coastal Barrier Resources System (CBRS) areas are shown on this map. These areas are subject to flooding from storm surge and are generally located along the Atlantic coast. The CBRS areas are shown on this map in shaded areas.

Special Flood Hazard Areas (SFHAs) are shown on this map. These areas are subject to flooding from the 1% Annual Chance Flood. The SFHAs are shown on this map in various colors and patterns.

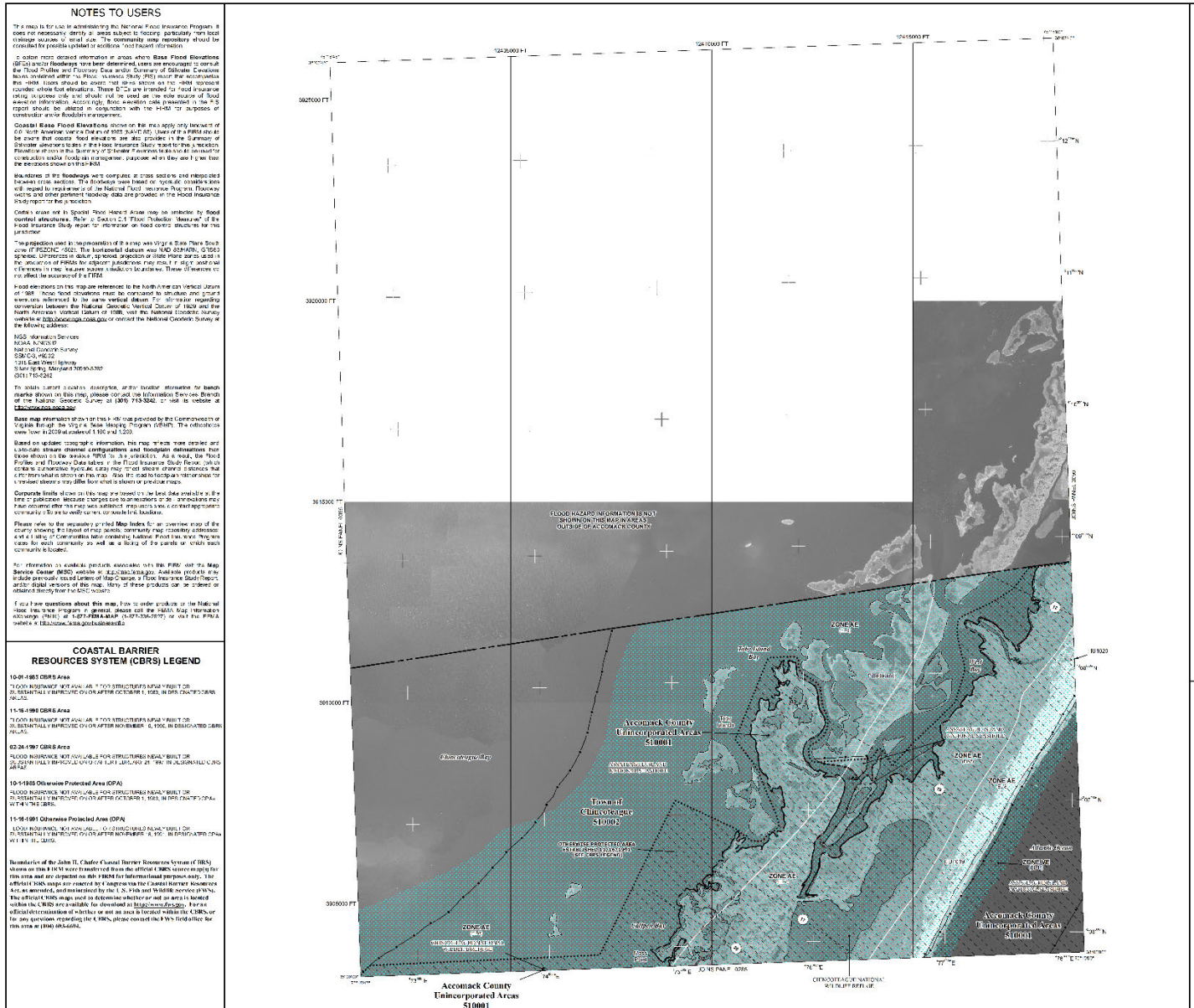
COASTAL BARRIER RESOURCES SYSTEM (CBRS) LEGEND

- 10-01-1981 CBRS Area**
FLOOD INSURANCE WITH SPECIAL FLOOD PREMIUMS APPLICABLE FROM OCTOBER 1, 1981, TO SEPTEMBER 30, 1981.
- 11-16-1988 CBRS Area**
FLOOD INSURANCE WITH SPECIAL FLOOD PREMIUMS APPLICABLE FROM OCTOBER 1, 1988, TO SEPTEMBER 30, 1988.
- 02-28-1997 CBRS Area**
FLOOD INSURANCE WITH SPECIAL FLOOD PREMIUMS APPLICABLE FROM OCTOBER 1, 1997, TO SEPTEMBER 30, 1997.
- 10-13-2003 Designated Protected Area (DPA)**
FLOOD INSURANCE WITH SPECIAL FLOOD PREMIUMS APPLICABLE FROM OCTOBER 1, 2003, TO SEPTEMBER 30, 2003.
- 11-18-1997 Designated Protected Area (DPA)**
FLOOD INSURANCE WITH SPECIAL FLOOD PREMIUMS APPLICABLE FROM OCTOBER 1, 1997, TO SEPTEMBER 30, 1997.

LEGEND

- SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD**
- ZONE A**
Special Flood Hazard Area subject to inundation by the 1% Annual Chance Flood.
- ZONE B**
Special Flood Hazard Area subject to inundation by the 1% Annual Chance Flood.
- ZONE C**
Special Flood Hazard Area subject to inundation by the 1% Annual Chance Flood.
- ZONE D**
Special Flood Hazard Area subject to inundation by the 1% Annual Chance Flood.
- ZONE X**
Special Flood Hazard Area subject to inundation by the 1% Annual Chance Flood.
- ZONE Y**
Special Flood Hazard Area subject to inundation by the 1% Annual Chance Flood.
- ZONE Z**
Special Flood Hazard Area subject to inundation by the 1% Annual Chance Flood.
- COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS**
- 10-01-1981 CBRS Area**
- 11-16-1988 CBRS Area**
- 02-28-1997 CBRS Area**
- 10-13-2003 Designated Protected Area (DPA)**
- 11-18-1997 Designated Protected Area (DPA)**
- UNINCORPORATED AREAS**
- TOWN OF CHINCOTEAGUE**
- ACCOMACK COUNTY**
- STATE OF VIRGINIA**
- MAP SCALE 1" = 1000'**
- PANEL 0065G**
- FIRM FLOOD INSURANCE RATE MAP ACCOMACK COUNTY, VIRGINIA AND INCORPORATED AREAS PANEL 65 OF 965**
- MAP NUMBER 51001C065G**
- MAP REVISED MAY 10, 2015**

APPENDIX E



NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily denote areas subject to flooding, particularly non-flood hazard insurance areas or special uses. The information shown represents what is currently being provided to additional flood hazard information.

In other more detailed information or areas where Basic Flood Elevations (BFEs) or Flood Hazard Zones have been determined, users are encouraged to consult the Flood Profile and Floodway Data and/or Community of Interest. Elevation information is provided in Flood Hazard Zones (FHZs) and Flood Hazard Zones (FHZs) should be used in conjunction with the elevation information provided in the Flood Hazard Zones (FHZs) to determine the elevation information. Flood Hazard Zones (FHZs) are intended to provide information on flood hazard areas. Flood Hazard Zones (FHZs) should be used in conjunction with the elevation information provided in the Flood Hazard Zones (FHZs) to determine the elevation information.

Coastal Barrier Resources System (CBRS) areas shown on this map apply only to areas of the coastal barrier system that are subject to flooding. Users are encouraged to consult the Flood Profile and Floodway Data and/or Community of Interest. Elevation information is provided in Flood Hazard Zones (FHZs) and Flood Hazard Zones (FHZs) should be used in conjunction with the elevation information provided in the Flood Hazard Zones (FHZs) to determine the elevation information.

Coastal Barrier Resources System (CBRS) areas shown on this map apply only to areas of the coastal barrier system that are subject to flooding. Users are encouraged to consult the Flood Profile and Floodway Data and/or Community of Interest. Elevation information is provided in Flood Hazard Zones (FHZs) and Flood Hazard Zones (FHZs) should be used in conjunction with the elevation information provided in the Flood Hazard Zones (FHZs) to determine the elevation information.

The projection used in this map is the North American Datum of 1983 (NAD 83). The horizontal datum used is the North American Datum of 1983 (NAD 83). The vertical datum used is the North American Datum of 1983 (NAD 83). The horizontal datum used is the North American Datum of 1983 (NAD 83). The vertical datum used is the North American Datum of 1983 (NAD 83). The horizontal datum used is the North American Datum of 1983 (NAD 83). The vertical datum used is the North American Datum of 1983 (NAD 83).

Base map information shown on this map was provided by the Commonwealth of Virginia through the Virginia State Marine Troop (VSM). The information shown on this map was provided by the Commonwealth of Virginia through the Virginia State Marine Troop (VSM). The information shown on this map was provided by the Commonwealth of Virginia through the Virginia State Marine Troop (VSM). The information shown on this map was provided by the Commonwealth of Virginia through the Virginia State Marine Troop (VSM).

Based on aerial imagery, elevation data, and other available data, the map shows the location of the coastal barrier system. The information shown on this map was provided by the Commonwealth of Virginia through the Virginia State Marine Troop (VSM). The information shown on this map was provided by the Commonwealth of Virginia through the Virginia State Marine Troop (VSM). The information shown on this map was provided by the Commonwealth of Virginia through the Virginia State Marine Troop (VSM).

For information on special permits associated with the FIRM, see the Map Service Center (MSC) website at www.flood.gov. Available products are shown on the website. For more information, contact the Map Service Center at 1-800-368-7674. For more information, contact the Map Service Center at 1-800-368-7674. For more information, contact the Map Service Center at 1-800-368-7674.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) LEGEND

- 10-01-1983 CBRS Area**
FLOOD INSURANCE WITH SPECIAL FLOOD STRUCTURE REQUIREMENT OR ESSENTIALLY IMPROVED ON OR AFTER NOVEMBER 10, 1986. IN DESIGNATED CBRS AREA.
- 11-16-1983 CBRS Area**
FLOOD INSURANCE WITH SPECIAL FLOOD STRUCTURE REQUIREMENT OR ESSENTIALLY IMPROVED ON OR AFTER NOVEMBER 10, 1986. IN DESIGNATED CBRS AREA.
- 02-28-1987 CBRS Area**
FLOOD INSURANCE WITH SPECIAL FLOOD STRUCTURE REQUIREMENT OR ESSENTIALLY IMPROVED ON OR AFTER NOVEMBER 10, 1986. IN DESIGNATED CBRS AREA.
- 10-5-1983 Old and/or Partially Protected Area (OPA)**
FLOOD INSURANCE WITH SPECIAL FLOOD STRUCTURE REQUIREMENT OR ESSENTIALLY IMPROVED ON OR AFTER NOVEMBER 10, 1986. IN DESIGNATED CBRS AREA.
- 11-16-1983 Old and/or Partially Protected Area (OPA)**
FLOOD INSURANCE WITH SPECIAL FLOOD STRUCTURE REQUIREMENT OR ESSENTIALLY IMPROVED ON OR AFTER NOVEMBER 10, 1986. IN DESIGNATED CBRS AREA.

LEGEND

- SPECIAL FLOOD HAZARD AREAS SUBJECT TO FLOODING BY THE NATIONAL FLOOD INSURANCE PROGRAM**
- ZONE A**
Special Flood Hazard Area (SFHA) subject to flooding by the National Flood Insurance Program (NFIP). Flood Hazard Zone (FHZ) subject to flooding by the National Flood Insurance Program (NFIP). Flood Hazard Zone (FHZ) subject to flooding by the National Flood Insurance Program (NFIP).
- ZONE AO**
Special Flood Hazard Area (SFHA) subject to flooding by the National Flood Insurance Program (NFIP). Flood Hazard Zone (FHZ) subject to flooding by the National Flood Insurance Program (NFIP). Flood Hazard Zone (FHZ) subject to flooding by the National Flood Insurance Program (NFIP).
- ZONE AH**
Special Flood Hazard Area (SFHA) subject to flooding by the National Flood Insurance Program (NFIP). Flood Hazard Zone (FHZ) subject to flooding by the National Flood Insurance Program (NFIP). Flood Hazard Zone (FHZ) subject to flooding by the National Flood Insurance Program (NFIP).
- ZONE AR**
Special Flood Hazard Area (SFHA) subject to flooding by the National Flood Insurance Program (NFIP). Flood Hazard Zone (FHZ) subject to flooding by the National Flood Insurance Program (NFIP). Flood Hazard Zone (FHZ) subject to flooding by the National Flood Insurance Program (NFIP).
- ZONE AV**
Special Flood Hazard Area (SFHA) subject to flooding by the National Flood Insurance Program (NFIP). Flood Hazard Zone (FHZ) subject to flooding by the National Flood Insurance Program (NFIP). Flood Hazard Zone (FHZ) subject to flooding by the National Flood Insurance Program (NFIP).
- ZONE VE**
Special Flood Hazard Area (SFHA) subject to flooding by the National Flood Insurance Program (NFIP). Flood Hazard Zone (FHZ) subject to flooding by the National Flood Insurance Program (NFIP). Flood Hazard Zone (FHZ) subject to flooding by the National Flood Insurance Program (NFIP).
- COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS**
- 10-01-1983 CBRS Area**
FLOOD INSURANCE WITH SPECIAL FLOOD STRUCTURE REQUIREMENT OR ESSENTIALLY IMPROVED ON OR AFTER NOVEMBER 10, 1986. IN DESIGNATED CBRS AREA.
- 11-16-1983 CBRS Area**
FLOOD INSURANCE WITH SPECIAL FLOOD STRUCTURE REQUIREMENT OR ESSENTIALLY IMPROVED ON OR AFTER NOVEMBER 10, 1986. IN DESIGNATED CBRS AREA.
- 02-28-1987 CBRS Area**
FLOOD INSURANCE WITH SPECIAL FLOOD STRUCTURE REQUIREMENT OR ESSENTIALLY IMPROVED ON OR AFTER NOVEMBER 10, 1986. IN DESIGNATED CBRS AREA.
- 10-5-1983 Old and/or Partially Protected Area (OPA)**
FLOOD INSURANCE WITH SPECIAL FLOOD STRUCTURE REQUIREMENT OR ESSENTIALLY IMPROVED ON OR AFTER NOVEMBER 10, 1986. IN DESIGNATED CBRS AREA.
- 11-16-1983 Old and/or Partially Protected Area (OPA)**
FLOOD INSURANCE WITH SPECIAL FLOOD STRUCTURE REQUIREMENT OR ESSENTIALLY IMPROVED ON OR AFTER NOVEMBER 10, 1986. IN DESIGNATED CBRS AREA.

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0076G

FIRM

FLOOD INSURANCE RATE MAP

ACCOMACK COUNTY, VIRGINIA AND INCORPORATED AREAS

PANEL 70 OF 965

GROUP MAP NUMBER FOR THESE PANELS: 1A0717

CONTOUR

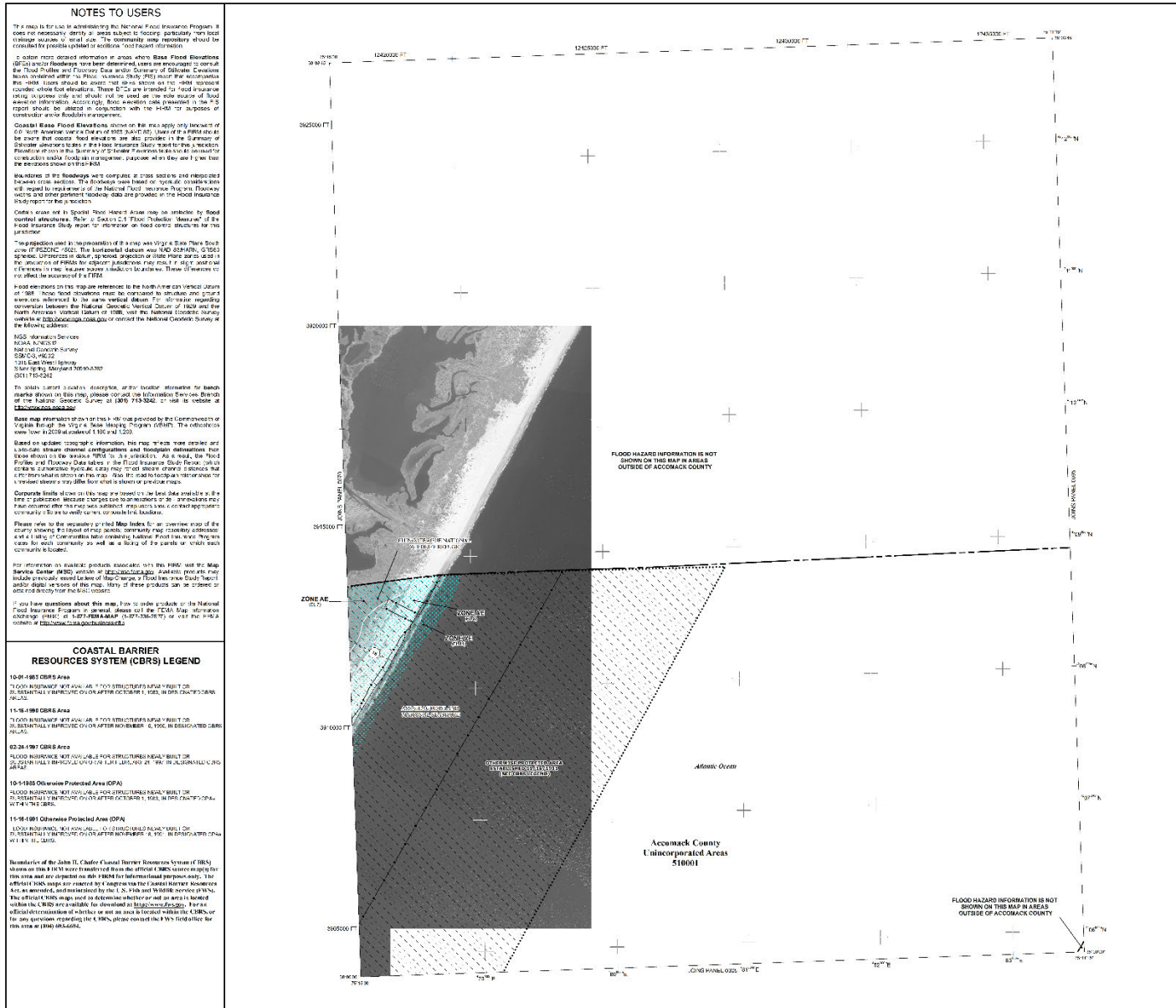
SCALE

MAP NUMBER
S1001C0076G

MAP REVISED
MAY 10, 2015

Federal Emergency Management Agency

APPENDIX E



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO OVERLAPPING BY THE NATIONAL COASTAL BARRIER RESOURCES SYSTEM

ZONE AE
Special Flood Hazard Area (SFHA) subject to flooding from storm surge and high winds. Flood insurance will be available for structures built or substantially improved on or after October 1, 1985, in designated AE areas.

ZONE AO
Special Flood Hazard Area (SFHA) subject to flooding from storm surge and high winds. Flood insurance will be available for structures built or substantially improved on or after October 1, 1985, in designated AO areas.

ZONE AH
Special Flood Hazard Area (SFHA) subject to flooding from storm surge and high winds. Flood insurance will be available for structures built or substantially improved on or after October 1, 1985, in designated AH areas.

ZONE AV
Special Flood Hazard Area (SFHA) subject to flooding from storm surge and high winds. Flood insurance will be available for structures built or substantially improved on or after October 1, 1985, in designated AV areas.

ZONE AF
Special Flood Hazard Area (SFHA) subject to flooding from storm surge and high winds. Flood insurance will be available for structures built or substantially improved on or after October 1, 1985, in designated AF areas.

FLOODWAY DESIGNATION

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

10-01-1985 CBRS Area
FLOOD INSURANCE WILL BE AVAILABLE FOR STRUCTURES BUILT OR SUBSTANTIALLY IMPROVED ON OR AFTER OCTOBER 1, 1985, IN DESIGNATED CBRS AREAS.

11-16-1986 CBRS Area
FLOOD INSURANCE WILL BE AVAILABLE FOR STRUCTURES BUILT OR SUBSTANTIALLY IMPROVED ON OR AFTER NOVEMBER 16, 1986, IN DESIGNATED CBRS AREAS.

02-28-1997 CBRS Area
FLOOD INSURANCE WILL BE AVAILABLE FOR STRUCTURES BUILT OR SUBSTANTIALLY IMPROVED ON OR AFTER FEBRUARY 28, 1997, IN DESIGNATED CBRS AREAS.

10-5-1993 Old water Protected Area (OPA)
FLOOD INSURANCE WILL NOT BE AVAILABLE FOR STRUCTURES BUILT OR SUBSTANTIALLY IMPROVED ON OR AFTER OCTOBER 5, 1993, IN DESIGNATED OPA AREAS.

11-9-1997 Designated Protected Area (DPA)
FLOOD INSURANCE WILL NOT BE AVAILABLE FOR STRUCTURES BUILT OR SUBSTANTIALLY IMPROVED ON OR AFTER NOVEMBER 9, 1997, IN DESIGNATED DPA AREAS.

MAP INFORMATION

MAP SCALE 1" = 1000'

PANEL 0090G

FIRM FLOOD INSURANCE RATE MAP

ACCOMACK COUNTY, VIRGINIA AND INCORPORATED AREAS

PANEL 90 OF 965

MAP NUMBER 11010C0090G

MAP REVISED MAY 10, 2015

Federal Emergency Management Agency

APPENDIX E

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify areas subject to flooding. It is for informational purposes only and is not to be used for flood insurance purposes. It is not intended to be used for any other purpose.

The Flood Insurance Rate Map (FIRM) is a map showing the areas of a community that are subject to flooding. It is used to determine the flood insurance rates for buildings in those areas.

Coastal Barrier Resources System (CBRS) areas are shown on this map. These areas are subject to flooding and are designated as such by the Federal Emergency Management Agency.

The map is based on data from the United States Geological Survey and the National Oceanic and Atmospheric Administration. It is not intended to be used for any other purpose.

The map is based on data from the United States Geological Survey and the National Oceanic and Atmospheric Administration. It is not intended to be used for any other purpose.

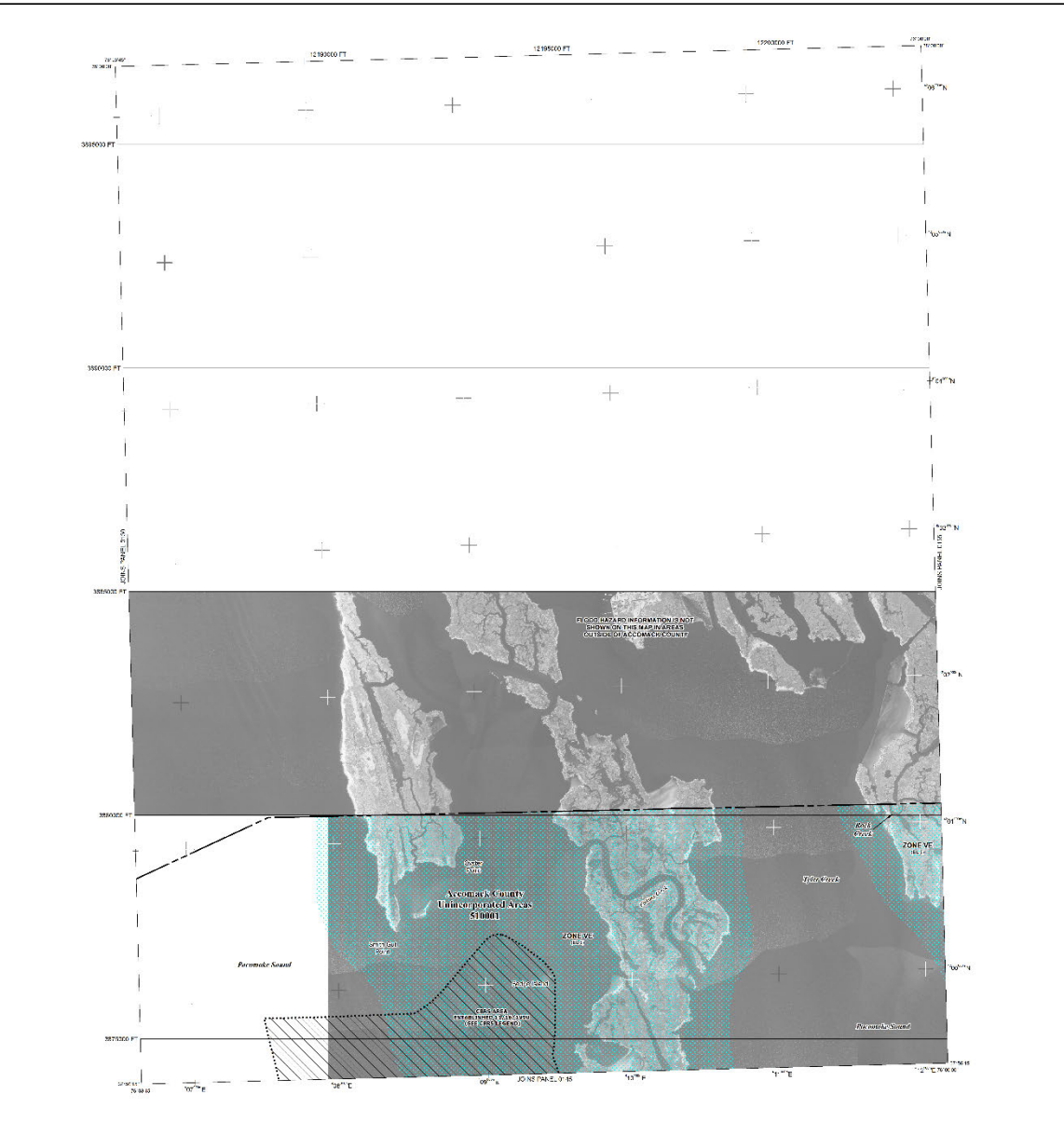
The map is based on data from the United States Geological Survey and the National Oceanic and Atmospheric Administration. It is not intended to be used for any other purpose.

The map is based on data from the United States Geological Survey and the National Oceanic and Atmospheric Administration. It is not intended to be used for any other purpose.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) LEGEND

- 10-01-1981 CBRS Area**
FLOOD INSURANCE RATE MAP IS FOR STRUCTURES REPAIRED OR RECONSTRUCTED ON OR AFTER OCTOBER 1, 1981, IN DESIGNATED AREAS.
- 11-04-1986 CBRS Area**
FLOOD INSURANCE RATE MAP IS FOR STRUCTURES REPAIRED OR RECONSTRUCTED ON OR AFTER NOVEMBER 6, 1986, IN DESIGNATED AREAS.
- 02-28-1997 CBRS Area**
FLOOD INSURANCE RATE MAP IS FOR STRUCTURES REPAIRED OR RECONSTRUCTED ON OR AFTER FEBRUARY 28, 1997, IN DESIGNATED AREAS.
- 10-5-1993 Delaware Protected Area (DPA)**
FLOOD INSURANCE RATE MAP IS FOR STRUCTURES REPAIRED OR RECONSTRUCTED ON OR AFTER OCTOBER 5, 1993, IN DESIGNATED AREAS.
- 11-01-1991 Delaware Protected Area (DPA)**
FLOOD INSURANCE RATE MAP IS FOR STRUCTURES REPAIRED OR RECONSTRUCTED ON OR AFTER NOVEMBER 1, 1991, IN DESIGNATED AREAS.

Revisions of the John H. Chafee Coastal Barrier Resources System (CBRS) shown on this map have been derived from the official CBRS map. This map is not intended to be used for any other purpose. It is not intended to be used for any other purpose.



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO FLOODATION BY THE NATIONAL COASTAL FLOODING

10-01-1981 CBRS Area
FLOOD INSURANCE RATE MAP IS FOR STRUCTURES REPAIRED OR RECONSTRUCTED ON OR AFTER OCTOBER 1, 1981, IN DESIGNATED AREAS.

11-04-1986 CBRS Area
FLOOD INSURANCE RATE MAP IS FOR STRUCTURES REPAIRED OR RECONSTRUCTED ON OR AFTER NOVEMBER 6, 1986, IN DESIGNATED AREAS.

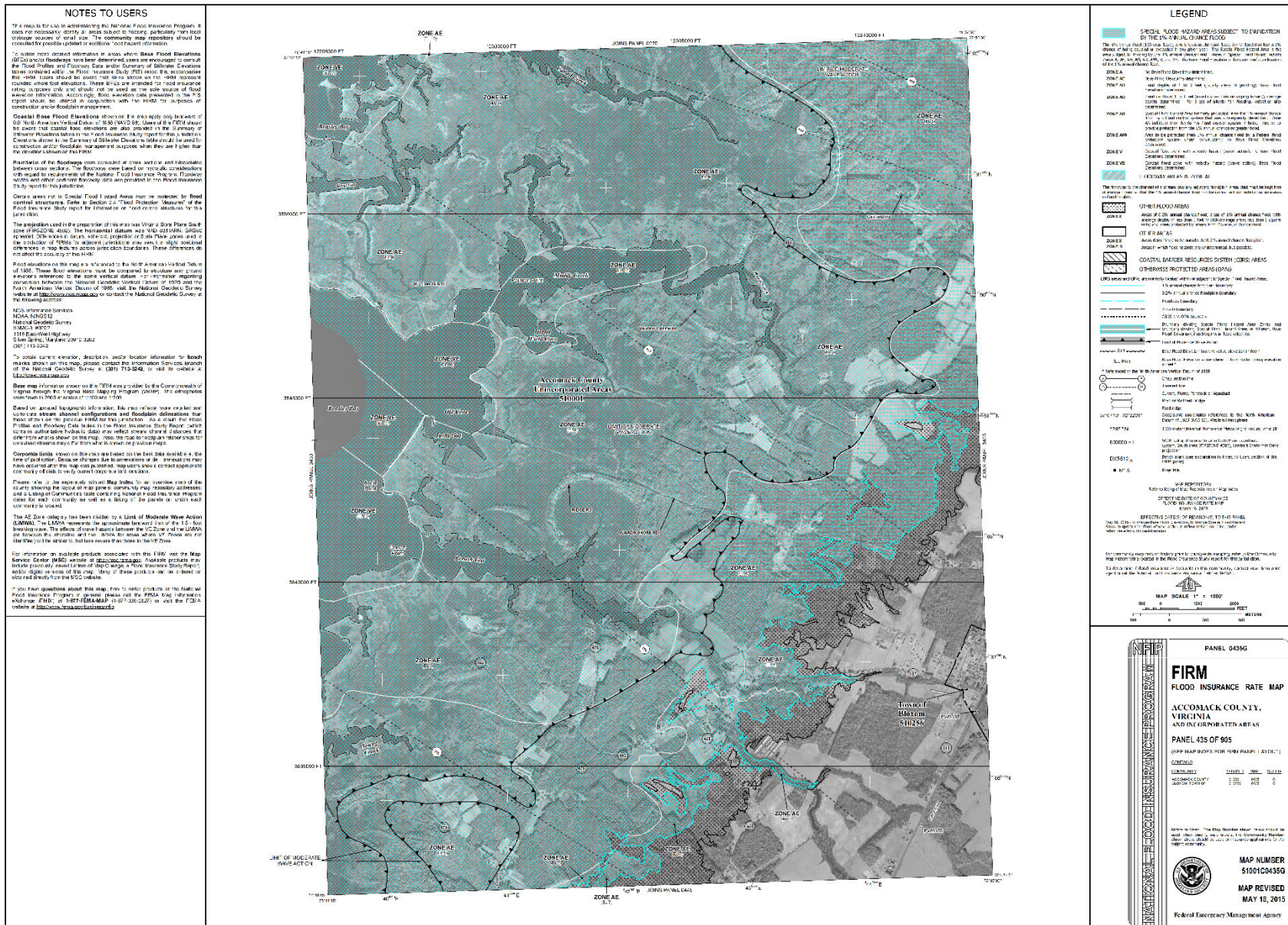
02-28-1997 CBRS Area
FLOOD INSURANCE RATE MAP IS FOR STRUCTURES REPAIRED OR RECONSTRUCTED ON OR AFTER FEBRUARY 28, 1997, IN DESIGNATED AREAS.

10-5-1993 Delaware Protected Area (DPA)
FLOOD INSURANCE RATE MAP IS FOR STRUCTURES REPAIRED OR RECONSTRUCTED ON OR AFTER OCTOBER 5, 1993, IN DESIGNATED AREAS.

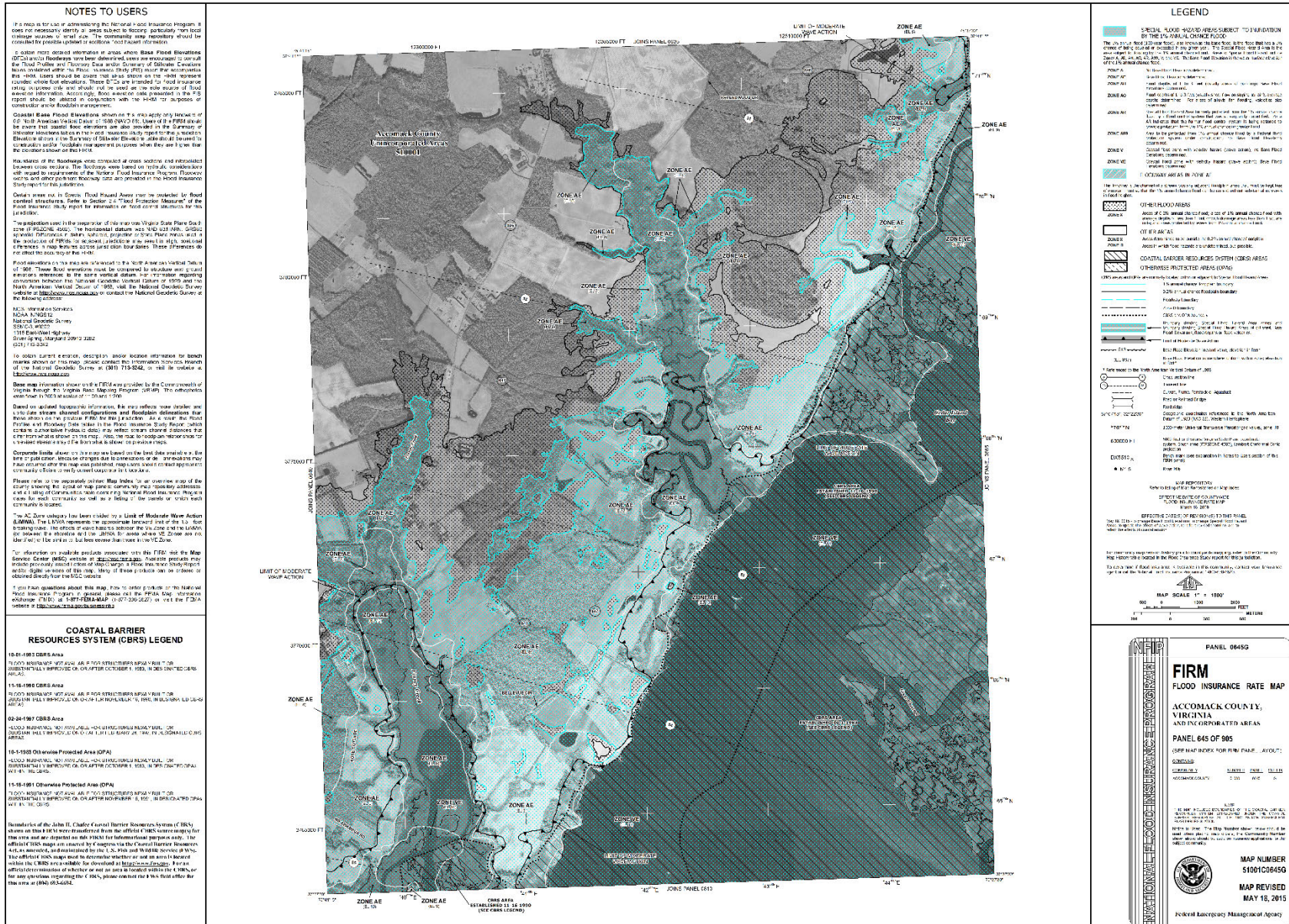
11-01-1991 Delaware Protected Area (DPA)
FLOOD INSURANCE RATE MAP IS FOR STRUCTURES REPAIRED OR RECONSTRUCTED ON OR AFTER NOVEMBER 1, 1991, IN DESIGNATED AREAS.

Map Information:
 MAP SCALE: 1" = 1000'
 MAP NUMBER: 101001
 MAP REVISED: MAY 10, 2015
 Federal Emergency Management Agency

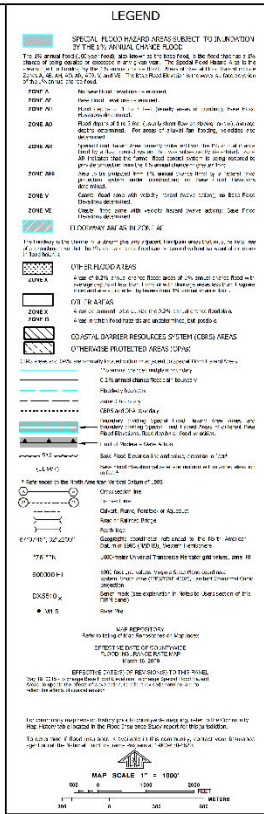
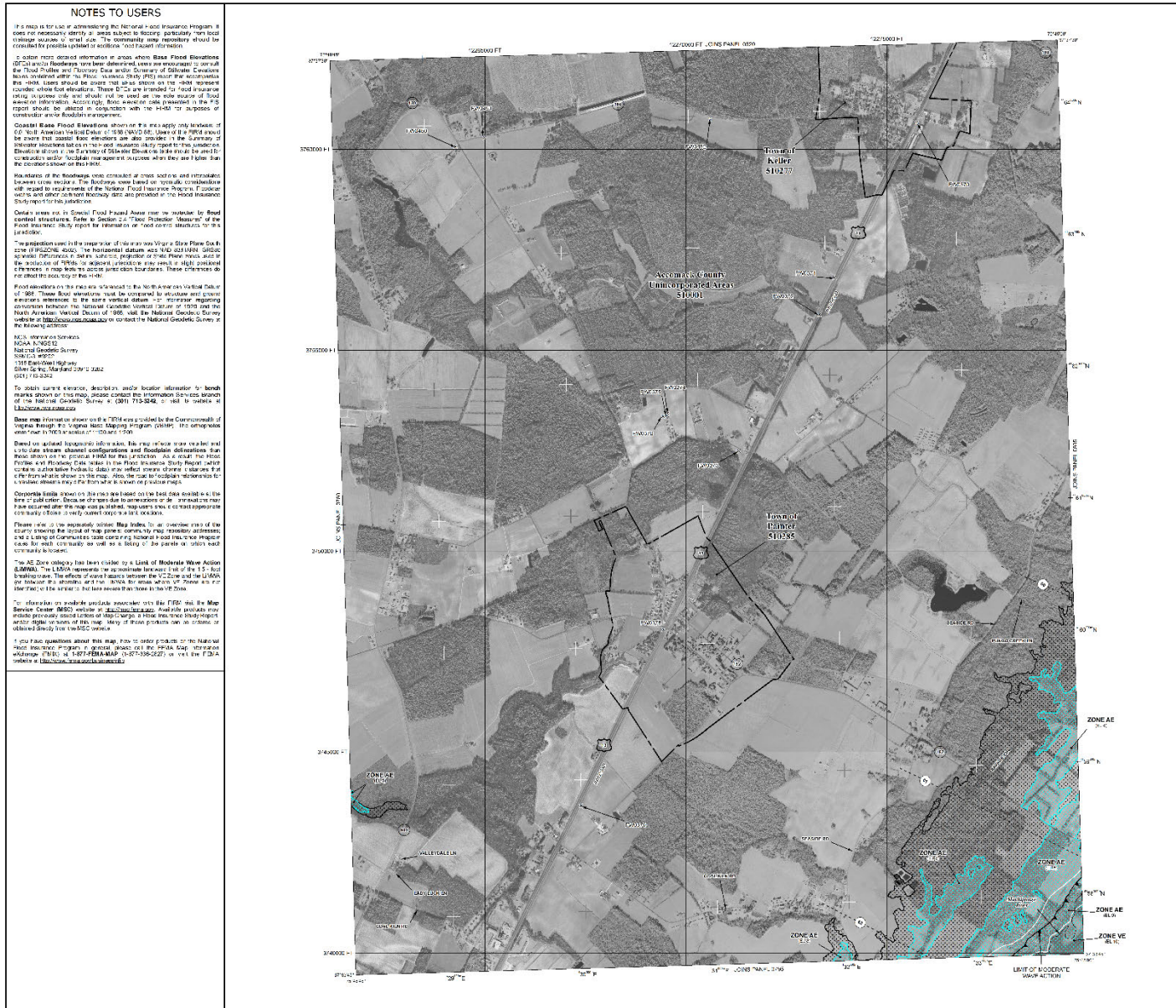
APPENDIX E



APPENDIX E



APPENDIX E



PANEL 0785G

FIRM
FLOOD INSURANCE RATE MAP

ACCOMACK COUNTY, VIRGINIA
AND INCORPORATED AREAS

PANEL 785 OF 905

OFFICIAL RECORD FOR PANEL 0785G, AFD070

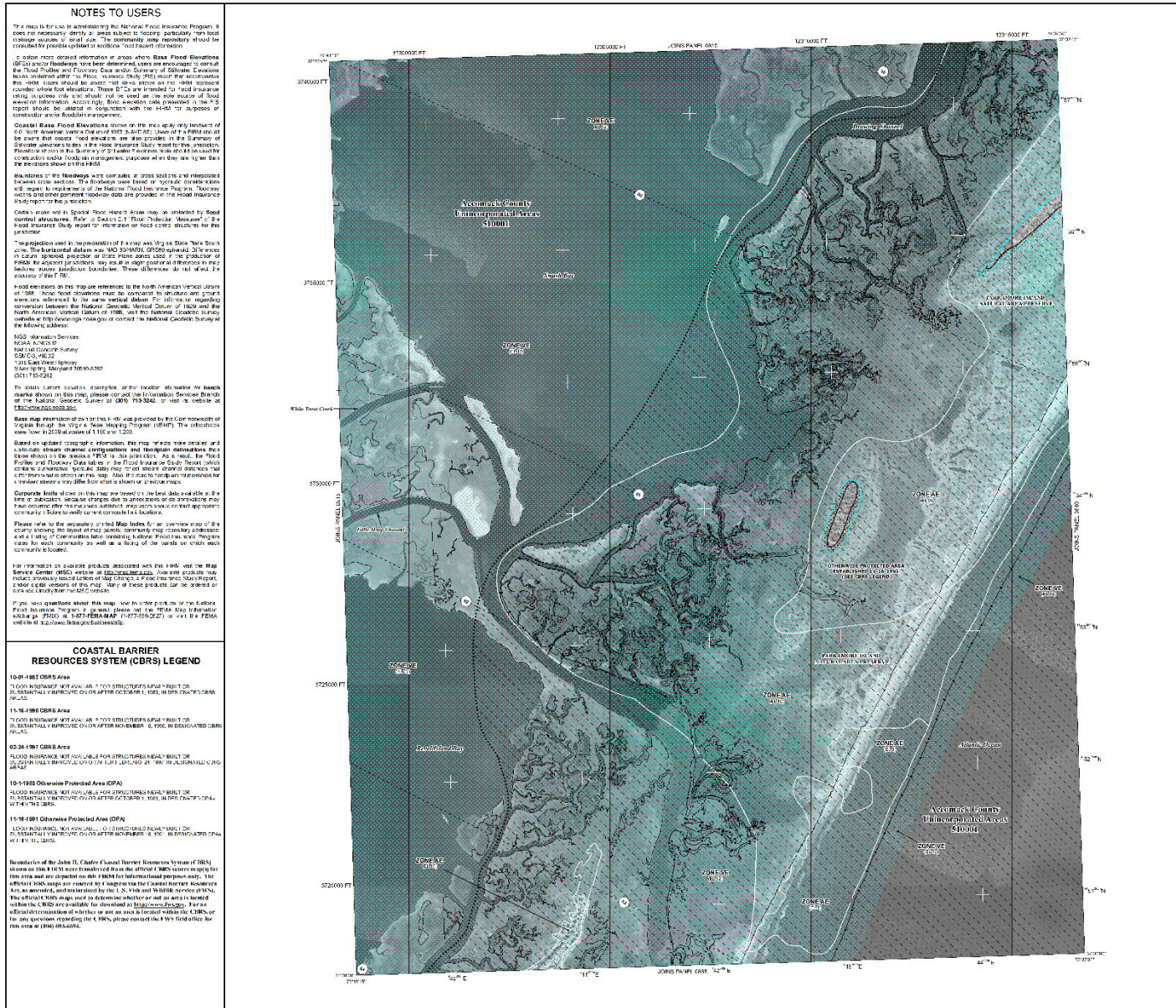
DATE	REVISION	BY	FOR
05/16/2015	1

MAP NUMBER
51001C0785G

MAP REVISED
MAY 16, 2015

Federal Emergency Management Agency

APPENDIX E



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO DETERMINATION BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY

ZONE A
Special Flood Hazard Area (SFHA) - 1% Annual Flood

ZONE B
Special Flood Hazard Area (SFHA) - 1% Annual Flood

ZONE C
Special Flood Hazard Area (SFHA) - 1% Annual Flood

ZONE D
Special Flood Hazard Area (SFHA) - 1% Annual Flood

ZONE E
Special Flood Hazard Area (SFHA) - 1% Annual Flood

ZONE F
Special Flood Hazard Area (SFHA) - 1% Annual Flood

ZONE G
Special Flood Hazard Area (SFHA) - 1% Annual Flood

ZONE H
Special Flood Hazard Area (SFHA) - 1% Annual Flood

OTHER FLOOD AREAS

ZONE I
Special Flood Hazard Area (SFHA) - 1% Annual Flood

ZONE J
Special Flood Hazard Area (SFHA) - 1% Annual Flood

ZONE K
Special Flood Hazard Area (SFHA) - 1% Annual Flood

ZONE L
Special Flood Hazard Area (SFHA) - 1% Annual Flood

ZONE M
Special Flood Hazard Area (SFHA) - 1% Annual Flood

ZONE N
Special Flood Hazard Area (SFHA) - 1% Annual Flood

ZONE O
Special Flood Hazard Area (SFHA) - 1% Annual Flood

ZONE P
Special Flood Hazard Area (SFHA) - 1% Annual Flood

ZONE Q
Special Flood Hazard Area (SFHA) - 1% Annual Flood

ZONE R
Special Flood Hazard Area (SFHA) - 1% Annual Flood

ZONE S
Special Flood Hazard Area (SFHA) - 1% Annual Flood

ZONE T
Special Flood Hazard Area (SFHA) - 1% Annual Flood

ZONE U
Special Flood Hazard Area (SFHA) - 1% Annual Flood

ZONE V
Special Flood Hazard Area (SFHA) - 1% Annual Flood

ZONE W
Special Flood Hazard Area (SFHA) - 1% Annual Flood

ZONE X
Special Flood Hazard Area (SFHA) - 1% Annual Flood

ZONE Y
Special Flood Hazard Area (SFHA) - 1% Annual Flood

ZONE Z
Special Flood Hazard Area (SFHA) - 1% Annual Flood

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

10-01-1985 CBRS Area
FLOOD INSURANCE RATE ACT OF 1968 (FIRMA) STRUCTURES NEARLY COMPLETE OR SUBSTANTIALLY IMPROVED ON OR AFTER NOVEMBER 10, 1985. IN DESIGNATED CBRS AREA.

11-16-1988 CBRS Area
FLOOD INSURANCE RATE ACT OF 1968 (FIRMA) STRUCTURES NEARLY COMPLETE OR SUBSTANTIALLY IMPROVED ON OR AFTER NOVEMBER 10, 1988. IN DESIGNATED CBRS AREA.

02-28-1997 CBRS Area
FLOOD INSURANCE RATE ACT OF 1968 (FIRMA) STRUCTURES NEARLY COMPLETE OR SUBSTANTIALLY IMPROVED ON OR AFTER DECEMBER 1, 1996. IN DESIGNATED CBRS AREA.

10-9-2005 Designated Protected Area (DPA)
FLOOD INSURANCE RATE ACT OF 1968 (FIRMA) STRUCTURES NEARLY COMPLETE OR SUBSTANTIALLY IMPROVED ON OR AFTER DECEMBER 1, 1996. IN DESIGNATED CBRS AREA.

15-04-1997 Designated Protected Area (DPA)
FLOOD INSURANCE RATE ACT OF 1968 (FIRMA) STRUCTURES NEARLY COMPLETE OR SUBSTANTIALLY IMPROVED ON OR AFTER NOVEMBER 10, 1996. IN DESIGNATED CBRS AREA.

MAP SCALE 1" = 1000'

PANEL 0202G

FIRM FLOOD INSURANCE RATE MAP

ACCOMACK COUNTY, VIRGINIA AND INCORPORATED AREAS

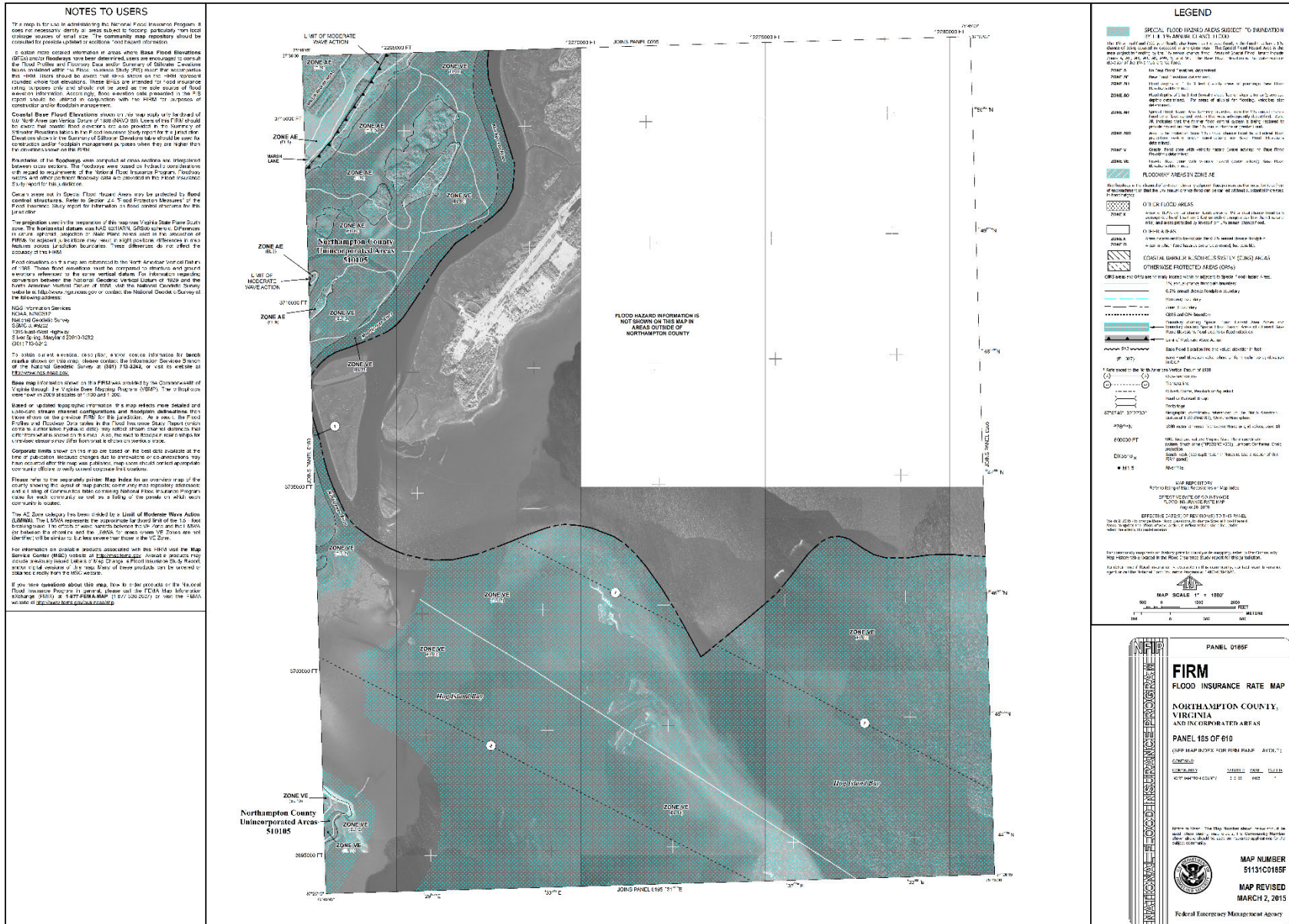
PANEL 620 OF 905

MAP NUMBER S1001C020G

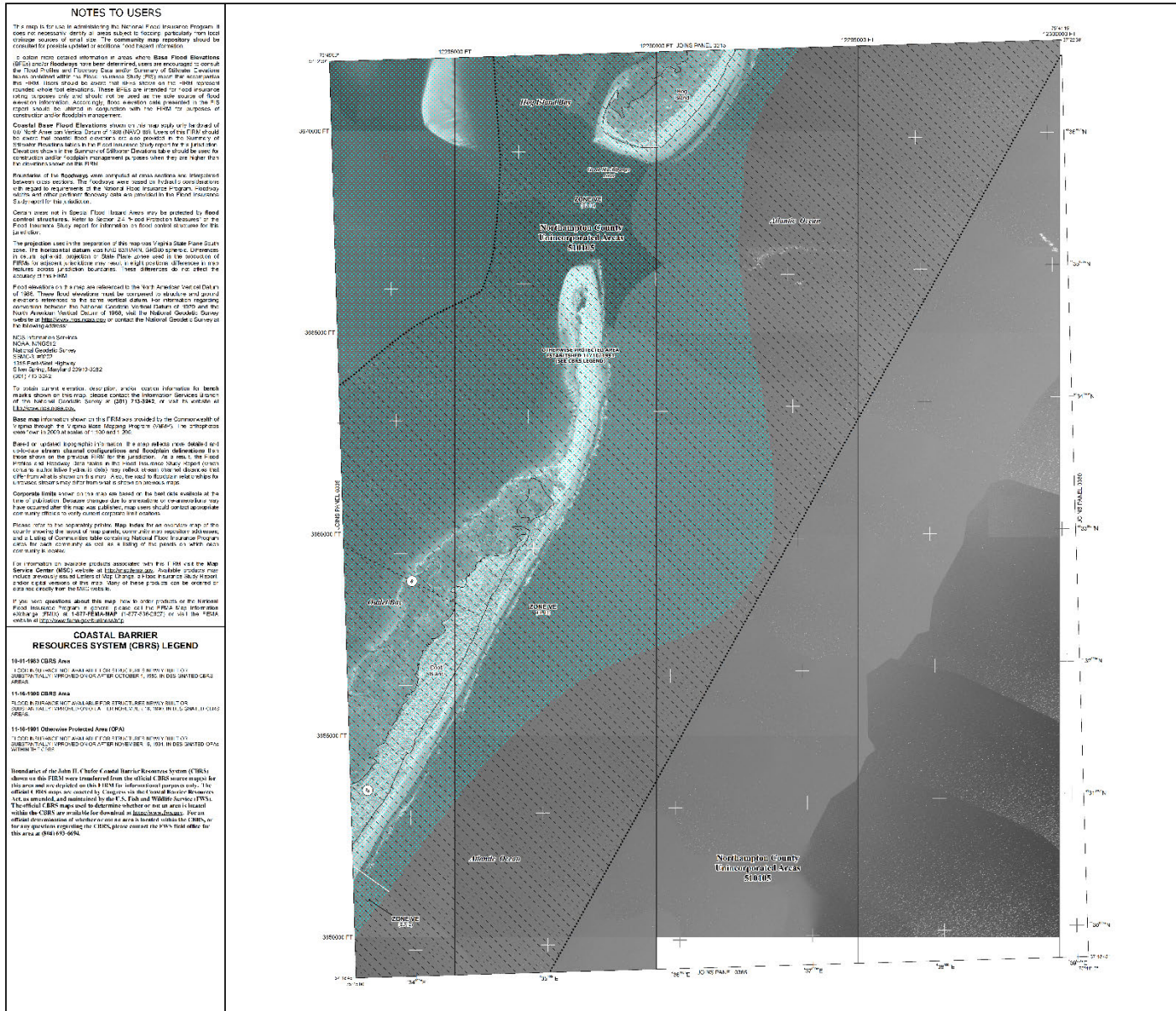
MAP REVISED MAY 10, 2015

Federal Emergency Management Agency

APPENDIX F



APPENDIX F



NOTES TO USERS

This map is for use in determining the National Flood Insurance Program. It does not constitute a warranty, nor does it constitute a representation of the Federal Government. The information shown here is for informational purposes only. It is not intended to be used for any other purpose. The information shown here is for informational purposes only. It is not intended to be used for any other purpose.

Other more current information is shown where Base Flood Elevations (BFEs) for Flood Insurance have been determined. Users are encouraged to consult the Flood Hazard and Floodway Data and/or Community Development Department for more information. The information shown here is for informational purposes only. It is not intended to be used for any other purpose.

Coastal Base Flood Elevations shown on this map are based on the 100-year return period flood. The information shown here is for informational purposes only. It is not intended to be used for any other purpose.

For information on the National Flood Insurance Program, please contact the National Flood Insurance Administration, 1215 G Street, NE, Washington, DC 20002-4242. For information on the National Flood Insurance Program, please contact the National Flood Insurance Administration, 1215 G Street, NE, Washington, DC 20002-4242.

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COASTAL BARRIER RESOURCES SYSTEM (CBRS) LEGEND

15-16-1993 CBRS Area
 15-16-1993 CBRS Area
 15-16-1993 CBRS Area
 15-16-1993 CBRS Area

15-16-1993 Obsolete Protected Area (OPA)
 15-16-1993 Obsolete Protected Area (OPA)
 15-16-1993 Obsolete Protected Area (OPA)
 15-16-1993 Obsolete Protected Area (OPA)

For information on the Coastal Barrier Resources System (CBRS), please contact the National Flood Insurance Administration, 1215 G Street, NE, Washington, DC 20002-4242. For information on the Coastal Barrier Resources System (CBRS), please contact the National Flood Insurance Administration, 1215 G Street, NE, Washington, DC 20002-4242.

LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO FLOODATION
 SPECIAL FLOOD HAZARD AREAS SUBJECT TO FLOODATION
 SPECIAL FLOOD HAZARD AREAS SUBJECT TO FLOODATION
 SPECIAL FLOOD HAZARD AREAS SUBJECT TO FLOODATION

FLOODWAY AREAS
 FLOODWAY AREAS
 FLOODWAY AREAS
 FLOODWAY AREAS

OTHER FLOOD AREAS
 OTHER FLOOD AREAS
 OTHER FLOOD AREAS
 OTHER FLOOD AREAS

LEGEND
 LEGEND
 LEGEND
 LEGEND

MAP SCALE 1" = 100'
 MAP SCALE 1" = 100'
 MAP SCALE 1" = 100'
 MAP SCALE 1" = 100'

FIRM FLOOD INSURANCE RATE MAP
 NORTHAMPTON COUNTY, VIRGINIA
 AND INCORPORATED AREAS
 PANEL 555 OF 610
 FEDERAL EMERGENCY MANAGEMENT AGENCY
 MAP NUMBER 5113C0355F
 MAP REVISED MARCH 2, 2015
 Federal Emergency Management Agency



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