EXECUTIVE SUMMARY

This report was prepared for the Harford County and Aberdeen Proving Ground (APG) Chesapeake Science and Security Corridor (CSSC) Joint Land Use Study (JLUS) Committee. Planning for Coastal Resiliency in the Northern Chesapeake Bay region is becoming increasingly important as sea levels rise from the impacts associated with climate change. This report provides anticipated water level increases for 2050 and 2100 with associated impacts to existing critical infrastructure and natural resources for the study area, which includes Aberdeen Proving Ground (APG) and Harford, Cecil, and Kent counties. As sea levels rise, it is important to understand the framework of adaptation planning and resilience strategies that can be implemented to effectively plan for these impacts. This report identifies critical vulnerabilities within the study area (Chapter 2). A framework for adaptation planning is presented in Chapter 3. Overall coastal resilience strategies and measures that can be utilized to reduce risk are provided in Chapter 4. Additional project area considerations including beneficial use of dredged material, upstream sediment management, and impacts to water quality are discussed in Chapters 5 and 6.

Critical vulnerabilities are areas and infrastructure that are predicted to be impacted by sea level rise based on geographic information system analyses that compared existing conditions with elevations calculated from different sea level rise scenarios. The sea level rise scenarios presented are for the years 2050 and 2100 and includes relative sea level rise (Boesch et al. 2018) and impacts from storm events (2019 major flood stage [MFS]). A range for sea level rise is presented to account for uncertainty associated with these predictions. The range is referred to as Mid and High scenarios, with mid representing the central estimate and high representing the upper 1 percent (%) probability (Boesch et al. 2018). The predicted overall impact for each scenario is presented in the following Tables ES-1 through ES-4 for APG and Harford, Cecil, and Kent counties, respectively.

Table E-1 Aberdeen Proving Ground (APG) Summary of Impacts for Sea Level Rise Scenarios

Year	Sea Level Rise Scenario	Percent Impacted Area of Total APG Range Area (34, 243 acres)	Total Impacted Infrastructure (number of structures)
2050	Mid Scenario	11%	3
	Mid and MFS Scenario	31%	101
	High Scenario	16%	12
	High and MFS Scenario	34%	135
2100	Mid Scenario	16%	12
	Mid and MFS Scenario	34%	135
	High Scenario	34%	136
	High and MFS Scenario	46%	217

Table E-2 Harford County Summary of Impacts for Sea Level Rise Scenarios

Year	Sea Level Rise Scenario	Total Impacted Area (acres)	Total Impacted Infrastructure (number of structures)
2050	Mid Scenario	720	0
	Mid and MFS Scenario	1,880	6
	High Scenario	1,114	0
	High and MFS Scenario	2,076	8
2100	Mid Scenario	1,114	0
	Mid and MFS Scenario	2,076	8
	High Scenario	2,066	2
	High and MFS Scenario	3,210	15

Table E-3 Cecil County Summary of Impacts for Sea Level Rise Scenarios

Year	Sea Level Rise Scenario	Total Impacted Area (acres)	Total Impacted Infrastructure (number of structures)
2050	Mid Scenario	1,434	0
	Mid and MFS Scenario	4,133	3
	High Scenario	2,291	0
	High and MFS Scenario	4,884	4
2100	Mid Scenario	2,291	0
	Mid and MFS Scenario	4,884	4
	High Scenario	5,049	5
	High and MFS Scenario	7,954	8

Table E-4 Kent County Summary of Impacts for Sea Level Rise Scenarios

Year	Sea Level Rise Scenario	Total Impacted Area (acres)	Total Impacted Infrastructure (number of structures)
2050	Mid Scenario	2,818	0
	Mid and MFS Scenario	10,285	0
	High Scenario	5,444	0
	High and MFS Scenario	12,123	1
2100	Mid Scenario	5,444	0
	Mid and MFS Scenario	12,123	1
	High Scenario	13,499	2
	High and MFS Scenario	19,197	3