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Legal Primer

Hampton Roads Sea Level Rise Preparedness and Resilience Intergovernmental Pilot Project, Legal Working Group

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WILLIAM & MARY
LAW SCHOOL
VIRGINIA COASTAL POLICY CENTER

To: Jim Redick, Chair, IPP Steering Committee

Fr: Roy Hoagland, Chair, IPP Legal Working Group

Da: August 13, 2015

Copy: Ray Toll, Director of Coastal Resilience Research, ODU
Emily Steinhilber, Assistant Director of Coastal Resilience Research, ODU
IPP Legal Working Group Members

RE: IPP LEGAL PRIMER

Jim:

Please note the attached Legal Primer for the IPP. The generation of this product is the result of discussions at the IPP FEMA workshop last year and subsequent dialogue among the Legal Working Group members along with conversations of those members with other Working Group representatives.

As noted in the Executive Summary of the Legal Primer, the Primer is intended to complement the efforts of both the Steering Committee and the various Working Groups. The goal of the Primer “is to serve as a reference guide to assist members of the Working Groups in addressing the myriad legal issues that have been identified as particularly pertinent to the coordination of sea level rise preparedness and resilience planning across governmental and community lines.” In creating this document, the Legal Working Group envisioned updating the Primer as appropriate when necessary to “reflect changes in policy and law.” To do so effectively, we seek feedback on the Primer on an ongoing basis from all members of the Steering Committee and Working Groups.

The Primer contains not only a wealth of substantive law, but also an important disclaimer:

This Legal Primer is not intended to serve as and should not be taken as legal advice or other communication to a client, or as attorney work product. Accordingly, this Legal Primer is not subject to either the Attorney-Client Communication Privilege or the Attorney Work Product Privilege. Nothing contained in this Legal Primer constitutes any type of official opinion from any of the governmental attorneys, or their offices, who participated in its drafting. It is designed as a baseline document that can assist participants outside the Legal Working Group. For further consultation by the Pilot Project working groups and the Steering Committee generally, please contact your Legal Working Group liaison. For agency specific questions, please consult your respective legal counsel within your organization.

I am requesting that you please ensure the distribution of the Primer to the Steering Committee and Working Groups with this memo accompanying the document. Should anyone working within the IPP collaborative have any questions, they should feel free to direct them to either their Legal Working Group liaison or me. My contact information is: rahoagland@wm.edu; 804.221.0404 (c); 757.221.7404 (o). I am also asking that you have the Primer posted on the IPP webpage; we will also host it on the Virginia Coastal Policy Center website.

Finally, please note that the production of this Primer, while reflecting the collective effort of the members of the Legal Working Group, would not have been possible without the assistance of Commander Mark Nevitt of the US Navy. We thank him and the Navy for their willingness to contribute in such a substantial manner.



Roy A. Hoagland
Chair, IPP Legal Working Group
Director, Virginia Coastal Policy Clinic, William & Mary Law School

Hampton Roads Sea Level Rise Preparedness and Resilience Intergovernmental Pilot Project

Legal Working Group

Legal Primer¹

Executive Summary

The Hampton Roads area is experiencing the highest rates of sea-level rise along the U.S. East Coast. It is second only to New Orleans, Louisiana as the largest population center at risk from sea level rise in the country.² And it is anticipated that Virginia will experience between 2.3 to 5.2 feet of sea level rise by the end of the century.³ This unprecedented challenge requires a comprehensive and effective planning response.

The mission of the Hampton Roads Sea Level Rise Pilot Project (“Pilot Project”) is to develop a regional whole of government and whole of community approach to sea level rise preparedness and resilience planning for the Hampton Roads community. This is a two-year project with the goal of establishing arrangements and procedures that can effectively coordinate the sea level rise preparedness and resilience planning of federal, state, and local government agencies, citizens groups, and the private sector. Ideally, this Pilot Project will generate a template for use by other regions of the United States also working with similar issues of sea level rise preparedness and this Legal Primer is an important part of this effort. It provides an overview of the myriad legal and policy concerns that the Pilot Project will face in developing practical and whole of government solutions.

¹ Several members of the Legal Working Group assisted with the creation of this document. They include: Professor Roy Hoagland (Director: Virginia Coastal Policy Center); Mr. Joe Durant (Newport News City Attorney Office); Mr. Jeremy Forrest (Virginia Coastal Policy Center Student); Ms. Kelly Lackey (City of Chesapeake); Lieutenant Commander Deborah Loomis, JAGC, USN (Fleet Forces Command Legal); Mr. Benjamin McFarlane (Hampton Roads Planning District Commission); Commander Mark Nevitt, JAGC, USN (Region Environmental Counsel, Mid-Atlantic); Mr. Adam Olson (USCG Legal); Mr. Miguel Padilla (USCG Legal); Mr. J. Duncan Pitchford (Commonwealth of Virginia Attorney General’s Office); Mr. Henry “Speaker” Pollard (Law Firm of Williams Mullin); Mr. Mark Popovich (Isle of Wight County Attorney); Ms. Lynne Rhode (Commonwealth of Virginia Attorney General’s Office).

² WORLD RESOURCES INSTITUTE, *Sea Level Rise and Its Impact on Virginia*, (Jun. 2014) <http://www.wri.org/publication/sea-level-rise-virginia>

³ See, e.g., Andrew C. Stilton & Jessica Grannis, *Virginia Case Study: Stemming the Tide How Local Governments can Manage Local Flood Risks*, GEORGETOWN CLIMATE CENTER (May 2012); VIRGINIA INSTITUTE OF MARINE SCIENCE (VIMS), RECURRENT FLOODING STUDY FOR TIDEWATER VIRGINIA

As presently organized, the Pilot Project has a Steering Committee, a Legal Working Group, and five subject matter working groups addressing specific areas of concern. The Steering Committee consists of members from state and local government, non-voting liaison members from the federal government (Navy, Coast Guard, Army Corps of Engineers, Air Force), and private industry. The Legal Working Group is chaired by Professor Roy Hoagland (Clinical Professor, William & Mary School of Law) and consists primarily of attorneys from public (federal, state, and local) and private law practices.

Five subject matter working groups receive support from the Legal Working Group in some capacity:

- (1) Private Infrastructure;
- (2) Public Infrastructure;
- (3) Citizen's Engagement;
- (4) Land Use; and
- (5) Public Health.

This Legal Primer complements the efforts of both the Steering Committee and these Working Groups. Its goal is to serve as a reference guide to assist members of the Working Groups in addressing the myriad legal issues that have been identified as particularly pertinent to the coordination of sea level rise preparedness and resilience planning across governmental and community lines. This Primer contains inserted hyperlinks to source documents throughout the document as well as footnotes and applicable reference material to assist the reader.

As sea level rise and resiliency planning is a fast-moving and ever-changing area of policy and law, it is envisioned that this Legal Primer may be updated to reflect changes in policy and law. Feedback on this product is sought from all members of the Pilot Project Working Groups. This Primer necessarily focuses on planning for sea level rise [adaptation](#) at the state, local, and federal levels to address foreseeable effects of sea level rise, recurrent flooding, and other related risks. It does not specifically focus on climate [mitigation](#) measures (such as the reduction of Greenhouse Gas (GHG) emissions), as this is not the central purpose of the Pilot Project.

Adaptation is defined by the U.S. Environmental Protection Agency (EPA) as the “adjustment or preparation of natural or human systems to a new or changing environment which moderates harm or exploits beneficial opportunities.”⁴ Adaptation measures can either be structural or non-structural. Traditionally, flood and erosion risks have been managed using structural techniques such as sea walls and levees.⁵ Non-structural adaptation measures include changes to land use practices that can be done via a change in zoning regulation. Legal authorities and

⁴ *Adaptation Overview*, U.S. ENVTL. PROTECTION AGENCY, <http://www.epa.gov/climatechange/impacts-adaptation/adapt-overview.html> (last visited Jul. 28, 2015).

⁵ This is often referred to as “armoring” infrastructure. *See, e.g., Stilton & Grannis, supra* note 3, at 1.

issues relevant to both structural and non-structural adaptation measures are addressed in this Primer.

This Legal Primer is not intended to serve as and should not be taken as legal advice or other communication to a client, or as attorney work product. Accordingly, this Legal Primer is not subject to either the Attorney-Client Communication Privilege or the Attorney Work Product Privilege. Nothing contained in this Legal Primer constitutes any type of official opinion from any of the governmental attorneys, or their offices, who participated in its drafting. It is designed as a baseline document that can assist participants outside the Legal Working Group. For further consultation by the Pilot Project working groups and the Steering Committee generally, please contact your Legal Working Group liaison. For agency specific questions, please consult your respective legal counsel within your organization.

I. Jurisdictional Issues: Federal, State, & Local Law

As a general matter, zoning, flood management and building codes are a matter of state and local government law. Each working group should be cognizant of the various jurisdictions' comprehensive plans, zoning ordinances, and building codes for the jurisdictions in which they are working and consult these various source documents to guide their work. A table of applicable local law is found in section I.C.

A. Federal and Constitutional Law

The federal government, to include the Department of Defense (DoD) and all federal agencies, is a large property owner within the Hampton Roads region. Adaptation measures at federal agencies and on federal property effectively fall outside the state and respective locality's zoning and building guidance.

1. Doctrine of Sovereign Immunity and Federal Supremacy: Under the legal doctrine of sovereign immunity, the U.S. government (and its agencies) may not be sued without its express consent through an explicit congressional waiver.
 - a. Federal supremacy ensures that state and local governments cannot hinder essential government functions. Hence, as a general matter, the activities of the federal government are often free from state and local government regulation.⁶
 - b. In the land use and building code context, a congressional waiver of sovereign immunity *does not* exist. Thus, state and local building and property codes cannot generally be enforced against federal facilities. Federal law requires that each building constructed or altered by a federal agency must consider the laws of a state or political subdivision of a state which would apply if it were not a building constructed or altered by a federal agency. These include

⁶ McCullough v. Maryland, 17 U.S. 316 (1819).

consideration of state and local zoning laws and laws relating to landscaping, open space, historic preservation, and similar laws.⁷ Nevertheless, this does not constitute a sovereign immunity waiver and does not authorize a fine, penalty, or cause of action against a federal agency for failure to comply.⁸ In sum, it does not mandate compliance – only that consideration is given.

- c. However, there are numerous federal environmental laws where Congress has waived sovereign immunity (such as the [Clean Water Act](#)), which requires federal agencies and their facilities to comply with environmental laws and requirements in the same manner and to the same extent as a non-governmental entity. Key federal laws are discussed in greater detail below.

2. Other Constitutional Law Principles and Textual Provisions

- a. Property Clause: Article IV of the Constitution states that “Congress shall have power to dispose of and make all needful Rules and Regulations respecting . . . the Property belonging to the United States; and nothing in this Constitution shall be so construed as to prejudice any Claims of the United States, or of any particular State.”⁹ The Property Clause provides constitutional authority for the management and control of federal lands by Congress.
- b. Takings Clause: Under Article V, “private property shall [not] be taken for public use, without just compensation.”¹⁰ The Takings Clause effectively limits the power of eminent domain by requiring compensation of the landowner.¹¹
- c. The Supremacy Clause: This provision states that the Constitution, federal laws, and treaties “are the Supreme Law of the Land.”¹² The Supremacy Clause ensures the supremacy of federal law over state law in the event of a conflict, provided that Congress is acting pursuant to its constitutionally authorized powers.

⁷ 40 U.S.C. § 3312 (c)(1)-(2).

⁸ 40 U.S.C. § 3312 (f).

⁹ U.S. CONST. art. IV. § 3 cl. 2.

¹⁰ U.S. CONST. amend. V. State and Federal jurisdiction may be considered exclusive, partial, concurrent, or proprietary. This is a complex area of law and questions should be directed to the appropriate member of the Legal Working Group as they arise.

¹¹ In certain circumstances, federal courts have applied a broad view of “public use” and have not restrained state and local governments from seizing privately owned land for private commercial development on behalf of private developers. *See Kelo v. City of New London*, 545 U.S. 469 (2005). However, pursuant to a recent amendment to the Virginia Constitution, state and local governments are severely constrained, if not altogether prohibited, in taking such action. *See Va. Const.*, art. I, § 11.

¹² U.S. CONST. art. VI. cl. 2.

- d. Underlying Federalism Principles:¹³ It is beyond the scope of this Primer to address all the federalism issues associated with sea level rise in Hampton Roads, but the Tenth Amendment states that all powers not delegated to the United States by the Constitution remain at the state level.¹⁴

3. U.S. Law: Zoning Requirements and Building Codes

- a. As discussed above, state and local building codes must be considered by federal agencies when constructing, but they are not binding regulatory requirements.
- b. 40 U.S.C. § 3312: “Compliance with Nationally Recognized Codes”
 - i. A building constructed by a Federal Agency “shall be constructed or altered . . . in compliance with one of the nationally recognized model building codes and with other nationally recognized codes. . . .”¹⁵ Projects for construction shall be constructed to the maximum extent feasible with one of the nationally recognized model building codes.
 - ii. Each building constructed or altered by the Administrator of the General Services shall be done only after consideration of all requirements – to include state or local zoning laws – which would apply to the building if it were not a building constructed or altered by a federal agency.¹⁶
 - iii. Neither of these obligations amount to a federal sovereign immunity waiver, however. Hence, they do not create a cause of action for non-compliance.
- c. The General Services Agency (GSA) has the authority to with promulgate regulations governing the acquisition, use, and disposal of real property. It applies the technical requirements issued by the International Code Council (ICC). The ICC family of codes is available at www.iccsafe.org.¹⁷

¹³ Federalism is defined as “The relationship and distribution of power between the individual states and the national government.” BLACK’S LAW DICT. 253 (POCKET ED. 1996).

¹⁴ U.S. CONST. amend X. “The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people.” Real property owned by a sovereign (The United States) within the geographic boundaries of another sovereign (an individual state) creates a question of which sovereign’s law will apply to that property.

¹⁵ 40 U.S.C. § 3312 (b).

¹⁶ 40 U.S.C. § 3312 (c).

¹⁷ Inasmuch as Virginia models its statewide building code on such standards and other national standards, the risk of conflict between federal building standards and what would normally be required at the state or local levels in Virginia appears to be reduced in this respect. See Va. Code Ann. §§ 36-98 & 36-39.

4. Applicable Federal Statutes Impacting Sea Level Rise Preparedness and Governance

a. Coastal Zone Management Act (CZMA)¹⁸

- i. Purpose. To encourage and assist states to develop and implement management programs over the use of the land and water resources of the Coastal Zone. The CZMA minimizes loss of life and property caused by improper development in flood-prone, storm-surge, and erosion-prone areas.
- ii. Applicability. Each federal agency must ensure consistency with approved state coastal zone management programs, “to the maximum extent practicable,” when 1) conducting or supporting activities directly affecting the coastal zone or 2) undertaking any development project in the coastal zone.¹⁹

b. Clean Water Act (CWA)²⁰

- i. Purpose. To restore and maintain the chemical, physical, and biological integrity of the Nation’s waters. It requires the establishment of water quality standards and sets permit requirements for point source pollutant discharges into “waters of the United States” of dredge and fill material and of pollutants contained in industrial and municipal wastewater and industrial, municipal and construction stormwater discharges. “Waters of the United States” was recently clarified by EPA and U.S. Army Corps of Engineers regulations following a string of Supreme Court cases.²¹
- ii. Virginia has a fully authorized National Pollutant Discharge Elimination System (NPDES) permitting authority under the Clean Water Act. Virginia Authorization to Implement. Pursuant to EPA-granted authorization, most of day-to-day administration and implementation of the Clean Water Act’s permit programs for wastewater and stormwater discharges occurs at the state level in Virginia.²²

¹⁸ 16 U.S.C. §§ 1451-66.

¹⁹ 16 U.S.C. § 1456.

²⁰ 33 U.S.C. §§ 1251-1387, *See* §1344, entitled “Permits for Dredged or Fill Material.”

²¹ EPA and the Corps of Engineers have just revised the definition of “waters of the United States.” *See* 80 Fed. Reg. 37054 (June 29, 2015), *to be codified at* 40 CFR 230.3 and 33 CFR 328.3.

²² *State Program Status*, U.S. ENVTL. PROTECTION AGENCY, <http://water.epa.gov/polwaste/npdes/basics/NPDES-State-Program-Status.cfm> (last visited Jul 28, 2015).

iii. Sovereign Immunity Waiver.²³ Each federal agency “shall be subject to, and comply with, all Federal, State, interstate, and local requirements, administrative authority, and process and sanctions respecting the control and abatement of water pollution . . .”

c. [Clean Air Act \(CAA\)](#)²⁴

- i. Purpose. To protect and enhance the quality of the Nation’s air resources so as to promote the public health and welfare. The CAA establishes a complex permitting program for the control of emissions of certain pollutants into the lower and upper atmosphere.
- ii. Sovereign Immunity Waiver.²⁵ A federal agency having jurisdiction over any property or facility or engaged in activity resulting or which may result in the discharge of air pollutants “shall be subject to, and comply with, all Federal, State, interstate, and local requirements, administrative authority, and process and sanctions respecting the control and abatement of air pollution in the same manner, and to the same extent as any nongovernmental entity.”
- iii. The Clean Air Act addresses climate mitigation efforts through the regulation of Greenhouse Gas (GHG) emissions.
- iv. A recent Supreme Court case, *Massachusetts v. EPA*, serves as an important precedent in describing the scope of the Clean Air Act’s ability to address rising sea levels. Under *Massachusetts v. EPA*, the state of MA brought suit against EPA for failure to regulate GHG emissions, and was found to have judicial standing.²⁶
- v. Virginia Authorization to Implement. Pursuant to EPA-granted authorization and approval of Virginia’s State Implementation Plan, most of the day-to-day administration and implementation of the Clean Air Act’s permit programs occur at the state level in Virginia.²⁷

d. [Resources Conservation and Recovery Act \(RCRA\)](#)²⁸

²³ 33 U.S.C. § 1323.

²⁴ 42 U.S.C. § 7401 *et seq.*

²⁵ 42 U.S.C. § 7418.

²⁶ The standing requirements are easier for the state (vice an individual) to meet. *See Massachusetts v. EPA*, 549 U.S. 497 (2007).

²⁷ *See* 40. C.F.R. §§ 52.5420 *et seq.*

²⁸ 42 U.S.C. § 6901 *et seq.*

- i. Purpose. To reduce or eliminate the generation of hazardous waste. To treat, store, or dispose of hazardous waste so as to minimize threat to human health and the environment. Also controls the management of non-hazardous solid waste at landfills.
- ii. Sovereign Immunity Waiver.²⁹ A federal agency or department having jurisdiction over any solid waste management site or engaged in any activity resulting, or which may result, in the disposal or management of solid or hazardous waste shall be subject to, and comply with, all Federal, State, interstate, and local requirements respecting control and abatement of solid waste or hazardous waste disposal and management.
- iii. Virginia Authorization to Implement. Pursuant to EPA-granted authorization, day-to-day administration and implementation of RCRA programs occurs at the state level in Virginia.³⁰

e. [National Environmental Policy Act \(NEPA\)](#)

- i. Purpose. NEPA requires federal government and all agencies to “use all practicable means to create and maintain conditions under which man and nature can exist in productive harmony. . .”³¹
- ii. [Council on Environmental Quality \(CEQ\) Draft Guidance on Climate Change and Greenhouse Gas Emissions](#). Provides *draft* guidance to Federal agencies on how to consider greenhouse gas emissions and the impacts of climate change in their NEPA analysis.

f. [Coastal Barriers Resources Act \(CBRA\)](#)

- i. Purpose. To minimize loss of human life, wasteful expenditure of Federal revenues, and damage to fish, wildlife, and other natural resources associated with the coastal barriers along the Atlantic and Gulf Coasts. Regulates the issuance of flood insurance under the National Flood Insurance Program within coastal areas designated as Coastal Barrier Resources System (CBRS) units, as well as

²⁹ 42 U.S.C. § 6961.

³⁰ *Virginia RCRA Authorization Records*, U.S. ENVTL. PROTECTION AGENCY, http://www.epa.gov/reg3wcmd/RCRA_State_Star/rcra_star_va_index.html (last visited Jul. 28, 2015).

³¹ 42 U.S.C. § 4331 (b).

financial assistance provided by FEMA to applicants in CBRS units.

- ii. Sovereign Immunity Waiver.³² CBRA does not provide for a waiver of federal sovereign immunity. Instead, it has a provision that outlines of “priority of laws” between federal and state regulation of CBRS land that also strives to protect state regulation of land within its boundaries.

g. [Endangered Species Act \(ESA\)](#)³³

- i. Purpose. To conserve endangered and threatened species and resolve water resource issues in concert with endangered species conservation.
- ii. Sovereign Immunity Waiver.³⁴ Each federal agency must ensure that any action authorized, funded or carried out by that agency is not likely to jeopardize the continued existence of any endangered/threatened species or result in destruction or adverse modification of critical habitat for such species.

h. [Fish and Wildlife Coordination Act](#).³⁵

- i. Purpose. The Fish and Wildlife Coordination Act of 1934, as amended, requires that wildlife, including fish, receive equal consideration and be coordinated with other aspects of water resource development. This is accomplished by requiring consultation with U.S. Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration (NOAA) Fisheries, and appropriate state agencies whenever any body of water is proposed to be modified in any way and a federal permit or license is required.

i. [Marine Mammal Protection Act \(MMPA\)](#)³⁶

- i. Purpose. The MMPA’s purpose is to protect essential marine mammal habitats, including the rookeries, mating grounds, and areas of similar significance from the adverse effect of man’s actions.

³² 16 U.S.C. § 3507.

³³ 16 U.S.C. § 1531 *et seq.*

³⁴ 16 U.S.C. § 1536.

³⁵ 16 U.S.C. §§ 661 – 667e.

³⁶ 16 U.S.C. § 1361 *et seq.*

- j. [Migratory Bird Treaty Act \(MBTA\)](#)³⁷
 - i. Purpose. The MBTA’s purpose is to protect migratory birds native to the United States and in danger of extinction from being killed, captured, taken, or exported.
 - k. [Magnuson-Stevens Fishery Conservation and Management Act](#)³⁸
 - i. Purpose. The Magnuson-Stevens purpose is to conserve and manage the fishery resources found off the coasts of the United States, and promote the protection of essential fish habitat (EFH) in the review of projects conducted under Federal permits, licenses, or other authorities that affect or have the potential to affect such habitat. It requires federal agencies to consult with NOAA Fisheries when any activity proposed to be permitted, funded, or undertaken by a federal agency may have adverse effects on designated EFH.
 - l. [National Historic Preservation Act \(NHPA\)](#)³⁹
 - i. Purpose. The NHPA’s purpose is to protect the nation’s historical and cultural foundations against inadvertent loss or alteration, and to improve the planning and execution of Federal and federally assisted projects to encourage their preservation.
 - m. [National Historic Lighthouse Preservation Act \(NHLPA\)](#)⁴⁰
 - i. Purpose. The NHLPA’s purpose is to create a process and policies for the conveyance of historic light stations, and to monitor their use.
5. [Federal Executive Orders & Executive Guidance](#): There have been numerous executive orders addressing *federal agency* efforts relating to sea level rise.
- a. [Executive Order 13693](#): “Planning for Federal Sustainability in the Next Decade.” Primarily related to climate mitigation measures, it orders the reduction of Greenhouse Gas emissions and sets sustainability goals for federal agencies.
 - b. [Executive Order 13690](#): “Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input.” This executive order updates an

³⁷ 7 U.S.C. § 703 *et seq.*

³⁸ 16 U.S.C. § 1801 *et seq.*

³⁹ 16 U.S.C. § 470.

⁴⁰ 16 U.S.C. § 470w-7.

earlier E.O. addressing federal action in floodplains and establishes new flood plain standards for federal actions.

- c. [Executive Order 13677](#): “Climate Resilient International Development.” Establishes a working group on Climate-Resilient International Development which will identify, develop, and assess federal agency strategies, programs and investments towards climate-resilience.
- d. [Executive Order 13653](#): “Preparing the United States for the Impacts of Climate Change.” Encourages, through agency guidance, grants, and technical assistance, climate-resilient investments by states, local communities, and tribes.
- e. [Executive Order 13547](#): “Stewardship of the Ocean, Our Coasts, and the Great Lakes.” Establishes a national policy to ensure protection and restoration of ocean, coastal, and Great lakes ecosystems, enhance sustainability of ocean and coastal economies, respond to climate change, and coordinate with national security and foreign policy interests.
- f. [Federal Climate Action Plan \(June 2013\)](#): directs federal agencies to take the appropriate actions to reduce risk to federal investments, specifically to “update their flood-risk reduction standards.”

6. [Applicable Federal Agencies & Programs](#)

- a. [Environmental Protection Agency \(EPA\)](#)⁴¹
 - i. Provides information regarding the effects of climate change on coastal areas, including sea level rising and flooding. EPA also provides a [Sea Level Rise and Coastal Flooding Impacts Viewer](#) to “visualize the potential impacts of sea level rise on coastal communities,” including Mississippi, Alabama, Texas, and Florida. Additional coastal counties are anticipated to be added over time.
- b. [Federal Emergency Management Agency \(FEMA\)](#)
 - i. Created by the Disaster Relief Act of 1974⁴² to provide federal natural disaster assistance to state and local governments.
 - ii. Encourages the development of disaster preparedness plans by state and local government.

⁴¹ 40 C.F.R. § 1.

⁴² 42 U.S.C. § 5131, *et seq.*

- c. [National Oceanographic and Atmospheric Association \(NOAA\)](#)⁴³
NOAA provides a Sea Level Trends map that illustrates regional trends in sea level, with arrows representing the direction and magnitude of change. It also provides detailed information for each area identified on the map.
- d. [U.S. Geological Survey \(USGS\)](#)⁴⁴
The USGS partners with NOAA to release a report that “examines and describes climate change impacts on coastal ecosystems and human economies and communities, as well as the kinds of scientific data, planning tools and resources that coastal communities and resource managers need to help them adapt to these changes.”⁴⁵
- e. [National Aeronautics and Space Administration \(NASA\)](#)
NASA provides information regarding climate change and vital signs of the planet including sea level and sea level rise data, indicating that the rise is due to two primary causes: “added water from melting land ice and the expansion of sea water as it warms.” NASA also provides charts showing the change in sea level.
- f. [National Flood Insurance Program](#)⁴⁶
 - i. Provides affordable insurance to property owners to help reduce the impact of flooding on private and public property. NFIP also “encourages communities to adopt and enforce floodplain management regulations.”
 - ii. The NFIP program “reduces the socio-economic impact of disasters by promoting the purchase and retention of Risk Insurance in general, and National Flood Insurance in particular.”
 - iii. FEMA provides a Flood Insurance Rate Map (FIRM). This is “the official map of a community on which FEMA has

⁴³ 15 C.F.R. § 9.

⁴⁴ 30 C.F.R. § 2 (A) (4).

⁴⁵ Louis Cafiero and Catherine Puckett, [USGS-NOAA: Climate Change Impacts to U.S. Coasts Threaten Pub. Health, Safety and Econ.](#), U.S. GEOLOGICAL SURVEY (Jan. 28, 2013, 1:00 PM); *see also* Adele Young & Kristen Clark, [Go Green, Save Money: Lowering Flood Insurance Rates in Virginia with Stormwater Management and Open Space](#), VIRGINIA COASTAL POLICY CLINIC WHITE PAPER (2015) (showing how “local governments can save constituents money and build support for stronger environmental protection is to participate in the Federal Emergency Management Agency’s (FEMA) “Community Rating System” (CRS) program –a voluntary incentive program that awards credits to communities that implement proactive measures to reduce flood risk”).

⁴⁶ 42 U.S.C. § 4001, *et seq.*

delineated both the special hazard areas and the risk premium zones applicable to the community.”⁴⁷

g. Readiness and Environmental Protection Integration (REPI)⁴⁸

- i. Provides a current statutory basis to allow DoD to enter into cost-sharing partnerships with outside groups (e.g., The Nature Conservancy) to protect land areas *outside* the military installation and to ensure that development around the installation is conducive to mission readiness and operations. REPI allows the military to enter into agreements with eligible entities (e.g., states, political subdivision of a state, or a private entity with a conservation or preservation goal) to address the use or development of real property “in the vicinity of or ecologically related to” military installations for purposes of:

1. Limiting any development or use of the property that would be incompatible with the mission of the installation;
2. Preserving habitat on the property that is compatible with environmental requirements and relieve environmental restrictions that interfere (directly or indirectly) with military testing or operations on the installations.

- h. National Levee Safety Program⁴⁹: establishes a “Committee on Levee Safety” to inspect levees – defined as “embankment[s], including floodwalls, the primary purpose of which is to provide hurricane, storm, and flood protection” – and issue recommendations for a national levee safety program.

7. Agency Specific Policy Guidance

- a. Department of Defense (DoD) and Military Departments. Within DoD, the current Unified Facilities Code states that DoD planners should *consider* climactic conditions during construction, but it does not formally mandate specific sea level rise or climate resilient investment in any one project. In addition, there is not an easily identified “climate change” or “climate adaptation” fund that is appropriated by Congress and specifically designated for future climate resilient investment.

⁴⁷ *Flood Insurance Rate Map*, FEMA, <http://www.fema.gov/flood-insurance-rate-map-firm> (last visited Jul. 28, 2015).

⁴⁸ 10 U.S.C. § 2684a, entitled, “Agreements to limit encroachments and other constraints on military training, testing and operations.”

⁴⁹ 33 U.S.C. §§3301 *et seq.*

- i. DoD projects on federal installations must take into account two important components: (1) the [Unified Facilities Criteria](#); and (2) the DoD funding process. The Unified Facilities Criteria applies to the Military Departments, the Defense Agencies, and DoD Field Activities for planning, design, construction, sustainment, restoration, and modernization of facilities, regardless of funding source. Not all documents apply to all services; an alpha-designator following the document number indicates a document applying to a particular service (e.g., A for USACE, F for Air Force, N for Navy).
 - ii. [DoD Climate Adaptation Roadmap](#)
 - iii. Center for Naval Analyses Studies⁵⁰
 - iv. [2014 Quadrennial Defense Review](#)
 - v. [Navy Task Force Climate Change](#)
 - vi. [Center for Climate and Security Resource Hub](#)
- b. [Department of Homeland Security \(DHS\) Policy](#). DHS applies DHS-specific Environmental Management directives [025-21](#), [023-02](#), and [023-01](#), and “where practicable,” tries to meet or exceed sustainable practice goals of other federal agencies.
- i. [DHS Directive 007-03: Integrated Risk Management](#) - Establishes responsibilities for implementing DHS policy for risk management, including mitigating risks from natural disasters.
 - ii. U.S. Coast Guard (USCG) - Agency Specific Policy Guidance⁵¹
 - 1. [COMDTINST 16478.5- Environmental Compliance Evaluation](#): Establishes policies, procedures, and responsibilities for the Coast Guard Environmental Compliance Evaluation (ECE) Program.
 - 2. [COMDTINST 16475.1D- National Environmental Policy Act Implementing Procedures and Policy for](#)

⁵⁰ See CTR. FOR NAVAL ANALYSIS (CNA): NATIONAL SECURITY AND THE THREAT OF CLIMATE CHANGE (2014).

⁵¹ The U.S. Coast Guard is organizationally part of the Department of Homeland Security (DHS).

Considering Environmental Impacts: Establishes policies and responsibilities for Coast Guard implementation of the NEPA, *supra* at I (A) (3) (c), including provisions for USCG planning, environmental documentation, and preparation of Environmental Impact Statements.

3. [COMDINST 16004.2A](#)- *Coastal Zone Management, Federal Consistency Procedures*: Establishes policies and procedures for USCG implementation of Coastal Zone Management Act (CZMA), including USCG procedures, exemptions, and State Agency objections to USCG determinations.
4. [USCG Western Hemisphere Strategy \(2014\)](#), at 16-23: noting that climate change will exacerbate transnational risks and threats. Rising sea levels could lead to coastal erosion, property destruction, and an increase in displaced refugees who become even more vulnerable to extreme weather events. Changing precipitation patterns can reallocate flood and draught, disrupting access to food and water in vulnerable areas. Extreme weather events produce dangerous storm surges, disrupt trade routes, and consume resources of responding agencies.

B. State Law: Commonwealth of Virginia

The Commonwealth of Virginia is a [Dillon Rule state](#).⁵² Under the Dillon Rule, localities have the authority to act only in instances where they have been expressly granted such authority from the Commonwealth of Virginia or as may reasonably be inferred therefrom. The Dillon Rule requires Virginia courts to narrowly interpret delegations of power to local governments. However, the exercise of police powers is given greater leeway routinely, and this is particularly true for issues of safety and welfare which would reasonably include adaptation measures for sea level rise.⁵³ Indeed, prior [legal analysis](#) indicates that the Dillon Rule should only have a limited

⁵² “Dillon’s Rule” is named after John Dillon, a Chief Justice Iowa Supreme Court Justice who crafted the rule in the 19th century. It was quickly adopted by Virginia and several other states. In contrast to the Dillon Rule, in “Home Rule” allows local governments to make public policy decisions, such as creating special zoning and tax districts to finance a specific infrastructure project (arena, road, etc.), unless the state has specifically limited local authority.

⁵³ Res. Conservation Mgmt., Inc. v. Bd. of Supervisors of Prince William County, 238 Va. 15, 22, 380 S.E.2d 879, 883 (1989) (stating that when a locality regulates local physical hazards, “specificity is not necessary even under the Dillon Rule”); *see also* Stilton & Grannis, *supra* note 3, at 6 (asserting that “accounting for sea-level rise would not require local governments to imply new powers or impose new criteria”).

impact on planning for sea level rise at the local level due to broad delegations that are in place.

The Virginia Supreme Court has stated that localities cannot generally be hamstrung when regulating land use.⁵⁴ As discussed in greater detail below, the Virginia legislature has already delegated a myriad of flood control, zoning, and similar authorities to local governments – all areas of importance when determining local authority to address sea level rise and recurrent flooding. And the legislature continues to act on such measures.

Furthermore, multiple state programs, laws, regulations, executive initiatives and policies both directly and indirectly address concerns associated with sea level rise and resiliency planning.

1. [Dillon Rule Overview](#): Municipalities exercise only the powers specifically granted by the state, the powers necessary to carry out the specifically granted powers, and the powers indispensable to the declared purposes of the municipality. Accordingly, while there have been broad delegations to localities in Virginia in flood control and zoning, it still remains important to have a legal basis within local law that is derived from a Virginia statute delegating such authority as applied to local zoning, water quality, and sea level rise issues.
2. [Virginia State Constitution](#)
 - a. Places a prohibition against damaging or taking of private property except and only to the degree necessary for public use, and then only with just compensation (Art 1, Sec. 11). This allows for compensation for damages, not only the taking of private property.
 - b. Authority for and limitations on local government debt: (Article VII, Sec. 10).
3. [Key Judicial Rulings Applying Virginia Constitutional Law](#)
 - a. *Livingston v. VDOT*: May place localities at increased risk for takings liability when private property is damaged due to the locality's failure to maintain a public improvement.⁵⁵
 - b. *Byler v. Va. Elec. & Power Co.*: Va. Const. Art. 1, § 11 of the Virginia Constitution does not authorize a remedy for diminution in property value caused by public improvement, such as power lines.⁵⁶
 - c. *Kitchen v. City of Newport News*: Landowner's inverse condemnation claim alleged sufficient facts, and survived demurrer

⁵⁴ Chesapeake v. Garden Enter., 253 Va. 243, 246, 482 S.E.2d 812, 814 (1997).

⁵⁵ 284 Va. 140, 726 S.E.2d 264 (2012).

⁵⁶ 284 Va. 501, 731 S.E.2d 916 (2012).

filed by City of Newport News, when City's infrastructure led to a series of floods on landowner's property.⁵⁷

4. Virginia State Law: Flood Control

- a. State interest in flood control: Virginia law authorizes the implementation of measures to mitigate and alleviate the effects of stormwater surges and flooding.⁵⁸
- b. Flood protection programs and coordination: Authorizes the implementation of flood prevention programs to minimize loss of life, property damage, and negative impacts on the environment.⁵⁹
- c. Construction of dams, levees, seawalls, etc: Authorizes localities to construct such items to prevent tidal erosion, flooding or inundation of such locality.⁶⁰
- d. Condemnation by localities authorized: Authorizes localities to acquire by condemnation title to land, buildings, easements, earth, and water.⁶¹

5. Virginia State Law: Zoning

- a. Building of houses and establishing setback lines: Authorizes localities to adopt mandatory setbacks. Setbacks are building restrictions that establish a distance from a boundary line where owners are prohibited from building structures.⁶²
- b. Zoning ordinances generally: Authorizes localities to classify the use of land, flood plains, etc.⁶³
- c. Purpose of zoning ordinances: Authorizes localities to create zoning ordinances to protect surface water and ground water, from loss caused by flood, and to preserve historic areas.⁶⁴
- d. Matters to be considered in drawing and applying zoning ordinances and districts: Authorizes localities to draw zoning ordinances and districts considering future requirements of community as to the

⁵⁷ 275 Va. 378, 657 S.E.2d 132 (2008).

⁵⁸ Va. Code Ann. § 10.1-658.

⁵⁹ Va. Code Ann. § 10.1-659.

⁶⁰ Va. Code Ann. § 15.2-970.

⁶¹ Va. Code Ann. § 15.2-1901.1.

⁶² Va. Code Ann. § 15.2-2279.

⁶³ Va. Code Ann. § 15.2-2280.

⁶⁴ Va. Code Ann. § 15.2-2283.

land, preservation of flood plains, the preservation of life and property, etc.⁶⁵

6. Virginia State Law - Coastal Zone Management State Program Consistency Review. Under the federal Coastal Zone Management Act (CZMA), certain actions and projects occurring in the designated coastal zone of Virginia must under consistency review to ensure compliance with state coastal zone programs. This review process is administered by the Virginia Department of Environmental Quality.⁶⁶
7. Virginia State Law: Water Quality, Water Use and Related Resources Protection
 - a. Virginia water resources policy – generally.⁶⁷
 - b. State ownership and control of tidal and non-tidal submerged lands.⁶⁸
 - i. Improvement of navigability.⁶⁹
 - ii. Piers, docks and landings.⁷⁰
 - c. Submerged bottomlands belonging to state should be maintained for public use.⁷¹
 - d. State Water Control Law: Provides overarching foundation for most of Virginia’s major water quality and water resources management programs.⁷²
 - e. Wetlands protection:
 - i. Virginia Water Protection Permit Program.⁷³
 - ii. Wetlands impact permits and local wetland boards.⁷⁴

⁶⁵ Va. Code Ann. § 15.2-2284.

⁶⁶ See Exec. Order No. 35 (Va. 2014), available at <https://governor.virginia.gov/media/3490/eo-35-continuation-of-the-virginia-coastal-zone-management-program.pdf>. For program information see generally

<http://www.deq.virginia.gov/Programs/CoastalZoneManagement/DescriptionBoundary.aspx>.

⁶⁷ Va. Code Ann. §§ 62.1-10 *et seq.*; 9 VAC 25-390-10 *et seq.*

⁶⁸ Va. Code Ann. §§ 28.2-1200 *et seq.*

⁶⁹ Va. Code Ann. §§ 62.1-155 *et seq.*

⁷⁰ Va. Code Ann. § 62.1-164 *et seq.*

⁷¹ See Va. Code Ann. §§ 28.2-1200 and 28.2-1205 (applies to state-owned bottomlands).

⁷² Va. Code Ann. §§ 62.1-44.2 *et seq.*

⁷³ Va. Code Ann. §§ 62.1-44.15:20 *et seq.*; 9 VAC 25-210-10 *et seq.*

⁷⁴ Va. Code Ann. §§ 28.2-1300 *et seq.*

- iii. Wetlands policy.⁷⁵
- f. Surface water withdrawals, preservation of instream flow, interbasin transfers of water: Virginia Water Protection Permit Program.⁷⁶
- g. Stormwater management and erosion control
 - i. Stormwater discharges by localities, certain government facilities and higher education institutions: Virginia Stormwater Management Act.⁷⁷
 - ii. Stormwater discharges and erosion management for land-disturbing and other construction activities and post-development stormwater control (private and public property).
- h. Stormwater discharges and post-development controls: [Virginia Stormwater Management Act](#)⁷⁸; Virginia Stormwater Management Program Regulations⁷⁹. Erosion and sediment control: [Erosion and Sediment Control Law](#) ⁸⁰ ; Erosion and Sediment Control Regulations.⁸¹
- i. Chesapeake Bay and tributary protections (buffers, set-backs and other land use restrictions): [Chesapeake Bay Preservation Act](#).⁸² Chesapeake Bay Preservation Regulations.⁸³ The CBPA could be utilized by localities to prohibit construction 100 feet from the edge of the wetland or shore. CBPA buffers do not apply to federal lands.
- j. Coastal sand dune and beach protection.⁸⁴
- k. Wastewater and sewer control:

⁷⁵ 9 VAC 25-380-10 *et seq.*

⁷⁶ Va. Code Ann. §§ 62.1-44.15:20 *et seq.*; Va. Code Ann. § 62.1-44.15(17); 9 VAC 25-210-10 *et seq.*

⁷⁷ Va. Code Ann. §§ 62.1-44.15:24 *et seq.*; Virginia Stormwater Management Program Regulations (9 VAC 25-870-10 *et seq.*

⁷⁸ §§ 62.1-44.15:24 *et seq.*

⁷⁹ 9 VAC25-870-10 *et seq.*; (control of stormwater from non-construction industrial activities (Va. Code Ann. § 62.1-44.15(5); 9 VAC 25-31-120; myriad general permit regulations)

⁸⁰ Va. Code Ann. §§ 62.1-44.15:51 *et seq.*

⁸¹ 9 VAC 25-840-10 *et seq.*

⁸² Va. Code Ann. §§ 62.1-44.15:67 *et seq.*

⁸³ 9 VAC 25-830-10 *et seq.*

⁸⁴ Va. Code §§ 28.2-1400 *et seq.*

- i. Industrial wastewater: Wastewater discharges; ⁸⁵ no-discharge treatment systems.⁸⁶
 - ii. Municipal wastewater (domestic and industrial sewage) treatment and discharges.⁸⁷
 - iii. Septic systems and other sewage handling.⁸⁸
- l. Animal feeding operations (“AFOs”):
 - i. No discharge;⁸⁹
 - ii. With discharge.⁹⁰
- m. Waterworks and Water Supply:
 - i. Waterworks and public water supply treatment.⁹¹
 - ii. Virginia water supply and resources planning.⁹²
 - iii. Impoundment of surface waters.⁹³
- 8. Solid waste collection, recycling and disposal (e.g., landfill siting, design construction, and contamination): Virginia Waste Management Act;⁹⁴ [Virginia Solid Waste Management Regulations](#).⁹⁵
- 9. Hazardous waste generation, storage, treatment, transportation and disposal: Virginia Waste Management Act;⁹⁶ Virginia Hazardous Waste Management Regulations.⁹⁷
- 10. Voluntary Remediation Program: Addresses voluntary cleanup of properties with contamination or potential contamination where remediation is not clearly mandated by law.⁹⁸
- 11. Storage tanks and petroleum releases, generally

⁸⁵ Va. Code Ann. § 62.1-44.15(5); 9 VAC 25-31-10 *et seq.*

⁸⁶ 9 VAC 25-32-10 *et seq.*

⁸⁷ Va. Code Ann. § 62.1-44.15(5); 9 VAC 25-31-10 *et seq.*; 9 VAC 25-790-10 *et seq.*

⁸⁸ Va. Code Ann. § 32.1-163 *et seq.*; 12 VAC 5-610-10 *et seq.*

⁸⁹ Va. Code Ann. § 62.1-44.15(5); 9 VAC 25-32-10 *et seq.*; 9 VAC 25-192-10 *et seq.*

⁹⁰ Va. Code Ann. § 62.1-44.15(5); 9 VAC 25-31-10 *et seq.*

⁹¹ Va. Code Ann. §§ 32.1-167 *et seq.*; 12 VAC 5-590-10 *et seq.*

⁹² Va. Code Ann. §§ 62.1-44.35 *et seq.*; 9 VAC 25-780-10 *et seq.*

⁹³ Va. Code Ann. §§ 62.1-104 *et seq.*

⁹⁴ Va. Code Ann. §§ 10.1-1400 *et seq.*

⁹⁵ Va. Code Ann. §§ 10.1-1400 *et seq.*

⁹⁶ Va. Code Ann. §§ 10.1-1400 *et seq.*

⁹⁷ 9 VAC 20-60-12 *et seq.*

⁹⁸ Va. Code Ann. § 10.1-1232; 9 VAC 20-160-10 *et seq.*

- a. Underground storage tanks (“UST’s): Regulation of use of UST’s and associated releases and spills.⁹⁹
 - b. Aboveground storage tanks (“AST’s”) and petroleum releases generally: Regulation of AST’s, contingency planning for AST storage and releases, and remediation and liability for releases from AST’s and non-tank releases.¹⁰⁰
12. Open space preservation and conservation
- a. Open Space Land Act: authorized localities to acquire lands to provide for open, undeveloped space.¹⁰¹
 - b. Virginia Conservation Easement Act: Creates state tax incentives for the preservation of undeveloped land through conservation easements.¹⁰²
13. Virginia Administrative Process Act (VAPA): General standards for making case decisions and developing and issuing regulations by state and local agencies and bodies (similar to federal Administrative Procedure Act).¹⁰³
14. Key Virginia Common Law¹⁰⁴ Concepts
- a. State Riparian Water Rights:
 - i. Each property owner is entitled to the natural flow of water in a natural watercourse adjoining real property subject to “reasonable use” of water of upstream riparian¹⁰⁵ owner.
 - ii. There is a riparian right to flow and reasonable use tied to ownership of land adjacent to a stream; the right lies not in the water itself, but in reasonable use thereof so as not to injure downstream riparian owner.¹⁰⁶

⁹⁹ Va. Code Ann. §§ 62.1-44.34:8 *et seq.*; 9 VAC 25-580-10 *et seq.*

¹⁰⁰ Va. Code Ann. §§ 62.1-44.34:14 *et seq.*; 9VAC25-91-10 *et seq.*

¹⁰¹ Va. Code Ann. §§10.1-1700 *et seq.*

¹⁰² Va. Code Ann. §§ 10.1-1009 *et seq.*

¹⁰³ Va. Code Ann. §2.2- 4000 *et seq.*

¹⁰⁴ “Common Law” is defined as “the body of law derived from judicial decisions and opinions, rather than from statutes and constitutions.” BLACK’S LAW DICTIONARY 113 (POCKET ED. 1996).

¹⁰⁵ Riparian rights is the rule that owners of land bordering on a waterway have equal rights to use the water passing by their property. BLACK’S LAW DICTIONARY 554 (POCKET ED. 1996).

¹⁰⁶ *See* *Mumpower v. Bristol*, 90 Va. 151, 17 S.E. 853 (1893); *Hite v. Luray*, 175 Va. 218, 8 S.E.2d 369 (1940); *Purcellville v. Potts*, 179 Va. 514, 19 S.E.2d 700 (1942). *But see* Va. Code §§ 62.1-10 *et seq.*

iii. Riparian ownership also entitled to use of shoreline for access to property and to water, including right to install piers in a manner not interfering with navigation of the watercourse, but this has been modified by statute.¹⁰⁷

b. Real and Personal Property-Related Causes of Action

i. Trespass: Claim by property owner resulting from damage (including loss of use and enjoyment) caused by other party's unauthorized entry (or other party causing something to enter upon the property; requires actual physical entry).¹⁰⁸

ii. Nuisance Law

1. Private nuisance: Claim by property owner for damage (including loss of use and enjoyment) caused by another party's use of his own property (noise, light, noxious odors); does not necessarily involve physical entry onto injured party's property.¹⁰⁹

2. Public nuisance: An activity or condition that of itself poses a danger to the public at large; it may be remedied by governmental authorities.¹¹⁰

iii. Negligence: Failure to exercise the level of care a reasonably prudent person would perform under like circumstances to avoid harm to another; the law attributes a duty of care owed to another.¹¹¹

iv. Strict liability: Liability arising through inherently and ultra-hazardous dangerous actions of a party (e.g., blasting); liability arises regardless of fault or negligence; duty imposed by law given nature of circumstance.¹¹²

15. [Key Virginia Executive Orders](#)

¹⁰⁷ Langley v. Meredith, 237 Va. 55, 376 S.E.2d 519 (1989); Evelyn v. Commonwealth, 46 Va.App. 618, 621 S.E.2d 130 (2005). See also Va. Code Ann. §§ 62.1-164, 28.2-1205 and 28.2-1209.

¹⁰⁸ See, e.g., Tate v. Ogg, 170 Va. 95, 195 S.E. 496 (1938); Nature Conservancy v. Machipongo Club, Inc., 419 F. Supp. 390 (E.D. Va. 1976).

¹⁰⁹ Barnes v. Graham Virginia Quarries, Inc., 204 Va. 414, 132 S.E.2d 395 (1963); Bowers v. Westvaco Corp., 244 Va. 139, 419 S.E.2d 661 (1992).

¹¹⁰ Breeding v. Hensley, 258 Va. 207, 519 S.E.2d 369 (1999); Taylor v. City of Charlottesville, 240 Va. 367, 397 S.E.2d 832 (1990).

¹¹¹ Gossett v. Jackson, 249 Va. 549, 457 S.E.2d 97 (1995); Griffin v. Shively, 227 Va. 317, 315 S.E.2d 210 (1984).

¹¹² M.W. Worley Const. Co., Inc. v. Hungerford, Inc., 215 Va. 377, 210 S.E.2d 161 (1974). See also Arlington Forest Associates v. Exxon Corp., 774 F. Supp. 387 (E.D. Va. 1991).

- i. EO-35 (Dec. 2, 2014): Continuation of the Virginia Coastal Zone Management Program
- ii. EO-19 (July 1, 2014): Convening the Governor’s Climate and Resiliency Update Commission
- iii. EO-4 (Jan. 11, 2014): Delegation of the Governor’s Authority to Declare a State of Emergency

16. Recent Relevant Virginia State Legislation

- i. [House Bill 1812](#) (2015): Chesapeake Bay Watershed Agreement; requirements of annual report that addresses 2014 Chesapeake Bay Agreement.
- ii. [House Bill 1817 / Senate Bill 1079](#) (2015): Directs the Department of Conservation and Recreation to regularly update the flood protection plan for the Commonwealth and to make the plan accessible online. Passed March 2015.
- iii. [Senate Bill 1443 \(2015\)](#): Titled “Comprehensive plan shall incorporate strategies to combat projected sea-level rise and recurrent flooding.” Provides that any locality included in the Hampton Roads Planning District Commission *shall* incorporate into the next scheduled and all subsequent reviews of its comprehensive plan strategies to combat projected relative sea-level rise and recurrent flooding.¹¹³ This requires such review to be coordinated with the other localities in the Hampton Roads Planning District Commission and requires that the Department of Conservation and Recreation, the Department of Emergency Management, the Marine Resources Commission, Old Dominion University, and the Virginia Institute of Marine Science provide assistance upon request from one of these local jurisdictions.¹¹⁴

17. State-level Climate Resiliency and Preparedness Efforts

- i. Governor’s Chief Resiliency Officer
- ii. Governor’s Climate Change and Resiliency Update Commission
- iii. General Assembly Joint Subcommittee on Recurrent Flooding
- iv. [Secure Commonwealth Panel, Flooding Subpanel Report](#)

¹¹³ Comprehensive plans establish the general blueprint for future community development. Va. Code Ann. §§ 15.2-2223 to 15.2-2232.

¹¹⁴ Added at Va. Code Ann. § 15.2 – 2223.3.

C. Municipal and Locality Law

“Hampton Roads” is not specifically defined in the Pilot Charter. And different definitions are used by the Hampton Roads Planning District Commission,¹¹⁵ the Hampton Roads Transportation Planning Organization,¹¹⁶ and the U.S. Office of Management and Budget.¹¹⁷ The definition of Hampton Roads used by the Hampton Roads Planning District Commission will be used as the starting point for the purposes of the Legal Primer and will be adjusted when we receive further clarification from the Steering Committee.

1. Property and Infrastructure

Many relevant powers have already been granted by the state to local governments, which serves to minimize Dillon Rule concerns in some cases. Among these are the powers to obtain and utilize real property, to undertake infrastructure projects, to regulate the use of land, and to regulate construction. Many of these powers are implemented through state-local cooperative programs, where state law mandates the creation of regulations which are then implemented through local programs.

Localities in Virginia have broad authority to undertake infrastructure projects to combat flooding and coastal erosion.¹¹⁸ For example, Virginia Code Ann. § 15.2-970(A)-(B), entitled “Construction of dams, levees, seawalls, etc.” is particularly relevant for looking to the authority for localities to take adaptation measures and is an example of a structural adaptation measure that has been granted to localities. Virginia state law broadly allows localities to construct dams, levees, seawalls to prevent flooding. It states:

Any locality may construct a dam, levee, seawall or other structure or device, or perform dredging operations hereinafter referred to as "works," the purpose of which is to prevent the tidal erosion, flooding or inundation of such locality, or part thereof. The design, construction,

¹¹⁵ The Hampton Roads PDC includes the Cities of Chesapeake, Franklin, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Suffolk, Virginia Beach, and Williamsburg, the Counties of Gloucester, Isle of Wight, James City, Southampton, Surry, and York, and the Town of Smithfield.

¹¹⁶ The Hampton Roads TPO includes the Cities of Chesapeake, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Suffolk, Virginia Beach, and Williamsburg, and the Counties of Gloucester, Isle of Wight, James City, and York.

¹¹⁷ The Virginia Beach-Norfolk-Newport News Metropolitan Statistical Area includes the Cities of Chesapeake, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Suffolk, Virginia Beach, and Williamsburg, and the Counties of Gloucester, Isle of Wight, James City, Mathews, and York. It also includes Gates County and Currituck County, North Carolina.

¹¹⁸ See generally Va. Code Ann. §§ 15.2-900 *et seq.*

performance, maintenance and operation of any of such works is hereby declared to be a proper governmental function for a public purpose.¹¹⁹

Localities, including cities, counties, and towns, in Virginia have the explicit authority to purchase, sell, and use real property for public uses,¹²⁰ as well as the power of eminent domain or condemnation to acquire real or personal property for public uses.¹²¹

Localities are also granted broad sovereign immunity (i.e. freedom from lawsuit) when undertaking these projects. The exception to this rule occurs in the case of eminent domain if the infrastructure results in a taking of property without just compensation.¹²²

In addition, the Virginia Supreme Court has determined that localities are responsible for damages to property resulting from any infrastructure which causes flooding to property.¹²³

2. Land Use and Planning

Title 15, Chapter 22 of the Code of Virginia governs local powers related to land use and planning. Section 15.2-2223 directs local planning commissions to prepare and recommend comprehensive plans for their jurisdictions and governing bodies to adopt such plans. All seventeen localities in the Hampton Roads Planning District have adopted comprehensive plans. Several additional laws require comprehensive plans to address issues relevant to this project.

Section 15.2-2223.2 requires localities in Tidewater Virginia¹²⁴ to incorporate coastal resource management guidance into their comprehensive plans.

¹¹⁹ Va. Code Ann. § 15.2-970(A). It further states, “No person, association or political subdivision shall bring any action at law or suit in equity against any locality because of, or arising out of, the design, maintenance, performance, operation or existence of such works but nothing herein shall prevent any such action or suit based upon a written contract. This provision shall not be construed to authorize the taking of private property without just compensation therefor and provided further that the tidal erosion, flooding or inundation of any lands of any other person by the construction of a dam or levee to impound or control fresh water shall be a taking of such land within the meaning of the foregoing provision.” Va. Code Ann. § 15.2-970(B).

¹²⁰ Va. Code Ann. § 15.2-1800.

¹²¹ Va. Code Ann. § 15.2-1901. But see Va. Const. art. I, § 11 and Va. Code Ann. § 1-219.1 as to severe limits on such authority in connection with economic development activities.

¹²² Va. Code Ann. § 15.2-970(B).

¹²³ See *Jenkins v. Shenandoah County*, 246 Va. 467, 436 S.E.2d. 607 (1993); *Livingston v. Virginia Department of Transportation*, 284 Va. 140, 726 S.E.2d 264 (2012); see also James Andris, [*State and Local Liability for Failure to Adapt and Protect Against Recurrent Flooding: Applying Farmers Insurance Legal Framework to Virginia Circumstances*](#), VCPC WHITE PAPER (Spring 2015).

¹²⁴ Tidewater Virginia is defined in §62.1-44.15:68 to include the Counties of Accomack, Arlington, Caroline, Charles City, Chesterfield, Essex, Fairfax, Gloucester, Hanover, Henrico, Isle of Wight, James City, King and Queen, King George, King William, Lancaster,

Comprehensive plans establish the blueprint for future community development that is legally implemented via local zoning ordinances.¹²⁵ Beginning July 1, 2015, this will require that localities in the Hampton Roads Planning District Commission incorporate strategies to address sea level rise and recurrent flooding into their comprehensive plans. Section 62.1-44.15:74 directs local governments in Tidewater Virginia to incorporate the protection of the quality of state waters into their comprehensive plans.

In addition to these specific requirements, localities are also required or authorized to adopt policies and ordinances to regulate the general use of land. Section 15.2-2240 requires localities to adopt subdivision ordinances. Section 15.2-2280 allows localities to adopt zoning ordinances to regulate the use of land and the dimensions and the construction of structures.¹²⁶

3. Regulation of Construction

Several state laws establish programs that are developed by state agencies and implemented by local governments through local ordinances. For example, the Virginia Board of Housing and Community Development adopts and amends the [Virginia Uniform Statewide Building Code \(USBC\)](#). The USBC is then adopted by reference by localities and amended as allowed and appropriate. Similar state-local programs cover stormwater management, erosion and sediment control, Chesapeake Bay preservation, and floodplain management.

As noted above, the State Water Control Board permits, regulates, and controls urban and suburban stormwater runoff in connection with its authority to administer the Clean Water Act in Virginia. Part of this program involves the regulation of municipal storm water discharges and permitting of municipal separate storm sewer systems (“MS4s”).¹²⁷ MS4’s are required to obtain permits for their municipal stormwater discharges, and they are required (and localities not required to have permits are authorized) to adopt local Virginia Stormwater Management Programs (VSMPs) to regulate land-disturbing activities.

Similarly, the State Water Control Board has developed and adopted regulations to control soil erosion, sediment deposition, and nonagricultural runoff.¹²⁸ Counties and cities must adopt and administer local Virginia Erosion and Sediment

Mathews, Middlesex, New Kent, Northampton, Northumberland, Prince George, Prince William, Richmond, Spotsylvania, Stafford, Surry, Westmoreland, and York, and the Cities of Alexandria, Chesapeake, Colonial Heights, Fairfax, Falls Church, Fredericksburg, Hampton, Hopewell, Newport News, Norfolk, Petersburg, Poquoson, Portsmouth, Richmond, Suffolk, Virginia Beach, and Williamsburg.

¹²⁵ See Stilton & Grannis, *supra* note 3.

¹²⁶ This includes the use of land, buildings, structures, and other premises for . . . flood plain and other specific uses.

¹²⁷ See Va. Code Ann. § 62.1-44.15:27; 9 VAC 25-870-10 *et seq.*

¹²⁸ Va. Code § 62.1-44.15:52; 9 VAC 25-840-10 *et seq.*

Control Programs (VESCPs); towns may adopt their own or remain subject to the appropriate county's program.¹²⁹

Further, pursuant to the Chesapeake Bay Preservation Act (CBPA), the State Water Control Board has developed regulations, performance standards, and policies to promote the quality of state waters in Tidewater Virginia, particularly as to the control of sedimentation and other effects of development activities.¹³⁰ The regulations call for protective measures to be incorporated into local land use planning ordinances.¹³¹

Both the state government and local governments have a role in floodplain management. However, the regulations governing local floodplain management programs are more directly influenced by the National Flood Insurance Program and not state regulations per se. As noted above, the VA Department of Conservation and Recreation is required (among other tasks) to develop a flood protection plan for the Commonwealth and to assist localities in managing activities within floodplains.¹³² This is achieved through the provision of technical assistance and the development of guidance and model ordinances for local consideration and adoption. One feature of local floodplain management programs is the degree to which they can go beyond state recommendations. Specifically, localities are allowed to implement a freeboard requirement that applies to new construction in designated floodplains and in some cases substantial additions or modifications. It is beyond the scope of this primer to provide an in-depth discussion of each locality's laws, but a representative discussion is provided below for Norfolk, Newport News, and Poquoson.

a. Norfolk

The City of Norfolk's zoning ordinance is found in Chapter 11 of Norfolk's municipal code. Norfolk has adopted [Virginia's Uniform Statewide Building Code \(USBC\)](#) as a comprehensive body of law. Under Section 11.1-4 of the Building Code, the City of Norfolk also establishes "climactic and geographic design criteria" that is unique to Norfolk, VA. The [minimum standards](#) for the control of erosion and sediment in the city shall be those standards in the regulations adopted in the State Erosion and Sediment Control Program and in the Virginia Erosion and Sediment Control Handbook. (Section 15-3, Norfolk Code) Lastly, Norfolk recently updated its [floodplains ordinance](#).

b. Newport News

The Zoning Ordinance of the City of Newport News is found under Chapter 45 of the City Code. This includes the City's Floodplain Development Regulations in Article XXXI, Division 2 of that Chapter (§ 45-3110 through § 45-3125.5). This division creates an overlay district for the City detailing the Flood Plains as required by FEMA. The current regulations require that the level of the lowest floor in any

¹²⁹ Va. Code § 62.1-44.15:54.

¹³⁰ Va. Code Ann. §§ 62.1-44.15:67 *et seq.*; 9 VAC 25-830-10 *et seq.*

¹³¹ See 9 VAC 25-830-60.

¹³² Va. Code Ann. § 10.1-602.

building must be at an elevation of two feet above the base flood level, which is defined as the 100 year storm (or a storm with a 1% likelihood of occurring in any given year) The City does not as yet have any ordinances that directly address sea level rise. Because Virginia Code Section 15.2-2223.3 went into effect on July 1, 2015, the City will need to address sea-level rise and recurrent flooding as part of its Comprehensive Plan.

c. Poquoson

Poquoson's Flood Plain ordinances appear in Chapter 42 of its City Code. Poquoson Code § 42-71(c) requires that the lowest floor of any new construction be three feet above the base flood level. As to manufactured or modular buildings, the lowest floor must be one foot above base flood level. Poquoson Code § 42-74(a)(1). And Poquoson has recently adopted a comprehensive plan that takes into account sea level rise.

d. Hampton Roads Locality Table

The following table includes references to primary local ordinances in Hampton Roads covering zoning, Chesapeake Bay Preservation, subdivision of lands, stormwater management, erosion and sediment control, and floodplain management. The locally established freeboard requirement is also included. Except where noted, all references refer to the respective localities' Code of Ordinances.

Locality	Zoning	Chesapeake Bay Preservation	Subdivision	Stormwater Management ¹³³	Erosion and Sediment Control	Floodplain Mgmt ¹³⁴	Freeboard Requirement ¹³⁵
Chesapeake	Separate Ordinance	Chapter 26 Article IX	Chapter 70	Chapter 26 Article VII	Chapter 26 Article III	Chapter 26 Article IV	1.5'
Franklin	Appendix D	N/A	Appendix C	Chapter 25.7	Chapter 9	Zoning Ordinance Article XXI	0'
Gloucester	Appendix B	Chapter 5.5	Chapter 15	Chapter 6	Chapter 7.5	Chapter 8.5	2'
Hampton	Separate Ordinance	Zoning Ordinance Chapter 17.3 Article X	Chapter 35	Chapter 33.2	Chapter 13.1	Zoning Ordinance Chapter 17.3 Article V	3'
Isle of Wight	Appendix B	Appendix B-1	Appendix A	Chapter 14A	Chapter 6	Zoning Ordinance Article XI Sec. 6-4000	1.5'
James City	Chapter 24	Chapter 23	Chapter 19	Chapter 18A	Chapter 8	Zoning Ordinance Article VI Division 3	2'
Newport News	Chapter 45	Chapter 37.1 Article V	Appendix B	Chapter 37.1	Chapter 37.1 Article VII	Zoning Ordinance Article XXXI Division 2	2'
Norfolk	Appendix A	Zoning Ordinance	Chapter 42.5	Chapter 41. and Chapter 41.2	Chapter 15	Zoning Ordinance	3'

¹³³ EPA has developed a model ordinance for erosion and sediment control at <http://water.epa.gov/polwaste/nps/mol2.cfm>

¹³⁴ "Floodplain management" is defined as the operation of a community program of preventive and corrective measures to reduce the risk of current and future flooding, resulting in a more resilient community. <http://www.fema.gov/floodplain-management>

¹³⁵ Freeboard is a factor of safety usually expressed in feet above a flood level for purposes of floodplain management. "Freeboard" tends to compensate for the many unknown factors that could contribute to flood heights greater than the height calculated for a selected size flood and floodway conditions, such as wave action, bridge openings, and the hydrological effect of urbanization of the watershed. Freeboard is not required by NFIP standards, but communities are encouraged to adopt at least a one-foot freeboard to account for the one-foot rise built into the concept of designating a floodway and the encroachment requirements where floodways have not been designated. Freeboard results in significantly lower flood insurance rates due to lower flood risk. See <https://www.fema.gov/freeboard>

		Chapter 11 Section 11-2				Chapter 11 Section 11-3	
Poquoson	Appendix A	Chapter 9.1	Chapter 33.1	Chapter 31.2	Chapter 11	Chapter 14	1.5'
Portsmouth	Chapter 40.1	Chapter 9.1	Chapter 33.1	Chapter 31.2	Chapter 11	Chapter 14	1.5'
Smithfield	Separate Ordinance	Zoning Ordinance Article 3.P	Separate Ordinance	N/A	Zoning Ordinance Article 11.A	Zoning Ordinance Article 3.O	0'
Southampton	Chapter 18	N/A	Chapter 14	Chapter 13.5	Chapter 6	Zoning Ordinance Article XIV	1'
Suffolk	Unified Dev. Ordinance	UDO Article 4 Section 31-415	UDO Article 5	Chapter 35	Chapter 34 Article III	UDO Article 4 Section 31- 416.1	0'
Surry	Appendix A	Zoning Ordinance Article III Sec. 3-1400	Separate Ordinance	N/A	Chapter 102 Article III	Zoning Ordinance Article III Sec. 3-1500	0'
Virginia Beach	Appendix A	Appendix F	Appendix B	Appendix D	Chapter 30 Article III	Appendix K	2'
Williamsburg	Chapter 21	Zoning Ordinance Article VIII	Chapter 16	Chapter 7 Article I	Chapter 7 Article II	Zoning Ordinance Article XII	0'
York	Chapter 24.1	Chapter 23.2	Chapter 20.5	Chapter 23.3	Chapter 10	Zoning Ordinance Division 7 Sec. 24.1-373	3'

II. Additional Considerations – Planning and Coordination

A. Federal Agency Coordination Issues: As a general matter, this effort is aligned with existing executive order guidance on federal support for planning for the impacts of climate change.

- i. Stafford Act, Amended by the Disaster Mitigation Act of 2000¹³⁶. Authorizes the President to establish disaster preparedness program that utilizes all appropriate agencies and includes coordination of Federal, State, and local preparedness programs. The President will provide technical assistance to States in developing preparedness programs, assist State and local governments following disasters, and for recovery of damaged public and private facilities.
- ii. Posse Comitatus Act:¹³⁷ Prohibits direct military assistance for law enforcement purposes.
 1. DoD: Statutorily applies to Army and Air Force. By DoD and Department of the Navy policy, this restriction also applies to the Navy and Marine Corps.¹³⁸
 2. DHS/USCG: USCG is not subject to or restricted by 18 U.S.C. § 1385.
 3. National Guard: Restrictions apply when in federal service. Restrictions do not apply when in state service.
- iii. Authorities Allowing Mutual Support Agreements Between Federal Agencies and Local Governments
 1. [Defense Support of Civil Authorities](#): DoD Directive 3025.18
 2. USCG: 14 U.S.C. § 93¹³⁹
 - a. Investigate plans and devices relating to performance of any Coast Guard Function, and cooperate and coordinate such activities with other Government and private agencies

¹³⁶ 42 U.S.C. § 5131, *et seq.*

¹³⁷ 18 U.S.C. § 1385. (“Whoever, except in cases and under circumstances expressly authorized by the Constitution or Act of Congress, willfully uses any part of the Army or the Air Force as a posse comitatus or otherwise to execute the laws shall be fined under this title or imprisoned not more than two years, or both.”)

¹³⁸ 10 U.S.C. § 375.

¹³⁹ 14 U.S.C. § 93.

- b. Accept and utilize, in times of emergency in order to save life or protect property, such voluntary services as may be offered to the USCG.
 - c. Enter into cooperative agreements with states, local governments to accept and utilize voluntary services for the maintenance and improvement of natural and historic resources.
3. Fiscal Law Concerns: It is beyond the scope of this Primer to provide an in-depth analysis of all the fiscal law limitations associated with the expenditure of federal money, but money appropriated by Congress must be spent consistent with fiscal law principles governing purpose, time, and amount.¹⁴⁰

B. Environmental Justice

- i. Definition: “Fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations and policies.”¹⁴¹
- ii. As always, planners and policymakers will have to be mindful of issues of environmental justice, particularly as they weigh the various options of which areas to defend, where to adapt, and where to retreat.
- iii. Executive Order 13,166: Requires federal agencies to examine the services they provide, identify any need for services to limited English proficient persons (LEP), and develop a plan and implement a plan to provide services so that LEP persons can have meaningful access to them.

C. Outside Requests for Information

- i. Federal: Freedom of Information Act (FOIA)¹⁴²
 - 1. FOIA provides the public the right to access records from any federal agency.

¹⁴⁰ For example, the Purpose Statute states, “Appropriations shall be applied only to the objects for which the appropriations were made except as otherwise provided by law.” 31 U.S.C. § 3101 (a) (2014).

¹⁴¹ *Environmental Justice*, U.S. ENVTL. PROTECTION AGENCY, <http://www.epa.gov/environmentaljustice/> (last visited Aug. 12, 2015).

¹⁴² 5 U.S.C. § 552, *et seq.*

- a. Generally any person, regardless of citizenship, can make a FOIA request.
 - b. Each federal agency individually processes its own FOIA requests. The federal agency will respond to requests with a letter, search for the requested information, and determine which parts and records can be disbursed.
 - c. FOIA does provide for the charging of certain types of fees in some situations, however, a fee waiver may be granted in situations in which the disclosure of the information is in the public interest.¹⁴³
2. Federal agencies are required to disclose information unless it falls in one of nine exemptions. For example:
 - a. Information that is prohibited from disclosure by another federal law.
 - b. Trade secrets or commercial or financial information that is confidential or privileged.
 - c. Information that, if disclosed, would invade another individual's personal privacy.
 - d. Geological information on wells.

ii. Virginia Freedom of Information Act¹⁴⁴

1. Public Records to be open to inspection; procedure for requesting records and responding to request; charges; transfer of records for storage, etc.”¹⁴⁵
2. Exclusions: Records relating to public safety, administrative investigations, records of specific public bodies, proprietary records and trade secrets, etc. ¹⁴⁶

¹⁴³ *Frequently Asked Questions*, FOIA.GOV, <http://www.foia.gov/faq.html> (last visited May 27, 2015).

¹⁴⁴ Code of Virginia § 2.2-3700, *et seq.*, <http://law.lis.virginia.gov/vacode/title2.2/chapter37/>

¹⁴⁵ Va. Code § 2.2-3704.

¹⁴⁶ Va. Code § 2.2-3705. Please see specifics as contained in the statute.

Appendix I

I. Legal Issues: Public Infrastructure Working Group

- A. Chair: RDML (ret.) Ann Philips
- B. Legal Working Group Liaison: Mr. Joe Durant

II. Legal Issues: Private Infrastructure Working Group

- A. Chair: Prof. Carol Considine
- B. Legal Working Group Liaison: Speaker Pollard

III. Legal Issues: Land Use Working Group

- A. Chair: Burrell Saunders
- B. Legal Working Group Liaison: Speaker Pollard

IV. Legal Issues: Public Health Working Group

V. Legal Issues: Citizen Engagement Working Group

- A. Chair: Chris Bonney
- B. Legal Working Group Liaison: Lesa Yeatts, J. Duncan Pitchford
- C. The White House has provided guidance on citizen engagement and key considerations that should be made in a document entitled, "[Public Deliberation: A Manager's Guide to Civic Engagement.](#)"

Appendix II: Existing Studies and Bibliography

I. Existing Studies / Bibliography¹⁴⁷

A. Federal Studies

- i. [U.S. Army Corps North Atlantic Comprehensive Study Report](#)
- ii. [Future Federal Adaptation Efforts Could Better Support Local Infrastructure Decision Makers \(Government Accountability Office \(GAO\)\)](#)
- iii. [DoD Can Improve Infrastructure Planning and Processes to Better Account for Potential Impacts \(Government Accountability Office \(GAO\)\).](#)
- iv. [Congressional Research Service \(CRS\): Climate Change and Existing Law: A Survey of Legal Issues Past, Present, and Future](#)
- v. [U.S. Army Corps Strategic Environmental Research and Development Plan \(SERDP\) Studies](#)

B. State Studies

- i. [Recommendations of the Secure Commonwealth Panel](#)
- ii. [General Assembly Commission on Recurrent Flooding](#)
- iii. [VIMS 2013 Recurrent Flooding Report](#)
- iv. [2008 Governor's Commission on Climate Change Findings and Recommendations](#)
- v. [Who is Doing What in Virginia? A Guide to Current Adaptation Efforts to Sea Level Rise and Flooding](#)

C. Academic Studies and Reports: [Georgetown Climate Center](#)

- i. [Adaptation Tool Kit for Sea Level Rise](#)
- ii. [Virginia Case Study: *Stemming the Tide How Local Governments can Manage Local Flood Risks*](#)

¹⁴⁷ This is not an all-inclusive list, but serves as a representative sample of some of the studies that the Steering Committee and Working Groups may encounter.