Chapter III

Executive Summary

This Virginia Working Waterfront Master Plan outlines the overall contribution of working waterfronts to Virginia’s economy; the historical context of working waterfronts to the development of the Commonwealth; a review of the status of working waterfronts in each of the four coastal Virginia Planning Districts; the threats that working waterfronts face from natural forces of sea-level rise, global warming, subsidence and channel shoaling; and a series of policies that could be enacted at all levels of government to preserve and protect working waterfronts into the future.

Working waterfronts are those structures on, over, or adjacent to navigable bodies of water that provide access to the water and are used for water-dependent commercial, industrial, or government activities, including commercial fishing, recreational fishing, tourism, aquaculture, boat and ship building, boat and ship repair, boat and ship services, seafood processing, seafood sales, transportation, shipping, marine construction, military activities and other water dependent uses.

Four coastal Planning District Commissions (PDC’s) in Accomack-Northampton, Hampton Roads, Middle Peninsula and Northern Neck have identified approximately 600 active working waterfronts. While this is a fairly large number of facilities supporting commerce related to the navigable waters of eastern Virginia, it is but a fraction of the number of working waterfronts that dotted the shorelines 75 to 100 years ago. Virginia’s historical development and culture has been inexorably linked to the activity on our tidal waters. From earliest colonial times when our culture and commerce were tied to England and Europe to the 1950’s when the steamboat era was coming to an end, working waterfronts were the hub of commerce in Virginia. With the advent of highway and air transportation systems allowing the dispersion of economic activity across the Commonwealth, working waterfronts have lost some of their economic importance. The decline of seafood over the years also has resulted in many of the small wharves and landings supporting the seafood industry to be converted to other uses or abandoned. Even with these factors leading to the decline in number and level of activity at our working waterfronts, the economic impact of the remaining working waterfronts is substantial. Working waterfronts still host the largest naval installation in the world, many of Virginia’s leading employers and the internationally renowned Virginia Institute of Marine Science (VIMS).

In the four coastal PDC’s NOAA estimates of economic impact of working waterfronts on six marine industries (ship building and repair, tourism, marine transportation, living resources, marine construction, and offshore mineral extraction) to be 122,000 employed in these sectors and an $8.5 billion contribution to Virginia’s gross domestic product. These figures do not include military employment and its impact on Virginia’s domestic product or marine activity outside of the coastal PDC’s or other marine related business activity outside these six industry classifications. Of the 122,000 marine related jobs, about half are in tourism, a third in
shipbuilding and repair and 15% in marine construction. Of the total contribution to Virginia’s gross domestic product by marine activity, shipbuilding and repair total approximately 40%, marine transportation 25% and tourism 20%.

Here are a few statistics that illustrate the impact (direct, indirect and induced) to Virginia of the activity at our working waterfronts to Virginia:

- 2998 Commercial License Sales in VA (VMRC, 2014)
- 3rd largest producer of Marine products in US (Virginia Marine Products Board, 2012)
  - 4,944,028,366 pounds in 2012
  - Dockside value - $192M
  - Hard clams and oysters - $36.9M
- Recreational boating impact, annual to VA
  - Between $1.2 (VMRC) and $2.9B (NMMA)
  - Between 8,732 (VMRC) and 23,044 (NMMA)
- Port of VA impact (Pearson & Swan, 2013)
  - $60B
  - 6.8 percent of Gross State Product
  - 374,000 total jobs
  - 9.4 percent of VA employment
  - $17.5B in wages

Working waterfronts influence the everyday lives of all Virginians from the imports we consume, to the bounty of the seafood in our grocery stores, to the products that are exported, to the security that is provided at coastal military installations, to the economic ripple effect of waterfront commerce. Even the most western counties in Virginia export their coal through the Port of Hampton Roads, providing jobs for our western most coal-mining region.

Today our working waterfronts face new and continuing threats to their existence. The continuing changing global economy has shifted economic activity away from our historic Virginia waterfront locations to more competitive locations in other countries or other locations in the US. Older traditional marine industries are struggling with increasing competition, regulations and land and water conflicts from neighbors. The fact that working waterfronts are where land meets water makes them especially vulnerable to increasing natural threats including rise in sea level, frequency and magnitude of storm events, natural subsidence of eastern Virginia and the shoaling of navigable channels limiting water travel. The historic decline in numerous Chesapeake Bay fisheries has been directly linked to a decline in water quality. With expanding population and associated development throughout the Chesapeake Bay watershed, the challenge will be maintaining high water quality levels sustaining those fisheries. With the decline in fisheries there has been a decline in fisherman willing to work the waters. With limited opportunities for new commercial fishing ventures the existing workforce is getting older and there are fewer young workers willing to take up the profession. These
threats make it imperative that concerted action at all levels of government and the private sector be taken in the years ahead to ensure that these precious resources are still available to future generations in support of Virginia’s commerce.

**Northern Neck** - The 123 working waterfronts of in the four counties of the Northern Neck, Virginia, Lancaster, Northumberland, Richmond and Westmoreland counties - support commercial fishing, aquaculture, recreational boating and, to a limited extent, traditional boat building and repair. The Omega Protein menhaden fishing operation in Reedville, is the Commonwealth’s largest fishery contributing $88M to the state’s economy. This fishery is limited to a harvest of 158,700 metric tons of menhaden in 2015 and will likely have similar limits placed on the fishery in the years to come. Other commercial fish harvested are rockfish, croaker, perch and spot. In recent years commercial oyster aquaculture operations have expanded significantly throughout the region. In 2015, there were 1,113 commercial fishing licenses issued by Virginia Marine Resources Commission (VMRC) generating $294,822 in license fees. NOAA estimates that six marine industries generate 1218 jobs in the Northern Neck representing 10 percent of total employment in the region. These six industry categories generate $31M in wages and $254M in goods and services to the regional economy. Marine related activity has been the backbone of the regional economy historically. Given the decline in the shellfish industry and limits on other fisheries, the region has seen a shift from a dependence on marine related businesses to a service based economy. The Northern Neck is a prime location for retirement living supporting the highest percentage of citizens over 60 years of age in Virginia. Aquaculture and tourism are two economic sectors that have shown growth in the region and are likely to expand in future years.

Here are a series of recommendations to help preserve and expand commercial activity at working waterfronts in the Northern Neck:

- Catalog the infrastructure characteristics of the existing working waterfront businesses
- Identify active commercial fishery operations
- Identify and encourage the adaptive reuse of vacant or failing waterfront properties
- Encourage new waterfront commercial enterprise development
- Increase public access to the waterfront
- Actively educate the public on marine related activities
- Promote expanded use of the existing marine related facilities
- Encourage the localities to adopt provisions supportive of commercial marine activities in their comprehensive plans and land use regulations

**Middle Peninsula** – The Middle Peninsula bounded by the Rappahannock River to the North and the York River to the South has 1,200 miles of coastline with 81 inventoried working waterfronts. Four of the six Middle Peninsula localities, Essex, Gloucester, Mathews and Middlesex employ about 6 percent of their workers in six marine industries. This represents 1660 jobs in the region generating $22.7 M in wages and $43.8 M in goods and services. VMRC
issued 386 commercial fishing licenses in the six counties of the Middle Peninsula including King
and Queen and King William Counties. These licenses generated $331,537 in license fees to the
Commonwealth. The working waterfronts in the Middle Peninsula typically support either small
commercial fishing operations or recreational boating. Deltaville is a hub for boating services in
the southern Chesapeake Bay serving a variety of smaller recreational and commercial vessels
from workboats to sailboats to powerboats. The Virginia Institute of Marine Science (VIMS),
one of the world’s premier marine research facilities, has its main campus on the York River at
Gloucester Point.

Historically, the regional economy was fueled by the strength of the agriculture, forestry and
seafood industries. As economic conditions have changed, the economy is now tied closely to
the Richmond and Hampton Roads metropolitan economies. Many job seekers make the daily
commute to these areas and residents of these metro areas tend to retire to the area or have a
weekend getaway residence in the Middle Peninsula. In recent years, the region has seen a
significant growth in aquaculture operations and will likely see continued growth in this
business sector.

The Middle Peninsula Planning District Commission (MPPDC) created the Middle Peninsula
Chesapeake Bay Public Access Authority (MPCBPAA) in 2003 to provide greater public access to
its tidal waters. Within a short period of time the MPCBPAA has acquired 33 waterfront
properties totaling 162 acres. The MPCBPAA offers a unique institutional framework for the
public to acquire, preserve and develop threatened working waterfronts in the region. This
institutional framework could be replicated in other areas of coastal Virginia.

The MPPDC has worked extensively with its local governments to plan for the preservation and
redevelopment of their working waterfronts. The MPPDC has undertaken several cutting edge
efforts such as proposing a Marine Aquaculture and Marine Business Park for Mathews County
to investigate the local government legal and policy issues related to floating structures within
their territorial boundaries.

The future of working waterfronts in the Middle Peninsula depends upon the concerted
collaborative efforts of the private sector, local governments, regional institutions and State
organizations. Without this collaboration working waterfronts will continue to succumb to
economic and natural forces.

**HAMPTON ROADS** — The Hampton Roads area is the second largest Metropolitan area in
Virginia with a population of 1.7M. The region spans from the North Carolina line on the south
to the York River on the North and from the Atlantic Ocean on the east to Williamsburg and
Franklin to the West. Hampton Roads supports major international marine industrial
complexes, military, shipbuilding, Port of Virginia, ship repair and maintenance, sport fishing,
commercial fishing and seafood processing. Hampton Roads is home of the largest naval base in
the world and some of the state’s largest employers that happen to be marine related (i.e.
Huntington Ingalls Industries, BAE, Norfolk Naval Ship Yard, General Dynamics, Norfolk and
Southern, CSX, etc.). The Port of Hampton Roads is the only port on the east coast authorized to have a 55 ft. channel accommodating the largest container ships that will traverse the new Panama Canal. Hampton Roads has, by far, the most industrialized and intensely developed waterfront areas in Virginia.

The Hampton Roads Planning District Commission identified 165 working waterfronts in five different classifications, Commercial (88), Industrial (40), Military (2), Recreational (7), and Seafood (28) and 30 subgroups.

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<th>Working Waterfront Groups</th>
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Working waterfronts were identified in twelve (12) Hampton Roads localities: Chesapeake, Gloucester County, Hampton, Isle of Wight County, James City County, Newport News, Norfolk, Poquoson, Portsmouth, Suffolk, Virginia Beach, and York County. A review of the comprehensive plans and zoning regulations of these localities indicates that most all of the localities have recognized the important role of working waterfronts and have made provisions within their land use regulations for the continuation of commercial use of the waterfront.
**EASTERN SHORE** — The Eastern Shore has 77 miles of Atlantic shoreline with approximately the same number of miles of shoreline along the Chesapeake Bay. The Atlantic shoreline is protected by 14 barrier islands managed by the Nature Conservancy’s Virginia Coastal Reserve in partnership with the Virginia Department of Conservation and Recreation and the Virginia Game and Inland Fisheries. This peninsula region supports the largest number of working waterfronts, 222, of any of the four Virginia coastal regions. Wallops Island supports a spaceport and NASA, NOAA and Navy facilities.

Working waterfronts have a huge economic impact to the Eastern Shore economy. Northampton County is a clear leader in shellfish aquaculture among all Virginia localities. In 2013, Northampton County shellfish farms sold over $36.7 M in clams and oysters and commercial fishermen unloaded over $5.7 M in wild finfish and shellfish for a total of $42.5 M of seafood products. The total economic impact of this activity is estimated at $97.4 M in output that supported 987 jobs generating household and business income of $27.1 M.

On Chincoteague alone, commercial fishermen annually land millions of dollars worth of scallops, summer flounder, scup, and black sea bass, as well as many other species.

In 2015, VMRC issued 1,107 oyster harvesting and production licenses/permits, 593 clam harvesting and raising permits, and 776 licenses for crab harvesting or shedding. VMRC licensing fees for all permits (including other species) totaled $359,806.

The Eastern Shore’s working waterfronts are also used for recreational boating and fishing including, but not limited to, Chincoteague, Cape Charles, Onancock, Saxis, Wachapreague, Willis Wharf, Red Bank, Quinby and Oyster. Individuals also use the counties’ public boat ramps for harvesting clams, oysters, crabs, and fish. In addition, water-based tourism has been enhanced by the development of the Seaside Water Trail starting at the Eastern Shore of Virginia National Wildlife Refuge and extending through the seaside coastal bays to Chincoteague and Assateague Island and the Captain John Smith National Historic Trail with landings in Cape Charles, Onancock, Pitts Creek and Tangier.

There are several factors that have negatively affected working waterfronts on the Eastern Shore; development pressure in specific locations where residential growth and tourism are occurring, governmental regulations, flooding-related hazards, and shifts in seafood market economics. Lack of flood insurance coverage is a contributing factor to the decline of working waterfronts, as many are not rebuilt after major storm events.

Another factor that negatively affects working waterfronts is navigability of the access channels to both bayside and seaside waterfronts. Many access channels have silted in due to storms, changes in land-use practices, and hard-scaping the shorelines near some channels.

The following action steps are recommended to ensure that working waterfronts remain economic drivers on the Eastern Shore of Virginia:
Short Term Recommendations:

- Establish a Public Access Authority that will preserve water access.
- Complete the Eastern Shore Working Waterfronts Inventory and update it as uses change to track trends involving the region’s working waterfronts.
- Present the completed inventory to the Eastern Shore Regional Navigable Waterways Committee (ESRNWC) and to the localities as a tool to prioritize improvements to working waterfronts infrastructure.
- Respectfully request that the ESRNWC facilitate development of a dredging plan for the Eastern Shore.
- Present preservation and planning tools (www.WaterAccessUs.com for toolkit) to Accomack County, Northampton County, and Chincoteague.
- Develop a two-year associates’ or certificate program at the community college or VIMS for aquaculture training on the Shore.
- Share identified stressors developed by the Working Waterfronts Steering Committee with localities.
- Develop a stakeholders group that can be apprised of all developments and attend workshops and meetings.
- Evaluate current policy and recommend changes to regulations that will continue to protect water quality as well as allow water-dependent industries to thrive in new and current locations.
- Develop and present model comprehensive plan language that strengthens the aquaculture industry and preserves working waterfronts infrastructure.
- Analyze permitting processes in both counties to reduce turnaround times.
- Determine how many privately owned facilities plan to continue to operate after the current owner/operator retires.
- Research why marina owners are wary of grant programs.
- Enact state legislation creating a Virginia Working Waterfronts Designation Program.
- Develop zoning tools such as a working waterfront district designation or a local commercial seafood overlay district that will make it easier for commercial enterprises to expand or improve their facilities.
- Provide information to marinas on the Virginia Clean Marina Program and Boating Infrastructure Grant.
- Investigate the possibility of the Eastern Shore becoming the state’s first “Clean Marina Region”.

Long Term Recommendations:

- Study possible locations for additional lodging and solicit private sector developers.
• Investigate solutions (perhaps wireless broadband) to poor cell phone coverage.
• Encourage working waterfront owners and operators to make dock infrastructure accommodations for elevated sea levels and increased flooding.
• Promote working waterfront culture so it is universally recognized as an important asset.
• Research and present for consideration the steps taken by similar areas to preserve working waterfronts including but not limited to:
  o Develop a Coastal Living Policy
  o Develop a policy to protect working waterfronts infrastructure
  o Use of legal and policy tools that anticipate emerging business models such as the growth of the shellfish industry
  o Research how distinctions could or should be made between water-dependent enterprises and their activities and needs ashore as contrasted with engaging in economic pursuits in public waters

RESILIENCY – Working waterfronts in coastal Virginia are under increasing threats from four major natural conditions – sea-level rise, subsidence, global warming and channel shoaling.

Relative Sea Level (RSL) change has been occurring naturally for decades but due to several factors the rate of sea-level rise is projected to increase dramatically though the rest of this century. The rate of sea-level rise in the Chesapeake Bay region is the highest of any area along the Atlantic Coast and is projected to rise between 1 and 2 feet over the rest of the century (Boon et al. 2010).

Also within the Chesapeake Bay region, land subsidence contributes to RSL change. Processes contributing to land subsidence include movement of the earth’s crust and man-induced impacts (e.g. groundwater withdrawal, hydrocarbon removal). The most severe subsidence rates have been reported in the West Point and Franklin areas where there are major groundwater withdrawals in support of paper mills in those locations. Based on land subsidence information, the RSL rise rate conservatively would be expected to increase by another 1.4-1.7 ft. by 2100 (Holdahl and Morrison 1974; Davis 1987; Pope and Burbey 2004). It is projected that RSL rise rates will accelerate in the Chesapeake Bay region with conservative projections of sea level increases of approximately 2.3 - 5.3 ft. by 2100 (Pyke et al. 2008).

Sea-level rise and recurrent flooding pose a significant threat to Virginia’s working waterfronts with RSL expected to rise between two and seven feet by the end of the 21st century. Many working waterfronts would be at risk under the lowest sea-level rise scenarios, but higher estimates will result in significant damage to some of the State’s largest working waterfront facilities. Under the lowest sea-level rise scenario; twelve of the working waterfronts in the Hampton Roads region would be vulnerable. At the highest-level scenario, nearly all 592 working waterfronts in coastal Virginia would be vulnerable. There is a high potential that
working waterfronts will be inundated, which will hinder access to the water for commercial and recreational uses.

Global warming is a major contributor to the projected sea-level rise over the course of this century, but global warming will have other significant impacts on our working waterfronts. With global warming comes more frequent and severe weather patterns. These storms are projected to be more devastating and create more property damage over time. The August storm of 1933 was much more severe than Hurricane Isabel in 2003, but the hydraulic impact was about the same. While major storms such as hurricanes and nor’easters cause extensive property damage with sea-level rise, even modest storms can cause localized flooding disrupting transportation and activity at working waterfronts. The higher risk levels posed by severe weather events will place working waterfront facilities, access roads and utilities at even greater risk of damage.

With global warming comes a series of secondary impacts including changing, nutrient levels, sedimentation levels, acidity, water temperature, dissolved oxygen among other water characteristics. These changes will significant affect the quantity and location of commercial and recreational fisheries activity on working waterfronts in the future. How rapid these changes will occur or how they will impact working waterfront activity is uncertain.

There has been a significant shift in national policy related to flood insurance in recent years that will make it more costly for businesses located at working waterfront locations. With the huge burdens on the federally subsidized flood insurance program from several major hurricanes over the last decade, federal policy has changed to insure that flood insurance premiums reflect the actual cost of the risks of damage. The result has been a significant rise in the cost of flood insurance and, in some cases, the inability of some property owners to get policies adequate for operation of their businesses. If these federal policies continue and risks of damage increase as projected, the cost of doing business on the waterfront will drive a number of marine related business away from working waterfronts to inland locations.

Shoaling or sediment build up in a waterway’s riverbed is a natural process that, over time, makes a waterway shallow and impassable. This is a factor that currently hinders ingress and egress into tributaries and rivers. Due to shoaling, access is limited to deeper waters, which directly affects the ability of maritime industries to conduct business as usual.

Shoreline erosion also poses an additional threat to a few working waterfronts. As natural erosion takes place, the shorelines retreat potentially exposing the land-based facilities to additional wind and wave action. As sea level rises and weather events become more severe the rates of shoreline erosion are expected to increase. Most working waterfronts are in locations that are protected harbors but if those protecting landmasses erode away they become vulnerable to severe weather conditions. Such locations as Tangier Island and Saxis are threatened because of high rates of shoreline erosion.
Because each working waterfront is unique in its location, physical conditions, exposure and use, the threat from natural hazards varies greatly. To adequately plan for the future of working waterfronts from the threats of sea level rise, subsidence, more frequent and severe weather events and shoaling it will be necessary to conduct an evaluation of each working waterfront and determine the best solution for that particular facility. Since there are almost 600 working waterfronts in coastal Virginia it will be necessary to evaluate them on a priority basis over an extended period of time.

**Recommendations** – Given the threats to our working waterfronts from natural forces, changing economic conditions, and conflicts with surrounding land and water uses, these economic engines of Virginia’s economy will continue to decline in number and level of activity. It is imperative that actions be taken soon to address the long-term viability of our working waterfronts. No one solution or action can address all of the threats and challenges. No single government or level of government can tackle the problem alone. While the various levels of government can provide the much-needed tools and conditions for working waterfronts to flourish it will also take the marine businesses and waterfront property owners to invest in their facilities at our working waterfronts. If the working waterfronts in coastal Virginia are to be preserved and redeveloped over time then a broad array of actions will need to be taken by all levels of government and the private sector. This Master Plan outlines a series of actions across all levels of government and private sector action that if implemented will lead to the preservation and redevelopment of working waterfronts in Virginia. The following is an outline of the recommendations contained in this Master Plan.

**Recommendations**

**FEDERAL GOVERNMENT ACTIONS**

- Congress should adopt a national Working Waterfront Preservation Act.
- Congress should reinstate funding for the shallow channel-dredging program of the Army Corps of Engineers.
- The US Maritime Administration should designate additional America’s Marine Highway Program corridors in Virginia.
- The National Park Service should more actively promote and highlight working waterfronts along the Captain John Smith Chesapeake Bay Historic Trail.

**STATE GOVERNMENT ACTIONS**

- The Virginia General Assembly should:
  - Enact a Working Waterfront Preservation Act;
  - Establish a legislative study commission with members representing a broad cross-section of stakeholder groups to review the long-term viability of Virginia’s working waterfronts;
  - Establish a shallow channel dredging matching grant program;
• Dedicate the marine motor fuel tax and other marine related taxes/fees to working waterfront improvements;
• Enable localities to establish Working Waterfront Development Areas.
• Enable localities to classify commercial fishing vessels and related equipment as a separate class of personal property;
• Expand the Port of Virginia Economic and Infrastructure Development Fund to include private investment at smaller commercial harbors; and
• Establish a state Working Waterfront Preservation income tax credit.

• The Governor should:
  o Issue an Executive Order establishing priority for working waterfront improvements in numerous State administered grant programs – Community Development Block Grant, Transportation Alternatives Program, Clean Water, etc.;
  o Establish an advisory group to evaluate the impacts of and unintended consequences of State storm water and Chesapeake Bay Act regulations related to development at working waterfronts and recommend revisions to these regulations that will facilitate future working waterfront development/redevelopment; and
  o Charge the Commonwealth Center for Recurrent Flooding Resiliency with the long-term planning for the resiliency of select working waterfronts of regional importance.

• The VA Port Authority should expand funding for small port and harbor improvements throughout Tidewater Virginia.
• The Commonwealth should continue active fishery resource management and Chesapeake Bay cleanup programs.
• VMRC should engage stakeholders directly involved in the water conflict mediation process (currently or in the past) for feedback on the processes’ efficiencies and inefficiencies. With such feedback VMRC could consider updating their processes for resolving use conflicts on or over the Commonwealth’s tidal waters.
• The Commonwealth should establish adequate workforce development programs and facilities for the changing marine related industries.

REGIONAL PLANNING AND DEVELOPMENT ACTIONS
• The coastal Planning District Commissions should:
  o Continue research and planning for the preservation and redevelopment of working waterfronts;
  o Increase technical assistance to local governments towards the preservation and redevelopment of working waterfronts;
Serve as the test demonstration organization/site for working waterfront preservation methods; and
Create revolving loan funds for commercial waterfront development and equipment financing.

- Use the Public Access Authorities for future acquisition and development of select working waterfront sites.

LOCAL GOVERNMENT ACTIONS
- Coastal local Governments should:
  - Adopt a working waterfront policy as a part of their comprehensive plan or as an independent policy;
  - Establish permissive, by right, zoning policies for working waterways;
  - Establish local taxation policies that stimulate water dependent business development (personal property, real estate, BPOL, and machinery and tools taxes);
  - Review their zoning provisions that regulate shoreline uses and uses connected to the shoreline by a wharf, pier, dock or similar structure to help resolve potential use conflicts and to ensure the viability of commercial water-dependent activity;
  - Establish a set of development incentives to encourage the appropriate use of working waterways;
  - Invest in the development of select working waterways;
  - Use the appropriate development districts (EZ, Technology Zone, CDA, TIF, etc.) to achieve the desired development objectives along the working waterfront; and
  - Plan for adaptation and resiliency of public facilities along the waterfront.

PRIVATE SECTOR ACTIONS
- Educate the public, community leaders and decision makers on the importance of our working waterways to our economy and our culture.
- Conduct sufficient succession planning to ensure continuation of marine businesses.
- Plan for the resiliency of private waterfront businesses at our working waterways.

The initial step to begin the process of preserving our working waterways is the acceptance and adoption of this Working Waterfront Master Plan by the four Coastal Planning District Commissions, Tidewater local governments, the Virginia General Assembly, the Governor of Virginia, and impacted State agencies.