June 25, 2015

The Honorable Gina M. Raimondo
Office of the Governor
State House
82 Smith Street
Providence, RI 02903

Dear Governor Gina M. Raimondo:

It is my pleasure to submit the Annual Report of the Executive Climate Change Coordinating Council (EC4) pursuant to RIGL §42-6.2-7. As the Chair of the EC4, this correspondence is intended to serve as the Council’s Annual Report.

The member agencies of the EC4 include the Directors and Commissioners of the following nine agencies/offices: Department of Environmental Management (RIDEM), Coastal Resources Management Council (CRMC), Department of Administration (DOA), Department of Transportation (RIDOT), Department of Health (HEALTH), RI Emergency Management Agency (RIEMA), Office of Energy Resources (OER), RI Division of Planning (Planning) and RI Commerce Corporation (Commerce RI). Under the Raimondo Administration, the EC4 has five new members – the directors of HEALTH, RIDOT, RIEMA, DOA and Commerce RI. Now that the transition is complete, I look forward to working with the continuing and new members to move the priorities of the Council forward in the coming year.

In July 2014, the General Assembly approved legislation formally establishing the EC4. The new law, the Resilient RI Act, sets specific greenhouse gas reduction targets and incorporates consideration of climate change impacts into the powers and duties of all state agencies. This law emphasizes the concept of resilience, building on our collective strength to develop practical solutions that will allow Rhode Island to “weather the storm.” Also, two separate advisory bodies, the “EC4 Advisory Board” and the “EC4 Science & Technical Advisory Board”, were created by the Resilient RI Act, and significant progress has been made in 2015 towards getting these two important boards established in close coordination with the House, Senate and Governor’s Office. Further details about these two important boards are provided below.
Since the creation of the EC4 in July 2014, the full Council has met five times (September, October, November, December, and February), with an upcoming meeting scheduled for June 26, 2015. The Council heard presentations on a wide range of topics including the importance of vulnerability assessments (e.g., focused on critical infrastructure resources), the draft State Energy Plan, Regional Greenhouse Gas Initiative (RGGI), resiliency experiences and approaches in other states, impacts to salt marshes as sea level changes, public health challenges associated with a changing climate, and the creation of a new interactive web-based tool to examine the impact of storm surge and sea level rise in RI (STORMTOOLS). These presentations have allowed EC4 members to learn about the challenges residents, business leaders, and municipalities will continue to face in coming years.

The focus of the EC4 has been guided by a series of goals and objectives outlined in the June 2014 Executive Climate Change Council (EC3) Report “A Resilient Rhode Island: Being Practical About Climate Change”. This report was prepared pursuant to Executive Order 14-01 issued in February 2014 by former Governor Chafee. The Council made a nearly seamless transition from operating under the auspices of the Executive Order to working within the structure of the RI Resilience Act adopted into law in early July 2014. The goals and objectives outlined in the June 2014 report remain priorities for the current EC4:

- Leading by example at all levels of government in RI;
- Collaborating with local/federal government, private sector and higher education;
- Pursuing economic opportunities associated with developing greater resiliency;
- Coordinating and expediting vulnerability assessments (for geographic areas, populations of particular concern and key infrastructure);
- Increasing resilience through mitigation (reducing or preventing emission of greenhouse gases);
- Increasing resilience through adaptation (adjustments RI and its ecosystems can make to limit the effects of climate change);
- Coordinating scientific and technical support (with a particular focus on ensuring convenient and reliable access for state/local planners/decision makers and facilitating information sharing); and
- Developing an effective, interactive communications strategy.

Climate change is happening now and Rhode Island has a lot at stake. As a coastal state vulnerable to both sea level rise and significant storm impacts, as seen recently during Superstorm Sandy, it should be apparent why climate change and resiliency are priorities for the member agencies of the EC4. Sea level has already risen nearly 10 inches at the Newport tide station since 1930. Average annual precipitation is increasing at a rate of more than an inch every 10 years – such that Rhode Island is currently seeing about 10 inches more rain each year than in the 1940s/1950s. In Narragansett Bay, winter sea surface temperatures have risen approximately 3°F since 1960. Climate shifts appear to be a contributing factor to changes in Rhode Island’s fishing sector. Winter flounder and lobster are declining in number, and important commercial mid-Atlantic species such as black sea bass are increasing in our waters. These are just a few examples of the types of impacts already being felt and observed here in Rhode Island – all of which have economic, social, environmental and public health impacts.

The activities of the EC4 and its nine member agencies as highlighted below demonstrate how Rhode Island is on the forefront of addressing the long-term challenges that are directly associated with our changing climate.

**Highlights of EC4 Activities**

- Pursuant to RIGL §46-6.2-2, the EC4 is required, by December 31, 2016, to submit to the Governor and General Assembly a plan that includes strategies, programs and actions to meet specific targets for greenhouse gas emissions reductions as follows: (i) ten percent (10%) below 1990 levels by 2020; (ii) forty-five percent (45%) below 1990 levels by 2035; and (iii) eighty percent (80%) below 1990 levels by
Coastal Resources Management Council

Milestones are met and new initiatives are launched. Nine member agencies of priority initiatives either underway, completed, or currently underway by the EC4’s nine member agencies/offices.

As a coordinating council, it is important to highlight the abundance of climate and resilience work being undertaken by the directors and staff of the EC4’s nine member agencies. I would like to take this opportunity to showcase some of the important tools, research, and plans completed or currently underway by the EC4’s member agencies/offices. While this summary is not intended to be comprehensive in nature, it gives a flavor of priority initiatives either underway, completed, or discussed by the full EC4 over the past year. The EC4’s nine member agencies are willing to provide additional updates on specific projects in coming months as milestones are met and new initiatives are launched.

Coastal Resources Management Council

- **STORMTOOLS** is a web-based tool to examine the impact of storm surge & sea level rise in Rhode Island and was developed as part of the Beach SAMP project. Launched in January 2015, this web-based tool illustrates potential flooding from a variety of different sized storm events and how storm-related flooding is likely to change as sea level rises. Planners and planning councils, public works officials, emergency managers and others in local government can use this tool to identify both where flooding is likely to occur today (e.g. as the result of a tropical storm or hurricane) and where flooding is likely to happen in the future (e.g. in 10, 25, 50+ years as sea level continues to rise).

- **Sea Level Affecting Marsh Migration (SLAMM)** provides statewide maps illustrating how salt marshes may migrate as sea level changes. Salt marshes are among the most productive natural habitats supporting numerous economic and environmental benefits such as nursery and forage for many marine fish and invertebrates, as well as nesting and migratory feeding sites for a number of bird species. Unfortunately, much of these important habitats have already been lost due to filling and development by earlier
generations, and present day marshes are now threatened as rising seas advance upon our developed coastline.

- As part of its work on the Shoreline Change Special Area Management Plan, better known as the Beach SAMP, CRMC is undertaking a Shoreline Change Mapping project which focuses on how RI’s shoreline has changed overtime and how we might expect it to change in the future. Maps and other key resources are available for all coastal towns and should be considered critical planning tools. It strategically focuses on obtaining the scientific data and information necessary to support sound policy decisions to address coastal erosion and inundation problems. Using a similar approach as was used in developing the Ocean SAMP, CRMC expects this new effort to become a national model for dealing with coastal zone management issues.

**RI Department of Environmental Management**

- In 2014, RIDEM launched a comprehensive Wastewater Infrastructure Vulnerability Assessment. This project responds to a growing concern nationwide about the potential effects of climate change on existing wastewater collection and treatment infrastructure, particularly acute after the historic March 2010 floods. This assessment will evaluate the potential for physical and operational impacts to wastewater infrastructure. The goal is to identify specific vulnerabilities as well as adaptive strategies. The concerns relate to how issues such as increased storm and precipitation frequency and intensities, as well as sea-level rise and greater storm surge heights, will impact existing and planned wastewater infrastructure. These strategies are expected to include both short and long-term actions that result in modifications of infrastructure or operations in order to improve reliability under changing conditions.
- **State Wildlife Action Plan (SWAP)** By 2015, all states are required to update their original Wildlife Action Plans. RIDEM, with the assistance of the RI Chapter of The Nature Conservancy and the University of Rhode Island, is one of the first states to forge ahead towards its revision, which aims to: reassess priority species/habitats, and provide more detailed mapping of priority conservation areas; analyze threats affecting fish and wildlife, including those posed from habitat loss, degradation, population growth, and climate change; outline a number of conservation actions to address or alleviate threats and help effectively conserve Rhode Island's valuable wildlife resources. RIDEM is working with multiple key stakeholders to develop a comprehensive plan to provide direction and coordination of wildlife conservation efforts over the coming decade. Rhode Island wildlife experts are already reporting observable loss of habitat and impacts to species.
- In June 2014, the U.S. EPA, under President Obama’s Climate Action Plan, proposed a plan to cut carbon pollution from power plants. The Clean Power Plan aims to maintain an affordable, reliable energy system, while cutting pollution and protecting public health and environment. RIDEM, with its RGGI partners, evaluated how the RGGI program could be a means to comply with the requirements of the proposed Clean Power Plan. The final plan is likely to be issued by EPA this summer.
- The Northeast Committee on the Environment (NECOE) is leading a regional effort – called the New England States’ Climate Resilience Collaborative – to build capacity for climate resilience planning and investment across the region. The environmental commissioners of the six New England states make up NECOE. This initiative will be aimed at connecting the states, coordinating advocacy with federal agencies, collaborating on funding opportunities, and providing continuity to ensure that adaptation and resilience initiatives continue over time.
- In an effort to lead by example and reduce its carbon footprint, RIDEM is upgrading its fleet of state vehicles with 10 plug in hybrid vehicles.
- The RIDEM Energy Saving Trees Program, under development since 2014, is scheduled to be launched in late summer 2015. The Energy-Saving Trees Program is used throughout the country by many cities and utility companies to utilize trees and Urban Forestry as a means of combating Climate Change and reducing energy costs/consumption while attracting the other myriad of tree benefits. Instituting this program in RI would track energy savings in $ and KWh (+ other benefits) and locations of trees.
The program will allow homeowners to select a species of tree and determine where to place it on their property to gain maximum energy savings.

Office of Energy Resources

- A draft of the RI State Energy Plan has been released and is currently with the State Planning Council (SPC). *Rhode Island Energy 2035* updates the State Guide Plan Element 781 (as adopted in 2002) and is intended to guide the activities of the Rhode Island Office of Energy Resources and the Division of Planning. The Plan describes the existing state of Rhode Island’s energy system and sets goals and policies to improve energy security, cost-effectiveness, sustainability and resilience in all sectors of energy production and consumption. The SPC recently voted to approve this plan being released for public review and comment.
- OER and Commerce RI are partnering to survey the clean energy business community to provide policy makers, business leaders and clean energy advocates with key information about clean energy companies. With detailed industry information in hand, OER and Commerce RI will have the data to support efforts to expand and support this growing industry.
- According to the 2014 edition of the American Council for an Energy-Efficient Economy (ACEEE) State Scorecard, Rhode Island is ranked the 3rd most energy efficient state in the nation. The state was ranked 6th in 2013 and has ranked within the top 10 for seven consecutive years. ACEEE’s report specifically called out Rhode Island for being one of "the states with the most aggressive savings targets.”
- OER and RIDEM collaborate closely on implementation of The Regional Greenhouse Gas Initiative (RGGI), a market-based cap and trade program among nine northeastern and mid-atlantic states (RI, CT, DE, MA, ME, MD, NH, NY, VT) to reduce emissions of carbon dioxide (CO2), the principal gas that contributes to climate change. The program establishes a regional budget (cap) of CO2 allowances and each state’s allocation of CO2 allowances under the budget. In Rhode Island, the RIDEM Director and the Commissioner of the OER are on the RGGI Inc. Board. The allowable use of auction proceeds in Rhode Island is governed by RIGL §23-82-6. Rhode Island primarily invests CO2 allowance proceeds in energy efficiency and conservation, and renewable energy technologies.
- In June 2015, OER released a report detailing ongoing collaborative work to support the increased deployment of alternative clean transportation solutions throughout RI, and identify some of the opportunities and challenges still to be addressed by local stakeholders and policymakers. In 2014, House Resolution H-7726 requested the OER to investigate and report on issues affecting plug-in electric vehicle (PEV) adoption, as well as associated implications that include impacts on electricity demand, system reliability, consumer cost and the environment. *Rhode Island Office of Energy Resources House Resolution Report Addressing Regulatory Issues Affecting Electric Vehicles (June 2015).*
- Funded by the U.S. Department of Energy, the Rhode Island Public Energy Partnership (RIPEP) is a three year (2012-2015) collaborative effort to achieve deep energy savings in state and municipal facilities and build a sustained, effective infrastructure for ongoing savings. Led by the OER, RIPEP brings together key state agencies, municipal governments, utilities, and state university partners to: create a comprehensive inventory of energy consumption in the public sector; implement energy efficiency measures in approximately 100 facilities to attain an average of 20% energy reduction; and, identify and mitigate barriers to efficiency improvements in the public sector.

RI Department of Health

- In February 2015, HEALTH’s Climate Change Program released the Climate Change and Health Resiliency Report. The Report synthesizes research on climate change impacts on human health, identifies the threats climate change poses to the well-being of Rhode Islanders, and describes best practices that can strengthen the capacity and effectiveness of public health interventions addressing climate impacts in RI. The report fulfills the requirement in §42-6.2-3(10) of the Resilient RI Act to
“Develop a climate and health profile report that documents the range of health impacts associated with climate change and identifies the most vulnerable populations.”

- HEALTH has spearheaded a regional initiative to explore the thresholds for heat/health impacts, as well as health data driven standards for heat warnings and communications. Their collaboration with Brown University, Maine, New Hampshire, the CDC, and the National Weather Service will help to improve heat warning and messaging systems in RI and throughout New England.

- In partnership with the Division of Elderly Affairs, the Lieutenant Governor’s Office, Brown University, and other community partners, HEALTH’s Climate Change Program is working to assist long-term care facilities, senior housing complexes, and older adults prepare for weather related emergencies, such as extreme heat and power outages. Their team of local partners, stakeholders, and Yale New Haven Health System Center for Emergency Preparedness and Disaster Response will support our pilot sites to prepare for these scenarios through intensive and site-specific energy resiliency audits and the development of all-hazards emergency plans that emphasize sheltering in place.

- In April 2015, the Climate Change Program hosted four workshops on the mental health impacts of climate change. Partnering with the Providence Center, a half day training was held for case managers to discuss climate impacts and techniques for resiliency building among their clients. In addition, a workshop was co-hosted with the EC4 to engage state employees, partners, and the public in this important topic. Two additional workshops were held for Department of Health employees and the Climate Change/Environmental Justice TRI Lab class at Brown University.

**RI Emergency Management Agency**

- The Federal Emergency Management Agency’s (FEMA) Hazard Mitigation Assistance (HMA) programs are administered by RIEMA. Throughout 2014 and 2015, the growing impacts from sea level rise and severe weather events (e.g. extreme flooding events) have been given greater consideration.

- In December 2014, RIEMA released a Local Hazard Mitigation Plan template, the purpose of which is to provide a recommended and standardized framework for local governments to follow during the creation of their Local Hazard Mitigation Plans. RIEMA prepared this template in accordance with item 2.2.1 of the EC3’s June 2014 Report.

- With increased precipitation and severity in storms, RIEMA’s Floodplain Management Program is a critical resource for communities. The growing impacts from sea level rise and the impacts from severe weather events (e.g. extreme flooding events) have been further emphasized in the agency’s outreach as part of the EC4.

- RIEMA is collaborating with RIDE, CRMC and others on a proposal to use $175,000 in CDBG Disaster Recovery funding to develop a model for the Pawtuxet River watershed/river to allow an analysis of the historical behavior of the watershed-river system, including recommendations with regard to mitigation and floodplain management.

**Division of Planning/RI Department of Administration**

- [Resilient Communities: Natural Hazards and Climate Change Adaptation](#) - The development of this “how to” guide focuses on incorporating natural hazards planning and climate change adaptation into local comprehensive plans. The guide is the result of a pilot project conducted by the University of Rhode Island Coastal Resources Center/Rhode Island Sea Grant (CRC/SG) on behalf of the Rhode Island Statewide Planning Program. This how-to guide and presentation was created as a resource for coastal municipalities on how to conduct a preliminary vulnerability assessment and adopt climate change adaptation strategies into local comprehensive plans. While every community is different and will follow a unique planning process, this guide is meant to provide insights into how to successfully assess vulnerability, design, adopt and implement adaptation strategies, and monitor their effectiveness. Sea
level rise and flooding were the primary hazards examined. Lessons learned through that pilot project are presented for the benefit of other coastal communities engaging in natural hazard and adaptation planning.

- **RIDOT** is providing $75,000 to support the development of the Rhode Island Greenhouse Gas Emissions Reduction Study (as highlighted above). RIDOT staff will serve alongside RIDEM, OER and Planning in the execution this project throughout the remainder of 2015 and 2016.

- Planning (through the Unified Transportation Planning Work Program) is providing $75,000 to support the development of the Rhode Island Greenhouse Gas Emissions Reduction Study (as highlighted above). Planning staff will work with RIDEM, OER and RIDOT in the execution this project.

- The Office of Housing and Community Development coordinated with the Institute of Sustainable Communities to allow a team of state employees from various RI agencies, as well as staff from the RI Foundation and the Coastal Resources Center at URI/Sea Grant, to attend an extended training on issues related to climate change and economic resilience. A total of ten teams from across the country convened in Boston MA in March 2015 for this extended workshop.

- Completion of **Vulnerability of Transportation Assets to Sea Level Rise (Technical Paper January 2015)**. This study analyzes the state’s transportation assets at risk under 1, 3, and 5 feet of sea level rise. Sea level rise presents a major challenge to Rhode Island’s transportation infrastructure and as opposed to storm surge or other flooding events, is a long-term, permanent trend with implications for RI’s coastal transportation infrastructure as well as coastal residential communities and other infrastructure that serves residents and commerce. This study aims to provide an overview of key exposures and identify a subset of infrastructure under state jurisdiction that is most vulnerable.

**Commerce RI**

- Commerce RI administers the Renewable Energy Fund (REF) which is dedicated to increasing the role of renewable energy throughout Rhode Island. The REF provides grants and loans for renewable energy projects with the potential to make electricity in a cleaner, more sustainable manner, while stimulating job growth in the green technology and energy sectors of Rhode Island's economy. In 2014 alone, the REF awarded over $3 million in funding to 28 businesses. The funds went to 154 renewable energy projects totaling 2 MegaWatts.

- Commerce RI administers the Rhode Island Energy Revolving Loan Fund (“ERLF”) which offers low-interest loans to RI businesses for energy savings investments. Loans are awarded to companies located in Rhode Island pursuing a wide range of energy upgrades. Companies can install renewable energy projects, make facilities more energy efficient or purchase new energy saving equipment. This program is an important part of the state’s coordinated effort to reach out to the business community on key resilience issues like energy efficiency and renewables.

- In September 2014, Commerce RI, OER and non-profit marketing firm SmartPower launched of Solarize Rhode Island, a municipal-based program aimed at providing opportunities for installation of rooftop solar energy at lower costs. The pilot program took place in three municipalities across Rhode Island. A total of 139 solar contracts were executed in the towns of North Smithfield, Tiverton, and Little Compton.

**RI Department of Transportation**

- Through the development of an updated Transportation Asset Management Plan, RIDOT is planning for climate and sea level rise impacts to the state’s transportation infrastructure. Transportation Asset Management Plans (TAMP) act as a focal point for information about assets, management strategies, long-term expenditure forecasts, and business management processes. Due to be completed in 2016, the plan focuses on critical infrastructure and is giving greater consideration to resiliency.

- RIDOT is providing $75,000 to support the development of the Rhode Island Greenhouse Gas Emissions Reduction Study (as highlighted above). RIDOT staff will serve alongside RIDEM, OER and Planning in the execution this project throughout the remainder of 2015 and 2016.
• RIDOT is working alongside RIDEM and OER in support of the state’s ongoing efforts to implement the Multi-State Zero Emission Vehicle (ZEV) Programs Memorandum of Understanding (MOU). Committed to reducing greenhouse gas emissions from the transportation sector, this multi-state and multi-agency cross-cutting collaborative aims to introduce a growing number of zero emission vehicles into the RI market.

Finally, an important new initiative, the Rhode Island Infrastructure Bank (RIIB), was created in the FY16 budget and will further the goals of the EC4. This RIIB expands and builds off of the current Clean Water Financing Agency to include the ability to finance energy efficiency measures and improve the resiliency of our communities. Specifically, the RIIB will expand funding opportunities for projects to mitigate stormwater, provide new financing for energy efficiency and renewable energy projects for commercial and residential properties, and offer low-cost loans to public entities seeking energy improvements in public buildings. Through its new investment opportunities, the RIIB will support efforts to make Rhode Island more resilient in confronting issues associated with climate change.

With new members in place, the EC4 is moving forward on an ambitious agenda to ensure that Rhode Island prepares for challenges and seizes new opportunities associated with climate change. The members of the EC4 would be happy to further discuss with you and your staff any of the priorities, projects or issues identified in this Annual Report. Please feel free to contact me if you have any questions or would like additional information. Thank you.

Sincerely,

Janet Coit
EC4 Chair

CC: Kevin Flynn, Planning (EC4 Member)
    Marion Gold, OER (EC4 Member)
    Peter Alviti, RIDOT (EC4 Member)
    Dr. Alexander-Scott, HEALTH (EC4 Member)
    Peter Gaynor, RIEMA (EC4 Member)
    Grover Fugate, CRMC (EC4 Member)
    Darin Early, Commerce RI (EC4 Member)
    Michael DiBiase, DOA (EC4 Member)
    Stefan Pryor, Commerce
    Eric Beane, Governor’s Office
    Abby Swienton, Governor’s Office
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