Questions Related to Coastal Development

Q: *What is being done in the area of managing coastal development?*
A: In Delaware decisions on zoning, ordinances and development are made at the county and municipal level, however DNREC’s Shoreline and Waterways Program under the Beach Preservation Act regulates how far seaward construction can occur along the Atlantic Coast Beaches and in the Delaware Bay up to Pickering Beach. The regulations were updated in 2016. The “no-build” line has remained the same since 1972.

In addition, significant effort is made by state agencies including DelDOT, DNREC, University of Delaware’s Institute for Public Administration and the Office of State Planning Coordination to assist local governments make good land use decisions. DNREC offers grants for resilient and sustainable development and co-hosts the Resilient and Sustainable Communities League.

Q: How do you keep people from building in threatened areas without a complaint of “taking”?*
A: In Delaware, decisions on zoning, ordinances and development decisions are made at the county and municipal level.
Q: Why do we continue to allow development in flood prone areas?
A: In Delaware decisions on zoning, ordinances and development are made at the county and municipal level. While the state can provide recommendations and guidance to avoid developing in flood prone areas it cannot dictate to the county and municipalities where they allow or block development from occurring. The National Flood Insurance Program (NFIP) does require participating communities to adopt floodplain management standards that meet or exceed FEMA's minimum standards. Additionally the newer versions of the International Building Code, specifically the 2018, 2015, 2012 and 2009 I-Codes, have also incorporated floodplain management provisions that meet or exceed NFIP minimum requirements.

Q: *Can we create a statewide freeboard requirement above the National Flood Insurance Program (NFIP) minimum and extend the minimum into the X zones?
A: Freeboard is the elevation of a building's lowest floor to a height above the minimum base flood elevation during the initial construction process. Typical requirements call for an additional 1-3 feet above base flood elevation.

The state does not have the authority at this time to create a statewide freeboard requirement. The state does however have the ability to work with municipalities and counties to identify opportunities and update codes to require a higher freeboard. The state has a model floodplain ordinance which it encourages communities to adopt. This model ordinance includes freeboard and other best practices for flood risk reduction. A majority of the communities in the state that participate in the NFIP have already adopted higher standards such as a freeboard requirement.

The State also encourages communities to participate in the NFIP Community Rating System. It is a “voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum program requirements.” As a result of participating in the program flood insurance premium rates are discounted to reflect the reduced flood risks.

Questions Related to Transportation Infrastructure

Q: *Route 9 south of New Castle floods regularly in even relatively minor storms. DelDOT has told us the road is on their schedule for improvement in 2035. Why so far in the future? I know money is an issue but is the flooding risk even considered?  
A: While we cannot speak for DelDOT, we have passed along the question and a full answer will be forthcoming. In the meanwhile, you may be interested in viewing DelDOT's Strategic Implementation Plan for Climate Change, Sustainability & Resilience for Transportation, the Capital Transportation Plan (CTP), the CTP Prioritization Criteria and the WILMAPCO Regional Transportation Plan.
**Q:** Have you compiled stats on how much roadway and other infrastructure will be impacted from 10 feet of sea level rise?

**A:** The Delaware [Sea Level Rise Vulnerability Assessment](#) provides estimates of roadway inundation and infrastructure up to 1.5 meters. Ten feet of sea level rise is outside of the state's planning scenarios for this century.

DelDOT’s Response: Sea level rise is a significant concern for the Department of Transportation as they have seen its impacts already with not only storm events, but high tide flooding events. To work toward solutions to address the resiliency of the network, DelDOT has reviewed various scenarios of sea level rise and its effect on the infrastructure. In fact, there was a recent study completed on the SR 9 corridor from the Kent County line up to New Castle to show the effects of sea level rise and how DelDOT could plan for it. DelDOT has also started to include language in their design manuals for the inclusion of sea level rise scenarios when planning and designing infrastructure. This is very important as the state’s infrastructure has design lives of decades so DelDOT has to plan today while designing the transportation network of the future.

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**Questions Related to Sea Level Rise Data and Projections**

**Q:** What studies did you rely upon in projecting future magnitude of sea level rise?

**A:** The reference material and methods used to project future sea level rise for Delaware can be found in the [Delaware Geological Survey report Recommendation of Sea-Level Rise Planning Scenarios for Delaware](#) available online.

**Q:** Within what future time periods do you project different degrees of sea level rise?

**A:** Our projections include planning scenarios for 2030, 2050, 2080 and 2100. The below table is from the [Delaware Geological Survey report Recommendation of Sea-Level Rise Planning Scenarios for Delaware](#)

<table>
<thead>
<tr>
<th>Year</th>
<th>Delaware SLR Planning Scenarios</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
</tr>
<tr>
<td>2030</td>
<td>0.11 m / 0.36 ft</td>
</tr>
<tr>
<td>2050</td>
<td>0.22 m / 0.72 ft</td>
</tr>
<tr>
<td>2080</td>
<td>0.42 m / 1.38 ft</td>
</tr>
<tr>
<td>2100</td>
<td>0.52 m / 1.71 ft</td>
</tr>
</tbody>
</table>

**Q:** *Did your projection of maximum of 5 feet take into consideration new information about Antarctic and Greenland ice shelf/sheet melting released within the past 2 months?*

**A:** When the projections were initially created in 2012 we used the best available science at that time, which had some information in relation to the melting shelf and sheet. When the projections were updated in 2017 the best available science was used which included the impacts of the melting shelf and sheet. Although there is no set timetable of when the projections will be updated again, they will be updated in the future and will include the best available science at that time.
Q: What if sea level rise is much faster than now considered?
A: The best available science was used to develop current projections. Although there is no set timetable of when the projections will be updated, however it is our intent to periodically update these planning scenarios as new information is available. We will use the best available science at that time and the information will be relayed to all parties to incorporate into their plans as much as is feasible.

Questions Related to Temperature Data

Q: What is the course of your temperature increase projections? When was it last updated?
A: Temperature projections for the state are to the year 2100. Temperature projection data can be viewed at the Delaware Climate Projections Portal.

These projections were prepared for the Delaware Climate Change Impact Assessment, which was released in February 2014. The Office of the Delaware State Climatologist actively monitors observed temperature values and provides real-time data through the Delaware Environmental Observing System.

Q: Are you going to update the projections as new updated data is made available?
A: We are actively considering when to update our climate projections based on new climate models and data; however, the state has not made any decisions on this yet. Given the significant resources it takes to update projections, the state will want to determine when it is most cost-effective to do so. If an update is undertaken the best available science at that time will be used.

Questions Related to Water Resources and Infrastructure

Q: In evaluating impacts upon river water supply sources did you consider drought scenarios?
A: Yes, as part of the 2014 Delaware Climate Impact Assessment, the impacts of drought scenarios were considered in relation to water resources.

Q: How periodically does the State study the potential/actual impairment of dams, levees or other water control infrastructure?
A: The Delaware Dam Safety Regulations require all regulated High hazard dams to be inspected annually and Significant hazard dams to be inspected at least once every 2 years to detect any signs of deterioration, developing weakness or unsafe conditions. Levees in the US Army Corps of Engineers Rehabilitation and Inspection Program are inspected based on the requirements of the program.
Q: Are there good opportunities for physical infrastructure improvements such as improvements to existing facilities such as dikes, levies, breakwaters, etc. that would be beneficial for both sea level rise and protection from storms, particularly storm surges?
A: Building or improving flood control structures so they are resilient to today’s storm surge, long term sea level rise and future storm tides is a best practice adaptation strategy being employed in infrastructure planning statewide. In addition, wetland restoration, like the major wetland restoration project in South Wilmington, have been constructed to provide flood abatement today and be resilient to sea level rise.

Communities could consider applying for a FEMA Building Resilient Infrastructure and Communities Grant to obtain funding for such infrastructure improvement projects.

Q: What is the state's plan for the stormwater management resources, i.e. retention ponds, with the effect that sea level rise will have on those resources?
A: Stormwater management is overseen by DNREC’s Division of Watershed Stewardship and is highly regulated. The need to update the regulations was identified in the 2014 Climate Framework for Delaware as an action that could help the state build resiliency and prepare for climate change.

The Stormwater Regulations and technical standards were promulgated and went into effect in February 2019 and apply to new development and redevelopment projects. The regulations emphasize runoff reduction practices, which are expected to be adequate for minimizing new stormwater loads.

While the updated regulations do not have any specific requirements related to planning for sea level rise the Standard Guidelines for Operation and Maintenance of Stormwater BMPs advises that all stormwater management structures are reviewed on an annual basis to ensure they are performing properly. During these reviews if the structure is not functioning properly then updates will be made.

Q: Are there plans to replace individual septic systems, especially in Sussex County, with municipal sewage projects where reasonable? Would this lessen impact when flooding occurs?
A: Sussex County Sanitary Sewer District expansions are managed at the county level. A listing of proposed and approved sewer projects can be found online. As additional land is annexed into a Sewer District and the sewer infrastructure is expanded into the area, existing residents who are on septic systems are afforded the option of connecting to the County sewer and properly abandoning their individual septic system. Connection of residents with onsite individual septic systems to centralized sewer in flood prone areas and/or areas that may be impacted by sea level rise would lessen environmental impacts from septic drain field inundation in those areas.
Q: *Are there combined sewer overflow issues located in places other than Wilmington?*
A: Currently the only combined sewer overflow systems in the state are in Wilmington and a few small sections of New Castle County. However, these areas are actively being addressed to update and remove combine sewer overflows. The town of Laurel used to have a combined sewer overflow system, but it has been recently reconstructed and no longer functions as a combined sewer.

**Questions Related to Equitable Adaptation**

Q: *What percentage of state agency leadership involved in climate change actions, environmental leadership and environmental education are considered a person of color (POC) or diverse? If the percentages are low, what are you doing to increase diversity?*
A: Diversity in state government is important. In fact, Delaware’s Department of Human Resources, through its Division of Diversity and Inclusion, works with state agencies to “cultivate access, equity, diversity and inclusion throughout state government,” including “supporting the recruitment and retention of employees from historically underrepresented groups”.

Q: Can we think about transportation equity and having electric busses and less automobiles using fossil fuels?
A: The transition to electric vehicles (and other zero emission vehicles) is a key strategy for the state; more information about potential emission reductions from zero emission vehicles is available in the Technical Greenhouse Gas Mitigation Analysis Report produced by ICF for DNREC in 2020. The state has a number of programs already aimed at clean transportation.

The Delaware Authority for Regional Transit (DART) currently owns and operates 14 electric buses, eight of which run routes in Wilmington and New Castle. DART plans on adding another six electric buses over the next two years, bringing the total fleet to 20. In addition, in August 2020, the Delaware Transit Corporation, which operates DART, received a Federal Transit Authority grant to install an approximately 60,000 square foot solar array in Dover to help power the six buses that operate in Kent County.

Q: *Does Delaware have plans for helping vulnerable populations during high heat events?*
A: Currently there is the Low Income Home Energy Assistance Program offered through the Division of Health and Social Services (DHSS) that offers the Summer Cooling Assistance Program. This program operates during the months of June-August and helps pay for electricity to cool homes with air conditioning during the hot, humid summer months. In addition to receiving a grant to offset the high costs of electricity to air condition a home, some populations may be eligible to receive a room sized air conditioning unit. Additionally, when there are extreme heat events DHSS will release a list of cooling sites available across the state, most of which are public libraries.
Q: How do you plan to inform people for whom English is NOT their first language?
A: We plan on working with DNREC’s Community Ombudsman who is the liaison between DNREC and communities throughout the state. This position works with underserved communities to ensure their interests and problems are addressed by DNREC; this includes populations of individuals whose first language is not English.

Questions Related to How the Plan was Created

Q: Why not include private sector and individuals in the plan?
A: This Plan is being developed specifically for the state to identify what actions it can take to minimize emissions and maximize resilience to climate change. The Plan may include state actions that support its communities, businesses and individuals to adapt.

Q: Have you given thought to making suggestions to residential, commercial and industrial customers on how to better prepare now while you are working on the plan?
A: There are a variety of resources available to residential, commercial and industrial customers some examples include: the Resilient and Sustainable Communities League, the Delaware Coastal Training Program, the Preliminary Land Use Service, the Delaware Sea Grant Marine Advisory Service, the Delaware Cooperative Extension, the DNREC Community Ombudsman, the DNREC Small Business Ombudsman and the Delaware Climate Action Plan webpage.

Q: *Are there any new or innovative ideas being considered in the plan?
A: DNREC has been working with stakeholders to come up with innovative climate action solutions that are consistent with what our technical data (both climate change impacts and emissions reduction) supports as being impactful areas of investment.

Q: What were the major lessons learned by reviewing other states’ Climate Action Plans? Which elements were successful and which were less successful?
A: The major lessons learned from other state plans are that actions need support from the public and state agencies to be effectively implemented, actions that require small changes in how the state does business can have significant impacts, and that actions need to be specific.

Success of a plan can be measured in whether a plan was implemented after it was complete. Plans that had strong public support, listed specific actions and established ways of monitoring progress over time were likely to have higher rates of implementation.

Q: Are there disaster plans for storms?
A: Yes, the Delaware Emergency Management Agency (DEMA) has an All-Hazard Mitigation Plan that outlines how emergency agencies will respond during a hazardous event. It includes coastal flooding, storms, hurricanes, coastal erosion and inland flooding to name a few of the natural hazards included in the plan. The plan was most recently updated in 2018.
Q: Have you studied “managed retreat” from higher flood risk areas? Where will residents and businesses relocate to in your projections?
A: According to the Georgetown Climate Center “managed retreat is the voluntary movement and transition of people and ecosystems away from vulnerable coastal areas, is increasingly becoming part of the conversation as coastal states and communities face difficult questions on how best to protect people, development, infrastructure and coastal ecosystems from sea-level rise, flooding and land loss.” Various adaptation measures have been studied, including managed retreat. DNREC will continue to provide the science and technical assistance to local communities so that informed decisions can be made.

Questions Related to Communication and Education

Q: *How will you educate everyone on the widespread effects of sea level rise that will be experienced statewide and not just along the coast?
A: As the Plan is still in development, we are unsure yet how the state will address this issue.

Q: *Would it be possible to save on costs and provide valuable work experience to offer environmental study college students a work/intern experience in exchange for college credit?
A: Currently DNREC has a variety of internship programs, however there are not currently any that offer college credit. DNREC partners routinely with students enrolled in courses at the University of Delaware, Delaware State University, Wesley College and Delaware Technical College to complete projects for DNREC as part of their coursework.

Q: *What can you do to target communication and education to Sussex County Council?
A: Activities may build on programs that already exist like the Delaware Coastal Training Program and the Resilient and Sustainable Communities League.

Q: Are there plans to expand the social media outreach (Instagram, Tik Tok) to gather more interest from Millennial and Gen Z populations in Delaware or surrounding areas?
A: DNREC is utilizing Facebook, Twitter and Instagram to educate and connect with stakeholders.

Q: *Will there be more communication to residents in the future about safety in relation to climate change impacts?
A: There will be on-going engagement with our residents and communities to continue these kinds of conversations.

Q: This is surely outside the scope of DNREC, but what actions do you think would be most helpful for non-profits to take in advocating to make it illegal for people to build in areas susceptible to flooding and storm surge and sea level rise?
A: In Delaware, decisions on zoning, ordinances and development are made at the county and municipal level.
Questions Related to Community Adaptation

Q: *It would be very helpful to know what other communities have done and in what circumstances. What worked, what didn’t and why?  
A: Being able to review actions undertaken previously by others is an excellent way to uncover new ideas and identify resiliency best practices. Although not a comprehensive list of all resiliency activities across the state the Resilient Communities Partnership (RCP) website includes details about projects undertaken through the RCP, as well as the previous Coastal Management Assistance Grant Program. Additionally, the Resilient and Sustainable Communities League works closely with communities and are a resource that could provide details on additional actions not completed as part of the RCP.

Q: *Are any grants to communities available at present, either matching or not?  
A: To find current grant opportunities for building resilience visit the Delaware Database for Funding Resilient Communities.

Questions Related to Energy Infrastructure

Q: Where does the department stand on increased distributed generation (microgrid) to support critical facilities?  
A: Grid-scale renewable energy in Delaware has historically been developed through the state’s Renewable Portfolio Standard: a state law that requires Delaware’s utilities acquire an increasing percentage of their electricity from renewable resources. Based on the results of our greenhouse gas emissions modeling analysis, a Renewable Portfolio Standard remains an important strategy for reducing emissions in the state using grid-scale renewable energy.

Additionally, DNREC’s Energy Section is reviewing options to create a grant program that supports pilot research projects that explore things like energy storage, micro-grids and other technologies for grid resilience.

Q: *What suggested actions, or potential actions, is the state looking at to protect energy generation facilities?  
A: The state has the Energy Assurance Plan that is a comprehensive manual for state government leaders charged with the responsibility of ensuring the health, welfare and safety of the citizens of the state during periods of energy emergencies. The plan describes the way the state will respond if an energy shortage of a substantial nature occurs or appears imminent. The plan was updated in 2019 and is periodically reviewed to ensure it is meeting the state’s energy needs during an emergency event.
**Q: Where does the state stand with respect to encourage offshore wind?**

A: Delaware's utilities continue to acquire a portion of their electricity from renewable resources, including wind energy sources.

Delaware’s utilities continue to acquire a portion of its electricity from renewable resources, including wind energy sources. With regards to in-state wind generation, DNREC manages the state’s [Green Energy Program](#), which provides incentives for renewable energy projects including wind. Additionally, DNREC is actively looking into issues related to wind energy in Delaware, including, most recently, transmission impacts of offshore wind to the state. Establishing larger scale in-state wind generation for the state will require the input and collaboration of numerous stakeholders including state government leaders (both executive and legislative), Delaware’s public service commission, the state’s utilities, labor organizations, environmental organizations and other affected communities and groups.

**Q: How can the state make the use of solar generation of power more complete?**

A: Solar generation of power is one of the renewable energy strategies the state could pursue. In fact, solar energy is part of the state’s Renewable Portfolio Standard: a state law that requires Delaware’s utilities acquire an increasing percentage of their electricity from renewable resources (including a certain percentage from solar energy sources, specifically).

Delaware has made steady progress on solar power generation. Solar photovoltaic capacity in Delaware has grown from 2.3 megawatts at the end of 2008 to more than 120 MW today, and the state is home to more than 6,000 solar energy installations. Moreover, most of the solar energy used to meet the solar requirement of the [Renewable Portfolio Standard](#) is generated in Delaware.

The current Renewable Portfolio Standard expires in 2025, but there is the potential for it to expand beyond 2025. Governor Carney, for instance, indicated in his 2020 State of the State address that he would like to set a new Renewable Portfolio Standard with 40% of Delaware's energy coming from renewable sources by 2035. Based on the results of the state's recent [greenhouse gas emissions modeling analysis](#), a Renewable Portfolio Standard remains an important strategy for reducing emissions in the state.

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**Miscellaneous Questions**

**Q: Will the poll results be available after tonight's webinar?**

A: Yes, all poll results are included in each of the workshop presentations that can be accessed on the [Delaware Climate Action Plan website](#).
Q: Given the clear change in casualty insurance risk that is occurring what is the State doing to understand how other States are adjusting to the withdrawal of casualty insurers from the insurance market for coverage of coastal area risks of property or businesses?

A: Delaware Department of Insurance Response: Markets in certain areas of the United States that have experienced multiple major catastrophes (repeated western wildfires and back-to-back storms in the Gulf region, for example) have experienced some adverse effects on the availability of commercial casualty insurance. Delaware has been fortunate to not have experienced a contraction in the commercial casualty insurance market in recent years. Rather, as some carriers leave Delaware, we are seeing others come in to fill the void. Additionally, companies are increasingly relying on ever more sophisticated modeling, including artificial intelligence, to help them more accurately predict risk and better price their products. The Delaware Department of Insurance actively monitors the Delaware and national markets in cooperation with our neighboring states and as an engaged participant on relevant committees of the National Association of Insurance Commissioners.

Q: How can enforcement of current regulations prohibiting pollution be made more effective?

A: DNREC relies on our residents and visitors to help report environmental violations, so that they can be corrected as quickly as possible.

Everyone is encouraged to call the DNREC’s Environmental Crimes Unit Emergency Response Line 1-800-662-8802 to report environmental complaints, spills, releases, trash dumping and more. You will be asked when and where and for your name and contact information (which will be kept confidential).
Embedded Web Links

- Delaware Climate Projections Portal: [http://cemA.udel.edu/declimateprojections/](http://cemA.udel.edu/declimateprojections/)
- Delaware Environmental Observing System: [http://www.deos.udel.edu/](http://www.deos.udel.edu/)
- The Delaware Dam Safety Regulations: [https://regulations.delaware.gov/AdminCode/title7/5000/5103.shtml#TopOfPage](https://regulations.delaware.gov/AdminCode/title7/5000/5103.shtml#TopOfPage)


• Sussex County Sewer Projects: [https://sussexcountyde.gov/proposed-projects-schedules](https://sussexcountyde.gov/proposed-projects-schedules)

• Delaware Department of Human Resources, Division of Diversity and Inclusion: [https://dhr.delaware.gov/diversity/](https://dhr.delaware.gov/diversity/)


• Clean Fuel and Transportation Initiatives: [https://dnrec.delaware.gov/climate-coastal-energy/clean-transportation/](https://dnrec.delaware.gov/climate-coastal-energy/clean-transportation/)

• Low Income Home Energy Assistance Program: [https://www.dhss.delaware.gov/dhss/dssc/liheap.html](https://www.dhss.delaware.gov/dhss/dssc/liheap.html)

• DNREC’s Community Ombudsman: [https://dnrec.delaware.gov/community-services/community-ombudsman/](https://dnrec.delaware.gov/community-services/community-ombudsman/)

• Resilient and Sustainable Communities League: [https://www.derascl.org/](https://www.derascl.org/)

• Delaware Coastal Training Program: [https://dnrec.delaware.gov/coastal-programs/planning-training/coastal-training/](https://dnrec.delaware.gov/coastal-programs/planning-training/coastal-training/)

• Preliminary Land Use Service: [https://stateplanning.delaware.gov/plus/](https://stateplanning.delaware.gov/plus/)
- Delaware Sea Grant Marine Advisory Service: [https://www.deseagrant.org/extension-1](https://www.deseagrant.org/extension-1)
- Delaware Cooperative Extension: [https://www.udel.edu/canr/cooperative-extension/](https://www.udel.edu/canr/cooperative-extension/)
- Delaware Climate Action Plan Website: [https://declimateplan.org/](https://declimateplan.org/)
- DEMA All Hazard Mitigation Plan: [https://demA:delaware.gov/contentFolder/pdfs/HazardMitigationPlan.pdf](https://demA:delaware.gov/contentFolder/pdfs/HazardMitigationPlan.pdf)
- Georgetown Climate Center: [https://www.georgetownclimate.org/](https://www.georgetownclimate.org/)
- Resilient Communities Partnership: [https://dnrec.alphA:delaware.gov/coastal-programs/planning-training/resilient-communities/#:~:text=The%20Resilient%20Community%20Partnership%20program,strategies%20at%20the%20local%20level](https://dnrec.alphA:delaware.gov/coastal-programs/planning-training/resilient-communities/#:~:text=The%20Resilient%20Community%20Partnership%20program,strategies%20at%20the%20local%20level)
- Delaware Database for Funding Resilient Communities: [https://www.bidenschool.udel.edu/research-public-service/ddfrc](https://www.bidenschool.udel.edu/research-public-service/ddfrc)
- DNREC Environmental Crimes Unit: [https://dnrec.alphA:delaware.gov/community-services/enforcement/](https://dnrec.alphA:delaware.gov/community-services/enforcement/)