

# RiverRenew and Climate Change

## Is RiverRenew Adaptable and Resilient?

RiverRenew is a major infrastructure project designed to address the discharge of sewage mixed with rainwater to Alexandria, Virginia's waterways. It is being implemented in response to a 2017 Virginia Law that requires completion by July 2025.

Current climate models show that changing global conditions will trend toward increased rainfall and rising seas in our area. These effects of climate change are being considered as part of the planning process for RiverRenew facilities to ensure the design is adaptable and resilient to future conditions.

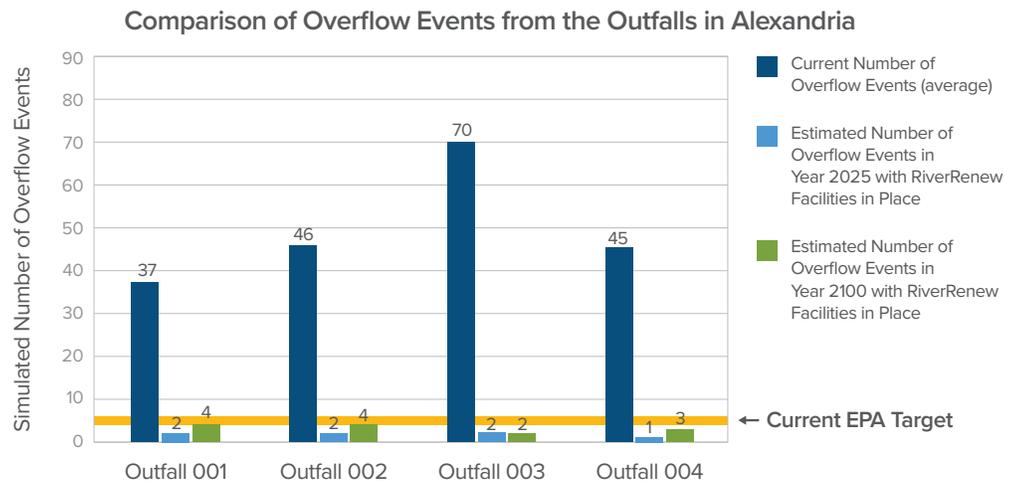
## Planning for Increased Rainfall



Rising temperatures will intensify Earth's water cycle, resulting in increased frequency and greater intensity of rainfall in our area.

To determine the impacts of increased rainfall due to climate change, RiverRenew:

- Estimated future rainfall in 2100\* based on current climate models.
- Simulated RiverRenew facilities under these future rainfall conditions.
- Determined that RiverRenew facilities would meet or exceed the Environmental Protection Agency's (EPA) current targets under future climate conditions.



\* Engineers typically plan infrastructure based on its useful life. The useful life of the proposed RiverRenew facilities is at least 100 years. 2100 is the last year for which climate projections are available from international scientific community, and is within the useful life of the proposed RiverRenew facilities.

With RiverRenew facilities in place, it is estimated that the outfalls will discharge less than four times per year in 2100, compared to 70 times per year under current conditions.

RiverRenew facilities will be designed to include:

- Safety factors
- Operational flexibility
- Components to hold back the tide
- Increased capacity at AlexRenew to better handle future additional flows
- Tunnel relief points to protect the existing sewer system

# Staying Above Rising Seas



Rising temperatures will melt ice sheets and cause seawater to expand. This will result in sea level rise, especially in coastal areas.

To determine the impacts of sea level rise due to climate change, RiverRenew estimated the future 100-year flood event\*\* in 2100\* based on climate models and curves developed by the U.S. Army Corps of Engineers and National Oceanic and Atmospheric Administration.

The map below shows current (2019) and future (2100) 100-year flood events. Currently the Potomac River rises to 11 feet above sea level during a 100-year flood event. In 2100, that elevation is anticipated to increase to 14 feet above sea level.

## Elevations of the 100-Year Flood Event in the City of Alexandria



Proposed RiverRenew facilities will be built at an elevation higher than the future 100-year flood event.

- 100-Year Flood Elevation (2019)
- 100-Year Flood Elevation (2100)
- Current Shoreline

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\*\* The 100-year flood event has a 1 percent chance of occurring in any given year.



**RiverRenew**

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