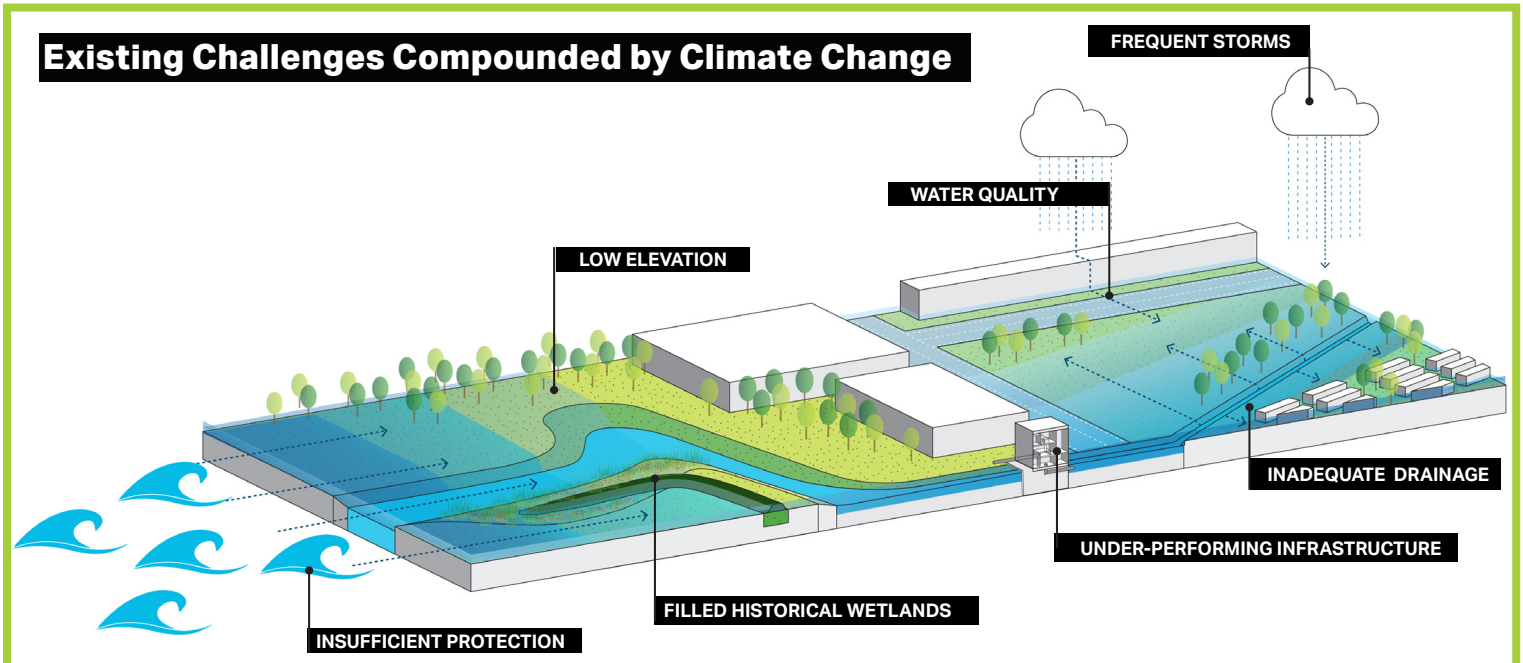
REBUILD BY DESIGN MEADOWLANDS NEWS

February 2019

Spotlight on Climate Change and Resilience

There is scientific consensus that the Earth's climate is changing. The change is primarily attributed to an intensification in the Greenhouse Effect, which is a term used to describe how heat is retained in the atmosphere by increasing amounts of greenhouse gases, such as carbon dioxide and methane. Human activities, including burning of fossil fuels, have substantially increased the amount of greenhouse gases in the atmosphere contributing to a shift in regional and global climates. Effects of climate change include increases in air temperature and sea levels, as well as changes in the frequency and intensity of storms and precipitation, among others. While the exact changes in climate are uncertain, scientists from many federal, state, and local agencies and academia have developed models to estimate projections based on long-term monitoring data. The Rebuild By Design Meadowlands project team considered these projections, which are summarized below and were detailed in the Final Environmental Impact Statement, to determine potential future conditions in the project area and evaluate the effectiveness of the proposed project's alternatives.

Existing Challenges Compounded by Climate Change



Get Involved

- If you would like to become a member of the Citizen Advisory Group, please contact Alexis Taylor at: rbd-meadowlands@dep.nj.gov. The DEP welcomes your participation and input into this process.
- Share information from this newsletter with friends and neighbors.
- Educate your friends and colleagues on the Selected Alternative.
- Continue to build interest in the Selected Alternative.
- Subscribe to receive email updates on the Selected Alternative at: www.rbd-meadowlands.nj.gov.

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Temperature Increases

Between 1895 and 2011, the average annual temperature in the northeastern U.S. increased by approximately 2°F, and the rate of increase was even higher in metropolitan areas. As greenhouse gases continue to accumulate in the atmosphere, the rate of temperature increase is expected to accelerate; climate scientists predict that the average annual temperature in the northeastern U.S. could increase another 3 to 10°F by the 2080s, depending on the level of greenhouse gas emissions.

Sea-Level Rise

As a result of increases in global temperature, melting polar ice and warming oceans have led to sea-level rise. The Project Area has a history of both inland and coastal flooding, which are anticipated to worsen as a result of climate change and associated sea-level rise in the Hackensack River watershed. Since 1900, the sea-level has risen approximately 12 inches in the northeastern U.S., which is greater than the global average of 8 inches. Further, the National Oceanic and Atmospheric Administration predicts that by 2075, sea-level could rise between an additional 1.2 and 2.4 feet in the Upper Bay of New York Harbor, and between 1.8 and 4.0 feet by 2100.

Precipitation + Storm Intensity Increases

As temperatures in the atmosphere rise, the atmosphere gains a greater capacity to hold moisture, which in turn leads to increases in precipitation. Between 1895 and 2011, the average annual amount of precipitation in the northeastern U.S. increased more than 10 percent. In the future, the National Oceanic and Atmospheric Administration predicts that average annual precipitation in the northeastern U.S. could further increase by as much as 10 percent by 2050.

In addition to the increase in precipitation volume, increased atmospheric temperatures can change the intensity of storm events. Between 1958 and 2010, the northeastern U.S. experienced more than a 70 percent increase in the amount of precipitation falling during the heaviest one percent of storms. Heavy downpours are anticipated to become more frequent as the century continues and the amount of precipitation falling during the heaviest one percent of storms is expected to further increase in the northeastern U.S. by between 60 and 90 percent by 2050. These potential increases in precipitation and the frequency and severity of storm events would contribute to increases in the volume of stormwater in the project area over time.

Additional information regarding climate change and resiliency, as well as the associated citations can be found in the Final Environmental Impact Statement at: www.rbd-meadowlands.nj.gov.

Rebuild By Design Meadowlands Alternative 3 Build Plan - Resiliency Benefits to Aid Quicker Recovery

The Alternative 3 Build Plan was identified in the Final Environmental Impact Statement by the DEP as the Preferred Alternative. As part of the Rebuild by Design Meadowlands Project, a benefit-cost analysis was completed that identified the primary resiliency benefits associated with each Build Alternative analyzed. The chart below identifies the benefits derived from directly reducing damages from flooding to infrastructure (industrial, commercial, municipal and residential) and motor vehicles; lessening public injury and loss of life; and minimizing disruptions to critical/first responder facilities, public emergency services and post-flood debris removal and disposal operations.

RESIDENTIAL BENEFITS
0.1%

MUNICIPAL BENEFITS
1.0%

MOTOR VEHICLES BENEFITS
1.4%

COMMERCIAL BENEFITS
1.5%

OTHER* BENEFITS
30%

*Other category benefits include: Apartment Structures, Utility Structures, Debris Removal, Emergency Service and Critical Facility Disruption.

RESILIENCY BENEFIT VALUE**
$87.1M

INDUSTRIAL BENEFITS
35%

INJURY AND LOSS OF LIFE BENEFITS
31%

**Benefit value shown using 2017 dollar values. See Appendix E in website below for benefit analysis methods.

The Draft Feasibility Study Report for the Proposed Project can be viewed at: **https://www.nj.gov/dep/floodresilience/rbd-meadowlands-fs.htm.**

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