Super Storm/Hurricane Preparedness and Flooding

Local public agencies (LPAs) play a key role in protecting public safety and promoting recovery during and after hurricanes and super storms. They delineate clear evacuation routes, facilitate first responders, and effect post-disaster repairs. New Jersey is a state at risk for significant rainfall events and is susceptible to coastal tidal flooding, storm water flooding, riverine flooding, and storm surge. Coastal flooding can be particularly damaging. The state's coastal zone covers 3,218 square miles and is home to 239 diverse communities.

Below are some key strategies and best practices for pre-storm preparation and post-storm response.

Pre-Storm Preparation

Effective preparation begins with comprehensive, well-exercised planning and inter-agency coordination. The first step is the creation of an Emergency Preparedness Plan and a Continuity of Operations Plan (COOP). These two plans together should clearly define the chain of command, outline staff roles and responsibilities, and capture a checklist of important tasks during a storm event. Furthermore, staff should seek to develop both a public and an internal communication plan, including provision for backup communication methods in case primary methods fail.

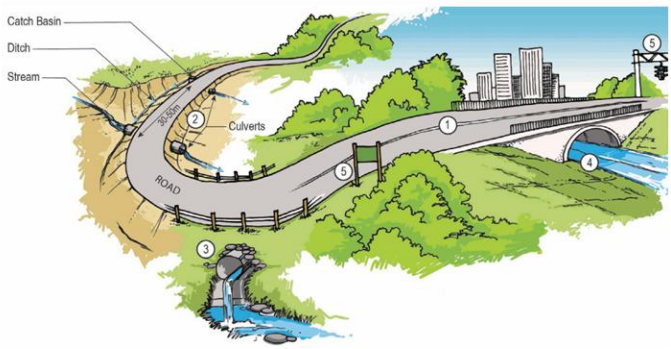
First responders and roadway workers should be equipped with the proper protective equipment (PPE) necessary to work in stormy conditions. For most work in flooded areas, or areas that have been subjected to flooding, response personnel will need the following PPE: hard hats, goggles or safety glasses, heavy work gloves, watertight boots with steel toe and insole (not just steel shank), and hearing protection where excessive noise from equipment poses a risk of hearing damage. PPE should be provided in a range of sizes to ensure proper fit.

In New Jersey, a typical challenge LPAs face in the aftermath of storms are the standing flood waters that remain. Standing flood waters pose serious risks to both those responsible for infrastructure maintenance and the public. These include:

- **Infectious diseases:** Floodwater can contain sewage, bacteria, viruses, and parasites that cause gastrointestinal problems, respiratory illnesses, and skin infections.
- **Chemical hazards:** Floodwaters are often contaminated with toxic materials like pesticides, gasoline, industrial chemicals, and heavy metals, which can cause poisoning and skin rashes.
- **Wound infections:** Open cuts, sores, or even minor scrapes are especially vulnerable to infection. Seek medical attention for tetanus if you have an open wound and haven't had a booster in the last 10 years.
- **Mosquito-borne illnesses:** Standing water can become a breeding ground for mosquitoes, increasing the risk of diseases like West Nile virus.
- **Mold:** After flooding, mold can grow on wet surfaces, and breathing in mold spores can lead to respiratory problems.
- **Injuries and drowning:** Floodwaters can be fast-moving and deep, obscuring road surfaces and making them difficult to navigate.
- **Debris and hidden hazards:** The water can hide debris, open manholes, and ditches, posing a risk of injury.
- **Electrical shock:** Downed power lines can energize standing water, creating a deadly shock hazard.

Any pre-storm preparation begins with ensuring standard practices are in place in public works and engineering departments. Proactive maintenance of infrastructure systems can significantly reduce potential damage from storms. Roadway departments should also conduct regular pre-season clearing of debris from culverts, gutters, and under bridges to ensure maximum drainage capacity and prevent flood-related blockages. Critical assets should be identified, such as tunnels and bridges that may be vulnerable during storms. Roadways that are flood-prone should be pinpointed, and risk reduction strategies for these areas should be defined and implemented. If damage to certain flood prone areas cannot be mitigated, then efforts should be made to educate the public before a storm event.

Mitigation Solutions:



Decreasing the likelihood of flooding, reducing damage, and controlling erosion can improve the resilience of roadways. The methods used will depend on many factors, including cost, physical limitations, and environmental requirements. Possible strategies are detailed in the fact sheets that follow, including:

- Elevating roadways
- Improving drainage
- Strengthening underlying soils and installing erosion control measures
- Realigning roads and structures
- Strengthening support structures
- Moving electronic controls and equipment up off the ground and providing a source of standby power

Public Information

During an event such as a hurricane, public information from road departments (such as the state Departments of Transportation, local public works and local emergency management) regarding road conditions, closures, and evacuation routes will be =crucial to ensure public safety. This information is disseminated through various official channels. Use Roadway Weather Information Stations (RWIS) and other sensor technology to monitor real-time conditions (water levels, wind speeds) on assets. 511 websites, social media, and dynamic message signs are critical to provide the public with up-to-date information on road closures, restrictions, and evacuation guidance. Before a storm event, the public should be encouraged to sign up for local emergency notifications and available state communications channels. The New Jersey Office of Emergency Management also provides general updates on ReadyNJ with information posted on social media as well as on the NJ Office of Emergency Management website at nj.gov/njoem.