



## Lessons from Tropical Storm Ida

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### Directly Resulted in The Loss of Thirty Lives

- Second deadliest natural disaster event to impact New Jersey in a century ([See flooding safety tips](#))

### Record Rainfalls

- Newark experienced an all-time record for highest one-hour rainfall total (3.65 inches)
- Documented 10+ inches of rainfall in parts of Hunterdon, Essex, Middlesex and Union Counties

### Severe Flash Flooding Due to Intense Precipitation

- Storm sewers were overwhelmed
- Streams and rivers couldn't convey so much water in such a short time
- More than 12 rivers exceeded their 100-year flood levels

### Ida Compared with Existing Flood Hazard Rules

The current FHACA Rules set the design flood elevation (DFE) as the higher of:

- Flood elevation mapped by NJDEP
- FEMA 100-year elevation plus 1 ft

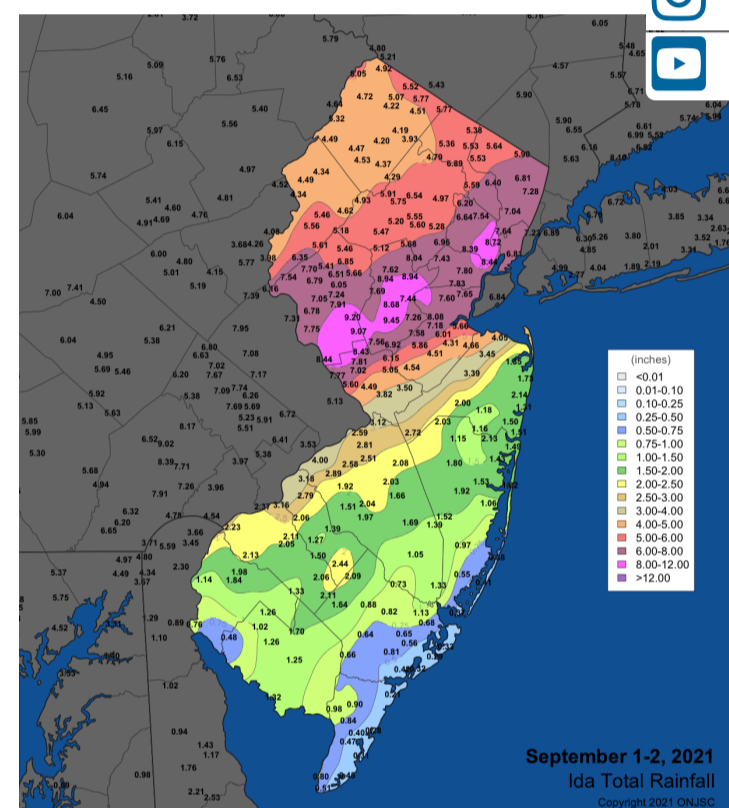
Ida case studies show average elevations of **3.1 feet above** FEMA's 100-year flood elevation

### New Design Flood Elevation (DFE)

- To help protect communities from future flood damage, the DFE along streams and rivers will be raised by 2 ft above current standard.
- New DFE is the higher of:
  - Flood elevation mapped by NJDEP (where available) plus 2 ft
  - FEMA 100-year elevation plus 3 ft
- When calculating flow rates to determine DFE:
  - Compute flow rates based on future anticipated 100-year precipitation
  - Model design flood based on 125% of the computed flow rates

### New Stormwater Management Standards

- Account for existing increased rainfall and prepare for likely further increases results in nominal additional effort or cost during development
- Achieve greater runoff and flood control with, for example, a 2% increase in the amount of property required for stormwater controls
- Deploy regulation consistent with Governor EO 100 approach of utilizing flexible standards commensurate with risk recognizing that no one-size fits all
- See potential increases in the size of stormwater BMPs to accommodate the adjusted rainfall amounts for a warehouse development in examples below



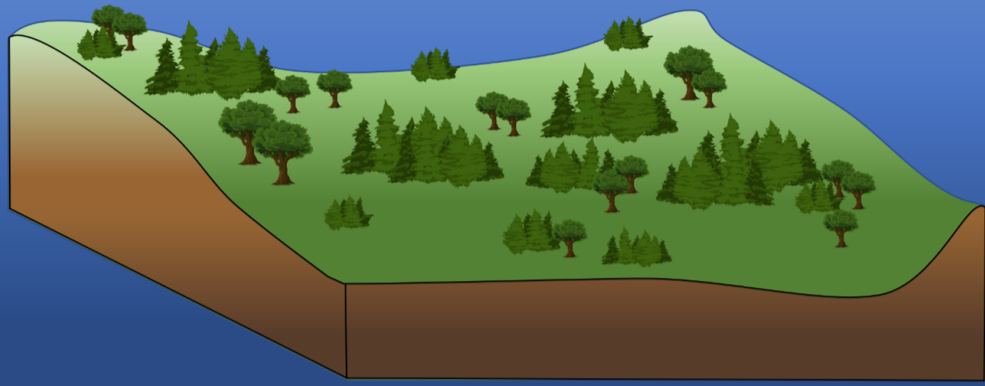
Total Precipitation Received during Tropical Storm Ida



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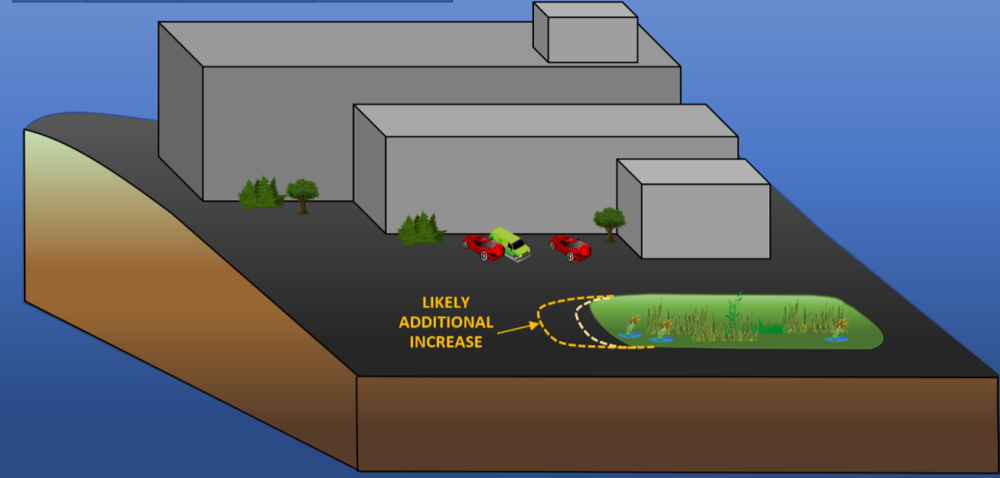
### EXAMPLE:

2.5 Acre Site  
Existing Conditions: Forested and Undeveloped  
Sussex County



Example site: Prior to Development

|        | Existing (1999 data) | New Current (2019 data) | New Future (2100 projection) |
|--------|----------------------|-------------------------|------------------------------|
| Soil A | 11.0%                | 11.0% +0.0%             | 11.7% +0.7%                  |
| Soil B | 8.8%                 | 9.0% +0.2%              | 11.3% +2.5%                  |
| Soil C | 8.6%                 | 9.0% +0.4%              | 11.1% +2.4%                  |
| Soil D | 11.2%                | 11.4% +0.2%             | 13.6% +2.4%                  |



Example Site: Post Development, with Table based on Soil Type, Indicating the Likely Increase in Site Area Dedicated to Stormwater Management BMPs (Best Management Practices) Resulting from Adjusting Rainfall to Current Precipitation Totals and Future Precipitation Projections



## Hurricane Ida Recovery Registration Survey

Residents impacted by Hurricane Ida in September 2021 are invited to complete a survey about what they need to recover from Ida and better protect their homes and communities from future storms.

There is no deadline to complete the survey, but completing the survey is required for residents who want to apply for future Ida-related recovery and mitigation programs.

[Take the Survey!](#)

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- Engagement Sessions
- New Jersey's Flood Indicator Tool

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