Nuisance Flooding and Pavement Impacts

Jennifer Jacobs
University of New Hampshire

2018 NH COASTAL CLIMATE SUMMIT
NOAA Flooding Severity Categories: Minor, Moderate, and Major Flooding

**Minor Flooding** is defined as: Minimal or no property damage, but possibly some public threat

Sea level rise is also contributing to an increasing frequency of tidal floods (i.e., “sunny day”, “recurrent”, “shallow coastal”, and “nuisance” flooding), occurring more often during seasonal high tides and/or minor wind events.

Landing Road, Hampton March 2018

Photo Credit: Diane Shaw
• Hampton Beach, January 2018
“Nuisance Flooding” is Increasing Across the United States

In Charleston NC each event costs $12.5 M
Recent and Future Outlooks for Nuisance Flooding Impacts on Roadways on the US East Coast

Jennifer M. Jacobs, Lia R. Cattaneo, William Sweet, and Theodore Mansfield, TRR 2018

NOAA Tide Gauges

FHWA Average Annual Daily Traffic (AADT)

NOAA water level (tide gauge) locations showing NOAA-defined nuisance flood levels above the 1983–2001 MHHW datum (colored dots) and coastal areas below the nuisance elevations and potentially at risk (red contours) (adapted from Sweet and Park 2014).
Nuisance Flooding Findings

• 7,508 miles of roadways including over 400 miles of interstate roadways are threatened.

• From 1996-2005 to 2006-2015, there was a 90% average increase in nuisance floods.

• Total induced vehicle-hours of delay due to nuisance flooding currently exceed 100 million hours annually.

• Nearly 160 million vehicle-hours of delay across the East Coast by 2020 (85% increase from 2010); 1.2 billion vehicle-hours by 2060 (126% increase from 2010); and 3.4 billion vehicle-hours by 2100 (392% increase from 2010) are projected under an Intermediate Low sea level rise scenario.

Source: Jacobs et al., 2018
Nuisance Flooding in New Hampshire

34 miles of road and 138 segments impacted including:

- 1 mile of functional class 1 & 2
- 12 miles functional class 3, 4, & 5
- 21 miles of functional class 6 & 7

Kennedy Marina, Portsmouth March 2018

Photo Credit: Melissa Paly
## Nuisance Flooding in New Hampshire

Boston has the nearest NOAA Tide Gauge Station (8443970)

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Nuisance Flooding Best Practices?

Photo credits: Rebecca Irelan, N.H. Sea Grant, Diane Shaw, Melissa Paly, Elizabeth Dinan, Lisa Graichen, Joanna Raptis, and Kim Reed
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Photo credit: NH DOT
Dr. Jennifer Jacobs

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