Building Resilience with More Holistic Transportation Decision-Making

The Infrastructure and Climate Network: Connecting Stakeholders with Infrastructure and Climate Researchers

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The Infrastructure and Climate Network (ICNet)

A collaborative network of over 100 climate science, social science, and transportation practitioners and academics in the Northeast.

ICNet is dedicated to accelerating the resilience of the transportation system to climate change.

With generous support from the National Science Foundation & the New England Transportation Consortium.
The word “conservative” in climate science means using the lower levels of change or effects but in civil engineering means designing to accommodate the high end of possible impacts and stresses.
What keeps New England State Departments of Transportation up at night?

Hurricane Irene
August 2011
When should a road be closed due to flooding? When should it be reopened?
Sometimes engineers just need a number...
In the Northeast, winter warming has been larger than any other season. In the future, the days below freezing may decline by 19-45 days. This will shorten the winter season and snowpack. Snow-covered days are predicted to decrease by 23-52 days.
Changing Winters, Changing Snowfall, Freeze-Thaw Cycles and Low Volume Roads

Photo Credit: Kivi Trucking
Winter Road Policies Differ By State & Impact Ability to Adapt

1. Home Rule 😊

2. Legislated Dates 👎

3. Industry or Political Driven 👎

$\text{§2953. CLOSING OF ROADS IN WINTER}$

1. Announcement of winter closing of roads. The municipal officers may on their own
or upon petition by 7 legal voters of the municipality, at any time between May 1st and October
year, set forth that any road or roads, or portion thereof, in the municipality are so located with
population, use and travel thereon, that it is unnecessary to keep the road or roads maintained at
travel during the months of November, December, January, February, March and April or any 4
months.

{ 1981, c. 215, (N.H. ) .}

2. Notice and hearing. Prior to an announcement under subsection 1, the municipal officers
place a written notice of the hearing in some conspicuous, public place in the municipality at least
before the hearing.

{ 1981, c. 215, (N.H. ) .}

3. Order of closing. After a hearing under subsection 2, the municipal officers shall file with
municipal clerk any order specifying the location of the road, the months or portions thereof for
be closed and for how many years, not to exceed 10, the closing shall be operative. The legislative
municipality shall by vote either approve each order or provide that orders so made by the mayoral
shall be a final determination.

{ 1981, c. 215, (N.H. ) .}
Northeast region’s sea level has risen nearly 12 inches since reliable record keeping began in 1880. Sea level is projected to increase another 1.6 to 6.6 feet by 2100.
Rising seas are poisoning farmland

Photo Credit: Eamon Queeney, The Washington Post
Most studies have focused on SLR tidal surface-water flooding from SLR, but coastal groundwater will also rise with SLR. Pavement life is highly sensitive to GW in underlying layers.
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Ralph Stone Jacobs, Renowned NH Artist (no relation)