NHDOT and Climate Change: Actions, Opportunities & Challenges

Kevin Nyhan
Administrator
Bureau of Environment
NHDOT
**Actions**
(The things we’re doing)

- Manual updates (Highway, Drainage, Bridge)
- Consider that we are experiencing non-traditional climate events
- Hydrologic modeling
  - FROM TP-40 Rainfall Frequency Atlas
  - TO Northeast Regional Climate Center Atlas
- NHDES adopted the NRCC precipitation data and NHDOT conformed
Actions
(The things we’re doing)

- Collaborating with State Agencies
- NHDES Stream Crossing Rules (Env-Wt Part 900)
  - Fluvial geomorphology
  - Tiered: larger watersheds are more highly regulated
  - Evaluate 20% greater than bankfull width
  - Where will water go in overtopping scenarios?
  - Relies on knowledge of past maintenance at a site (history of flooding)
Actions
(The things we’re doing)

- Collaborating with State Agencies
- DOT Assessment of Vulnerability and Recommendation of Adaptive Strategies
- DES Funding
- Normandeau
- ICNet
- Coastal Risks and Hazards Commission
Actions
(The things we’re doing)

- Evaluating Vulnerability/Asset Management
- Statewide Asset Data Exchange System (SADES)
  - Pilot project moving to production
  - Cloud-based crowd sourcing of data
  - Base and agency-specific data
- Statewide efforts by
  - State agencies (DOT, DES, F&G)
  - Municipalities and RPCs
  - Trout Unlimited
Actions
(The things we’re doing)

- Evaluating Vulnerability/Asset Management
- New Asset Management Office
  - Pavement & Bridges
  - Other areas
    - Culverts
    - Signage
    - Sidewalks
    - Etc.
Opportunities
(The things we plan to do/could do)

• CRHC Science Advisory Panel Recommendations
  • For coastal locations where there is little risk tolerance:
    • **Determine** the timeframe
    • **Commit** to manage the “Intermediate high,” but be **prepared** to manage the “Highest”
    • Be **aware** that projected sea level rise ranges may change

<table>
<thead>
<tr>
<th>Scenario</th>
<th>SLR by 2100 (m)*</th>
<th>SLR by 2100 (ft)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest</td>
<td>2.0</td>
<td>6.6</td>
</tr>
<tr>
<td>Intermediate-High</td>
<td>1.2</td>
<td>3.9</td>
</tr>
<tr>
<td>Intermediate-Low</td>
<td>0.5</td>
<td>1.6</td>
</tr>
<tr>
<td>Lowest</td>
<td>0.2</td>
<td>0.7</td>
</tr>
</tbody>
</table>
Opportunities
(The things we plan to do/could do)

• CRHC Science Advisory Panel Recommendations
  • Precipitation (annual & extreme events) is expected to increase, but magnitude is uncertain
  • Plan for a 15% increase in precipitation after 2050
  • Update guidance as new science emerges
Opportunities
(The things we plan to do/could do)

• Stream Passage Improvement Program (SPIP)
• Pilot program with NHDES
• Funding starts as mitigation for I-93 impacts
• Identify deficient culverts
  • Environmental
  • Structural
• Uses SADES as the platform for data needs
• Replace deficient culverts as mitigation for other project impacts (provides core data)
• First grants anticipated for Spring 2016
Challenges (Why it’s tough)

- Education (designers, maintainers, the public)
- Climate change scenarios = variability = RISK
  - What is the “right” answer is hard to determine
- Getting the science into design guidance
  - We can do anything with numbers!
- Financial constraints – NH’s current fiscal environment
  - Resiliency = higher short term costs
  - Resiliency = bigger short term impacts
  - We deal with short term budgets
- There are lots of data available…what’s “right?”
Challenges
(Why it’s tough)

• Competing priorities for limited resources
  • Where are the greatest risks?
  • What are the most deserving assets?
  • What is the risk of inaction?
• Resilient designs v “something else”
• Legal protections for Department decisions
  • Legislative actions?
  • Abandoning infrastructure
  • Resiliency may change the character of the landscape and adjacent properties
• ROW settlements
• We do not control what our neighbors do