TOWN OF NORTH HAVEN

Sustainable Freshwater Resources

OVERVIEW

Steps to Date:

- **2022 - Freshwater resources identified as core priority in Community Vision process under Climate Change Impacts & Sustainability**
- **2023 - Hydrogeologic Report**
  - **Funded by 2022 Capacity Development Grant**
- **2023-2024 - Saltwater Intrusion Risk Assessment: Fresh Pond**
  - **Funded by Coastal Community Grant**
- **2025: Applied for Community Action Grant for sustainable mitigation design & community engagement services**

KEY FINDINGS: 2023 HYDROGEOLOGIC REPORT

This report included a survey of island wells, a risk assessment of Fresh Pond to understand the risk of saltwater intrusion due to sea level rise and storm surge, and a resistivity transect to identify potential locations for municipal water supply wells if the Town ever needed a new drinking water source.

Considering storm surge and sea level rise models, Ransom found that there is almost *a 100% chance of a flood with an elevation exceeding 8 feet (overtopping the culvert) in the next 20 years. There is approximately a 50% chance of a flood exceeding 10 feet (overtopping Middle Road) in the next 20 years.*

At a minimum, Ransom recommends modifying the Fresh Pond outlet culvert at Middle Road by installing a floodgate and/or increasing the culvert's invert elevation as an effort to reduce the risk of saltwater flooding into Fresh Pond. NH should also plan for long-term solutions to more common flooding into Fresh Pond with anticipated sea level rise and storm surge.

PROJECT FOCUS

Figure 1: Aerial image looking west over the low-lying portions of Middle Road, separating Fresh Pond (left) and Salt Pond (right). Source: MaineIslandLiving.com[1]

RANSOM CONSULTANTS, HYDROGEOLOGIC WATER SUPPLY EVALUATION REPORT NORTH HAVEN, MAINE

PROJECT FOCUS

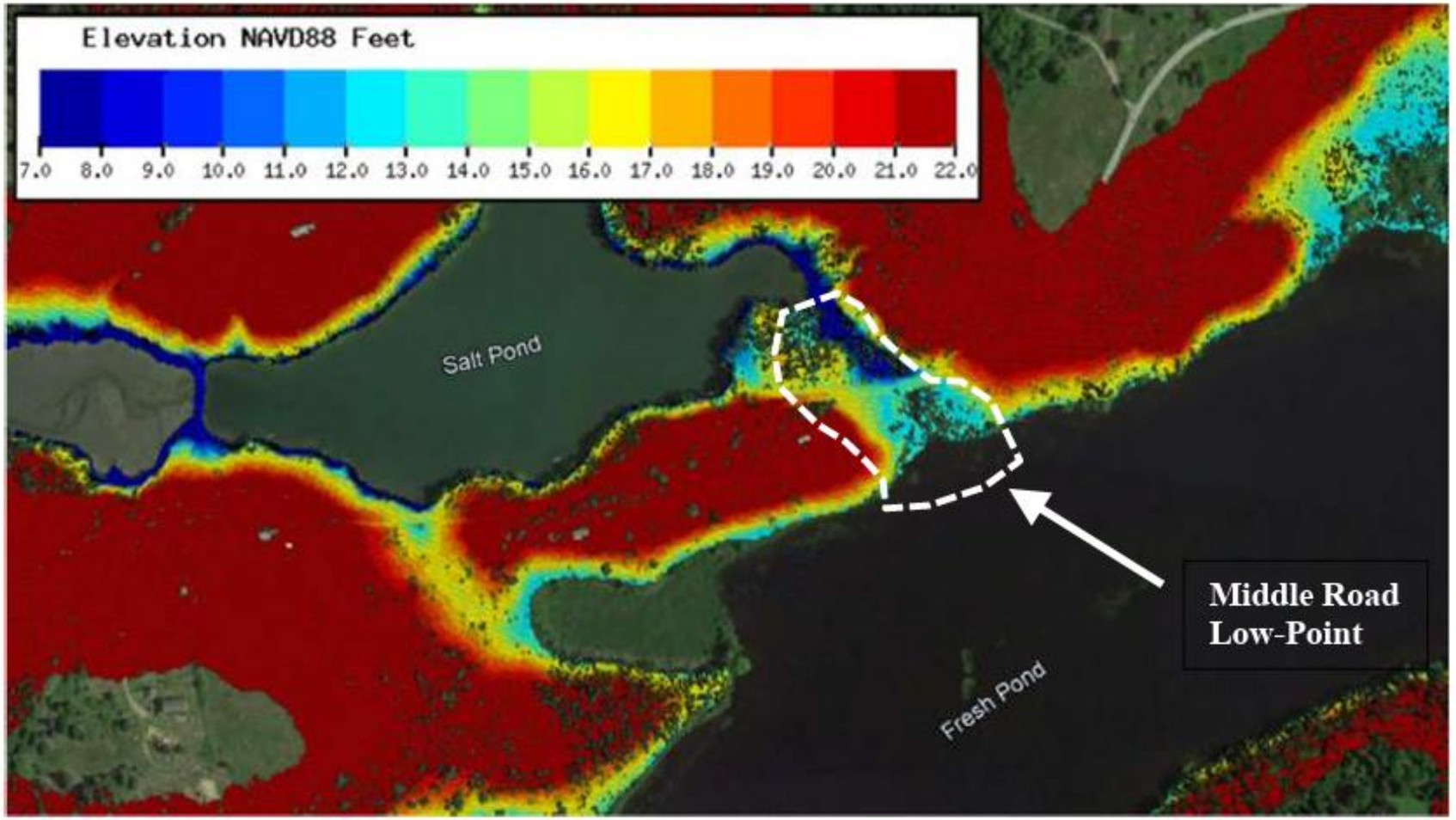

Figure 2: LiDAR elevation data between Fresh and Salt Ponds. The low-point of Middle Road is shown, with an elevation of approximately 13.5 feet.

RANSOM CONSULTANTS, HYDROGEOLOGIC WATER SUPPLY EVALUATION REPORT NORTH HAVEN, MAINE

SALTWATER INTRUSION RISK ASSESSMENT

- Following the pilot study, the Town of North Haven secured funding through the Maine Coastal Community Grants (CCG) program for an in-depth study to better quantify the saltwater intrusion risk in Fresh Pond.
  - **Saltwater entry points:** Culvert (height - 8.5 ft. NAVD88); Low-lying point of Middle Road (13.5 ft. NAVD88)
  - **Saltwater intrusion is likely to occur when water elevations reach approximately 9 feet NAVD88. Floods exceeding 10 ft. NAVD88 are likely to contribute to significant saltwater intrusion, exceeding WHO and EPA recommended drinking water levels.**
- This study uses an in-depth modeling approach to evaluate the present-day risk of saltwater intrusion in Fresh Pond and compares potential solutions to mitigate the risk of saltwater intrusion in the future.
- **Based on the probabilistic SLR analysis conducted by Ransom, there is likely to be approximately 1.6± feet of sea level rise in the next 50 years, and 3+ feet in the next 100 years.** This is in line with the Maine Climate Council's *Commit to Manage* scenario outlined in the 2020 Climate Action Plan.
- **In Pulpit Harbor, a flood with an elevation exceeding 10 feet is very likely to happen over the next 50 years. There is approximately a 50% chance of a flood exceeding 10 feet in the next 20 years.**

SALTWATER INTRUSION ASSESSMENT: RECOMMENDED NEXT STEPS

Watch the full resentation and read the report on the Town website

Several alternatives were considered and evaluated for potential effectiveness of flood mitigation. According to Ransom, Alternative C2 is the most effective approach based on the analysis in this study. This includes:

- Installing backflow prevention on the Middle Road culvert
- Raising the road elevation to 15 feet. NAVD88

Ransom recommends the Town of North Haven:

- Conduct an in-depth analysis of the alternatives with consideration of costs, feasibility, and permitting requirements for all alternatives.
- Evaluate potential costs prior to developing a design plan set to implement the most effective alternative.
- Determine state or federal funding available to assist in the final design or construction costs for implementation of the selected design.

COMMUNITY ACTION GRANT (PENDING)

- Application completed in December 2024, after receiving the risk assessment final report & hosting a presentation with the Select Board & Ransom Consultants that month.
- Pending, should hear back by the end of March or beginning of April.
- Applied for $75,000, no-match grant through the Community Resilience Partnership to complete:
  - A competitive review process to hire an engineering firm
  - Scoping and design services
    - Including at least one site visit to gather relevant data & meet with relevant stakeholders.
    - Cost-benefit, environmental analysis of options
    - Shovel-ready design proposal
  - Community education & engagement
    - Including stakeholder engagement, public presentation of findings and design proposal for feedback, and partnering with another organization to host a broader conversation on sustainable water resources on North Haven.
  - Final design approval and pursuing implementation funding

THANK

For more information:
https://northhavenmaine.org/town_government/fresh_water.php#outer-1115