

GEI Consultants

Scarborough Flood Vulnerability Assessment
Project Meeting #5/6

June 12th , 2025

Meeting Agenda

AGENDA

- **Welcome**
- **Task 2 Updates:**
  - Final Memos: Data Review, Flood Vulnerability Results, Road Prioritization Results
- **Task 3 Updates**
- **Task 4 Updates**
  - Draft Ordinance Review Memo
- **Task 5 Updates:**
  - Draft Payne Road Pilot Project Report
  - Update on adaptation strategies memo
  - Update on Pine Point and Higgins Beach Pilot Projects
- **Task 6 Updates**
  - City Council meeting scheduled for August 20
- **Task 7 Updates:**
  - StoryMap Update
- **Discuss overall project schedule, including:**
  - Next Deliverables
  - Next Community Event
  - Next Project Meeting
- **Adjourn**

Task 2: Data Review & Collection

Task 2 is bulk of flood vulnerability work:

- Data review (GIS assets, flood levels, etc.)
- Field work
- Flood vulnerability results
- Asset/road prioritization

Ultimate work product will be an ArcGIS StoryMap.
Interim memos submitted along the way for work documentation and review.

Task 2: Data Review & Collection

Data Review Memo:

- Memo summarizing data sources used in study.
- Submitted as final March 2025

Vulnerability Results Memo:

- Memo summarizing vulnerability assessment methods and results.
- Submitted as final March 2025

Draft Road Prioritization Memo:

- Memo summarizing roadway prioritization.
- Submitted as final June 2025

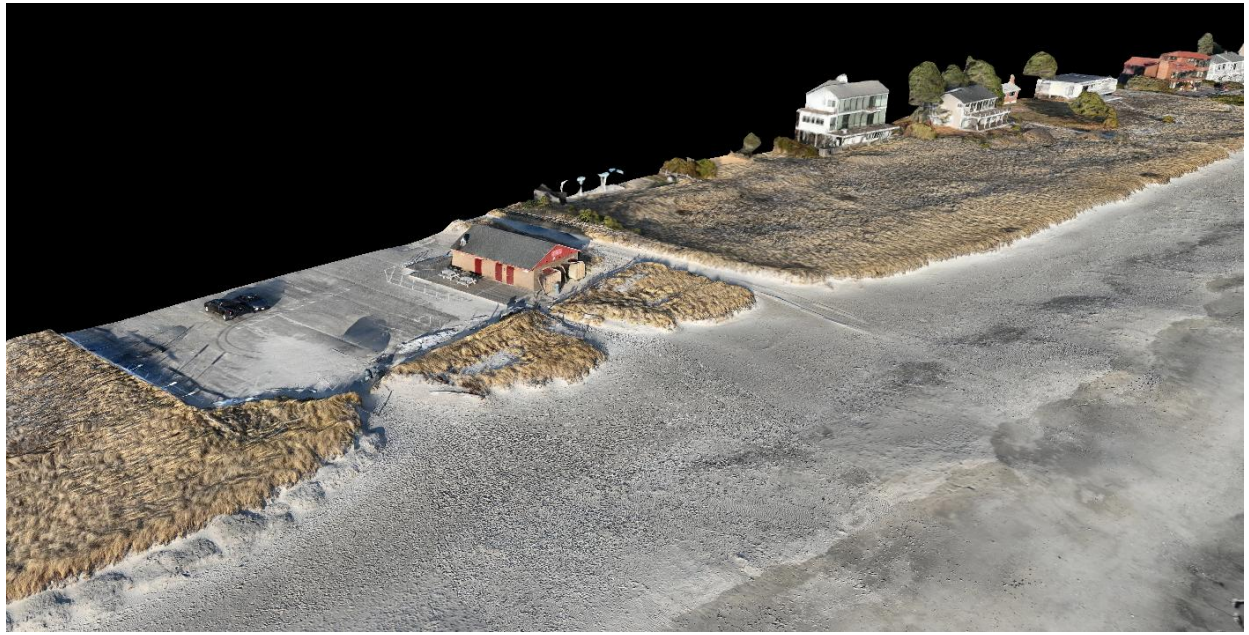
These memos inform the content of the ArcGIS StoryMap.

Task 3: Drone Survey



Drone Flight #1:

- December 13, 2024
- Higgins Beach and Pine Point Beach
- Imagery and Topographic Survey



Drone Flight #2:

- Planning for a September timeframe

Task 4 Updates

Task 4: Ordinance Review:

- Submitted as draft June 2025
- Summarizes specific ordinance sections that could be revised to increase resiliency
- Exact wording/revisions were not provided, but examples of other nearby/relevant ordinances have been provided
- Will incorporate **comments** into a final memo

- **Considering keeping contents out of StoryMap, but linking to memo but seeking Working Group feedback**

Task 5: Adaptation Strategies

Two main products: Adaptation memo + Pilot Projects

1) Adaptation memo:

1) Overview of broad category adaptation strategies: roads, pump stations, boat launches, etc.
2) Recommendations for specific assets in table form
3) Currently in draft form – waiting on internal review and input on damage costs to the Town

Task 5: Adaptation Strategies

Adaptation Memo Specific Assets

- Top 30- 40 roads
  - Pine Point and Higgins may be addressed regionally
- Public Pump Stations
- Pine Point Fire Station
- Wastewater Treatment Plan
- Public Works Facility
- Eastern Trail

May discuss "Do Nothing" as a strategy separately and remove from table.
Does Town have damage/maintenance costs?

Example row from recommendations table:

Asset Name	Option 1	Cost 1	Option 2	Cost 2	Option 3	Cost 3	Option 4	Cost 4
Ocean Ave	Elevate	$$$	Detour through Piper Road and Greenwood Avenue	$	Temporary Flood Barrier	$	Do Nothing	-

Pilot Projects:

1. Payne Road Adaptation Alternatives – Draft report ready for review

2. Higgins Beach / Bayview Avenue Adaptation, Fortification, and/or Dune Restoration Planning – Still in progress

3. Pine Point Homeowner Adaptation Guide – Still in progress

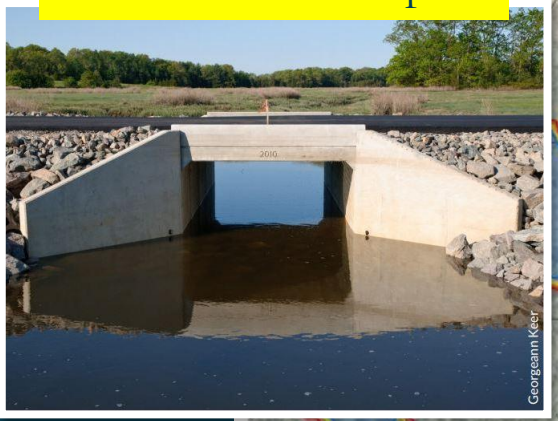
Task 5: Adaptation Strategies

Payne Road Adaptation Alternatives

Draft report ready for review

- Refined flood risk using water level measurements collected by Maine DOT
- Regulatory overview
- High-level adaptation alternatives:
  - Road elevation to 10 or 12 ft + replace culverts with large box culvert
  - Do nothing

Box Culvert Example



Higgins Beach / Bayview Avenue Seawall or Dune Restoration Planning

Task 5: Adaptation Strategies

- Goal to reduce erosion and protect Bayview Avenue from damage.
- Will bring concept drawings of dune restoration and revetment/wall placement to conversations with DEP
- Deliverable will be basic sketches of design options, including notes, and documentation/ recommendations from Maine DEP
- Still in progress



Task 5: Adaptation Strategies

Pine Point Homeowner Adaptation Guide

Fact sheets will guide property owners to:

1. **Understand flood risk** at the property using FEMA maps and StoryMap

2. Identify if property is in a **front dune, back dune, or erosion hazard area**

3. Contact Scarborough **Code Enforcement Office**
   - Discuss property zoning, floodplain regulations, and permit requirements

4. **Adaptation options** available given FEMA/Sand Dune zone combination
   - Elevate structure
   - Floodproofing
   - Dune restoration
   - Sandbag use
   - Flood Insurance

5. **Hire contractor** with structure raising experience

Is there anything we're missing?

Task 6: Community Engagement

Next Community Events:

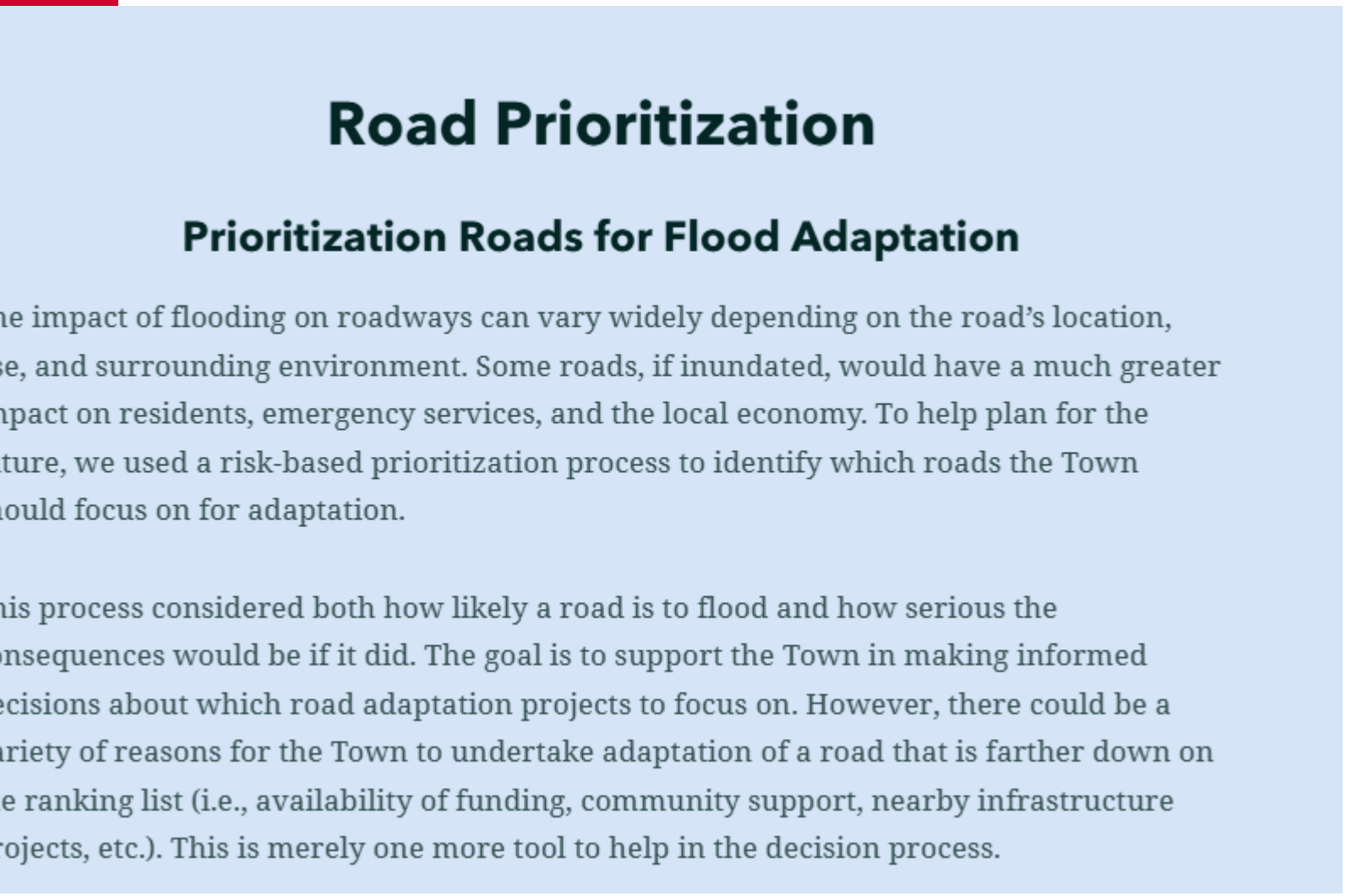
End of Project Public Presentation – August 20, 2025

Task 7: StoryMap

Updated for Road Prioritization

Saved in Draft Form – not yet available to be seen by public.

We will make public once working group has reviewed.



Road Prioritization

Prioritization Roads for Flood Adaptation

The impact of flooding on roadways can vary widely depending on the road's location, use, and surrounding environment. Some roads, if inundated, would have a much greater impact on residents, emergency services, and the local economy. To help plan for the future, we used a risk-based prioritization process to identify which roads the Town should focus on for adaptation.

This process considered both how likely a road is to flood and how serious the consequences would be if it did. The goal is to support the Town in making informed decisions about which road adaptation projects to focus on. However, there could be a variety of reasons for the Town to undertake adaptation of a road that is farther down on the ranking list (i.e., availability of funding, community support, nearby infrastructure projects, etc.). This is merely one more tool to help in the decision process.

Task 7: StoryMap

Updated for Road Prioritization

Saved in Draft Form – not yet available to be seen by public.

We will make public once working group has reviewed.

How Road Flood Risk Was Assessed

Each road's risk score was calculated using the following formula:

Risk = Likelihood of Flooding x Consequence of Flooding

The **likelihood of flooding** was based on the flood scenarios and mapping.

The **consequence of flooding** was assessed using five key factors:

- **Area Impacted**: How many buildings would be affected if the road floods?
- **Public Safety**: Would flooding disrupt emergency services, evacuation routes, or critical infrastructure?
- **Damage Potential**: How vulnerable is the road to physical damage from flooding (e.g., waves, erosion)?
- **Environmental Impact**: Are there sensitive habitats near the road?
- **Economic Impact**: How many people use the road, and what type of zoning or land use is nearby?

By considering the likelihood, and subsequent consequences, of flooding, we were able to rank roads based on the severity of their flood risk. The result is a clearer picture of which roads could be considered critical for adaptation.

The top 30 roads based on their flood risk score are provided below **in alphabetical order.** For more details on how the rankings were determined and to view the full list of roads and their rankings, please refer to the Adaptation Prioritization Methodology for Public Roadways memo (GEI, 2025).

Task 7: StoryMap

Updated for Road Prioritization

Saved in Draft Form – not yet available to be seen by public.

We will make public once working group has reviewed.

	Top 30 Public Roads	
Avenue 1	Ferry Rd	Route 1
Avenue 5	Jones Creek Dr	Route 9*
Avenue 6	Kent St	Sawyer St
Avenue 7	King St	Shipwreck Rd
Bayview Ave	Milliken Rd	Snow Canning Rd
Black Point Rd	Morning St	Spurwink Rd
Champion St	Ocean Ave	Starbird Rd
Clay Pits Rd	Old Neck Rd	Vesper St
Driftwood Ln	Payne Rd	Winnocks Neck Rd
E Grand Ave	Pine Point Rd*	Winnocks Neck to Plummer Island

Top 30 Public Roads, Ranked Roads Based on Weighted Risk Score, Alphabetical Order.

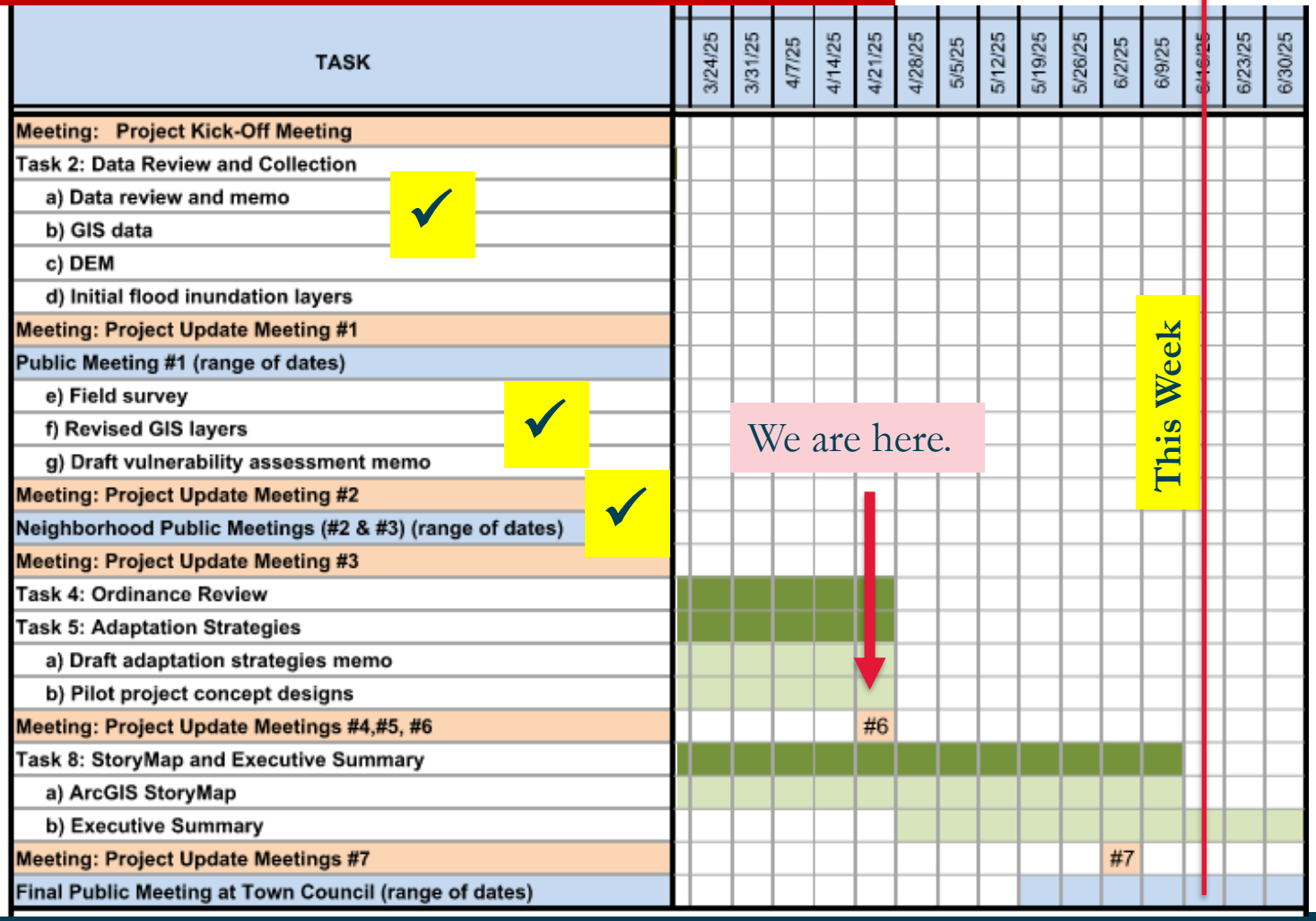
*Route 9 refers to the section of Route 9 near the Scarborough Marsh Audubon Center currently planned for adaptation as part of the Maine DOT Route 1 and Route 9 Adaptation Project. Pine Point Road refers to the section of Route 9 near Jones Creek.

Task 7: StoryMap

Final StoryMap will also include adaptation options, overview of Pilot Projects, and a recording of the final public presentation.

Should it include ordinance review?

Project Schedule



We are still approximately 6 weeks behind schedule on Task 5.

Draft Adaptation memo, Draft Higgins Pilot Project, and Draft Pine Point Pilot Project will be delivered before August 20 Town Council Meeting.

Remaining feedback will incorporated into final drafts, including an Executive Summary summarizing the overall project.

Current Deliverables

Flood Risk Memo and Prioritization Memo: Task 2.7

- Road prioritization memo – submitted as Final

Ordinance Review: Task 4

- Submitted as Draft

Payne Road Pilot Project Report: Task 5

- Submitted as Draft

Next Deliverables / Community Events

Next Deliverables:

- Draft adaptation strategies memo: August 2025
- Draft Higgins Beach Pilot Project: August 2025
- Draft Pine Point Adaptation Fact Sheet: August 2025
- Final Payne Road Pilot Project Report: August 2025
- Final Ordinance Review memo: August 2025
- Executive Summary: August/September 2025

Next Community Events:

End of Project Public Presentation – August 2025

Next Project Meeting

Project Update Meeting #6/7:

- August before City Council meeting?

Purpose:

- Progress on Pilot Projects.
- Progress on overall adaptation strategies.
- Review of ArcGIS StoryMap updates.



Thank you!
Questions?

GEI Consultants

Consulting Engineers and Scientists

Leila Pike, P.E. (GEI)
lpike@geiconsultants.com

Ilan Gasko, E.I. (GEI)
igasko@geiconsultants.com