FACET

BLUE COAST ENGINEERING

KITSAP COUNTY

Sea Level Rise Vulnerability and Risk Assessment

formerly DCG/Watershed

Agenda

- Team Introductions
- Project Overview
- Project Analyses
- Community Engagement Plan
- Timeline
- Next Steps

FACET

BLUE COAST ENGINEERING

Project Team

Principal-in-Charge
DAN NICKEL

Project Manager
JIM ROGERS

Project Manager
ALEXANDRA PLUMB

Outreach/Shoreline Planning
DONNA KEELER

Outreach/Resiliency Specialist
CHUCK McDOWELL

SLR Technical Lead
DAWN SPILSBURY

Coastal Processes Lead
JESSICA COTE, PE
(Blue Coast)

GIS Mapping/Analyst
NATHAN BURROUGHS

Coastal Processes Support
GREG CURTISS, PE
(Blue Coast)

Marine Engineering Lead
STEVEN ROBERT

FACET

BLUE COAST ENGINEERING

Project Purpose

Identify

Identify assets with potential for loss of damage from sea level rise.

Complete

Complete risk analysis and vulnerability assessment, based on mapping predictions to be decided by the TAC in July.

Propose

Propose practical region-specific actions or projects, to address increased sea water interactions where appropriate.

FACET

BLUE COAST ENGINEERING

Approach

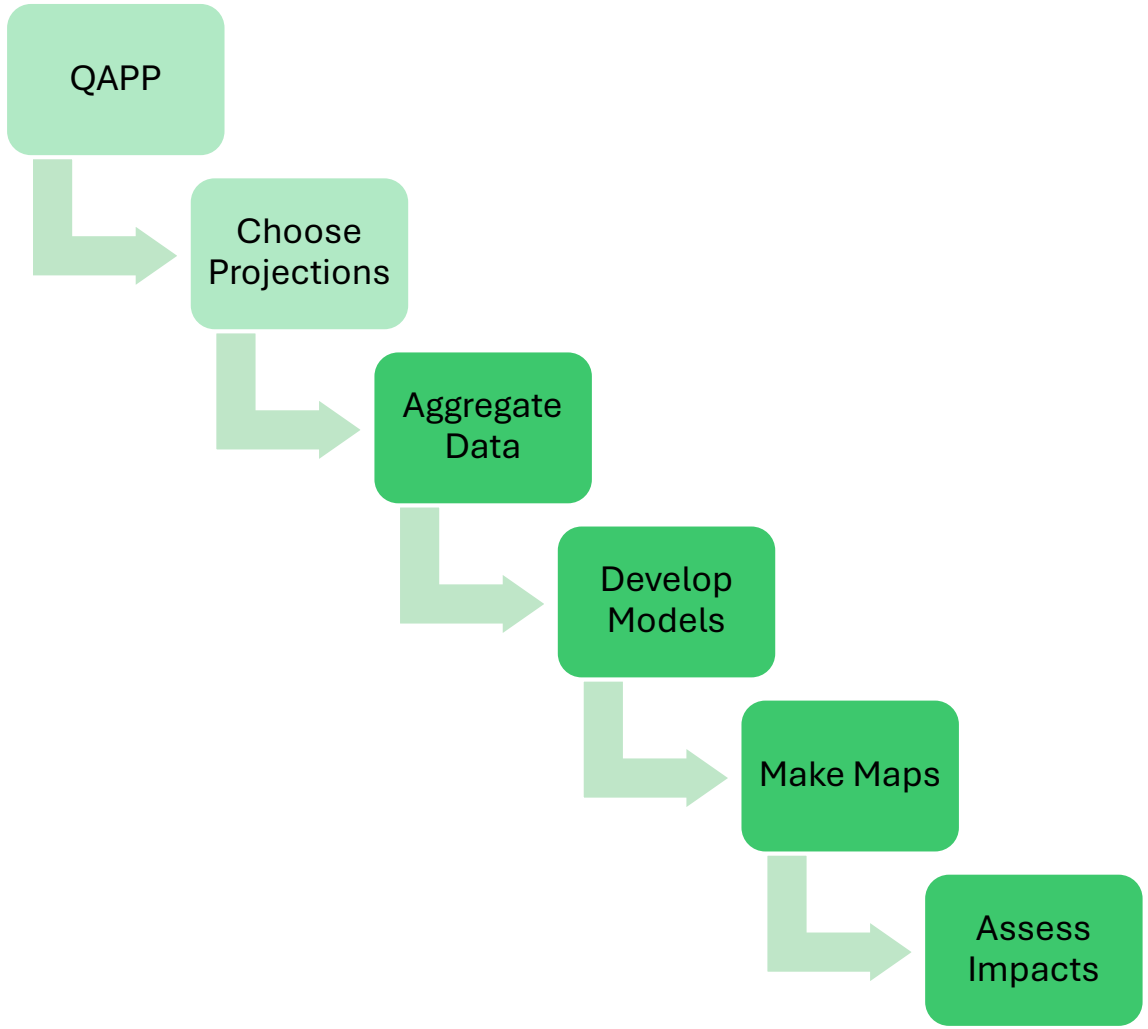
- Mapping Development
- Community Engagement
- Audit of Existing Development Regulations and Policies
- Vulnerability and Risk Assessment Report

Project Analyses

FACET

BLUE COAST ENGINEERING

Map Development Overview



Projections – What are they?

- How are Sea Level Rise (SLR) & flood levels estimated?
  - Probability Confidence
  - International predictions based on emissions
  - Tide gauge trends – MHHW and extreme flood
- Relative Sea Level Rise
  - Absolute SLR + Land Movement
- Confidence Intervals by year

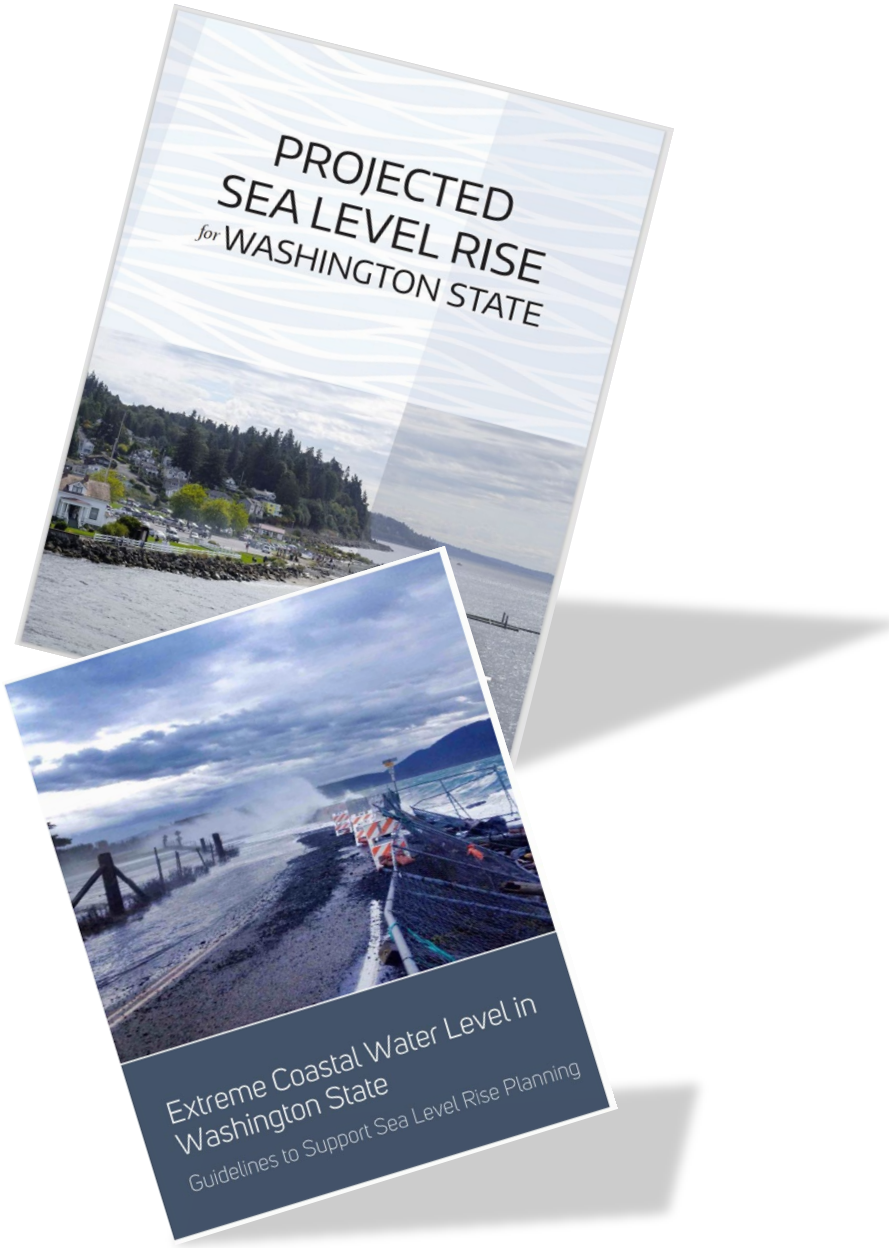
FACET

Projections - Where do the levels come from?

- **2018 Report**
  - "Stillwater", no wave run-up
- **2019 Report**
  - Extreme water levels seen by tide gauges

Resilience Resource Library | Washington Coastal Hazards Resilience Network (wacoastalnetwork.com)

Washington Sea Grant - YouTube



FACET

BLUE COAST ENGINEERING

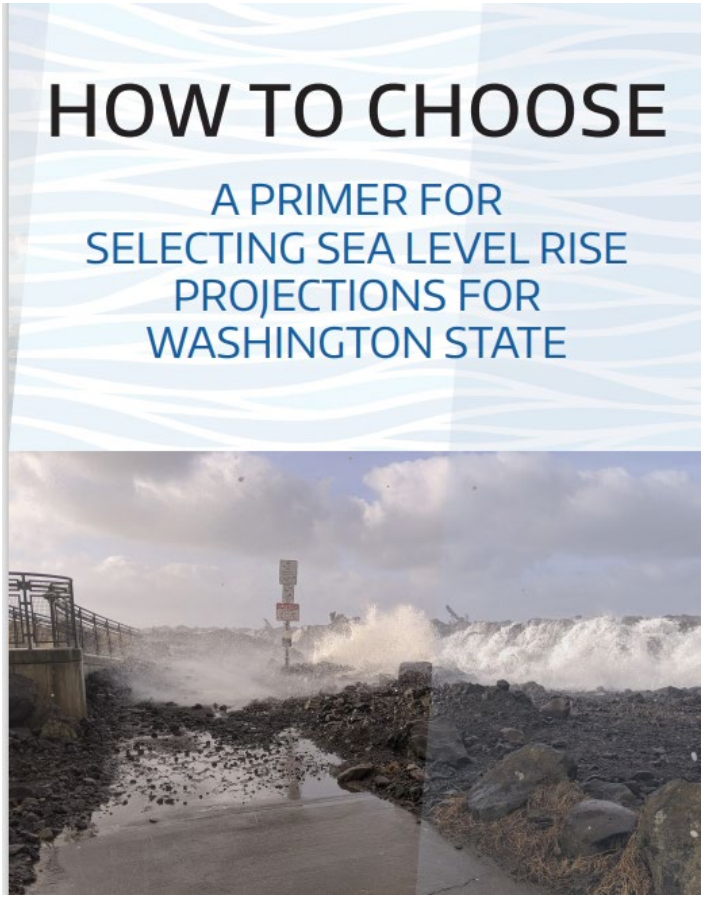
Projections – Selected by Technical Advisory Committee

1. RCP: 4.5 or **8.5**

2. Timeframe: **2050**? 2060? **2100**? 2150*?

3. Certainty/Level of Risk: **1%** (less likely),

50%, 90% (very likely)



FACET

BLUE COAST ENGINEERING

Next Steps - Modeling

SLR:

1. Projections displayed over a DEM,
2. Intersect mapped resources with new tidal surfaces,
3. Quantify and rank impacts

Wind-Wave:

- 1-D wind-wave hindcast on shoreline reaches w/ moderate to high wind-wave energy
- Estimate wind-wave runup using empirical methods

FACET

BLUE COAST ENGINEERING

Assets for Vulnerability Assessment

- Roads, Transportation
- Hospitals, Police Stations, Fire Depts
- Schools, Libraries
- Residences
- Agricultural, Farmland
- On-site septic systems
- Electrical Substations
- Historic and Cultural Resources
- Group A Wells, WWTPs
- Beach Access, Parks
- Wetlands, Estuaries
- Marinas, Bays
- Brownfield Sites, Landfills

FACET

BLUE COAST ENGINEERING

Audit of Existing Development Regulations and Policies

- Review applicable regulations and policies including the following:
  - Shoreline Master Program (SMP)
  - Flood Hazard regulations
  - Critical Areas Ordinance (CAO)
  - Comprehensive Plan

- Summary of recommended updates to applicable regulations and policies

Community Participation Plan

FACET

BLUE COAST ENGINEERING

Timeline

Project Kick-off	June 2024	Public Announcement, Website Materials
TAC Meeting #1	June 2024	Kick off meeting with TAC, Review project and roles
TAC Meeting #2	July 2024	Determine SLR projection to be used in Assessment
Planning Commission / Board of Commissioners Brief	August 2024	Project Overview and Outreach Approach
Community Advisory Council Briefs	September 2024	Project Overview
Public Meeting #1	September 2024	Project Overview
Public Survey	September 2024	Public and Agency Surveys on Concerns and Priorities
TAC Meeting #3	November 2024	Review of Preliminary Maps
Public Meeting #2	December 2024	Review Draft Maps, Survey Results and Preliminary Findings
Draft Documents	January 2024	Draft Maps Published
TAC Meeting #4	February 2025	Review and Discussion of Draft Audit Summary Memorandum and Report
Planning Commission Meeting /Public Meeting #3	March 2025	Review and Discussion of Draft Audit Summary Memorandum and Report
Board of Commissioners/Public Meeting #4	May 2025	Review and Discussion of Final Documents and draft amendments contained within the Audit Summary Memorandum.
Final Report	June 2025	Final Documents Published

Role of the Technical Advisory Committee (TAC)

Establish projections &

provide input on mapping priorities

Identifying specific areas of concern and gaps

Informing future code and plan amendments

Consider and utilize feedback obtained from the Public Meetings in developing the priorities, maps, and strategies

Community Engagement

Community Engagement Plan

Outreach Events

- Open House Events
- Planning Commission
- Board of County Commissioners

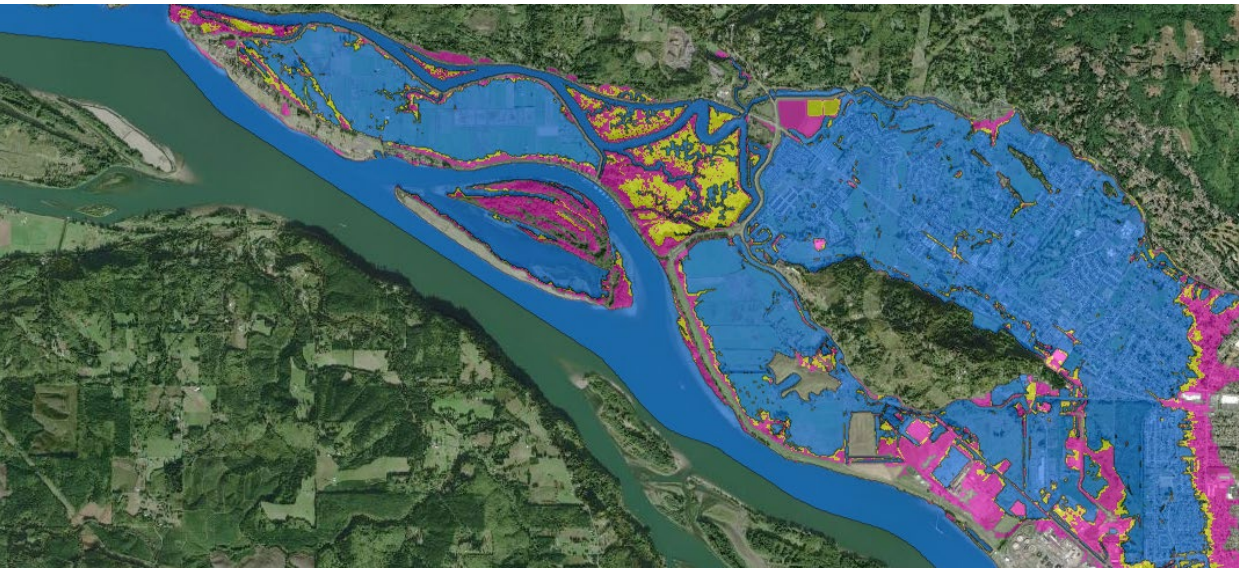
Focused Outreach & Coordination

- Public Information Meetings

ArcGIS Storymap

StoryMap Example

[Pacific County SLR Story Map]

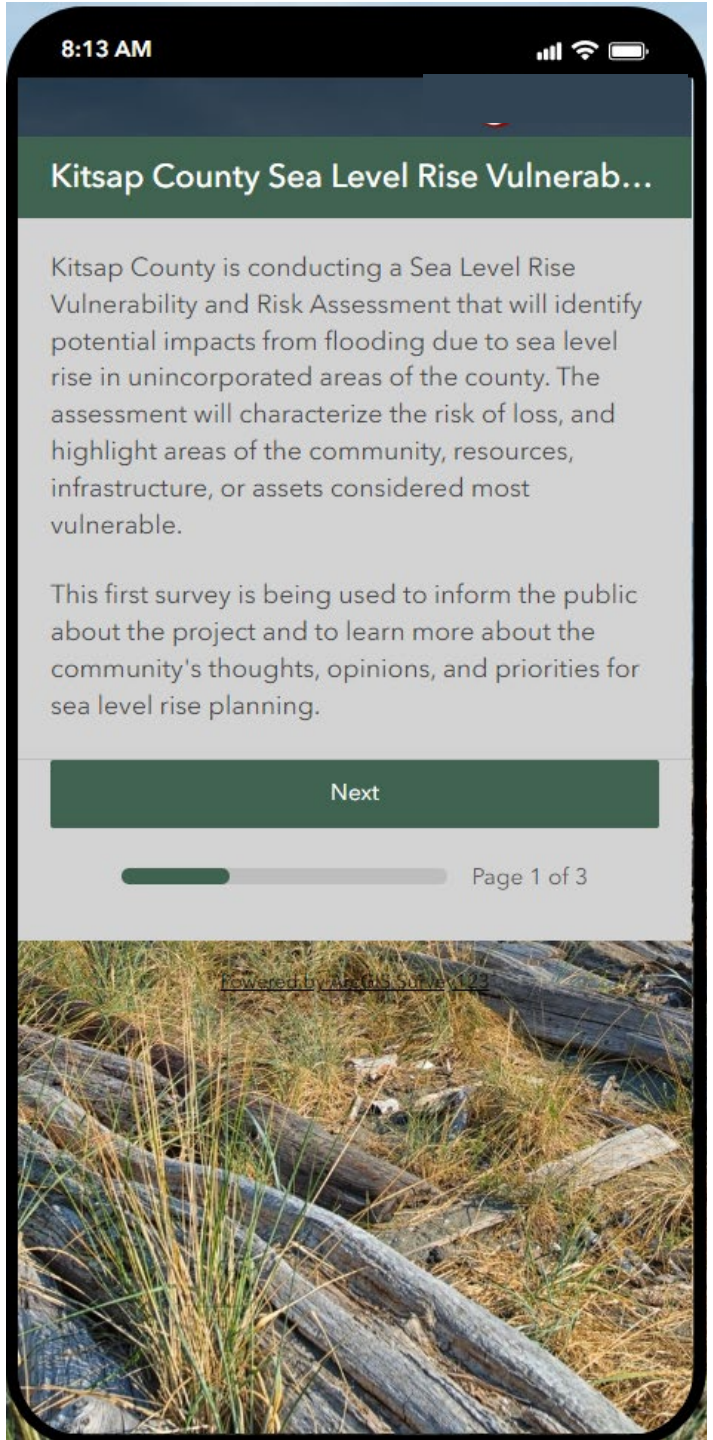


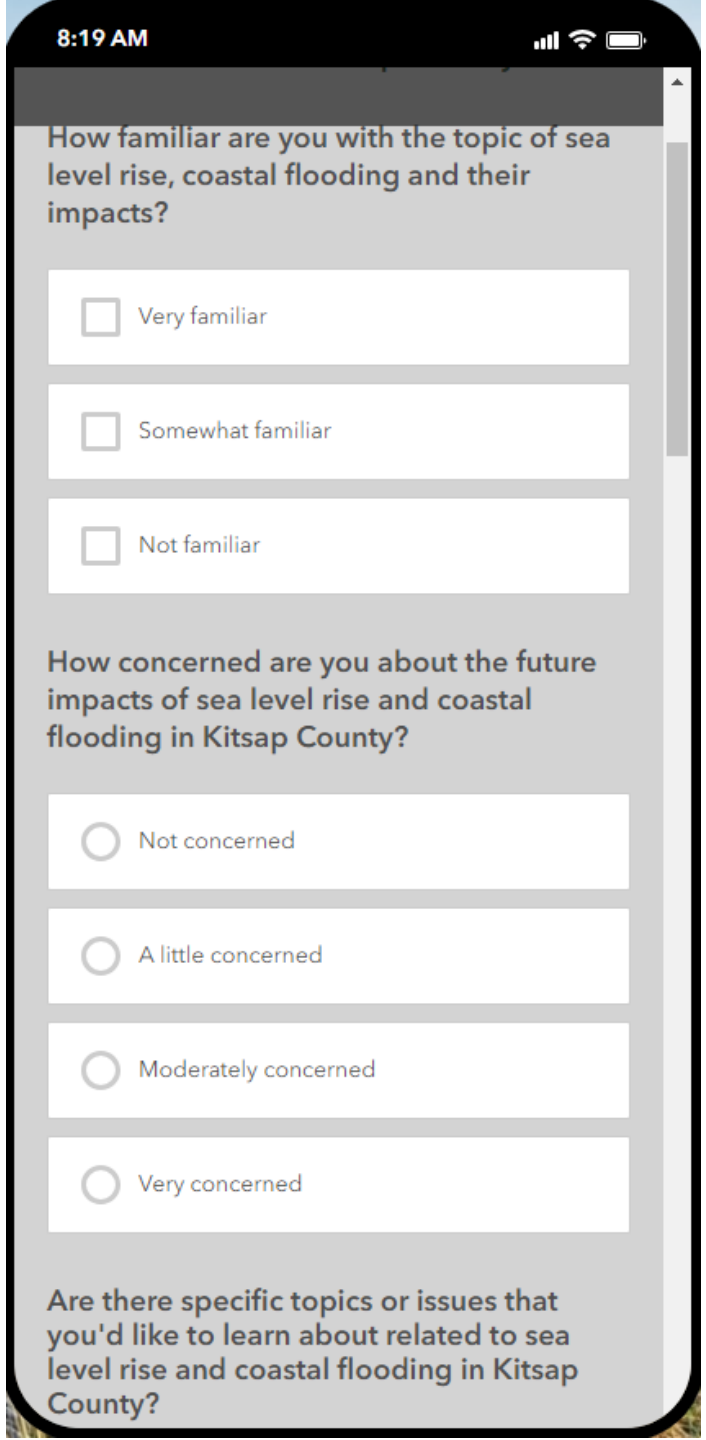
[Port of Port Townsend SLR Web Map]

FACET

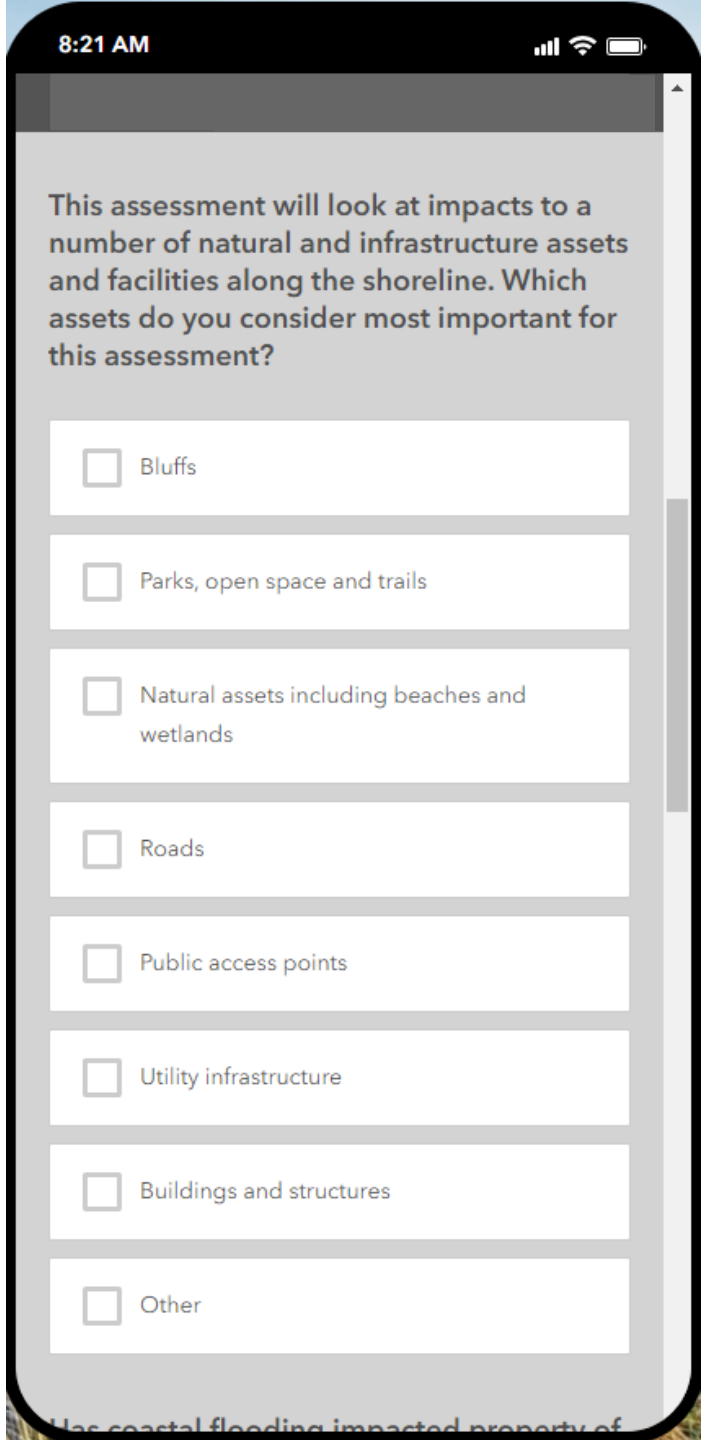
BLUE COAST ENGINEERING

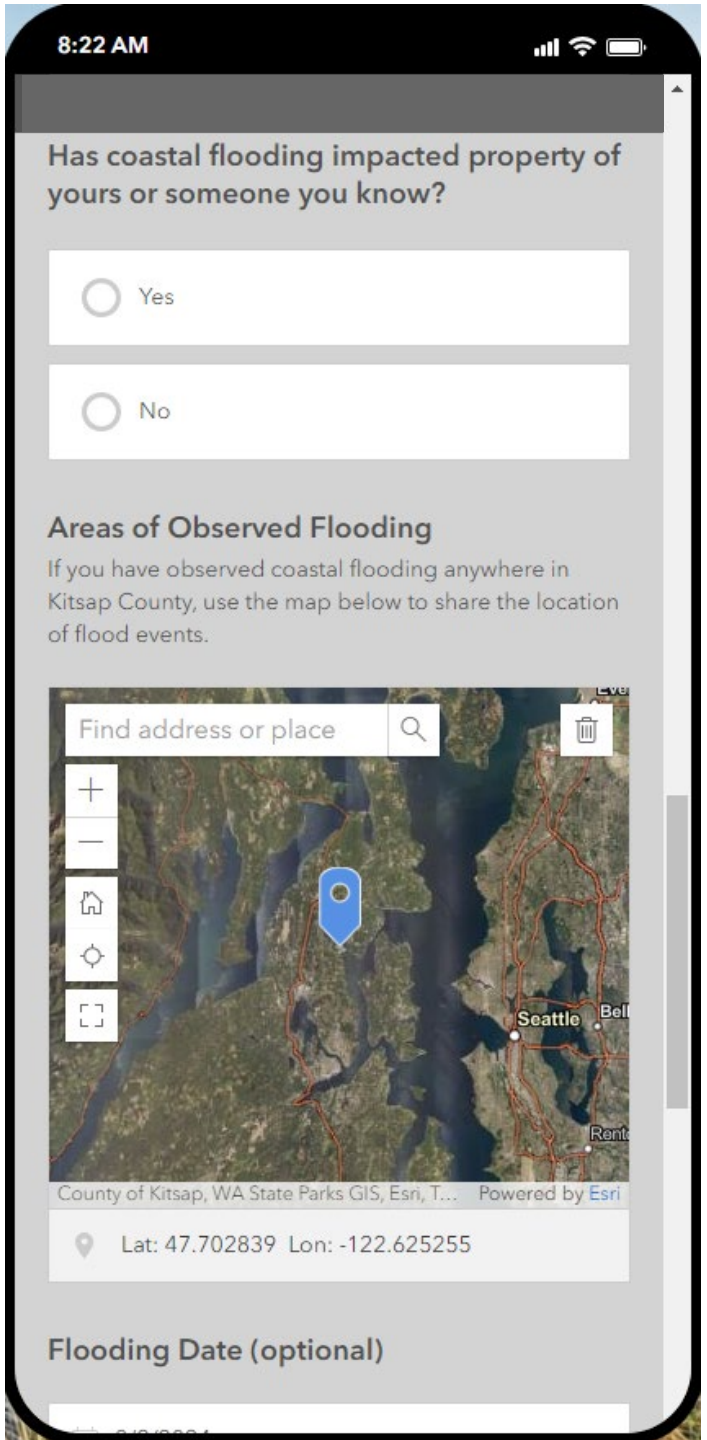
Public Survey #1



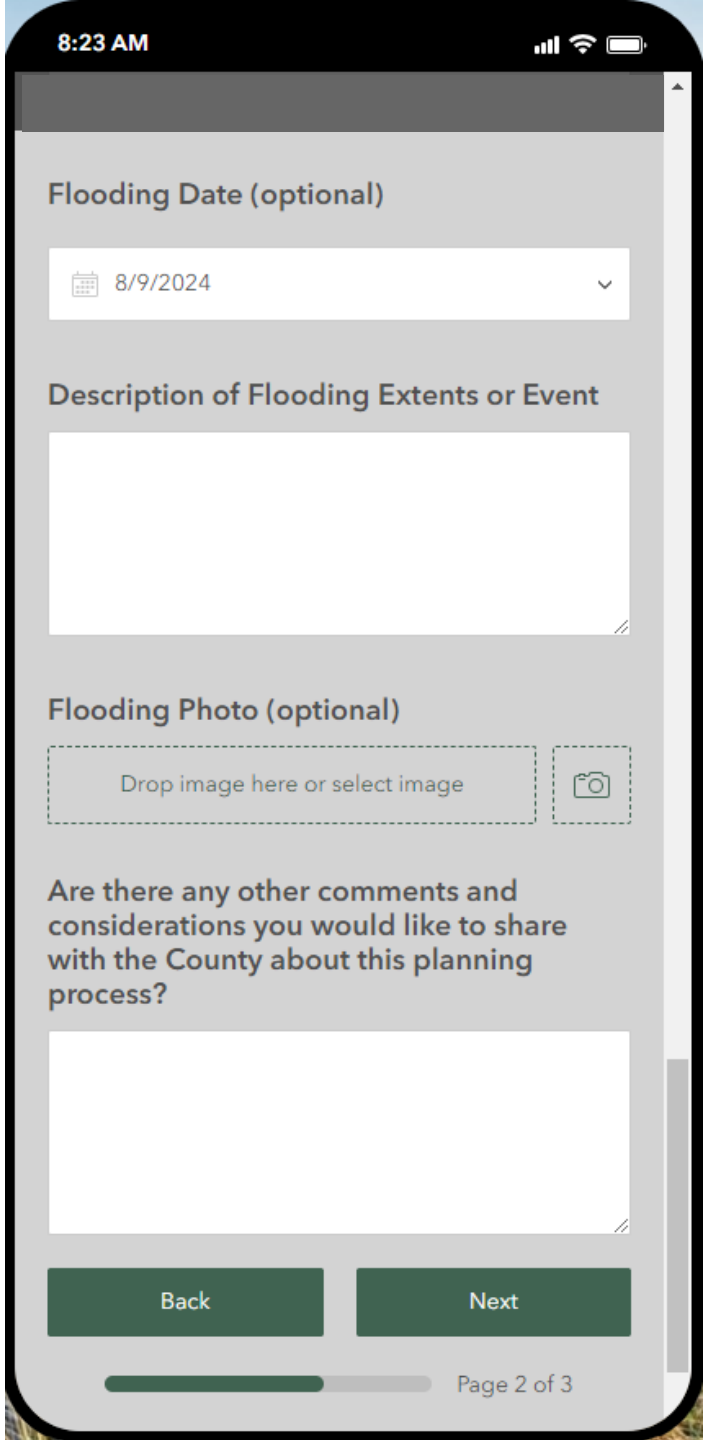


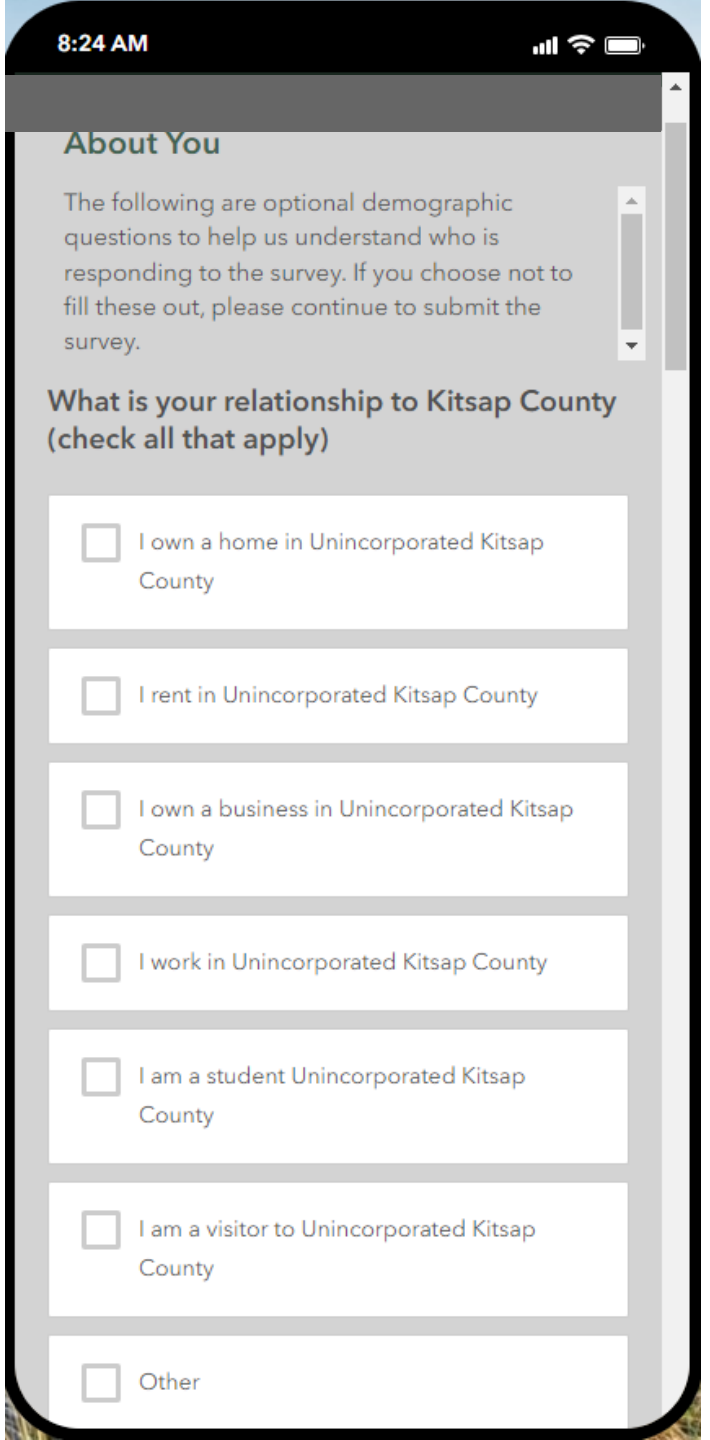
Public Survey #1



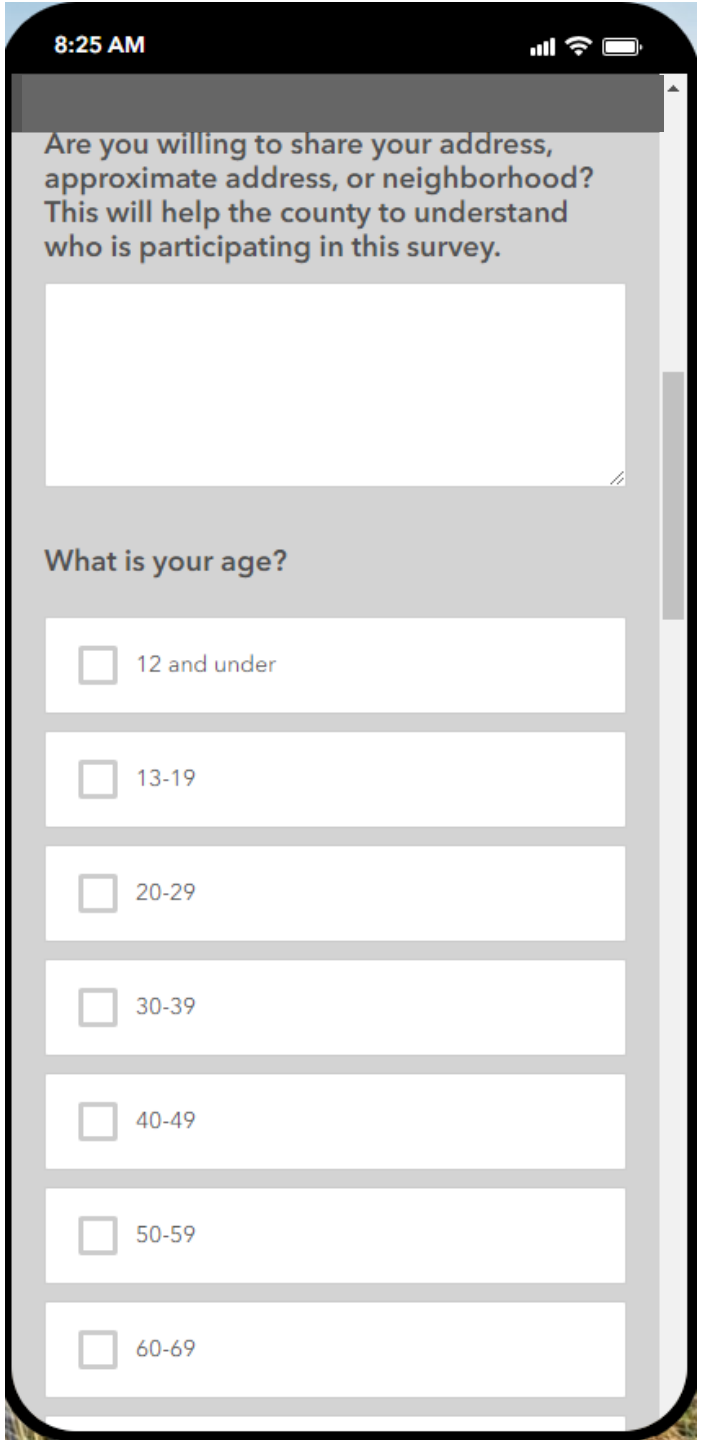


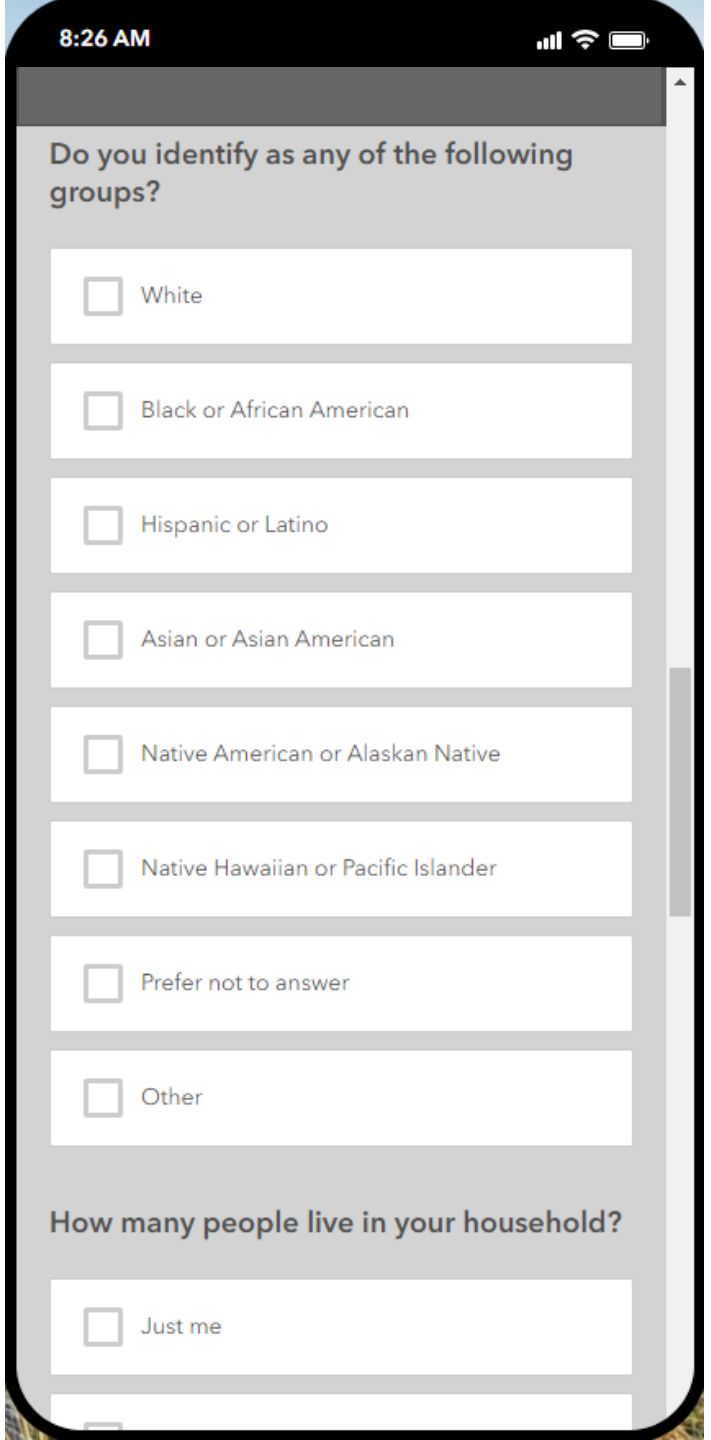
Public Survey #1



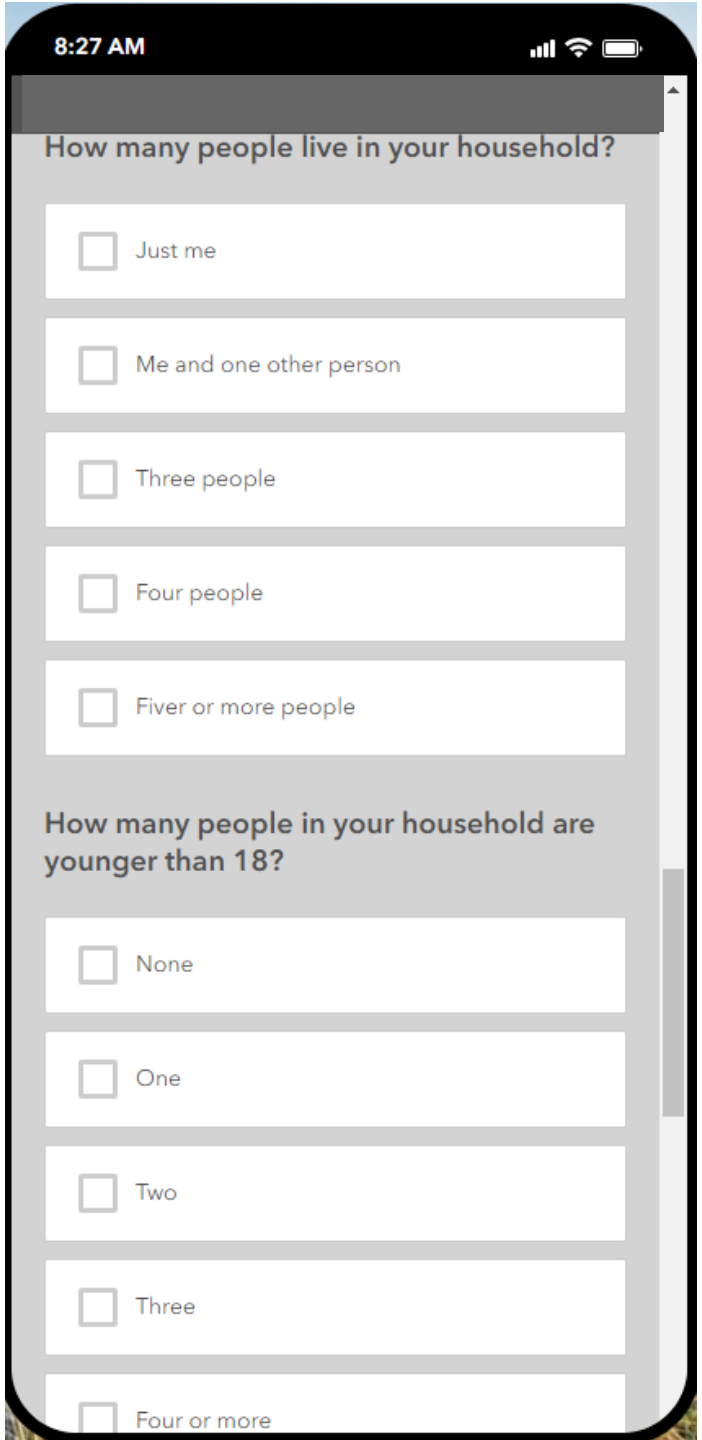


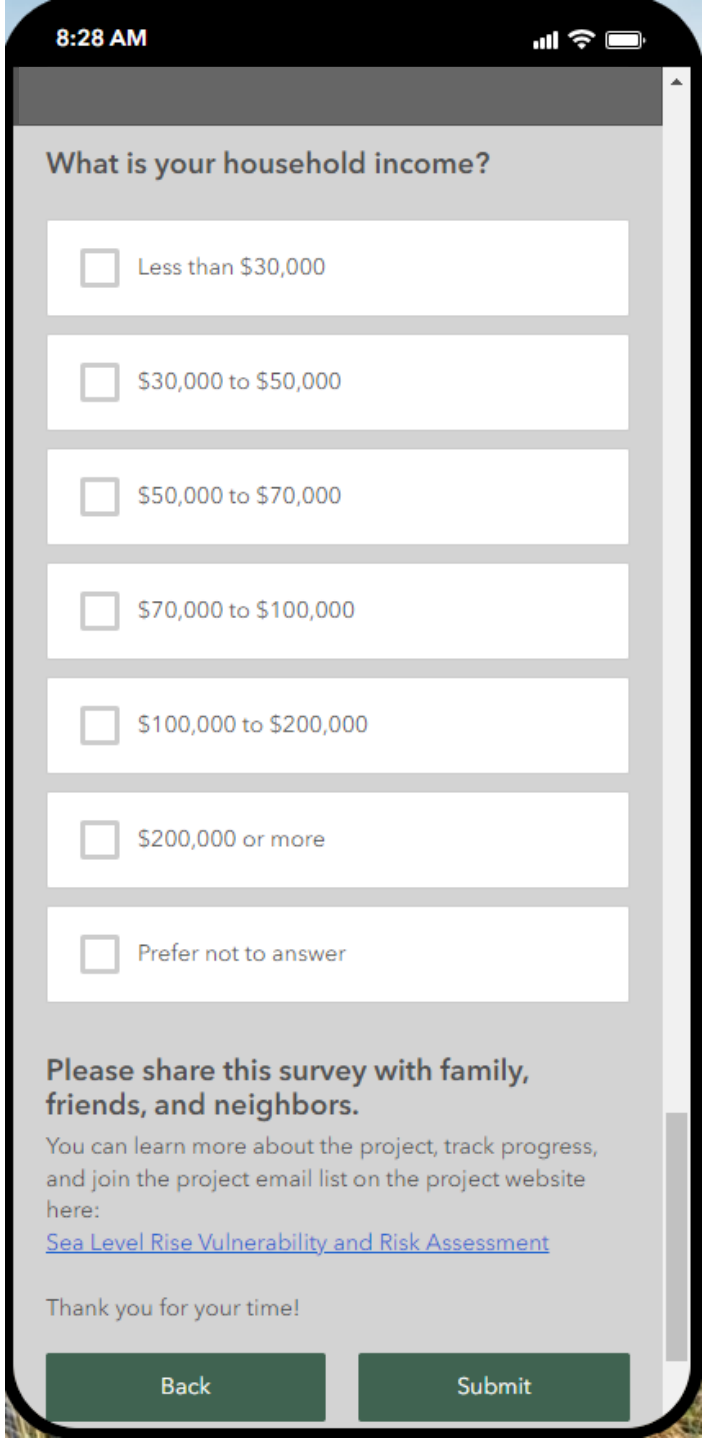
Public Survey #1



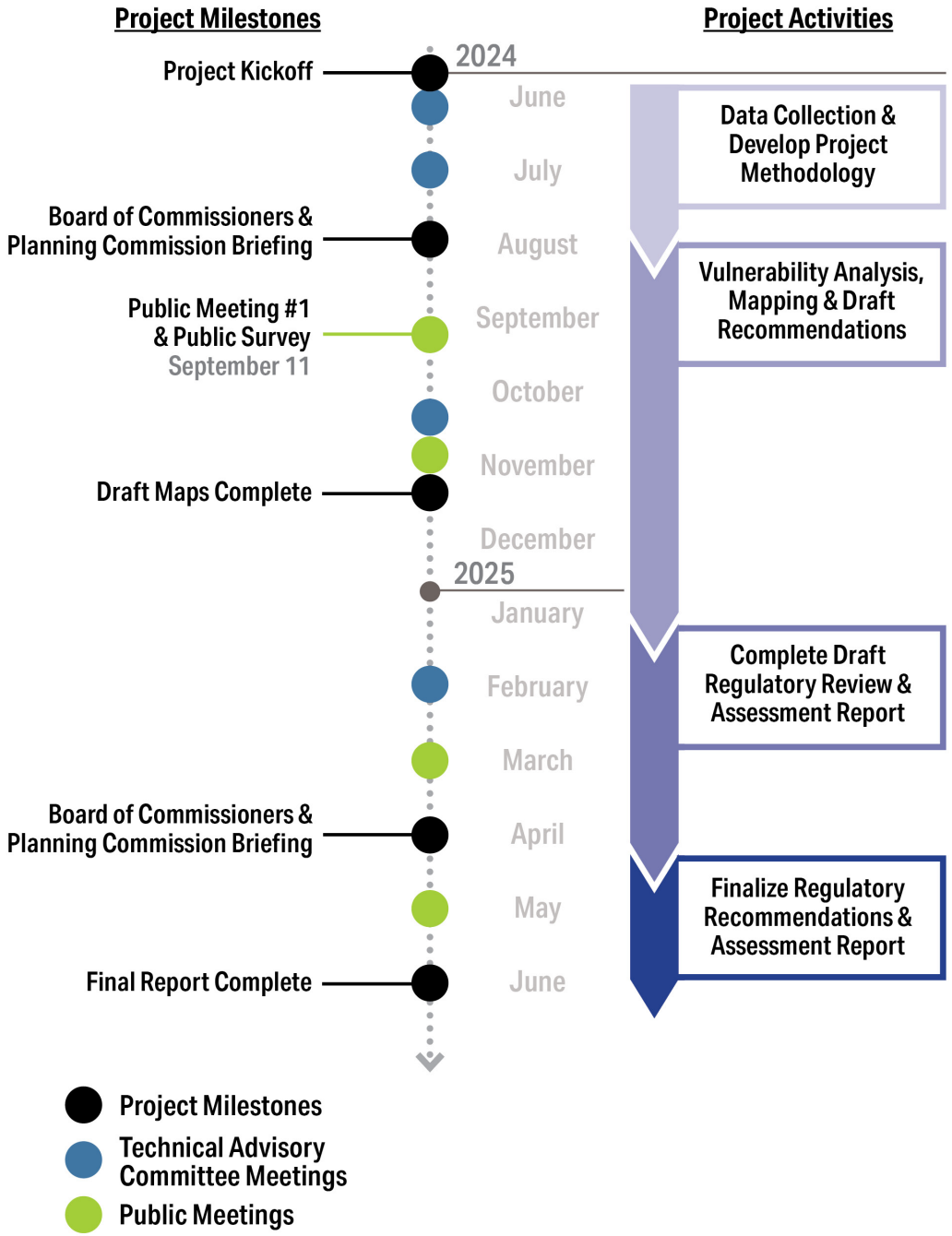


Public Survey #1





Next Steps


Project Milestones
Project Activities
2024
Project Kickoff
June
July
Board of Commissioners & Planning Commission Briefing
August
Public Meeting #1 & Public Survey September 11
September
October
November
Draft Maps Complete
December
2025
January
February
March
Board of Commissioners & Planning Commission Briefing
April
May
Final Report Complete
June
Data Collection & Develop Project Methodology
Vulnerability Analysis, Mapping & Draft Recommendations
Complete Draft Regulatory Review & Assessment Report
Finalize Regulatory Recommendations & Assessment Report
Project Milestones
Technical Advisory Committee Meetings
Public Meetings

Questions

Examples from other projects

	RCP	Dates	Certainties
KC CC Risk Assessment (2020)	4.5, 8.5	2030, 2050, 2100	**50**,90,95,**99**%
KC SW (Task 700) CC Assessment (2019)	4.5, 8.5	2030, 2100	90%
BI SLR Risk Assessment (2019)	8.5	2060, 2100, 2150	1% (Rapid Ice Melt), 50%
BI Adaptation Cert Tool (2023)	8.5	2100	50% (also 1%, 99%)
PGST Climate Proj, SLR, Ex Precip (2018)	4.5, 8.5	2050, 2100, 2150	50% (Central), 17-83% range (Likely), 10%, 1%, 0.1%
Seattle's mapping site (current)	8.5	2050, 2100	50%, also uses a range to estimate then map 1ft intervals
Pacific County (2023)	8.5	2050, 2100	87%
Island County (2017)	8.4	2030, 2050, 2100	50%, 25%, 5%, 1%